THE REPORT

Papua New Guinea 2015

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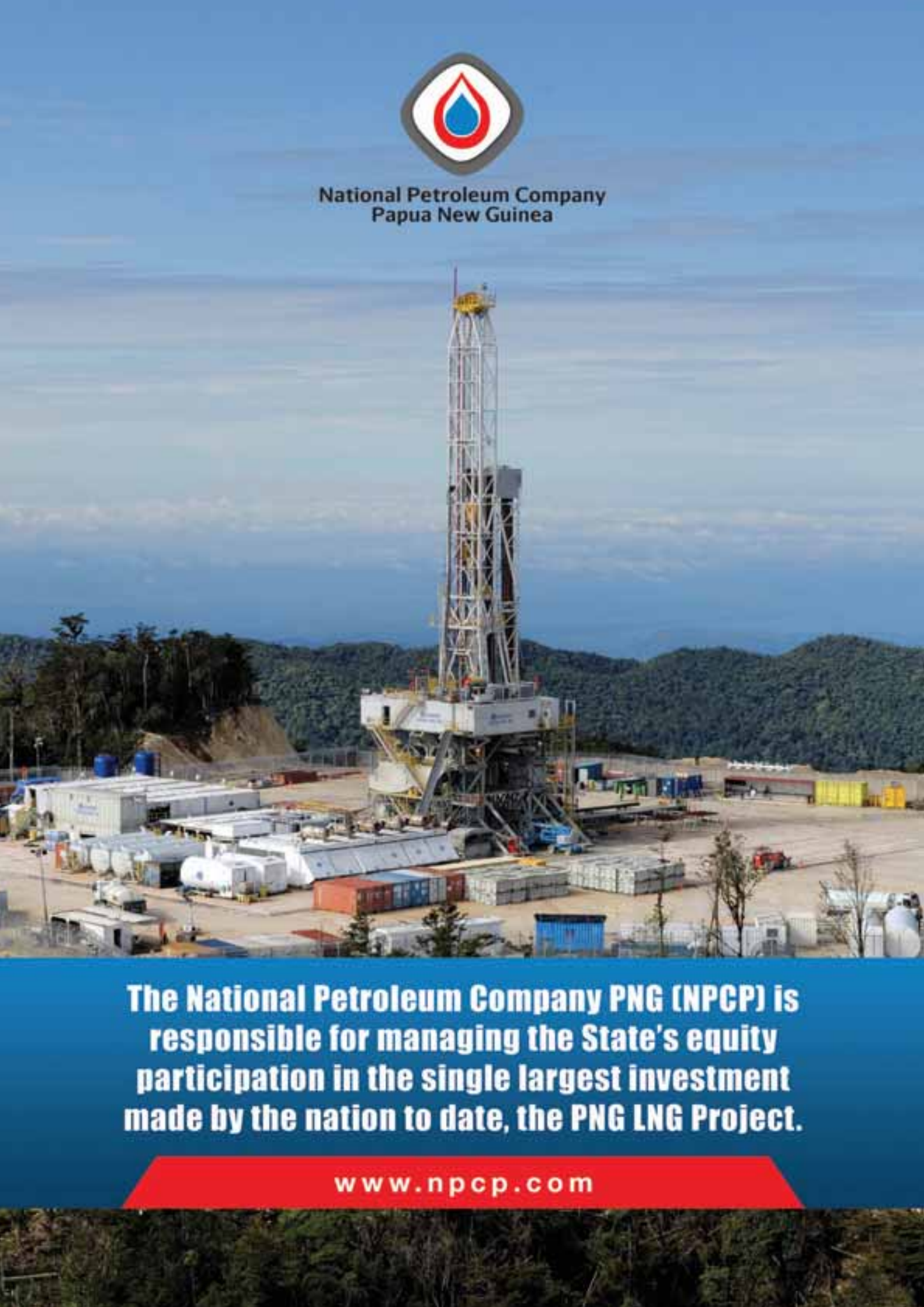
National Petroleum Company
Papua New Guinea
The National Petroleum Company PNG (NPCP) is responsible for managing the State's equity participation in the single largest investment made by the nation to date, the PNG LNG Project.
www.npcp.com

Many variables

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With the ramping up of the PNG LNG project, the contribution of the resources sector will rise from 12% to 22% of GDP over the span of a year. Falling LNG prices, however, will affect returns in the near term. PNG is a resources-dependent economy and is set to become more so over time, but the development of other sectors is also key. The non-resources sector is expected to grow by 4% in both 2015 and 2016.

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Weathering the storm

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Long a mainstay of the economy, the mining sector has not been immune to global economic turbulence, but while revenues from new liquefied natural gas shipments may not be as much as initially hoped, they should somewhat offset declines in mineral exports that have hit copper producers particularly hard.

Navigating their way

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With high mountains, dense tropical rainforests and around 800 islands, PNG has some of the world's most difficult terrain to traverse. Expanding the transport network will do much to facilitate development and is high on the government's list of priorities. New plans are being rolled out, with some of the state's hydrocarbons revenues helping to fund a major infrastructure boost.

A new direction

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Though the construction sector contracted in 2014 after a four-year boom from the PNG LNG project, growth is expected to pick up again in 2015, while real estate prices look likely to maintain their upward trajectory. With new revenues to support the government's infrastructure investment programme, roads, ports and airports are all set for upgrades.

On the upswing

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Greater government funding for agricultural development is set to improve competitiveness, with growth projections of 3.6% in 2015. Alongside this, a revival of cocoa prices has helped local growers to increase exports following the devastating effects of the cocoa pod borer. Moreover, efforts are under way to improve the management of fisheries, thereby ensuring more sustainable stocks.

A whole new world

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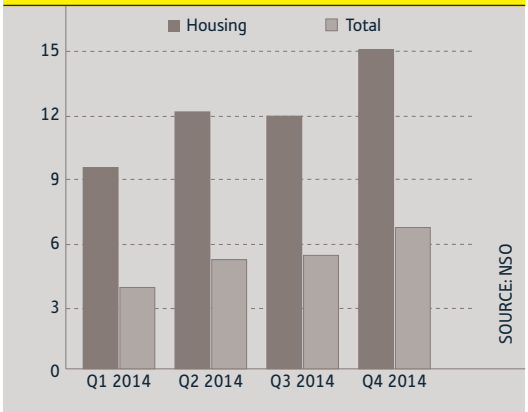
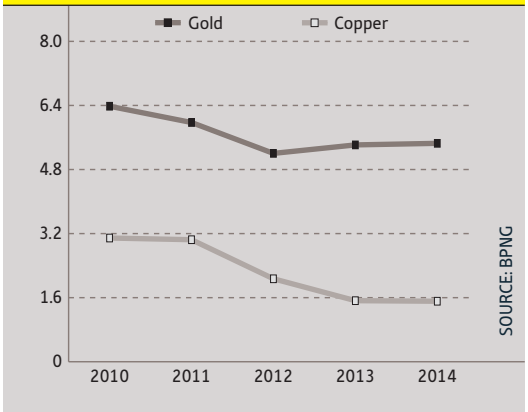
Investment in infrastructure ahead of the Pacific Games and APEC summit is helping to diversify the sector beyond business tourism. Though not yet a major leisure destination, natural beauty and cultural attractions give PNG considerable potential. It is also likely to benefit from an uptick in cruise tourism.

Papua New Guinea in figures

Year-on-year inflation, 2014 (%)



Mineral exports, 2010-14 (PGK bn)

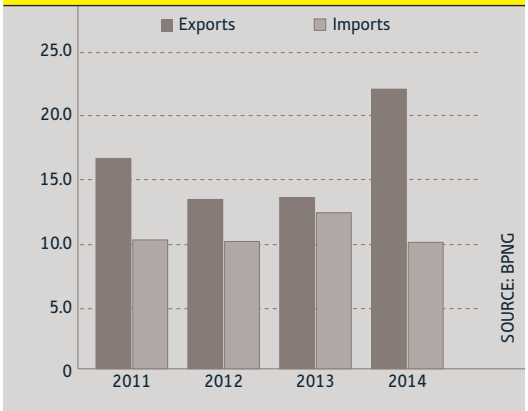


Budget allocations by project, 2015 (PGK m)

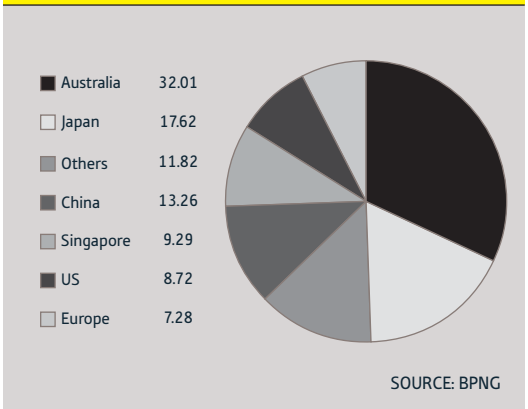
Road transport	Allocation
National highways	238.9
Highland highways	150
City roads	293
Bridges & improved rural access	57.2
Air transport	
Civil Aviation Dev. Improvement Programme	121
Port Moresby International Terminal	30
Maritime transport	
Lae Port development	23.6
Maritime waterways safety project	27.2

SOURCE: Deloitte

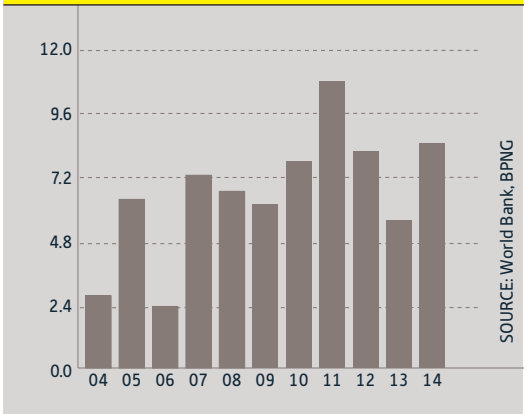
Imports & exports by value, 2011-14 (PGK bn)



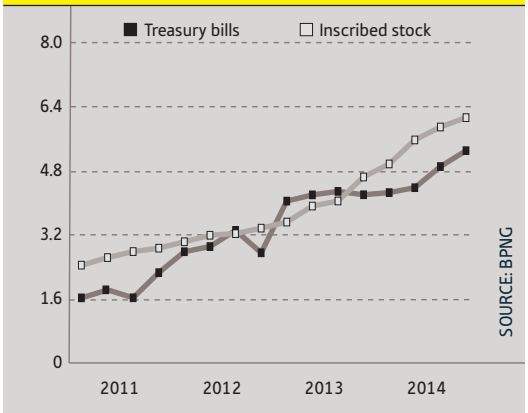
Share of total trade by value, 2014 (%)



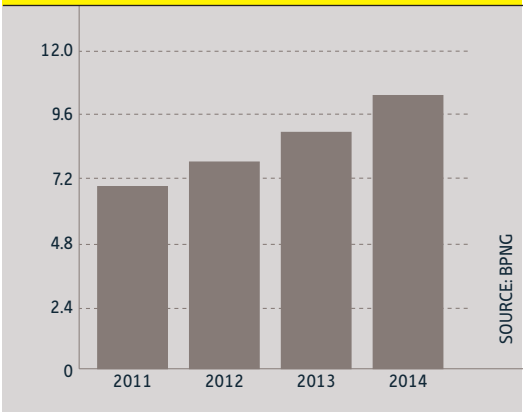
GDP growth, 2004-14 (%)



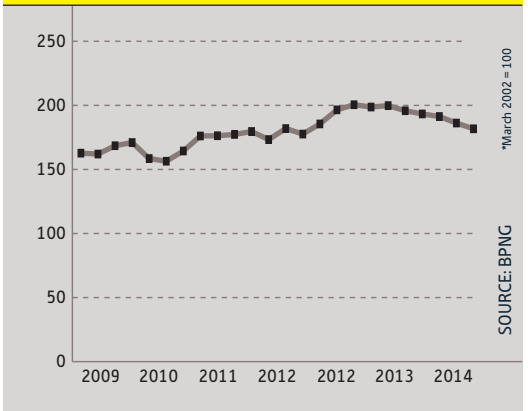
Public debt by source, 2011-14 (PGK bn)



Lending by commercial banks, 2011-14 (PGK bn)



Manufacturing employment index, 2009-14*

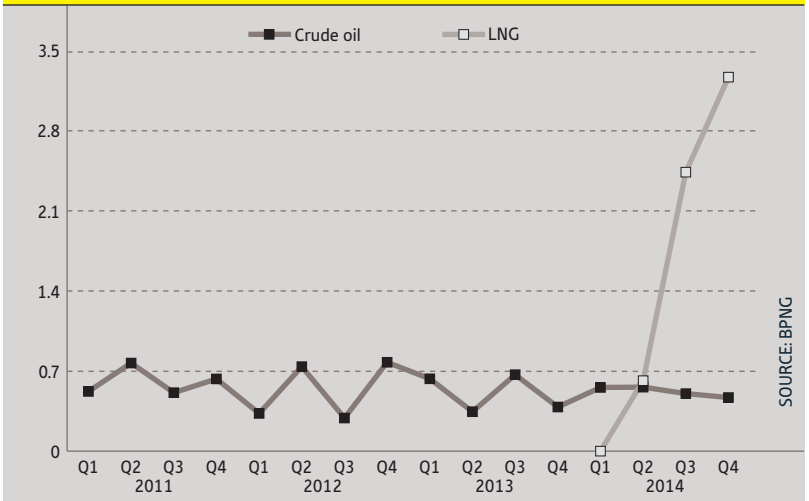


Key economic indicators, 2013-16

	2013	2014	2015	2016
GDP, current prices (PGK bn)	34.60	39.80	51.79	55.34
GDP per capita, current prices (PGK)	4709.28	5284.98	6709.74	6995.13
Total investment (% GDP)	24.46	21.27	7.04	7.01
Inflation, avg consumer prices (% change)	4.96	5.31	4.80	5.00
Vol. of imports of goods & services (% change)	-21.85	-16.04	6.28	2.55
Vol. of exports of goods & services (% change)	-0.16	0.66	59.09	-1.74
Population (m)	7.35	7.53	7.72	7.91
General gov't revenue (PGK bn)	9.74	12.51	13.07	13.62
General gov't revenue (% GDP)	28.15	31.44	25.23	24.60
Total gov't expenditure (PGK bn)	12.50	14.94	15.67	15.67
Total gov't expenditure (% GDP)	36.13	37.55	30.25	28.32
Gov't net lending/borrowing (PGK bn)	-2.76	-2.43	-2.60	-2.06
Gov't net lending/borrowing (% GDP)	-7.98	-6.10	-5.02	-3.72
Gov't gross debt (PGK bn)	11.77	14.17	16.66	18.46
Gov't gross debt (% GDP)	34.01	35.60	32.17	33.36

SOURCE: IMF

Hydrocarbons exports, 2011-14 (PGK bn)



Agricultural exports, 2005-14 (PGK m)

Period	Cocoa	Coffee	Tea	Copra	Copra oil	Palm oil	Rubber
2005	198.7	471	20.2	17.3	93.7	391.4	18
2006	204.4	337	21.2	8.3	60.4	430.1	23.8
2007	276.5	408.4	20	10.3	121.9	672.2	22.9
2008	345.6	520.2	18.9	45.1	202.7	1011.9	32.6
2009	337.3	460.3	18.4	12.4	87.9	714.3	26
2010	347.6	521	18.4	21.9	130.2	1024.7	32.4
2011	320.3	927.4	14.2	70.8	173.9	1477.4	40.9
2012	182.6	478.5	11.7	33.1	56.1	1009.9	33.1
2013	206	336.7	10.4	13.2	24.5	903.5	19.4
2014	213.3	450.3	8.4	63.7	19.9	1086.4	13.8

SOURCE: BPNG

Select ICT indicators, 2013

Fixed-telephone subscriptions per 100 inhabitants	1.9
Mobile-cellular subscriptions per 100 inhabitants	41
Fixed-broadband subscriptions per 100 inhabitants	0.2
Mobile-broadband subscriptions per 100 inhabitants	0
Households with a computer (%)	3.4
Households with internet access at home (%)	2.9
Individuals using the internet (%)	6.5

SOURCE: ITU

Country Profile

Natural resources a strength as LNG project kicks in

Government backs tourism development plans

Parliament of 111 members serving five-year terms

Rich biodiversity with rainforest covering 75% of land

The country is separated from Australia by the Torres Strait

Land of diversity

Cultural richness and forward thinking point to a bright future

Culturally one of the world's most diverse countries, Papua New Guinea is widely considered to be among the last frontiers for tourism and business opportunities. The island of New Guinea shelters 6-8% of global species, hosts one-sixth of known languages, and rivals Borneo, the Amazon and the Congo in terms of biodiversity, according to the Worldwide Wildlife Foundation (WWF). PNG comprises the eastern half of the largest tropical island on earth, along with hundreds of smaller adjacent islands, and its land area is less than 0.5% of the world's total.

The country is also an important exporter of natural resources (gold, copper and oil) and agricultural products. Cash crops include coffee, oil palm, cocoa, coconut, and to a lesser extent tea and rubber. PNG also became a major exporter of gas in 2014, significantly increasing the size and strength of its economy, as the $19bn PNG liquefied natural gas (LNG) project was completed ahead of schedule and within budget. The first shipment of PNG LNG gas was delivered to Japan in June 2014, and production is expected to exceed 9trn cu metres over its 30-year lifespan, and 6.9m tonnes per year.

TOURISM: PNG takes pride in being a final frontier of natural and cultural development, but the challenge ahead is to protect the country's heritage while becoming part of the global economy.

Increasing the economic value of tourism to the nation by doubling the number of tourists on holiday in PNG every year is seen as an opportunity to diversify the country's economic base.

The industry already provides 13,000 jobs, while tourists on holiday in PNG are expected to spend PGK727m ($275m) in 2015. In recognition of the potential of the industry for the Medium-Term Development Plan and the PNG Vision 2050, the government has introduced tax incentives, such as double deductions for costs associated with export market development, and a double deduction for tourism staff training costs. Investors in large-scale tourist accommodation facilities may also be eligible for a concessional tax rate of 20%.

GEOGRAPHY: PNG is located in the Asia-Pacific region, and is separated from Australia's Cape York Peninsula by the 160-km-wide Torres Strait. The Solomon Sea is to the east and the Coral Sea stretches to the south and south-east. The country has a surface area of 462,840 sq km, a coastline of 5152 sq km sheltered by 40,000 sq km of coral reefs, and an 820-km land border with the Indonesian province of West Papua, a former Dutch colony. Indonesia has governed the western half of the island since 1962.

Whilst the eastern half of the island of New Guinea is the country's mainland, PNG also governs 600 smaller islets and archipelagos off its coast, as well as the islands of New Britain, New Ireland and the Autonomous Region of Bougainville (ARB). The country is quartered into four regions, the Highlands, Momase, Southern and New Guinea Islands.

The capital, Port Moresby, is located on the south-eastern coast of the mainland, and was named after Admiral Sir Fairfax Moresby by his son, Captain John Moresby, in 1873. According to the National Statistics Office (NSO), as of 2011 Port Moresby was home to 364,125 people, although estimates reach as high as 633,881 if city settlements and the National Capital District (NCD) are included.

The country's population is largely rural, though other main towns include Lae, which has a population of around 200,000, and Mount Hagen, with 40,000. The Highlands region in the north is made up of the provinces of Enga, Simbu, Hela, Jiwaka and the Southern, Western and Eastern Highlands.

TOPOGRAPHY: PNG's diverse interior consists of spectacular highland valleys, grasslands, vast expanses of rainforest, ancient swamps and mangroves. Primary rainforest covers around 75% of the country. The mainland's backbone consists of undulating mountain ranges and grassy lowlands that rise to Mount Wilhelm, the highest summit. Crisscrossing

the country's surface, acting as a lifeline in terms of sustenance and access, are a collection of waterways, the largest of which are the Sepik, Purari, Markham, Morobe, Strickland, Kikori and Fly Rivers.

BIODIVERSITY: Traversing New Guinea's tropical topography are 4.5% of the world's known land mammals. New Guinea is also home to more than 800 species of birds and 25,000-30,000 vascular plants.

Between 1998 and 2008 at least 1060 new species were discovered in New Guinea, including 218 plants, 580 invertebrates, 71 fishes, 132 amphibians, 43 reptiles, two birds and 12 mammals, according to the WWF. PNG is also associated with birds of paradise, harbouring 38 of the world's 42 known species, earning a place on the nation's flag.

PNG is also home to the world's largest species of butterfly, the Queen Alexandra Birdwing, which was first discovered in 1906 and is found in the coastal plains of Oro Province. The world's largest species of tree frog, pigeon and orchid plant are also found in PNG, as are the planet's only poisonous birds and 12 of the 14 known species of tree kangaroos.

CLIMATE: Rainfall grades decline from the extreme north to the country's south, with the highest average rainfall of over 7000 mm per annum recorded in Tabubil, which borders Indonesia. An average of 1179 mm of rains falls on Port Moresby every year. Temperature and rainfall are subject to the Inter-Tropical Convergence Zone, the South Pacific Convergence Zone and the West Pacific Monsoon.

Given its close proximity to the equator, temperatures in Port Moresby do not vary substantially. Daily average lows remain at a steady 23-24°C, while daily average highs vary between 28°C in July and 32°C in December and January. Despite a slight respite that occurs in July and August, humidity levels in the capital are high for most of the year.

The 12th-most disaster-prone country in the world, PNG is located in the Pacific Ring of Fire. It is exposed to various natural risks, including earthquakes, tsunamis, tropical cyclones and volcanoes, and systemic weather risks, such as flooding.

PNG currently has 14 active and 22 dormant volcanoes. According to the Humanitarian Contingency Plan, all of the dormant and 10 of the active volcanoes are located in the Bismarck Volcanic Arc, in the south-west Pacific Ocean.

Between 1901 and 2000 the country suffered three droughts, 18 earthquakes and 10 volcanic eruptions, according to the Asian Disaster Reduction Centre, and in May 2015 an earthquake measuring 7.2 magnitude on the Richter Scale struck 150 km south-west of the town of Panguna on Bougainville Island, according to the Geophysical Observatory in Port Moresby.

POPULATION: The indigenous population is primarily of Melanesian ancestry, emphasises kinship and extended family bonds, and has a strong attachment to communally held land.

According to the NSO's 2011 census, PNG's population was 7.28m. Males outnumbered females at 3.7m and 3.4m, respectively. With an annual population growth rate of 3.2% from 2000 to 2011, females could expect to outlive males between the years 2005 and 2010, with an average life expectancy of 63.2 and 58.5 years, respectively, according to the UN. The populace is fairly young, with a median age of just under 22 and an estimated 40% of the population under 15 years of age.

PNG is home to over 800 indigenous languages but has only three official languages

Some 43% of the population inhabits the Highlands region, followed by 25% in Mamose, 18% in the southern provinces and the remaining 14% on the islands. Around 88% of the population lives in rural areas and primarily practises subsistence agriculture. Sweet potato, cassava, taro, bananas, pork, fowl and fish are the dietary staples. Seafood also represents a large part of the diet in the country's coastal regions.

Much of the hinterland remains remote, and the country's topography means that there are pockets of the population that live in complete isolation, operating a non-monetised economy. The minister of national planning, Charles Abel, recently said that the population could actually be as high as 7.8m, and that the government has launched a strategy for responsible sustainable development that carries at its core the issue of population growth.

According to Abel, the current estimated population growth rate of 3.5% a year is unsustainable, hindering the capacity of the government to deliver adequate services when it comes to education and health care, especially in rural areas.

LANGUAGES: PNG has over 800 indigenous languages, each spoken by communities of just a few hundred people. However, the country has only three official languages. English is the language of government and business, and is widely spoken in urban areas. Hiri Motu, a trade language that was spread from Port Moresby by the colonial constabulary, is spoken on the Papua side, while Melanesian Pidgin, or Tok Pisin, which borrows from a number of domestic vernaculars, serves as PNG's lingua franca.

PNG is rich in natural resources, and minerals and hydrocarbons dominate exports

RELIGION: Christianity arrived in PNG in the late 19th century. According to the 2000 census, some 97% of the population were nominally Christian. The country is highly diverse in terms of denominational adherence, and many Papua New Guineans combine indigenous religions with Christianity. Roman Catholicism – which 27% of the population follows – is the largest denomination, followed by Evangelical Lutheranism (20%), the United Church (12%) and Seventh-day Adventism (10%). PNG also has a small number of followers of indigenous belief systems. Islam, Baha'ism and other faiths make up the remaining 10%. The constitution guarantees freedom of religion and there is no state religion.

NATIONAL GOVERNMENT: PNG is a constitutional parliamentary democracy. A prime minister serves as the head of government, elected by the country's 109-member unicameral parliament, which is itself elected by popular vote every five years.

The British monarch, reflecting PNG's colonial past, remains the official head of state and is represented through a local governor elected by parliament. The role is largely ceremonial.

LOCAL GOVERNMENT: PNG is divided into 22 provinces, the ARB (made up of Bougainville Island and a number of other adjacent islands) and the NCD, where Port Moresby is located. Each province has an elected assembly and local government, headed by a provincial governor as well as a system of local governors. In addition, the country has around 160 elected councils at the local level of government.

COLONIAL TIES: Archaeological evidence suggests that the first hunter-gather ancestors of modern Papuans arrived 40,000 years ago from South-east Asia, with some of the earliest known agricultural activities dating back at least 10,000 years.

New Guinea was one of the final areas of the globe to be subjected to European colonisation. The first European to see New Guinea was probably the Portuguese navigator Antonio d'Arbreu in 1512, although unrecorded Indonesian and Chinese seafarers certainly arrived there first. Jorge de Menese, also Portuguese, landed on the Vogelkop Peninsula in 1526, dubbing one the islands *Ilhas dos Papuas*, from the Malay *Orang papuwah*, which roughly translates as "the land of the fuzzy people".

In 1660 the Dutch authorities in the East Indies declared sovereignty, though it was not until 1828 that a settlement was made on the Vogelkop, followed by a series of claims by the British. In 1884, the north-east of the island was annexed by Germany. To protect their interests in Australia, the British took formal possession of the south-east, leaving the Dutch with the western half of Papua.

In 1906 British New Guinea was renamed Papua and its administration was handed to an independent Australia. On August 4, 1914 Britain declared war on Germany, and by September 17 Eduard Haber, the governor of German New Guinea, agreed on terms of surrender to the Australian forces. In 1920 the former German territory was handed to Australia by the League of Nations.

During the Second World War, the territory faced Japanese invasion, and Australian and Papua New Guinean troops engaged in a gruelling campaign for the island from 1941 to 1945. Under Australian administration, its name was changed to Papua New Guinea in 1972 in preparation for independence, which it gained in 1975.

NATURAL RESOURCES: PNG is rich in natural resources. According to Peter Botten, managing director of Oil Search, since 1991 over $26bn has been invested in the oil and gas industry in PNG, with over $6bn being invested by the sector in 2012 alone. This figure did not take in consideration the completion of the PNG LNG project.

According to Botten, demand for gas in Asia will be supplied by existing projects until 2022, beyond which a shortfall will occur, most likely to be filled by additional projects in PNG like the forecast third LNG train by ExxonMobil and the development of the Elk-Antelope field by France's Total and its partners. The country has already started exporting gas from the LNG facility, and has completed the first year of full production. The LNG plant will allow PNG to begin exporting gas at a rate that is expected to increase national export revenues three-fold.

While minerals and hydrocarbons dominate exports, 85% of the country's population is employed in the agricultural sector, which accounts for around one-third of GDP. The primary agricultural exports are coffee, tea, cocoa, coconuts and palm oil.

PNG was the world's seventh-largest producer and third-largest exporter of palm oil in 2008, accounting for 1.3% of global exports. The country was the 17th-largest producer of coffee in 2010, accounting for 0.7% of global production.

In addition, according to figures from the National Fisheries Authority, total annual catches of tuna averaged around 482,000 tonnes between 2006 and 2010, representing some 11% of the global catch.

Only 15% of the population of 7.3m lives in urban areas

Papua's got a brand new bag

Gas project is set to dramatically boost GDP and the economy

Papua New Guinea has steep mountains, tropical rainforests and hidden valleys, and the political, social and economic terrain currently faced by the country is similarly demanding in its nature.

With over 800 indigenous languages and numerous ethnic groups, PNG is in many ways still being forged, 40 years after securing full independence from Australia. Of its population of approximately 7.3m, only 15% are in urban areas, with many living in regions that are difficult to access and used to a high degree of autonomy.

At the same time, economic activity has long been resource-based, leaving incomes often at the mercy of global commodity prices. Recently, a major bonanza in liquefied natural gas (LNG) has led to an economic surge, however, with hopes high that the rewards from this may give the country the necessary boost to develop its physical and social infrastructure, while also bringing in valuable associated industries and investors.

The LNG influx also poses challenges, however, in terms of ensuring the most productive distribution and use of financial resources. With expectations high that real change is on its way, the country's political, administrative, financial and technical leaders are now required to find a way through this new challenge, with many international actors watching closely to see how this young country negotiates its path toward development and economic growth.

ISLAND HISTORY: While archaeological evidence of human habitation goes back 60,000 years, the first written records of life in this eastern half of Papua – the world's second-largest island – go back to the first European contact in 1526. That was when Portuguese explorer Jorge de Menezes arrived, soon to be followed by Spanish navigators. Little more was recorded by Westerners, however, until the second half of the 19th century, when the Russian anthropologist and explorer Nicholai Miklukho-Maklai conducted a study of local tribes and indigenous groups.

In the 1880s all of that dramatically changed, when Papua became party to global competition between European empires. Germany began establishing a colony in the north, called German New Guinea, then Britain responded by annexing the south, creating British New Guinea in 1888. In 1906 British control passed to that of the newly created Commonwealth of Australia, with Australian troops going on to occupy German New Guinea during the First World War. In 1920 Australia was granted a mandate by the League of Nations to govern the whole area, which was renamed New Guinea, but which maintained separate institutions in the former German and British halves.

During the Second World War, Japan invaded, seizing much of the island. New Guinea became the scene of bitter fighting, as Australian and Allied troops battled the Japanese, regaining complete control only in the last months of the war.

In 1949, the Territory of PNG was formally created as a single entity out of the two parts of New Guinea, with a series of institutions all under an Australian-appointed administrator. A House of Assembly was set up in 1967, while in 1972, the name was changed to PNG. That year, elections for the House returned Michael Somare as chief minister, with the country then moving to self-governance in 1973 and full independence in 1975.

PRIME POSITION: In 1977 the first post-independence elections were held, confirming Somare as prime minister, a position he held until 1980, then again between 1982 and 1985, 2002 and 2010, and briefly again in early 2011. Other powerful political leaders of PNG since 1975 have included Julius Chan, prime minister from 1980-82, 1994-97 and again briefly later in 1997. Paias Wingti was prime minister from 1985-88 and 1992-94.

CONFLICT: These leaders were faced with strong challenges, including the Bougainville secessionist conflict, which ran from 1989 until a ceasefire in 1998

With over 800 indigenous languages and numerous ethnic groups, PNG is still being forged 40 years after gaining full independence from Australia.

In 1906 British control passed to that of the newly created Commonwealth of Australia, with Australian troops occupying German New Guinea during the First World War.

The National Executive Council is the country's supreme policy- and decision-making body

and a peace agreement in 2001. This conflict, under which the Bougainville Revolutionary Army (BRA) fought government troops, killed about 20,000 people, including the premier, Theodore Miriong, who was assassinated in 1996. Bougainville held its first autonomous elections in 2005, voting in Joseph Kabui, the former BRA leader, as local president. Kabui died in office in 2008.

In the first decade of the 21st century the government in Port Moresby continued to struggle with political instability, as violence accompanied both elections and everyday life. Australian police forces were deployed to the country in 2004 to combat violent crime but then withdrew. In 2011 a political crisis erupted, in which Peter O'Neill was elected prime minister by parliament, while Somare insisted he was still prime minister.

This stand-off was resolved in 2012, when fresh parliamentary elections were called. O'Neill emerged triumphant, and still holds the office today. The next general elections are scheduled for 2017.

EXECUTIVE POWERS: As a member of the Commonwealth, PNG's head of state is the British monarch, currently Queen Elizabeth II, who is represented in the country by the governor-general (GG). The GG is directly elected by PNG's parliament for a six-year term and may be re-elected only once, provided he or she secures a total of a two-thirds majority in parliament. The post is currently held by Michael Ogio, who became acting GG in 2010 when the position became vacant. Ogio was then elected in his own right in 2011.

The GG's powers are, like those of the monarch he or she represents, largely ceremonial, with executive power residing in the government, led by the prime minister. The prime minister is the leader of the party or coalition of parties within parliament that can command a majority, with the post currently held by O'Neill. The GG appoints the prime minister according to the will of parliament, and may also dismiss him or her in the same way. The prime minister appoints a Cabinet, known as the National Executive Council (NEC), consisting of the heads of ministries and other government agencies.

The governor-general's powers are largely ceremonial, with executive power residing with the government, led by the prime minister.

The Cabinet that was appointed following the last elections, in 2012, consists of 32 ministers, one of whom is also the deputy prime minister, and the prime minister himself. Since independence, all governments have been coalitions, including the current one, meaning that ministerial portfolios are held by a variety of different parties.

The NEC is the country's supreme policy- and decision-making body, with the power of appointment within it a key pillar of prime ministerial authority. The Cabinet passes bills to parliament for debate and voting, with parliament a unicameral body, meaning that once through parliament, bills are referred to the GG for signing and then become law.

A constitutional amendment passed after the 2012 elections gives protection to the government against votes of no-confidence by prohibiting such votes for the first 30 months of the new administration. The rule was introduced to prevent short-lived governments, with no-confidence votes historically frequent since independence.

PARLIAMENTARY DEMOCRACY: The National Parliament of PNG consists of 111 members, who serve five-year terms, elected by universal suffrage under a limited preferential voting system.

This group is divided into 89 members of parliament (MPs) elected from single-member constituencies and 22 elected from single-member provincial divisions. These divisions are the 18 provinces of PNG, plus the autonomous province of Bougainville and the Port Moresby National Capital District (NCD). Members who are elected as provincial division representatives also become governors of their provinces, unless they are appointed to the NEC, in which case one of the constituency MPs is elected to be the governor. The National Parliament is unicameral, meaning that bills which pass a vote in the house do not need referral to an upper chamber, but can go directly for signing into law.

The last parliamentary election was held from June 23-July 6, 2012, with the extended voting period a result of the extreme logistical difficulties of holding a ballot in such inaccessible geography – a factor which caused some controversy. The elections were overseen by the PNG Electoral Commission, which declared O'Neill's People's National Congress Party (PNCP) the largest grouping when all the votes were counted. The PNCP won 27 seats and 24.3% of the vote. The second-largest party was the Triumph Heritage Empowerment Party (THEP), with Don Polye as its parliamentary group leader. The THEP won 12 seats and 10.8% of the vote.

This meant that the remaining 70 seats were dispersed among 19 other parties and 16 independents. Five of these other parties secured more than 5% of the popular vote – the PNG Party (eight seats and 7.2% of the vote); the National Alliance Party (NAP,

seven seats and 6.3% of the vote); the United Resources Party (also seven seats and 6.3%); the People's Party (six seats and 5.4%); and the People's Progress Party (also six seats and 5.4% of the vote).

The PNCP was asked to form a government, and set about building a coalition. Since then, various parties have been present in the government, including the NAP and the THEP. The latter, however, was expelled in September 2014, with one of its leading members – the deputy prime minister, Leo Dion – resigning to join the PNCP; he remains in the Cabinet today. This illustrates the fluid nature of alliances and affiliations in PNG's politics. In early May 2015 Polye was the leader of the opposition, with the THEP in an opposition coalition with the Pangu Party (also known as Pangu Pati), which was founded by Somare and had once been the party of government, but which won only one seat in 2012.

Just before the election, Prime Minister O'Neill established an anti-corruption initiative, known as Taskforce Sweep, which subsequently made a number of high-profile arrests. The taskforce was then shut down by the prime minister in 2014, however, following allegations against himself and that it was being used for political ends.

LOCAL AUTHORITIES: PNG is currently divided into four regions, within which the 22 provinces, the Autonomous Province of Bougainville and the NCD reside. The regions have no political representation, while the provinces have an elected governor, who is also their representative in the National Parliament, and an elected Provincial Assembly. The provinces are divided into a total of 89 districts, with each of these split into local level government (LLG) areas, with a total of 325 of these, countrywide.

Provincial governments enjoy some tax-raising powers, while also having responsibilities in education and the local economy. In addition, they work with the LLGs on local transport, water supply, health, waste disposal and a range of other local government services. LLGs have the power to raise revenue, while also receiving funds from the national government. This was partly cut in 2014, however, with the LLG Service Improvement Programme being brought to an end, while the district-level Service Improvement Programme was ramped up.

The 2012 elections for provincial government and the LLGs were marked by disturbances, with several being later declared invalid. In May 2015 Bougainville held separate elections. The autonomous region has its own administration, the Autonomous Bougainville Government (ABG), which is headed by an elected president, with executive powers. The ABG's legislature is the House of Representatives, with 39 elected and two ex-officio members.

In the 2010 ABG elections, former governor John Momis was elected president, defeating the incumbent, James Tanis. Some 342 candidates are running in the 2015 elections, including eight who are running against the current president. As in the National Parliament, MPs experience a high churn rate in Bougainville, with approximately 75% of the incumbent representatives losing their seats in 2010.

Provincial governments have tax-raising powers, as well as responsibilities in the local economy

THIRD ESTATE: PNG's judicial system is headed by the Supreme Court, with the underlying law of the land consisting of the constitution, the customary law of PNG's inhabitants and English common law, as at the date of independence.

The Supreme Court acts as the appellate court for the National Court, PNG's superior trial court. Under this come district courts, under stipendiary magistrates, and under them village magistrates' courts. The Supreme Court has jurisdiction over the constitution and can give advisory opinions on the legality of legislation. The National Court hears cases connected to disputed elections.

Enforcing changes in the law in remote villages has also sometimes been challenging, particularly regarding local beliefs in sorcery, while laws designed to combat violence against women have also proven difficult to enforce. PNG remains a society highly troubled by crime.

OUTLOOK: The year ahead is likely to see PNG benefit from the further development of its hydrocarbons sector, fuelling the growth of its economy as a whole. The government is also expected to face continued political and legal challenges. Several court cases against leading political figures remain outstanding, with the impact of these on the functioning of the executive uncertain, and on the independence of the judiciary expected to be troubling.

Nonetheless, PNG has come far since gaining independence 40 years ago. The solid growth of recent years now has to be channelled in the most effective manner possible into social and economic development, from Port Moresby to the remotest villages. Achieving this task was never going to be a straightforward matter, with PNG's leaders confronted by challenges that few governments elsewhere in the world have to face. Yet progress is being made, and hopes are high for more in the year to come.

The Supreme Court acts as the appellate court for the National Court, PNG's superior trial court. Under its purview are district courts, and under them village magistrates' courts.

Prime Minister Peter O'Neill

A defining year

OBG talks to Prime Minister Peter O'Neill

In 2015 Papua New Guinea will celebrate 40 years of independence. How has the country changed during this period of time? Is it better off?

O'NEILL: Forty years is a relatively short period of time for any nation to assess its own achievements, but I think that PNG has come a long way. Let us not forget that up until the 1930s, the majority of our people had no contact with the outside world. From being a very traditional society with tribal obligations, customs and practices, we were rapidly catapulted into modernity.

Today PNG is emerging as a nation with a sense of purpose and direction, and our citizens are experiencing a renewed hope for the future, perhaps for the first time since independence. Papua New Guineans are in fact fully a part of the global community, and their desires are the same as anybody else's in the world. This puts additional pressure on our administration to deliver on these expectations, but we are confident that we are moving in the right direction. Despite our cultural differences, coming together as a nation has been our prerogative. Introducing universal education and health care, for example, sends a clear message about the government's commitment to strengthening the physical and moral foundations of our country, as does rebuilding some of the infrastructures that have been in decline for so many years now.

PNG expects to reach double-digit GDP growth in 2015, but may not meet its millennium development goals. Does this reflect an unbalanced economy?

O'NEILL: We often talked of 2015 as a defining year for PNG, despite some strong headwinds from the global economy, as the revenues from the liquefied natural gas (LNG) project start trickling into the system. We will have the chance to address some of the most pressing issues for our socio-economic development, including better distribution of wealth.

In the past we have missed out on these opportunities, mainly because of mismanagement, but if we concentrate on core policy areas such as free education and universal health care; stronger law and order; and better infrastructure, we have a good chance of reaching some of these millennium development goals, and perhaps even of exceeding them.

Having said that, and I have been very clear with the UN on this point, we will need at least five or six years to achieve these goals, as the country is playing catch-up because of the mismanagements of the past. It is not about avoiding these issues, but being realistic on what we can deliver at the moment.

With its sheer size and abundance of natural resources, do you think PNG could play a more prominent role within the region?

O'NEILL: Our development agenda is very much linked to the Asia-Pacific region, and when you look at some of the countries around us, with populations that often do not reach 10,000 people, it seems natural that we take a more prominent role, especially within Melanesia. By providing energy and food security, PNG can turn into the engine of regional economic growth and we do feel this sense of responsibility.

For this reason we continue to assist the development agenda of some of the smaller island nations and support democratic transitions in others, as was the case in Fiji, but also in Vanuatu and the Solomon Islands. In this time of great economic uncertainty we must pull together as a regional block if we want to stay competitive globally, and the institutions expanding their reach within the region are a testament to that. Energy prices have declined significantly in recent months and we are feeling some pain, but we remain fully committed to our obligations as a regional leader.

To what extent has the success of the LNG project – marking its first full year in 2015 – spearheaded new developments within the oil and gas industry?

O'NEILL: The commissioning of the first LNG plant has been an outstanding success for PNG, no question about it, especially considering the difficult terrain and

landownership issues that had to be solved along the way. The project was delivered ahead of time and pretty much on budget and it conveys a message that PNG is capable of handling a world-class investment, perhaps with even greater advantages than other markets.

Following that early success there are now some very exciting new developments, like the Total-InterOil joint venture to develop the Elk-Antelope gas field. This project is even larger on paper than the first PNG LNG project and could provide the basis for a thriving petrochemical industry in the future as the country diversifies its economic base in the attempt to create new jobs for Papua New Guineans. We must ensure that the development of our resources is followed by value-added downstream processing.

Our priority at the moment is to support the continuing exploration and drilling programme of ExxonMobil and its partners, which should soon provide enough gas for an additional third train to be built within existing facilities. We have always stated that domestic market obligation is a priority for our country and while ExxonMobil has already started providing enough gas for power generation, we would like to extend the agreement to any future trains being built in PNG.

Do you expect the mining industry to pick up again in the near future, considering that it still provides the country's largest export earnings?

O'NEILL: It is true that mining has seen better days in PNG, but there have been a lot of activities behind the scenes that have not received the media attention they deserve. For example, we have been working fairly closely with the developers of some of the country's prospects, like those in Wafi-Golpu and the Frieda River, and we are encouraged by their advanced structural development programme. The extension of the Ok Tedi mine's life and the discovery of grade one ore there is also good news, considering the impact that the mine continues to have on the Western Province. At the moment we are in the process of consolidating all of our mining interests into a single structure called Kumul Mining, and the aim of the government is to build a world-class team to manage these strategic assets, without falling into the patterns of the inefficient government organisations we have seen in the past.

Productivity remains a real challenge for PNG and that applies to the mining industry as well. The idea is to maximise the return of the shareholders and we are learning from countries like Singapore and Malaysia, who were able to build multibillion-dollar organisations out of nothing. We have all the resources to achieve that: the only thing we are lacking is good management. I think the industry has a bright future and the time to invest is now, precisely because we are at the lower end of commodity prices. Going back into construction when the industry is picking up again would be a serious mistake, as far as I am concerned.

Should the market expect a significant privatisation effort from the government then, as it recognises the limited reach of state-owned companies?

O'NEILL: We are currently working on a structured privatisation of state-owned assets and the first company on the list will be Air Niugini, one of the few airlines in the world that has remained profitable despite a very depressed aviation industry globally. The company's safety record is impeccable and should provide a good platform when an initial public offering is launched before the end of 2015. There is enough liquidity and good mobilisation of savings in PNG to attract a significant amount of domestic capital, but we can also look at attracting foreign investors further down the line.

An efficient airline also bodes well for the growth of the domestic tourism industry. In looking to attract as many as 200,000 touristic visitors within the next two years, having a regional airline that can compete among its peers would be a great asset. But Air Niugini is only the first of a series of state-owned enterprises that will be privatised in the near future. This government is seriously determined to reform PNG's public service.

Trade & Investment

Reorganisation to provide private sector opportunities

Chinese and Japanese involvement on the rise

Investor concerns over protectionism rekindled

Abundant natural resources a key attraction

Bureaucratic bottlenecks and delays remain an issue

PNG had a trade surplus of $647m in the third quarter of 2014

Building momentum

There is cause for optimism despite persistent bottlenecks

The trade and current account balances have been helped by imports for the construction phase of the PNG LNG project ending and by the slowing of the economy.

Despite Papua New Guinea's low ranking in the World Bank's "Doing Business" survey, it regularly draws foreign capital in the billion-dollar-a-year range. The country is attractive for a number of reasons. It remains one of the most liberal economies in the developing world, offering national treatment and few restrictions on investment. It is also blessed with abundant natural resources. The country has sizeable deposits of copper, oil, gas and silver, as well as significant tracts of saleable lumber. On the trade side, it is an open market with low tariffs.

Overall, PNG generates good numbers in terms of trade and investment. Despite falling close to a trade deficit in 2013, after more than a decade with a surplus, the situation has rebounded since, with the trade surplus rising from a low of PGK101m ($38m) in the second quarter of 2013 to PGK1.71bn ($647m) in the third quarter of 2014, its highest level since 2011. The country still has a deficit in services, running at over PGK7bn ($2.65bn) a year, but even that started to moderate towards the end of 2014, coming in at PGK768m ($291m) in the third quarter, compared to PGK2bn ($757m) a year earlier.

BALANCING ACT: The trade and current account balances have been helped considerably by the end of imports for the construction phase of the PNG liquefied natural gas (LNG) project, and by the slowing of the economy. Food and live animal imports were down by 55% year-on-year through the third quarter of 2014, while fuel imports fell by 27% and the import of machinery was down by 51%.

In the export category, ground was lost in the minerals sub-category, where the total dropped by 18% between 2010 and 2013. Other sub-categories have remained stable, with agricultural exports rising to recent highs in the third quarter of 2014. Forest product exports remain strong as well.

PNG has bilateral investment treaties in force with Australia, China, Germany, Japan and the UK. It has also signed one with Malaysia, but that treaty is not yet in force.

OPEN & FREE: PNG is open to foreign investment and is fairly liberal compared with some regional neighbours and global peers. Freedom House rated it as "partly free", which is better than a number of wealthier and more developed countries (Thailand, for example, is in the "not free" category).

It also scores better in some sub-categories than other partly free countries nearby, such as Indonesia and Malaysia. It ranks fairly low on the Heritage Index of Economic Freedom, at 137th, but scored well in the sub-categories of trade freedom, monetary freedom and labour freedom.

In its "2013 Investment Climate Statement", the US State Department said, "The government of PNG welcomes foreign investment and the country has a liberal investment regime."

COURTS: PNG's legal system is based on British Common Law, and many of the structures that were in existence at the time of independence remain. It recognises the judgements of some foreign courts, including those of the US and the UK. It is also a signatory to various conventions and accepts practices related to international arbitration.

PNG has bilateral investment treaties (BITs) in force with Australia, China, Germany, Japan and the UK. It has also signed one with Malaysia, but that treaty is not yet in force. Significantly, it has neither a BIT nor a tax treaty with the US. Unlike other countries, such as Indonesia, Australia and Mongolia, PNG has shown no signs that it plans to disregard, selectively apply or abrogate its BITs.

PNG accepted the basic tenets of the Washington Consensus, and has been lowering tariffs for more than 15 years under its Tariff Reform Programme. It initially cut the intermediate rate from 30% to 15% between 1999 and 2006, and took the prohibitive rate from 55% to 40%. The intermediate rate was further reduced to 12.5%, and was scheduled to fall to 10% in 2015. Tariff reduction is a key policy initiative and was enshrined in PNG's Medium Term Development Strategy 2005-10.

RESTRICTIONS & LIMITATIONS: Despite the open environment, some restrictions do exist. For the

most part they are minimal or simply administrative. Several sectors and some small-scale business are limited to purely local participation. Only PNG citizens can process coffee, manage real estate, transport freight and rent out equipment.

Cultivating vegetables worth less than PGK50,000 ($18,900) a year, raising poultry of the same sales value, gathering wild forest material and hunting or collecting of insects, shells or feathers are also reserved for Papua New Guineans. A range of very small-scale retail is restricted, including selling from stalls, cars and markets, and the selling of handicrafts, carvings, pottery and paintings.

RED TAPE: The bottlenecks most relevant to international investors are bureaucratic. Under the Investment Promotion Act 1992, all foreign investors must receive a certificate from the Investment Promotion Authority (IPA). The foreign entity may locally incorporate and register as a subsidiary or register directly. IPA certification is supposed to take 35 days, but can take up to six months. For private companies, any change of control of more than 10% of the shares must be reported to the IPA, and any change in business activity must be reported.

The review is highly subjective, with the IPA judging whether the investment is good for the country. It looks at whether the proposed activity will create jobs and increase tax revenue, and considers the experience and history of the investor, the technology that will be transferred and the impact on the environment. The IPA does, however, assist foreign companies by providing free advisory services, and its aim is to encourage international participation.

Central bank approval is also required. The Bank of PNG is mainly concerned with making sure that the terms of financing from foreign partners and the cost of inputs from foreign suppliers are fair. When money is borrowed from overseas, the leverage of debt to equity should be kept within a 5:1 ratio.

The central bank also places restrictions on the transfer of funds out of the country. Outward remittances, other than those related to trade, of over PGK500,000 ($189,000) a year must be reported to the central bank, while any over PGK50,000 ($18,900) a year must be reported to the Internal Revenue Commission for a tax clearance.

The US State Department notes that while there are no restrictions on sourcing foreign currency, the bureaucratic obstacles involved can be material. Paperwork for tax clearances is extensive, processing can take weeks and the cost of conversion can be high. Since the central bank narrowed the trading spread in 2014, banks have been reporting a shortage of foreign currency.

BUSINESS ENVIRONMENT: The general business environment can be a major impediment to investment. In its "Doing Business" survey, the World Bank ranked PNG 133rd out of 189 countries in 2015.

It rates poorly in a number of areas that are of great importance to international investors. In terms of starting a business, it was ranked 130th. According to the World Bank, it takes 53 days to establish a company in the country, as opposed to 34.4 in the East Asia and Pacific region, and 9.2 in the OECD.

Banks have reported a shortage of foreign currency since 2014

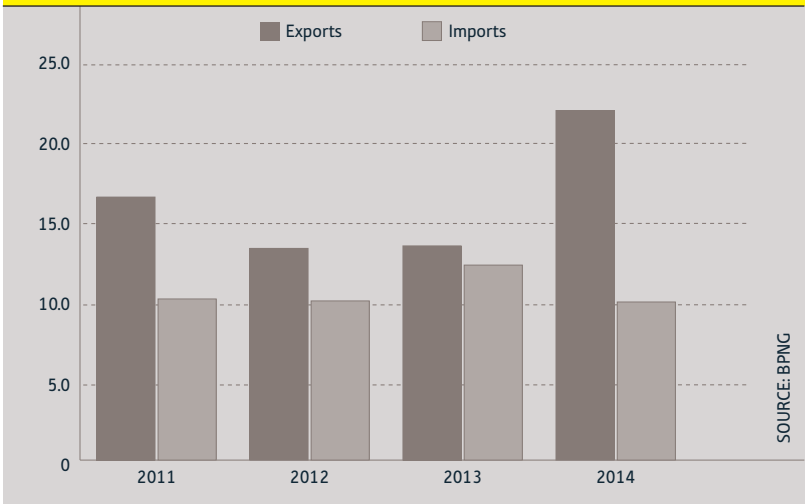
In the enforcing contracts category, it was 181st for two years running; the cost of enforcing a claim is on average 110% of the claim. In Transparency International's 2014 Corruption Perception Index, PNG was ranked 145th out of 175, after Laos, Kenya, Guinea, Ukraine and Uganda. Neighbouring Indonesia is 107th, while Australia is 11th.

ELECTRIC SHOCK: Some existing investors say that the cost and unreliability of basic services hinder investment and expansion. Power is expensive and inconsistent, with companies complaining that they face frequent blackouts and brownouts.

The 2013 price list from Power PNG indicates that the price per KWh for general supply customers was PGK0.987 ($0.37). While that is quite competitive for the Pacific region – the price of electricity in the Solomon Islands has been as high as $0.88/KWh – it is substantially higher than in other larger nations. Malaysian rates are no higher than $0.15/KWh, for

Outward remittances, other than those related to trade, of over $189,000 a year must be reported to the central bank, while any over $18,900 a year must be reported to the Internal Revenue Commission for tax clearance.

Imports & exports by value, 2011-14 (PGK bn)



A new online platform may expedite the processing of paperwork

The country remains favoured by its traditional investors such as Australia, but it is increasingly a target for new players, including China and Japan.

example. Investors – especially those in manufacturing – cite other high costs in the country, such as telecommunications and transportation, and say that the government lowered tariffs without making a corresponding investment in infrastructure.

Lack of security especially takes a toll on foreign investors. Because of theft and violence, they have to make significant investments to keep property and people safe, building fences, hiring guards and transporting workers to factories or offices on company-owned buses. While the issue of law and order has become a focus for the government, business leaders say that the situation on the ground indicates that crime remains very much a problem and an impediment to foreign investment.

LOOKING UP: Progress is being made in addressing some of the problem areas. The IPA has developed and introduced an online platform that may make the processing of investor paperwork faster and more efficient. The system allows for business and association name searches, applications for foreign enterprise certification, registration as an overseas company and the updating of records.

The IPA is hopeful that the online services will help PNG improve its ranking in the "Doing Business" survey. While the system was introduced in December 2013, its use was delayed due to the lack of necessary parliamentary approvals.

Despite the difficulties of investing, PNG is a favoured destination for international capital. Over time, investors have realised that it is one of the most promising destinations globally. It is resource rich yet at the same time an open democracy in a relatively stable region. For countries that are in need of resources but wary of the troubles in Asia, the Middle East and Africa, PNG is a good target.

CHINESE INVOLVEMENT: The country remains very much favoured by its traditional investors – such as Australia – but it is increasingly a target for new players. China, for example, is becoming a major participant. In 2012 the Export-Import Bank of China offered PNG PGK6bn ($2.27bn) of soft loans, and a total of PGK10bn ($3.78bn) has since been mentioned in the press. Much of the money is committed to the building of infrastructure.

Chinese enterprises are very active in a number of projects and sectors. China National Electric Equipment Corporation received an engineering, procurement and construction contract in 2008 worth $26m for a hydropower plant for PNG Power. China Harbour Engineering is building the Tide Terminal in Lae, while China Railway International and China Machinery Engineering have been contracted to build roads in the Highlands.

NICKEL & MINE: The most significant Chinese investment so far is Ramu Nickel. The $2.1bn project, which is located in Madang and includes a mine, a refinery and a pipeline, was started in 2008. It has been controversial since the beginning. In 2009, during construction of the project, at least four people were killed as Chinese workers and Papua New Guinean protesters fought. The mine was shut for three days in August 2014 after villagers attacked the site, and in December 2014 arrests were made in connection with damage at the site.

MCC Ramu – a subsidiary of a number of Chinese companies, including the Metallurgical Corporation of China – owns 85% of Ramu Nickel's shares. Mineral Resources Development Company, which represents the interests of both the state and the landowners, has a 6.44% stake. RNL, a subsidiary of

Highlands Pacific (a PNG-incorporated resources company), owns a further 8.56%. RNL was responsible for the initial exploration and feasibility work.

In addition, China has become a significant buyer of LNG and a major participant in all aspects of LNG delivery. China Petroleum & Chemical Corporation (Sinopec) is one of the four firms with long-term purchase contracts from the project. The ship *Papua*, custom-built by China Shipping Group, Sinopec and Mitsui OSK Lines specifically for PNG LNG, arrived in port in early 2015 to load its first supply. In total, Chinese interests will build four LNG carriers.

JAPAN: The Japanese are also becoming increasingly interested in the country. In terms of official assistance, the country has been financing a number of projects. The Japan International Cooperation Agency committed PGK26m ($9.8m) in 2013 to refurbishing the Madang Town Market. It has been engaged in technical cooperation to assist the National Capital District in improving waste collection, and that will run through 2017. A new project in 2015 involves assisting the Conservation and Environment Protection Authority in its efforts over the next five years. In addition, in early 2015 Japan offered the Pacific islands collectively a total of $450m in aid for assistance with environmental disasters, waste management, renewable energy and clean water.

Official contacts have been frequent in recent years. In May 2015, PNG's prime minister, Peter O'Neill, met with his Japanese counterpart, Shinzo Abe, in Tokyo. Among other things, they discussed direct flights between Japan and Rabaul, developments in fisheries and infrastructure investment. This meeting followed Abe's visit to PNG in July 2014, while a PNG investment summit was also held in Japan in 2014. However, Japan is playing catch up with other nations that are more active in the country.

PRIVATE PARTY: Private sector activity within PNG is considerable, and more companies are looking to invest and trade. Japan has two of the four major long-term purchase contracts, and was the recipient of the first exports from the PNG LNG project.

In 2012, Mitsubishi Corporation reached an agreement with Canada's Talisman Energy regarding nine of the latter's onshore natural gas licences in Western Province. The value of the transaction was around $240m, and will give the Japanese corporation an approximate 20% stake in the assets.

In 2013, Sojitz reached an agreement with PNG's government to conduct a feasibility study on a gas chemical manufacturing project that would utilise the country's natural gas supply.

According to reports in the local press, Japan's ambassador, Morio Matsumoto, said in early 2015 that a number of Japanese companies are interested in getting more involved in the petrochemicals sector in the country. These include Mitsubishi Corporation, Sojitz, Marubeni and Itochu.

In addition to China and Japan, other countries have been active, and their investments in PNG suggest significant optimism. In late 2014, Sime Darby, the world's largest producer of palm oil (both by market value and by land controlled), acquired London-listed New Britain Palm Oil (NBPOL) for $700m. NBPOL is the largest private employer in PNG, and has almost 30,000 ha of palm oil plantations. Analysts quoted in the media said that it was an interesting deal for the Malaysian firm because large land banks are currently difficult to find. The assets are also higher yielding on average than plantations in Malaysia.

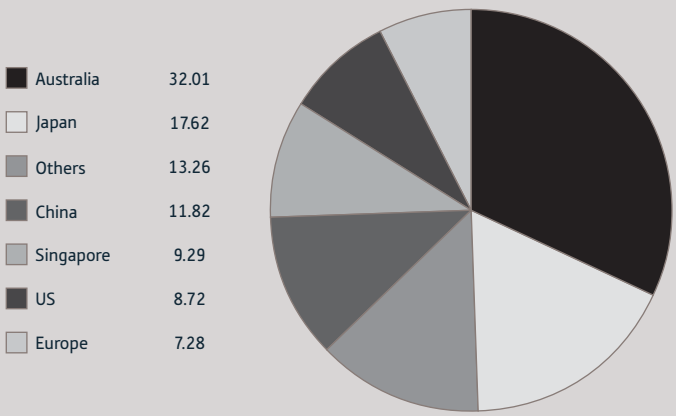
Private sector activity within PNG is considerable

FISHING FOR COMPLIMENTS: Tuna is another resource getting a lot of attention internationally. PNG controls 14% of the world's catch, and has an agreement with the EU that allows for duty free export of processed tuna to the bloc.

As a result, there is significant interest from foreign companies, and as of 2014 half of the canners in the country were foreign. Frabelle is Philippine, and South Seas Tuna Corporation is controlled by interests from Taiwan, the Netherlands and PNG. International Food Corporation is owned by Malaysian investors. Nambawan Seafoods, owned by investors from the Philippines and Taiwan, is set to open in late

PNG controls 14% of the world's tuna catch, and has an agreement with the EU that allows for duty-free export of processed tuna to the bloc.

Share of total trade by value, 2014 (%)



SOURCE: BPNG

The PNG LNG project was completed on time, and the first shipment was delivered in May 2014

2015. Majestic Seafood opened in late 2013. It is owned by Thai and Philippine investors. Other international players coming into the market include South Korea's Dong Wong and China's Haili Sheng.

US investors, who have been quiet in PNG outside of ExxonMobil's investment in PNG LNG, are also becoming more active in the country and showing interest in increasing exposure. Significantly, General Electric said that it would be opening an office in Port Moresby. While the diversified conglomerate has been doing business in PNG since 1952, it wants to increase its presence. Its executives have mentioned working with international lenders to help PNG improve its power generation capacity.

AFTER PNG LNG: Optimism about foreign investment has increased since the completion of PNG LNG. The project got started in 2008, with actual work beginning in 2010 (though discussions had started as early as 2004). It did face a good deal of trouble along the away. The rise in the kina resulted in an increase of the total budget by 20% to $19bn. Landowner disputes and workers disputes plagued the project.

However, despite the difficulties, PNG LNG was completed on time and production started in April 2014, with the first shipment delivered in May. ExxonMobil is now seeking to expand its project with the development of P'nyang field. The fact that such a large and challenging project could get finished, and within the original time frame, suggests that PNG might be an appropriate place for international investors to make significant commitments.

The experience of ExxonMobil with PNG LNG greatly contrasts with the experiences of others in countries such as Mongolia, where delays and disputes have all but stopped major projects in the extractive sector. "It was positive because a major was able to complete a project in PNG," said Philippe Blanchard, the managing director of Total E&P PNG. "We are attracted to PNG because of the potential, and we are willing to enter PNG for the long term."

With a large resource project completed and another going ahead, PNG has set the right tone and has a good pipeline of activity. More major projects could follow, and smaller investors and non-resources investors are starting to see the nation's potential.

In March 2015, France's Total gained approval to be the operator of PNG's Elk-Antelope field. Oil Search disputed whether its partner in the project, InterOil, was allowed to invite Total in as an investor.

In February 2015, the International Court of Arbitration of the International Chamber of Commerce ruled that Total's purchase of a 40.1% participation interest in the petroleum retention licence 15 permit (which covers the area in question) was legal and could not be blocked by Oil Search. After the ruling, Oil Search said it would not appeal and would work with Total towards development of the field.

Total said that while PNG LNG set a helpful precedent – and while the mood is good and goodwill exists between international investors and their local counterparts – it must proceed with care, and ensure that what it does in the country makes sense in the long term. In particular, it said that with the fall in the prices of natural resources globally, the oil major will have to run the project on a tight budget, and this may mean compromises on what it can afford to do and pay. In light of the changes in circumstances, this project is likely to progress somewhat differently to the last project by a major.

"We know that there are huge expectations," said Blanchard. "We have to explain that we cannot do everything. And we don't want to do things that are not sustainable or things that are one shot; we want to make sure that what we do is useful."

OUTLOOK: PNG is in a good position when it comes to trade and investment. With a large resource project completed and another going ahead, it has set the right tone and has a good pipeline of activity. More major projects could follow, and importantly smaller investors and non-resources investors are starting to see the potential of the nation. If the country can begin to address its "Doing Business" challenges, and not allow its legitimate concern for small local businesses to degenerate into blanket nationalism, investment should carry on growing and the overall numbers should continue to improve.

PNG LNG's completion boosted optimism over foreign investment

Xi Jinping, President of China

Over the rainbow

Xi Jinping, President of China, on the Asia-Pacific's ties with China

The Chinese economy has remained consistently strong as we focus on reforms and liberalisation, and we are confident of maintaining this momentum going forward.

China and the Asia-Pacific share a symbiotic relationship. Both parties rely on one another for new job prospects and economic growth. We hope to establish more links with the Asia-Pacific in order to build a better and more prosperous future.

The global economic recovery will be filled with difficulties and setbacks. In the Asia-Pacific region it is no different, but let us not forget that we are on a good streak, and I believe that we will continue this trend for the foreseeable future. Advanced and developing economies alike are seeking new channels for growth, which can only come from reform and innovation.

Growth rates have been steady across the board, which gives me a lot of confidence in the future of the Chinese economy. We are committed to structural reforms in order to sustain, and even increase, growth over the long term. We are not short-sighted insofar that we might forego long-term benefits in exchange for short-term satisfaction. If structural reforms are necessary for long-term growth, then we will commit to these. Any cause we undertake will require due attention to both short- and long-range targets, taking into account both immediate and long-term interests. Killing the goose that lays the golden eggs and only considering immediate interests and long-term effects is not a formula for sustainable development.

I am also confident because China has strong endogenous power. This includes ongoing urbanisation, a growing generation of modern and professional talent, and better implementation of innovation-driven development. In addition, continuous expansion of domestic needs and the consumer market, adherence to the principle of putting people first, and enabling more people in other regions to share the benefits of development, are also strong factors going forward.

The development prospects for the Asia-Pacific region are very exciting. They are currently undergoing their own technological industrial revolution. Economies in the region have a strong capacity to fend off risks because of their increasing competitiveness.

We need to stay alert to potential obstacles and challenges. China needs to comprehensively deepen reform and open its own economy to move forward.

The rainbow often only appears after the winds and rain. There is a saying that there is no mountain higher than man, and no road longer than our feet. No matter how high the mountain is, and how long the road is, as long as we move forward with perseverance, there will be a day when the end is achieved.

China is a member of the Asia-Pacific family. Our economic relationship is interdependent. China cannot develop without the Asia-Pacific, and the Asia-Pacific cannot prosper without China. The sustainable and healthy development of the Chinese economy will bring greater opportunities to the development of the wider region. China will firmly maintain regional peace and stability, vigorously promote regional development and prosperity, and be committed to building a regional cooperation framework that stretches across the Pacific Ocean and benefits all parties.

Asia-Pacific is the space for our joint development, and we are all the sailing ships moving forward in the sea of the Asia-Pacific. China hopes to join hands with our regional partners to collaborate and build a stronger region that will help guide global economic recovery.

In terms of development, the region should seek common goals, insist on openness, promote innovation, as well as seek interaction.

The business community is an important force in promoting economic development and trade, and we welcome and encourage enterprises of all economies to invest in China. In 2014, China will host the Asia-Pacific Economic Cooperation Summit Leaders' Meeting. We hope representatives from across the regional business community will come to Beijing to discuss things together and collaborate to jointly witness another important moment in the region's development.

Josaia Voreqe Bainimarama, Prime Minister of Fiji

A call to action

OBG talks to Josaia Voreqe Bainimarama, Prime Minister of Fiji

How important is the Pacific Islands Forum (PIF) membership to the government of Fiji?

BAINIMARAMA: During the years of our suspension, Fiji and many of its neighbours set up another regional institution, the Pacific Island Development Forum (PIDF) and threw it open to many sections of Pacific society that had been excluded from the PIF. We enabled the French territories, for instance, to become PIDF members and gave a voice for the first time to the peoples of New Caledonia, French Polynesia, and Wallis and Futuna. We also included others that were not being heard, such as the corporate sector and civil society groups, which are the genuine voices of the grassroots in the Pacific and had been trying for years to access the PIF. The PIF lifted its suspension of Fiji, following our election in September 2014, but as far as we are concerned, things have moved on. We regard the PIDF as a more genuine expression of Pacific islands' opinion than the PIF, because it is more inclusive.

Furthermore, we do not regard Australia or New Zealand as island countries. They are our big neighbours, but not Pacific Small Island Developing States (SIDS), so our agendas often collides. Take the issue of climate change for instance, which is by far the biggest threat to our way of life. Australia, in particular, is dragging its feet on committing to the binding cuts in carbon emissions that the scientific community is urging to contain rising sea levels. Fiji is back in the PIF at a ministerial level and in areas of technical cooperation and trade, and we continue to host the Forum Secretariat in Suva. However, until there is progress on these issues, I will not be attending the Leaders Meeting of the PIF or the upcoming summit in Port Moresby.

What real threats does climate change represent to the Pacific's low lying islands?

BAINIMARAMA: Climate change is the gravest threat that the Pacific islands have ever faced, and three nations – Kiribati, Tuvalu and the Marshall Islands – face a profound existential threat. Based on current modelling, those countries will simply disappear beneath the waves and cease to exist in the lifetimes of some of their young people. This is a catastrophe of enormous proportions and we are desperately trying to get the international community to accept the gravity of the situation and act before it is too late.

Even for mountainous Pacific nations, like Fiji, the situation is alarming. We have already had to move entire villages due to encroaching seas and have identified more than 600 communities that are directly threatened. So, this is a crisis for every Pacific SIDS member that urgently needs a global response. Fiji and other Pacific island nations will be leading the charge on this issue at the World Climate Summit in Paris in November 2015 – a critical meeting and perhaps the last chance to get industrialised nations to commit to cuts in carbon emissions that will arrest global warming.

Will Fiji's return to democracy open the nation's doors to additional foreign investment?

BAINIMARAMA: The fact that our reform programme included introducing the first genuine democracy in Fijian history has certainly improved the overall regional outlook. The success of our election in September 2014, and the fact that an international monitoring force – led by India, Indonesia and Australia – declared it free and credible, has given everyone cause for optimism.

Still, the surge in investment in Fiji, both foreign and domestic, was already taking place before the election. We are in the throes of the greatest period of sustained economic growth in Fiji since independence in 1970, and for the past three years we have recorded annual growth figures of 4% or more. Our corporate and personal tax rates are among the lowest in the Asia Pacific region and we have a range of incentives in place to attract more foreign investment, including tax holidays. We are also working with the World Bank to comprehensively reform our civil service to make it more efficient and responsive, and reduce red tape, so the investment climate in Fiji has never been better.

Electricity generation, transmission and supply qualify for PPPs

All change

New developments could draw more international investors

Papua New Guinea is in the process of restructuring its state sector in order to make it more efficient and to finance necessary capital expenditures. A wide range of options are being explored, from public-private partnerships (PPPs) and privatisations to an extensive rejigging of national assets.

For international investors, the steps being taken may offer considerable opportunities. PNG is contemplating making equity and partnership stakes available in some key assets, while potential strategic partners and passive investors may soon be able to participate in the management of large, vital and growing sectors of the local economy.

PPP CENTRE & BEYOND: In late 2014 the Public-Private Partnership Act was passed unanimously by the National Parliament, after five years of drafting and preparation. Under the act, a PPP Centre will be established, which will be an unincorporated statutory organisation, and a series of deals will be lined up for outside participation.

The centre will have a number of responsibilities and will act both as a facilitator of deals and in a governing role. It will work with the various public bodies and encourage them to consider using a PPP structure to develop their operations. It will advise in the creation of PPPs and evaluate PPP proposals. It will also coordinate implementation, help build the necessary capacity, compile reports, and publish guidelines, rules and procedures.

The PPP Centre will have certain powers that it can exercise in carrying out its duties, and some are considerable. It can require public bodies to provide information, it can conduct inspections of potential PPP sites, and it can charge fees and hire consultants. The centre will be structured in such a way as to ensure independence and accountability. The chief executive officer will be appointed by the head of state, but a number of procedures must be followed to avoid the appointment of underqualified individuals. The position will have to be publicly advertised and a merit-based assessment will have to be carried out. A financial report must be published every half year and an annual report every year.

QUALIFYING PROJECTS: The act defines what sort of projects may be considered for PPP arrangements. The list is comprehensive and includes much of the country's core infrastructure. Electricity generation, transmission, distribution and supply, in addition to dams for generation and the distribution of gas, are qualified for PPPs. A wide range of transportation facilities and systems are on the list, such as runways, air traffic control, passenger terminals, railways, roads, bridges, tunnels and ports.

Fixed and mobile telecoms are up for PPP consideration, as are long-distance, internet, satellite and broadband services. Other areas open to PPPs are housing, industrial estates, sports facilities, prisons, hospitals and schools. There are some notable exclusions: mining, oil and gas, and all projects below a "referral threshold" of PGK50m ($18.9m). Many activities may be undertaken under the law, such as design, construction, finance and the operation of facilities for more than five years.

EARLY OPTIONS: The Institute of National Affairs (INA) has identified a number of early targets for PPPs. Jackson's International Airport, the country's gateway in Port Moresby, is one. The INA says that a PPP partner could expand and modernise the terminal building and operate it for a number of years, while ownership would remain with the state. The partner could also develop land around the airport.

The institute also mentioned Lae Port and hydropower projects as possible early options for PPP efforts, and said that performance-based road maintenance contracts could also work.

According to the INA, the key to getting PPPs right is the proper structuring of the contracts, so that the deals have attractive enough terms to draw bidders without making the resulting infrastructure too expensive for the end users. The International Finance

Under the Public-Private Partnership Act passed in 2014, a PPP Centre will be established and a series of deals will be lined up for outside participation.

Jackson's International Airport in Port Moresby is one of a number of early targets for PPPs identified by the Institute of National Affairs. A PPP partner could expand and modernise the terminal building as well as operate it, with ownership remaining with the state.

Past attempts to bring strategic partners into the national airline failed to attract strong bids

Corporation notes that poor structuring has led to the failure of PPPs globally, especially when risk is not properly shared between parties.

The Asian Development Bank (ADB), which helped in the drafting of the law, said that it is significant in that it will allow the country to leverage the resources it has and do more with less. It will also allow for a transparent bidding process and could result in more foreign investment, as the assets are of interest to both strategic and financial partners, and the process has the potential to be clear, straightforward and open. The ADB will continue helping PNG in the implementation of the law.

PRIVATISATIONS: The country is also looking to carry out straight privatisations by selling stakes in government corporations. It is thought that spinning off shares of state-owned enterprises (SOEs) could help in several ways. By introducing outside owners, the companies will benefit from input from relatively independent parties, which can improve management and reduce waste. Most importantly, the privatisations will bring in much-needed capital. As it stands, PNG does not have the available funds to sufficiently modernise its SOEs.

Research suggests that changes are definitely needed in the SOE sector. In its study, "Benchmarking the Performance of State-Owned Enterprises in PNG", the ADB found that while the companies themselves are some of the most profitable in the Pacific region, their performance has sometimes come at a great cost to society, in terms of subsidies and in poor service and delivery.

"With the additional funds they are able to get upgraded and more recent infrastructure ... with better technology and better management skills," the prime minister, Peter O'Neill, told Radio New Zealand. "This will produce some efficiencies in many of those businesses, which will mean that the consumer, the travelling public and of course the consumer of electricity will have a better service rendered to them."

The new law will allow for a transparent bidding process and could result in more foreign investment, as the assets are of interest to both strategic and financial partners.

NATIONAL CARRIER: The first company up for privatisation is Air Niugini. The flag carrier is seen by the prime minister as providing a good basic service, and having a good reputation internationally, but it is also in need of additional investment to enable it to reach its potential and expand its operations. The plan is to sell 49% of the company. Critics point out that past attempts to bring strategic partners into the carrier failed to attract decent bids. There is also concern that as a purely commercial enterprise, Air Niugini may have to drop unprofitable routes and charge more for tickets, making it difficult for the average Papua New Guinean to fly.

POWER: The other early target for privatisation is PNG Power. This is an especially interesting asset as the company is in need of management expertise as well as significant capital investment, while the country needs a more reliable power supply.

A state of emergency has been declared and a solution must be found. In March 2015 the company's board of directors was suspended and its operations were taken over by the Ministry of Public Enterprises. Minister Ben Micah said that the police or the military could be used to collect unpaid bills. Telikom is expected to be next, largely because it suffers some of the same challenges as PNG Power.

The parties involved have assured the public that they are not about to undertake a wholesale privatisation of all SOEs, and that policies will be developed to bring in outside shareholders in a measured and productive manner. Public resistance is high, and challenges will be met if it is perceived that the privatisations will lead to the loss of national assets, or if the interests of the country are compromised. The last time the country attempted mass privatisation, more than a decade ago, only one company – Papua New Guinea Banking Corporation – was successfully sold into the market, in 2002.

The potential opportunities for international investors are considerable, given the nature of the assets owned by the state, and the intense need for capital and expertise. Every major sector has government participation. In total, the government owns 14 SOEs. In addition to the assets under consideration for sale, the list includes Water PNG, Motor Vehicle Insurance (which also owns Pacific MMI), bmobile, Post PNG, PNG DataCo, National Petroleum Company PNG, National Development Bank and Eda Ranu, Port Moresby's sewage company.

PUBLIC SECTOR RESHUFFLE: In the background, the entire public sector is set to be restructured in terms of the way the shares are owned, held and controlled. The Independent Public Business Corporation will be disbanded and the corporations it owns will be transferred to Kumul Trust. Mining assets will be moved to Kumul Mining and petroleum assets will be moved to Kumul Petroleum.

The hope is that the creation of the new organisations will lead to greater efficiency and transparency, and will allow the state-owned sector to function along the lines recommended by the ADB.

Miguel Arias Cañete, EU Commissioner for Climate Action and Energy

Acting on climate change

OBG talks to Miguel Arias Cañete, EU Commissioner for Climate Action and Energy

What is the EU's commitment under the UN Framework Convention on Climate Change?

ARIAS CAÑETE: The EU has been at the forefront of international efforts to fight climate change, and is committed to helping secure an ambitious global climate deal in Paris in December 2015. Our leaders have agreed on a legally binding target to reduce EU greenhouse gas emissions by at least 40% by 2030 compared to 1990. Urgent action is needed to reduce emissions and manage risks. This will require stronger provisions for international cooperation in terms of adaptation, and different forms of support to countries most vulnerable to the adverse effects of climate change. The people of Papua New Guinea understand the consequences of climate change. They and others in the Pacific are on the front line, and are already witnessing the adverse impact first hand.

The EU accounts for less than 9% of total global emissions so action by all countries, including emerging economies, is necessary. Paris presents a unique opportunity. It is vital that it delivers an ambitious, legally binding agreement applicable to all countries that will help the world avoid dangerous climate change.

The EU is seeking an agreement containing fair and ambitious commitments from all parties that responds to today's global economic and geopolitical realities. To be robust and credible, the agreement also needs to deliver common rules for transparency and accountability, with systems to monitor, report and verify progress towards meeting targets. The new agreement must be capable of keeping the world on track to its goal of limiting the global temperature rise to below 2°C. To ensure this, all emissions reductions commitments should be reviewed and strengthened every five years in light of progress and the latest data.

Could EU policies on renewables serve as an example for the emerging Asia-Pacific economies?

ARIAS CAÑETE: Renewable energy is an essential part of the EU's vision for a sustainable and climate change resilient future and will play a key role for all economies in the transition to low-carbon development. Renewables underpin every dimension of the Energy Union strategy we launched in 2015. They will contribute to decarbonising our economy, making our power system more flexible, improving our energy security and lowering our energy bills. EU member states design their own domestic renewable energy policies, as they are best-placed to choose the mix that suits their needs.

Renewable energy provides 15% of the EU's energy. We aim to increase this to 20% by 2020 and to at least 27% by 2030. Setting bold targets has paid off, giving industry the predictability it needs for efficient investment in stimulating innovation and reducing the costs of technologies. Such policies could also prove very effective in the Asia-Pacific region, particularly given its rich solar, hydro and wind resources.

What EU initiatives are tackling deforestation and unsustainable agriculture in PNG?

ARIAS CAÑETE: The EU recognises the threat deforestation poses in PNG to one of the world's most significant areas of intact tropical forests. We are supporting PNG's Forest Authority in its efforts to identify areas affected by deforestation, unsustainable agriculture and illegal logging, and to establish effective measures to deal with these. We are also supporting the University of PNG as it creates the first PNG Forest Monitoring Portal, which will provide accurate images showing forest extent, and the locations where activities causing deforestation and degradation are occurring.

These projects will help alleviate the effects of climate change. PNG can contribute to tackling these issues by reinforcing its environmental and forestry governance. We also invite our partners to consider joining the Forest Law Enforcement, Governance and Trade process. This voluntary scheme will strengthen sustainable and legal forest management, and will help to mitigate the serious risk that climate change poses to the Asia-Pacific region and to all of us.

Ivan Pomaleu, Managing Director, Investment Promotion Authority

Cultural considerations

OBG talks to Ivan Pomaleu, Managing Director, Investment Promotion Authority (IPA)

To what extent will the 2015 budget revision affect allocations to government services, and what effect will this have on attracting foreign investment?

POMALEU: During this time of tight fiscal and monetary policy, the government's priorities remain the education and health sectors. Inevitably, some government agencies – like the IPA – are not currently experiencing increases in budgetary allocation. Practically, what this means is that we will have to look to our own legislative powers for ways to raise the required operational funds and boost revenue-earning capacity.

This is what most government agencies have been doing since 2014 and, although I believe it will help to build efficiency in the long run, we have to ensure that services relevant to the business community remain intact. In the case of the IPA, our role is not only to provide a registry system but also to promote Papua New Guinea as an investment destination. This includes supporting initiatives that may attract foreign investment, as well as listening to the private sector's policy concerns in order to feed them back to the government and improve the overall standard of the system.

Should small and medium-sized enterprises (SMEs) have more incentives and lower financial barriers to register as a company in PNG?

POMALEU: I believe that private firms are always willing to pay a higher price for better services, provided those services are significantly improved. According to a study on the development of SMEs carried out by the Asian Development Bank and the World Bank, the biggest concerns among SMEs are access to finance, lack of infrastructure, cost of energy, availability of telecommunications services and real estate charges.

These seem to be the real issues at stake and unfortunately some of them have yet to be addressed, although the situation has improved immensely in recent years. The government plans to have a total of 500,000 SMEs registered by 2030, and a lot remains to be done to facilitate investments and foster a genuine SME culture, which to a certain extent is still lacking in PNG. I am glad to see much wider consultations taking place nowadays among all government bodies to produce a coherent SME policy that is consistent with the principles of a modern economy and takes larger global issues and trends into consideration.

Overall, we should create an environment where it is cheaper and easier to conduct business, which means lowering the cost of power, water and property while improving access to loans. These are factors that will improve the investment landscape for both domestic and foreign institutions. As things stand, when compared with other countries in the region and beyond, the cost of doing business in PNG remains fairly high.

Would you say that PNG needs to change its culture if it wants to be more competitive globally?

POMALEU: PNG culture is communal in nature and is based on sharing. In keeping with the traditional PNG way of life, the "what's mine is yours" philosophy is still very much alive. These are the sorts of entrenched cultural elements that need to begin to change if we are to become more competitive internationally, and we have to carefully consider this during our negotiations with APEC and the World Trade Organisation. In light of our recent history, is PNG really ready to make this fundamental shift? Are we ready to have a free and open playing field at this point in our development? These are questions that we need to seriously consider, and soon: according to the APEC agreement, 2018 will mark the year of no tariffs. I believe that the principles of liberalisation should not stop a country from directly intervening in or supporting its own business community to achieve better integration on the global stage. The principles of liberalisation are not always thought of in this way, but as far as I am concerned we should be allowed to do what it takes to build capacity. This does not necessarily mean introducing subsidies, but it does mean taking careful consideration of the country's socio-economic situation at this moment in time.

The country is one of the world's most open developing economies

National service

Concerns over protectionism have been stoked by recent changes

While Papua New Guinea is one of the most open developing economies in the world, with low tariffs, national treatment for foreign investors, bilateral investment treaties and few closed sectors, new policies could be introduced that would make the environment less liberal and welcoming. So far, the status quo remains and companies are free to invest in and sell into the country as before. However, the rhetoric is heating up, and some steps have been taken that indicate changes could be on the way.

FULLY DEREGULATED: In some ways the country is a model economy for foreign investors. There are issues with security and bureaucracy, but PNG is one of the few countries where a non-local can come straight in and start a bank, phone company or supermarket, in most cases only having to gain the same approvals that are required of a citizen.

This is something that executives in Port Moresby agree contributes to making the country such an attractive place to do business. "It is a fully deregulated telecoms market. Anyone can walk in," said Sundar Ramamurthy, the CEO of bmobile. "Nobody prevents anyone from starting a mobile company."

Even the processes that must be undertaken at the Investment Promotion Authority are seen as relatively benign. While some of the hurdles for registration are subjective – for example, whether the company is good for the country – and the many required steps usually take longer than advertised, legitimate companies are allowed into the country without a problem. The case of A-Tel is a good example. In 2013, it received a licence to operate as a mobile phone company. It never did start providing service in the country, but its management said that the process was simple and straightforward. "We met the requirements asked of us and approval was granted," Gulam Mahmud, the vice-president of Awal, A-Tel's owner, told the local press.

PATH TO PROTECTIONISM: However, recent signs indicate that the country could be on a path towards selective protectionism. In August 2013, an amendment was added to the PNG Takeovers Code 1998 that introduced a national interest test to the process. Under Rule 27A, the Securities Commission is now authorised to prevent a takeover if it believes that the acquisition is not good for the country.

A wide range of transactions are potentially covered by the amendment. This includes full takeovers, partial takeovers, acquisitions that require shareholder approval, and a number of other smaller reportable transactions, according to Norton Rose. The law firm said that listed companies, companies with more than PGK5m ($1.9m) in assets, 25 shareholders and 100 employees, and any company that may have met these thresholds in the recent past, are subject to the rule. What is not defined so clearly is national interest. Norton Rose believes that the regulators will be fair in their use of the rule, and will include factors such as loss of control to a foreign party and job loss when considering whether national interest is at stake.

IMPACT: The act has already been used to thwart a major transaction. In 2013 Kulim Malaysia was prevented from increasing its shareholding in New Britain Palm Oil from just under 50% to majority. The reasons given were loss of control, reduction of liquidity in the shares and loss of jobs. Kulim eventually sold out to Sime Darby, which made a successful offer for control of the company in 2015. This use of the act was accompanied by significant comments from officials. Richard Maru, the minister of trade, commerce and industry, said in public remarks at the time that he felt as though too much of the economy is controlled by foreign interests.

Other potentially protectionist measures have also been observed. In 2013, a transaction that would have resulted in Fiji National Provident Fund owning 40% of bmobile, and Vodafone Fiji managing the company, collapsed. While technical issues were cited by some sources, others noted that the government may

A wide range of transactions are potentially covered by an amendment to the Takeovers Code 1998. These include full takeovers, partial takeovers, acquisitions that require shareholder approval and a number of other smaller transactions.

In 2014 the prime minister said that Special Agriculture and Business Leases would be reviewed

not have wanted so much of a state company to be in the hands of foreign interests, according to published comments by the US State Department.

Comments by public officials have also indicated a tendency towards limiting foreign participation. In 2013 the government discussed reducing foreign ownership in local media companies, with all except one outlet being majority controlled by international investors. In 2014 the prime minister said in public comments that Special Agriculture and Business Leases would be reviewed and illegal licences revoked, noting that foreign interests had used them as a way to gain control of Papua New Guinean land.

SME POLICY: Perhaps most worrying is the discussion of the creation of a new small and medium-sized enterprise (SME) policy. It has been under consideration for some time and details have been sparse, but indications are that it would be highly restrictive, and would be aimed at getting more business into the hands of Papua New Guineans.

In February 2015 the minister of commerce laid out the basics of the draft to the country's parliament. He said that all businesses with less than PGK10m ($3.8m) – he did not say whether that was capital, sales or profit – will have to be locally owned, and that all foreigners who own and run businesses of this type will have to leave the country within three years. The minister suggested that these businesses would be purchased by local interests.

LIMITED EFFECT: Local observers say that while the policy seems to indicate a threat to legitimate foreign businesses, the reality might be less worrisome than first thought. The concerns are largely over small Chinese-owned trading shops that are perceived to be a threat to PNG's tabletop businesses. Most of these shops are unlicensed and illegal in any case, and can be shut down under the existing laws.

Observers also point out that few other foreign companies would be classified as SMEs, and that the law would probably be of greatest concern to small resorts and dive companies, which might be able to receive dispensation with the help of the Tourism Promotion Authority.

The SME law should only become a problem if is followed by serious structural changes in the way the country approaches foreign investment. The worry is that the government will begin to shift the emphasis from investment promotion to investment screening. Rather that simply examining foreign investors to weed out the bad ones, it might set up bureaucratic systems to judge them based on a larger, less transparent industrial policy. If the politicians become technocrats and micromanage foreign investment, critics believe that it could limit international participation in the economy, and leave some sectors and sub-sectors underinvested.

RESOURCE NATIONALISM: The other trend that has foreign investors concerned is rising resource nationalism. It has become a major issue in places like Indonesia and Mongolia, and the fear is that PNG will begin to enact laws that will make investment in the extractive industries more difficult and expensive. The PNG liquefied natural gas and Total natural gas deals have proceeded relatively smoothly so far, and this suggests that PNG will not choose a more combative path. However, there are other indications that the mood could be changing.

In 2013 the government nationalised OK Tedi, the country's largest mine. While the situation was complex – the asset was owned partly by the government and partly by a fund created for the benefit of the people of the region – it was done on the grounds that the mineral assets of the country belong to the people, and that this fact can justify a takeover. Some analysts worry that this thinking could leave all resources projects at risk of similar fates. The legislation that allowed the government to take control of OK Tedi "would undermine investor confidence at a time when a number of very large investments are on the horizon", according to public comments made by the former prime minister, Mekere Morauta.

The government's nationalisation of OK Tedi, PNG's largest mine, in 2013 was justified on the grounds that the country's mineral assets belong to the people. Some analysts worry that this thinking could leave all resources projects at risk of similar fates.

Rising resource nationalism is a concern to foreign investors

Economy

Government looking to ensure a more balanced budget
Liquefied natural gas revenues beginning to come in
Greater investment in non-hydrocarbons expected
New sovereign wealth fund set to launch shortly

Construction of the PNG LNG project was a boon for the economy

Many variables

The government is looking to stimulate growth, despite some serious challenges ahead

Plans for the future will have to take into account uncertainty over GDP growth, with estimates for 2015 varying from 15% to 9%. The country may also have to revisit expectations regarding revenues from the PNG LNG project.

With a strong economy in recent years, the GDP growth rate rose to a high of 8.9% in 2011, after stagnating in the early 2000s, only to fall back in 2013 to around 5% and then rise again to more than 8.4% in 2014, according to the Bank of Papua New Guinea (BPNG), the central bank. Construction work on the PNG liquefied natural gas (LNG) project led to the economic boom in 2011, while the slowdown was the result of the end of that phase and the hiatus before production. But with production now taking off, it is not clear what exactly will happen to GDP and to the economy as a whole. The price of LNG has been falling along with commodities worldwide, and this will feed through to PNG's returns from the project in the near term. While some protection may be provided by long-term contracts with LNG purchasers, these obligations generally offer only a partial hedge from volatility.

A VERY WIDE RANGE: GDP growth estimates for 2015 have varied widely, as well as declining over time as the reality of lower commodity prices sets in. In its "Asian Development Outlook 2014", the Asian Development Bank (ADB) expected 21% growth in 2015 based on the first full year of LNG production. However, in its "Asian Development Outlook 2015", this figure was reduced to 15%. The World Bank forecasted 16%, while BPNG was expecting 9% growth as of early 2015.

Sceptics have been warning that the country must prepare for disappointment. In a December 2014 paper entitled "PNG's Vanishing LNG Export Boom", Paul Flanagan, a visiting fellow at the Development Policy Centre at Australian National University's (ANU) Crawford School of Public Policy, argued that GDP growth will come in at about 6.9% in 2015 as a result of a 35% drop in world oil prices. Policymakers have also advised caution and saying the government needs to start working with more realistic projections. "Things have changed. Revenue inflows will be lower," Loi Bakani, BPNG governor, told OBG. "I warned that we have to manage expectations – that was even before the drop in oil prices."

There is uncertainty regarding how LNG sales will respond to price shifts, and while only seven out of 26 cargoes were sold on the spot market in the first quarter of 2015, such contracts can be subject to renegotiation and cancellation.

The exact decline in revenues due to the drop in energy prices is a matter of speculation. The price of LNG has indeed fallen since peaking in February 2014. World Bank figures indicate that the Japan LNG import price – a benchmark relevant to PNG – is down considerably, declining from a high of $18.11 per million British thermal units (mBtu) in 2012 to as low as $9.50 per mBtu in April 2015. PNG had been expecting to get more. The central bank reported in early 2015 that the average price was $16.70 in 2014 and that the forecast was $15.50 for 2015.

STAYING ALERT: Experts advise caution, however, in making simple predictions about gas prices and that, given the nature of the market and of the purchasers, the correlation between falling oil prices and LNG prices is not direct, despite the fact that the latter has fallen in line with the former. "Taking a deeper look at the market, a more complex picture emerges in which crude prices have had, at best, a minor and mostly psychological impact on the spot market for LNG," energy sector analysis firm Platts said in early 2015. It is also not clear how sensitive PNG LNG sales will be to price shifts. In the first quarter of 2015, only seven of 26 PNG LNG cargoes were sold on the spot market, according to Oil Search. However, the exact terms of existing contracts are not known and best guesses suggest their existence provides little long-term security. Paul Barker, executive director of the Institute of National Affairs (INA), said that while much LNG trading is done on long-term contracts, these deals are linked to the spot price and adjusted periodically. He also noted that contracts of this kind can be renegotiated and cancelled, providing very little comfort that PNG will be insulated from declines in the spot market.

Officials have been warning of exactly this kind of problem. While PNG LNG paid a PGK415m ($157.03m) dividend to the government in April 2015, Frank

Kramer, chairman of the National Petroleum Company of PNG, stated that because of current market conditions the public should not expect such sizeable dividends in the near future.

HUGE POTENTIAL: The potential gains accruing to PNG from the project are significant. In early 2014 the estimated income over the 30-year life of PNG LNG was $31bn, with about one-third of that staying in-country as a result of dividends, royalties, taxes and other payments. The pay-out also rises over time, with the country projected to receive $600m-775m annually during early phases of the project and $1.58bn per year in later phases as depreciation drops. The problem is that those numbers are based on previous assumptions of higher LNG prices. In addition, early payments may not go directly into the economy or be available for the government. PNG will likely need to repay the $1.2bn it borrowed to finance a purchase of 10% of Oil Search, and it is also setting up a sovereign wealth fund (see analysis).

However, according to Barker, the country has been pre-borrowing from the fund, which means it will have to pay back these loans before it can begin to fill the fund. According to the Development Policy Centre, the Treasury has been noting for a number of years that the mega-project will add little net to the economy, as it will be largely replacing revenue that is being lost elsewhere.

The INA agreed, noting that the percentage of GDP contributed to the economy by the agriculture, fishing and forestry sectors has been declining steadily since 2002, and that this decline is expected to continue – falling from almost 40% of GDP to just above 20% in 2015. Mining has also been falling as a percentage of the total since 2006, with copper and gold all down over the long term.

MORE SIGNS OF TROUBLE: The potential shortfall in revenue from PNG LNG could have a serious impact on the government's financial position, which has not been good in recent years and is in need of the balancing impact of LNG inflows. In 2010 the country had a fiscal surplus of PGK186.3m ($70.5m), which was subsequently followed by a string of deficits. The shortfall totalled PGK65.7m ($24.86m) in 2011, PGK339.4m ($128.43m) in 2012, PGK2.63bn ($995.19m) in 2013 and PGK2.99bn ($1.13bn) in 2014, according to BPNG.

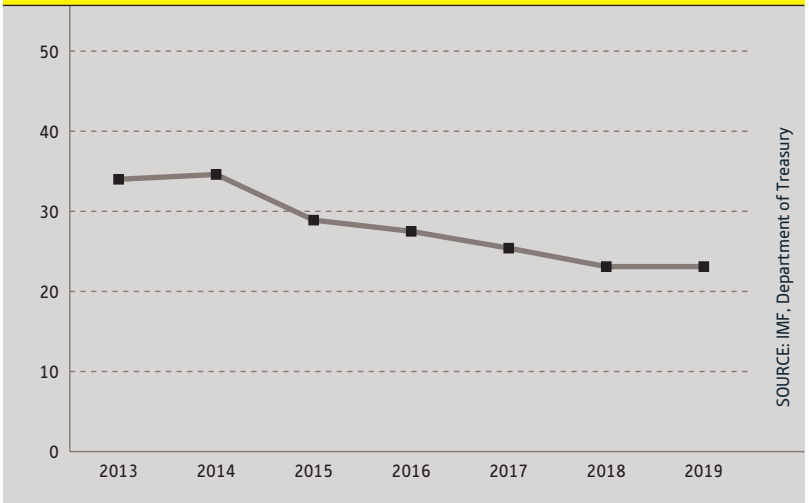
The higher deficits were largely the result of countercyclical spending, which was designed to prop up the economy between the construction and production phases of PNG LNG and some on-offs, such as construction projects for the 2015 Pacific Games in Port Moresby. Some line items have also grown over the past few years, such as development expenditure for provincial projects, while overall financing has shot up quickly to cover these costs in the absence of revenue increases.

Domestic borrowing more than doubled between 2012 and 2014, while tax proceeds were up only about 5% annually between 2010 and 2013, and appeared to stagnate in 2014, according to PwC's budget reviews. The budget deficit came in at 7.3% of GDP in 2014, according to BPNG. Concerns about the country's debt are starting to increase. So far, PNG has done well in keeping its obligations under control. It was able to get its debt-to-GDP ratio down from 62% in 2004 to 27% by year-end 2012. But the ratio started to climb back to 32.6% in 2013 and then to 35.5% in 2014, as the country recorded three years of heavy budget deficits. The plan is to get the deficit down, retire debt and have a balanced budget by 2017. The budget deficit is expected to be 4.4% of GDP in 2015 and the overall debt-to-GDP ratio should fall to 23.6% by 2019, according to the 2015 budget. But these projections are now regarded as ambitions, especially in light of the lower LNG prices. "A failure to consolidate the fiscal position would result in unsustainable debt dynamics," the IMF noted in its 2014 Article IV consultation, adding, "The government needs to adhere to its existing debt targets while focusing on improving spending quality to make the most out of a restrained resource envelope in meeting the country's development needs."

Lower LNG prices are expected to have an impact on spending plans

In the early stages of LNG production, PNG is projected to receive $600m-775m annually, with this subsequently rising to $1.58bn per year as depreciation drops.

Debt to GDP outlook, 2013-19 (%)



International and local institutions are worried about the implications of this deficit. Not only are they concerned about the cost of servicing the debt burden, but they also see the higher levels of borrowing possibly causing rates to rise as the government is forced to sell more debt into the market. This could have a further negative impact on the domestic economy. Already, rates are starting to increase. The 182-day Treasury bill went from 1.82% in April 2013 to 4.51% in September 2014, while the 364-day bill increased from 1.96% to 7.3% in that time. "Rapid spending growth over the past three years has required a significant increase in government borrowing, some 70% from local capital markets. This has the potential to crowd out finance for local investment and has begun to push up local interest rates. Government borrowing costs for long-term domestic debt reach 14% per annum in 2014," according to ADB's "Asian Development Outlook 2015".

Some analysts have added up the moves and events of recent years and seen signs of concern. Writing in February 2015, Stephen Howes, director of the Development Policy Centre at ANU's Crawford School of Public Policy, believes a recent intervention in the foreign exchange market, the loan to buy Oil Search shares and the fact that the BPNG said in late 2014 that it would be a buyer of last resort for government bonds could result in problems down the road. More specifically, if the situation is handled poorly, he believes PNG could return to the problems it saw in the past, such as high interest rates, high inflation and a serious drop in foreign exchange reserves.

MANY VARIABLES: The positive projections being offered up by the Treasury rely largely on LNG revenues and on the ability of the government to rein in spending. The former is not at all certain given fluctuations in commodity prices, the slowdown in China and the unpredictability of Japan's energy policy. Flanagan estimated that the recent drop in LNG prices will translate into PGK1.4bn ($529.76m) in revenue loss for 2015 and PGK2.5bn ($946m) less than expected for 2016. Looking further, he expects the budget deficit to rise to 10% of GDP and the debt-to-GDP ratio to increase to 75% by 2017.

The ADB has already started to notice a problem in terms of difficulties servicing debt. In its "Asian Development Outlook 2015", it estimated that the cost of paying obligations will rise from 5.5% of domestic revenue in 2013 to 9.2% in 2015.

On the spending side, Flanagan believes the government has set ambitious targets that it is unlikely to achieve even under the best of circumstances. He calculated that the government will have to cut expenditures 9.2% in 2016 and 6.2% in 2017, and noted that the government has failed to meet spending targets in the past. He also doubts whether the government will be able to cut health care and education spending as much as proposed given the need for development in these two vital sectors.

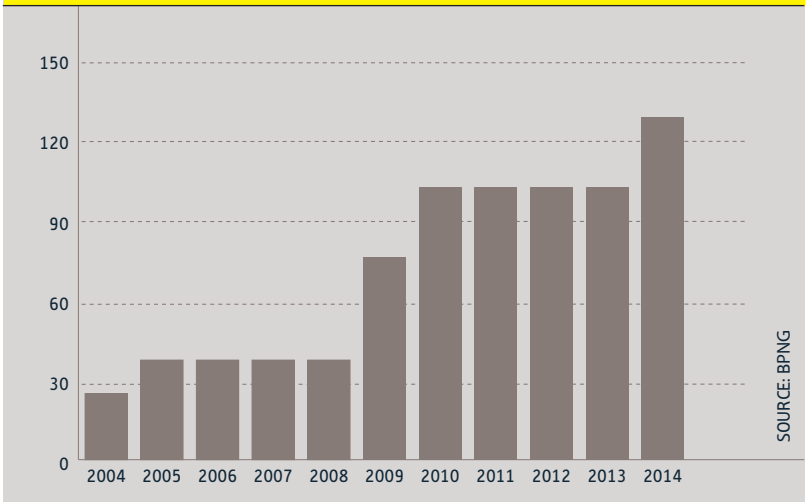
Ratings analysts agree. "Government revenue will fall short of the medium-term projections in the 2015 budget due to the impact of lower prices for petroleum, natural gas and other commodities on royalties, dividends and the profitability of associated companies. However, the government has not formulated a policy response that would realign expenditures to conform to the planned glide path to a balanced budget by 2017," Moody's credit rating agency stated in May 2015.

The minimum wage has more than tripled since mid-2009

STICKING TO A PLAN: "The message is clear," Bakani told OBG. "We have to cut somewhere." Some numbers are looking good and have demonstrated the economy's fundamental strengths. Inflation has fallen dramatically, from double digits in 2008 to around 5% in 2013 – although rebounding to 6.6% in 2014 on high economic growth and the weakening kina. Wages, however, have risen nicely over that time. The minimum wage increased from PGK37.20 ($14.08) per week in mid-2009 to PGK128 ($48.43) per week in mid-2014, although the Treasury pointed out that the real spending power of wages has been eroded due to inflation. At the same time, the country has moved steadily from a current account deficit to a

An uptick in spending over the past few years has also led to increased borrowing, 70% of which is from local capital markets. This has raised concerns about the cost of servicing debt.

Minimum wage, 2004-14 (PGK/week)



The government must guard the economy against exogenous shocks

Non-mineral resource sectors have seen minimal growth, with construction declining by 6.4% in 2014 after construction ended on the PNG LNG project, leading to concerns that the country will rely too much on hydrocarbons.

quarterly surplus in the third quarter of 2014. In part, this is the result of a decline in imports, particularly manufactured goods.

AGGRESSIVE POLICY: The economy has been greatly affected in the short term by aggressive policy. As the kina has weakened, the BPNG has been intervening, spending its foreign reserves to buy kina in support of the currency. It has also been taking direct action to influence the structure of the market to maintain order. When the exchange rate reached PGK2.80:$1 in spring 2014, the central bank took the extraordinary action of narrowing the trading band, stating currency had to exchange hands within 75 basis points of the official reference rate. While the action was taken to force banks to deal in currencies at rates that were more favourable to customers, according to the central bank, it also had the effect of instant appreciation. The kina jumped immediately back above PGK2.45:$1. The move has been criticised by the country's trade and investment partners, as it brings into question the independence of the bank and the commitment of the country to free markets. The IMF said that it has to evaluate the move to see whether the country is still in compliance with its obligations to the fund.

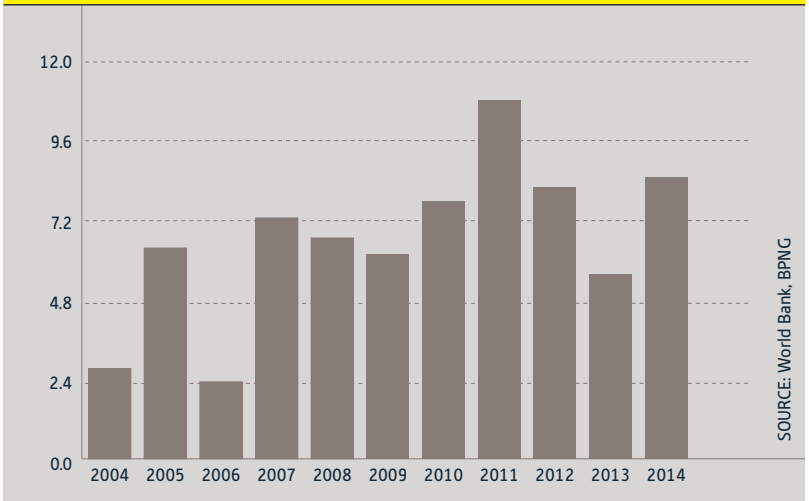
The band also has real world, practical consequences for the economy. Holders of foreign currencies have been hesitant to sell, while importers are having trouble obtaining foreign exchange and liquidity has been significantly reduced in the market. While Moody's affirmed the country's "B1" rating in early 2015, it had some concerns related to the measures taken in the currency markets and revised the country's rating to a negative outlook. It noted that what the central bank had done resulted in a loss of hard currency reserves, failed to halt the slide and left the country still facing a "mechanical deterioration" in debt ratios. Moody's added that it believed PNG's short-term external debt was greater at that time than its foreign currency reserves.

BEYOND RESOURCES: The economy outside of the resources sectors has been mixed. The construction sector saw a decline after the end of the construction phase of PNG LNG, contracting 6.4% in 2014, according to the ADB. However, the non-resources sector as a whole is expected to grow by 4% in both 2015 and 2016. The ADB estimated that wholesale and retail trade will grow at about 5.5% a year, financial services will increase by 4.5%, and the agriculture, forestry and fishery sector by 3.6-3.7%. "In contrast with mining and petroleum, activity in the rest of the economy is expected to remain modest," wrote the ADB. Overall, the bank described the country as becoming increasingly dependent on commodities.

With the ramping up of PNG LNG, the percentage of economic activity from the resources sector will rise from 12% to 22% over the span of a year. Similarly, the ADB said the percentage of the budget from mining, oil and gas will jump from 11% to 20%. It added that other sectors will continue to lag and, as new projects come on-line, the country's dependence will only increase. The ADB noted that this will leave PNG ever more exposed to exogenous shocks and that the country needs to focus on improving its fiscal situation in order to become stronger and better able to withstand instability outside its borders. Much of the growth of the economy outside of resources is related directly to government spending. The construction sector, for example, has been helped by the 2015 Pacific Games, which required an estimated PGK1.2bn ($454.08m) to build a swimming centre, a stadium, the games village and other related infrastructure, such as a new ring road.

BOND IN THE WORKS: Given the situation with respect to the fiscal deficits and the costs of servicing the debt, an international debt issue might be the best solution, according to the BPNG and Australian bank ANZ PNG. The former sees the need for $2.5bn and suggested the best route would be a syndicated loan or a eurobond, while the latter calculated that if the government fails to sell off state assets, the fiscal deficit will balloon to above 8% of GDP. The government would be forced to raise funds

GDP growth, 2004-14 (%)



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The agricultural sector is seen as having significant potential, as PNG has five times as much renewable water as Australia, access to affluent Asian markets and domestic resources that have yet to be fully exploited.

in the more expensive local market, increasing its costs and further crowding out local investment, as well as putting the government in a position where it may not be able to make the necessary investments in infrastructure and transportation. The Australian bank stated that countries with credit ratings similar to PNG are able to raise funds in the international markets at under 6%, while local currency funds are costing the government twice that.

An international bond would also have the effect of making the fundraising process less political and more transparent. The loan from international bank UBS to buy Oil Search shares, as well as the PGK6bn ($2.27bn) soft loan from China, caused considerable turmoil domestically. If a bond were sold into global markets, it would be well and publicly documented and transparently traded after the initial sale.

HEDGING BETS: While PNG is a resources-dependent economy and is set to become more so over time, the development of other sectors is also key to future growth. Manufacturing, services, construction, agriculture and finance have the potential to provide long-term, sustainable growth, albeit at a slower pace than minerals, oil and gas. They are also able to provide employment to a wide range of people, both skilled and unskilled. It is investment in these areas that will guarantee economic growth between projects, during times of low commodity prices, and beyond the era of oil, gas and minerals.

Agriculture is and will always be a major part of the economy. It is at least one-third of GDP and employs almost three-quarters of the population. The sector has been a steady contributor to exports for years. Agriculture exports as a percentage of total exports has held steady at 20% since about 2010, and fisheries products have more than doubled in that time – though they remain a small portion of total exports, now at about 2.5%. The country's biggest agricultural export in kina terms has been palm oil, selling almost PGK1bn ($378.4m) overseas in 2013. The country ranks as the sixth-largest exporter of palm oil globally.

NEW OPPORTUNITIES: The agricultural sector is also seen as having additional potential. The country has abundant water resources – five times as much renewable water as Australia – a growing and increasingly affluent Asian market nearby and domestic resources that have not yet been fully exploited. As of 2013, PNG was using only 150,000 ha for all its palm production despite the fact that the country has an estimated 5.1m ha that could be developed. "PNG's soft commodities sector faces many opportunities due to increased demand for food throughout Asia," according to ANZ's paper "Bold Thinking: Imagining PNG in the Asian Century".

PNG has also underutilised water supply and land that could readily be converted from less productive forms of agriculture to export cropping. The

country has ambitious targets for the sector and is aiming to increase its exports five-fold from 2010 levels for 2030. Targets for coffee, cocoa and palm are set at 11.3%, 8.8% and 5.8%, respectively, to 2030, according to the ANZ paper. The IMF said that while agriculture has held up well as a percentage of total GDP in the country, it remains relatively underproductive and not a major force in the global commodities markets. Palm oil yields are below those in Malaysia, coffee yields are below those in Brazil and cocoa yields are below those in Indonesia, while tuna catches need to be better managed. The sector will need to invest in productivity and logistics, as well as better manage its output, if it is to differentiate its products in international markets and get the most from the sale of commodities.

BUILDING UP: Manufacturing is another important focus. It is a small part of the overall economy at an estimated 9% of output, but it is seen as vital to the country's economic future. The sector enjoyed a small boom during the construction phase of the PNG LNG project, but experienced lower sales growth as the production phase began. Manufacturers said the falling kina has both hurt and helped business, as it has made the cost of some imported inputs and parts more expensive, while making locally produced goods more competitive with imported goods.

The government emphasised the manufacturing sector in its Medium-Term Development Plan 2011-15, with some support for small manufacturers, but the main goal was to develop downstream processing and export products made from local natural resources, such as timber, palm oil, copra and tuna. "With the commencement of production and export of LNG, the government should use the opportunity to invest in the non-mineral export sectors, especially agricultural, fisheries and forestry sectors, to broaden the export base of the economy and reduce the economy's dependence on the mineral sector. This would also assist in providing employment opportunities, increasing the government's revenue base

Agriculture employs around three-quarters of PNG's population

Further investments in the forestry sector could help the economy to expand its export base

and reducing the impact of the Dutch disease, especially in the agriculture sector," according to the BPNG's March 2015 monetary policy statement.

Industry is somewhat optimistic about the future. While the production phase of PNG LNG will not have the same direct impact as the construction phase, some money will be flowing into the economy over time. If the project does in the end help government finances, or if the government is able to sell an international bond, this could result in additional infrastructure spending that will benefit the local economy. Some companies, such as Goodman Fielder, Prima Smallgoods, Paradise Foods and KK Kingston, have all made additional investments in their local operations in recent years.

While consumer spending has stalled as the economic growth rate has declined, long-term trends are still good and remain optimistic. The country's PPP GDP per capita finally regained its 1994 level in 2011 and has been rising steadily since, despite the slowing growth. PNG now has its own emerging middle class, and companies are investing in relevant opportunities. The CPL Group, which runs City Pharmacy, Stop N Shop, Bon Café, Eagle Boys Pizza and Paradise Cinemas, is continuing to grow and introduce new businesses to the country. Papua New Guineans, while very price conscious, are still active consumers. "People are not shy to spend," Sumu Bhattacharya, general manager of Coca-Cola Amatil PNG, told OBG. Labour rates have been increasing, but costs are still low and businesses report few problems in finding workers. PNG even has a surplus of people available for training and work.

INFRASTRUCTURE & REFORM: Infrastructure spending could also potentially play an important role in economic growth. Already, the government has made a significant commitment. Expenditures on land transport have risen dramatically in recent years, according to the IMF, with outlays increasing from less than 4% of total expenditures in 2008 to around

Despite consumer spending having stalled, the country's PPP GDP per capita has grown, and an emerging middle class means companies are now looking to invest in their operations in PNG.

The Medium-Term Development Plan 2011-15 emphasised the importance of manufacturing, which accounts for 9% of output and experienced a boom during the PNG LNG's construction phase.

The industry sector is optimistic about the effects of the LNG project

The government first started to lower tariffs in 2002, and the intermediate rate is scheduled to drop from 12.5% to 10% by the end of 2015, as well as converge with the protective rate in 2018.

15% in 2014. The new budget also makes a heavy commitment to infrastructure, and the expectation is that spending on roads, ports and other facilities will continue into the future. This will bring employment and indirect economic activity that will help to counter any slowdowns between projects or as a result of falling commodity prices.

CAREFUL PLANNING: However, the IMF warned that the country needs to develop the right sort of capacity to effectively implement relevant projects so that the money is spent in ways that yield the maximum benefit to the economy. A number of reforms have been undertaken, or are in the works, and are expected to have a significant impact on the economy. The country started lowering tariffs in 2002 and is scheduled to take the intermediate rate from 12.5% to 10% by 2015. The protective rate will converge with the intermediate rate in 2018, according the Treasury. The programme has been a success in terms of allowing for easy and competitive access for importers and reducing costs for consumers, but it has also had an impact on domestic manufacturers, who say it is tough to stay in business given the flood of cheap imports from Asia.

Another reform that has been suggested is the privatisation of public companies. PNG Power, which has been taken over by the government after the declaration of a state of emergency, is in need of immediate help, while Air Niugini is seen as a prime asset for a strategic partner. Such sales would help the government to cover shortfalls and improve the functioning of key assets, which in turn could improve the business environment. The private sector also seems to be becoming somewhat more competitive on its own, which should help economic growth. While the three major banks still control almost all the deposits and loans in the country, the rise of microbanks, the increasingly competitive stance of Westpac PNG and the purchase of the Maybank licence by the Kina Group suggests that the situation could be changing in the sector. Already interest rates spreads are narrowing, the gap between three-month time deposits and the average loan rate going from above 10% in early 2014 to below 9% in 2015, and service has improved considerably with more electronic offerings and a more concerted effort to reach rural and poor clients.

OUTLOOK: The headline GDP number will continue to fluctuate as commodity prices vary and as the government refines its budget. At times, the situation could become difficult and the government may face some tough decisions, but PNG is likely to avoid the major crisis being predicted by some observers and is expected to enjoy relatively high rates of growth and some stability. Cash flow from the LNG project will begin to help in the repayment of debts and other obligations, and funds will begin to build up and counter losses elsewhere. The key for the country is the development of infrastructure and the non-mineral sectors, which will require careful spending and a measured, but proactive, policy.

Key economic indicators, 2013-16

	2013	2014	2015	2016
GDP, current prices (PGK bn)	34.60	39.80	51.79	55.34
GDP per capita, current prices (PGK)	4709.28	5284.98	6709.74	6995.13
Total investment (% GDP)	24.46	21.27	7.04	7.01
Inflation, avg consumer prices (% change)	4.96	5.31	4.80	5.00
Vol. of imports of goods & services (% change)	-21.85	-16.04	6.28	2.55
Vol. of exports of goods & services (% change)	-0.16	0.66	59.09	-1.74
Population (m)	7.35	7.53	7.72	7.91
General gov't revenue (PGK bn)	9.74	12.51	13.07	13.62
General gov't revenue (% GDP)	28.15	31.44	25.23	24.60
Total gov't expenditure (PGK bn)	12.50	14.94	15.67	15.67
Total gov't expenditure (% GDP)	36.13	37.55	30.25	28.32
Gov't net lending/borrowing (PGK bn)	-2.76	-2.43	-2.60	-2.06
Gov't net lending/borrowing (% GDP)	-7.98	-6.10	-5.02	-3.72
Gov't gross debt (PGK bn)	11.77	14.17	16.66	18.46
Gov't gross debt (% GDP)	34.01	35.60	32.17	33.36

SOURCE: IMF

James Marape, Minister of Finance

Strength in a crisis

OBG talks to James Marape, Minister of Finance

How has the decline in energy and commodity prices affected the country's financial situation? What can be done to absorb these shocks in the near future?

MARAPE: We are a price taker, in the sense that Papua New Guinea cannot influence the fluctuation of commodities prices and our exports, whether gold or minerals, have been subdued for some time now. We have to live with this reality and we are shaping our budgets accordingly. Even though the sudden drop in oil prices took us by surprise, PNG has performed better than other nations, considering this negative cycle. This is mainly because of our capacity to rally our strengths: a strong fiscal regime and strong monetary policy. During this period of austerity, our goal has been to control spending and manage the deficit, since tax revenues and equity participation will decline in 2015. We will deal with immediate revenue shortfalls and map out a way to continue key programmes in 2016/17.

Foreign currency reserves have halved in the past two years in PNG. Does it mean that some of the capital projects will have be put on hold?

MARAPE: As I have said, we have to remain cautious and inevitably we will have to defer some expenditures within the 2015 budget, but that does not mean that they will disappear from the government's radar forever, it is only a case of spreading them out over the upcoming financial years. The minister of planning is currently producing a list that will function as a benchmark for public investment programmes. Even though earlier in 2015 there was talk of a budget review, or a supplementary budget, we think we have enough facility on board to pull through the rest of 2015.

The Pacific Games, which have been just completed, were 100% financed with our own resources. The government has in fact implemented continuous economic stimulus by pushing the construction sector, which has sustained economic growth. The government has also pumped PGK1.3bn ($492m) into various provinces and districts in 2015, capital that was handled by small contractors that helped the circulation of liquidity. Having said that, we always maintain a buffer of at least of nine months of foreign currency in the system to avoid hitting the bottom of the barrel, so to speak.

How might austerity measures affect the prospects for PNG as an investment destination?

MARAPE: PNG has always been a good investment destination in the Pacific and it continues to be, despite these challenging times. We have never defaulted on our debt commitments and we have been exporting oil since 1990, without ever missing a cargo delivery. That ExxonMobil decided to invest in this country, during one of the biggest financial crisis of our generation, and that France's Total, the second-largest company in the gas sector, is ready to commit to an equally large project, says a lot about PNG's credibility.

Having said that, diversification will be key if we want to remain on top for the long run, and agriculture will be essential in this respect. Minerals and hydrocarbons are not renewable and it does not matter how exciting all these projects are or how much revenue they generate for the state's coffers, at the end of the day we are conscious that they are not renewable and will not last forever. Agriculture is, and I am very excited about the potential of this industry.

It is time to follow up our words with real actions on the ground, as PNG sits right in the middle of the Asia Pacific region and, while this region has great demand for energy, it will also need plenty of food. PNG could be instrumental in providing regional food security. While the government is improving infrastructure, we are looking to attract investments from multinational firms to jump start the industry by offering 10-year tax holidays. This may take five to six years to materialise, but agricultural investment is extremely important for the growth of the nation, as 80% of the population depends on the sector. Agriculture is also important because it is part of our traditional culture and maintains lifestyles that can reduce poverty and migration.

Wapu Sonk, Managing Director, National Petroleum Company

Majoring in growth

OBG talks to Wapu Sonk, Managing Director, National Petroleum Company

What role could an independent state-owned oil company play in the oil and gas industry?

SONK: Papua New Guinea joining the club of oil producing nations as recently as the early 1990s has allowed the country to examine and quickly learn from the critical success factors of other state-owned oil companies, as well as their contribution to socio-economic development. We have paid particular attention to Petronas in Malaysia, as the country has some similarities with PNG in terms of population size and cultural diversity, as well as Pertamina in Indonesia. In both cases we found that the common factors were political stability, a properly structured fiscal regime and the ability to make important decisions without undue bureaucratic hurdles. We feel that PNG needs to take a similar approach to make the most of its hydrocarbons assets. A streamlined national oil company could play a very important role for the future generation of Papua New Guineans, especially with respect to the creation of and contribution to a sovereign wealth fund.

Which geological area will best support growth?

SONK: PNG's energy map is divided between the Western Papuan Basin (WPB), where ExxonMobil, Oil Search and Talisman operate their concessions, and the Eastern Papuan Basin (EPB), currently developed by the Total/InterOil joint venture. While the WPB has yielded the most important projects to date, initial geological studies indicate the EPB perhaps has even greater potential, and there is a lot of excitement about developing what looks to be a world-class hydrocarbon province. From a logistical point of view, the EPB is also closer to the markets and river systems that characterise that part of PNG. This means that equipment can be delivered by barges rather than airfreight. This will help to significantly reduce capital expenditures, creating an additional incentive for future projects.

Considering these new developments and the possible expansion of the existing facilities run by the ExxonMobil-led consortium, we expect at least three additional liquefied natural gas (LNG) trains to come on-stream in the near future, making PNG one of the most active producers in the region and beyond.

How can the country benefit from having two oil and gas majors operating side by side?

SONK: There has been a strong internal debate over whether it would have been easier for the government to hand the new concessions in the Gulf Region to ExxonMobil, which had just completed the country's first LNG project. Numerous analysts agreed that it would have made more sense commercially, as an accelerated project would have needed to use part of the existing facilities and would likely have delivered an additional train in a shorter amount of time with less capital expenditures and logistical complexities.

However, the government ultimately made a long-term decision, and arguably a more sustainable one, by inviting another oil major. This has brought greater competition to the local market, creating potential for new synergies to emerge in an entirely different corporate culture. It also keeps us from putting all our eggs in one basket. This may sound like a simple way to look at a very complex industrial venture, which to some extent will determine the future of many Papua New Guineans, but I think the government made the right decision. The role of the government should be that of a regulator, establishing the country's priorities and objectives while fostering a level corporate playing field.

Ultimately, we are taking a holistic approach, focusing on the best model of development for the future. The sudden fall in oil prices has taught us that we need to diversify to better absorb shocks. To that end, developing a strong petrochemicals industry could be an appropriate measure to implement. As a lack of energy continues to be one of the biggest constraints to industrial expansion in PNG, ensuring that a significant portion of gas production is allocated for local consumption – especially for power generation – will be important for future industrial and economic development.

Growth predictions for 2015 are impacted by lower commodity prices

Adjusting to reality

A major liquefied natural gas project is expected to significantly impact the economy

With 2015 growth predictions ranging from 6.9% to 21%, Papua New Guinea may end the year as the fastest-growing economy in the world or as simply another fast-growing economy. The country may be able to spend as planned, make the necessary and desired investments and build for a sustainable future, or it may find itself scrambling to maintain its momentum and keep its fiscal situation from deteriorating. Given the direction of commodity prices and the cost of financing, as of early 2015 officials were expecting the possibility of the latter and calling for some major adjustments in spending.

"For 2015, economic growth will reflect a full year of liquefied natural gas (LNG) production and export. However, lower net inflows than earlier envisaged are expected from LNG exports. This may be compounded by the lower prices of other export commodities," the central bank wrote in early 2015.

2017: Analysts anticipated that money from the LNG project would hit government accounts in 2014, but they added that the funds would not start to build up in the coffers until 2017. Furthermore, they argue that even then the government will have very little additional funds to work with. The Lowy Interpreter noted that in the original best-case scenario, when LNG prices were expected to remain high and steady, the LNG project was supposed to do little more than replace revenue from declining minerals sector revenues and help the government reduce its deficit. There was not much extra to work with in the first place.

The money that does become available needs to be spent wisely. The group advises that equity purchases (except when they are for the sovereign wealth fund) and low priority capital projects should be avoided. Recent history suggests that this may be a challenge. While economic activity was on the upswing as a result of the construction phase of the PNG LNG project, little of that prosperity trickled down.

A February 2015 Lowy Interpreter article suggested focusing in the future on areas such as health, vital infrastructure, and safety and security. It also advised the building of appropriate capacity and improving transparency and accountability so that funds are managed well and with the right sort of oversight.

The Interpreter article noted that a failure to address some of these issues and properly prioritise spending will leave the country where it was after the last boom in the 1990s, which ended abruptly and was followed by more than a decade of stagnation. "Major budget increases have been directed to most of these priorities, but weak policy conception, planning and implementation capacity, and even poorer accountability has handicapped achievement of the objectives. Progress is now further threatened by the recent drop in global energy prices," the author, Paul Barker, wrote.

NOT AS PLANNED: The PNG LNG Economic Impact Study, which was published by ACIL Tasman in 2008, indicated that the project would have a great and positive impact on the economy. Its predictions through the construction phase were quite accurate. According to the report, employment would spike in 2011 and 2012, and then quickly drop off after the construction phase was complete. That is exactly what transpired and why the country experienced a boom and then a sharp slowdown.

The report also modelled expected returns to the government over the life of the project. It predicted that PNG would receive, in the form of taxes, levies and royalties, about PGK2bn ($756.8m) a year by 2014, almost PGK3bn ($1.1bn) by 2023 and PGK3bn a year by 2029. It calculated a low case, which tops out at about PGK1.6bn ($605.4m) a year, and a high case, with a maximum payout of nearly PGK4bn ($1.5bn) a year. According to the report, the vast majority of those payouts (56%) would be generated by government equity in the project. That is followed by company tax (34%), the development levy and royalties (both 5%), and personal income tax (1%).

Ultimately, Barker argues that the money generated by the project flowing into the economy will

Analysts anticipated that money from the LNG project would hit government accounts in 2014, but they added that the funds would not start to build up in the coffers until 2017.

The country's liquefied natural gas project is expected to greatly contribute to economic growth

The central bank indicated in its March 2015 monetary policy statement it would be some time before the project had an impact on government financials, at least from a cash flow basis.

provide a wide range of benefits in the form of general economic growth, payments to employees and landowners, and investment in vital sectors.

"The project has the potential to transform the economy of PNG, boosting GDP and export earnings, providing a major increase in government revenue, royalty payments to landowners, creating employment opportunities during construction and operation, and providing a catalyst to further gas-based industry development," Barker stated. "The benefits from the project would spread throughout the economy as the government applies the earnings from its substantial share of the project revenues to social and economic programmes. These programmes have the potential to improve the quality of life of Papua New Guineans by providing essential services and enhancing the country's productivity," he added.

The PNG Treasury also saw the project greatly benefitting the economy. In a 2011 assessment it recognised that much of the value would go offshore right away. Most of the gross operating surplus is repatriated in dividends and debt repayments. It also saw a good deal of value remaining within the country over the life of the project as taxes and royalties are paid out. In its analysis, the Treasury predicted that about one-third of the surplus would leave the country in payments of capital costs and interest payments; one-third would leave as dividends; and one-third would stay within the country. Of the last third, about 10% would be paid out as operational expenses.

CIRCUITOUS PAYOUT: It is not yet clear how much of this will come to pass. The original structure as outlined in the assessment has been altered considerably as a result of cost overruns and changes in the financial structure due to loans undertaken. Analysts add that it is difficult to get a handle on the cash flows because most of the proceeds from the project going to the government come out as dividends or tax payments related to profits. These cannot be precisely estimated without knowing the operating costs and financial position of the project. The other problem is one of transparency on the government's side. Some resource revenues have been taken off budget in 2015, while the government has off-budget liabilities, such as a UBS loan, to contend with, according to Paul Flanagan, a visiting fellow at the Development Policy Centre at the Australian National University.

The central bank indicated in its March 2015 monetary policy statement it would be some time before the project had an impact on government financials, at least from a cash flow basis, "In 2016 and 2017, the repayments of external loans by the LNG project and government will more than offset the net inflows of foreign exchange from LNG and other commodity exports, reducing the level of international reserves."

BENEFITS OVERALL: Despite falling commodity prices and a less-than-ideal structure, the project could have a significant impact on the economy. In the construction phase, the World Bank noted that local companies and employees benefitted from the experience in terms of capacity and organisational ability. LNG PNG brought in contractors from an international oil major, and the business carried out with domestic companies likely resulted in the transfer of some technology. The World Bank also believes this may have a positive residual effect on the companies.

Even if PNG LNG is a break-even proposition for a few years, the project will help the country from descending further into debt. If the cash flows can help the national balance sheet, it will have an impact on local interest rates and inflation.

Most significantly, the project has burnished the reputation of PNG as a place where massive projects can get done. While PNG LNG was over budget, it started production early and has met all its major benchmarks. The project has underperformed mainly because of the price of the underlying commodity and the choices made by the government in terms of financing. This has not gone unnoticed and has been cited as a reason for others to attempt similar large-scale ventures. Total E&P, for example, is leading the development of the Elk-Antelope field, with the first production expected around 2021. The company has said that the success of ExxonMobil in completing such a large project influenced its decision to make a significant commitment to PNG.

LONG TERM: In the longer term, the benefits of LNG to the economy rest almost entirely with the government. The effect on GDP directly is small once the construction phase ends, as very little money will go into the economy from payments to local citizens and companies. Rather, the majority of funds will flow via the government. What happens during production is almost completely a matter of policy. In the past, the government has not done well in this respect. This time, the government has been caught flat-footed. Its countercyclical spending to help the country through the slow point between construction and production has not been followed by the expected rebound, and it will take some effort to pull back on spending until proceeds finally begin to impact government finances.

Shinzo Abe, Prime Minister of Japan

Unity in diversity

Shinzo Abe, Prime Minister of Japan, on international cooperation

Since ancient times, Asia and Africa have given birth to, and spread throughout the rest of the world, a variety of ideas and religions. The spirit of generosity, one that cherishes diversity among us, is an important common asset we should be proud of.

In keeping with this same spirit, it was our friends in Asia and Africa who propelled Japan after the Second World War to make possible our re-entry into the international community. History made it inevitable for those countries gathered here three score years ago to show their strong unity, since our forefathers then had a common wish, a wish for peace.

Despicable terrorism is becoming widespread throughout the world. We must give no haven to terrorists anywhere in the world. National borders are meaningless in the face of infectious diseases or natural disasters. Climate change has exposed fragile island nations to the risk of not surviving, or of even disappearing. No single nation alone can solve such problems. Let us tackle them together.

Once again, we must show our strong unity to the rest of the world. Japan is resolved, in these circumstances, to continue to do its utmost from now on, just as it has thus far. "Refraining from acts or threats of aggression or the use of force against the territorial integrity or political independence of any country." "Settlement of all international disputes by peaceful means." Those are some of the principles Bandung affirmed. And Japan, with feelings of deep remorse over the past war, made a pledge to remain a nation always adhering to those very principles throughout, no matter what the circumstances. Japan also resolved that among Asian and African countries seeking peace and prosperity under those Bandung principles, we should stand at the forefront.

Hence started our journey. It brought us first to India 60 years ago, where we perspired together with local farmers to build their capacities on how to operate farm machines. It also took us to Sri Lanka, where, together with the local people, we fought against an epidemic troubling livestock farmers. And then the journey took us to Africa, where we have been sharing with the local people both the work ethic and the wisdom found in our manufacturing, proudly developed on our factory shop floors. The idea of *kaizen* (continuous improvement) has taken root in Ethiopia, where a workshop with that very name has greatly improved labour productivity.

Now it is Asia, and it is also Africa, more than anywhere else, where you find the spirit of growth in the breeze, together with the rich soil of dynamic growth potential. Asian and African nations are no longer Japan's aid recipients. They are Japan's partners for growth. Let us prosper together. We must build a market that is open and dynamic. We must turn that market, or that frontier, into soil that promises prosperity for our children and our grandchildren. The Trans-Pacific Partnership, the Regional Comprehensive Economic Partnership and the Free Trade Area of the Asia-Pacific – in my view will all eventually head towards Africa.

Traction for growth is always found in people. The diversity of people in any country must be harnessed to become an engine, and never a distraction, for powerful growth. Japan stands behind the empowerment of women. Hand in hand with the young and ambitious in Asia and Africa, we will foster them into a generation that will shoulder their countries' industrial development. Japan's resolve is to turn growth in Asia and Africa into an enduring, not ephemeral, event. With that resolve in mind, over the next five years, we are going to help as many as 350,000 people throughout the region acquire technology expertise and industrial knowledge.

The variety among our countries is manifold. No one society looks the same as any other. Still, 60 years ago, President Soekarno called on the delegates that had gathered to consider the following. "What harm is in diversity, when there is unity in desire?" Indeed, we face a whole host of risks in common. The fact, once recognised, should bind us easily in this "unity in diversity".

James Lau, Managing Director, Rimbunan Hijau (PNG) Group

Capacity expansion

OBG talks to James Lau, Managing Director, Rimbunan Hijau (PNG) Group

What are the main challenges facing a foreign company operating in Papua New Guinea?

LAU: Capacity building is one the biggest challenges that we face on a daily basis and one that definitely has an impact on investors when they consider a given market. A reliable workforce should be viewed as capital when planning long-term investments and large development expenditures. As far as we have seen, the government of Prime Minister Peter O'Neill has been emphasising education and health care since its inception, and we support this initiative, as stronger fundamentals will enable the country to compete in the future. We saw this in Malaysia not long ago, and I do not see why the same should not happen in PNG. The private sector has a role to play through the transfer of skills and knowledge to the country's workforce, but it cannot do it alone. Another aspect that needs rethinking is the sense of belonging and discipline among the local populations. Too frequently we have seen infrastructure built with the help of investors' money, who are often asked by contract to build hospitals and schools that quickly fade due to a lack of maintenance.

To what extent could the decline in oil prices jeopardise PNG's recently high-paced GDP growth?

LAU: There is real optimism about PNG's future among the local business community, and counting on double-digit GDP growth is a good place to start. However, there is a certain risk associated with the domestic economy, as the government has spent a significant amount of money on infrastructure projects, banking on the sales of liquefied natural gas. How these will be affected by the fall in oil prices is anyone's guess, but people are raising questions about the 2015 budget and the capacity of the administration to deliver on its commitments. Dynamics change quickly in global markets, and large conglomerates like Rimbunan Hijau are aware of trends that can define our investment portfolio, though large capital projects are not generally affected by short-term drops in a single commodity.

To what extent does the perception that foreign firms are exploiting PNG's natural resources persist?

LAU: A certain amount of negative perception still exists, especially in relation to the timber industry, mainly because of campaigns mounted by activists' groups not only in PNG, but throughout the region. According to them there is no room in PNG for the development of the forestry or palm oil industries, but the argument seems anachronistic, as far as we are concerned.

Sustainable approaches to these industries have proven successful in countries including PNG. Palm oil has delivered enormous socioeconomic benefits in West New Britain, for instance, and this is proven by the fact that the great majority of landowners are in favour of new developments. Let us not forget that rural areas of PNG, especially coastal regions, have seen little of the gains derived from hydrocarbons, while oil palm plantations provide business opportunities for local small and medium-sized enterprises. Furthermore, environmental laws in PNG are very strict and any operator seeking a licence will have to follow them. If PNG wants to keep growing and improve the living standards of its people, it has to bring developments to its provinces and palm oil is just one industry that can deliver much needed employment opportunities.

For our project in Pomio, East New Britain, for example, we plan to plant 10,000 ha of oil palm in 2015 and we are employing as many as 3000 people in the process. From an investor's point of view, this is a real commitment that requires a significant amount of capital. Not many companies out there are willing to take the risk, especially for greenfield projects. While in countries like Indonesia several players are keen to enter the market, in PNG the industry has attracted very few investors and has remained embryonic, despite its significant overall potential. Perhaps the negative campaigns of activists have affected the general perception of the industry, but it will not take away the fact that oil palm continues to be one of the most profitable crops in PNG, with a growing demand on the international market.

Education was slated to receive $719m in the 2015 budget

Budgeting down

Concerns over whether the 2015 budget truly reflects the state of the economy

On paper, the 2015 budget, delivered in late 2014, was a solid financial plan. It anticipated PGK13.9bn ($5.3bn) in revenues and called for PGK16.2bn ($6.1bn) in expenditures, leading to a high but manageable 4.4% budget deficit.

Commentators called it restrained, bringing the deficit down from 7.3% of GDP in 2014 without pulling back too much. The year was seen as a transitional one, in which the government moved from aggressive deficit spending between the construction and production phases of the Papua New Guinea liquefied natural gas (LNG) project to a more sustainable path and an eventual end to deficits.

The idea was to keep building through the slowdown and focusing on priority areas, so that when surpluses from the project started to flow, the country would be in good shape and able to build on the work it had done during the relatively lean years.

ALL GOOD: The original document anticipated 15.5% growth, down from earlier predictions of 21% – in part because an early start to the PNG LNG production phase had lifted growth in 2014 from a forecast of 5% to 8.4%. The budget saw debt to GDP at 27.8%, much lower than earlier estimates of 35%.

A number of priority areas were to receive considerable increases in funding. Education, which is implementing a tuition-free programme and a new curriculum, was slated to receive PGK1.9bn ($719m), compared with PGK1.5bn ($567.6m) in 2014. "Law and order" was to receive PGK1.6bn ($605.4m), up from PGK1.3bn ($492m) a year earlier. The government is also hiring more police, military personnel and judges, and has had to allocate PGK30m ($11.4m) to Pacific Games security. It also planned to spend PGK180m ($68.1m) on the Waigani Court House.

Another area of priority was the health care sector. The government committed PGK1.8bn ($681.1m) to the sector, up from PGK1.4bn ($529.8m) a year earlier. These funds were earmarked for free health care and the refurbishment of two major hospitals.

SOCIETY UNDER FOCUS: Concerns had been raised in the past that the proceeds from the LNG megaproject would not flow into the community. Also, with GDP growth so rapid, expectations were high that the average Papua New Guinean would benefit from the prosperity. The budget was designed to speak to the interests of the citizens and invest in areas that would help them directly and over time. The idea was that it would maintain growth and stability while at the same time creating opportunities.

In the budget, the Treasury recognised the challenge of meeting the demands of society, providing more yet at the same time not creating too much debt. It felt as though much could be accomplished by targeting priority areas and by focusing on efficient implementation, monitoring, evaluation and compliance. The Treasury identified a number of key areas where investment could yield the right sort of dividends. These included affordable housing, national transportation corridors, better higher education and universal primary and secondary education, the provision of utilities and tackling preventable disease.

INVESTMENT FOCUS: Some of the contents of the 2015 budget are of interest to international investors. According to the document, the government is highly focused on and making significant investments in agriculture, and it is seeking foreign participation in the coffee, cocoa, palm oil, rubber and livestock industries. Tourism will also benefit from government support. More broadly, the budget states that the government is committed to improving the domestic business environment, removing impediments to business, making the economy more competitive and tackling security problems.

QUESTIONS REMAIN: Critics immediately questioned a number of elements in the budget. While they thought the government had emphasised the right priorities in health, education and security, they worried somewhat about the way the money was being spent. The disbursement of PGK445m

The year was seen as a transitional one, in which the government moved from aggressive deficit spending between the construction and production phases of the PNG LNG project to a more sustainable path and an eventual end to deficits.

The government is highly focused on making significant investments in agriculture, and it is seeking foreign participation in the coffee, cocoa, palm oil, rubber and livestock industries.

Analysts are concerned about the transparency of revenues related to minerals and liquefied natural gas

By early 2015, with the price of commodities dropping, officials within the government were starting to reassess the budget. By mid-2015, officials began to concede that the budget would have to be revisited.

($168.4m) of education funds directly to the districts raises red flags about accountability and transparency, for example. Analysts also wondered whether the numbers truly reflect the state of the economy.

Paul Flanagan, a visiting fellow at the Development Policy Centre at the Australian National University, argued that when using advanced accounting standards, the deficit is higher than reported. However, Flanagan is most concerned with what the government will have to do to get its budget balanced by 2017. After 2015 it will have to make cuts for two years running, with spending declines in education, health and other key areas. He believes that these cuts are unrealistic, that the budget will stay level or increase, and that debt levels will then have the potential to reach crisis levels.

CONCERNS: Other issues include the sources of revenue. According to analysts, the government is expected to raise PGK2.5bn ($946m) by selling landowners equity in the LNG project. This is considered highly unlikely, as the landowners themselves believe they already own the equity and are not going to be easily convinced to buy the stock.

Another problem mentioned is that of transparency. Analysts say that about PGK3.3bn ($1.2bn) of mineral and LNG revenues from dividends and taxes have been taken off the balance sheet and are not being properly accounted for. Overall, the document is seen as a political effort, yet lacking in credibility. While it makes a good case for fiscal responsibility, the numbers do not add up as they should, and this has shaken the confidence of many long-time observers of the country.

Some international institutions are also looking warily at the budget and concur that the 2015 budget is not realistic and does not adjust enough to the changing circumstances. In May 2015, Moody's Investors Service reaffirmed the country's B1 rating but changed the rating outlook from "stable" to "negative". In part, the change in outlook was a function of the country's external payments position. But it was also related to its inability to adjust to the volatile economic environment.

"Government revenue will fall short of the medium-term projections in the 2015 budget due to the impact of lower prices for petroleum, natural gas and other commodities on royalties, dividends and the profitability of associated companies. However, the government has not formulated a policy response that would realign expenditures to conform to the planned glide path to a balanced budget by 2017," Moody's wrote in its review.

UNDER CONTROL: By early 2015, with the price of commodities dropping, officials within the government were starting to reassess the budget. The original assumptions did not take into account a steep fall in the price of commodities (the budget anticipated Kutubu Crude at $95.50 per barrel in 2014 and $89.70 in 2015). By mid-2015, officials began to concede that the budget would have to be revisited.

According to reports in the local press, the 2015 budget had been adhered to through June, but at that point it was accepted that the government would need to make adjustments. Patrick Pruaitch, the treasurer, told the parliament that the drop in commodity prices had led to a fall in revenues to the government, which would necessitate the production of a so-called mini-budget that lowers some outlays to better balance the cash flows. "These developments have sharply impacted on PNG's export revenues and resulted in a moderation of our anticipated LNG revenues," he was quoted as saying.

Officials, however, have been assuring politicians and the public that the country is still solvent and will be able to meet its obligations. In May 2015, James Marape, the finance minister, told parliament that steps were being taken to ensure costs were being cut so obligations could be met. He noted that bureaucrats were being paid on time, the government had paid its electricity bills and funds had been released for the free education programme. He shot back at critics and said the government was doing a good job of managing the situation.

HISTORY LESSONS: Observers have noted that there is not necessarily a strong correlation between GDP growth and long-term economic success. When a good implementing environment, effective management and foresight are lacking, economic booms can bring little to the average person within a country and can sometimes cause long-term economic damage. A high growth rate is often seen as a sign of good times ahead, but history suggests, and observers advise, that much more is needed to translate the number into tangible results.

According to Paul Barker, the executive director of the PNG Institute of National Affairs, "Some may recall that in 1993 PNG also enjoyed a meteoric growth rate of 16.8%...Strong growth rates should certainly not be scoffed at, but nor should they be seen as some panacea or indication of subsequent economic performance, let alone social wellbeing."

Ben Micah, Minister for Public Enterprises & State Investments

Active participants

OBG talks to Ben Micah, Minister for Public Enterprises & State Investments

Do you feel that governments should concentrate on policy frameworks and improving infrastructure, instead of being involved in business?

MICAH: I think that's really a debatable point, because private entities also fail in business, and they don't necessarily have all the answers to ensure economic growth and success. I could mention Enron, for instance, but the list would be much longer than that. Turning a profit for shareholders is the main task of any private sector organisation, but there is a degree of relativity to take into consideration, and it all depends on the environment in which they are operating.

In countries like Papua New Guinea, the government has to be involved in a lot of areas that are not commercially viable to the private sector. Utility services like water, power and ports are certainly among them, as the consumer base is too small to support several companies in competition. To ensure that these primary requirements are delivered to Papua New Guineans, the government has to step in, as the economy is not large enough to spread the risk too widely. Recently we brought into Parliament a new policy that also justifies the state's involvement in the hydrocarbons and mineral sectors, as well as in large-scale agricultural developments. The idea that the government should just sit and collect taxes and royalties as a passive investor belongs to the past as far as I am concerned. We want to be active participants instead.

Do you share the view that PNG has not always had a fair deal in the extractive industries?

MICAH: I think it has happened in the past. For a long time PNG was perceived as a place to extract natural resources from and leave very little behind. Perhaps it was a legacy from the colonial period, but in general you spend money where you see a future for yourself and your family, and this didn't always happen in PNG.

Luckily things have changed in more recent times, and our goal as an administration is to create a real value chain, from extraction to marketing of our natural resources, to maximise profit and spread the wealth accordingly. Perhaps in the past we have lacked the capacity to do so, but in an increasingly globalised workplace it is normal to import the skills you lack domestically. History abounds with successful examples and Dubai is one of them, a small city-state where the majority of its population are expatriates who have chosen to live and contribute to the growth of a new nation.

The executives that turned the PNG liquefied natural gas project into reality and launched the country's largest telecoms company are now working for the state, and we hope to attract more top personnel in the future. Intellectual capital, like financial capital, is moving around the world, and if we can tap into that, as well as invest in our education sector and improve the skills of our workforce, it will benefit the nation.

The government has announced a number of possible privatisations of state assets. When should we expect the initial batch to be completed?

MICAH: It will depend on the appetite of specific markets. With Air Niugini we will initially issue 50% of the shares exclusively to domestic investors, and we are looking to raise at least PGK500m ($189m) before 2016. Arguably, it would have been more effective to invite other successful airlines in the region to bring expertise and capital, but the privatisation of a national airline is always a sensitive issue that touches the pride of the nation. Through the interest of superannuation funds and local landowners there will be enough capital raised domestically, and the industry's future looks bright, with new routes being opened domestically as well as internationally, especially to Japan and the US through Guam and Hawaii. Over the next couple of years, people from the US west coast or Canada will not have to fly to Australia or Manila to reach PNG, but will be able to do so by arriving in Kavieng instead. We are also starting flights directly to New Zealand, instead of having to go through Australia, and will probably resume flights to Kuala Lumpur over the same period.

Frederick Reiher, Chairman, Air Niugini

Building links

OBG talks to Frederick Reiher, Chairman, Air Niugini

What potential exists at present for Port Moresby to become a regional aviation hub?

REIHER: One of our key strategies is to promote Port Moresby as a gateway to the Pacific and Asia by linking airports in Asia to airports in the Pacific Islands and Australia. This will entail increasing the frequency of services to key destinations such as Singapore, Hong Kong, Manila, Denpasar and Narita, as well as to China, in the near future. The high costs and low volumes characterising the domestic industry in the past had prevented us from taking full advantage of such opportunities. However, examining the current economic realities of each of the Pacific regional players leaves little doubt that Papua New Guinea should undertake a more assertive leadership role. As the national airline, we have recently introduced flights to Port Vila in Vanuatu. We will also seek to increase the frequency of services to Honiara and Nadi as soon as possible.

Moreover, we aim to establish links with the Federated States of Micronesia, Palau, the Marshall Islands and New Zealand. The concept of Pacific integration is gradually turning into a reality. Although international passenger and cargo traffic on many routes remain thin by international standards, we are developing code sharing and reciprocal airline arrangements with Qantas on the Australian routes, and soon with Solomon Airlines and Air Vanuatu, while discussions are also being held with Garuda and Philippine Airlines.

To what extent could additional international links in PNG facilitate regional integration?

REIHER: At the moment the objective is to promote Port Moresby as a regional hub. From here, visitors would be able to reach the rest of the country, especially after upgrades to the fleet are completed for both international and domestic flights thanks to seven Fokker 70 jet aircrafts, which will be replacing the existing Bombardier Q400 in 2016. Aviation is an extremely competitive industry and having the right equipment is necessary to stay on top of the game. The Fokker 70 will enable the airline to bring jet services to key domestic airports currently served by turboprop aircraft, while allowing new regional and international routes to be opened up where existing aircraft in the fleet are too large.

While it is possible to open direct international links to additional centres in PNG –especially from the point of view of the local administration –if it does not make economic sense, it is not something that we will pursue as a national airline. Of course PNG has an open sky policy and any other operator would be free to open those routes if interested. That said, the airline's strategy is aligned with the national government's policy of developing four major provincial hubs – Port Moresby (administration), Lae (industry), Mt Hagen (agriculture) and Kokopo/Rabaul (tourism) – where more flights will be added as demand increases.

What kind of measures have been taken to improve air connectivity across PNG?

REIHER: The National Airports Corporation is currently implementing a major programme to upgrade airports so that they are able to handle larger and faster aircraft, particularly the Fokker 70 and 100 aircrafts. This has included Hoskins, where upgrades have already been completed, Lae, Vanimo, Goroka and Kieta. As for Air Niugini, in 2014 we formed a subsidiary airline called Link PNG, which provides services to remote communities where passenger numbers may not deliver profitability, but where residents need air services to the national capital as well as to major provincial centres.

PNG continues to face several challenges when it comes to road networks and air transport is often the only way to stay connected. Link PNG operates seven Dash-8 turboprop aircraft at present to airports which Air Niugini did not previously service, such as Kiriwina in the Trobriand Islands, and between Lae and Mt Hagen, Kiunga and Tabubil. Future opportunities are expected to include Jacquinot Bay, Kandrian and Hayfield once their airports are upgraded to the required standard.

The total potential value of the sovereign wealth fund is $30bn

Final tweaks

Sovereign wealth fund legislation set to be implemented by mid-2015

Papua New Guinea established a sovereign wealth fund in 2012, and while the original law was delayed and greatly revised, it is set to be implemented by mid-2015, with the first liquefied natural gas (LNG) proceeds flowing into the fund by 2016.

If all goes according to plan, national savings will begin to accumulate and grow offshore. Estimates have placed the total potential value of the sovereign wealth fund at $30bn.

BOUND FOR SANTIAGO: Like most sovereign wealth funds, PNG's is designed to keep money earned from the extractive industries in dedicated pools of highly stable investments, such as government bonds and triple-A-rated securities held offshore. Many advantages are seen to this arrangement.

Not only will the fund protect assets and create wealth for future generations of Papua New Guineans, but by keeping the money outside the domestic economy it also reduces the dislocation caused by sudden influxes. The inflationary impact of an increase in wealth will be avoided and Papua New Guineans will be insulated from the jarring cycles that tend to lead to the so-called Dutch Disease.

Under the Organic Law on the Sovereign Wealth Fund of 2012, PNG is to establish a foreign currency account overseas to be managed from PNG. Funds in the account are to be spent on infrastructure development and socioeconomic services. A number of guidelines were built into the original law to protect assets and limit the possibility of mismanagement. All spending must go through the national budget and cannot be made directly.

The government itself has been prevented from instructing the fund, as its role is limited to issuing an investment mandate that must be followed by an independent board, which will be overseen by the Treasury. The Treasury will be limited to devising the investment mandate and ensuring the board follows the law. Independent fund managers will be hired and a custodian of the fund will be appointed.

The investment mandate will set out the types of investments that can be made, the risk/return profile of the portfolio and guidelines for ethical investment, liquidity, credit and prohibited investments, and the terms for domestic investments.

The original law received considerable support from within the country and beyond its borders. Some concerns were raised, however. The IMF noted, for example, that careful attention needs to be paid to the operations of the sovereign wealth fund to ensure all withdrawals do in fact pass through the national budget, as required, and that funds are not somehow diverted. However, overall, key observers and participants were satisfied. "I am very comfortable with the new Organic Law because it meets the internationally recommended Santiago Principles of Governance and Management," Loi Bakani, the governor of the central bank, said in 2013.

A START, THEN DELAYS: After the passing of the first law, the basic elements were put in place. A secretariat was formed, located at the Treasury, and work began on implementation. It was expected at the time that the fund would be in operation by mid-2014, but soon the project stalled, according to David Osborne, a visiting fellow at the Development Policy Centre of Australia National University.

A procedural error in the certification of the law brought its legitimacy into question. To erase doubt and to ensure the law was passed properly, it was to be passed again. But before it was sent for a vote, the text was amended. Some of the changes are said to be simple editing for clarification, others may impact the way funds are deposited and withdrawn.

A copy of the revised law was published in October 2014. It was entitled Proposed Law to Amend the Organic Law on Sovereign Wealth Fund. The new document called for only two funds, a Stabilisation Fund and a Savings Fund. A great number of amendments have been added, and the revision is clearly far more detailed than the originally proposed law.

PNG is to establish a foreign currency account overseas to be managed from PNG, funds from which are to be spent on infrastructure development and socioeconomic services. A number of guidelines were built into the original law to protect assets and limit the possibility of mismanagement.

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- We've driven our Financial Literacy programme MoneyMinded to the community since 2010

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Banking

Innovation is the key to reaching the unbanked

Banks are working to overcome geographic limits

Consolidation in the sector could create a new player

Financial inclusiveness is a government priority

Innovative solutions help residents to access banks in new ways

In the palms of their hands

Tech solutions extend banking services to remote areas

With 80% of the country unbanked, expansion is almost assured as inclusiveness rises and more people open accounts. Challenges remain though. Reaching PNG's more remote corners will not be easy, given geography and security issues.

The banking sector in Papua New Guinea is sound, growing and remarkably profitable. Its largest and only publicly traded institution, BSP, reports return on equity 10 percentage points higher than the large Australian banks, which are among the most profitable in the world. Continued expansion is expected. With 80% of the country unbanked, growth is almost assured as inclusiveness rises and more people open accounts. Parts of the economy long viewed as too expensive and difficult to serve are now seen as fertile soil for new business. Unlike the various overbanked parts of the West and Asia, PNG's sector is not saturated and has plenty of room to grow.

Nevertheless, the sector faces challenges. Reaching PNG's more remote corners will not be easy, given its tough geography and security issues. While rural regions offer great potential for branches and new customers, they are still very challenging. The reasons they were not adequately serviced before largely remain, and the sector is under pressure to change the way it does business. The central bank and the government are pushing banks to be more competitive in terms of interest rates and foreign exchange spread, and to focus on meeting society's borrowing needs. As a result, margins could be squeezed and profits threatened. "They should concentrate on taking deposits and lending money," said Loi Bakani, governor of the Bank of PNG.

YEARS OF CONSOLIDATION: Banking in PNG dates back to 1910, when the Bank of New South Wales and the Bank of Australasia established branches in what was then Australia's Territory of New Guinea. The Commonwealth Bank entered Rabaul in 1916 when Australia took control of German New Guinea. The Australia and New Zealand Banking Group (ANZ) opened a branch in the country in 1953, and the National Bank of Australia came in 1957. For most of its pre-independence history, the banking system was an extension of the Australia's, and its business was almost exclusively targeted to non-locals, according to "The Role of the Reserve Bank of Australia in PNG's Decolonisation". The paper notes that the Transactions With Natives Ordinance, which existed until 1963, prohibited banking with locals, making any transaction with a Papua New Guinean above $100 unlawful to protect them from exploitation.

SUDDENLY BANKABLE: Ahead of independence in 1975 – and in response to a new rule – the National Bank of Australia incorporated its PNG subsidiary and renamed it Bank South Pacific, which was then taken over by local interests. ANZ and the Bank of New South Wales restructured their PNG operations, and after Commonwealth Bank relinquished its franchise its network became part of PNG Banking Corporation, which was bought out by Bank South Pacific in April 2002. After 1983, new entrants were allowed into the market if they kept their shareholdings under 50%. Banque Indosuez and Lloyds Bank entered the country with the central bank as a major shareholder in their local subsidiaries. The Lloyd's operation was purchased by ANZ in 1990. Bank of Hawaii, having bought Banque Indosuez's operations in 1997, was itself bought out in 2001 by ANZ. Maybank, the PNG subsidiary of Malaysia's largest bank, entered in 1994 but was bought by Kina Group for PGK319m ($120.7m) in June 2015. Kina Group is PNG's largest financial institution, with branches in Lae, Kokopo and Mt Hagen. The acquisition will see Kina become the fourth bank in the country.

BSP purchased Westpac's Niue branch in 2004, Habib Bank Fiji in 2006 and, between 2006 and 2009, Commonwealth Bank's interests in Colonial National Bank, to further expand in Fiji. In 2007 it also purchased the National Bank of the Solomon Islands, previously controlled by the Commonwealth Bank of Australia and the Bank of Hawaii. In January 2015, BSP agreed to acquire five Westpac Bank operations in the Pacific: Samoa, Cook Islands, Solomon Islands, Vanuatu and Tonga. The total deal value was A$125m ($100m), and the move affirmed BSP's position as

a major player in the South Pacific. Its footprint rivals that of ANZ, which operates branches or subsidiaries in some 12 Pacific jurisdictions.

GOOD PERFORMANCE: BSP is by far the largest bank in the country. According to Bank of PNG statistics, the institution had 56.88% of the sector's assets as of the end of 2014. ANZ came in second, with 25.88% of the total, and Westpac third, with 14.74%. Maybank was a distant fourth, at 2.50%. In terms of deposits, BSP is in an even stronger position, with 59.99% of the total, compared to ANZ's 23.96%, Westpac's 14.17% and Maybank's 1.88%.

ANZ has a strong loan book, with 26.97% of the total, while BSP has 57.9%, Westpac 13.75% and Maybank 1.39%. BSP's profits after tax rose from PGK436.8m ($165.3m) in 2013 to PGK507.3m ($192m) in 2014, and its net profits are up PGK224.2m ($84.8m) over five years. BSP, listed on the Port Moresby stock exchange since 1993, initiated a buyback programme in July 2014. The bank said it would be seeking to purchase on the open market 15m shares over a 12-month period. The shares would subsequently be cancelled.

In its 2014 Article IV Consultation report, the IMF noted that the sector is stable and characterised by good capitalisation and adequate liquidity. Non-performing loans (NPLs) are up from 1.2% in 2013, but they are still a reasonable 1.6% (which is lower than the recent highs of 2% reached in 2011 and 2012, and a significant improvement over the 15% of 2000). Provisions for NPL losses are at 220.2%. Capital to risk weighted assets, according to the IMF, was 28.7% in 2014, about the same as it has been in recent years, while Tier 1 capital was 20.5%. Meanwhile, the loan to deposit ratio has crept up a bit in recent years, hitting 52.8% in 2014, up from 49.9% in 2010.

BOOM & BUST: The business environment has been difficult, because of the boom and bust cycles inherent in a resource-based economy such as PNG's. Banks are continually having to deal with high demand for credit, followed by quick contraction, and with the construction phase of the PNG liquefied natural gas (LNG) project now over and production ramping up, banks are between cycles.

"The market has not seen yet the full benefits of the PNG LNG project, but when you plug a $20bn project into a $12bn economy, an adjustment period is to be expected," Mark Baker, managing director of ANZ PNG, told OBG. "With the potential third train and an additional project coming on-stream in the coming years, we expect PNG's GDP to grow 5% to 6% in the longer term." According to the IMF, both broad money supply and private sector credit growth fell to zero in mid-2014, after broad money's peak of 25% in 2010 and private sector credit growth of 30% in 2009. Broad money grew 1.2% in 2014.

Still, banks have, on the whole, managed this transition well. While NPLs have inched up, the commercial banks are conservative in their lending habits, and they are not overly exposed to vulnerable sectors. According to central bank figures released in

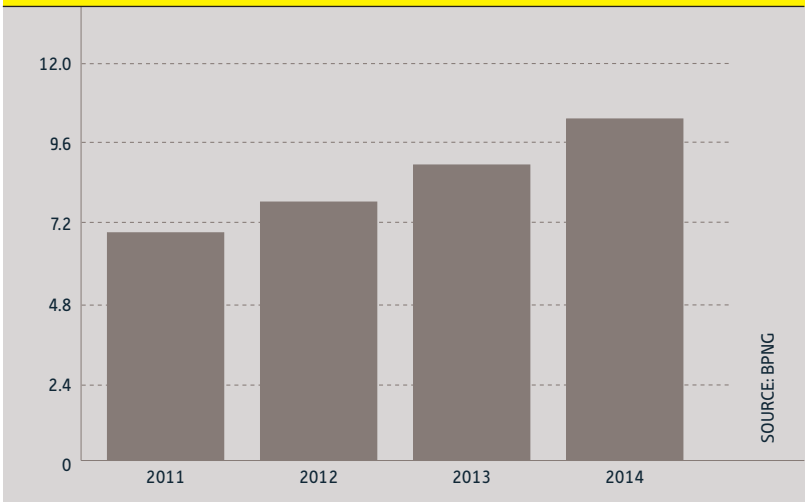
The nation's LNG project has caused an adjustment period for PNG

September 2014, only 14.3% of outstanding advances were to the real estate sector. That is down from the 2011 ratio (14.6%). The mining and quarrying category was only 4.3% of total exposure and retail and wholesale trade is at 14.3%. There are signs that banks are starting to make a healthy shift from the extractive to the productive: loans to manufacturing almost tripled between 2011 and late 2014. "The transition comes with a number of challenges," Baker told OBG. "It is difficult to absorb a project of that size without structural issues. For us, we have managed it pretty well. We are not seeing a lot of stress, we are within our risk parameters across the board. However, businesses and banks have to keep a disciplined eye on costs and productivity in the downturn that has followed the end of PNG LNG construction. As Warren Buffet said, 'You only find out who is swimming naked when the tide goes out.'"

OFFSHORE RECOVERY: Another part of the problem for the banks, and for business in general, is the nature of the recovery. A good part of the banking for the major projects is done offshore, with some

Non-performing loans rose from 1.2% in 2013 to 1.6% in 2014. This is lower than a recent high of 2% hit in 2011 and again in 2012 and a significant improvement over 15% in 2000.

Lending by commercial banks, 2011-14 (PGK bn)



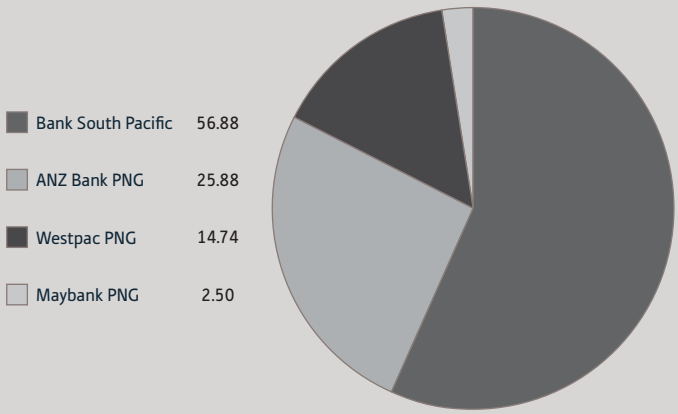
Four commercial banks comprise 91.7% of all banking assets

The loan-deposit interest rate spread was 9.8% in 2011, up from a low of under 1% in 1989, but still well above Malaysia's 1.6%, Australia's 2.9% and Singapore's 5.2%.

investors getting exemptions and being permitted to net out export earnings from offshore expenses. Significant flows are therefore outside the banking system. The production phase is particularly light, in terms of its impact on the domestic economy. It employs few workers and sources very little from PNG in terms of goods and services. Some of the new investors in the economy are structured in such a way that their local presence is especially light. In the case of Chinese construction projects, for example, the money comes from China, workers are often brought in and much of the work is done in the home country, with prefabricated sections being imported. Thus, banks get little exposure beyond payroll for local workers and possibly some banking facilities.

HIGHLY CONCENTRATED: While the country has 21 savings and loans societies and 11 other licensed financial institutions (LFIs) four commercial banks dominate the landscape, with 91.7% of all assets. This level of concentration appears to have reduced competition and, while the sector is strong, pricing may not be at an ideal level, according the donor community and researchers. "There are relatively few organisations supplying financial services in the PNG financial sector. In this environment it is likely the competitive pressure is relatively light," according to an Australian Treasury report.

Share of total commercial bank assets, 2014 (%)



SOURCE: BPNG

According to the Institute of National Affairs' "PNG Private Sector Assessment 2014", "Banks have secure deposit-based funding, high profitability and adequate capital ratios. Yet, there are indications of insufficient competition." Low competition is reflected in the loan-deposit interest rate spread, last measured by the World Bank at 9.8% in 2011, up from under 1% in 1989. That compared with Malaysia's 1.6%, Australia's 2.9% and Singapore's 5.2%. In terms of apparent competitiveness, PNG is similar to smaller Pacific island nations, which tend to have few banks. According to the paper "Interest Rates and Bank Profitability in the South Pacific", return on average assets in PNG was double that of Australia from 2005 to 2009, but the simple spread between deposits and loans was also about double.

The nation's banks largely attribute the structure of their asset side to the limited number of opportunities to make loans. Most businesses in need of money lack collateral, so contracts are difficult to enforce. Most of all, the country is not a good place for making loans based on the value of land. An estimated 97% of real estate in PNG is customary land, for which there is no title. Even when land is freehold, it is often subject to competing claims. In this environment, the options for banks are highly limited. They can primarily lend to large corporations, projects and institutions that have long histories and good records of repayment.

Still, this does not mean banks have not found niches to support. "There are tremendous opportunities in the growth of light industries across PNG," Geoff Toone, managing director of Westpac PNG, told OBG. "Such companies are well positioned to take advantage of the affordable labour market and proximity to the Asian marketplace, provided we see significant and ongoing infrastructure investments."

Despite these and other opportunities, banks operating in PNG are conservative and generally do not change their standards for the environment. They continue to adhere to international norms; Westpac uses the same credit analysis manual that is used in the home market of Australia. Few companies in the country are able to come up with the necessary cash flow, collateral and documentation that is required to meet these standards, and that results in loans being dispersed to a narrow range of clients.

THE BANK FIGHTS BACK: The central bank has been taking aim at the sector, in particular the foreign exchange spread. "The market is experiencing a shortage of foreign currency at the moment, as the prices of export commodities like gold, copper and nickel continue to be depressed, while the need for imports remains intact. This is causing short-term challenges to paying suppliers," Baker told OBG. To address this, central bank tightened the trading band

in which the kina could be bought and sold in June 2014. Foreign exchange dealers were required to deviate no more than 75 basis points on either side of the official Reference Rate. In an instant, the kina jumped from about 2.8 to the dollar to 2.43.

The authorities said that the regulation was not published to intervene in the currency markets, but rather that it was done to eliminate the high profits that were being earned by the banks as a result of the large spread between the bid and ask on foreign exchange. They felt as though the institutions were taking advantage of their market positions and not actually making money from banking.

"When you look at the last four or five financial reports of all three big banks, you will see that large portions of their profits came out of foreign currency trading, which means that they are not lending enough money to our businessmen and women," remarked Prime Minister Peter O'Neill in a story for *PNG Today*. "We want them to increase their [banks'] lending book, we do not want them to increase their foreign currency trading. So that is why we have limited the margins in foreign currency trading."

The central bank has also worked to prevent offshore trading of the kina. On March 5, 2015, the Bank of PNG issued a public notice stating that banks outside the country would no longer be permitted to do business in kina via vostro accounts at local banks within the country, and that people making deposits into these vostro accounts would only be able to do so if the kina deposited was from an exchange made through one of the country's authorised foreign exchange dealers. A vostro account is a custodian account held by a local bank in the local currency for a foreign bank, so limiting the range of opportunities to transact business with such accounts also limits the potential for currency manipulation.

ANOTHER INTERVENTION: In March 2015 the central bank announced that local residents would no longer be able to open foreign currency accounts and that existing foreign currency accounts would be audited. All offshore accounts not approved by the bank were to be closed within two months. The notice added that the only exceptions were accounts opened with the permission of the central bank and accounts allowed under project development agreements. Still, even in the case of these accounts, the central bank requires approved exporters to remit any surplus after payment of foreign liabilities within three months. The banks have traditionally earned a large portion of their profits from foreign exchange. This is reflected in their income statements. In 2013, before the change in the rules on the trading bands, BSP earned more from non-interest income than from interest income – PGK781.2m ($295.6m) versus PGK740.9m ($280.4m). It is also notable that BSP's non-interest income had grown PGK529.5m ($200.4m) in the previous five years against PGK266.9m ($101m) for interest income.

The intervention in the market has affected banks' profitability. Foreign exchange earnings at BSP

Cheque processing has largely been automated in PNG, reducing costs for banks and improving services

dropped significantly during 2014, from PGK184.5m ($70m) in the first half of the year to PGK83m ($31.4m) in the second half. Meanwhile, non-interest income fell from PGK781.2m ($295.6m) in 2013 to PGK729.8m ($276.2m) in 2014, while interest income continued to rise: from PGK740.9m ($280.4m) in 2013 to PGK852.9m ($322.7m) in 2014. Loans and advances to customers jumped from PGK1.5bn ($567.6m) to PGK6.8bn ($2.6bn).

LOWER FEES: In March 2015, BSP said it would be lowering its fees on deposits, ending the practice of charging PGK3.50 ($1.32) for each cheque processed. In part, the policy change is the result of the introduction of the Kina Automatic Transfer System (KATS), which has an automated clearing house and real time gross settlement (RTGS) functions. In the past, cheque settlement was physical. Cheques had to be transported from one bank to another, and this added costs and caused considerable delays in the clearing of funds. Settlement could take seven to 14 days under the manual system.

As of October 2014, the commercial banks and the central bank were using the RTGS component of KATS in order to facilitate high value payments between the institutions. The second phase went live in September 2014. Following the implementation of this phase, cheques are scanned and the magnetic ink character recognition (MICR) number is captured. The information is processed electronically and the cheque itself is not exchanged with the counterparty bank. Cheques that are not compliant with the MICR format are rejected, and the customer must present a new document. This has resulted in an increase in the number of dishonoured cheques. The third phase of KATS went live in February 2015. This element of the programme allows for direct payments between account holders at commercial banks. Some fees, however, remain high. For BSP Kundu standard account holders, deposits made at a teller window attract a PGK3.00 ($1.14) charge, and

The central bank has required foreign exchange dealers to deviate no more than 75 basis points on either side of the official Reference Rate.

Despite the limited number of institutions, there is a diversity of strategy among commercial banks

withdrawals are charged PGK4.00 ($1.52). Deposits and withdrawals made at an agent location are charged PGK1.00 ($0.38). Banks say that this largely reflects the costs of doing business in the country. To keep branches open, they must fortify bank locations, staff them with guards and increase the level of security when moving money. According to the World Bank, crime is high in the country, especially in Port Moresby and Lae, and that this translates into a material burden on businesses.

DIVERSE STRATEGIES: Despite the limited number of banks in the market, there is a diversity of strategy among commercial banks. ANZ has historically been less focused on the retail side of the business and has been the banker of choice for corporations with regional interests and exposure. Its territory extends from Beijing, through South-east Asia, all the way to American Samoa, via the Pacific Islands.

For potential clients in need of international reach or expertise, ANZ's network is unmatched within the country. Westpac, for its part, has historically been more of a corporate bank, serving local clients and clients from its home country of Australia, while BSP is a locally owned institution that gets a major share of government and local business, and additionally has a strong retail network. Westpac has 16 branches throughout the country, BSP has 85 (44 regular and 41 rural), ANZ has 15 and Maybank 2. In terms of NPLs, there is significant disparity between the major institutions: ANZ had an NPL ratio of 0.48% as of end-2014; BSP was by far the lowest, at 0.34%; and Westpac came in at 0.91%.

MOBILISING: It appears that change could be afoot. A sector in which three major institutions have played their respective roles for more than a decade is about to become more competitive. The moves made by the central bank are necessitating adjustment and pushing banks to become more aggressive and inclusive. All the major institutions are working to make their presence felt within the country and are increasing their exposure. In light of the high costs associated with establishing and maintaining physical bank branches, the sector is pushing the use of mobile services for retail transactions.

ANZ has been offering its goMoney product in the country since June 2013. The product allows people to make deposits and withdrawals, make payments and transfer funds. Westpac has Mobile Money, BSP has Mobile Banking and Nationwide Microbank has MiCash. What is particularly useful about these offerings is the way they can be used to establish branch type services via merchants. Any retail establishment is able to provide cash-in and cash-out for customers, who access their bank accounts using the bank's merchant-integrated mobile platform. This allows banks to access customers in remote areas without actually setting up a formal outlet.

Digital cash is quickly growing as well. Digicel has had cellmoni since 2011, which allows customers to conduct transactions similar to those offered by the banks. BSP followed up with Wontok Moni, which allows for transfer to individuals who have a mobile phone but no bank account.

At least one institution is making more of a strategic play, not only seeking to expand more into rural areas and retail but also to change the fundamental structure of the market. Westpac, which reduced its presence within the country in the 1990s and lost ground as BSP grew, is attempting a comeback. The bank is opening branches and endeavouring to gain share on the two other main competitors. "Our balance sheet is in growth mode," said Toone.

ANOTHER PLAYER: Another commercial bank is a possibility. The central bank has said that it would like to see a new entrant into the market. It is open to foreign institutions coming in and said that a number of parties have expressed interest, including Malaysia's CIMB Bank. In 2011, a high level delegation from the Malaysian bank, including the bank's chief financial officer, visited Port Moresby. Many in the country and some in the sector are positive about the idea that the country could become the host of another major financial institution. "There needs to be a fifth bank here," said Tony Westaway, managing director of Nationwide Microbank.

Alternatively, the new institution could be created internally. PNG has a large number of players in the market that could merge or upgrade to become full-fledged commercial banks. For example, as of November 2014 there were 21 savings and loan societies in operation in PNG. It is a sub-sector with a long history and a solid customer base, with the first such institutions having been founded in 1962. Trust in this model was so great that by 1967 the country has 189 savings and loans, according to the book, "State and Society in PNG", though by 2000 that number had fallen to 101. Savings and loans are essentially mutually owned credit cooperatives, and they tend to be formed for residents of certain areas or employees of certain companies. Some examples include the Air Niugini Savings & Loan Society, the

Due to the high costs associated with securing bank branches, industry players are working to encourage mobile uptake for retail banking services.

East New Britain Savings & Loan Society and the Teachers Savings & Loan Society.

Legislative support for the model is under way and a Savings and Loan Bill has been under discussion for some time that would greatly change the sub-sector. It would bring in a minimum capital requirement of PGK100,000 ($37,840), give more responsibility to the Federation of Savings and Loan Societies, make possible the publishing of prudential standards for these institution and call for better corporate governance. Most importantly, it will allow these banks to break out of their traditional place in the economy. Under the bill, they will be freed from rate ceilings, allowed to do business beyond their local home markets, and more easily able to merge with and acquire each other.

LICENCE TO LEND: In addition to the big players and savings and loans societies, PNG has 11 LFIs (which includes microfinance companies and non-bank financials), two authorised money remitters, six authorised money changers and two authorised foreign exchange dealers (both of which are also LFIs). In this ecosystem, some of the players are significant. Moniplus, for example, offers a range of services, including fixed-term deposits, loans, asset financing and foreign exchange trading. Nationwide Microbank, meanwhile, has 12 branches in the country, from Buka to Wewak, and provides most of the services that are offered by traditional banks.

While the size of these institutions are small, and their exposure to the more profitable elements of the business is limited, they are important to the sector. The LFIs and savings and loans together have about 7.5% of the banking assets and an estimated 25% of accounts. These institutions could merge to form a commercial bank or one of their number could be a target for an overseas acquirer.

Despite the potential, some market participants are sceptical. The existing banks are so well established that it would be difficult to gain any market share from them. The best institutional deposits are locked up while retail deposits are hard and expensive to attract. It is also a matter of capital. Central bank regulations state that only the equivalent of 10% of capital can be tied up in the trading of a single currency, so a new bank would have to invest PGK100m ($37.8m) to take on PGK10m ($3.8m) of foreign exchange trading risk. As most trades go via the dollar, the limit for all currencies is effectively 10% of capital. This requires a huge commitment for a foreign bank to get an effective piece of what was historically the most lucrative part of the business.

CONCERNS: One of the major concerns in the market is the presence of unlicensed institutions. These range from get-quick-rich schemes marketed on street corners to lenders that exist without the approval of the central bank. The Bank of PNG is worried about the destabilising effect of these enterprises while the sector worries about the damage they do to the legitimate firms. Since they have no compliance burden, they can undercut the licensed players. At the same time, they are unstable and prone to collapse, making people more distrustful of financial institutions in general. PNG has a long history of Ponzi schemes. More than a decade ago, U-Vistract Financial System offered 100% monthly returns, conned an estimated 100,000 people and decamped to Bougainville, where an estimated 60,000 people – nearly the entire adult population of the islands – were cheated out of their money.

International players are helping PNG to combat fraud and financial manipulation with training and support

As a result, PNG was placed on the Financial Action Task Force (FATF) grey list. In a 2011 review of 40 FATF recommendations on money laundering and nine on terrorist financing, it was found that PNG was only compliant with two. The country was largely compliant with six, partially compliant with 19 and non-compliant with 22. In early 2014 PNG was found to be a jurisdiction that had made a significant political commitment to resolving its deficiencies, but the FATF still recommended that it undertake several key measures: creating adequate laws against money laundering; setting up procedures for confiscating money that has been laundered; creating systems for tracing and freezing assets; establishing a structure for the reporting of suspicious transactions; and setting up control systems for cross-border currency transactions. If it does not make improvements in these areas, the country could be labelled a jurisdiction "not making sufficient progress". In 2014, the central bank sent out terms of reference seeking a consultant to help it address these issues.

OUTLOOK: The sector is undergoing a transition. While the central bank works to make commercial banks more competitive, institutions are pushing to expand into under-served areas. If the transition is managed well, banks may experience significant growth and find margins largely intact, despite the loss of some foreign exchange earnings. The increase in competition and the lowering of rates and fees, meanwhile, could have a positive effect on the economy and in turn create more business for the banks.

The country has 11 licensed non-bank financial institutions, including microfinance firms and money changers and money remitters.

Many initiatives for financial inclusiveness specifically target women

Getting on board

Financial inclusiveness is a key governmental goal

Financial inclusion efforts involve a combination of education in financial literacy, deployment of intuitive technology and adaptation to the local culture.

Financial literacy and financial inclusion are becoming pressing issues in Papua New Guinea and receiving increased attention. In part, this is a function of global trends: financial literacy is vital to sustainable development and is actively being supported by the donor community and local governments. It is also especially a focus for PNG, where a combination of topography, geography and history means understanding of money and finance is limited outside the major cities.

OPENING DOORS: "Improved financial literacy can increase economic participation and social inclusion, drive competition and market efficiency in the financial services sector, and potentially reduce regulatory intervention," said Loi Bakani, governor of the central bank, at the National Financial Inclusion and Financial literacy Development Workshop in 2013. The push for financial inclusiveness is achieving considerable success, but greater understanding of money and savings is needed. Bank branches, mobile terminals and ATMs alone are not enough to achieve greater "inclusiveness", as people need the skills and knowledge to utilise access points effectively and responsibly.

Women are a key target for financial education – representing half the population, but holding just 30% of financial assets in PNG. Promoters of inclusion believe bank accounts will increase opportunities for women, giving them more control of their finances and those of their families. According to a 2014 study by the mobile standards association, GSMA, most women in PNG get financial advice from other women (29%), followed by husbands (18%) and newspapers (13%). Advice on business comes primarily from local leaders (40%).

Most women in PNG currently get their personal financial advice from other women, but they tend to rely on local leaders for advice in business matters.

PUBLIC PUSH: The central bank's National Financial Inclusion and Financial Literacy Strategy 2014-15 has mandated a working group on financial education. The group is focused on encouraging institutions to create their own programmes and is making efforts to get financial subjects taught in schools. The central bank is also supporting the use of technology to raise literacy. International partners, like the UN Development Programme, the Asian Development Bank and the Australian government, make financial education a key component of their inclusion packages; the Centre for Excellence in Financial Inclusion considers financial education to be critical to its mandate; and the Microfinance Expansion Project (MEP) makes it a priority. The central bank is also focused on protecting the public from fraud, which has plagued PNG for over a decade; for example, it often issues releases warning the public not to get involved with unlicensed financial firms.

PRIVATE INITIATIVES: The major institutions are also making efforts to increase financial literacy. In 2014, BSP signed a memorandum of understanding with the central bank to undertake financial education as a part of the MEP. A one-week course was held in 2014, training 27 staff in budgeting, coping with financial emergencies, savings and mobile money. Another 93 staff were scheduled to receive the training in order to go on to train 60,000 customers nationwide. Westpac has made its Financial First Steps programme available since 2010, with workshops to teach money management and savings skills. Westpac also holds Business Basics workshops, which help entrepreneurs and small business people with accounting, record-keeping and planning. Meanwhile, ANZ's MoneyMinded programme has been used in PNG to educate over 2000 people since 2010, and Nationwide Microbank is educating via its MiCash product and associated literacy programmes.

MOBILE MONEY: Inclusive efforts are not without challenges. Mobile money, for instance, poses problems for the unbanked, as users are not always comfortable with new technologies. According to a GSMA survey, 47% of women and 35% of men in PNG who wanted a mobile bank account did not open one because of concerns they would not understand how to use it. Language is also a bottleneck. Only two-thirds of people are literate and many are only conversant in local languages. Banks are working with mobile banking agents to circumvent this: store owners can use their bank-linked terminal and fulfil customers' banking requests.

Loi Bakani, Governor, Bank of Papua New Guinea

Guiding the market

OBG talks to Loi Bakani, Governor, Bank of Papua New Guinea (BPNG)

To what extent are low oil prices affecting the PNG economy, and what stance is the Central Bank taking to counteract volatility?

BAKANI: GDP growth in 2014 was about 10% and the same is expected in 2015, reflecting a full year of production at the PNG liquefied natural gas (LNG) plant. Although domestically this may appear to fall short of expectations, considering outdated higher oil price predictions, it is a positive outcome, especially considering the sluggish global economy.

The fall in oil prices has taken the market by surprise just about everywhere, including PNG, and the LNG revenue shortfall will have an impact on government expenditures, especially considering that a significant component of the gas sales was placed on the spot market. The main task of the government and the central bank under these conditions will be to control the budget and a deficit of PGK2.3bn ($870m) in 2015.

Tight monetary and fiscal policies are not always popular, but there is no other solution in the short term. Having said that, our goal as an administration is to complete ongoing infrastructure projects, while pushing for diversification into more sustainable sectors like agriculture and light industry.

We will also introduce a new player to the banking sector before the end of 2015, and although it will be based in Moresby, the conditions for the licence involve reaching rural communities via retail business. Thanks to modern technology, it is much easier to set up ATMs outside the main urban centres and rely on agency networking, rather than opening up full branches, which can turn into an expensive exercise.

How do you respond to concerns about the lack of hard currency in the banking system, often associated with the trading band introduced in 2014?

BAKANI: The trading band was introduced to address the imbalance in the foreign exchange market, not to hinder economic growth. It is not a secret that several commercial banks may be hoarding hard currency instead of buying it on the spot market. Many offshore banks were also conducting banking business onshore, while the volume of kina transacted through kina accounts overseas reached as much as 50% of the foreign exchange market's turnover.

The situation needed tightening, and that is why we introduced exchange control measures in March 2015. We are confident that these measures will re-establish balance in the system, while a string of large projects, including OkTedi mining and PNG LNG, will bring additional hard currency in the medium to long term.

So far, we have used our reserves to supply foreign exchange to the market, and regardless of the trade band, we think that the kina's movement will continue to reflect the market's fundamentals. Some banks have adjusted quickly to the new environment by diversifying their trading books.

We have also issued a licence for a new finance company under Bank South Pacific, but generally speaking we feel that there are other available products in the market besides foreign exchange. Commercial banks should tap into those in order to improve their financial results, not only banking on fees and charges on products and services. Making money from margins on lending would be much more beneficial to the economy in this period of consolidation.

How will the government finance another deficit budget, in light of the economic climate?

BAKANI: I have been strongly against soft loans in the past, when they come with strings attached, as it is essential for us that new infrastructure projects should create synergies with the local economy. The government is considering issuing an international bond before the end of 2015, as there seems to be a renewed appetite for emerging economies, for example sovereign bonds issued in Mongolia and Sri Lanka. We should be able to raise approximately $1bn, as our standing on the international market has improved as a result of the completion of the Exxon-led PNG LNG project.

Robin Fleming, CEO, Bank South Pacific

In transition

OBG talks to Robin Fleming, CEO, Bank South Pacific

To what extent is the country's first liquefied natural gas (LNG) project contributing to 2015 economic growth in Papua New Guinea?

FLEMING: The completion of the PNG LNG project has been a major factor in terms of GDP growth and improving overall business confidence in the country, given all the doubts that persisted around the project, especially at its inception. To get such a world-class project finalised ahead of time and nearly on budget was a fantastic achievement. The GDP forecast for the next couple of years reflects the early start to the project and the associated revenues that are starting to trickle down into the national economy.

At the same time, there is a certain amount of variability in the domestic market. While sectors such as manufacturing may be able to provide products that are readily accepted in terms of price differentiation and competitiveness, others are experiencing a deceleration, perhaps due to fewer customers or less foreign investment now that the PNG LNG project has entered the full production phase. Within this transitional period, those businesses that recognised that the growth driven by the LNG PNG project could not continue forever will now be best positioned to deal with an economy that – while not slowing compared to other markets – is certainly slower than in prior years.

Does PNG face a hyperinflation risk as the result of another record deficit budget?

FLEMING: We have actually seen growth of fuel and real estate prices slow. Generally speaking, there will be sufficient market liquidity to meet any further government borrowing needs, so I do not think that hyperinflation is likely to occur in the near future. Also the fact that the central bank is buying government bonds suggests that the government anticipates revenues to start rising in the next couple of years. As the yield curve of the inscribed stock was 14-15%, it minimised the real risk associated with government borrowings. The ability to quarantine some of the debt from the Treasury via the central bank is improving stability. Once the real revenue associated with the PNG LNG is available in the domestic market, it would be wise to go back to a more traditional approach of debt raising.

Banking is a highly profitable business in PNG. Which segments are pushing the industry forward?

FLEMING: Lending predominantly leads, even though the composition of the balance sheet is unbalanced in PNG, with 80% in infrastructure and business, and the remaining 20% in retail. The reason for this uneven distribution is that as much as 90% of land continues to be held under customary title, while only 10% is available as a state lease. Therefore, the formal economy remains very small, at 15%, affecting lending to the retail sector. Recently though, the government has introduced a homeownership scheme that should allow more workers to purchase their first homes and hopefully stimulate that segment as well. Foreign exchange has also increased considerably in the last two years, but it has normalised since margins were introduced to foreign exchange transactions in June 2014.

To what extent is financial literacy sustaining the growth of the banking industry in PNG?

FLEMING: Out of every 10 transactions, nine are completed using some form of electronic medium. This shows the potential for electronic banking in the main urban areas and in the provinces as well. Phone banking for example is an area where we continue to see exponential growth in activity levels just about everywhere. This suggests that that technology has been embraced very quickly, regardless of education level. Nearly every business has an employee or a supplier that needs banking facilities, and people living in rural areas also have the capacity to be involved in the banking system, provided they have access to more facilities and are aware of the financial products available. The success of third-party agencies in trade stores across provincial areas is a classic example of this.

More and more people are choosing to move their savings into banks

Digging up value

Banks use new methods to attract depositors

Though the country may appear to lack liquidity, Papua New Guinea may have billions of kina hidden outside the banking system. According to Tony Westaway, managing director of Nationwide Microbank, residents tend to store cash at home, or hide large sums underground in bamboo pipes and in tin cans. The reasons are many: some people do not understand banking, while some do not trust banks and others simply cannot physically reach bank branches, given the topography of PNG and the limits on transportation.

However, this situation is fast changing. The banks, have had profits squeezed by central bank policies on exchange rates and lending, and are looking for new sources of growth and profits. The underserved are a prime target for these institutions, as reaching them will result not only in more business, but also potentially higher margins. The unbanked, meanwhile, are becoming more interested in financial products. These products create opportunity and in some cases bring them freedom not previously available. Westaway likes to tell a story of a family in rural PNG that had not left their village in years, because they had buried their cash and were afraid of theft. After opening an account with Nationwide Microbank, they were able to travel without concern for their assets.

THE 80%: An estimated 80%-plus of the country is unbanked, according to public comments made by central bank officials in 2013. The actual number is probably higher, with the total population at or above the official estimate of 7.3m (the population estimates are rough, and some researchers have suggested that the total is closer to 10m). For a number of years, the government has directed considerable attention towards getting more of the unbanked on the financial grid. In 2009, the country committed to the Money Pacific Goals 2020: teaching children about finance, putting into place simple consumer protection measures and doubling the number of people with access to financial services. The government's various development plans, such as the Development Strategic Plan 2010-30, the Inclusion Policy 2011-15 and PNG Vision 2050, also emphasise getting more people in the country into the banking system.

In 2013 in Kuala Lumpur, the central bank committed to the Alliance for Financial Inclusion's Maya Declaration. In doing so, it said it would add 1m people to the roles of the banked by the end of 2015, create a generation of people with an understanding of finance and encourage the use of technology to support inclusion. The Centre for Excellence in Financial Inclusion was established in 2013, and it coordinates the country's strategy for financial inclusion. "The government has created a great enabling environment for microfinance to grow," said Westaway.

The international community has been actively supporting the relevant developments. The UN, for example, has made grants to Nationwide Microbank for the creation of electronic solutions, has backed the adoption of e-payments and has undertaken considerable research on inclusion in PNG.

The Australian Department of Foreign Affairs donated A$14.15m ($11.5m) in 2014 to the Pacific Financial Inclusion Programme, which has been working towards bringing more Pacific Islanders into the financial world since 2009. The IMF has called for PNG to serve more of the unbanked to ensure stable growth. The Microfinance Expansion Project, a $24.9m programme in operation since 2010 and supported by the Asian Development Bank and the central bank, is working toward that end. It aims to raise the capacity of local institutions to make loans to low-income individuals and small businesses.

THE PRIVATE SECTOR: The private sector has also been very active, with the commercial banks looking to make their balance sheets broader and deeper in terms of coverage as they see the opportunities of financial inclusion. BSP is employing a three-pronged strategy. It is building its presence by expanding the BSP Rural brand, which was started in 2009 and had 41 branch locations throughout PNG as of end-2014.

With an official population of 7.3m, it is estimated that over 80% of PNG's people remains unbanked, largely due to geographical constraints limiting access.

By providing more access points and diversifying services, banks are reaching out to rural areas

It is growing its ATM and electronic funds transfer at point of sale (EFTPOS) networks in order to reach more people. EFTPOS locations increased from about 10,000 at the end of 2013 to more than 11,600 at the end of 2014. And the bank is utilising mobile banking and its Wontok Money to reach places where full branches are not cost effective.

LOWERING COSTS: The nation's banks are competing to extend services to lower-income groups. To make banking more affordable, BSP has offered the Kundu account since 2011. The Kundu Standard has no monthly fees and low branch deposit fees – PGK3 ($1.13) at branches and PGK1 ($0.38) at agencies. Fund transfers are PGK0.50 ($0.19) and cheques are processed for free. Westpac started Choice Basic, also in 2011. The account attracts no monthly service fees, and transaction charges are only PGK1.50 ($0.57).

Additionally, Westpac's Everywhere Banking programme combines education, Choice Basic and the use of in-store banking merchants – stores authorised to provide some banking functions. This combination offers customers access to a wide range of services: deposits, withdrawals, transfers, bill payments, statements and balance inquiries. "Initiatives like the in-store banking scheme encourage communities to reach out to the banking sector while transacting with efficiency closer to their homes," Geoff Toone, managing director of Westpac Bank PNG, told OBG.

In addition to the four commercial banks, other institutions are able to serve the needs of the rural and the poor in PNG. The country has a total of 11 licensed financial institutions (LFI). Many are non-bank financials, which are not allowed to take spot deposits, but can take time deposits, make loans and offer other services, like foreign exchange. They will often provide credit to customers who are not normally considered by commercial banks. PNG also has 21 savings and loan societies and many unlicensed institutions that provide short-term credit. These small players add up to a large base to build inclusiveness.

Banks are partnering with local businesses in hard-to-reach areas, enabling merchants to offer a limited range of banking services from their electronic points of sale.

MICROFINANCE: PNG has a number of microbanks. PNG Microfinance was established in 2004 and claims the title of the country's first such institution. Its original shareholders were BSP, PNG Sustainable Development and the International Finance Corporation. The bank offers simple and relatively cheap products. Its Financial Inclusions Savings account, for example, has a fee structure that is affordable for most Papua New Guineans. The minimum opening balance is PGK20 ($7.56). The monthly fee is PGK1 ($0.38). Customers are allowed to make unlimited free deposits and a fixed number of free withdrawals. The bank has nine branches and five service centres. Nationwide Microbank was also founded in 2004, with assistance from Australian Aid and the Asian Development Bank, originally as Wau Microbank. It currently has 12 branches across the country and 150 agents. The bank's loans range from PGK200 ($75.70) to PGK200,000 ($75,700). Kada Poroman Microfinance was founded as Kokopo Microfinance in East New Britain Province in 2006. The controlling shareholders are four local-level governments. People's Micro Bank, which is owned by National Development Bank, received a licence in early 2013. It gives loans ranging from PGK500 ($189) to PGK500,000 ($189,000). Women's Micro Bank was inaugurated in August 2014.

The microfinance sector has approximately 500,000 account holders, according to *Business Advantage PNG*. Microfinance was stagnant for a number of years. Between 2011 and 2013, the sub-sector's assets remained stuck at around PGK150m ($56.8m), according to central bank data. But by September 2014, the total jumped to PGK172.9m ($65.4m). At the end of 2014, total assets were PGK217m ($82m). Demand is strong in the Highlands, Momase and the Islands regions, the central bank notes.

CHALLENGES: According to the governor of the central bank Loi Bakani, in comments made in 2013, 85% of the people in PNG live a largely unmonetised existence. They are usually subsistence farmers, have no assets and have little understanding of finance. They also have trouble meeting requirements for opening accounts, as they often lack the necessary documentation and can face a certain amount of discrimination, according to comments made by the governor. They are considered unreliable and high risk. During much of their history, the micro-banks have had difficulty making loans, primarily taking deposits instead.

Security problems make it difficult to serve some areas. In 2014, BSP was forced to close 12 rural branches because of robberies. The branches were in Morobe, Eastern and Western Highlands, East New Britain, Chimbu, Enga, Jiwaka and Madang Provinces. The efforts to achieve inclusiveness face other challenges. While technology is helpful, implementation can be difficult. Westpac's Everywhere Banking has had to contend with a high level of failures – as a result of forgotten PINs or too many PIN attempts – and low levels of use at some merchants. In late 2013, the bank reported that 70% of merchants conducted fewer than 50 transactions in the month of September.

Capital Markets

Forthcoming changes to reform the markets

Trading value increased significantly in 2014

International sovereign bond under consideration

The country has a large debt market that is growing

Trading on the Port Moresby Stock Exchange commenced in 1999

Making the market

Expected reforms will restructure the exchange and bring more competition

The Securities Commission of PNG is the regulator of the country's capital markets, monitoring trading and approving the listing rules and listings.

Of all the sub-sectors within Papua New Guinea's financial system, the capital markets are the least mature. The banks are strong, growing and becoming increasingly competitive. The insurance sector has been active for more than a century and is substantial for a developing country. The superannuation funds are large, stable and vital to PNG society. On the other hand, the stock market has only two brokers, two owners (the brokers themselves), 18 securities and little liquidity. The lack of capital markets development has not gone unnoticed, and the exchange has been targeted for major upgrades, while the reform of the debt market is being discussed (see analysis). These efforts have support at the highest levels, with Prime Minister Peter O'Neill backing the transformation of the stock exchange.

HISTORY OF THE BOURSE: The idea of a stock market was first mentioned shortly after independence in 1975, but nothing immediate came of the discussions. In the 1980s a stock exchange company was formed under the PNG Holdings Corporation, an entity created for the purpose of privatising state-owned companies. A market was not created at that time due to the lack of legislation and a shortage of local capacity to go ahead with implementation. In 1994, a committee was formed to oversee the creation of a market, and in 1997 a number of laws were passed for it, including the Companies Act 1997 and the Securities Act 1997. The Port Moresby Stock Exchange (POMSoX) was incorporated in 1998 and trading began in 1999.

Trading on the exchange is fully automated through the use of the POMSoX Electronic Trading System, which is based on Australia's legacy Stock Exchange Automated Trading System. The exchange is open from 10.00am to 4.00pm each day and settlement is T+3. At present, the Pacific region has only two exchanges outside Australia and New Zealand: the POMSoX in PNG and the South Pacific Stock Exchange in Fiji.

Owned by its members, Kina Securities (37.5%) and BSP Capital (62.5%), the stock exchange is a self-regulatory organisation that can set rules for its members.

The POMSoX adopted the listing and business rules of the Australian Stock Exchange (ASX). To become a listed company, an applicant must have assets of at least PGK1.5m ($567,600) and three years of profits over PGK600,000 ($227,040) a year. The initial listing fee starts at PGK10,000 ($3780), for companies with equity value up to PGK3m ($1.1m). The fee increases with equity value, topping out for those worth more than PGK1bn ($378m), who pay PGK216,000 ($81,734) plus 0.01% times the excess over PGK1bn ($378m). An annual fee must also be paid: from PGK5000 ($1892) for firms with equity value below PGK3m ($1.1m) and up to PGK100,000 ($37,840) for those with equity value above PGK1.25bn ($473m). Debt securities are charged PGK25,000 ($9460) on listing and an annual fee of PGK10,000 ($3784). Dual-listed companies are charged based on 30% of their total market capitalisation.

Listed companies are required to publish half-year reports, full-year reports and hard-copy annual reports, while mining firms must also publish quarterly reports. All trading is exempt from the capital gains tax, the goods and services tax and stamp duties.

AUSTRALIAN RULES: The Securities Commission of PNG (SCPNG) regulates the capital markets, approves listings and listing rules, and monitors trading. It can investigate the violation of the Securities Act 1997, the Securities Regulation 1999 and the Takeovers Code 1998. However, its powers are limited. It does not license stockbrokers, underwriters, fund managers or advisers. It is a division of the Investment Promotion Authority (IPA). The stock exchange is a self-regulatory body, and can set rules for its member and discipline them if necessary. It is owned by its members, Kina Securities (37.5%) and BSP Capital (62.5%), with the latter being the stock broking and funds management arm of Bank South Pacific (BSP). The market has two benchmark indexes, the Kina Securities Index (KSi) and Kina Securities Home Index (KSHi). The former reflects the trading of all public firms in PNG, including dual listings, while the latter is an index of companies that are focused on PNG. Both indexes are capitalisation-weighted.

GOVERNING LEGISLATION: The Securities Act 1997 is based on similar laws in Australia and New Zealand.

It is a broad document that lays out the creation, powers and functions of the SCPNG; discusses the establishment of a exchange; details the establishment of fidelity funds (guarantee funds insuring investors for up to PGK250,000, or $94,600); establishes offences (some deemed criminal) and punishments; instructs on offerings and prospectuses; defines insider trading and fraud; lays out liability; and provides other guidelines and rules. It also deals with substantial shareholdings (and requires that notice be given when thresholds are breached) and beneficial ownership. The Securities Regulation 1999 supplements the act, with new guidelines and rules on prospectuses, misleading information, audited accounts, unit trusts and guarantees.

The Companies Act 1997 lays out basics, such as registration, transfer of shares, dividends, liability, interested parties disclosure, financial reporting, auditing, duties of directors and shareholder meetings. It too was followed by supplemental regulations: Companies Regulations 1998 and the Companies Rules (issued 2006). The original Companies Act, known as Companies Act (Ch 146), was basically a copy of the English Companies Act 1948, while the Companies Act 1997 was essentially the New Zealand Companies Act 1993.

The Takeovers Code 1998 protects the interests of a company's shareholders in the event of an acquisition. It will be in effect after the buyer has purchased more than 20% of the target's stock. Until the passing of the Securities Act, takeovers had been covered by the Companies Act, while mergers and acquisitions were more or less unregulated. After the Securities Law was enacted, the Takeover Code was formulated. The code has been seen as inadequate; it does not provide for a takeover panel, for example, so any disputes must be heard in court. In 2013 it was amended to include a national interest clause, which allows the SCPNG to prevent a takeover if it believes the transaction is not in the interest of PNG, for example, in terms of reduced competition and the loss of jobs.

17 SECURITIES BUT LOW VOLUME: Despite a solid foundation, the POMSoX has not performed well by most measures. Although the number of listed companies has increased from eight in 1999, just 17 securities were listed as of June 2015 (16 stocks and one debt instrument). One firm, Airlines of PNG, was suspended in May 2015. Of the trading shares, three are financials (BSP, Kina Asset Management and Credit Corporation) and 10 are resources-related. Others include Steamships Trading and City Pharmacy, two well known local names, with Steamships being the first company to list.

A total of 10 companies also have listings overseas; eight on the ASX, one on the New York Stock Exchange (NYSE) and one on the Toronto Stock Exchange (TSX). Of the dual-listed companies, InterOil is on the NYSE and Marengo Mining is on the TSX. In April 2015, Marengo Mining delisted from the ASX and now is only traded on the TSE and POMSoX.

The most recent new listings took place in 2013, first with Indochine Mining joining the PoMSoX in September. The ASX-listed company is developing a gold mine at Mt Kare in Enga Province. Later in the year, on October 30, 2013, ASX-listed Niuminco Group also started trading in PNG. The firm has interests in three mineral sites in PNG and one in Tasmania, Australia. In terms of other activity on the bourse, BSP started a share buyback programme in July 2014, saying it would purchase up to PGK15m ($5.7m) worth of shares and keep the offer open for a maximum of 12 months. In late June 2015 Kina Securities launched an initial public offering for a dual listing on the ASX and the POMSoX, aiming to raise PGK202m ($76.4m). Part of the capital raised is set to be used to fund the acquisition of PNG's Maybank, and the firm is expected to list on July 30, 2015.

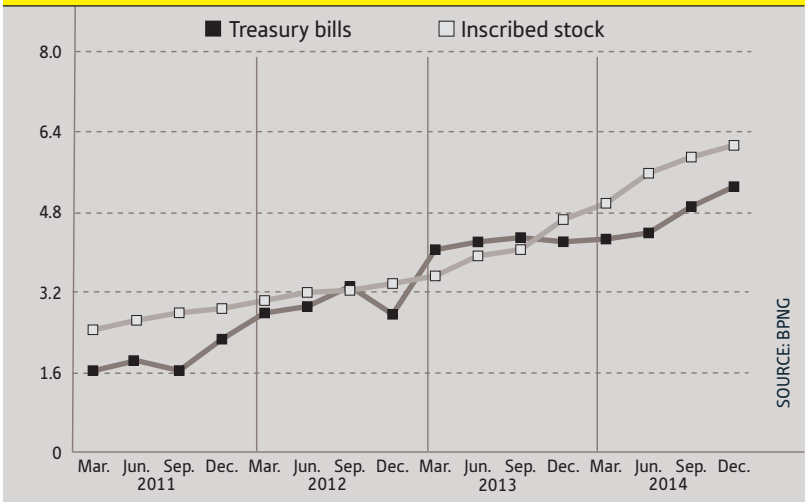
Overall, stocks have not performed particularly well. The benchmark indexes peaked in 2010 and are down considerably since then. The KSi topped out above 7000, while the KHSi briefly touched 14,000 that same year. Since then, they have been in almost steady decline. The KSi was trading at about 3500 in mid-2015 after a years-long rough patch. While it was up 1.7% in the year through mid-June 2015, it had fallen in the previous three years: down 21.3% in 2012, 14.9% in 2013 and 9.7% in 2014, according to Kina Securities data. The KHSi has fared better. It was at 9800 at mid-2015 and had a good few years since it crashed. It was up 2.5% by mid-June 2015 and had climbed 16.9% in 2014. Despite the downturn, one bright spot in the market is that overall trading value increased 231% in 2014.

Market capitalisation is down as well. For the KSi, it peaked at around PGK110bn ($41.6bn) in 2010, with this falling to PGK53.5bn ($20.2bn) by end-2014. The number of listed companies has also fallen from 22 in 2011 to 17, and most shares on the board have limited liquidity. Usually only the financials and Oil Search change hands, and even then only a few trades are made.

LOCAL COMPANIES: Some stocks have performed well recently, especially those more domestic demand-related and not directly involved in resources. In its Australian listing, Steamships Trading was up 22.9% in the three years to end-2014, while Credit Corporation, City Pharmacy and Kina Asset Management were up 65.5%, 38.4% and 8.8%, respectively. These firm's stock prices have to a great degree reflected increasing economic prosperity and the rise of a consumer culture.

Key pieces of legislation governing the stock market include the Securities Act 1997, the Companies Act 1997 and the Takeovers Code 1998.

Public debt by source, 2011-14 (PGK bn)



The benchmark indexes peaked years ago and are down considerably since then. However, overall trading value increased 231% in 2014.

The POMSoX is in part being used to give investors exposure to the growth in PNG without having to engage in foreign direct investment. It is also a potentially useful tool for firms in PNG to get financing. The banking sector is strong, liquid and well capitalised, but PNG enterprises need an attractive, transparent and efficient way to raise equity, and the bourse could provide this. However, it is now neither large nor liquid enough to be attractive to investors or issuers. "The shares don't trade a lot. There's no liquidity in the system," Michael Van Dorssen, general manager of Kina Finance, told OBG.

For the market to get to where it should be, a number of reforms are needed. The legal foundation and framework are strong on paper, but not strong enough for PNG to be accepted as a truly up-to-date financial jurisdiction. The stock market legislation is relatively old and the value chain is not fully developed in terms of processing, depository, custody and settlement.

PNG has been a member of International Organisation of Securities Commissions (IOSCO), the international standards body for securities regulators, since 1998. The SCPNG is known as an appendix B signatory. According to the IOSCO, the regulator has committed to becoming a full appendix A signatory but has not yet provided the final signature. PNG has completed almost all the steps necessary to sign the IOSCO's guiding multilateral memorandum of understanding (MMoU). In 2009 the SCPNG expressed a commitment to complying with the terms of the MMoU, and it has also submitted the necessary documentation in terms of regulations and legislation. Furthermore, in May 2015, the SCPNG provided an implementation timeline.

PLANS FOR CHANGE: The government and the relevant authorities have long discussed the need for an upgrade of the capital markets and of securities legislation. Various plans have been floated to reform the system and some action has been taken. But the efforts have been limited in nature and have not done much to make the market more attractive. A new index was talked up for introduction in 2013 but failed to materialise. The idea was to develop a benchmark that accurately represents the market and is better aligned with international standards, so that POMSoX would be of more interest to foreign investors. Emerging markets funds need an accurate index so they can gauge performance against a standard. Currently available indexes have flaws, either under-representing local shares or skewing the index towards a few very large companies. If properly constructed, a new index could be included in many of the global sub-indexes or regional indexes, and that could positively affect trading.

Other changes discussed include the easing of listing rules or the establishment of a secondary board for smaller firms. While the bar is currently fairly low for new companies to trade on the POMSoX, the standards are stringent enough to preclude many local firms that may want to raise capital for early-stage growth. Also discussed were electronic links to the international markets so foreign investors can more easily access PNG shares and government bonds. Neither of these plans has come to fruition yet, however.

OVERHAUL: The government is starting to contemplate more aggressive action, aiming for a wholesale restructuring. In early 2015, the prime minister said in a statement that legislation has been introduced and approved by the National Executive Council that will reform the structure of the market so that trading and supervision are dramatically improved. The new laws that will supersede the Securities Act 1997 are: the Securities Commission Act 2015, the Capital Market Act 2015 and the Central Depository Act 2015. While the details are sparse, it is clear from the type of legislation proposed that the market will be different after the laws are enacted. Importantly, the SCPNG will be made independent and be given greater powers of enforcement. As it stands now, the commission is too weak to be effective, according to the prime minister. "The legislation will position the SCPNG as an independent office, moving away from its current status as a division of the IPA," O'Neill said in June 2015. "Currently, the securities commission does not have an independent organisational and administrative structure. This has meant the commission is unable to perform its regulatory functions by providing oversight of the PNG capital markets." Judging by the titles of the new laws, it appears as though a more robust and internationally acceptable value chain is being contemplated. A depository will be set up, and that will increase security and transparency. The prime minister also talks of upgrading anti-money-laundering provisions and adding to the range of products. The list includes investment funds, unit trusts, debentures and private equity. But the most significant change being proposed is to introduce more competition. The prime minster says that the current duopoly is unacceptable and must be addressed so that the markets function better. "These two brokers also own the Port Moresby Stock Exchange, so we need reform in this arrangement," O'Neill said. "There are many qualified Papua New Guineans and foreigners in the country who are able to provide competitive broking services and we will open the market to competition."

Since financial reforms were introduced in 2000, the banks and the non-bank financial institutions have done well. The relevant firms are stable and profitable. The prime minister believes that the capital markets have lagged behind the rest of the financial services sector and need to be improved. While other financial sub-sectors need to change in certain respects, the capital markets may be holding back development.

OUTLOOK: The POMSoX has a solid foundation but is not currently large or liquid enough to act as an effective source for raising funds or attracting large numbers of investors. As long as the capital markets remain as they are, the PNG economy will suffer a serious gap in terms of funding and investment options. Thankfully, this has been recognised at the highest levels, with the prime minister stating that he wants to see the POMSoX improved. If sufficiently accomplished, the impact on the markets and on the country could be significant. Indeed, given the expected growth in the country as new energy projects come on-line, the POMSoX could play a key role in stimulating economic activity.

Richard Borysiewicz, General Manager, BSP Capital

An eye on the economy

OBG talks to Richard Borysiewicz, General Manager, BSP Capital

What is your assessment of the current business environment in Papua New Guinea?

BORYSIEWICZ: The first six months of the year have been tough compared to 2014, and the shortage of hard currency is perhaps one of the major stumbling blocks in the economy, as it hinders the overall growth potential. It is increasingly difficult for businesses to buy products and equipment internationally and the shortage of liquidity has had a negative effect. The windfall of liquefied natural gas revenues will not have much effect during the 2015 financial year, but more likely in 2016 and beyond. Until then, some smaller firms will finding it tough and larger ones will be consolidating their businesses.

Within the current scenario, it is a good time to be investing in PNG. Many international investors remain sceptical about the market, mainly because of the lack of information available to them, but there is a growing minority who actually see opportunities in overcoming local challenges, which is probably the correct way to look at PNG.

How is the drop in oil prices affecting foreign investment in PNG?

BORYSIEWICZ: The price of oil has clearly had an impact on energy companies' profitability, as well as on their levels of comfort to keep on investing in new exploration activity. Worldwide, some of these projects will experience delays, especially those taking place in high-cost areas like Australia, but the good news is that PNG remains an attractive destination for investment – even when the price of oil is around $60 a barrel – mainly because the cost structure of operations here are considerably cheaper compared to those in more developed markets.

However, the perception of PNG as an investment destination continues to be mixed, and attracting offshore investors is not always an easy task, despite the opportunities available. PNG has a stable democracy, it has never defaulted on its national debt and there is the rule of law, which is not always the case in many other emerging markets. The present government is also doing an impressive job in allocating spending to physical infrastructure, although plenty more remains to be done. Over the coming 10 years, there will be significant new opportunities with the oil and gas projects coming on-stream, providing both a steady and growing source of income. If the revenues from these are wisely spent, this country could find itself in an enviable position within the region and beyond. It will certainly be a more prosperous and better place to live.

PNG is expected to double its GDP growth in 2015. How will that translate into real economic activities for the local market?

BORYSIEWICZ: GDP growth is meaningful when you have small and medium-sized enterprises starting up, even if they employ less than three people. When economic growth is driven by a single commodity or a single project, it is a risk, in my opinion. The main difference between the US economy and that of Saudi Arabia, for example, is that the energy sector accounts for less than 10% of GDP in the former and 90%, if not more, in the latter. Putting all your hopes in LNG production poses a high risk, as we have seen from previous experiences around the world.

While PNG is close to the Asian markets that are driving global energy consumption and has a commodity that is in high demand on the international market, the country needs to focus on more sustainable industries like agriculture and fishing.

Agriculture has had its ups and downs in PNG, but generally it is not as prominent as one should expect. Asia needs minerals and energy, but also food, especially proteins in the form of fish. PNG could definitely turn into the region's main supplier. I feel the country has to diversify away from energy, as the agriculture and fisheries sector has historically been obscured by the wealth of the extraction industry.

Syd Yates, CEO, Kina Securities

On the rise

Syd Yates, CEO, Kina Securities, on the advantages of Papua New Guinea as an investment destination

Promoting PNG as an investment destination on the international market has not always been an easy task, given the poor reputation that the country has been suffering from for at least the last two decades. However, when you look at the facts more thoroughly and look at what an investor should base his decision upon, PNG is in fact a success story. Despite the many challenges we have faced since independence, we have not missed a single loan payment or had a government been overthrown during this time. In fact, PNG has only had two prime ministers since 2002. I am positive that many countries around the world would welcome that level of political stability. The system of government in PNG is modelled on the Westminster system, with the Queen of England as our head of state. This fundamental respect for constitutional order and the rule of law has shaped our society, and remains the basis on which modern PNG is trying to emerge on the global arena, taking advantage of its abundant natural resources, such as hydrocarbons, minerals, tuna, timber, and at the same time boosting its appeal to tourists.

Having said that, plenty of challenges continue to exist, while questions persist about the transparency of our political system, the lack of economic diversification, and issues related to law and order. The sudden drop in the price of oil on the international market has also contributed to a shortfall in revenues. As a result, people are increasingly questioning the government's response, which has been regarded as being too late. This assessment was reflected in the change to PNG's sovereign credit rating undertaken by Moody's following the 2015 budget. The government may have to make some difficult decisions when it comes to budget planning, and there have indeed been talks about raising capital through an international bond in the near future. This seems like an appropriate move as far as the financial sector is concerned, given that the country is preparing to host political elections in 2017 and to join Asia-Pacific Economic Cooperation in 2018. While some of these concerns do contain a certain degree of truth, a lot of it has been also been blown out of proportion over the years. What remains important, however, is that PNG has what the world demands in terms of natural resources. This will be able to assure the country's sustained economic growth for many years to come, as the IMF and other international institutions have forecast. Indeed, in 2015 PNG is set to become one of the world's fastest-growing economies.

Moreover, while ExxonMobil has led the construction of the country's first liquefied natural gas (LNG) project, France's Total will most likely add two additional LNG trains by 2020, alongside major mining projects like the Frieda River gold and copper project. This will turn PNG into a force to be reckoned with in the Pacific region and beyond. Mega-projects like these can spur economic growth, creating synergies with all kinds of industries. Therefore, if investors are looking to diversify their portfolio of investments, PNG offers a perfect opportunity. This is also true for the financial sector, which is why the central bank has granted us a full banking licence to compete with major players such as Bank South Pacific, ANZ and West Pac. PNG sits right in the middle between Australia and the Asia-Pacific region, and so can take advantage of the substantial level of capital flows that are expected to occur in this part of the world over the next few decades.

Up until now, asset finance has fuelled the growth of the middle classes in PNG. However, a comprehensive range of diversified financial products and services such as checking accounts and foreign exchange will be in great demand among the entire population, not only the corporate sector. Despite the challenges that PNG has faced, it has achieved a great deal in its 40 years as an independent state, reaching a level of social and economic stability that would justify whatever risks may exist for investors.

An international sovereign bond issue is under consideration

In evolution

Developing the nation's debt markets

Although the Port Moresby Stock Exchange (POMSox) has been capable of offering debt instruments for some time, the debt market is largely undeveloped in Papua New Guinea. The government's local-currency issues are illiquid, it has not yet issued an international bond and there is currently only one corporate debt instrument on the POMSoX. There is little available beyond primary issue government bills and bonds that must be held to maturity.

However, the market is starting to evolve, and it looks set to become more active and more useful to the economy as a whole in the near future. An international sovereign bond is currently under consideration, and reforms may be in the works that will allow for the secondary trading of debt securities. Furthermore, an international corporate debt issue is also being planned. If these sales and reforms happen, over the next few years the PNG bond market could gain the depth and volumes it needs. That would result in more fiscal flexibility for the country while private enterprise would have access to competitive and efficient funding.

SIZEABLE BUT ILLIQUID: The country has a large debt market already, and one that is growing due to deficit spending that is scheduled to continue through 2017 and could continue beyond. According to the Bank of PNG, total outstanding public debt stood at PGK14.7bn ($5.56bn) as of September 2014. Of that, PGK10.8bn ($4.1bn) was domestic and PGK3.8bn ($1.4bn) external. Most of the external debt is owed to international agencies (such as the World Bank, the Asian Development Bank and the Australian government), while the majority of domestic debt is in the form of long-term government inscribed stocks (GIS). As of December 2014, PGK6.1bn ($2.3bn) of the domestic debt was GIS versus PGK5.3bn ($2bn) of short-term Treasury bills.

Most of the domestic debt is held by banks and institutional investors, such as the superannuation funds and the insurance firms, but increasingly the central bank has been a buyer of the securities. As of September 2014, it owned 13% of the government debt outstanding, up from around 6% in September 2008. Press reports in early 2015 said that the bank had become the buyer of last resort for government bonds. In part because of the government's need for funding and the fact that it has relied so much on the issuing of Treasury bills and inscribed stock, rates have started to climb. While the 2015 budget calls for a reduction in expenditure over time and the elimination of deficits by 2017, analysts say that this will not be possible. The government has started to recognise the need for higher than expected fund raising in the near term at the very least.

On the corporate side, demand for bonds is low. The banking system is liquid, and creditworthy companies have no trouble getting funding in the form of loans. Corporate bonds can be traded on the Port Moresby Stock Exchange, but only one issue is available: Bank South Pacific notes, listed in 2009.

CONTINUING TO BUILD: The financial sector has a good foundation on which to build a more robust bond market. It has solid, well-capitalised banks, large institutional investors and a competent and well managed central bank. As the bond market develops, it will have a good range of customers and responsible and balanced oversight. The market infrastructure needed for the cash side of transactions is improving fast and is almost at the point where it could handle a full-fledged debt market. The country has been developing a payments system that will allow for real-time gross settlement (RTGS) and incorporate best practices for connectivity.

In 2013, a National Payments System Act was passed, which set the groundwork for a comprehensive payment network to be established. Under this act, the creation of a national payments system was mandated under supervision of the country's central bank. Historically and until recently, the system was manual and not particularly efficient. The Port

The country's debt market is starting to evolve. If the planned bond sales and reforms materialise, over the next few years the PNG bond market could gain the depth and volumes it needs.

The CBB-Tap programme allows non-institutional players to buy government debt on a small lot basis

The authorities are keen to improve the debt markets so they become more attractive to issuers and investors and ultimately more liquid. The measures being considered include the creation of a secondary market for bond trading, of both government and corporate securities, and an international bond issue.

Moresby Clearing House would conduct three cheque exchanges a day, with four on Friday. At 4:45pm Monday through Thursday, settlement between the banks was conducted, while settlement would happen at 4:30pm on Fridays.

In 2013, the settlements transformation began. The first phase of the Kina Automated Transfer System (KATS) was established in October of that year allowing for automated high-value interbank payments. By early 2015, the system had been expanded to allow for the clearing of cheques (which is now down to four days) and the immediate processing of low-value payments between customers. KATS is designed to be a world-class solution that can integrate well with the global markets and could allow for seamless international payments and settlement for international investors. It utilises SWIFTNet architecture, which is also used in Fiji to achieve RTGS.

CBB-TAP: The Bank of PNG has already worked to broaden the appeal of the bond market and make it more accessible to a wider range of investors. For example, for more than a decade, it has had the Central Bank Bill Tap (CBB-Tap) programme in place that allows non-institutional players to buy government debt on a small lot basis.

Under CBB-Tap, individuals, private companies and church groups can purchase short-term government securities ranging from 28 days to 365 days, with a minimum purchase of PGK10,000 ($3784). This is much lower than the threshold for bonds, with the minimum bid for GIS at PGK100,000 (37,840). Sign up is easy and straightforward, requiring only identification, a filled-out application and a bank cheque.

The maximum purchase size is PGK500,000 ($189,200) per customer and investments can be rolled over, but they cannot be redeemed early. Registered investors, such as banks, savings and loans and superannuation funds, are not allowed to participate in the CBB-Tap facility. In one auction in June 2015, a total of PGK1.14m ($529,760) of government securities were sold under the programme, with maturities of 63 days and 91 days.

The authorities are keen to improve the debt markets so that they can become more attractive to issuers and investors. The central bank has been working to extend the length of maturities in order to deepen the bond market by selling more long-dated paper. Another popular method of improving the debt market is to create a secondary market for bond trading, of both government and corporate securities, thus allowing owners of debt to easily sell if they want rather than having to wait for maturity. A secondary market also makes pricing information more transparent and readily available and is seen as improving the country's standing in the eyes of international ratings agencies. The creation of a secondary market is an often stated goal in PNG, with the Treasury indicating that it is a priority, but no concrete steps have been taken in recent years, and PNG remains a buy-and-hold market.

One additional measure that could help the debt market significantly, as well as help the wider economy, would be the issuing of an international bond. A sale of this type would lower the cost of funding for the government while at the same time allowing the country to have a better, and real-time, sense of its value in the market. It could improve debt management, and it would avoid the complications that can arise in private debt deals, which are less transparent and harder to evaluate.

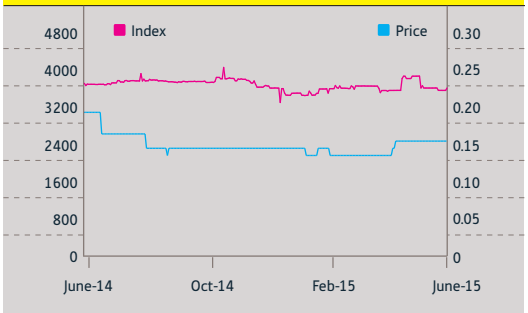
An issue of this type was attempted at least once before. In 2013, Barclays, JP Morgan and BNP Paribas were reported to be working on a dollar bond for PNG totalling $500m. The issue was never sold and the country raised money other ways. At the time, the issue was met with some scepticism by international observers. They commented that the country was too risky to be acceptable in the international markets. But PNG remains eager to do a sale of this kind and support is coming from the central bank and from international banks, such as ANZ, who understand the country and believe that a bond would be saleable at an interest rate far below domestic kina rates. The budget deficit may persist and the cost of domestic funds are becoming so high that it may be the best option for the country.

PRIVATE SECTOR BOND: While the government considers its options, an international private issue has also been discussed. In May 2015, the National Petroleum Company of PNG (NPCP), which owns 16.6% of PNG's liquefied natural gas (LNG) project and has rights to buy into the Elk-Antelope development, said that it wants to raise debt in the market in order to participate in oil and gas projects.

The financing would include "plain" US-denominated debt. The NPCP is state-owned under the Independent Public Business Corporation. The company told Reuters that the sale could be in the billions and that it hoped to go to the markets in 2015 or 2016. In part, the need for debt is a result of reduced cash flow from the PNG LNG due to the lower LNG prices.

Share analysis & data provided by BSP Capital

HIG price & index relative performance



HIG market ratios

Reuters code: HIG

PERFORMANCE	Data as of December 30, 2014
EPS (PGK)	0.02
Last price (PGK)	0.16
52 week high (PGK)	0.20
52 week low (PGK)	0.14
MARKET RATIOS	
Average price (PGK)	0.17
P/E	6.96

Highlands Pacific

Mining

THE COMPANY: Highlands Pacific is a PNG incorporated and registered mining and exploration company listed on the Australian Securities Exchange and on the Port Moresby Stock Exchange. Highlands' major assets are interests in the producing $2.1bn Ramu nickel cobalt mine and the Frieda River copper-gold project, with exploration in progress in the Star Mountains. Highlands also has an exploration tenement on Normanby Island (Sewa Bay).

Highlands has achieved a major turnaround in earnings, reporting a profit of $7.6m for 2014, compared with a prior year loss of $37.2m in 2013. The profit included a $15m impairment reversal for the company's investment in the Ramu nickel mine.

The value of the company's interest in Ramu has been increased from $35m to $50m due to improving production rates. Cash at bank at December 31, 2014 was $7.1m, and this does not include the $5m received by the group on February 11, 2015 as the result of the completion of the Star Mountains joint venture (JV) and farm-in agreements with Anglo American. Highlands' 8.56% interest in the Ramu mine will increase to 11.3% at no cost to the company after repayment of its share of the project debt. The mining firm also has an option to acquire an additional 9.25% interest in the Ramu mine at fair market value, which could increase the company's interest in the mine to 20.55% if the option is exercised.

Highlands has been working towards the development of the Frieda River project for more than 20 years and the introduction of a new partner, PanAust, in August 2014 brings renewed commitment and focus to the project, as well as a revised development concept that is more manageable in scope, with a reduced capital requirement.

The Frieda River copper and gold project is currently one of the largest undeveloped copper gold projects in the world, with resources estimated to total in excess of 2bn tonnes of ore, containing more than 13m tonnes of copper and 20m oz of gold.

PanAust brings extensive technical experience, having successfully developed the Phu Kham copper-gold project in Laos, and Frieda River, as PanAust's biggest development project, will be the main focus for management attention and resources.

The Frieda River transaction was completed in August of 2014, and PanAust then exercised its option to take an additional 64m shares in Highlands on the same terms as the earlier placement, lifting its shareholding to approximately 14% and making it the largest shareholder in the company.

PanAust will also be responsible for 100% of the costs incurred by the Frieda River JV to finalise the definitive feasibility study for PanAust's development concept and will appoint and fund the cost of an independent expert to provide a peer review.

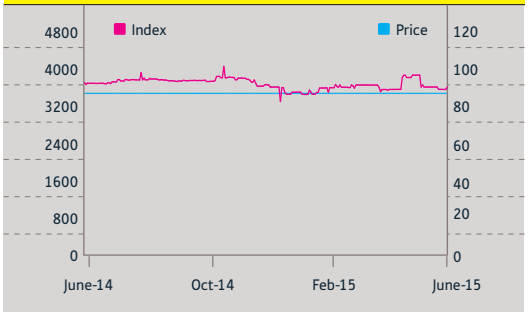
PanAust will also be responsible for the costs to maintain the Frieda River project site, assets and community relations programmes up to the point in time of lodgement of the mining lease or special mining lease application.

Highlands' Star Mountains exploration tenements are located approximately 20 km north of the Ok Tedi mine, in the West Sepik Province. They lie within the highly prospective New Guinean Orogenic Belt, which hosts the Grasberg, Ok Tedi, Porgera and Hidden Valley mines, as well as the Frieda deposit. Highlands has formed a JV with partner Anglo American for the Star Mountain deposit, which substantiates the world-class potential and will enable an extensive exploration programme to be undertaken. The team believes that Star Mountains has the potential to be a major copper-gold project.

In addition, Highlands also has the Sewa Bay project in Milne Bay Province. Japanese trading house Sojitz Group has recently commenced working with Highlands towards a JV and farm-in agreement for the development. Exploration drilling will soon begin at Sewa Bay, with the prospect of developing a modest direct-shipping export nickel-mining operation.

Share analysis & data provided by BSP Capital

IOC price & index relative performance



IOC market ratios

Reuters code: IOC

PERFORMANCE	Data as of December 30, 2014
EPS (PGK)	11.37
Last price (PGK)	90.00
52 week high (PGK)	90.00
52 week low (PGK)	90.00
MARKET RATIOS	
Average price (PGK)	90.00
P/E	7.91

InterOil

Oil and gas

THE COMPANY: InterOil is an independent oil and gas business that is primarily focused on Papua New Guinea. InterOil has exploration licences covering almost 16,000 sq km, with this divided into four petroleum prospecting licences (PPLs) and two petroleum retention licences. Each PPL is currently held for six years, from March 2014. Most of the licences spread over the Eastern Papuan Basin. In the last several years, InterOil has focused on improving its exploration programmes in the hopes of developing a robust oil and energy business. It has made five consecutive discoveries, which include Elk, Antelope, Triceratops, Raptor and Bobcat.

InterOil posted a profit of $289.8m in 2014, a significant turnaround compared to a loss of $40.4m in 2013. The company features a strong balance sheet with over $390m in cash and cash equivalents at the end of December 31, 2014 and a total debt of $70m. The debt comprises of an issue of $70m unsecured 2.75% convertible notes with a maturity of five years in 2010.

In 2014 InterOil sold its mid-stream and downstream assets to Puma Energy for $525m. The company also formed a joint venture (JV) with Total and Oil Search to develop the Elk-Antelope discovery following the closing of the transaction under which Total acquired, through the purchase of all shares in a wholly owned subsidiary of InterOil, a gross 40.1275% interest in Petroleum Retention License (PRL) 15, which contains the Elk and Antelope gas fields.

InterOil received $401.3m for closing the transaction, and became entitled to receive $73.3m upon a final investment decision for an Elk and Antelope liquefied natural gas (LNG) project and $65.5m upon the first LNG cargo from such a project. In addition to these fixed amounts, Total is obliged to make variable payments for gas amounts that are in excess of 3.5trn cu feet (tcf), based on certification by two independent certifiers following the drilling of up to three appraisal wells to be drilled in PRL 15.

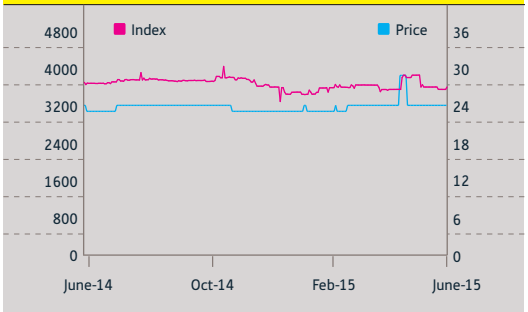
PRL 15 contains the Elk-Antelope gas fields; this is a world-class resource capable of supplying more than 6m tonnes of LNG a year. In line with InterOil's focus of identifying hydrocarbons and developing them to a commercial stage, the board in 2013 approved a major exploration and appraisal drilling and seismic work programme and budget for 2014-15.

InterOil applied to the PNG Department of Petroleum and Energy in 2013 for new licences for PPL 236, PPL 237 and PPL 238, which were due to expire on March 6, 2014 (PPL 238) and March 27, 2014 (PPLs 236 and 237). The company proposed new work programmes and commitments for each new licence. On March 6, 2014, applications for the new licences were approved with PPL 474 replacing PPL 236, PPL 475 replacing PPL 237, and PPL 476 and PPL 477 replacing PPL 238. Ongoing seismic acquisition continued across a number of leads targeting Bobcat-1 (PPL 476) and across the Antelope field. InterOil also commenced a geophysical survey over the Antelope field as seismic acquisition commenced for Raptor-1 (PPL 475). Further seismic acquisition is expected for Bobcat-1 following the Raptor programme. Drilling at the Wahoo-1 (PPL 474) exploration well was suspended after intersecting gas and higher than expected pressures. InterOil has since been in the process of re-evaluating the drilling plan prior to resuming drilling in 2015.

COMPANY STRATEGY: InterOil's strategy is to unlock significant value to shareholders by finding oil and gas safely and competitively; enable its development through the right partnerships, funding and project development capability; and to repeat this process. Running an effective and efficient business is the core component of this strategy. This business model is founded on exploration and drilling discipline and success' strong commercial and project development acumen; and being a "partner of choice". The focus area for future company strategy continues to be further development as a prudent and responsible business operator, enabling InterOil to discover resources with strategic JV partners, maximise the value of exploration assets and position the company for long-term success.

Share analysis & data provided by BSP Capital

NCM price & index relative performance



NCM market ratios

Reuters code: NCM

PERFORMANCE	Data as of December 30, 2014
EPS (PGK)	-6.14
Last price (PGK)	25.00
52 week high (PGK)	30.00
52 week low (PGK)	24.00
MARKET RATIOS	
Average price (PGK)	27.00
P/E	4.07

Newcrest Mining

Mining

THE COMPANY: Newcrest Mining (NCM) is one of the world's largest gold mining companies and operates mines in four countries, with a global workforce of around 10,000. NCM's strategy is to build a portfolio of predominantly long-life, low-cost gold assets that can remain profitable through various stages of the gold price cycle. The company is an unhedged gold producer and seeks to maintain a conservative balance sheet.

NCM has a concentrated asset portfolio comprising operating mines and growth opportunities in Australia, Papua New Guinea, Indonesia, Côte d'Ivoire and Fiji. Current reserves estimates include 78m oz of gold and 12m tonnes of copper, which represents over 25 years of future production at current rates.

610,186 oz of gold was produced during the first quarter of 2015, while 24,307 tonnes of copper was produced during the same period. This was characterised by an increase in gold production relating to the continued ramp-up of Cadia East in Australia and increased production at Bonikro in Côte d'Ivoire and Lihir in PNG.

Cadia East gold production increased 19% over the previous quarter, to 121,592 oz. This was also boosted by the installation and commissioning of the site's final underground crusher during the Q1 2014. NCM has also made application to the New South Wales Department of Planning and Environment to modify the Cadia East project to increase the upper limit of the processing plant from 27m tonnes per annum (tpa) to 32m tpa. Production and processing on Lihir Island also increased, with Lihir processing 2.8m tonnes of ore during the quarter. NCM continues to target a sustainable grinding throughput rate of 12m tpa by year end.

Production at the Telfer site in Australia was low quarter-on-quarter, while the all-in sustaining cost (AISC) per ounce was 3% higher, primarily due to lower grades and reduced throughput, although this was partially offset by an increase in recovery. Additionally, Merrill Lynch has been engaged in assessing alternative ownership options for the site. Meanwhile, production at PNG's Hidden Valley in Q1 2015 was marginally higher than in the previous quarter but was again restricted by unplanned downtime and limited ore availability. The overland conveyor, which suffered a belt tear in Q4 2014, only resumed operation in mid-January 2015, while low stockpile levels, a power outage and mill discharge screen failure also affected production. In Côte d'Ivoire , higher Bonikro gold production in Q1 2015 was attributed to higher-grade ore mined and additional feed resulting from the availability of Hiré oxide ore, which accounted for 26% of production.

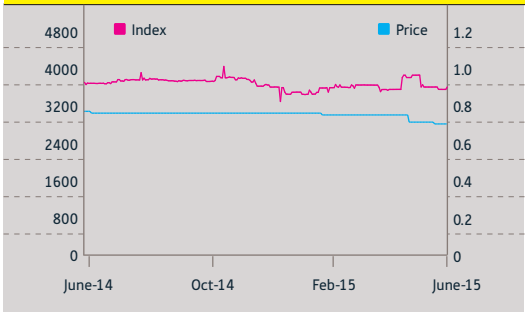
The gold price realised during the Q1 2015 was A$1226 per oz, while the copper price during the same period was A$3.38 per pound. AISC for the quarter was $745 per oz, reflecting a weakening Australian dollar and access to higher ore grade at Bonikro and increased production at Cadia. NCM's focus on capital efficiency across the company and reduced capex in Cadia East should impact NCM's group capex. We expect capex to be below original guidance now at A$580-620m. Meanwhile, NCM continues to maintain its expenditure programmes targeting improved reliability.

NCM continued to pay down debt from free cash flow generated within the period, including the proceeds from the partial sale of Evolution Mining. NCM reduced its holding from 32.3% to 14.9% and the sale price was A$0.85 a share. NCM's gearing ratio was stable at 33.9%. This was also impacted by the deterioration of the Australian dollar/US dollar exchange rate.

COMPANY STRATEGY: NCM is focused on restocking the growth pipeline with high-quality exploration-stage projects. The search area includes Asia-Pacific, West Africa and key global gold belts. Recent activities have included entry into an agreement with Barrick Gold and Terenure to acquire the Wamum tenements in PNG. Exploration in Wamum will commence on completion of the acquisition, which is subject to conditions including certain regulatory approvals. NCM currently has seven rigs in operation, three relating to exploration (one in Fiji and two in Gosowong, Indonesia) and four in reserve definition (one in Bonikro and three in Telfer).

Share analysis & data provided by BSP Capital

NGIP price & index relative performance



NGIP market ratios

Reuters code: NGIP

PERFORMANCE	Data as of December 30, 2014
EPS (PGK)	0.18
Last price (PGK)	0.73
52 week high (PGK)	0.80
52 week low (PGK)	0.73
MARKET RATIOS	
Average price (PGK)	0.77
P/E	4.06

NGIP Agmark

Agro-industry

THE COMPANY: New Guinea Islands Produce Agmark (NGIP Agmark) is a diversified agri-business based in Papua New Guinea and operating plantations, coastal shipping, hardware, machinery, trucking and agricultural supply businesses. NGIP Agmark is PNG's leading cocoa company, as the country's largest cocoa grower, trader and exporter. It is headquartered in Kokopo, East New Britain Province.

From this base the company trades more than 60% of PNG's cocoa into Asia, China, the US and Europe, shipping directly to the world's largest chocolate manufacturers. The company is also involved in the marketing and trading of a range of other agricultural commodities including vanilla, copra, essential oils, chillies, pepper and other spices.

NGIP Agmark's footprint includes plantations in East New Britain Province, cocoa buying points across the PNG islands and mainland, hardware and agricultural supply retail outlets at over 10 locations, costal shipping based out of Rabaul, land transport in East New Britain and Morobe Province, and engineering fabrication in Kokopo.

NGIP Agmark also has a growing portfolio of property and share investments across PNG.

NGIP posted a net profit after tax of PGK1.84m ($696,256) in 2013 compared to a net loss of PGK5.64m ($2.1m) in 2012.

Sales revenue increased 25% from PGK194.65m ($73.7m) in 2012 to PGK243.4m ($92.1m) in 2013. This was attributed to strong contributions from its engineering and steel fabrication division and its transport and shipping division.

The property division saw modest rental income in 2013. The company realised a profit of PGK4m ($1.5m) in its main property in Lae.

The funds were also re-invested into new property opportunities which have excellent potential for development and capital growth.

The company has also finalised plans for development of its 19,000 sq metres of commercial land in Lae. This move will see coffee, cocoa, machinery and some hardware activities relocated to this site towards the end of 2015.

In addition, NGIP Agmark's coffee division also saw moderate growth in revenue, albeit posting another loss. This was related to the need to recognise in the books a full provision for old debts accumulated through advances supplied to coffee grower groups under previous ownership. This process is currently soundly managed. Meanwhile, cocoa export volumes were much lower compared to previous years. This was offset by improved prices in the second half of 2013, mainly due to the weaker Kina. Cocoa volumes were impacted by the cocoa pod borer (CPB); the company has initiated a programme to manage the impact of CPB. The costs remain high for maintaining field advisory staff. The plantation activities sustained a loss of PGK1.5m ($567,600) in 2013, with this continuing to be absorbed as the company searches for medium-term improvements for a sustainable business model.

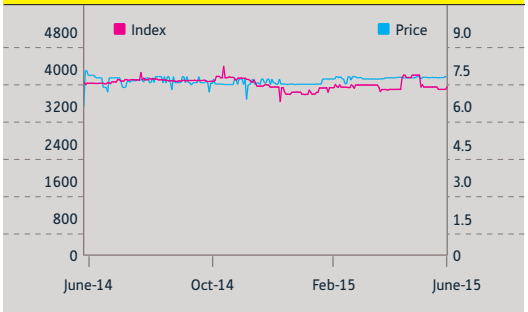
The hardware division was impacted by weaker domestic economic conditions. Low agricultural activity in the New Guinea islands region, exacerbated by weaker commodity prices, reduced business activity for the division. Notably, sales revenue at the Kimbe branch declined 40% year-on-year.

COMPANY STRATEGY: NGIP Agmark management has embarked on efforts to strengthen reporting processes throughout the entire business with the implementation of a new general ledger platform, SAP Business One. This will also provide the back-end infrastructure to allow the management system improvements through the operational units.

The company remains optimistic despite forecasts showing that the sluggish business environment will persist into the next 12-18 months. We expect commodity prices to improve a little on the back of a weakening kina as well as with consumer demand starting to pick up in both America and Europe.

Share analysis & data provided by BSP Capital

BSP price & index relative performance



BSP market ratios

Reuters code: BSP

PERFORMANCE	Data as of December 30, 2014
EPS (PGK)	1.08
Last price (PGK)	7.44
52 week high (PGK)	7.70
52 week low (PGK)	6.20
MARKET RATIOS	
Average price (PGK)	6.95
P/E	6.87

Bank South Pacific

Finance

THE COMPANY: Bank South Pacific (BSP) is the leading bank of the South Pacific, holding the largest branch network in Papua New Guinea with over 60 branches throughout the country including its operations in Fiji and Solomon Islands. BSP has total assets valued at PGK15.9bn ($6bn), equivalent to around one-third of PNG's total 2013 GDP estimate.

The bank's customer loan and receivables portfolio grew from PGK1.51bn ($571.4m) to PGK6.8bn ($2.6bn) over 2014. In PNG, BSP's lending market share increased from 47% to 52% over the same period, while customer deposits grew to PGK12.7bn ($4.8bn), up PGK507.4m ($192m). At year-end 2014, BSP's deposit market share in PNG stood at 55%. In Fiji, the bank branch has increased lending market share to 26% and in the Solomon Islands, BSP bank's share of loans is 28%. BSP's banking operations have a combined market share across PNG, Fiji and the Solomon Islands of about 40% in loans, and nearly 50% in deposits.

BSP has a robust balance sheet and its financial fundamentals remain strong. The group's year-on-year profit after tax was up 16% to PGK507.3m ($192m) in 2014. This can be credited to stronger revenue streams and effective cost controlling. Total assets at the end of 2014 were PGK15.88bn ($6bn), increasing from PGK15.76bn ($5.96bn) at the end of the previous year.

Net interest income (NII) was up 14% in 2014, while non-interest income was down 7%. Total revenue was significantly higher in 2014, attributed to the stronger than expected NII. BSP's cost-to-income ratio saw further cuts in 2014, with the ratio reduced from 54.8% to 50.4%. Operational expenses also declined 4.3%, as the management continues to remain cost-conscious. The total capital adequacy ratio at the end of 2014 was 24%, exceeding the Bank of PNG's minimum prudential requirement of 12%. Consolidated earnings per share for the group was PGK1.08 ($0.41).

BSP paid PGK0.20 ($0.08) per share as an interim dividend in October 2014 and the final of PGK0.56 ($0.21) per share on May 22, 2015 bringing the total dividend for 2014 to PGK0.76 ($0.29) per share. This represents a dividend yield of 10.3%. Dividend per share increased 15% (+8% compared to our forecast) from 2014.

Banks across the Asia Pacific region are trading at 12x earnings. Using a benchmark of 10x earnings we reached a price of PGK12.96 ($4.90).

RECENT DEVELOPMENTS: During 2014 BSP established and launched its new subsidiary, BSP Finance, with operations in Fiji and PNG. The new entity will allow BSP to continue to expand its reach with new financial market solutions in the region. This new subsidiary now offers an alternative to customers that have asset financing needs. BSP Finance is set to draw upon BSP's existing asset finance teams to help provide restructuring and refinancing, as well as offer new and innovative ways to attract customer's asset financing and undertake more complex transactions.

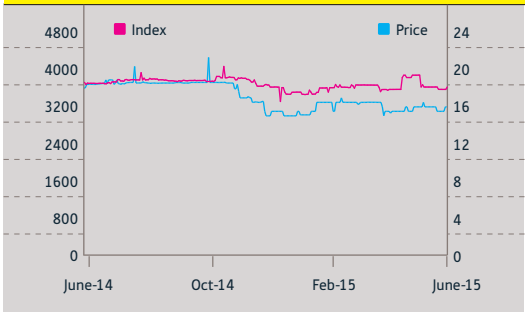
Through its investment banking arm, BSP Capital, BSP also co-advised InterOil in the sale of its downstream assets to Puma Energy during 2014, a major corporate transaction in PNG's energy sector.

In February 2015 BSP entered into an agreement with the Westpac Group to acquire Westpac's Pacific operations for A$125m. The transaction is subject to regulatory approvals in the respective jurisdictions and is expected to be completed by second half of 2015. Westpac agreed to sell its operations in Samoa, the Cook Islands, the Solomon Islands, Vanuatu and Tonga, while retaining ownership of its PNG and Fiji branches. This transaction will increase BSP's footprint in the South Pacific, with its first ever presence in Samoa, the Cook Islands, Vanuatu and Tonga. The deal will also increase BSP's presence in the Solomon Islands, where BSP currently has five branches.

The BSP-Westpac deal will provide BSP with new customers, additional skilled employees and specialised processes and systems. Meanwhile, the evolving financial markets in PNG present opportunities for BSP to introduce new products and diversify from a traditional bank to a fully diversified financial institution.

Share analysis & data provided by BSP Capital

OSH price & index relative performance



OSH market ratios

Reuters code: OSH

PERFORMANCE	Data as of December 30, 2014
EPS (PGK)	0.62
Last price (PGK)	16.50
52 week high (PGK)	22.00
52 week low (PGK)	15.50
MARKET RATIOS	
Average price (PGK)	18.75
P/E	26.61

Oil Search

Oil and gas

THE COMPANY: Oil Search (OSH) is engaged in oil and gas exploration in Papua New Guinea, as well as in Yemen, Iraq and Tunisia. OSH's key projects in PNG include the PNG liquefied natural gas (LNG) project, three oil projects (Greater Moran, Gobe and SE Menanda), and the Hides gas-to-electricity (GTE) development. OSH was incorporated in 1929 and is headquartered in Sydney, Australia.

OSH's profit was up 72% in 2014 to $353.2m, representing the highest profit in the company's 86-year history. This was attributed to the first contribution from the PNG LNG project. Net profit after tax included a $129.6m after-tax impairment charge, largely related to the impact of lower oil prices on the carrying value of exploration and evaluation assets.

Sales volumes increased 164% in 2014 to 17.76m barrels of oil equivalent (boe) from 6.73m in the previous year. The increased volumes translated into stronger sales revenue for 2014, with revenue up 110% to $1.61bn. OSH had total liquidity of $1.56bn at the end of 2014, comprising $960.2m in cash and $600m in undrawn committed funding lines. Earnings per share increased 54% to $0.238 from $0.154, representing a payout ratio of 44%. OSH declared a final unfranked dividend of $0.08 together with a special dividend of $0.04 a share. OSH also paid a $0.02 interim dividend earlier in 2014. This brings the total dividend for the year to $0.14 a share, representing a 44% payout ratio on the core profit.

RECENT DEVELOPMENTS: OSH's 2P gas reserves and 2C contingent gas resources increased 25% to 5.81trn cu feet. This was boosted by booking 2C contingent resources for the Elk-Antelope fields in PNG under petroleum retention licence (PRL) 15. OSH has a 22.835% gross interest in PRL 15 after acquiring the share previously held by the Pac LNG Group of Companies for $900m in 2014.

In related news, in a complex, non-unanimous decision, the International Court of Arbitration of the International Chamber of Commerce declined to issue pre-emptive rights to the OSH-owned Pac LNG Group of Companies over the March 2014 sale of a 40.1% interest in PRL 15, which was made from an InterOil subsidiary to a subsidiary of Total. Ultimately, however, the arbitration process has had no impact on the appraisal programme, with the Antelope-4 and Antelope-5 wells spudded in the second half of 2014. Key information from this drilling programme will help define the size, reservoir connectivity and productivity of the Elk/Antelope field.

Antelope-4 in PRL15, the most southern well on the Elk-Antelope field, started drilling on September 16, 2014. The well intersected the top of the carbonate reservoir at 1911 metres true vertical depth sub-sea, in line with expectation, and has eliminated the risk of a steeply dipping southern flank.

For its part, the Antelope-5 appraisal well in PRL 15, which is located in the western extent of the Elk-Antelope field, intersected the top reservoir at 1534 metres, at a position that was 230m higher than the operator's reference case.

As part of the 2015 appraisal drilling campaign, the PRL15 joint venture (JV) has selected the location of the Antelope-6 well to help provide structural control and define reservoir quality on the eastern flank of the field. Site preparation is already under way and, following final approvals, drilling is planned to begin in mid-2015.

OSH also holds 38.51% of PRL 3, which includes the P'nyang gas field. A memorandum of understanding (MoU) signed for the P'nyang gas field in January 2015 between ExxonMobil PNG, PRL 3 JV and the PNG government will see the potential construction of a third LNG train. This MoU also sets out a firm roadmap for the development of the resource, which is a central growth asset in OSH's portfolio.

In April 2015 OSH announced that the first phase of the Ramu Power Project, which is fuelled by OSH's Hides GTE development, has been completed and is now providing 24-hour power to the city of Tari.

Insurance

Overcoming geography key to providing coverage
Major projects are underwritten by foreign firms
Efforts to improve local player capacity under way
International organisations assist with disaster cover

PNG is listed as a high-risk country by international ratings agencies

Low base, high potential

Efforts under way to extend insurance to the general populace

Per capita GDP is just over $2000, and the population is spread out over a sprawling, rugged archipelago. As a result, insurance has been difficult to sell. Awareness is very low or, in some corners of the country, non-existent.

Due to several factors, Papua New Guinea is one of the least insured countries in the world. It is estimated that premiums comprise just 1.4% of GDP, according to the Pacific Financial Inclusion Programme (PFIP). Other regional competitors and peers have significantly higher rates. The PFIP puts Fiji, for example, at 3.6%. Swiss Re, which does not publish data on PNG, places Indonesia's insurance penetration rate at 2.1%, Malaysia's at 4.0%, Thailand's at 5.5% and Australia's at 5.2%. PNG is better insured than just a few of the more remote and underdeveloped economies globally. Mongolia's rate is estimated to be 0.54%, while Kazakhstan's is 0.8%.

The low take-up of insurance is not, in this case, the result of a lack of experience. PNG has had an insurance sector for more than a century and it was once administered by Australia, an historically insurance-conscious society. The problem is more the result of geography, topography and income. Per capita GDP is just over $2000, and the population is spread out over a sprawling, rugged archipelago. Furthermore, many of PNG's people are illiterate or speak only a local language, and less than 20% of the population is banked. Thus, insurance has been difficult to sell. Awareness is very low or, in some corners of the country, non-existent.

"People have only a vague idea of what insurance is," said Simon Schwall, country manager at Bima, a global micro-insurance provider. Family tradition also plays a role in limiting uptake.

"One of the biggest obstacles to the growth of the insurance industry in PNG continues to be the *wantok* system," Ian Balfor, CEO of INSPAC, told OBG. Under this system, people rely on their extended family members as a safety net in case of trouble instead of transferring the balance sheet liabilities of their risks to professional underwriters.

Despite these challenges, the insurance market is healthy and competitive. Most lines of coverage have significant participation and good pricing, and the market is open, free and fair.

The economics of the country certainly weigh on the sector. While GDP has been grown rapidly in recent years, serious concerns about stability and sustainability remain and these feed through to the overall development of the insurance sector. According to the ratings agency AM Best, PNG is in the highest-risk category, "Country Risk Tier 5", due to "unpredictable and opaque political, legal and business environment with limited or non-existent capital markets; low human development and social instability; nascent insurance industry".

OPEN MARKET: Despite its many challenges, the PNG insurance market is healthy and competitive. The country has a total of 14 insurance companies (though some licences are composite and some are inactive). Most lines of coverage have significant participation and good pricing, according to a report by the consultancy Mercer, and the market is open, free and fair. PNG has no limits on foreign investment in the sector, and foreign insurers are active as investors and as indirect participants through reinsurance and brokerage.

As with all foreign activity in the country, international firms participating in the insurance sector are

A total of 14 insurance companies operate in the sector

required to register with and receive approval from the Investment Promotion Authority (IPA). Life insurers must be locally incorporated, but general insurers can incorporate as PNG companies or they may operate as branches. Acquisitions, regardless of the nationality of the acquirer, must also receive certain permissions. Anyone buying more than 15% of an insurance company must gain the approval of the regulator before crossing that threshold. The Office of Insurance Commissioner, which is under the Department of Treasury, regulates non-life insurance, while life insurance is regulated by the Bank of PNG. The Insurance Act 1995 is the governing legislation for the non-life sector, while life is covered by the Life Insurance Act 2000.

The Insurance Act requires both general insurers and brokers to pay a levy to the Insurance Commissioner's Fund (which is capped at 1% of total premiums), but this requirement does not apply to life insurance companies. Minimum capital is set at PGK2m ($756,800) for general insurers and PGK4m ($1.5m) for life insurers. Risk-based capital requirements have also been instituted.

MARKET MAKEUP: QBE Insurance has been active in PNG since 1899. The company has since acquired: Mitsui Sumitomo PNG in 2014 (increasing its market share by about 10 percentage points to 30% of non-compulsory coverage); Zurich Pacific Insurance Company's PNG business in 2001; and the portfolio of General Accident Insurance in 1998. The company writes a wide range of business, from marine to workers' compensation, and currently has offices in Port Moresby, Kokopo and Lae.

Pacific MMI, the next largest company (which holds about a quarter of the non-compulsory market) in the sector, was founded in 1998 as a joint venture between Motor Vehicle Insurance Limited (MVIL), the government-owned provider of compulsory third-party vehicle liability insurance, and Allianz New Zealand. After formation, it took over the insurance portfolio of Niugini Insurance Corporation. In 2009 MVIL then took control of Pacific MMI, leaving that company as a 100% locally owned entity.

The company, which still maintains its connection to the Allianz group, offers life and non-life covers, and it also sells a micro-insurance product through Nationwide Microfinance. MiLife, as the products are branded, is marketed in tandem with the bank's MiCash accounts and provides life coverage for account-holders and families. The cost of opening an account and for one year of coverage is PGK55 ($21) and the payout is PGK5000 ($1892). Two additional major insurers, AIG and Tower Insurance, together share about 20% of the market.

Southern Cross Insurance entered the market in 2011 and started offering products in October of that year. The company was founded by two Papua New Guinean businesspeople, one with a background in resources and another having come from a career in insurance. The company currently writes cover for property, motor, workers' compensation, liability, marine and medical. Other insurers in the country include Croesus, Inspac Wealth, Life Insurance Corporation and Century Insurance.

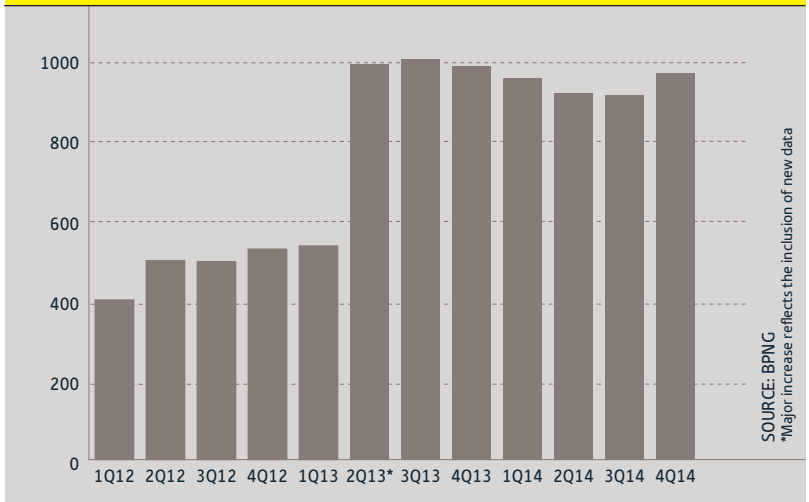
Motor vehicle third-party liability is a required insurance class in PNG

INNOVATIVE OFFERINGS: To better compete, firms are using new angles to reach customers. For example, Capital Life Insurance, Capital General and their parent, Capital Insurance Group, are owned by four local financial institutions: the Teachers Savings & Loan Society, Nambawan Super, Credit Corporation and Nasfund. Capital General offers home, motor and marine insurance and workers' compensation.

The group has developed some innovative local offerings. In 2013, for example, Capital Life started selling a workers' compensation policy with an attractive add-on. The *haus krai* policy pays an extra PGK5000 ($1892) or PGK10,000 ($3784) if a covered worker dies, so that his or her relatives can afford the haus krai ritual, in which visitors come to the home of the departed for several days. These multi-day get-togethers can become quite expensive and can be a heavy burden on the bereaved family, especially if it has lost their primary breadwinner.

Firms are using new angles to reach customers. One such example is a workers' compensation policy that includes a payment for the *haus krai* ritual, a multi-day event that a bereaved family holds in their home after the death of a family member.

General insurance companies' assets, 2012-14 (PGK m)



PNG has no limits on foreign investment in the insurance sector

Two micro-insurance products, one for family coverage and another for daily indemnity coverage, have been largely successful since their introduction in 2014 and 2015, respectively. As of February 2015, 67,894 life policies and 11,871 health policies were active.

Capital Life Insurance received a strong review from AM Best in late 2014. While the ratings agency gave it a financial strength rating of B-, it expressed concern about the insurer's dependence on a single broker for 50% of its distribution and noted that a significant percentage of its portfolio was in local equities. It also said the outlook for the insurance group was positive, that capitalisation was sufficient, that leverage was low and that exposure to volatile business was limited.

The group as a whole is diversified regionally. It acquired Dominion Insurance in 2014, giving it exposure in Fiji, Vanuatu, Tonga and Nauru. It also has offices in the Solomon Islands, where it is the only composite insurer in the country.

MICRO-INSURANCE: Capital Insurance underwrites two micro products for Bima: family life and *hausik*, a daily indemnity policy. The former was introduced in July 2014. Under this programme, the life of a customer can be insured for PGK4000 ($1514), PGK8000 ($3027) or PGK12,000 ($4540). All people between the ages of 18 and 60 years of age are qualified and the premiums are the same for everyone. The lowest level of coverage costs PGK3.60 ($1.36) per month, and the highest level is PGK10.80 ($4.08) per month. The company deducts the premiums on a daily basis from the customer's mobile phone account (ranging from PGK0.18 [$0.07] to PGK0.54 [$0.20] a day for 20 days a month). The policy does have some exclusions, such as war, epidemics and tribal fighting, but it is simple and straightforward. Registration is easy. Potential clients can call and speak to an agent or simply dial a code on their handset. A confirmation SMS is sent.

In 2015, hausik was introduced. Under this programme, a customer can choose three levels of coverage: PGK96 ($36) per day; PGK64 ($24) per day; or PGK32 ($12) per day. They receive the payment from the second night in the hospital through to the 30th. A small death benefit is included also, ranging from PGK600 ($27) to PGK1800 ($111). Premiums range from PGK3.60 ($1.36) to PGK10.80 ($4.08) per month, and are withdrawn daily – PGK0.18 ($0.07) to PGK0.54 ($0.20) per day for 20 days per month.

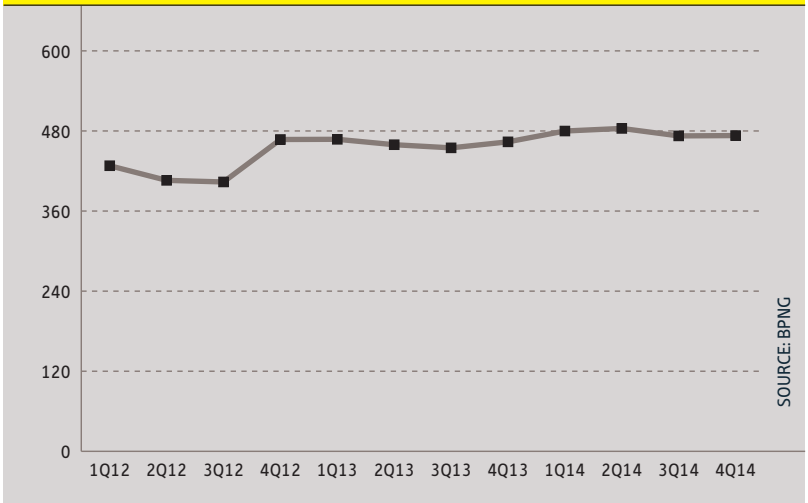
The programmes have been incredibly successful thus far. As of the end of February 2015, the company had sold 83,830 life policies and 27,371 health policies, according to Bima. Of those, 67,894 life policies and 11,871 health policies were active, with premiums being paid on a regular basis.

In December 2014, BIMA received an investment of $5m from Digicel Group, the parent of the dominant mobile carrier in PNG. Bima was already collaborating with Digicel in Haiti.

The segment also has several distinct challenges. "Fraudulent claims and associated practices are a global problem for the insurance industry. The potential for fraud in PNG may inhibit the development of a successful micro-insurance offering in this market," Bruce Avenell, the country CEO at AIG, told OBG. "Further, little data is available to allow proper and thorough actuarial assumptions to be done for micro-insurance here. This reduces market confidence in this segment as the chance of success is diminished." Additionally, selling micro-insurance is not easy in PNG. Even Bima's technology can be a challenge as not everyone in the country knows how to send an SMS, and many people speak local dialects. Still, Bima has largely overcome these problems with simple product design and customer support.

BUSINESS CHALLENGES: As with the banking sector, the insurance sector has had a difficult time with the economic cycle. It was largely left out when most risk associated the PNG liquefied natural gas (LNG) project went offshore. Meanwhile, the ancillary growth from the project has not resulted in a material increase in insurance business. Chinese investors have entered the economy, but they have not been purchasing local financial products, instead handling their insurance needs elsewhere. "Exxon received an exemption and it all went offshore," said Philip Tolley, managing director of Capital Insurance Group. "There are significant opportunities in PNG

Life insurance companies' assets, 2012-14 (PGK m)



now, but the builders are mostly Chinese. This fly-in, fly-out money creates a boom/bust cycle."

"The sector was growing quickly until 2013, until the construction phase stopped," said Paul Affleck, CEO of Pacific Assurance Group. However, business has slowed significantly since then. Between 2012 and 2013, non-life assets jumped 86.6% to PGK979.4m ($370.6m), but during 2014 growth stagnated, with assets dropping to PGK908.8m ($343.9m) by the third quarter, according to central bank statistics. Life insurance assets grew from PGK275.1m ($104.1m) in early 2010 to a high of PGK483.8m ($183.1m) in June 2014. AM Best reports that overall premium growth was up 30.1% in 2013 over 2012. Anecdotal reports from the sector suggest premium growth was flat in 2014, with the exception of the Capital Insurance Group, which said its business doubled that year, with the economy expected to grow by 33% in 2015 and 25% in 2016.

Rates are generally firm, but have started to show some signs of weakness. According to a report by Marsh, general liability insurance was stable in the fourth quarter of 2014, with growth ranging from -5% to +5%. But in the fourth quarter of 2013, rates were up by between 0% and 10%. In all other sectors, however, the rates of growth have been the same between the quarters.

ONSHORE COVERAGE: PNG is an admitted market, meaning that insurance sold in the country must be underwritten locally, and an attempt must be made to utilise domestic capacity before taking business offshore. However, in practice, the sector faces considerable leakage. Some firms, for example, have a blanket exemption, in particular those involved in energy and extractive projects. Others can apply to send risk offshore, and the Office of the Insurance Commissioner can waive the requirement if it believes it is in the national interest to do so. Some firms simply ignore the requirement.

Capacity is limited domestically and some premiums must be sent overseas, but local firms want to see more risk placed onshore and believe they can get more of the business. This is possible, as the second phase of the PNG LNG project starts and the Total LNG project begins. Insurance participants indicated the matter had been discussed with the insurance commissioner and that exemptions may not be so easily granted in the future. "Exemptions for offshore placements will be more difficult to achieve," wrote Marsh in its "Pacific Insurance Market Report 2015". While local players recognised the lack of capacity and expertise at home, they argue that they should write more of the policies so they can build capacity and develop expertise. "The industry will never get the experience to work with big risks if it is limited in what it can do," said Affleck. "We are happy to take a small percentage."

Motor vehicles claims are required to be paid within six months

MOTORISTS' RISKS: Third-party motor vehicle liability insurance is compulsory and has been since the passing of the Motor Vehicles (Third Party Insurance) Act 1974. In 2002, MVIL, which provides the compulsory third-party insurance, became a regulated entity under the Independent Consumer & Competition Commission (ICCC). As such, premiums are controlled by the monopolies body. In 2014, the ICCC took additional action to regulate the insurer. Under an agreement between the two, MVIL must pay claims within six months, and ideally within two to four months. In the past, the insurer had taken as long as two years to pay vehicle claims. MVIL owns Pacific Reinsurance in addition to Pacific MMI.

PNG is an admitted market, meaning that insurance sold there must be underwritten locally, and an attempt must be made to utilise domestic capacity before taking business offshore. However, in practice, the sector faces considerable leakage.

Claims for fire coverage have been high in recent years

The insurance sector is open, profitable and has great potential. Given the low penetration rate and growing economy, more policies will likely be sold and more risk can be covered. Still, the sector must develop, especially in terms of best practices and pricing.

Pacific Assurance Group (PAG) was founded in 2006 and has offices in Port Moresby, Kokopo and Lae. The firm covers non-life risks, such as marine, fire and liability. It also offers health insurance, and this is its leading growth segment.

PAG is working to create a better environment for provision of services. The company also established a network of medical facilities for policyholders, with a total of 15 providers in Port Moresby (including the Pacific International Hospital); three in Lae; two each in Madang, Kokopo and Mt Hagen; and one each in Kimbe and Kainantu. "Some 25% of our business is health insurance, and health insurance is the fastest growing," said Affleck.

PAG said that its customers are primarily corporate, as awareness is still low among the general population and most people cannot afford premiums, while corporate customers understand the products and are able to pay.

The firm also found that corporations could use health insurance to attract talent. Labour costs are low, but a shortage exists when it comes to high-quality managers and companies compete to get people of calibre into their ranks. Health insurance is a perk. "Retail does not work here, so we sell to corporations," said Affleck. "We are not going to advertise for the man on the street."

CHALLENGES: The sector faces a number of challenges in addition to the obvious issues inherent in operating in such a sparsely populated country with a difficult geography and a high-cost environment. Some of the operators complain that the competition is too severe at times and that extreme price cuts can be observed in some segments. They say insurers may be quoting dangerously low premiums in order to gain market share, and that this has the potential to destabilise the sector.

Fire claims have been high in recent years, costing the sector dearly in terms of payouts. The fire brigades are often unable to respond quickly or at all, and structures sometimes burn to the ground. As much of the work in the sector remains manual, this adds to costs and squeezes margins.

Meanwhile, some market participants question whether the micro-insurance push will be successful. While the numbers have been good, with over 100,000 names being added to the ranks of the covered under the Bima programme, they argue that policies may not make business sense, given the cost of distribution. Micro-insurance helps individuals and can bring more business to both service providers and mobile phone operators, but it is primarily a corporate social responsibility exercise and a way for the country to fulfil international obligations with respect to increasing the number of insured.

OUTLOOK: PNG's insurance sector is open, profitable and has great potential. Given the low penetration rate and the growing economy, more policies will likely be sold and more risk can be covered. Still, the sector must develop, especially in terms of best practices and pricing, and some marginal players may vanish over time.

If local companies can get more of the business that is now flowing offshore and find a way to better serve the larger population, the insurance penetration rate could increase and the sector could grow substantially. In time, PNG may attract more foreign participation and the competitive sector could become more vibrant, especially in terms of both modelling and product design. Consolidation is also very likely, as insurers grow and absorb small players.

The islands are dotted with active volcanoes that put residents at risk

Risky business

Covering the nation poses challenges for international players

Facing extreme risks from natural disasters, as a result of the country's location on the geological "Ring of Fire", insurance is a much-needed service in Papua New Guinea. PNG has frequent earthquakes and is home to a number of active volcanoes. The city of Rabaul was destroyed by volcanic eruptions in 1934 and again in 1994. In 2014, one of the volcanoes in the area (Tavurvur) erupted again. The 1998 earthquake and subsequent tsunami near Aitape killed more than 2000 people, and a swarm of earthquakes was experienced in and around the country in early 2015. According to the Global Facility for Disaster Reduction and Relief, PNG has the highest percentage of people exposed to volcanic risk in the world and is in the top six in terms of percentage of the population exposed to earthquake.

The country also experiences devastating storms. Cyclone Guba, which hit the country in 2007, killed an estimated 70 people and caused extensive damage in three outer provinces. More generally, PNG has heavy rains and is exposed to the El Niño Southern Oscillation, which brings extreme weather. Given its mix of rain, drought and steep terrain, it often sees severe flooding, crop damage and landslides.

The country sits among tropical seas that often become dangerous

CYCLONE PAM: Overall, though, PNG has been lucky in recent years. In a 2015 Swiss Re report, the country did not have a single entry on the list of the top 40 natural disasters (in terms of physical damage and the human toll) from 1970 to 2014. For various reasons, probably related to low population density and the dearth of tall buildings, it has been spared greater loss of lives, crops and infrastructure. Nevertheless, the country's position in a seismically active area, combined with urbanisation suggests that overall the risk for natural disasters is relatively high. As a result, it faces insurance needs that may be beyond the capacity of the private sector or of the government.

When Tropical Cyclone Pam hit Vanuatu in early 2015, the issue of insuring against disaster in the Pacific area was highlighted and made more pressing. The storm, said to be one of the most powerful ever, claimed lives and destroyed an estimated 90% of the buildings in the capital of Port Vila. In the wake of the cyclone, the notion of a regional climate insurance scheme started gaining more attention. Already, 13 Caribbean countries have such an arrangement – the Caribbean Catastrophe Risk Insurance Facility (CCRIF). The programme collects premiums from the members, and these funds are used to purchase coverage in international reinsurance markets. Payouts are made when thresholds are broken (in terms of the maximum wind speed of the storm, for example) and the nations receive money that can be used for disaster relief and recovery.

ALTERNATIVE PLAN: Don Polye, PNG's opposition leader, has remarked in comments to Radio New Zealand that countries like PNG do not have the capacity to fully cover the costs of major natural disasters such as Cyclone Pam. Neither the private insurers nor the governments can be counted upon

The country faces threats from volcanoes and earthquakes, as a result of the region's geology, and it is also threatened by tropical storms.

The nation's difficult geography is a pressing challenge for providers

Several international programmes are working to support PNG by covering the expenses associated with insuring against natural disasters.

to fully restore damaged infrastructure. He suggests that international institutions help out and support the private sector so that local insurers could meet claims in the event of a disaster. International insurers have echoed these comments and asked the UN to assist, while the UN is supporting the notion of public-private cooperation to build resilience against natural disasters. The president of Vanuatu has said in public comments that most Pacific island nations are too dependent on handouts from rich economies during times of crisis and that they should begin to develop a more sustainable and long-term solution.

EFFORTS BEING MADE: A number of efforts have been made to build the right sort of capacity and the appropriate structures to cover catastrophic natural disaster losses in the Pacific region. The International Finance Corporation, the EU, Japan and the Netherlands have been working to establish an insurance programme to cover livestock and crops. The pre-feasibility study for the "Global Index Insurance Facility in PNG" has been conducted. More generally, PNG was one of the first countries to sign the Hyogo Framework for Action (HFA). The HFA plan makes disaster risk reduction a priority for signatories to reduce certain risks and increase preparedness. It ran from 2005 to 2015. In addition to the HFA, the World Bank is running the Pacific Catastrophe Risk Insurance Pilot Programme (PCRIPP), which was launched in 2013. Under the programme, the World Bank helps Pacific countries develop policies that the bank insures on international markets (with Japan providing premium support). Payouts are based on loss modelling, as is done with CCRIF. The programme paid $1.9m to Vanuatu in 2015, as a result of Cyclone Pam, and made a payout of $1.27m to Tonga in January 2014, due to damage from Cyclone Ian.

CHALLENGES REMAIN: While the PCRIPP has demonstrated that the design can work, it has also revealed some of the potential limitations of the structure. The payouts to the disaster-hit nations were small compared to the total costs, while no payouts were made at all to some of the affected nations. The Solomon Islands withdrew from the programme in 2014 after earthquake and flooding there were not eligible for coverage. Most of all, the programme lacked the participation of the region's largest economy, PNG, and remained an experiment involving easily supported countries.

Nevertheless, much was learned in the pilot and recommendations for the future were made. In an assessment published by The Pacific Islands Forum, it was suggested that softer triggers be devised, such as a self declaration of a national emergency, so that payouts can be made even when predetermined parameters are not crossed. They also suggested that similar programmes in the future work in cooperation with other solutions, so that more coverage and support may be offered in a disaster.

Other challenges resulting from low building standards could be addressed to reduce the costs of insurance. Wayne Dorgan, managing director of Pacific MMI Insurance, told OBG, "Poorly maintained buildings and tired infrastructure have been leading to potentially avoidable claims. This is pushing the price of premiums up in like the absence of an efficient fire brigade, for example, meaning that buildings and businesses will be more expensive to insured going forward, if improvements and risks are not managed." If these problems can be addressed, a greater number of disaster risks can be covered and the resulting costs reduced for the sector overall.

Most people rely on family as a safety net instead of formal insurance

Future promise

Moving past cultural barriers to focus on niche markets

A projected rise in home ownership and increasing demand for private health coverage are among the forces expected to drive growth in Papua New Guinea's insurance sector. However, competitive pressures and global risks may also hamper the industry throughout 2015-16. Though the number of registered insurers is small, the market relatively limited and take-up rates for most forms of non-compulsory insurance low, competition is thriving and the sector is profitable, with low loss ratios despite a recent uptick in fire claims. As of 2014, there were 14 licensed underwriters in the PNG insurance market, many with links to overseas companies. Underwriters anticipate expansion in key policy classes due to rising vehicle sales, construction work as a result of government infrastructure investments and other business from state-owned enterprises. This comes despite growth slowing in 2014 from double-digit figures in the five years to 2013. In life and superannuation, government efforts to promote indigenous small and medium-sized enterprises should also support expanding employee benefits and retirement savings products.

HEALTH POTENTIAL: One segment that is earmarked for growth is the medical insurance category. Demand for private health insurance is rising due to higher income levels among the local population and an expanded expatriate community attracted by the growing hydrocarbons industry.

Capital Insurance's managing director, Philip Tolley, told OBG that there is an increasing momentum in the health component of the market. "There is a growing interest in medical coverage within the industry and several companies are expanding within the segment," he said.

PAG CEO Paul Affleck agreed the segment will play an increasingly important role in its business. "Health products accounted for as much as 25% of the company's activities in 2014, and it is by far the fastest-growing segment within the group," he told OBG.

This trend mirrors the larger growth patterns of health care insurance within the Asian market as a whole, which is being driven by continued economic growth and increased demand among an expanding middle class. Health insurance across the wider Asia region is expanding on the back of employer-funded medical plans or private medical insurance (PMI), which remain the pre-eminent employee benefit that had a marked impact on employee engagement and talent management metrics, according to Aon Insurance's "2015 Asia Market Review". This has put many private employers in a difficult position of coming under increasing pressure to provide greater scope and value of PMI coverage for employees while facing a continued escalation of medical inflation.

PROPERTY: Another boost to the sector could come from the property market, with an increasing rate of home ownership bringing with it higher demand for coverage. Though many analysts expect the PNG real estate market to remain flat in 2015, home ownership rates are forecast to rise, especially later in the year when a number of affordable housing developments will be rolled out. Although not yet widely prevalent, PNG's unique geologic and geopolitical environments also provide an opportunity for the growth of niche products. Situated along the Pacific Rim's Ring of Fire, the same geologic forces which have provided an abundance of valuable mineral resources including gold, copper, nickel and silver also harbour a much more dangerous potential of volcanic eruptions and related earthquakes and tsunamis. The importance of hedging against these disasters has been driven home in recent years with the recent earthquakes and tsunamis affecting Indonesia, Thailand and Japan. As a region, eight of the top 10 countries in the world with the highest annual natural catastrophe losses as a percentage of GDP are located in Asia. In addition, rising GDP increases commercial insurance exposures and the need for protection against conventional business

Health coverage is expected to play a growing role in the local insurance sector, mirroring larger growth patterns for health insurance within the Asian market as a whole.

Underwriters anticipate expansion in key policy classes due to rising vehicle sales, construction work as a result of government infrastructure investments and other business from state-owned enterprises.

Demand for private health insurance is rising

Penetration rates remain low in regional terms despite new entrants and product launches in 2014-15. The Bank of PNG estimates that 2-5% of the nation's businesses and population have some form of coverage.

risks as well as property damage, catastrophe and business interruption. Taking this into account, catastrophe insurance, although notoriously difficult to quantify, could fill a key demand in the country.

CULTURAL BARRIERS: Penetration rates remain low in regional terms despite new entrants and product launches in 2014-15. The Bank of PNG, which acts as the regulator for the life insurance component of the industry, estimates that 2-5% of the nation's businesses and population have some form of coverage, the lowest rate in the Pacific region and making PNG one of the world's least insured countries.

One reason behind this trend is cultural, INSPAC's CEO, Ian Balfour, told OBG, adding that the local population rely mainly on family members for support rather than the financial sector. In a recent interview with local media, Raka Taviri, general manager of Life Insurance Corporation (PNG), echoed this sentiment. "Insurance is a normal concept for us in this country... [but] people shy away from filling forms; they don't want to commit themselves," Taviri said.

Some in the industry are calling on the government to do more to support the adoption of insurance. Johnson Tia, the founder and director of the Pacific Assurance Group (PAG), said in January 2015 that nationally owned businesses often ceased operations due to disasters, fires or tribal fights.

"The government really needs to be involved and appreciate that insurance is the backbone to economic development," he said.

Intertwined with these cultural barriers, political and economic risk in general play a significant role in the country's insurance sector as well. Global credit ratings agency AM Best placed PNG at the highest level of risk (five) in its five-tiered country risk rating system, which takes into account political, economic and financial system risk. The country's economic and political risk were rated as high (tier four), while financial system risk was rated at the highest level of very high (five). Other countries within the region to merit a high-risk ranking of five include Vietnam, Bhutan, Uzbekistan and Pakistan.

The country was also placed on Aon's 2015 Terrorism and Political Violence Risk Map as one of six Asian countries to be subjected to all three measured risk perils of terrorism and sabotage; riots, strikes, civil commotion and malicious damage; and insurrection, revolution, rebellion, mutiny, coup d'état, war and civil war. Although PNG retained its status as a medium-risk level country overall, it did fare better than other regional neighbours including Indonesia, the Philippines, Thailand and Myanmar, which all garnered high-risk ratings.

GLOBAL DEMAND: The sector may suffer from wider economic trends as well. In an AM Best risk report on PNG published in 2014, the insurance ratings agency said the sector, along with the rest of the PNG economy, could be affected by financial volatility and external global price and demand shocks due to its strong dependence on commodity exports. With international gas prices declining in 2014 and into 2015, the pace of the economy is expected to slow, which could cool appetite for insurance.

The report showed that premiums in the insurance sector rose by 30% from 2012 to 2013, with the non-life sector dominating with premiums written worth an estimated $166m in 2013 compared to $8m in the life sector. Another setback for domestic insurers is that some of the large industries operating in PNG have their risks insured offshore. While the mining and hydrocarbons sectors have expanded rapidly in recent years, the full impact of this growth has not flowed on to the insurance industry, with PNG's international partners having their risk coverage underwritten in their own countries or spread over a number of markets.

PNG's insurance market will also need to account for a number of other factors occurring throughout the region which will likely have a ripple effect on the domestic sector. While slowly accelerating growth in the US and Europe should benefit the industry to an extent, PNG's economy remains much more enmeshed within the Asia-Pacific region – most of all China as a major importer of PNG's raw materials. With this in mind, that country's decelerating growth in 2015 may negatively affect PNG's economy and the insurance industry.

In spite of these challenges, insurers in PNG will still benefit from comparative advantages in relation to more established markets in the West. While the robust double-digit economic growth initially projected for PNG in 2015 looks unlikely to materialise, the country's GDP expansion along with the Asia-Pacific region as a whole is still well above the growth forecast for the US and EU markets.

Consequently, the region's continuing appeal to foreign insurers seeking growth opportunities remains strong. And in fact, PNG's elevated catastrophe risk, sustained economic growth and low insurance penetration all combine to create significant opportunity for commercial expansion.

Philip Tolley, Managing Director, Capital Insurance

Gaining ground

OBG talks to Philip Tolley, Managing Director, Capital Insurance

How would you assess the likely risks for the insurance industry in Papua New Guinea at present?

TOLLEY: The insurance industry in PNG has encountered several challenges in recent years, most notably the major fires in Lae and Mount Hagen, which were caused largely by fluctuations in the power supply and electric faults, and which caused significant losses for the industry. While fire brigades in PNG may arrive quickly at the scene of an accident, they often lack the resources to control fires. As a result, risk has escalated over the years and part of the costs have been passed to the clients, hindering the industry's growth. Fortunately, PNG is not in the cyclone belt, although this may change as the planet continues to undergo the effects of climate change.

To what extent is the insurance industry benefitting from regional integration?

TOLLEY: Regional expansion is a natural evolution for the insurance sector. Our group is already present in six different countries within the region, absorbing 40% of our activities, and other players are looking at a similar structure for the future. Whereas Australia and New Zealand remain crowded markets, this part of the world still offers many untapped opportunities. That said, PNG has great potential and it remains our primary focus for the time being.

How would you evaluate the prospects of the health insurance segment in PNG?

TOLLEY: Growing foreign investment in PNG has expanded the business opportunities available to health care providers in the private sector. As we have seen in more developed markets, insurance companies can offer a range of private plans to help cover the costs of diagnosis and treatments, with a choice of specialists that are bound to grow as the middle class expands. As disposable incomes rise, people will want to invest more in medical insurance products, providing plenty of business for private health care institutions in the years ahead. From the industry's perspective, however, the risk involved with health insurance remains high in PNG. One way to resolve this challenge would be for operators to acquire existing hospitals to fully control the product. The most important factor, however, would be to provide high-quality medical facilities to our clients, as too many people continue to die of very common and preventable diseases in PNG. This would benefit us as an insurance company while improving consumers' lives, so it is a win-win situation for all concerned.

What factors have contributed to the low insurance penetration rates in PNG?

TOLLEY: Penetration continues to be low in PNG compared to the rest of the region, primarily due to a lack of awareness about the benefits of insurance products. Many purchase insurance products when obliged to access credit, but often stop insuring the asset once the financing is over. This may be attributed to the traditional *wantok* system, whereby the extended family steps in during times of trouble, operating as a sort of informal insurance structure. While this has deep cultural roots in society and may work well for smaller issues, it can become impractical in more serious cases such as car accidents – let alone if your house burns down. The growth of the insurance industry in PNG will compel people to project ahead rather than only planning for the short term.

Furthermore, we can make better use of technology to improve penetration rates in the long run, as insurance can now be purchased on a mobile phone, with payments going out from your prepaid credit on a regular basis. Similarly, insurance premium funding, a loan programme that allows companies to preserve valuable cash flows by spreading the cost of annual insurance premiums over a period of 6-12 months, is already very common worldwide, and is worth $25bn a year in Australia. We therefore have reason to believe that it could over time gain ground in PNG as well.

PROMOTING EXCELLENCE BENEFITING PAPUA NEW GUINEA

The National Petroleum Company PNG (NPCP) is responsible for managing the State's equity participation in the single largest investment made by the nation to date, the PNG LNG Project.

With over 16.5% of equity, NPCP is the third largest shareholder participant in this world class LNG project.

NPCP has expanded its portfolio by acquiring approximately 10% of the shares of International Oil Company, Oil Search Limited, as well as acquiring all the assets of Cue Energy in PNG, including their interest in the SE Gobe Oil Field.

Additionally, through its 20.5% interest in PDL 1, NPCP jointly supplies gas to the Hides gas-to-electricity plant that provides power to the Barrick Gold operated Porgera Gold Mine.

NPCP is now focused on consolidating its position as the State's nominee in all future Oil and Gas developments, including the probable expansion of the PNGLNG Project as well as Gulf LNG to be operated by Total.

MANDATE

NPCP's mandate is to protect and maximize the value of the Company0s assets such that it can contribute to the maximum wealth to our ultimate shareholder; the people of Papua New Guinea.

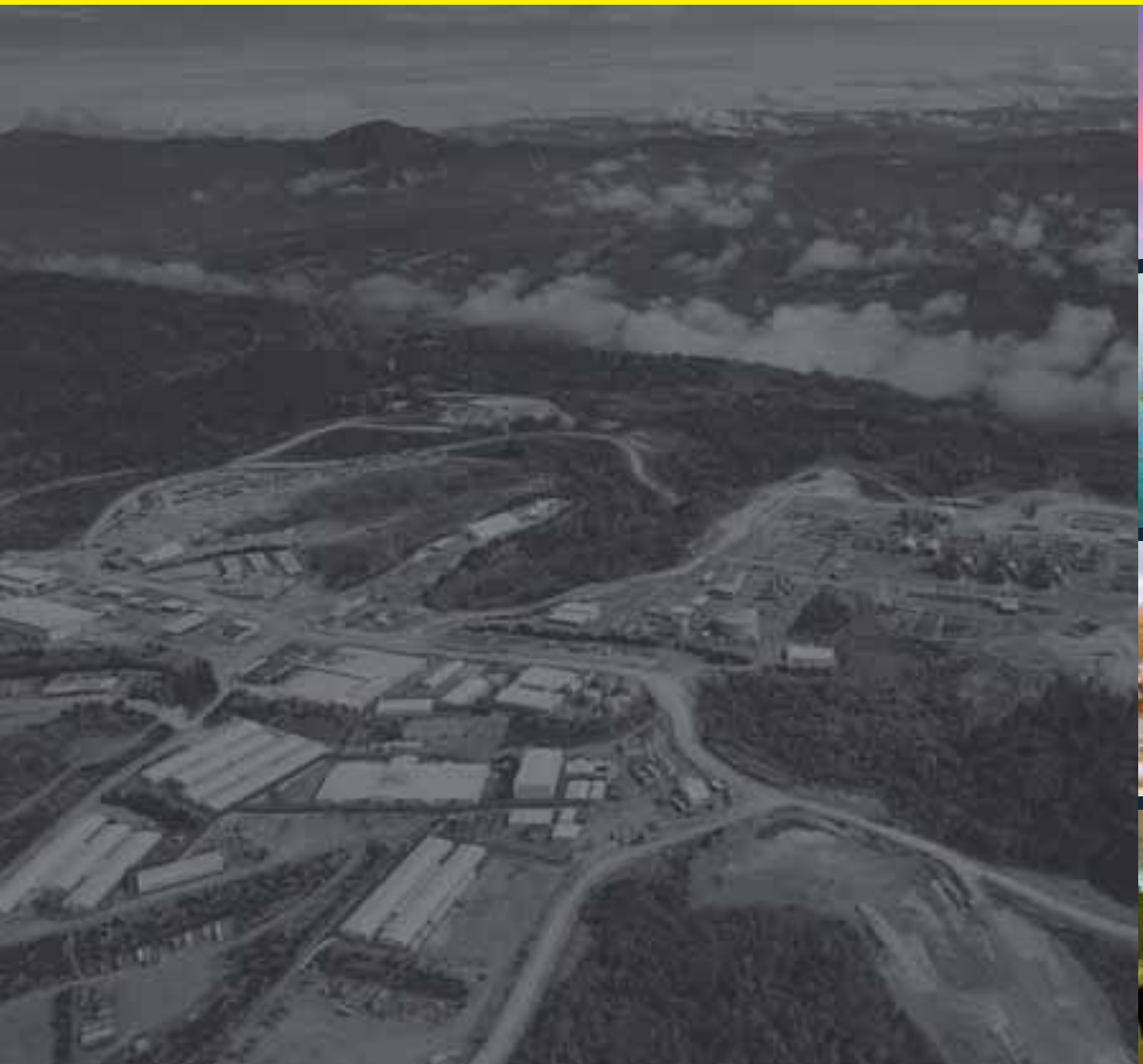
VISION

Kumul Petroleum will create value and opportunity for PNG and its people by becoming a major National Oil & Gas Company (NOC)

For more information visit our website: **www.npcp.com**

Energy

Exploration and development investments ongoing
Greater opportunities generated by LNG projects
New measures aimed at boosting electrification
Onshore projects continue despite fall in oil prices
High potential in hydropower and geothermal energy



Oil Search: pursuing excellence

Oil Search has operated all of PNG's oil fields since 2003. We also have a 29% interest in the world-class PNG LNG Project, for which we supply approximately 20% of the gas. This world-class liquefied natural gas (LNG) development, which shipped its first LNG cargo in May 2014, has added materially to our production base, transforming the Company into a significant oil and gas producer with a long-term LNG revenue stream.

Now a top 30 ASX listed company, Oil Search's success has proven that PNG can successfully deliver and operate highly profitable, large-scale oil and gas developments.

We are investing in further exploration and pursuing the next wave of LNG development opportunities - expansion of the PNG LNG Project and the new Papua LNG Project, underwritten by the Elk-Antelope fields.

We are also working with the Government and development partners to deliver vital infrastructure and services, including health initiatives, better roads and access to reliable power.

Our past, present and future are tied to PNG. It is these ties that will help us achieve our Vision: to generate top quartile returns for shareholders through excellence in socially responsible oil and gas exploration and production.

We are proud to be a part of the PNG success story and believe the best is yet to come.

Oil Search

THE BEST IS YET TO COME

www.oilsearch.com

Oil and gas has been the largest single contributor to the economy

Ready for the next step

Ongoing exploration and development projects are revealing numerous opportunities

The long wait for the Papua New Guinea liquefied natural gas (LNG) project is now over, and the energy sector is transforming from a major investment vehicle into a primary revenue generator for the economy. In fact, the project is expected to have so much of an impact during its first full year of LNG exports that PNG was projected by the Economist Intelligence Unit to lead all Asian economies in revenue growth in 2015 at nearly 15%, with the Asian Development Bank forecasting an equally robust 15% expansion.

While these projections have since been tempered by a decline in global oil prices of around half from 2014 to 2015, leading to a reduction in the government's own budgetary forecast from 15% to 6.9%, the successful completion of the PNG LNG project has triggered a wave of optimism within the country. Driven by the $19bn investment in PNG LNG, the oil and gas sector has been the largest single contributor to the economy, which expanded 93% from $7.9bn to $15.3bn during the peak expenditure years of the project from 2010-13.

While the long-term trends are positive, short-term dynamics in the market have definitely been affected by the downturn in energy prices that began in mid-2014. Peter Botten, the CEO of Oil Search, told OBG, "Everybody is reviewing investment spends and marginal projects will be stalled in the present business environment, like the Stanley project in PNG. If cash flow is down, investments are down too, while equity funding has diminished considerably. Small companies will struggle to find money and it will have a significant impact on exploration on the short to medium run."

LAY OF THE LAND: Oil Search may be listed in Australia, but it has been involved in oil and gas operations in the country as far back as 1929. The company has parlayed its local expertise into stakes in key oil and gas projects in PNG and remains the sole operator for all existing domestic crude oil production.

Oil Search is also the second-largest stakeholder in the PNG LNG project with a 29% share, behind operator ExxonMobil's 33.2% stake, and it recently managed to secure a 22.8% share in the sector's next big thing, the Elk-Antelope LNG project. The latter project also managed to attract a second energy supermajor, with France's Total signing on to head the project, which is being touted as one of the most profitable such developments currently under way.

In part due to the project being sourced from one large gas field, instead of numerous smaller fields, as is common in other projects, the cost of the Elk-Antelope project is estimated at $2051 per million tonnes of LNG capacity, well below the cost of $2324 per million tonne under the newly completed PNG LNG near Port Moresby, according to InterOil. The project also benefits from being located some 350 km closer to Port Moresby than the PNG LNG fields. "Independent analysis suggests Elk-Antelope is the most competitive new-build LNG project globally, with the potential for superior returns even at low commodity prices," Michael Hession, the CEO of InterOil, told energy publication Platts in March 2015. Bernstein Research echoed the sentiment, saying, "While investors worry about the economic viability of LNG in a lower price oil environment, Antelope is among the most competitive projects coming to market. If Antelope can't make it, nothing else will." Botten told OBG, "The additional demand for gas will come mainly from Asia over the next 15 years, and PNG, thanks to the Elk-Antelope field, is ideally placed to take advantage of this exceptional growth."

MANY ACTORS: Despite the challenges, which have particularly affected smaller exploration and development firms, several of the more nimble companies remain active. Canada's Talisman Energy (since bought by Spain's Repsol) and Australia-based Horizon Oil are leading the charge in what is expected to be the third major project to take place in Western Province. Other active players include US-based InterOil, Jersey's Heritage Oil, Australia's Santos, Japan's JX Nippon Oil and Gas Exploration Corporation, Osaka Gas, Mitsubishi, PNG's Kina Petroleum and Canada's Eaglewood Energy (since bought by Australia's Transform Exploration).

While the government has had to revise its budgetary forecast for revenue growth from 15% to 6.9% due to the decline in oil prices, the optimism generated by the PNG LNG project has encouraged further investment.

The Elk-Antelope field is located 350 km closer to Port Moresby than the PNG LNG fields and has considerably lower costs at $2051 per million tonnes of LNG, compared to $2324 per million tonnes for the PNG LNG project.

Recent exploration activities include two new wells, Manta-1 and NW Koko-1, 7600 sq km worth of airborne gravity magnetic data and 12,467 sq km of lidar and seismic information for PPLs 269, 287 and 426.

WAY OF THE DINOSAUR: PNG's energy sector may have been founded by intrepid geologists and roughnecks slogging through the jungle in search of a few thousand barrels of crude oil, but the days of striking it rich by digging for black gold are now far removed. Crude production at the country's existing mature oilfields has long been in decline, with most near-term prospects for new liquid energy coming from ancillary production at new natural gas plays. But while the overall crude output has declined over the past decade, falling about 35% from 46,689 barrels per day (bpd) in 2007 to 30,107 bpd in 2014, recent exploration and technical overhauls of ageing fields have resulted in moderate production increases over the past few years.

Total crude production edged upwards 1.7% to 30,107 bpd in 2014 for a total of 5.85m barrels for the year compared to 29,604 bpd and an annual total of 5.7m barrels in 2013, although this is well off the 8.26m barrels produced in 2007, according to operator Oil Search. The most productive operation remains the Kotubu field, producing 3.69m barrels of oil in 2014, up from 3.47m barrels the previous year. In 2014 this was followed by Moran with 1.99m barrels, with smaller contributions from SE Gobe (127,000 barrels), Gobe Main (32,000 barrels) and SE Mananda (5000 barrels).

Botten told OBG, "There is a lot of uncertainty in the market at the moment, but the good news is that producing in PNG continues to be a profitable exercise, even considering the current oil price. Improving efficiency from now on though will be the name of the game."

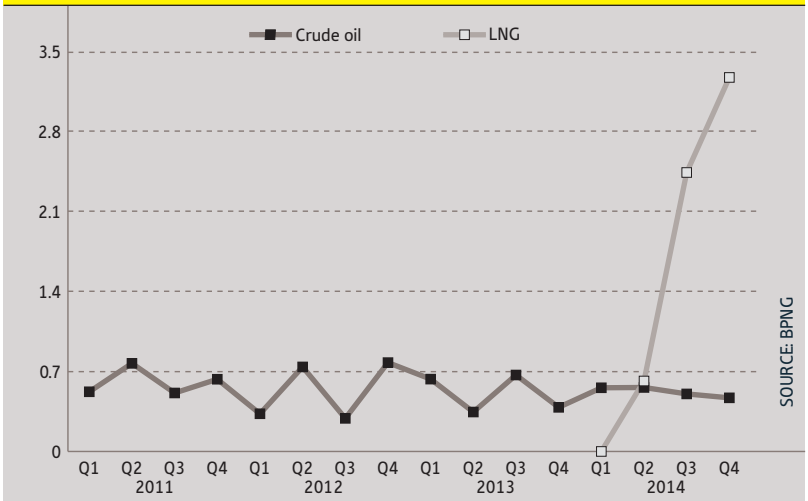
WESTERN PROVINCE: Now that LNG cargoes are sailing regularly from the marine terminal in Port Moresby, the race is on for prospectors searching for the next wave of energy reservoirs to tap. The Elk-Antelope play, led by Total, is easily the most advanced and could begin major construction works within the next few years. Close on the heels of this development is an ambitious plan to develop a series of oil and gas fields in the rugged Western Province by a collection of operators headed up by Talisman Energy. Still in the exploratory stages, the Western Province project aims to stitch together more than a half dozen exploration and production (E&P) licences located to the west and south of the Hides gas field. These include petroleum prospecting licences (PPLs) 223, 372, 373 and 430, along with petroleum development licence (PDL) 10 and petroleum retention licences (PRLs) 4 and 21. All of these are majority held by either Horizon Oil or Talisman, which have stakes ranging from 30% to 100% in each prospect. Risk is further spread among a number of other firms with minority stakes in the tenements, which include: Osaka Gas with shares in four licences ranging between 10% and 22.22%; Mitsubishi, which has stakes in two licences; Eaglewood with two licences and stakes of 45% and 50%; P3 Global Energy with one 10% stake; and Kina Petroleum with one licence.

After wells drilled in the Elevala and Ketu fields in 2011 and 2012, respectively, yielded promising results, the Tingu-1 well was spudded in August 2013 to determine the depth, thickness and quality of the Elevala Sandstone reservoir within the Tingu-1 structure, as well as to prove hydrocarbons' fluid type and column height, according to Horizon Oil. The well encountered a gas water contact in the Elevala Sandstone consistent with that in the Elevala accumulation to the south-east, implying a connected field of considerable size. The find also revealed a flow rate of up to 48m standard cu feet (scf) per day, with no water and a condensate-to-gas ratio of approximately 65 barrels per 1m scf.

MORE PROJECTS: Other exploration activity carried out by Talisman in 2014 included two exploration wells, Manta-1 and NW Koko-1, along with the acquisition of 7600 sq km worth of airborne gravity magnetic data, another 12,467 sq km of lidar data and other seismic data from PPLs 269, 287 and 426. Another two development wells, Stanley 3 and Stanley 5, were also sunk in the Stanley field, which is planned for the first stage of extraction and sales. Additional activity scheduled for 2015-16 includes: completing the first and second seismic programmes in PPL 269; drilling up to four new wells in the foothills and foreland areas starting in the third quarter of 2015; completing gradiometry studies on PPL 287 and PPL 426; and using the data to plan seismic campaign covering approximately 200 km starting in the third quarter of 2015.

The project targets not only mid-range LNG exports of around 2m-4m tonnes per annum, but also significant sales to the domestic market. This would take place primarily through the sale of natural gas to the nearby Ok Tedi mine, which recently extended its mine life through 2025 and would gladly take on natural gas supplies to replace the more expensive and dirtier diesel fuel currently powering the site. The nearby Frieda River prospect offers another potential major purchaser once the project is given the final go ahead by the government. Overland export to Indonesian towns in West Papua such as Merauke and Jayapura is another possible option. In terms of additional export potential, the mid-range project could tie in the various fields with pipelines to a yet-to-be determined location for shipping, with the coastal areas of Daru Island, Cape Possession, north-west of Port Moresby, and Site 152, also situated just outside of Port Moresby, all being discussed as possible terminals. Another option under

Hydrocarbons exports, 2011-14 (PGK bn)



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ANYWHERE, ANYTIME, SECURING YOUR WORLD

Black Swan (PNG) Limited is a PNG based, privately owned, security company, that provides strategic security support to all market segments. Our primary expertise is in designing niche security solutions specifically tailored to meet the unique threats of the PNG environment. As the PNG security landscape becomes increasingly complex and challenging, Black Swan provides a security partnership which anticipates your security needs allowing your company to concentrate on its core business.

Black Swan's objective is to be a provider of superior and cutting edge global security services and training. Our Training is based on insight and vision that demonstrates a new benchmark in customer satisfaction. In order to achieve the diversification of the various security requirements to facilitate the success of this objective, clients will need a proficient, professional security solutions provider – not just a security company. Essentially, you need a 'Security Business Partner'.

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Tertiary carbonate plays Elk-Antelope, Pandora, Pasca and Uramu have shown potential, along with foreland plays Elevala, Stanley, Douglas/Puk Puk, Langia and Manta.

consideration is to use reserves to supply a third train to the PNG LNG project, mitigating the need to build redundant processing and transport infrastructure.

THE SEARCH CONTINUES: Santos, Australia's largest domestic producer and a PNG LNG stakeholder, is also expending considerable time and capital on exploratory efforts in the country. From the second quarter of 2013 to the same period in 2014, the company significantly expanded its exploratory acreage, acquiring four new onshore exploration licences for PPLs 261, 269, 287 and 426, as well as the offshore prospect of PRL 38. Much of these efforts are focused on the Northwest Shelf, which extends across the Papuan Basin and shares petroleum with other basins developed in Australia, including the Carnarvon and Browse reservoirs.

But while the Carnarvon system has been more heavily scrutinised – some 800 exploratory wells have been drilled over its total area of 376,000 sq km – the Papuan Basin is believed to still hold undiscovered resources, with only around 160 wells drilled in an area that spans a total of 276,000 sq km since 1950.

Wapu Sonk, managing director of the National Petroleum Company of PNG (NPCP), pointed to the potential in the Eastern Papuan Basin in particular, telling OBG, "There is definitely great excitement about the development of the Eastern Papuan Basin compared to the Western Papuan Basin. It is easier to drill there and cheaper thanks to the network of rivers which allow the shipment of equipment and personnel by barge."

So far the most successful geology explored has been the foldbelt inversion zone running north and west from the Elk-Antelope field that contains proven finds including Hides, Gobe and Mananda, as well as other exploratory fields such as P'nyang. The foldbelt has experienced a 38% exploratory technical success ratio, according to Santos, and currently accounts for more than half of the country's recorded cumulative hydrocarbons resources. Tertiary carbonate plays, which include Elk-Antelope, Pandora, Pasca and Uramu, have also shown potential, albeit at a lower technical success ratio of 20%. The foreland plays Elevala, Stanley, Douglas/Puk Puk, Langia and Manta have exhibited a 33% technical success ratio, although the fields are more fragmented, leaving a significant amount of stranded gas and making them more expensive to develop.

Taken together, this early data suggests a number of options. These include integrating the foreland discoveries into the existing LNG infrastructure, or investing $1.5bn to drill another 25-odd wells to find an additional 2.5trn scf of gas to add to the 2.7trn scf already discovered. Promising results from the foldbelt and carbonate plays have so far shown potential for each of them to develop into stand-alone LNG projects.

MORE OVERSIGHT: Activity in the energy sector is currently being supported by the government through the Oil and Gas Act of 1998, which was modified by the Oil and Gas Regulation of 2002. Other secondary regulations, such as environmental laws, also apply to

the sector. E&P activities are regulated by the Department of Petroleum and Energy (DPE), which is responsible for evaluating applicants and issuing five types of licences on a first-come, first-served basis. The two most widely used are the PPL, which is issued for exploration activity, and the PDL, which is given to companies wishing to engage in the development and production of petroleum or natural gas. PPLs are valid for an initial duration of six years and may be renewed for another five-year term, although extensions only cover 50% of the territory included in the original area. Companies may apply for anywhere between 60 and 200 graticular blocks, which are defined as 81 sq km.

With a validity of 25 years, PDLs are valid for a much longer period of time and grant firms development and production rights, which may be extended for a maximum of 20 more years. Other permits include the PRL, petroleum processing facility licence and pipeline licence. For each licence applicants must fulfil three criteria: demonstration of adequate financial capacity, a work programme that links to a budget and demonstration of a qualified technical team, after which applications are reviewed by the DPE.

LAW & ORDER: To ensure that issued licences are being actively worked by qualified personnel – as opposed to speculative holding of licences – the government has taken steps in recent years to streamline the administrative process and hold licence holders more accountable for inactivity. A review was completed in 2014, and Nixon Duban, the new Minister of Petroleum and Energy, announced that the vast majority of licence holders were not adhering to their planned development schedules.

The findings revealed that half of all PPLs were not in good standing with the DPE and had unfulfilled work programmes and expenditure commitments, outstanding technical reports and outstanding rental, annual fees and penalties totalling PGK50.6m ($19.15m). PRL licences fared little better with six of 13 holders found to be underperforming while amassing outstanding fees and penalties of just over PGK1m ($378,400). Only one out of 10 PDL holders was in good standing in terms of remaining current on fees and payments, while two of the 10 were up to date on furnishing technical, biannual, annual and other operational reports.

As a result, Duban announced a number of new recommendations to ensure projects will not languish. Some of the more substantial potential changes include: amending the Oil and Gas Act to increase punitive measures for non-compliance; increasing the DPE's prosecution powers; refusing permits for underqualified and underfunded firms; capping the number of blocks awarded to companies based on their capacity to develop them; and converting the DPE into a strong sector regulator with advanced geological database systems to better monitor and enforce regulations.

In addition to these proposed administrative changes, the government is continuing its evolution of the ownership structure of state-controlled stakes in various mineral and energy projects as mandated via an Oil and Gas Act provision that grants the government the right to acquire an equity stake at cost in any project of up to 22.5% for petroleum.

E&P activities are regulated by the DPE, which is responsible for evaluating applicants and issuing licences

In the past these equity share were held either by state-owned companies Petromin PNG Holdings or the Independent Public Business Corporation, but these entities are currently being dismantled and their assets remain in the process of being folded into the new Kumul Petroleum Holding. Kumul will act as a steward for the commercial aspects of these projects on behalf of the government, while a new Petroleum Regulatory Authority would handle regulation and oversight.

OUTLOOK: The completion and full operation of the PNG LNG project ahead of schedule has proven that large-scale energy projects can succeed in PNG. Although revenue flows for the state are likely to be significantly less than anticipated due to declining oil prices, PNG's plentiful untapped reserves and resolve to become a major regional gas exporter look to provide ample incentive and means to move forward with at least one, if not more, LNG project. Exploration for the Elk-Antelope play in particular has shown promise, and majority partners have so far displayed a willingness to fast-track plans. Botten told OBG, "By end-2015 there will be a good understanding of the size of the Elk-Antelope field, so that we can start thinking about two additional trains close to PNG LNG. The final investment decision will be made by the end of 2017."

Although most of the off-take in earlier stages of development will be destined for foreign shores, PNG's relatively modest energy demand could easily be met by the diversion of gas and condensates. This would help alleviate electricity shortages and facilitate broader efforts to boost the rate of electrification.

Sonk of the NPCP told OBG, "A study by McKinsey showed that there is direct correlation between the rate of household electrification and the GDP growth of a country. When the rate of electrification reaches 60-70% of the population, GDP growth starts to become exponential and the country reaches middle-income status, which is the Vision 2050 target for PNG."

The two most widely used permits are: the petroleum prospecting licence, which is valid for six years and may be renewed for another five-year term, and the petroleum development licence, which is valid for 25 years and can be extended for 20 more years.

The government recently announced sectoral reforms designed to ensure that issued licences are being actively worked by qualified personnel, including amendments to the Oil and Gas Act and increased prosecution power for the Department of Petroleum and Energy, among others.

Grant Christie, Vice-President and Country Manager, Talisman Energy, Repsol Group

Key conditions

OBG talks to Grant Christie, Vice-President and Country Manager, Talisman Energy, Repsol Group

How does the operating environment for the oil and gas industry in Papua New Guinea compare with those of other markets in the region?

CHRISTIE: The three things to consider when assessing an operating environment for projects in oil and gas are the quality of the rocks, proximity to markets and commercial conditions to support execution, such as fiscal terms and the availability of a skilled and competitive labour force. Regarding the first, we strongly believe in the potential of the rocks in PNG – especially in the foothills area, the mountainous strip between Western Province and the Highlands. There are already several world-class discoveries in PNG with reservoir conditions that allow for very prolific wells, which helps reduce the number of wells required and keep development costs down. With vast areas still to be explored, this makes PNG a very prospective and attractive location.

Regarding the second factor, PNG's access and proximity to Asian markets is probably one of its strongest competitive edges. Its location near these markets for natural gas – considerably closer than Australia or the west coast of the US – represents a sustainable advantage for PNG.

As for the third factor, PNG is building the capability and capacity to support the development of liquefied natural gas (LNG). The workforce is increasing its skills and in time will be able to participate more deeply in project delivery. This takes time to develop and requires continuity between projects. The government's programmes in health care, education and infrastructure are definitely pushing the country in the right direction so that it can benefit more broadly. There is currently capacity in PNG to successfully deliver one major project at a time, as was shown by the PNG LNG project. However, in order to build capacity, increase skills and improve competitiveness in this area, the workforce needs sustained employment. It is likely that some degree of rational sequencing for major projects will be needed to avoid the boom-and-bust dynamics we have seen in other areas around the world.

What role are small and medium-sized enterprises (SMEs) playing in PNG's oil and gas industry?

CHRISTIE: PNG has vast areas within its territory that have yet to be fully explored. This leaves plenty of room for SMEs to operate in the area of speculative exploration. The role of mid-size enterprises remains equally valid. These are companies that have proven development capability and can manage modest projects like local power generation or gas conditioning for sale into existing infrastructure. With its competitiveness increasing and the recent delivery of the PNG LNG project, PNG is now gaining the attention of large companies. This is a very exciting opportunity for PNG, as only these larger companies have the financial capacity and know-how to deliver these large-scale LNG projects.

At what level of production does it make sense to construct an additional LNG train in PNG?

CHRISTIE: LNG train sizes vary depending on a number of factors. These facilities can be developed with reserve volumes of as little as 2trn cu feet, with the largest requiring as much as 6trn cu feet for a single-train unit. A significant consideration in regard to the minimum-size train in PNG is the overall logistics and infrastructure costs in the country. The key infrastructure elements are the pipelines, site preparation and associated infrastructure. All of the major discoveries made to date have been found either in areas that require considerable pipeline infrastructure running over some very challenging terrain or on long river systems that would not support export vessels. The costs associated with such environmental factors push up the minimum volume needed to support an LNG train, and most experienced operators consider 5trn cu feet as a benchmark volume to support a minimum single-train development.

Energy companies are looking to develop the next big play

Proof of concept

The LNG project appears to be only the beginning

The country's limited energy needs and its rapidly expanding supply of gas have led policymakers to pursue the somewhat obvious path of focusing on the export market via shipments of liquefied natural gas (LNG). Although the price of energy has declined considerably since the initial plans for the Papua New Guinea LNG project were first drawn up, gas remains the country's top foreign currency earner, with future potential earnings having the power to transform the economy. With one major LNG project now up and running, a host of energy firms both large and small are looking to develop the next big play in the country.

FIRST MOVER: Capable of producing 6.9m tonnes per annum (tpa) of gas for export, the PNG LNG project was initially anticipated to account for most of the state's projected PGK698.5m ($264.31m) in mining, petroleum and gas dividends within the non-tax revenue component of the 2015 national budget. Additional mining and petroleum taxes levied on the LNG project were also projected to make up a substantial portion of the estimated PGK1.75bn ($662.2m) total extractive resources taxes in 2015, making the project a disproportionally large component of projected revenue. Although these estimates now appear to overstate future revenues due to the decline of oil and gas prices well below initial assumptions of $90 per barrel, the sale of gas to other regional buyers should still be enough to stem the decline of resource revenues. The government's revenues have decreased from more than PGK2bn ($756.8m) in 2011 to PGK700m ($264.88m) just two years later, according to a paper published in December 2014 by Paul Flanagan, former chief advisor at the Australian Treasury.

ExxonMobil's $19bn investment consists of two production trains located at its liquefaction facilities near Port Moresby, which are fed by a gas pipeline snaking its way down from the highlands. The integrated development includes gas production and processing facilities spread out across the Southern Highlands, Hela, Western, Gulf and Central Provinces. All told, more than 700 km of pipelines connect the project facilities, including a gas conditioning plant in Hides and liquefaction and storage infrastructure on the coast.

ExxonMobil holds a 33.2% operating stake in PNG LNG, along with joint venture partners PNG-based Oil Search (29%), the state-owned National Petroleum Company of PNG (NPCP, 16.8%), Australia's Santos (13.5%), Japan's JX Nippon Oil and Gas Exploration Corporation (4.7%), and local player Mineral Resources Development Company (2.8%).

ON TRACK: After ramping up production ahead of schedule in April 2014, the LNG plant delivered its first cargo in May, well ahead of the initial target of October. By end-June 2014 it had loaded seven LNG cargoes, all of which were sold on the spot market. Around 95% of the project's capacity is accounted for via long-term contracts, which commonly set prices to rolling 10-year averages and which kicked in during late 2014. These long-term customers include China's Sinopec with a commitment for 2m tpa, Tokyo Electric Power Company with 1.8m, Japan's Osaka Gas at 1.5m and Taiwan-based Chinese Petroleum Corporation for 1.2m.

With full-scale production now achieved, the partners are looking to boost their returns by adding a third LNG train to the liquefaction facilities. Wapu Sonk, managing director of the NPCP, told OBG, "In the short run there are good possibilities for three additional LNG trains in PNG, one as an expansion of the existing facilities and two more from the InterOil-Total gas project to be developed in the Gulf region, even though the initial geological data are showing reserves that could allow three or even four additional trains."

The greatest potential for sourcing the additional gas is reserves in the Hides field, in which the joint venture has been drilling exploratory wells in the Hides Deep prospect. Another potential source of gas used to underpin production is the nearby P'nyang gas field.

MOVING FORWARD: PNG may not have to wait long for its next natural gas project to kick off, with work well under way to assess the viability of a second major

Despite the recent decline in oil prices, the PNG LNG project is capable of producing 6.9m tpa of natural gas for export and should help to stem a decline in the state's resource revenues.

The LNG plant delivered its first cargo ahead of schedule in May 2014, with around 95% of the project's capacity accounted for by long-term contracts with major buyers in the region.

Taxes on extractive resources are a major source of revenue for the government

Despite the Elk-Antelope reservoir's promising finds, there may be even more opportunities as the site is surrounded by exploration licence tenements, such as the Bobcat, Raptor and Triceratops fields.

LNG export-oriented project supported by what could potentially be the largest single energy reservoir discovered in the country to date. The Elk-Antelope prospect located in the Gulf Province has been receiving considerable attention of late from project developers led by major French oil company Total. As new data and testing continues to roll in from the fields, projected estimates continue to increase, with accessible reserves projected by partner US-listed InterOil at 6.47trn-10.44trn standard cu feet (scf) of initial recoverable gas in early 2014 and up to an additional 17trn scf from other nearby associated fields.

Appraisal of the project's primary wells was accelerated in late 2014, with early results from test wells showing considerable promise of being able to support a multi-train LNG project. Tests on the Antelope-4 well intersected a reservoir at just more than 1911 metres and indicated high-quality reservoir porosity and permeability, resulting in general good reservoir quality extending into the southern flank, according to InterOil. The Antelope-5 tests, which reached a depth of 2307 metres, revealed the best reservoir in field to date in thickness, quality and fracture density with a gas column of approximately 680 metres, with the structure and density giving it considerable upside potential to the west of the field. The spudding with Antelope-6 is projected for the second half of 2015 and is expected to provide additional data regarding structural control, reservoir properties and the extent of dolomitisation towards the east side of the play. InterOil estimates the Elk-Antelope field has 9.9trn scf.

HIDDEN TREASURES: The Elk-Antelope reservoir is not the whole story, however, as the site is encircled by a mosaic of exploration licence tenements, many of which are currently under scrutiny. These include the Bobcat, Raptor and Triceratops fields to the north and west, the latter of which underwent assessment in the first half of 2015. The combined gross, unrisked contingent resources thought to be contained in these fields is estimated by InterOil at roughly 8trn scf. All three exploration licences are majority held by Elk-Antelope partner InterOil, increasing the likelihood of a project extension should the satellite fields prove profitable. Another 9trn scf of gross, unrisked prospective resources is projected to lie in Antelope-South and the Wahoo field to the south-east. Drilling at Wahoo and Triceratops began in June 2015, and the joint venture partners are expected to choose a preferred development model soon. Early works would begin in the third quarter of 2016, with a final investment decision and the start of construction set to follow a year later.

According to new data and testing on the Elk-Antelope field, accessible reserves are estimated at 6.47trn-10.44trn scf, and up to 17trn scf from other nearby associated fields.

TRICKY DETAILS: While the geology and exploration of the project may be straightforward science, assessing the ownership structure has proven more complicated. The Elk-Antelope field was originally operated by InterOil under a 2009 project agreement with the PNG government to deliver a 7.6m- to 10.6m-tpa LNG project. When InterOil and the government came to loggerheads over the plan to develop smaller LNG projects in stages, which the government disapproved of, the company responded by opening negotiations for a stake in the project with international heavyweights ExxonMobil, Shell and Total. While Total was awarded the contract in late 2013 and the deal finalised in March 2014, a spanner was thrown into the works when long-time PNG operator Oil Search bought out one of InterOil's joint venture partners, Pacific LNG Group Companies. Pacific LNG held a 22.8% stake in Elk-Antelope, and as such Oil Search claimed pre-emptive rights relating to the subsequent joint venture and sought arbitration. The case was heard at the end of November 2014, with Total named project operator after agreeing to pay $401m for its 40.1% stake in the project. This left InterOil with a 36.5% share and Oil Search a 22.8% interest, with remaining holdings split among minority owners. Under the terms of its acquisition, Total is required to make further pay-outs to partner InterOil dependent upon the size of the gas resource. Should the resource be determined at 7.1trn scf of gas, the certification payment would be $580m, with the payments scaling up for larger volumes.

Natural gas is PNG's number one foreign currency earner

Philippe Blanchard, Managing Director, Total PNG

Next steps

OBG talks to Philippe Blanchard, Managing Director, Total PNG

How is Papua New Guinea's second liquefied natural gas (LNG) project at the Elk-Antelope fields expected to influence the local gas industry?

BLANCHARD: We are committed to moving this project forward, as we understand the socio-economic impact it can have on the development in PNG. While the appraisal programme is ongoing, the joint venture has made other efforts to further progress on the project: securing financing, undertaking gas marketing and conducting environmental and societal studies, with the objective of making the financial investment decision in the second half of 2017. The government may also enter the joint venture, as it can take a stake of 22.5%.

In an environment of low oil prices, it is important to emphasise that we should prepare ourselves to be competitive in a variety of price scenarios. Over the long term, our view of the supply-demand fundamentals has not changed, so we anticipate that prices will rebound and we do not view this project as being at risk. When you are dealing with multi-billion-dollar developments like the Elk-Antelope gas field, delivering on time and within the budget is the main priority, and major oil and gas firms can manage such projects.

I understand the government's intention to diversify the oil and gas industry in PNG and this is why they have welcomed a second major operator for the next LNG project. A country like PNG can rely on the experience and support of a major firm to develop assets and use its expertise at every stage of the value chain, from upstream production to trading LNG products.

To what extent has the perception of PNG as an investment destination changed since the $19bn PNG LNG project first began exporting gas?

BLANCHARD: Undeniably, it is a very good sign when an oil major completes a project in a new marketplace, as it confirms that the country is mature as an investment destination. Certainly PNG's reputation has changed as a consequence of that. From an industry perspective, PNG has been very attractive due to its potential and its location in the Asia-Pacific region. This is not only because of its proven reserves – in the case of the Elk-Antelope fields, the appraisal study has not yet been completed – but also because PNG has fostered a more business-friendly environment than more mature markets. The government is providing the right incentives to operate in a challenging environment, considering the remoteness of the fields and the lack of infrastructure. Each project is different and while the new gas fields in Gulf Province are closer to Port Moresby than the Highlands, the quality of the gas is different, adding technical complexity to its development. It will require renewed engagement with different communities than those affected by the first project. At this stage, it is difficult to say whether the new project will be easier or more difficult, but it will be different.

What strategies should be employed to more equally distribute wealth arising from new projects?

BLANCHARD: We already know that there are high expectations for major projects in PNG, so early stakeholder engagement and awareness campaigns will be extremely important to initiate at the beginning of the project. We need to be sure that communities understand what a project of this kind can deliver and how it will affect them. They should be engaged through every stage of development, as it will take years to complete.

The aim of engagement is to provide support in a way that is efficient, reliable, economical and acceptable to communities and stakeholders. The slogan that we refer to is "sustainable growth", recognising that it is a difficult goal to achieve. In the long term, the objective is not just to help communities, but to empower them. Multinationals can help start businesses, but the development model should be sustainable so that newly created institutions can be independent. There is no use building schools if there are no teachers, or if a lack of infrastructure and transport options prevents children from accessing them. Development projects must be designed with a global perspective to be effective.

Brent Emmett, CEO, Horizon Oil

A catalyst for growth

OBG talks to Brent Emmett, CEO, Horizon Oil

How would you assess the investment framework for the oil and gas industry in Papua New Guinea, particularly in the area of gas-to-electricity?

EMMETT: Several good policies have been introduced over the years to reform the energy sector in PNG, but there has been a lack of consistency in implementing them on the part of the administration, and consequently some of them have been laid aside. For instance, domestic obligation gas – a concept the government introduced in the early 2000s to address the issue of electrification – has only recently been brought forward by the present administration.

Although the initiative is commendable, it is hard to understand why this was not implemented earlier, given the country's abundant gas. Individual diesel and heavy fuel oil generators continue to power just about every city and business in the country. Given the environmental and economic cost of such a solution, a more sustainable approach will need to be put in place. Only something like 6% of the population in PNG is connected to the grid, so there is still a long way to go.

How much of its output will your gas projects provide to the local market, and what impact do you expect this to have in Western Province?

EMMETT: At the Stanley field, for example, we and our joint-venture partners, which include Repsol, Osaka Gas and Mitsubishi, have agreed to provide as much as 15% of project gas output for domestic consumption. In the event that the consumer market is not able to absorb this capacity, after a certain period of time has elapsed, we are allowed to export the equivalent amount of gas. This seems to be a rather pragmatic solution to the issue, as the government is our partner in the Stanley field development, with its 22.5% stake, and it serves no one's interest to leave these resources in the ground.

The forecast production life of the Stanley, Elevala and Ketu fields is 20-25 years, and we expect to contribute to the economic growth of Western Province by providing gas for power generation to the Ok Tedi mine and for many towns and villages along the way. We also believe Stanley gas should be used to provide power to the Frieda River copper-gold project, which is one of the world's largest undeveloped deposits. Guangdong Rising Asset Management Company's recent takeover of the project from Australian miner PanAust is likely to greatly enhance the prospect of it being developed in the near future. We estimate that the cost of delivering electricity to that location and to the Ok Tedi Mine through gas-fired power stations will be cleaner, more reliable and one-third cheaper than the current liquid fuel model. The social and economic impact of such a change will be substantial.

What would be the economic impact of a better electrification network in PNG?

EMMETT: One need not look very far in the region to see other success stories. Take Thailand, a country with abundant gas reserves. Over the years, that gas has found its way onshore and has been used for power generation to the benefit of local industry and manufacturers. Its use has spurred growth in petrochemicals and helped to lift health and education standards. It is hard to quantify its actual contribution to GDP, but it has certainly improved overall economic activities. I see no reason why it would be different in PNG, bringing tremendous social and economic benefits.

The present administration has to be commended for tackling the issue of domestic obligation gas. It is great news that part of the output from the Hides gas fields will now be used for power generation, reaching customers as far to the west as Tari. In the long run, this is likely to create an infrastructure corridor, where transmission lines carry power that can be used by industries, towns and villages along the way. The next step will be to build new roads, but it is certain that having power is a catalyst for growth just about anywhere. In light of recent discoveries and the success of the first liquefied natural gas project, the time has come for PNG to make the most of its natural gas.

PNG has historically relied on renewable sources for power generation

Keeping the lights on

New measures and investments to expand electrification

Continued economic growth in recent years is driving demand for electricity across PNG, straining the capability of the country's primary grid networks. The widely dispersed population and geographic challenges continue to pose formidable barriers to increasing electrification, while the small but growing capacity serving the main urban areas is in need of expansion to meet growing power needs.

Total national power generation capacity currently sits at around 582 MW, according to Asian Development Bank (ADB) figures, less than the output of a single large power plant in many countries. Lacking a coal mining industry that can supply cheap fuel for its power plants like many of its neighbours, PNG has historically relied on renewable sources for power generation supplemented by diesel-fired generators. Hydropower plants form the single largest contributor to the national power grid with 230 MW of installed capacity, or 39.1% of the total. Diesel generators run a close second with 217 MW (37.4%), followed by gas-fired with 82 MW (14.1%) and 53 MW of geothermal power production (9.1%).

PNG POWER: The largest single operator is state-owned PNG Power Limited (PPL), which operates the three primary grids, along with dozens of smaller localised systems. The Port Moresby system serving the National Capital District is the largest of these and derives most of its electricity from the 76-MW Rouna power station, which runs four primary hydro units on the Laloki River. This is supplemented by another 30-MW thermal power plant at Moitaka, as well as through purchases from private power stations. Operated under an independent power project agreement, the 24-MW, diesel-powered Kanudi thermal power station has fed electricity to the Port Moresby grid since it began operations in 1999.

Serving the Momase region, including the towns of Lae, Madang and Gusap, as well as the Highlands population centres in Wabag, Mendi, Mt Hagen, Kundiawa, Goroka, Kainantu and Yonki, the Ramu grid is the PPL's second-largest network and is similarly dependent upon hydropower for the majority of its power generation. The largest contributors to the system are the 75-MW Yonki and 12-MW Pauanda hydropower plants. Supplementary power can also be added to the grid as needed from the privately operated 2-MW Baiune hydropower station at Bulolo in Morobe Province, as well as the small-scale PPL diesel standby units located in Madang, Lae, Mendi and Wabag.

The third and smallest of the three major systems is the Gazelle network, which provides power to Rabaul, Kokopo and Keravat. Power for the grid is generated from the 10-MW Warangoi hydropower station, along with the diesel-powered thermal plants of Ulagunan (8.4 MW) and Kerevat (0.5 MW). PPL operates another 19 independent power systems serving dozens of smaller urban centres across the country.

OFF THE GRID: Altogether only around 10% of PNG's population has access to electricity, and those who are connected to a grid still remain subject to frequent blackouts and inconsistent supply. In order to counteract this unreliability, urban areas have considerable self-generation and backup generation capacity, which is expensive and inefficient to operate and maintain. One of the larger independent power producers operating in PNG includes Hanjung Power, which runs the Kanudi station supplying the Port Moresby grid.

The other major private player is PNG Sustainable Energy, which operates rural grids in Western Province and is expanding to other parts of the country. In addition to this, provincial governments are responsible for maintaining a number of stand-alone rural generation facilities, some churches provide electricity to villages that are off the grid and the larger mining sites sometimes provide power to adjacent communities.

For its part, the government through PPL has embarked on a number of initiatives intended to extend power access throughout the country, as well as to shore up the existing network to ensure adequate and consistent power supply. These programmes include

With a total national power generation capacity of around 582 MW, hydropower plants are the largest contributor to the domestic grid at 230 MW of installed capacity, or 39.1% of the total.

The Gazelle network, the smallest of PNG's major systems, provides electricity to Rabaul, Kokopo and Keravat, with power generated by the 10-MW Warangoi hydropower station, as well as the 0.5-MW Kerevat and 8.4-MW Ulagunan thermal plants.

Non-payment of bills by customers, including public firms, is a major challenge facing the sector

As of result of outdated and poorly maintained transmission lines and substations, power transmission and distribution system losses account for 20% of the energy PNG Power handles.

the ongoing $83m Port Moresby Power Grid Development Project, rolled out with the help of the ADB, and the Ramu Transmission System Reinforcement Project, launched in 2013 in conjunction with the Japan International Cooperation Agency and the Town Electrification Investment Programme.

ROAD BLOCKS: Yet in spite of these efforts, numerous challenges in PNG have thwarted a smooth roll-out of new power infrastructure. While the government has received aid from its partners in various projects, PPL often lacks the resources and funding to carry out the growing list of development initiatives it is tasked with, including the rehabilitation of existing infrastructure to improve reliability, the extension of grids to service the growing urban population and the expansion of disaggregated generation to serve the rural population. As of result outdated and poorly maintained transmission lines and substations, power transmission and distribution system losses account for 20% of the energy PPL handles. Other contributing factors include difficult geographical conditions, operational issues linked to technical and management capacity, investment disincentives related to the single national tariff structure and high up-front costs for power generation in rural areas. Compounding these challenges is a long-running problem facing PPL in which the state-owned enterprise has been unable to collect large amounts of past-due bills, many of which are for other public firms or large companies that have racked up millions in unpaid charges.

STATE OF EMERGENCY: The cumulative weight of these burdens came to a head in early 2015, when Ben Micah, minister for public enterprise and state investment, announced a state of emergency in the electricity sector in a bid to fix the revenue problems faced by PPL. According to statements made by Micah to the local press, a 60-day period of extraordinary powers was instituted in order to compel companies and individuals to atone for non-payment of bills and illegal use of electricity, which tallied up to PGK138m ($52.22m) owed to PPL. These powers enabled the government to enforce disconnections, levy fines of up to PGK100,000 ($37,840) for individuals and PGK500,000 ($189,200) for businesses, or up to six months in prison, as well as to call up army and police forces for protection and enforcement of policies.

This action was followed later in April 2015 with a shake-up of PPL's top management, naming former Digicel CEO John Mangos the power firm's new executive director in what Micah described as an effort to provide reliable, 24-hour power to the majority of the population within a decade, according to an official media release. At the same time, the government also announced a 10-year electricity infrastructure development plan and reshuffled PPL's umbrella body, the Independent Public Business Corporation, by sacking incumbent Wasantha Kumarasiri for not conforming to Cabinet directives. "The ultimate goal for the reforms in the electricity sector and the restructure of PPL is to introduce reliable and affordable power supply to at least 90% of the population consistent with the goals of Vision 2050," said Micah.

He went on to indicate that the proposed restructure recognised the need to open up space for private sector participation in the generation of electricity, distribution and retail businesses and that approval had been given for new hydropower stations to be built at Edevua (Brown River), Gembogl, Kiburu, Tua River, Wara Simbu, Daewoo Lae, Hela and Puanda.

LIGHTING THE WAY: While the results of the recent shake-up at PPL are as yet unclear, a number of new power generation projects are in various stages of development, which, if carried out to fruition, would increase current capacity many times over. Numerous hydroelectric power projects are already under way to take advantage of PNG's underutilised hydro resources, estimated by the International Energy Agency at 4200 MW for technical and economically viable resources. Tapping into this latent potential is a cornerstone of the government's Strategic Development Plan 2010-30, which targets a national electrification goal of 70% by the end of the period. This would require a near quadrupling in total capacity from roughly 500 MW in 2010 to 1970 MW by 2030, of which hydropower would account for more than half at 1140 MW.

Numerous hydroelectric power projects are already under way to take advantage of PNG's underutilised hydro resources, estimated by the International Energy Agency at 4200 MW for technical and economically viable resources.

In the near term the state is set to begin benefitting from the recent gas developments, with plans finalised in 2015 to build PNG's first gas-fired thermal power plant. ExxonMobil, operator of the PNG liquefied natural gas (LNG) project, and the government signed a memorandum of understanding in January 2015 for the former to supply up to 20m standard cu feet per day of domestic natural gas for 20 years to power a 25-MW thermal plant feeding into the Port Moresby grid. As part of the same agreement, the government awarded ExxonMobil a petroleum development licence for the P'nyang South gas field, which will be developed to supply gas as part of a possible third train for the PNG LNG project, as well as to fuel a new gas-fired power plant to be built by the government near the LNG plant outside of Port Moresby.

Lesieli Taviri, General Manager, Origin Energy

Power to the people

OBG talks to Lesieli Taviri, General Manager, Origin Energy

Is a lack of energy affecting the socio-economic development of Papua New Guinea?

TAVIRI: Recent studies by the UN have highlighted the negative effects of the energy shortage on vital sectors such as health and education, and the biggest challenge for PNG is to improve the country's rural electrification standards, which remain well below the regional average. PNG Power currently reaches approximately 12% of the country's households and only around 15% of its schools.

It is unrealistic to expect our people to be involved in meaningful activities when they are denied these basic services. Electricity is used not only for lighting and household purposes; it also has the potential to allow mechanisation of farming operations, so the benefits are many. There are different ways to provide these basic needs, but considering the lack of infrastructure and road networks, we believe that liquefied petroleum gas (LPG) remains the best option for providing consumers with a reliable fuel alternative that is also environmentally friendly.

How has the LPG market been performing?

TAVIRI: We have seen a decrease in purchasing power among average consumers, due to the completion of the PNG liquefied natural gas project, and it has led to the introduction of smaller cylinders in the market. In fact, a segment of the market is looking for cheaper sources of fuels such as kerosene, but as it is an oil with a much higher level of toxicity – research by the UN over the years has proven that it causes respiratory problems when inhaled over a long period of time – it presents higher health risks, specifically for women in rural areas.

While LPG still accounts for a relatively small percentage of total energy consumption in PNG, it fits the three "As" that determine the sustainability of a business: affordability, availability and accessibility. Strengthening the distribution network will be key for the success of the industry vis-à-vis the future, as LPG continues to play a significant role in the country's economic development.

What is the energy of the future in PNG?

TAVIRI: I believe that solar energy will be playing a much bigger role within the country's energy mix for the foreseeable future, and this should not come as a surprise, considering that this is the fastest-growing energy source worldwide.

Considering PNG's harsh terrain and the fact that villages with no more than six or eight houses are scattered throughout the territory, bringing electricity transmission lines there remains very complicated, and imagining non-solar energy solutions seems unrealistic to me. This includes hydropower. Even though PNG is extremely well-suited for hydropower, some proposed projects have been on the drawing board for years now. Launching hydropower plants requires huge capital investments and quite lengthy negotiations with both the government and landowners.

Solar, on the other hand, offers a limitless supply of clean and renewable energy for both light and power. Solar mini-grids, capable of providing 100-200 KW for rural electrification, are increasingly looking like the smart choice for PNG.

When it comes to households, we have been testing smart energy packages in villages on the outskirts of major cities, providing small LPG cylinders of 2.5 kg, coupled with a stove for cooking and a mini-solar panel that powers entry lights and mobile phone recharging ports. Surprisingly, half of the demand for this product came from consumers already connected to the power grid, who found personal smart solutions more reliable and cost effective, perhaps tired of the constant disruption in power distribution. As portable solar panels nowadays come with lithium batteries – which last for up to six years – included, bringing light and a bit of power to every village in PNG may not be a distant dream any longer.

Prices are the key factor affecting the viability of offshore projects

Continuing the search

Exploration, production and development are far from over

The price of West Texas Intermediate crude nearly halved from more than $90 a barrel in October 2014 to about $50 a barrel by January 2015, exacerbating an already challenging situation for smaller cap companies.

A common thread to Papua New Guinea's two largest energy projects to date – the PNG liquified natural gas (LNG) mega-project and the upcoming Elk-Antelope play – is that while both are now controlled by energy supermajors Exxon and Total, neither was originally discovered by their current operators. Like the development of new "elephant" projects across the globe, exploration for new major oil and gas plays is often left to smaller oil and gas firms, which operate on much smaller capital resources than their larger brethren. These "wildcat" outfits, as they are often called, serve as the lifeblood of the energy sector, often risking their reputations and sometimes their financial lives on finding and developing tenements deemed either too risky or too inconsequential to the larger, vertically-integrated oil companies that dominate the global industry.

SQUEEZE BELOW: Unfortunately for these wildcats, the recent slump in crude oil prices has had a chilling effect on the industry, as the price of West Texas Intermediate (WTI) crude nearly halved from more than $90 a barrel in October 2014 to about $50 a barrel by January 2015. This decline has further exacerbated an already challenging situation for companies of small and medium-sized capital, for which acquiring capital to maintain operations has been a severe challenge since the global economic downturn hit in 2008. This scarcity of financing has hit these "smaller cap" firms – which historically have relied heavily on bank loans in the form of a corporate revolving credit facility to raise funds – particularly hard, especially those lacking in scale or whose risk is concentrated in a single project or country.

With competition for loans stiffened as many banks have been forced to tighten lending controls, companies are also turning to more alternative sources of finance, such as the bond market, project partners, private equity and export credit agencies. Even large international oil companies (IOCs) with healthy balance sheets and huge operating cashflows have not been immune to this new environment, as they come under increasing pressure from shareholders to curb capital spending and increase cash returns. The net result of these conditions has been a dramatic shrinking of budgets for exploration and development across the board.

VIABILITY: Prices, however, remain the key factor affecting the viability of offshore projects. "If crude oil prices persist below $50 a barrel, there will be a dampening effect on oil-directed exploration and production (E&P) activity in regions of the world that are burdened with high breakeven costs," said the publisher of *World Oil* magazine, Ron Higgins, in a January 2015 statement. "We expect that offshore projects that have a long producing horizon will continue, as will activity in fields where capital costs already have been sunk, and operating costs are manageable." The barrel price of WTI crude hovered around the $50 mark twice in early 2015 before rallying to around $60 in May and June, then dipping again in early July to around $52 amid mounting concerns about economic stability in Europe and Asia.

While the larger IOCs have the resources to weather this storm, lower-rated companies face more obstacles. Ratings agency Standard & Poor's took 23 rating actions across US oil and gas E&P firms in early 2015, nearly all them downgrades and negative outlook or CreditWatch revisions due to potential liquidity pressures in 2015. Further actions in this vein are possible if prices do not rebound in 2016.

The number of rigs in use internationally declined from a high of 3900 in February 2011 to 2127 by May 2015, but the decline has been much less pronounced in the Asia-Pacific region.

SHUTTING RIGS: This sustained trend of slack commodity prices has led to a precipitous drop-off in the number of rigs in use internationally. This figure has declined from a high of 3900 in February 2011 to 2127 by May 2015, according to Houston-based oilfield services' firm Baker Hughes, which has tracked rig usage since the 1940s. The good news for PNG is that the decline has been much less pronounced in the Asia-Pacific region, where the number of active rigs averaged 230 in the first five months of 2015,

compared with 254, 246 and 241 in the previous three years. More expensive shale gas projects in North America have, conversely, been hit the hardest, with US and Canadian rig activity falling from an average of 1919 and 365, respectively, in 2012 to 1201 and 219 rigs in the first five months of 2015.

While the decline in rig activity will reduce E&P in the short term, longer-term projections paint a slightly rosier picture. In January 2015, Moody's Investors Service revised its assumptions for average spot prices for a barrel of Brent crude to $55 through 2015, $65 in 2016 and $80 in the medium term, and for a barrel of WTI crude to $52 in 2015, $62 in 2016 and $75 in the medium term. The prospect of an impending price rebound gives companies a further incentive to carry out new exploration, particularly the more complex projects in frontier and deepwater fields, which have longer lead times. Investing now also capitalises on the current lower costs of development, pulled down by the oversupply of drilling rigs and other finite infrastructure.

NEW HOPE: In spite of the difficult economic climate, a number of smaller, more agile companies have been able to maintain exploratory work across PNG. Small and mid-cap oil and gas exploration outfits that are currently operating in the country include Otto Energy, Nido Petroleum, Santos, Kina Petroleum, Cott Oil and Gas, Cue Energy Resources, Twinza Oil, Drillsearch Energy, Horizon Oil and Tailsman Energy.

TAKING A PUNT: One of the few outfits forging ahead in the offshore sector in PNG is Kina Petroleum, which managed to buck international trends by receiving a $15.2m injection in November 2014, when PIE Holdings LP purchased 61.4m shares in Kina, a 19.9% stake. PIE Holdings is an investment vehicle held by Phil Mulacek, founder and former chairman and CEO of InterOil. The company under Mulacek explored the Eastern Papuan Basin, which eventually led to the impressive Elk-Antelope and Triceratops finds. Kina is using part of the funding to further explore and develop its nine tenements encompassing 40,660 sq km across PNG in hopes of replicating earlier successes in the basin.

The most developed of these is petroleum retention licence (PRL) 21 in Western Province, which contains the Ketu, Tingu and Elevala gas fields projected to drive a mid-scale LNG project in the future. Kina owns a 15% stake in the project, as well as a 57.5% share in the adjoining petroleum prospecting licence (PPL) 437, which abuts PRL 21 to the north and east. Twice as large as PRL 21, the second development area contains the Malisa, Candlenut, Mango and Kandis plays, which could potentially be added to the existing fields already under development. The Gosur seismic programme was carried out using nodal seismic acquisition systems on the Malisa formation in 2014, with early results indicating that the prospect is similar to the Tingu 1 discovery. A

Petroleum retention licence 21 in Western Province contains the Ketu, Tingu and Elevala gas fields, which are projected to drive a mid-scale LNG project in the future.

Onshore reserves are more cost-effective and easier to access

Four junior firms have teamed up to develop PRL 38, about 200 km offshore in the Bay of Papua, west of Port Moresby. The main area of interest is the Pandora field, thought to contain two principal structures with 792bn cu feet of resources.

wider-ranging seismic reprocessing programme was also carried out across PPL 437 in 2014.

Exploration work in the Malisa play is also being coordinated with Eaglewood Energy, which holds PPL 259 to the west of PPL 437, to better synchronise the development of the field that straddles the two tenements. Eaglewood and PPL 437 partner Heritage Oil executed a cost-sharing agreement that allows Heritage to carry out a combined survey consisting of two contiguous exploratory programmes across both licences. Similar mutually beneficial arrangements have been made with Horizon Oil, operator of PRL 21, to share fixed costs such as seismic crews, camp infrastructure, unused consumables and other logistical costs.

OFFSHORE: While virtually all of the existing exploration and development projects in PNG have so far centred on onshore reserves, which are more cost-effective and easier to access, offshore projects are now being eyed as the next wave of production. Four junior companies – Cott Oil and Gas (with a 40% stake), Kina Petroleum (25%), Talisman Energy (25% and acting operator) and Santos (10%) – have teamed up to develop PRL 38, located about 200 km offshore in the Bay of Papua, west of Port Moresby. The main area of interest is the Pandora field, discovered in 1988 and thought to contain two principal structures (Pandora A and Pandora B) with contingent resources of 792bn cu feet (bcf) at a depth of 120 metres. Several options are now being explored to monetise the find, the two most viable being aggregation with Western Province fields and infrastructure, or developing PNG's first floating LNG (FLNG) project.

JOINT OPTION: The first option would entail teaming up with Horizon Oil and Talisman Energy to link into their development of significant gas discoveries in the foreland of the West Papuan Basin, which are expected to underpin a mid-scale LNG facility at the port of Daru. This alternative also has the added advantage of the participation of two large Japanese energy importers, Mitsubishi Corporation and Osaka Gas, which have farmed into the project to accelerate its development.

FLOATING OPTION: At nearly 800 bcf, the Pandora gas field is also of sufficient size to justify development as a standalone field using FLNG technology. To this end, Cott Energy commissioned a feasibility study for the project, which could produce upwards of 200m standard cu feet per day (scfd) from a three-well development. Carried out by Wison Offshore and Marine, the study presented two options: a fixed, near-shore LNG facility, and an offshore FLNG project. The first entails field production by a buoyant tower where natural gas will be collected and pre-treated before being transported along 160 km of subsea pipeline to a 170,000-cu-metre storage barge jetty moored in at least 14 metres of water. The vessel would take about three years to build, and the project would house two liquefaction trains, each with a liquefaction capacity of 500,000 tonnes per annum (tpa). Capital expenditure for this option is estimated at $600-700 per tonne of LNG throughput.

The second option, FLNG, involves building a similar capacity facility housing two water-cooled liquefaction trains of 500,000-tpa capacity, along with a 170,000-cu-metre storage tank vessel and supporting infrastructure, including on-board gas treatment infrastructure, gas turbines, external turret mooring, accommodation and utilities. Construction would take slightly longer, at 38 months, with a final cost of $900-1100 per tonne of LNG throughput.

Renewable sources supply the bulk of the country's electricity needs

The green and the blue

Renewable energy's already big contribution is set to expand

For a country that relies heavily on hydrocarbons exports as a major revenue stream, Papua New Guinea has an electricity sector surprisingly reliant on renewable energy. This is more from necessity than from any overriding imperative to develop clean energy; PNG has little in the way of tailored incentives like feed-in tariffs or a "green certificate" scheme for producers of clean energy. Instead, the wide availability of renewable sources – mainly hydro and geothermal – combined with the absence of a local coal mining industry and presence of an export-heavy oil and gas sector, have led to an energy mix heavily weighted towards green energy. The exception is the prevalence of base load and backup diesel generators, which shoulder a considerable burden in the absence of viable alternatives.

HYDROPOWER: With PNG's power system stretched as it is – demand already exceeds supply – the underdevelopment of power generation presents the country with a unique chance to build up the system in a clean, efficient, cost-effective, sustainable way. High and frequent precipitation, combined with rugged, mountainous terrain, mean dozens of river valleys have optimal conditions for hydropower plants, which at present make up about 40% of PNG's installed capacity.

This already-large contribution is set to rise further in the coming years as state utility operator PNG Power Limited (PPL) moves forward with several hydropower plant expansions and greenfield projects. These include the 80-MW Naoro Brown hydroelectric plant it is building under a public-private partnership (PPP), an 180-MW extension of the Ramu power station and the 3-MW Divune hydropower project in Oro Province. Plans to build by far PNG's largest hydro project to date – a $5bn, 2500-MW plant on the Purari River – were put on hold, however, after developer Origin Energy announced in March 2014 it was shelving the plan. The plant's output would have been enough to power PNG several times over, then sell the excess to Queensland, Australia via undersea cable. "There is a window of opportunity in the next couple of years to build a new hydropower plant, as prices will certainly escalate in line with the construction of the next liquefied natural gas (LNG) plant, just as happened during the construction of the Exxon-led LNG project," Tony Honey, CEO of PNG Forest Products, told OBG.

STRATEGIC PLAN: These projects represent just a portion of those planned. PNG's Strategic Development Plan 2010-30 forecasts that installed capacity in that period will need to nearly quadruple, from 500 MW to 1970 MW. Hydropower is to make up the bulk of this, rising from 215 MW to 1140 MW. Use of diesel in that period is expected to tail off, from 160 MW to just 30 MW, or 1.5% of total capacity, while other renewables (mainly geothermal) will swell to 380 MW, or 19.2%.

HIGH POTENTIAL: These targets are doubtless ambitious, yet PNG's untapped resources are more than enough to meet them. A study by Bloomberg New Energy Finance ranked PNG in the top 10 for potential renewable resources, with about 2.5 GW of these but only 2% of it exploited. The primary challenges going forward will thus be accessing and unlocking this potential through PPPs. Only about 5% of the country's 4200 MW of technically and economically feasible hydro potential has so far been developed, leaving room for growth to generate up to 36,800 GWh a year, according to the International Energy Agency. The potential could easily be much higher than even these conservative estimates, if a more comprehensive assessment were made that takes full account of PNG's pitched terrain and high rainfall (1000-9000 mm a year).

MAPPING: To help identify which potential sources might be most readily developed, PNG was one of a dozen countries to participate in the World Bank's Renewable Energy Resource Mapping (RERM) project, launched in 2012. Run by the bank's Energy Sector Management Assistance Programme (ESMAP), the project will use more than $48m in funding from donor countries and the World Bank to map and assess the viability of renewable sources as a precursor to scaling up investment in the sector. To support assessment of

High levels of precipitation, combined with rugged, mountainous terrain, mean dozens of river valleys have optimal conditions for hydropower plants, which at present supply about 40% of installed capacity.

One study ranked PNG in the top 10 countries for potential renewable resources, with about 2.5 GW of these but only 2% of it exploited. Only around 5% of PNG's economically feasible hydro potential has so far been developed.

Initial geothermal development was carried out for mining purposes

renewable resources globally, the RERM initiative targets wind, solar, geothermal and small hydropower sources for mapping and geospatial planning on a national level, including the collection of ground-based data where none currently exists. As of April 2014, ESMAP had been allocated $22.5m for this scheme, which should keep it funded through at least 2018.

Early on, the project identified three priorities for development in PNG: to support the government and PPL in planning capacity additions and off-grid electrification; to improve capacity on geospatial planning; and to provide greater certainty to the private sector. Initial funding of $3.1m has been allocated to PNG to develop all four types of renewable energy. The biomass, small hydro and wind sectors will be developed in five phases, while efforts for solar will be limited to one. Significant resources are also going towards in-country stakeholder engagement and capacity-building.

GEOTHERMAL: The second major power source to be developed in PNG was geothermal, initially exploited to power the Lihir Gold Mine in New Ireland Province. Utilising a geothermal field reservoir with temperatures above 300°C, power generation at the site was commissioned in April 2003, and further expanded in February 2007 to its current gross capacity of 56 MW.

RING OF FIRE: Located on the Pacific ring of fire at the junction of several tectonic plates, PNG has many active volcanoes driven by subduction of the Pacific Plate and Solomon Sea Subplate. Its geologic hotspots are located primarily on two principal volcanic arcs: the 1000-km-long Bismarck Arc, stretching west to east from PNG through New Britain Island, and an arc running along the south-eastern peninsula of New Guinea. These volcanic belts are home to significant amounts of active volcanic activity, including about 55 known geothermal sites. In all, the Geothermal Energy Association estimates PNG's geothermal potential at 21.9 TWh – enough to meet all its electricity needs well into the future from geothermal sources alone.

POLICY NEEDED: Despite this, lack of a policy framework to develop geothermal has delayed its use. Some exploratory work has been carried out, including geophysical and geothermal surveys, but the current limitations of geothermal regulation have tempered investor interest to date. Several private groups, including Geothermal Development Associates, KuTh Energy and Reykjavik Geothermal, have done exploration work and/or submitted licence applications under the Mining Act of 2002, but further progress is on hold, pending a new legal framework governing the sector.

In PNG, unlike in many countries, geothermal development is classified as a mineral and thus falls under the purview of the Mining Act of 2002 (partly because PNG's initial forays into the technology were carried out by a mining firm and used largely for mining purposes). The hope is that much of the opacity surrounding the sector will be cleared up in 2015 in a revision of the current mining laws. A key part of this will be a new draft on geothermal policy, which was completed by December 2014 but had not yet been submitted to Parliament for approval, according to Ministry of Mining.

In PNG, unlike in many countries, geothermal development is classified as a mineral and thus falls under the purview of the Mining Act of 2002. A revision of these laws is currently under way.

Mining

Working to further streamline regulatory processes
Economic diversification efforts are paying off
Natural gas exports offset decline in copper shipments
Foreign multinationals keep a close eye on regulation
Untapped mineral deposits continue to attract investors

The economy relies heavily on output from the mining sector

Weathering the storm

Regulatory efforts to improve sector efficiency and transparency

While the revenues from new liquefied natural gas shipments may not be as much as initially hoped, they will somewhat offset declines in mineral exports that have hit copper producers particularly hard.

Long a mainstay of Papua New Guinea's economy, the mining sector has not been immune to the global economic turbulence that continues to buffet the industry as companies wait out the resulting challenging market conditions. Slack demand for base metal products and decreased access to cash for junior operators has curtailed exploration and development worldwide, delaying a number of PNG operations in the process.

Larger operations such as Ok Tedi, Porgera, Ramu, Lihir and Hidden Valley continue to operate, although each has watched their profitability dwindle on softer commodity prices, which have in turn led to lower export receipts and less revenue for the government in the form of taxes, royalties and other fees levied.

Together with local administrative and logistical hurdles, these challenges have delayed a number of high-potential mineral prospects from entering into later development and production phases. While none of these next-generation projects have come on-line as of yet, parent companies continue to show resolve in bringing them to fruition with ongoing developmental expenditures, which should in time bring new and profitable projects to the market as the older legacy mines wind down their operations.

CASH FLOW: The country's economic diversification into natural gas exports now appears fortuitous, with the value of historic cash-cow exports copper and gold continuing to stagnate. While the revenues from new liquefied natural gas shipments may not be as much as initially hoped, they will somewhat offset declines in mineral exports that have hit PNG's only copper producer, Ok Tedi, particularly hard. The value of PNG's copper exports has declined by more than half, from PGK3.1bn ($1.2bn) in 2010 to PGK1.5bn ($567.6m) in 2013, according to data collected by the Bank of PNG.

The value of PNG's copper exports declined by more than half, from $1.2bn in 2010 to $567.6m in 2013. Copper exports in 2014 totalled $421.5m, roughly even with the 2013 total.

Production data reported to the mining regulator, the Mineral Resources Authority (MRA), indicates that copper exports in 2014 totalled PGK1.11bn ($421.5m), roughly on par with 2013. While the decline in copper prices is largely to blame for the reduced annual export value, other factors are also in play, including lower overall output due to a number of reasons. Since 2007 the country's average annual copper volume export index (1994 = 100) has declined from 96.2 to 46.3 through the first three quarters of 2014, nearly halving the volume of average shipments. Since 2013 the index exceeded 50 in just two quarters.

Gold exports have remained more stable, owing to their role as a safe haven for investment during times of economic uncertainty rather than as an industrial input. That being said, export revenues have declined from PGK6.4bn ($2.4bn) in 2010 to PGK5.3bn ($2bn) in 2012 before rebounding to PGK5.4bn ($2.04bn) in 2013. The export of alluvial gold from PNG was at a record high in 2014 at PGK373m ($141m). Exports through September 2014 remained below the pace set in 2013, with PGK3.8bn ($1.4bn) in gold shipped through the first nine months of the year. The average annual production index remained above 100 through 2010, when it registered 110.2 before dropping into double digits in subsequent years, averaging 93, 83.9, 98.6 and 90.3, from 2011 to 2014.

PRIMARY CONTRIBUTORS: The majority of current copper and gold output comes primarily from four mines: the declining but still productive Ok Tedi copper and gold mine located in Western Province, the Porgera gold mine in Enga Province and the Lihir gold mine in New Ireland Province. Other smaller and developing mines include Simberi, Hidden Valley and Tolukuma, as well as a host of small alluvial operations.

LIHIR: Operating since 1997, the Lihir mine remains the most productive mine in the country, producing 721,264 oz of gold for the year ending in June 2014, up from 649,340 oz the previous year, according to sole owner and operator Newcrest Mining of Australia. The mine targets three primary resources of Kapit, Lienetz and Minifie, all within the caldera of the extinct but geologically active Luise Volcano. Primary development has thus far focused on the Lienetz and Minifie prospects, while total resource estimates for the mine

site overall are projected at 60m oz of gold, including an ore reserve estimate of some 29m oz of gold.

Newcrest initiated its "million-ounce upgrade" expansion project in 2013, which aimed to boost capacity to 1m oz per annum by enlarging the processing plant and flotation circuit along with other infrastructure upgrades. Other improvements were also made to milling, flotation and oxygen production, as well as additional autoclave and leaching capacity to provide greater flexibility in treating the different ores and stockpiles within the Lihir system. Working to streamline the expanded processing plant and reducing the cost base remain the two key focus areas at Lihir in 2015, according to Newcrest reports. Lihir reported gold production of 669,741 oz in 2014 and 178,628 oz in the year-to-March 2015, according to the MRA.

PORGERA: The second-most-productive mine operating in the country is Porgera, run by one of the world's largest gold mining companies, Barrick Gold, which owns a 95% stake in the project, with the remaining 5% split equally between local landowners and the Enga provincial government. In production since 1990 and projected to continue producing gold for at least another decade, Porgera boosted its output in 2014 to 375,308 oz, up significantly on the previous year, according to Barrick. According to the producer, the increase was achieved primarily in light of higher recoveries and throughput as a result of improved mill availability. Barrick has recently announced a 50% partnership with China's state-owned Zijin Mining Group.

OK TEDI: The longest-operating large-scale mine in the country, Ok Tedi, is similar to the Tolukuma mine, now 100% locally owned. The PNG government now controls the entirety of parent company Ok Tedi Mining Limited (OTML) after the government took control of the majority 63% share of the firm in late 2013 from PNG Sustainable Development Programme, a company established by guarantee that received its stake after BHP Billiton's exit from the mine 15 years ago.

Operating since 1984, Ok Tedi received a new lease on life when the government elected to prolong operations by approving a "variation" to extend mining within the pit shell, which would allow extraction from the larger ore body to continue through to the end of the current special mining lease in 2022. This initiative is expected to yield an additional 700,000 tonnes of copper and 2.3m oz of gold. The mine's annual output of concentrate currently averages 400,000 tonnes, consisting of about 100,000 tonnes of copper, 300,000 oz of gold and 700,000 oz of silver, according to company reports. In 2014 OTML mined and reclaimed 15.9m tonnes of ore, resulting in 308,387 dry tonnes of concentrate containing 75,907 tonnes of copper, 241,336 oz of gold and 596,770 oz of silver.

RAMU NICKEL: PNG's first major mining diversification project away from its traditional gold and copper roots is rapidly picking up steam as the Ramu nickel/cobalt mine continues to ramp up production. After initiating operations in late 2012, the $2.1bn project has been progressively commissioning its various operations in stages, with 72% of its projected capacity of 8.5m wet tonnes achieved in the December quarter of 2014. The mine dug up 1.6m wet tonnes of ore in its inaugural year of 2012, followed by 3.5m wet tonnes in 2013, and doubled this figure again to 6m wet tonnes in 2014.

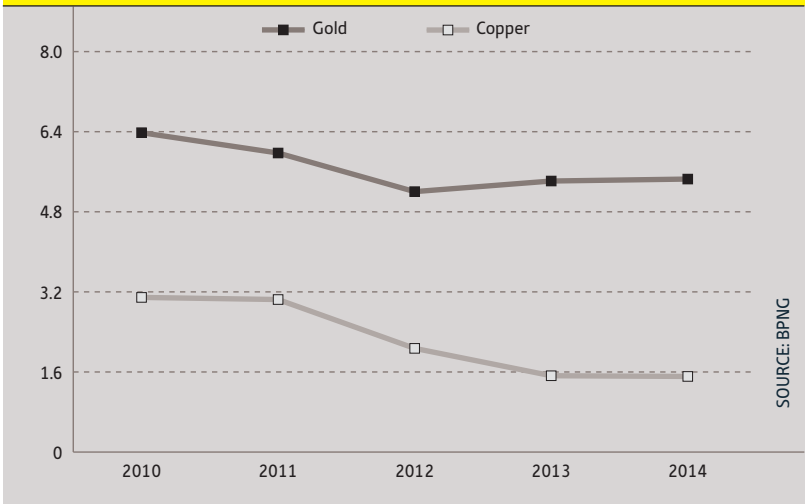
Subdued global demand for base metals has curtailed exploration

This throughput resulted in 2.3m dry tonnes of ore processed in 2014, yielding 19,595 tonnes of contained nickel, up from 1.3m dry tonnes and 11,369 tonnes of contained nickel in 2013. Another 1990 tonnes of contained cobalt was also produced in 2014, compared to 1338 tonnes the previous year. Throughput is expected to increase to 83% in 2015 before reaching full capacity in 2016, according to joint-venture partner Highlands Pacific. The project was on its way to meeting these projections through the first quarter of 2015 when throughput reached 79% of capacity and produced 6212 tonnes of nickel and 600 tonnes of cobalt.

Situated about 75 km west of the provincial capital of Madang, the operation is one of the most ambitious investments in PNG and the only major new mine to move into the production stage in recent years. Ramu is targeting the Kurumbukari nickel and cobalt laterite resource, which is linked by a 135-km pipeline from the

Diversification in the sector has been picking up pace since a nickel mine entered production in 2012, joining the traditional copper and gold projects.

Mineral exports, 2010-14 (PGK bn)



Lower commodity prices and limited availability of capital are key challenges for mine development

Under PNG's Mining Act of 1992, all minerals existing on, in or below the surface of any land in PNG, including all minerals contained in any water lying on land in PNG, are the property of the state.

Kurumbukari plateau to the Basamuk processing plant 75 km east of Madang along the Rai Coast.

Exploratory work on the prospect was primarily carried out by Highlands Pacific and its predecessor, Highlands Gold, which took over the project in 1992 and acquired a special mining lease for the development in 2000. Once exploratory results indicated significant potential of the site, Metallurgical Corporation of China (MCC) brought its considerable financing to the project and partnered to form a joint venture in 2005.

The current stakeholders in the project are Highlands Pacific (8.6%), the PNG government and landowner groups (6.4%) and MCC Ramu Nico (85%). MCC holds a 61% stake in MCC Ramu Nico, with the remaining 39% held by a number of other Chinese entities. This structure could change over time, however, as Highlands' interest in the mine will increase to 11.3% at no cost after internal project debt has been repaid from operating cash flow. Highlands also has an option to acquire an additional 9.3% at fair market value, which could increase its interest to 20.6%. The planned lifespan of the mine, which contains proved and probable reserves of 53m tonnes graded at 1% nickel and 0.1% cobalt, is expected to exceed 20 years.

REGULATION: Under PNG's Mining Act of 1992, all minerals existing on, in or below the surface of any land in PNG, including all minerals contained in any water lying on land in PNG, are the property of the state. Due to the fact that around 97% of land in PNG is held by traditional owners under customary principles of land ownership, land owner identification tends to be a significant and complicated hurdle for resource extraction projects. However, land ownership issues are not relevant to the tenement approval regime in PNG, and various separately legislated procedures are available to resolve land-related issues. The MRA is responsible for approving and overseeing all aspects of mineral exploration and production, including the issuing of licences and leases. It should be borne in mind that the tenement regime gives rights to the minerals only, and regulates access to the land solely for that purpose. A mineral tenement does not convey ownership of the land to the tenement holder, merely sufficient rights to access it for the duration of its mining purposes.

One type of licence used in PNG is the exploration licence, which is valid for two years but is renewable for an indefinite number of two-year cycles, provided the tenement holder has complied with the licence's terms.

One type of licence used in PNG is the exploration licence (EL), which is valid for two years but is renewable for an indefinite number of two-year cycles, provided the tenement holder has complied with the EL's terms. Those terms include the contractually mandated objectives laid out in the mandatory work plan submitted every two years. ELs are transferable after the first term, provided the new party has the technical and financial capacity to undertake the work program.

The maximum land area available for an EL is 2557.7 sq km, limited to 750 sub-blocks each measuring 3.41 sq km. This area is reduced upon renewal, at which point at least half of the area of the original licence must be relinquished. This process is repeated in each subsequent renewal until such time as the area reaches between 30 and 75 sub-blocks, when a waiver may be sought to retain all of the area remaining. When an EL reaches 30 sub-blocks (about 100 sq km), no further relinquishment is required.

Special mining leases are used for major projects for a term of up to 40 years (extensions of up to 20 years may be applied for on renewal) and are contingent upon the mining company (generally the underlying EL holder) negotiating a mining development contract with the government. This contract requires a consensus agreement on the terms of the contract between all affected parties, including the company, landowners, and national and provincial governments.

Other available leases include the mining lease (ML) issued for small- to medium-scale operations no larger than 60 sq km and valid for a term of up to 20 years, with the possibility of an extension of up to a further 10 years. Also used for small-scale mining operations (less than 5 ha), an alluvial mining lease is valid for five years but reserved for native Papua New Guineans conducting alluvial operations on their own land within 20 metres of a river bed. An ML may be issued for larger-scale alluvial mining, and these must be 51% held by PNG citizens. These leases are suitable for joint ventures to enable technical, management skills, equipment and financing to be brought to the venture by investors. As of June 2015, a total of 757 mineral tenements were registered with the MRA of which 554 were active, the balance being new applications. The greatest number of tenements are ELs, with 183 issued around PNG, followed by 181 mining leases, 88 alluvial mining leases, 75 leases for mining purposes, 22 mining easements and five special mining leases.

UNDER REVEIW: As mining companies show increasing interest both onshore and offshore across the country, the government is also in the midst of a lengthy review process of its mining policies and legislation in order to develop and implement updated regulations for the sector. Among the key issues to be addressed in the new draft policies are offshore mining, sustainable development, involuntary resettlement, mine closure protocols and geothermal operations.

The new draft policies and Mining Act had reached advanced stages of development by mid-2015, having been referred to the government following significant consultation with stakeholders, including landholders, local level government and industry, according to the minister of mining, Byron Chan.

The Department of Mineral Policy and Geohazards Management, which has policy responsibility for the new legislation, has introduced many changes. It has extended licence terms from two year to five, expanded licence size, introduced a retention licence, given timeframes for tenement administration, placed greater emphasis on social mapping, made significant changes to the requirement for mine closure and security for damage to the environment, given greater powers for compliance and enforcement, and introduced transparency provisions. Fiscal matters may be considered by the ongoing Fiscal and Taxation Review. The prime minister has consistently stated that the mineral ownership approach will not change, and has recognised the importance of ensuring that the legislation remains investor-friendly. New mining safety legislation is also being drafted separately.

Along with a regulatory overhaul, the MRA has also been working on extending its geological database with expansion of MRA-funded airborne geophysical surveys along the PNG-Indonesia border and Goilala areas. The former survey has revealed significant mineral potential between the Ok Tedi and Frieda River mines, which includes the Star Mountains prospect between Highlands Pacific and PNG newcomer Anglo American. The OTML Townsville exploration site near the current OK Tedi pit is similarly looking highly prospective. The MRA also rolled out its new World Bank-funded electronic mineral tenement management system in June 2014. The Flexi system allows online access to tenement maps and permits, the ability to make electronic payments for fees and rent, the opportunity to follow the progress of an application, and will eventually offer the ability to register an application online. The project also grants the government significantly greater data compilation and analysis abilities.

STATE PARTICIPATION: Long dependant on resource extraction to balance its budget, the government continues to earn a substantial portion of its annual revenues from the mining sector in spite of the decreased commodity prices affecting the industry. Mining and petroleum taxes (disaggregated data remains unavailable from the government treasury) totalled PGK794.2m ($300.5m) in 2014, up from PGK666.7m ($252.3m) the previous year, while the government's direct ownership stakes in various mining projects such as OTML and Ramu Nickel provide additional income, although this is largely intended to flow to the benefit of local level government and mine area landowners.

While national stakes provide a much-needed source of state revenues for PNG, some of which can be distributed to mining areas, state participation can also, in some cases, bring other problems. One example is the production delay at the world's first commercial underwater, deep-sea mining operation targeting copper-, gold-, silver- and zinc-rich seafloor massive sulphide deposits located at the Solwara 1 mining lease site in the Bismarck Sea (see analysis).

Because Solwara 1 was a pioneering venture, run by Toronto-listed Nautilus Minerals, the state of PNG was willing to support the project. It therefore exercised its state equity participation option for the maximum 30% stake, entitling it to a proportional share of future profits contingent upon the state paying its share of the up-front development and production costs needed to get the project running. Unfortunately, a dispute arose over some commercial aspects of the equity deal, which was unable to be resolved at the time, and was referred to international arbitration by the state. Progress was delayed, with Nautilus left unable to fully fund the construction of new equipment. The arbitrator eventually concluded in October 2013 that the state was legally responsible for the agreed-upon funding.

Despite the dispute and delay, both sides remained amenable to developing the project. Further negotiations spawned a new contract in which the state would take on a 15% stake in the Solwara 1 project, which included intellectual property rights. To solidify the new arrangement, the state paid a $7m non-refundable deposit to Nautilus in April 2014 along with a commitment to transfer the $113m developmental funding commitment into escrow.

The official joint venture was formed in December 2014 between Nautilus and the state's nominee Eda Kopa (Solwara), a wholly owned subsidiary of Petromin PNG Holdings, when the funds of $120m were released from escrow to Nautilus. Under the terms of the deal, Eda Kopa was also given the option to take up a further 15% interest within 12 months. The option is exercisable in three 5% lots within six, nine and 12 months from the date the joint venture was formed.

OUTLOOK: The ongoing challenges posed to the global mining industry will continue to squeeze operations in PNG in the short term. With mines continuing to weather the storm, some positive signs of a rebound have become apparent and any upward movements in the commodity market cycle should lead to a quick recovery for many of these operations. Future projects that have slowed or stopped development for the moment remain poised for a breakout as well, with early exploratory results indicating a number of significant and profitable operations waiting in the wings for the right time to move forward. The alluvial sector is expanding – alluvial gold exports in 2014 were a record PGK373m ($141.1m) – and provides smaller operators with an opportunity to enter a regulated market.

Cuts in exploration budgets could hurt further development in the longer term if current trends continue, although any resurgence in commodity markets and ensuing profitability bumps from mining companies will likely lead to a new cycle of investment. On the regulatory front, any efforts to improve the efficiency and transparency of the mining system would be welcomed by the private sector, although any uncertainties related to continuity or substantial shifts in taxation and licences could have a cooling effect on investment.

Along with a regulatory overhaul, the government has also been working on streamlining the administrative and bureaucratic operations of the mining sector.

With mines continuing to weather the storm, some positive signs of a rebound have become apparent and any upward moments in the commodity market cycle should lead to a quick recovery for many of the sector's operations.

Purpose-built hardware is needed to carry out seabed mining

Pushing the limits

New technology is being developed for underwater mine

The undersea mining project will employ new proprietary techniques and purpose-built hardware to carry out seabed mining activity in the Bismarck Sea west of central New Ireland.

The most unique and potentially profitable mining operation in Papua New Guinea is moving forward again after a funding dispute between Toronto-listed Nautilus Minerals and the PNG government initially slowed development of the underwater mining project following lease approval in 2011. The technically challenging venture, dubbed Solwara 1, employs a range of new proprietary techniques and purpose-built hardware to carry out deep seabed mining in the Bismarck Sea west of central New Ireland, slated to begin as early as 2018.

SOLWARA 1: Pushing the limits of current mining technology, the Solwara 1 project targets mineral-rich seafloor massive sulphide (SMS) deposits in an area about 1.3 km long and 200 metres wide along the ocean floor. Although environmental groups have warned of ocean pollution and potential damage to sensitive submarine ecosystems from the unproven operation in a subsector still working to establish regulation and oversight, Nautilus has touted underwater mining as having a smaller impact than traditional large-scale mining operations, because it leaves a smaller geographical footprint by targeting high-grade deposits of gold, copper, silver and zinc, thus yielding higher concentrations of metals while generating less waste.

Sitting at a depth of approximately 1600 metres, the targeted SMS deposits contain an indicated resource of 1m tonnes grading at 7.2% copper and gold at 5 grams per tonne for a total estimate of 74,160 tonnes of copper and 165,600 oz of gold. That compares much more favourably with land-based copper mines, where the mineral grade averages just 0.6%. In addition, gold grades of well over 20 grams per tonne have been recorded in some intercepts at Solwara 1, with an average grade of 6 grams per tonne.

The targeted deposits sit at a depth of 1600 metres and are estimated to contain some 74,160 tonnes of copper and 165,600 oz of gold. The mineral grade of the seabed resource is much higher than that found at land-based mines.

PROCESS: To carry out these technical operations, Nautilus has developed three purpose-built, remote-controlled seafloor production vehicles (SPVs) supported by a floating production support vessel (PSV). Remote mining operations will be carried out by the three seafloor production tools engineered to work in the extreme cold and pressure of the subsea environment. Designed to disaggregate seafloor material, the first two machines are auxiliary cutters, the first of which employs a boom-mounted drill apparatus to prepare rough terrain into a level working bench in which the second, higher-capacity bulk cutter can then chew up the seafloor at a more rapid rate.

After these machines have ground out the targeted area, the third machine gathers up the loose cut material in seawater slurry and pumps it to the riser and lifting system (RALS). Powered by a large pump built by GE Hydril of Texas, the RALS pushes the slurry to the surface through a solid vertical pipe, or riser, that is attached to the PSV above. The PSV serves as a base for dewatering the slurry, which is then stored in the 45,000-cu-metre bulk facility on board and subsequently transferred to export vessels that can moor alongside the PSV. When operating at full capacity, these vessels can export 1.3m tonnes of material a year directly to markets via the Port of Rabaul, where it can later be processed or turned into concentrate.

SCHEDULE: Initially scheduled for a production run in 2013, work on the new equipment was delayed by the arbitration proceedings and subsequent commercial negotiations between Nautilus and the government. With the issue now resolved, work on the underwater vehicles was mostly complete by the end of 2014, with a design-and-build contract for the PSV also in place and design under way. All three SPVs were being commissioned in the first quarter of 2015, with delivery expected by year's end ahead of wet testing in 2016.

Nautilus also entered into a vessel charter agreement with Marine Assets Corporation (MAC) in November 2014, with MAC contracting Fujian Mawei Shipbuilding later that month to construct and deliver the PSV by the end of 2017. As of April 2015, the riser and ancillary equipment were on track for on-time delivery in 2015. "Once MAC delivers the vessel in 2017, completely fitted-out, we will start producing almost immediately," Michael Johnston, CEO of Nautilus, told OBG.

Greg Anderson, Executive Director, PNG Chamber of Mines and Petroleum

Game changer

OBG talks to Greg Anderson, Executive Director, PNG Chamber of Mines and Petroleum

As the global mining industry continues to be subdued, to what extent is this situation affecting Papua New Guinea's economic growth?

ANDERSON: PNG's top mineral export commodity, gold, has been adversely affected by falling gold prices, which have now dropped below $1200 an ounce. There is no expectation that these prices will recover anytime soon. Most gold mines have struggled to stay profitable over the past three years, with gold generally a little above $1200. In this scenario, mineral exploration activity has fallen away from record levels and is now at its lowest point in nearly a decade. Junior explorers have lost most of their value on share markets and are struggling to raise funds for exploration. The majors have pulled out of farm-in deals and currently are focusing largely on near-mine exploration.

These developments are having a significant impact on the PNG economy, with gold export revenues falling from PGK6.4bn ($2.4bn) at its peak in 2010 to around PGK5.4bn ($2bn) in 2014. According to the 2015 PNG budget, employment in the mining sector in the year to June 2014 had declined by 22.7%. Besides the sharp cutbacks in exploration, PNG's mines have been rationalising operations in order to reduce costs and stay competitive. Tax revenues have also been falling sharply from the resources sector, which traditionally provides the bulk of government revenues. However, this has been partly offset by the start-up in May 2014 of the PNG liquefied natural gas (LNG) project and by the economic diversification that has taken place over the past decade.

After enjoying economic growth rates of 13.3% in 2014 and an estimated 11% in 2015, GDP is expected to increase by less than 5% in the next three to four years, according to forecasts by the Department of Treasury. A further impetus for GDP growth will come from the next phase of new mining projects and the proposed second LNG plant, which will be based on gas reserves and located in Gulf Province.

With a new Mining Act currently under review, how can the government shape this legislation to support industry growth over the long term?

ANDERSON: For 10 years until 2012, PNG's resource sector experienced continuous growth. Initially this came from rising commodity prices and, subsequently, from new ventures starting up, particularly the $19 billion PNG LNG project led by ExxonMobil. I believe many people have not come to terms with the new reality of sharply lower prices for most mineral commodities, crude oil and LNG. The current Mining Act has helped to underwrite the surge in exploration activity and the launch of several new projects, including the Hidden Valley silver-gold mine, the Simberi and Sinivit (now closed) gold mines and the $2.2bn Ramu Nickel project, the first in the country to produce nickel and cobalt.

Any changes to the Mining Act will need to account for the current price scenario for commodities, the global plunge in exploration and development activities, and the competitive environment for new investments. Failing this, changes to the act could jeopardise the future of the industry and inhibit investors from returning once commodity prices come out of the current cyclical downturn.

Despite the relatively high operating costs in PNG, international mining companies have generally come to accept development conditions in PNG, particularly in light of the country's promising geological prospects. Local rules have included the right of the national government to take up to a 22.5% stake in any oil and gas project, and 30% in any mining venture, after paying its share of sunk costs and development costs. At this fundamental crossroads, the government should take care to ensure that investors remain confident that legislation and policy will stay stable and competitive, so that these investors continue as active players in the country's resource sectors. Major changes to the rules of the game could jeopardise future exploration and new projects.

Fred Hess, Managing Director, PanAust

Wise investment

OBG talks to Fred Hess, Managing Director, PanAust

To what extent could Chinese investment in the mining sector help spearhead investment at a time of persistently weak commodity markets?

HESS: In the case of PanAust, which was taken over by Guangdong Rising Assets Management from China in a deal worth A$1.2bn, it means we will have easier access to financing, which is one of the major stumbling blocks for the industry, especially among small and medium-sized enterprises.

For an entity with the track record of PanAust, it would not have been difficult to raise capital and pull a deal together by aligning a number of banks in the current business environment, which is undeniably tighter compared to some years ago. It certainly would have taken longer and have required more effort. Increased Chinese investment in the Papua New Guinea mining industry should have the same effect and perhaps jumpstart some of the projects that have remained dormant over the last few years.

Looking forward to 2017 and beyond, we expect that the market for copper will recover significantly, as we see continued growth in demand; whereas the market for gold, which is tied to the strength of the US dollar and other geopolitical issues, is always more difficult to predict. Having said that, we believe that international gold prices are probably at their lowest point and are likely to move towards higher prices in the near future.

What is the status of the Frieda River mining project, and what is the proposed timeline leading up to production at that site?

HESS: Our objective is to finish the feasibility study by the end of 2015, which would allows us to submit our application for a special mining lease to be approved by the government. Once that approval is granted, we will commence a roughly three-year construction period before delivering the Frieda River project. This means there will be about four and half years between now and the start of production at the mine. However, that would only be the beginning, as far as I am concerned, as we would also like to explore the wider area surrounding Frieda.

I expect to see a great deal of exploration activity once the project is delivered and the required infrastructure has been established. Due to the project's remote location, equipment and workers can only be transported there by helicopter at present. Once a new access road to the site is constructed, however, the costs of mining development in these areas will be substantially reduced.

How have industry players been able to contribute to the mining law now under review, and what do you expect its impact to be?

HESS: Impending policy changes inevitably raise concern among investors. One of the reasons why PanAust became involved in PNG in the first place, and specifically the Frieda River project, is that we believed the country had a pragmatic approach to mining. Its policies remained reasonably stable over a long period of time, supported by successive governments that were pro-business, pro-mining and pro-development. We were also reassured by the completion of the ExxonMobil-led PNG liquefied natural gas project, as we know it has received full support from the government.

Our hope is that the new mining act promotes the development of mining projects in PNG, and we certainly do not expect to see any significant changes that would make it harder for us to reach an investment decision. In drafting the new law, the government has sought input from mining companies via the local Chamber of Mining, and PanAust has certainly put forward its views, as have a number of other mining companies. Due to the long-term nature and size of investments around projects like Frieda, we made it clear in our submissions that any changes introduced should preserve the existing favourable status that PNG has as an investment destination.

At least four major projects are set to launch over the next decade

Soldiering on

Vast untapped mineral deposits continue to draw investors

When the global economic downturn lowered demand for raw materials and depressed commodity prices, the mining sector as a whole was forced to reckon with a rapidly changing paradigm wreaking havoc on its collective balance sheets. Ripples from this slowdown continue to buffet the industry today, including in Papua New Guinea, as softer commodity price declines, exacerbated by the strength of the US dollar, left the Bloomberg Commodity Index in 2014 at its lowest level in nearly six years.

TAKING A KNOCK: The index, which tracks 22 products, fell 17% in 2014 and kept below 100 as of June 2015 compared to 175 in April 2011. To adjust, established mining firms have been forced to re-evaluate the economic feasibility of current and upcoming projects, while several smaller operations were bought out by larger competitors or forced to fold altogether. Longer-term growth prospects also took a significant hit, with the industry as a whole seriously curtailing the exploration and development funding that is the lifeblood for future earnings – a trend the sector has yet to recover from.

BUDGET CONSTRAINTS: As a result of these continued poor commodity market conditions, mining companies responded with a sharp 26% decline in global non-ferrous metals exploration budgets in 2014. This brought the industry's total non-ferrous metals exploration budget to $11.4bn on the year, down from $15.2bn in 2013 and $21.5bn in 2012. The steep plunge in exploration budgets was due to investor wariness of the junior sector, which made it difficult for most players to raise funds, and a strong pullback by producing companies on capital and exploration spending to improve margins.

BUCKING THE TREND: Yet, even with fewer dollars to spread about the globe in search of future payouts, PNG's vast estimated untapped mineral deposits and the substantial success of previous mines have proven too attractive for a number of companies. At least four major mining projects are expected to launch over the coming decade, along with a host of smaller alluvial projects, which should generate significant new investment in the sector.

The Hells Gate proposal in Gulf Province is one of the largest alluvial prospects, along with several recently approved joint venture operations in Wau, Ok Tedi and Milne Bay. Woodclark and Crater Mountain mines were approved in 2014, with the latter already in production. Barrick's underground Kainantu mine, which had ceased production in 2009, was sold in 2014 and the lease renewed under new ownership, with an expectation of both gold and copper production within two years.

FRIEDA RIVER: One such enticing prospect is the Frieda River gold and copper project straddling the border of the Sandaun and East Sepik provinces within the 149-sq-km exploration licence 58. Extensive testing at the site has indicated that Frieda River could be as productive as the only other copper mine operating in the country to date, Ok Tedi, with exploration work still ongoing. The project is being headed up by new majority owner PanAust, a mid-tier mining company out of Australia, which finalised the purchase of an 80% stake in the project from Glencore Extrata in August 2014. In May 2015 PanAust was taken over by China's state-owned Guangdong Rising Assets Management and has been delisted from the ASX. Local outfit Highlands Pacific owns the other 20% of the mine, with the PNG government holding an option to buy in for up to a 30% share on a sunk cost basis.

With a total mill feed of 600m tonnes graded at 0.5% copper and 0.3 grams per tonne of gold operating at a processing rate of about 30m tonnes per annum (tpa), the mine is projected to yield an average of 125,000 tonnes of copper concentrate and 200,000 oz of gold concentrate over its 20-year lifespan. PanAust expects to sink about $1.7bn into the project to get it to production, which would be a big upswing in investment in the current climate.

Extensive testing at the Frieda River site has indicated that it could be as productive as the other copper mine operating in the country, with exploration work still ongoing.

Situated in Morobe Province, roughly 65 km south-west of Lae, the Wafi-Golpu project is in the advanced exploratory stage, with its pre-feasibility study having been completed in 2012.

Around 97% of land is held by traditional owners under customary principles of land ownership

Another major copper deposit that has revealed significant potential is the Yandera resource located in Madang Province at an elevation of roughly 1800 metres.

A feasibility study on the mine, which is projected to hold $1.5bn-1.8bn in copper and gold, is due by November 2015. The study will detail many operational parameters, including an engineered, permanent integrated storage facility for waste rock and tailings; road access to the site along a special access road from the lower Sepik River; a port on the Sepik River to facilitate exports of concentrate and imports of consumables; concentrate export facilities at Wewak; an intermediate fuel oil power station to be built adjacent to Sepik River port facility; and facilities to provide accommodation for the workforce during construction and operations.

WAFI-GOLPU: Situated in Morobe Province, roughly 65 km south-west of Lae, the Wafi-Golpu project is in the advanced exploratory stage, with its pre-feasibility study having been completed in 2012. The site is being developed in a 50/50 joint venture partnership named Morobe Mining between Newcrest Mining and Harmony Gold Mining Company, both of which are active in other projects throughout PNG.

Exploratory results to date have raised hopes among the partners as the Golpu resource has displayed similar optimal gold and copper attributes as the legendary Grasberg mine located in neighbouring Indonesia. The Golpu prospect is estimated to contain 20.2m oz of gold and 9.4m tonnes of copper, with the Wafi resource thought to contain another 7.2m oz of gold with further exploration of extensions and nearby areas yet to come. Since the project's initial pre-feasibility study, the joint venture has invested another $100m in further exploration to compile an updated pre-feasibility study that is expected to lower the mine's production profile through a modular, phased expansion of the mine with common path infrastructure targeting higher-value ore blocks early on in order to fund further development of the site going forward.

The result of the update led to a December 2014 decision to split the project into two stages of development, with the first progressing to the feasibility study stage and targeting higher-value portions of the ore body. Meanwhile, work on the pre-feasibility study for the stage-two ore reserve in a third block cave mine will continue concurrently, with both studies scheduled for completion by the end of 2015.

Stage-one capital spending is forecast at $2.3bn, with a total lifetime expenditure estimated at $3.1bn. The first round of production for stage one, which consists of two block cave mines, is forecast for 2020. The initial block cave will operate at 3m tpa, which will later be replaced by a deeper block cave operating at 6m tpa starting in 2024. Over the projected 27-year lifespan for stage one, annual levels of production are expected to peak in 2025 at some 320,000 oz of gold and 150,000 tonnes of copper.

YANDERA: Another major copper deposit that has revealed significant potential is the Yandera resource located in Madang Province at an elevation of roughly 1800 metres in the Bismarck Mountain range, approximately 70 km inland from the north coast. One of the largest undeveloped copper projects in the Asia-Pacific region, the site is being developed by Australian junior Marengo Mining, which took over the four exploration licences in 2006. Following a resource update in 2012, the company rolled out additional exploratory plans in 2013 in preparation for a feasibility study and again in 2014 when it was decided that further exploration and development work was required in order to finalise the feasibility study for the project.

A series of ongoing exploratory drilling programmes continue to close in on the targeted resource, with the most recent results announced by Morengo in May 2015. The update revealed resources totalling 630m tonnes grading at 0.3% copper, 0.01% molybdenum and 0.07 parts per million gold; or 0.4% copper equivalent. Once the feasibility study is completed Morengo expects to develop the site as an open-cut mining operation with a minimum 20-year mine life, with copper concentrate transported via pipeline to the Port of Madang.

MT KARE: Originally projected to begin producing as early as 2015, the Mt Kare gold mine, operated by Australia's Indochine Mining, has recently passed some significant milestones that could bring the mine into production in the next few years. While Indochine managed to finish the required landowner investigation study in 2014, that has now been referred to court-led mediation, and Indochine itself entered voluntary administration in March 2015.

Originally projected to begin producing as early as 2015, the Mt Kare gold mine has recently passed some significant milestones that could bring the mine into production in the next few years.

With the exploration licence currently under renewal application, it remains unclear how the development may progress. The Mt Kare prospect contains mineral resources estimated at some 28.4m tonnes, with grades of gold at 1.7 grams per tonne and silver at 17.2 grams per tonne, which amounts to a total resource of 1.53m oz of gold and 15.7m oz of silver. Optimism for the prospect continues to run high, boosted by its shared geology within the extremely productive Porgera Transfer Structure.

ICT

Fresh competition revitalising the sector
Mobile penetration rates seeing rapid growth
Sector reforms resulting in increased coverage
Goal of 50% broadband penetration by 2018
Market dilution leading to improved services

New infrastructure and reforms are resulting in increased coverage

Packing a punch

Increased regulation is helping improve performance metrics

PNG is at an inherent geographic disadvantage due to its physical isolation from key global undersea cables, a rugged jungle terrain and a widely dispersed population.

The telecommunications sector in Papua New Guinea, long synonymous with high prices and poor service, is undergoing a sea change as fresh competition, infrastructure rollout, and market reforms result in increased coverage and access.

While sector regulators and participants are partly at fault for the industry's poor historic performance metrics and the lack of infrastructure development to date – internet penetration as of December 2013 stood at just 6.5%, while SIM card penetration remains under 50% – adjudications must be issued in context, as the young country arrived late to the telecoms table, with the first phone service not introduced until 1964. Furthermore, PNG is at an inherent geographic disadvantage due to its physical isolation from key global undersea cables, a rugged jungle terrain and a widely dispersed population.

TACKLING OBSTACLES: Although PNG's market size of some 7.3m people is the largest amongst Pacific Island nations, a GDP per capita of around $2200 constrains spending power and limits the business case for commercial operators to allocate capital expenditure outside of the major population centres, where nearly 80% of the population lives in villages.

Hopes are that a potential third mobile operator could inject further competition into the market, while the National Information and Communication Technology Authority (NICTA) is enacting measures to rationalise market structure and reduce the market dominance enjoyed by the incumbent carriers.

A significant recent structural reform has been the establishment of an independent entity to manage wholesale-only infrastructure and provide telecommunication services at an arm's length. Investments are also being made to install fibre lines connecting the major cities to high-speed international undersea cable networks, while international bodies such as the World Bank are assisting and advising the country on ways to provide basic telecommunication services in rural areas that are presently underserved.

Although PNG's market size of around 7.3m people is the largest amongst Pacific Island nations, a GDP per capita of around $2200 limits the business case for commercial operators to allocate capital expenditure outside of the major population centres.

HISTORIC CONCENTRATION: Until only as recently as 2006, state-owned Telikom PNG, incorporated in 1995, was the sole owner and operator of fixed-line and mobile communication networks and services.

As tends to happen the world over when state-owned entities are left to contend in a monopolistic landscape, the incumbents' government owners struggled to create the right structure and framework for the operator to be both profitable and effective, and Telikom failed to keep up with the growing demand for communications networks. In 2005, prior to the arrival of Irish-owned Digicel as a second licensed mobile network operator, there were only 75,000 mobile phone accounts in the country registered to bmobile (formerly BeMobile), Telikom's mobile subsidiary. By January 2014, this figure had risen to 2.7m, with Digicel today possessing around 90% market share and responsible for most new subscriptions.

COMPETITION: While bmobile has been responding to Digicel's arrival with investments to upgrade its infrastructure and improve its service, it has a long way to go to recapture the goodwill lost over its 10-year monopolist reign during which customers, by the firm's own admission, felt they had been taken advantage of with high rates and poor call quality.

Indeed, bmobile charged PGK125 ($47.3) for a SIM card, which Digicel, upon entry, priced substantially lower at PGK25 ($9.5). In recent years, the government, whose stake in Telikom today totals 85%, has injected $88.2m towards improving the company's competitiveness. In July 2013, a $243m deal with China's Huawei was signed to improve infrastructure. According to bmobile, the investments are bearing fruit in terms of service and performance: for example, the complete call ratio in the capital Port Moresby and industrial city of Lae jumped from 33% to 98.5%.

Considering the market share that bmobile has lost to Digicel of late, the company is practically insolvent, and it has been announced that Telekom will re-merge the subsidiary it had split independently after 1997

in an attempt to keep the company afloat and rationalise spending, while development of the network continues. Hopes are that should mobile number portability be introduced to the market, with investments in infrastructure and improved performance quality, bmobile should be able to win back customers.

THREE'S COMPANY: Digicel operates in 33 countries in the Caribbean, Central America and Asia Pacific. The company has invested more than $5bn worldwide and introduced international expertise and global synergies into the local market. In response, bmobile has recently reached a non-equity partner market agreement with UK-based Vodacom Group in an effort to gain access to its best products and services.

Another operator with a global footprint could soon be joining the fray, following the awarding in 2014 of a 10-year mobile operator licence to Dubai-based AWAL Telecom for $260m. AWAL has a presence in 26 countries throughout the Middle East, Africa and South-east Asia, and according to statements from the company, rather than trying to turn customers away from existing carriers, it will instead focus on parts of the country that are currently underserved.

There remains an element of uncertainty over when and how AWAL will roll out its infrastructure and services, and some analysts question whether a market of PNG's maturity and size is able to absorb three competing mobile players.

"Digicel has 90% of the market, so there is certainly share to be captured by a new operator," Paul Komboi, managing-director of state-owned telecommunications wholesaler DataCo, told OBG. "However, we are still not sure how serious they are in launching and how serious the regulator is in ensuring they have access to shared infrastructure to avoid them having to invest from scratch, which is costly and inefficient as it leads to unnecessary duplication," he said.

REGULATORY MUSCLE: The task of industry regulation falls to NICTA, which was formed in 2009 to absorb the responsibilities of the former sector regulator, the PNG Telecoms Authority, as well as those of the Independent Competition and Consumer Commission related specifically to telecommunications.

NICTA acknowledges that PNG's limited market size and challenging terrains make it difficult for private firms to construct national networks. Aiming to increase the number of mobile phone towers from 800 to 1160 to achieve coverage for 100% of the population, Digicel has a major first-mover advantage, discouraging new entrants from purchasing licences.

Select ICT indicators, 2013

Fixed-telephone subscriptions per 100 inhabitants	1.9
Mobile-cellular subscriptions per 100 inhabitants	41
Fixed-broadband subscriptions per 100 inhabitants	0.2
Mobile-broadband subscriptions per 100 inhabitants	0
Households with a computer (%)	3.4
Households with internet access at home (%)	2.9
Individuals using the internet (%)	6.5

SOURCE: ITU

Until 2006, fixed-line and mobile communication was provided solely by a state-owned telecoms company

In its short existence, NICTA has demonstrated that it is not afraid to show its regulatory teeth. In January 2013 it ordered state-owned Telikom to cease the sale of its range of ZTE handsets until the firm complied with the regulator's approval process. This move followed attempts by NICTA in November 2012 to push Telikom towards making the country's principal fibre-optic connection available to all internet service providers for direct sale as broadband products, a move that it hopes will open up the sector.

Working to not only enact reforms that alleviate Telikom's fixed-line monopoly, such as investigations into measures to reduce wholesale internet costs, NICTA is simultaneously looking to reduce Digicel's market dominance within the mobile space. Believing that the out-of-network rates charged were too high, it capped the allowance at 40% above in-network rates.

NICTA also published a ceiling related to retail mobile service prices in October 2012, saying it would restrict the extent to which Digicel could discriminate in the pricing for pre-paid mobile calls. As a result, the operator will be required to revise a number of its tariffs to reflect a more competitive pricing model.

These and other moves have been applauded by independent analysts as contributing to reduced costs for the end consumer, and the next step advocates of further liberalisation would like to see is mandated facility sharing. "This is an agenda we have been pushing with the regulator for some time. But they have been reluctant to act on it as the carriers can fairly argue that they incurred tremendous costs to build their infrastructure and should be permitted to enjoy the fruits of these investments as a competitive advantage," Komboi told OBG.

INTERNET: According to International Telecommunication Union statistics, only 6.5% of the population used the internet in 2013, an extremely low figure that can be attributed to a lack of rural penetration but more so the prohibitive costs for services. According to NICTA figures published in 2009 during an

The task of industry regulation falls to NICTA, which was formed in 2009 to absorb the responsibilities of the former sector regulator, the PNG Telecoms Authority.

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The only international internet connection comes via the Australia PNG-2, which links directly to Australia

In April 2013 PNG revised its National Broadband Policy, with the aim of achieving 100% broadband service availability in urban areas, 30% access in rural areas, and 50% access overall within the next five years.

investigation into entry-level broadband pricing, fixed broadband subscriptions amounted to 150% of average monthly income, while wireless broadband was 20-80% – well above the 5% international benchmark.

Compounding the challenge of low uptake is the fact that businesses and consumers receive little value for money, as the performance does not justify the high costs. In its latest broadband download speed index, Ookla rankings placed PNG in 168th place out of the 200 countries surveyed.

Of the many factors contributing to high broadband retail prices, one has been the lack of a rational market structure around wholesale capacity, which has been in the hands of Telikom as both an owner and operator. This particular issue is being addressed via the establishment in 2013 of PNG DataCo as an independent company tasked with providing wholesale-only infrastructure management and telecommunication services on an arm's length basis.

INFRASTRUCTURE: In April 2013 PNG revised its National Broadband Policy, with the aim of achieving 100% broadband service availability in urban areas, 30% access in rural areas, and 50% access overall within the next five years. A key focal point in this ambition is the further construction and overhaul of the National Transmission Network (NTN), a fibre project linking the country's major cities.

The NTN's main leg consists of a 700-km fibre line running from the Hides Gas Field to the PNG liquefied natural gas plant, from which a 50-km line runs from the plant to Port Moresby.

The new system will eventually connect to a new line being constructed to run between the city of Lae and the Southern Highlands, where it will then link to a high-speed international undersea cable from Medang to the island of Guam. The new connection is expected to replace a 20-year-old legacy radio link that has been serving Lae and the Highland provinces, ultimately resulting in cheaper prices and better connectivity. It will also provide the country as a whole with more security and redundancy through expanded utilisation of a second international gateway.

"Things should be completed by mid-2016 for connectivity of the seven Highland region provinces, which comprise more than 50% of the population, with the goal that all 23 provinces will be connected by fibre," Komboi told OBG.

As part of the NTN overhaul, useful wholesale assets and project responsibilities will be transferred over from Telikom to DataCo, which will over time also receive the firm's microwave and satellite assets in addition to the existing fibre lines.

BASIC CABLE: PNG is the unfortunate victim of poor positioning relative to some of the world's leading global undersea cable networks. It is not located in near proximity to any of the major systems, and has historically lacked the financial clout to fund its own direct lines. At present, its only international connection comes via the Australia PNG-2, which links directly to Australia and indirectly to New Zealand, and only from there the rest of the world, and has approximately 1100-MB data capability. The new Madang-Southern Highlands loop is set to gain further utilisation out of the international gateway link to the PIPE Pacific Cable, with a cost of around PGK55m ($20.8m). According to Komboi, it will also improve capacity and speeds, and reduce costs by approximately 60-70%.

In October 2014 DataCo signed a deal for a 75% stake in a third international connection valued at $72m, dubbed the Melanesian Cable, which will connect PNG, the Solomon Islands, Vanuatu and Fiji with international internet hubs in Sydney and the US via the Southern Cross Cable System.

"There is tremendous scope for greater connectivity with the US, through Guam and Hawaii, and Southeast Asia, and we are well situated in between. The focus for now is on improving our own access to international gateways; however, in the future we can start to consider the commercial opportunities associated with handling traffic and might even set up our own international data centres," Komboi told OBG.

Broadband retail prices have been particularly high in PNG

MICROWAVE & SATELLITE: While fibre-optic links are at the core of the NTN, microwave trunk lines and satellite solutions are being deployed in areas where jungle terrain and large expanses of water between smaller, more remote islands make the laying of fibre either prohibitively expensive or an arduous task. And in some instances, such as the crucial connection between Port Moresby and Lae, towards which a 21.5m microwave line that can handle data throughput of up to 3 GB per second has been installed, alternative technologies are in place to provide additional capacity and serve as a back-up route should the main fibre line experience outages or need to be taken offline for maintenance and repairs.

GOING RURAL: Over 80% of PNG's population resides in rural areas, where many earn their livelihoods through subsistent activities such as farming and fishing. Teledensity in some of these parts is practically nil and the provision of even the most basic telecommunication services, even if they are not latest generation, can contribute tremendously to rural socio-economic development. Small business and entrepreneurial enterprises in fields such as tourism and crafts can convey information to and transact with prospective customers, while community members can benefit from remote access to essential health care and education services.

The World Bank, with funding from the International Development Association, is spending $15m on the Rural Communications Project, which sets out to provide affordable and reliable residential communication services to between 400,000 and 500,000 rural Papua New Guineans in the provinces of Chimbu and East Sepik, while establishing public internet facilities in 60 rural districts nationwide that at present have no fixed-line facilities at all.

As part of the project, Digicel has been contacted to handle the installation of the telecommunications points, with the World Bank intending to demonstrate to the private sector that commercial returns can be generated so that in the future they are motivated to invest in infrastructure on their own without relying on subsidies from the government or multilateral institutions. In addition to an initial round of financial assistance, the World Bank is providing technical assistance to the Department of Communication and Information in the area of policy development, and is providing guidance to NICTA on regulatory challenges.

GOVERNMENT ADOPTION: The pace and extent to which the government deploys ICT to enhance the provision of public services could have a significant impact in a country like PNG, making an impact on rural development while also addressing other national challenges such as corruption.

PNG ranked in the bottom quartile of Transparency International's most recent Corruption Perception Index, placing 145th out of 175 countries evaluated in the watchdog's 2014 study. The Department of

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Finance, assisted by the UN Development Programme, has launched the Phones Against Corruption initiative, whereby via a no-charge text message individuals can anonymously report an incidence of corruption. A similar effort is underway to reduce and assist with family violence and sexual assault rates that are amongst the highest in the world, through the establishment of a free domestic violence hotline.

According to Jimmy Miringtoro, the minister of Information and Communication, beyond enabling the government to deliver new digital services such as e-health and e-education, the adoption of ICT takes on additional importance in a young and diverse nation such as PNG, where around 800 different cultural groups speak 900 languages.

"The process of integration has never been easy for us, but we feel that technology will be instrumental in speeding it up," the minister told OBG in a 2014 interview. "I have no doubt that PNG could turn into a homogenous society by 2030, and that the ICT sector will be one of the main drivers in the process."

CHALLENGES: As a young, low-income, geographically isolated country with a population spread over hundreds of islands and rugged jungle terrain, prevailing physical and market conditions have not been conducive to high rates of teledensity. The country, understandably, lags behind global norms when it comes to the penetration of both fixed and mobile communications due to a combination of limited access to services outside of urban centres and price points that the average consumer cannot afford.

The sector, however, is in a period of transformation and modernisation. Competition is being bolstered through new entrants, increased regulatory intervention, and the restructuring and dilution of the market influence held by some key state-owned entities. As a result, consumers are being presented with more choice, and this is leading to reduced tariffs and improvements in call quality, broadband speeds, reliability and service consistency.

OUTLOOK: In addition to a competitive impetus, improvements are being rendered as a result of infrastructure expansion and upgrades. More connections to major international subsea cable systems are being put in place. Domestically, with fibre as the backbone and microwave links and satellite systems acting as complementary technologies offering redundancy and connectivity to more remote parts of the country, the government's goal of achieving 50% broadband penetration by 2018 seems on track.

As speeds increase, capacity improves and costs come down, ICT is set to become a more integral part of many PNG businesses and help them improve their competitiveness and global integration. With 40% of residents owning mobile phones – a proportion that is growing rapidly as 3G and 4G networks are rolled out – this presents newfound opportunities for critical government services to be delivered online.

Approximately 6.5% of the population uses the internet

Price perspectives

Mobile broadband is jumping ahead of fixed-line services

According to the International Telecommunication Union, only 6.5% of Papua New Guinea's population uses the internet, with those accessing internet services via a fixed-line connection standing at just 1%. One of the factors behind low penetration has been a lack of network availability outside of the main cities, where around 80% of the population resides.

A more prohibitive factor has been high subscription and data costs for relatively poor speeds and network quality, with the National Information and Communication Technology Authority (NICTA) reporting that wireless broadband costs between 20% and 80% of the average citizen's monthly income, while a fixed-line service equates to an even greater 150%, proportional expenses that are far and above the 5% global affordability norm.

According to a January 2014 Economist Intelligence Unit study that further illustrates how internet prices are out of reach for the average consumer, a 20-GB-per-month unlimited broadband plan in the capital city of Port Moresby can cost in excess of $3000, which is nearly 200 times the amount that a similar plan would cost in Australia. A more basic fixed-line package with tighter data limits would still set a PNG resident back around $200 a month, which is far in excess of the PGK20 ($7.60) that would equate to roughly 5% of the average consumer's monthly income.

WHOLESALE CHANGES: As part of its mandate to induce lower internet rates, NICTA is introducing structural reforms, most notably by changing the method by which wholesale bandwidth is sold onto internet service providers (ISPs).

State-owned Telikom PNG has historically owned and controlled access to the National Transmission Network as well as the main international gateway to Australia (a second gateway to Guam is now available). Therefore, short of building their own networks, which in an island nation such as PNG with a scattered population and rugged terrain is a costly and challenging endeavour, ISPs were in turn required to connect through parastatal means.

The government deemed the bandwidth lease rates that Telikom was charging ISPs and network licence holders to be excessive, and in 2013 a decision was made to divest all of its wholesale assets from Telikom and transfer them under the auspices of a newly created independent entity, PNG DataCo.

"The rationale behind our establishment was threefold," Paul Komboi, the managing director of DataCo told OBG. "First, the government realised that the service offering was inefficient, unreliable and suffered from legacy issues, and wanted to introduce new management and a more private sector mentality. Second, the prevailing non-independent market structure did not allow for a truly competitive environment and was susceptible to unfair price discrimination. And third, there was a need to consolidate all national broadband infrastructure in addition to those assets held by Telikom, such as fibre-optic connections owned by PNG Power, under one government department to maximise productivity and reduce duplication costs."

According to Komboi, it is likely to take some time until all wholesale assets are transferred over to DataCo's custody, and there is at present no fixed schedule set. In all likelihood, the management of the international gateways is set to be taken over first, followed by domestic fibre links and eventually the other backhaul assets such as microwave and satellite. "So far, things are not moving as fast as expected and government shareholders are not driving this forward enough," Komboi told OBG.

EXCHANGE & SHARE: According to NICTA, there are nearly 50 licensed operators and ISPs registered within PNG, and the authority is looking to establish the PNG Internet Exchange Point as an additional means of reducing costs and promoting efficiency. Once up and running, the exchange facility should allow all networks to interconnect directly, in turn

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A lack of network availability in rural areas has resulted in low internet penetration rates

To date, most observers believe that the separation of Telikom's wholesale and retail business has had minimal impact on consumer internet prices.

reducing the amount of traffic that would need to leave the country in order to reach a third-party network before reconnecting with a local network.

"We believe that at least 50% of all traffic should be interconnected domestically, and this would go a long way towards reducing costs," Komboi said.

Together with NICTA reforms to impose more infrastructure sharing and shared facilities between operators (see overview), another way of ensuring that local traffic does not have to be diverted to an exchange point outside the country is to mandate IP peering. Peering is when two networks exchange traffic with each other freely, leading to faster connections and better quality for end users.

COMPETITION: To date, most observers believe that the separation of Telikom's wholesale and retail business has had minimal impact on consumer internet prices, believing that the most effective way of attacking the problem is through further interventions to promote greater competition to reduce the dominance enjoyed by the primary fixed and mobile players. PNG's telecommunications sector, which was static for decades, progressed leaps and bounds when, in 2007, Digicel entered the market as a second mobile operator. It is estimated that between 2006 and 2014, mobile penetration expanded from reaching 1.6% to more than 40% of the population.

In June 2014, news came of the prospect for a third mobile operator entering the market, following the awarding of a 10-year mobile operator licence to Dubai-based AWAL Telecom for $260m. However, it remains to be seen when and how the Emirati firm will officially launch its services, and to what extent and level of aggression it intends to directly challenge the two incumbents for market share.

It appears that fixed-line broadband penetration in PNG, which stands at just 1%, is being leapfrogged by mobile broadband, which has an estimated 9% penetration.

NEXT GENERATION: Irrespective of AWAL's future plans as a competing wireless brand, as is the case in many parts of the developing world, it appears that fixed-line broadband penetration in PNG, which stands at just 1%, is being leapfrogged by mobile broadband, which has an estimated 9% penetration. The volume of mobile users is only set to increase as the two existing operators roll out their 3G and 4G networks. Indeed, high-speed mobile connections are seen as the future of PNG's telecommunications sector, and both Telikom and Digicel are looking to expand their coverage.

Telikom has opted to cease investments in its CDMA subsidiary Citifon, opting instead to transition the carrier to 4G. Along with bmobile (formerly known as BeMobile), its main mobile arm, it is jointly rolling out a $100m 3G/4G mobile phone network that is expected to go live in 2015 in Port Moresby and expand throughout the rest of the country.

Digicel, for its part, was the first company to market with long-term evolution (LTE) technology, having switched on 10 sites in March 2014, eight of them in the capital's central business district. The service is being made available to post-pay customers first and will eventually be made available to its pre-pay segment too through a new LTE SIM card that can also be inserted into a router or mobile Wi-Fi hotspot device. Following the initial trials, the plan is to roll out the service to 50 more sites throughout the country over time.

WHAT THE FUTURE HOLDS: According to the World Bank, nearly half of PNG's population is under the age of 25, a youthful composition that bodes well for the future uptake of mobile broadband internet. Younger consumers are quicker adopters of next-generation technology, and they are more prone to download apps and access social media sites such as Facebook that are dependent on higher bandwidth and consume more data.

Assuming that costs can be brought down or at least reined in, and services and reliability can be improved through regulatory reforms and competitive dynamics as the entry-level price for smartphones comes down, accessing the internet via one's mobile phone could eventually become as ubiquitous in PNG as it is in most of the developed world.

About 80% of the population resides outside of the main cities

Jimmy Miringtoro, Minister for Communication and Information Technology

E-services and the state

OBG talks to Jimmy Miringtoro, Minister for Communication and Information Technology

What sort of legislation will be introduced to improve services and streamline the ICT sector in order to attract more investment?

MIRINGTORO: The current government is fully aware of the socio-economic benefits of a first-class ICT industry, and since coming to power in 2011 we have been prioritising investment in the sector. That said, plenty of challenges remain, and it is our duty to introduce new legislation in order to streamline the sector, make it more attractive for both foreign and domestic investors, improve services, and eliminate red tape.

One step we are taking in this direction is developing a full-fledged data centre to serve as a backbone for e-government services. The goal is to improve interaction between citizens and the state through the use of a single platform – a format that has been successfully implemented in countries like Dubai.

E-government has the potential to improve transparency and accountability, which is one of the administration's objectives. A clear example is the Papua New Guinea National Identity Project, which could be of great assistance in planning and delivering state services. Phase one of the e-government project has already been completed with the help of Chinese vendor Huawei through a loan from the China Exim Bank, including construction of the main backbone for government information. So far, we have launched 50-plus government sites. Phases two and three will roll out the system to all of the provinces and local governments, while building the security layer. This will be developed preferably by a local partner, to prevent possible leaking of crucial state information, as we have seen happening in other countries in recent times. Our target is to have all three phases completed by mid-2016, thanks to an investment of roughly PGK400m ($151.4m).

What measures would you like to see introduced to address the issue of affordability in PNG?

MIRINGTORO: ICT prices continue to be high in PNG, and this keeps a large portion of the population from accessing vital services like e-medical, e-banking and e-education, as well as standard telecoms services. Some analysts like to describe the state of affairs as a private monopoly, but ultimately it is driven by market forces, as the government has already taken the necessary steps to liberalise the market since 2007, when it opened it to foreign investments. What we need to ensure is that profits can be made, and the only way forward will be to offer tax incentives to potential investors, as was done for the PNG liquefied natural gas project. A minimum tax holiday of five years is one option we are considering at the moment. In fact, we have recently commissioned a full review of the sector's policies. The existing legislation was drafted in 2009, and we feel it is time for a policy revision.

What is the government's position regarding the convergence of ICT and media in PNG?

MIRINGTORO: We have seen several mergers and acquisitions in the market lately, with Digicel launching its own TV station and Telikom absorbing EMTV, and these are changing the communications landscape. Although this seems to be a global trend and competition is healthy for any market, my personal view is that the two industries should stay separated. Ultimately this was a choice taken by the regulator, the National Information and Communications Technology Authority, because there are no laws in PNG preventing cross-ownership of mobile technologies, TV stations or newspapers. Again, this is something we are addressing in the revision of the act, in an attempt to fill gaps in the current legislation. Information is flowing freely in PNG; we should not stop it, but rather regulate it and create some boundaries. I believe the state should continue to enforce a certain degree of media control, as do advanced economies like the UK and Australia. Both countries have reputable state-owned broadcasting corporations. Too often we have seen unfair reporting on PNG, with emphasis on sensational news and little focus on the progress we have made over the years.

Bhanu Sud, CEO, EMTV

Market evolution

OBG talks to Bhanu Sud, CEO, EMTV

How is the proliferation of television stations in Papua New Guinea changing viewers' expectations when it comes to media content?

SUD: Thanks to an ever-growing internet penetration rate and the proliferation of social media and TV channels, viewers in PNG are becoming increasingly sophisticated and they demand better services. Indeed, this is true for the Pacific region as a whole, which has arguably lagged behind the more mature media markets of Australia and New Zealand. Nowadays media consumers increasingly challenge the sources behind the information they receive. Just because a story is featured in the media does not necessarily mean that viewers will trust the content. As far as I am concerned, this should be treated as a positive development, as it will help raise media standards within PNG to approach the levels that we see across the rest of the world.

Unfortunately fair reporting is not always available and sensationalism is often the name of the game when it comes to news and current affairs, especially when considering social media. However, people will continue to need information and our job as broadcasters is to meet this demand and to make sure that our sources continue to be reliable.

To what extent will the purchase of EMTV by Telikom PNG, the state-owned telecommunications company, affect programming in the future?

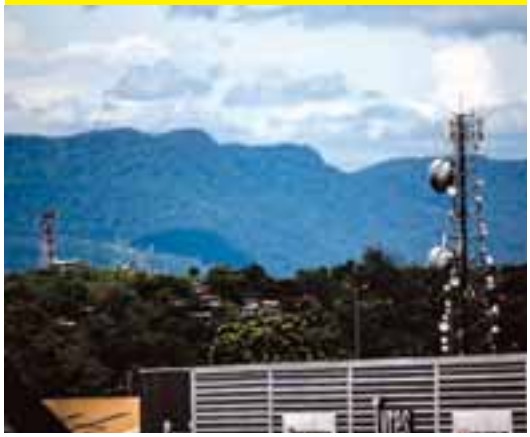
SUD: We are the first and most prominent free-to-air television provider in PNG, and as a public broadcaster, we now have an even stronger social role to play in this country, as any antenna – however small, and even in remote areas – can pick up our signal. We are conscious of this responsibility and for this reason our programming will remain independent.

In fact, I believe the present level of consultation with an institution like Telikom is proving to be valuable, as we have a shared goal in working towards the benefit of the entire national interest. We do not wish only to prioritise the pursuit of profit for business entities. Conversely, I believe that the national interest should be considered in every aspect of economic life, including multimedia content delivery platforms, as long as the government has the required capacity. That said, PNG is an open market and there are no restrictions in acquiring broadcasting licenses, though the spectrum remains limited, and there are no constraints on media cross-ownership. Most importantly, there are no media monopolies, either public or private, and this should be maintained for the benefit of the consumers.

To what extent is digital TV, with its multi-station offer, changing media competition in PNG?

SUD: Although the digital age has already reached PNG, recent studies have suggested that until 2022, analogue free-to-air TV will continue to attract the largest viewership in the country. As a result, I believe content will remain the deciding factor when it comes to sifting through the competition. Nowadays, broadcasters can reach viewers domestically as well as internationally through Telikom's existing infrastructure as a result of the multiple platforms, such as free-to-air television, online, mobile apps, radio or satellite. It will be up to consumers to capture content using the medium of their choice, through a subscription that can be viewed on all their devices.

At the same time, I am reasonably confident that consumers want more than just programmes and formats that have been brought from overseas. That said, it is important to note that we remain the only free-to-air channel in PNG licensed to show all the domestic and international sporting events. The PNG media market is shifting thanks to the convergence of different technologies, and multimedia companies are competing not just domestically, but across the Pacific region as a whole. Ultimately, then, a more competitive market will mean better services for consumers, just as it does in any other industry.



Operators are expanding their offerings in free-to-air television

Driving convergence

Telecoms operators compete to deliver television content

The battle for dominance over the telecommunications sector between state-owned Telikom Papua New Guinea and private operator Digicel is extending into the media space, with the two operators expanding their offering into the free-to-air television market. While Telikom's recent acquisition of commercial television station EMTV and Digicel's launch of TVWAN appear to be tangential moves, the strategic motivations are mainly convergence driven. Each player appears set on winning the race to have PNG consumers access all their content across multiple devices via a single subscription with a single provider.

CONSUMER CHOICE: "The objective is to have a multi-platform presence, and offer apps and free-to-air services on all types of devices, giving customers the choice to access content on whatever platform they prefer," Bhanu Sud, the CEO of EMTV, told OBG.

According to Michael Donnelly, CEO of Telikom PNG, attracting customers all rests on mobile offerings. "At the end of the day, any telecommunication business starts and ends with mobile services, a segment that is growing at about 15% per annum in PNG, and being a successful operator inevitably means getting a slice of that," Donnelly told OBG. "We believe that it is possible to win as much as 20% of the market share just by providing an alternative choice to consumers without having to really compete on anything else, as long as the network is reliable."

In February 2015, it was announced that state-owned Telikom had acquired EMTV's parent company, Media Niugini, from Fiji Television (Fiji TV), which is listed on the South Pacific Stock Exchange, for a total of PGK27m ($10.2m). When the news first launched that Fiji TV was looking to divest from the company, it was rumoured that Digicel would be acquiring the subsidiary. However, in the end, a deal was made directly with Telikom and the sale was not put out for public tender, fuelling speculation that Irish-owned Digicel and Fiji TV withdrew from a deal due to concerns the government would crack down on foreign ownership in media.

ACQUISITION PATH: Telikom will be absorbing EMTV into its growing portfolio of media and ICT subsidiaries. Two years ago it acquired FM100, the country's largest radio station, and in 2014 it purchased local internet and data company Datec from Hong Kong-based Swire Group. According to Sud, part of the rationale behind Telikom's acquisitions is to bolster its competencies in the retail arena following the divestment of its wholesale communication assets to PNG DataCo (see analysis), as the company has historically lacked a private sector mindset and execution capability.

More so, however, the firm is seeking to leverage the synergies and complementarities afforded by the new subsidiaries as it aspires to make a foray into the "triple play" domain. "Telikom has underutilised bandwidth and we [EMTV] now come in as their local production and content partner, while Datec is their gateway customer and provides a whole suite of ICT solutions," Sud told OBG. Digicel, for its part, is not interested in going down the acquisition path, having embarked on a buying spree of a number of cable and free-to-air companies throughout the Caribbean, where the group has a large market presence.

Thus far, the company is nonetheless well positioned to leverage its global resources, technology and multiple platform experience to push content. In late 2014 it launched TVWAN, PNG's first digital free-to-air television service. To access TVWAN, a consumer must first purchase a Digicel Play Box for PGK169 ($64), which comes with three free channels, while an additional 25 or so channels are made available in exchange for a pre- or post subscription. According to Sud, digital television is not a threat to analogue in PNG due to constrained spending power. "Over the next 20 years, I do not envision more than 50,000 decoders being sold. And the only way for advertisers to reach the mass market is through free-to-air radio and TV," he said.

"The government should simplify the existing structure within its own umbrella, in addition to attracting new players into the market," Donnelly told OBG.

The battle for dominance over the telecoms sector between state-owned and private operators is extending into the media space.

Reuben Kautu, Chairman, DataCo

Better choices

OBG talks to Reuben Kautu, Chairman, DataCo

To what extent could retail competition in Papua New Guinea bring down telecoms prices?

KAUTU: More competition in retail will make a difference to the dynamics of PNG's telecoms sector, as the market has been monopolised over the last few years. Competition will lower prices, which are prohibitive in PNG. For this reason the government has decided to separate its wholesale business from retail, bringing.

For a smaller economy, this separation is necessary to ensure non-discriminatory and cost effective supply at the wholesale level, so that retail service providers are not forced to build their own wholesale infrastructure. This reduces duplication of critical assets and associated costs, which are passed to end users. Retail Competition drives prices down to cost, of which wholesale prices are a major component, but reforms for to separate wholesale assets address high costs.

Going forward, we aim to upgrade and operate the National Transmission Network (NTN), which will connect most of the population in mainland PNG with fibre-optic cables. The operation model will be similar to that of the fuel distribution industry, with one supplier and several service stations in competition with one another. This will allow a distinction between the costs and services of stations. Inefficiency has been a stumbling block, so addressing this issue will help reduce telecoms prices by as much as 70% for end-users.

How could the sector benefit in terms of service delivery from a new wholesaler? What is the status when it comes to the transfer of assets?

KAUTU: The PNG government is driving a process of liberalisation across the whole economy, including telecommunication, but it will take between one and three years to turn this vision into reality. The process is moving slower than expected, although some assets can be transferred immediately, such as international submarine cables and other domestic cable assets. In the long run the transfer of assets will be completed in three stages, which includes the international assets, microwave and satellite. Moreover, new assets have been built at the same time. For example, the northern cities of Medang and Lae will be connected to Port Moresby via fibre optic using the existing electricity tower infrastructure and the liquefied natural gas fibre. We expect this to be completed by 2016.

We hope that with the restructuring of state-owned enterprises providing ICT services and infrastructure assets, duplications of assets can be eliminated. Both the business community and consumers are aware that IT service provision to date has been rather poor in PNG. Unbundling the business should therefore attract a great deal of investment that could spur economic growth. Information is key for social and economic development everywhere nowadays, and PNG can no longer be kept waiting indefinitely at the fringes of a cultural revolution which is sweeping the globe.

Offering better choices to consumers is what the free market is all about, but not many people in PNG can at present afford the PGK300-500 ($114-189) required for monthly use. Once those costs are reduced through the completion of the NTN, and more competition introduced at the retail level, we can expect to see a boost to the economy as well as better service delivery.

What advantages would a new Melanesian underwater fibre-optic cable offer as an alternative to the APNG2 cable that is currently in operation?

KAUTU: The APNG2 cable is in the process of ageing, already having been operated at a fraction of its original capacity for years now. That is why we have opted for the ICN2 Melanesian cable in a joint venture with the Interchange of Vanuatu for a future regional development. Indeed, PNG has the opportunity to become a regional submarine cable hub, with countries such as Indonesia and the Philippines – as well as our neighbours in the Pacific – connecting through Fiji, the US and the wider world. For areas that we are unable to reach as part of the NTN, we plan to launch the country's first satellite, which will be called Kumul Satellite.

Both public and private players are investing in satellite technology

Help from above

Satellite technology providing solutions to logistical challenges

Although Papua New Guinea's mountainous topography and existing digital infrastructure gap have been a major impediment to the expansion of internet coverage, satellite and microwave technology are creating promising opportunities for service providers. The government has already moved to create a microwave link for its planned National Broadband Network (NBN). At the same time, satellite broadband services represent perhaps the most high-potential channel for future rural service and capacity expansions in PNG, with several new deals signed in recent months.

DIGITAL DEFICIT: Internet penetration is low in PNG, and World Bank data shows that just 6.5% of the population used the internet in 2013, while the International Telecommunication Union (ITU) reports that in the same year just 5.5% of the population had a fixed internet connection. In 2013, 34 secondary schools out of a total of 2017 had internet access, as did just four out of 3332 primary schools, according to the National Information and Communications Authority.

Limited infrastructure has driven prices up, with a 20-GB monthly broadband plan in Port Moresby costing up to $3000 per month, with even the most basic plans costing in the region of $200 per month, according to January 2014 prices (see analysis).

GOVERNMENT STRATEGY: The government is moving to address these challenges with its National Broadband Policy (NBP), which aims to expand broadband availability to 90% of the population by 2018 via the NBN, which will be deployed by state-owned operator Telikom PNG. Telikom and China's Huawei signed a deal for network deployment in 2013, announcing that the project will entail the construction of an ADSL2+ copper wire network servicing over 80,000 buildings, while an additional 8000 locations will be connected by means of a fibre-optic cable connection.

However, the plan faces the challenges of building and upgrading cable networks across PNG's 800 mountainous islands. As such, microwave and satellite-backed services, requiring less on-the-ground infrastructure, will play an important role as a complementary service offering and could see their market share rise considerably over the coming years.

MICROWAVE: In March 2014 Telikom announced it would invest PGK53m ($20.6m) in a microwave system for the NBN. The microwave project is being developed in partnership with Aviat Networks, which supplied Telikom with its WTM 6000 microwave trunking platform, used to link Port Moresby to Lae. Since Lae and Madang are already connected via fibre-optic cable lines, the microwave project provides the final link in a loop connecting Madang, Goroka, Mount Hagen, Lae and Port Moresby. In March 2014, Telikom chairman Mahesh Patel told local media that microwave links offer the benefit of better reliability, stronger signals and a consistently higher quality of service.

SATELLITE: Satellite broadband also offers considerable potential for service expansion, and it has already been recognised as an important buttress to the NBN. In May 2015 the government announced a partnership with the ITU to launch a satellite connectivity project. Although specific details have yet to be unveiled, the project is expected to deliver satellite services to remote, underserved and rural areas.

Private players have also targeted satellite broadband as a high-potential delivery channel for remote and developing countries. In June 2015, for example, a consortium of major multinationals announced it would invest $500m in UK-based OneWeb, which plans to launch 648 micro-satellites by 2019. OneWeb founder Greg Wyler also founded O3b Networks, a firm that has been active in delivering new satellite links to PNG since July 2014, when it partnered with market leader Digicel to launch satellite trunking services.

In June 2015 Digicel announced it had signed a further deal with O3b to provide additional trunking services in response to surging data demand. The second such capacity increase in under a year, this amounts to a 150% increase in overall data throughput and indicates strong growth potential for satellite broadband.

Internet penetration is low in PNG, with 2013 figures showing just 6.5% of the population used the internet and just 5.5% of the population had a fixed internet connection.

Limited infrastructure has driven rising prices, with a 20-GB monthly broadband plan in Port Moresby costing up to $3000 per month, and even the most basic plans costing in the region of $200 per month.

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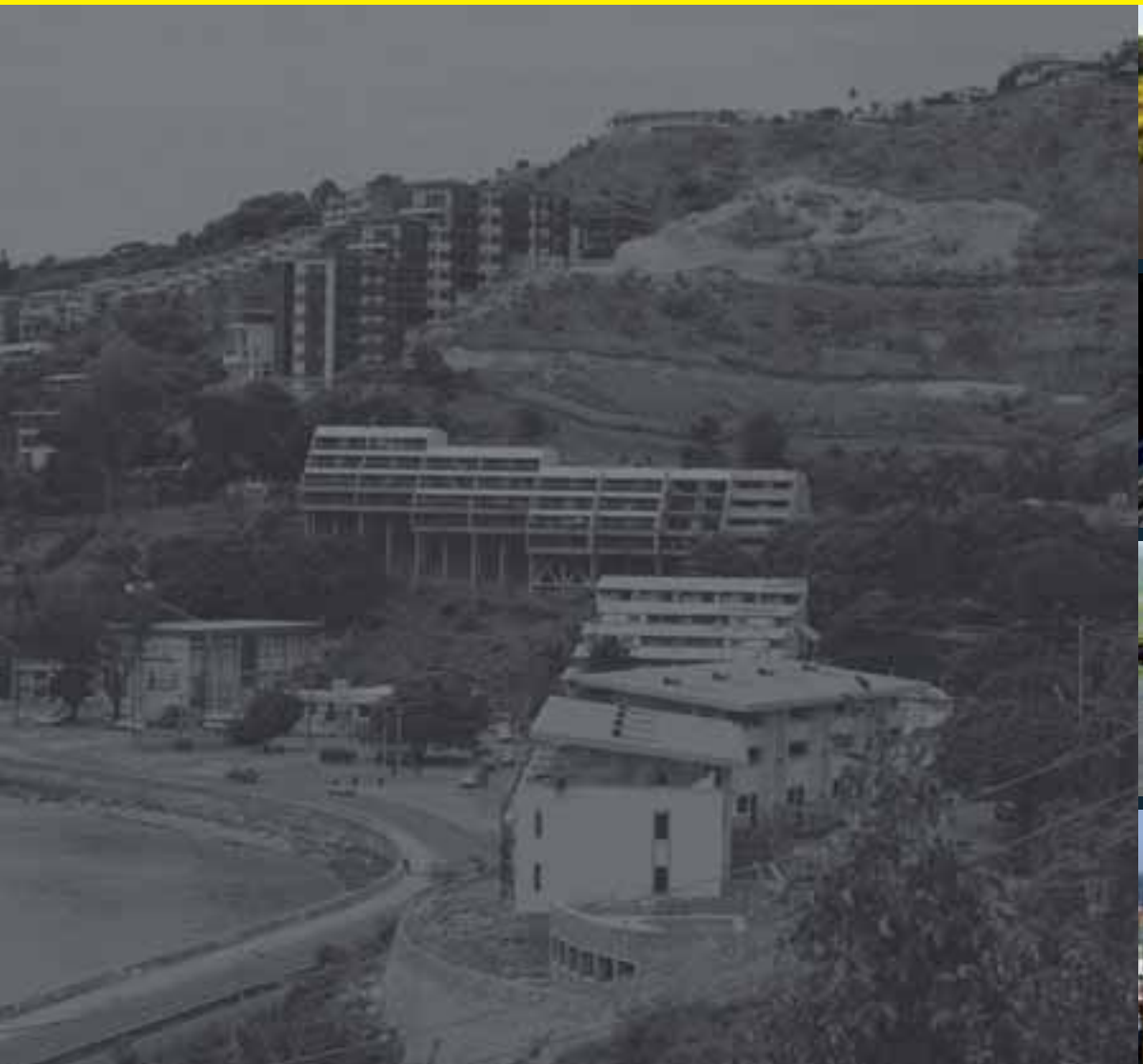
Transport

Investments in road improvements easing rural access

Upcoming events poised to boost airline traffic

Dependence on maritime trade motivates upgrades

New revenue sources sought to diversify the economy



The country has 800 islands, some accessible only by sea transport

Navigating their way

Sector players are well adapted to a varied geography

Divided by ridges of high mountains and dense with tropical rainforests, Papua New Guinea has some of the world's most difficult terrain to traverse. The country also possesses around 800 islands, with much of its 6500 km of coastline only accessible by sea. Thus, transport and logistics in the country has long been a major challenge. Still, much of the country's overall economic development hinges on these transport barriers being faced and overcome. The government, which is fully aware of the importance of the sector, is making a major effort to invest – and attract investment – into transport. New plans and strategies are being rolled out, with some of the state's new largesse, gleaned from new hydrocarbons activities, finding its way into a major new infrastructure boost.

TOUGH GEOGRAPHY: With a population of around 7.3m, only some 15% of PNG's inhabitants are urban residents. Most of these live in and around Port Moresby, the country's coastal capital. The main landmass, which consists of roughly half the island of Papua, contains three main river systems, which have traditionally provided the only commercial transport access to the interior. These systems have been navigable enough for mines and rubber plantations upriver to be reached by ocean going vessels, yet for some upper stretches of the Fly, Sepik and Ramu rivers, dugout canoe remains the only effective means of transport.

PNG has one land border with Indonesia, with one official crossing on the northern coast from Vanimo to Jayapura. For the inland rural population, the most reliable and fastest means of transport has been air, with helicopter and light aircraft frequently used to connect with up-river and up-valley communities. Offshore, PNG has a network of islands known as Tropical Oceania, including Manus Island, New Ireland, New Britain, Bougainville and dozens of others. Thus, travel around PNG has been difficult, with the geography itself presenting many obstacles.

Nature, too, has an impact, via tropical rainstorms, earthquakes and high temperatures, along with fast-growing vegetation that can reclaim under-maintained road surfaces and infrastructure. This is particularly problematic when some 80% of the country's freight and passenger demand is for road transport.

BODIES & PLANS: The Department of Transport is the main government agency responsible for transport planning and coordination, with the Department of Works (DoW) key in infrastructure project roll-out. The Ministry of Planning also has a key role in linking transport strategy to other areas of government policy. According to a 2014 report from the DoW, PNG had a national road network of approximately 8738 km, divided into 4256 km of priority roads and 4482 km of non-priority roads. When provincial and district road networks were added in, the DoW estimated some 30,000 km of roads nationwide. The road system also included over 2000 bridges and culverts.

Yet, as the report also pointed out, the majority of these roads – 67% – are in a "failed" or "poor" condition, although the figure for national roads is much lower, at about 16%. Lack of maintenance and a lack of funding are behind this percentage, according to the DoW, with actual financial provision only around 20-25% of the amount outlined in DoW budget estimates. The country's particularly punishing environment accelerates the deterioration of road surfaces, with decay becoming exponential once a certain period of neglect has passed. This creates a considerable burden on the country's productive capacity. The DoW estimates that the poor state of the road network costs the economy dearly, with losses from the state of the Highlands Highway (HH) alone estimated at

As of 2014, PNG had a national road network of 8738 km, divided into 4256 km of priority roads and 4482 km of non-priority roads.

Some 80% of the country's freight and passenger demand is for road transport. The majority of the nation's 30,000 km of road – 67% – are in a "failed" or "poor" condition, although the figure for national roads is much lower, at about 16%.

National road conditions, 2014

Condition	%	km
Good	36	3145
Fair	48	4194
Failed	16	1400

SOURCE: Department of Works

Spending $378m on maintaining a road as it deteriorates to "fair" condition can reduce costs by $1.5bn-1.9bn

Declining liquefied natural gas prices – and thus lower government revenues – are expected to effect project roll-outs in the 2015-16 period, as government budgets have been based on higher hydrocarbons prices than those realised during 2014-15.

PGK662m ($250m) a year. Neglect of maintenance also has escalating costs, with PGK1bn ($378m) spent on maintenance before a road deteriorates to "fair" condition, saving PGK4bn-5bn ($1.5bn-1.9bn) in future costs to restore roads in worse condition. Poor transport links have many other costs too. Education and health are affected, as students have difficulty in reaching schools and colleges, while hospitals may be inaccessible for those from distant villages.

THE ROAD TO INVESTMENT: PNG also has a significant need for investment in the road network. To achieve this and to coordinate national, provincial and district transport development, the government has launched a series of plans for the sector. These include the National Transport Strategy 2014-30, which divides into Medium Term Transport Plans, with the current one running from 2014-18. These programmes also dovetail with the longer-term Development Strategic Plan (DSP) and PNG Vision 2050.

The government also launched the PNG Road Fund back in 2008-09, and created the independent National Road Authority (NRA) to administer it. The NRA was to direct the fund – made up of automatic transfers from road user fees – and channel it into road maintenance and repair. The fund receives around PGK16m ($6m) a year from a levy on domestically refined diesel fuel, an amount which some find low, however, with debate currently ongoing on measures to increase the size of the fund in the years ahead.

Meanwhile, to support the focus on transport roll-out, in the 2014 budget the government allocated some PGK2.7bn ($1bn) to infrastructure (which includes communications and utilities). This was the largest allocation to any sector, substantially larger than the PGK1.9bn ($711m) allocated in 2013. The budget also set aside PGK30m ($11.4m) to upgrade Port Moresby airport and PGK15m ($5.7m) for Kokopo airport.

Combined, the 2014 and 2015 budgets allocated approximately $2.7bn for transport and communications infrastructure projects.

The 2015 budget maintains this high level of investment in infrastructure, with PGK2.7bn ($1bn) allocated out of a total PGK16.2bn ($6.1bn). This includes PGK238.9m ($90.4m) for national roads, PGK150m ($56.8m) for the HH, PGK293m ($110.9m) for city roads, and PGK57.2m ($21.6m) for bridges and improved rural access. Another PGK121m ($45.8m) has been allocated for civil aviation development and improvement programmes, and approximately PGK50.8m ($19.2m) will be provided for maritime sector expansions (see analysis).

CHALLENGING YEAR: Declining liquefied natural gas (LNG) prices – and thus lower government revenues – are expected to effect project roll-outs in the 2015-16 period, as government budgets have been based on higher hydrocarbons prices than those realised during 2014-15. This is also affecting sector operators. Allan Poulton, general manager of the freight services firm, GFS Limited, told OBG, "In this time of uncertainty, operators need to cut costs and slow down operations to counterbalance a cooling in the domestic economy due to low commodity prices."

Nonetheless, a scheduled pipeline of approximately PGK7bn ($2.6bn) in road infrastructure projects is currently in existence. The government has set a number of short-term targets for the road segment. These include maintenance and repair so that 75% of the national road network is brought to a "good" standard by 2017 – up from 36% in 2014. A further target is to open up four of the "missing links" in the national road network. This refers to four economic corridors outlined in a previous Medium-Term Development Plan for 2013-16. These run from the Gulf of Papua inland to the Southern Highlands Province (SHP), along the Erave-Sembiriniki-Kikori axis; the Morobe-Gulf of Papua corridor; the East-West New Britain link; and the Madang-Baiya link in Western Highlands Province (WHP). The completion of transport projects in these areas are expected to have knock-on effects on local transit, as they connect existing networks.

EQUIPMENT CHECK: The DoW is targeting an upgrade of its Plant and Transport Division (PTD). The PTD is the body responsible for operational management, repair and maintenance of DoW construction equipment, while it also leases this out to the DoW's Operational Division for project implementation. The PTD is slated to be deployed in support of rural road maintenance, with a new equipment-buying programme

Cargo throughput by port, 2012

Port	% of total
Lae	51
Port Moresby	24
Kimbe	8
Rabaul	4
Oro Bay	3
Alotau	2
Madang	2
Wewak	2
Buka	1
Kavieng	1
Others	2

SOURCE: PNGPC

under way through the assistance of the Japanese International Cooperation Agency (JICA). This will see 48 pieces of heavy construction equipment purchased at a cost of PGK23m ($8.7m), with the items delivered to Morobe, WHP, West New Britain and East Sepik. Meanwhile, the private sector has also been a leading buyer of work-related vehicles. Speaking specifically about cars, Takeshi Abe, CEO of Ela Motors, told OBG, "Automotive sales to corporate sector clients continue to thrive, though we are seeing some stabilisation after the completion of the PNG LNG project. Still, we expect the market to pick up again in 2017 and the market should recover to 10,000 units per annum."

MULTI-PURPOSE SOLUTION: The PTD's expansion addresses a further challenge, in that PNG has fewer than 15 national contractors and just five international ones with the ability to conduct civil works to the standard necessary for modern roads. Most of these are also concentrated in one home province and infrequently work in other areas of the country. This private sector capacity constraint also comes alongside public sector limitations, which historically have resulted in unspent funding being allocated to transport infrastructure. Delays in approvals, road management agency capacity problems and land issues have all been cited as factors. In response, in 2012 leaders of the government coalition parties signed the Alotau Accord, an agreement aimed at tackling difficulties in project delivery. The accord also established the Infrastructure Development Authority (IDA). The IDA hopes to follow up on existing transport strategies and enhance implementation in the years ahead.

At the same time, the government is looking for private sector partnership opportunities with overseas contractors that can undertake transport infrastructure projects in PNG. In this, the government has also been receiving help from the World Bank, the Asian Development Bank (ADB) and the Australian government, in particular. In January 2015, the latter started the second five-year phase of its PNG-Australia Transport Sector Support Programme, valued at approximately PGK319.6m ($120.9m). Phase one, valued at PGK950m ($359.5m) for the 2007-14 period, financed work on some 17,500 km of road, nationwide.

The ADB, meanwhile, has signed a series of country partnership strategies (CPSs) over the years with PNG,

Automobile sales are primarily made to corporate clients in PNG

with the current agreement running from 2011-15 recently being updated and renewed for 2016-20. Transport is one of the areas heavily emphasised in the CPSs, with around 68% of the $436m in the 2016-20 programme allocated to the sector, split evenly between land and air transport. The World Bank has also signed a series of country assistance strategies with PNG over the years, with a CPS also currently in place, for the financial period 2013-16. In 2015, the bank began the second, $157m phase of its Roads Maintenance and Rehabilitation Project to upgrade, restore and maintain bridges and roads across PNG.

HIGHLANDS HIGHWAY: One project of particular importance is the Okuk Highway, also known as the HH, that runs for around 700 km, making it the longest road in the country. The highway traverses some difficult terrain, running via Mount Hagen, while also crossing the 1500-metre-high Kassam Pass. It also connects the port of Lae in the east with Tari and the Porgera Gold Mine in the west.

The route encompasses the PNG LNG oil and gas fields in the SHP, while also providing the main transport artery for around 3m people, particularly in and around the towns of Goroka and Mendi. The HH is a vital link for many communities and for the overall

There are some 15 local contractors and five international firms conducting civil engineering and road projects in the country.

There are 22 major airports in operation around the country and 23 secondary airports or airstrips. There are 10 local airlines providing domestic services and nine international airlines.

economy. In recent times, however, its condition has deteriorated sharply. Thus, the 2015 budget allocated PGK150m ($56.8) for work on the HH, continuing many years of government financing. The ADB has been heavily involved in the project, with the Highlands Region Road Improvement Investment Programme (HRRIIP) also aiming to improve the Highlands Core Road Network – roughly 2500 km of national and local roads that feed into the HH over its length. The HRRIIP has seen the use of long-term maintenance contracts, with these performance linked. This addresses a key issue in ensuring that road systems do not deteriorate once they have been established. In 2014, the ADB signed a $109m loan to the government to fund the second tranche of the project. Other donors have included the Japan Special fund, which contributed $700,000 during the first phase. JICA and the Australian Agency for International Development have also provided significant assistance to the HH.

TRAFFIC TROUBLE: PNG's strong economic growth in the past several years has enabled Port Moresby's National Capital District (NCD) grow, with the population expanding beyond the capacity of much transport infrastructure. To address this – and with the heightened traffic associated with the 2015 South Pacific Games and 2018 APEC Summit in mind – the government earmarked PGK700m ($264.9m) for six major road projects in the NCD in 2013. The Exim Bank of China is providing PGK300m ($113.5m), with the remaining funded by the state. The largest of the six is the 10.7-km, four-lane Gerehu to Hanuabada road, valued at PGK196m ($74.1m), followed by the 8-km, four-lane Gerehu-to-9 Mile road, both being constructed by the China Harbour Engineering Company. These projects, which are scheduled to be completed in 2015-18, are expected to ease transport congestion for businesses and logistics companies, as well as ordinary citizens.

TAKING OFF: Roads are not the only area of focus for sector operators. Ripen N Sarepo, CEO, Trans Wonderland Limited, told OBG, "Road transport remains vital in PNG, but I believe that the aviation sector will see an exceptional growth in coming years and it will have an even greater impact on the country's development."

A network of small airports and airstrips serves the country's interior, while major airports have been established in the capital and elsewhere. Port Moresby International Airport (PMIA) lies 8 km outside the capital and in 2014, 10 local airlines provided domestic services, while international routes were flown by nine airlines. The PNG national carrier is the state-owned Air Niugini, which operates both domestic and international routes. PMIA itself is operated by the National Airports Corporation (NAC), a state enterprise established in 2000. The NAC operates 22 major airports across the country, as well as another 23, secondary airports or airstrips.

PMIA is currently undergoing a major upgrade. The airport is on the site of an airbase from the Second

World War, with its passenger terminal added in 1959 and a concrete apron and taxiway built in 1963. Despite extensions and additions since, upcoming events in Port Moresby require a major overhaul of the facilities.

"We expect the number of flights arriving to Port Moresby to increase considerably over the next few years," Pacific Energy Aviation's general manager, Henry Elias, told OBG. "The 2015 South Pacific Games and the 2018 APEC Summit are both expected to have a significant impact on the local airline industry."

The airport was originally built with capacity to process just 300,000-400,000 passengers per year, but in 2014 it saw 1.4m people, according to NAC management. The airport also has cargo storage capacity of just 162,000 tonnes, with four runways, two of them 2750 metres and the others 2065 metres in length.

In 2010, Canada's Jacobs Consulting delivered a 20-year master plan for the airport's development. In 2014, the NAC began a PGK100m ($37.8m) expansion programme for the international terminal building, which adds a 30-metre extension to its north-west end and 20 metres to its south-east end.

The master plan will later see the international and domestic terminals connected via a three-level, 35,000-sq-metre building constructed to link the two. The NAC expects to deliver this in 2017, in time for the APEC summit, and has been looking to use a public private partnership model for the long-term operation and management of PMIA. It would also like to see the airport develop more as a regional hub, connecting Australia across the Pacific to China and Japan, while also acting as a feeder to other South Pacific airports.

REGIONAL CONUNDRUMS: In addition to major facilities, the NAC is responsible for 21 other airports, some of which are heavily subsidised from PMIA's profits. Acting managing director of the NAC, Joseph Tupiri, told the local magazine, *Business Advantage*, in 2014 that the Mount Hagen airport, for example, makes PGK1m ($378,400) a year but costs PGK1.5m ($567,600) to run. This has led to some debate about reorganising the funding model for the facility, with the NAC suggesting that a community service obligation provision from the central government could fund loss-making regional airports, thus freeing PMIA from the task of effectively subsidising other airports through the NAC.

Budget allocations by project, 2015 (PGK m)

Road transport	Allocation
National highways	238.9
Highland highways	150
City roads	293
Bridges & improved rural access	57.2
Air transport	
Civil Aviation Development Improvement Programme	121
Port Moresby International Terminal	30
Maritime transport	
Lae Port development	23.6
Maritime waterways safety project	27.2
Total	940.9

SOURCE: Deloitte

The main airport has capacity for 300,000-400,000 people, but in 2014 it transited 1.4m passengers

Regional airports are a key lifeline for much of the country. In 2014, 21 regional airports served some 3m passengers, according to the government. As with roads, many smaller stations are in need of maintenance, while another important area for investment is safety. Over 20 aircraft crashed in PNG in the 2000-14 period, most of them domestic light aircraft. Thus, the government received a $130m loan from the ADB in 2014 for its Civil Aviation Development Investment Programme (CADIP). CADIP has already helped with the PMIA upgrade and the new loan targets airports in New Britain, Mount Hagen, Wewak, Kavieng, Gurney and Goroka. The government provided PGK217.7m ($82.4m) in counterpart funding for these projects, while the 2015 budget extends PGK121m ($45.8m) to CADIP.

OUTLOOK: The government's expansion of infrastructure expenditures comes after years of neglect, with much of the current work therefore being done on restoring the road network, rather than expanding it. Nonetheless, this work is vital and expected to produce significant payoffs for the economy and society at large. Sustaining high levels of expenditure on transport projects will be a challenge for the government in the short term, given lower-than-expected LNG revenues during 2014-15 period. Still, the government's determination to maintain a budgetary focus on this area bodes well for the sector. Other positive indicators for the economy, as well as population growth, provide strong fundamentals for improving transport and logistics demand going forward.

The main challenge is project delivery, which has necessitated programmes to strengthen capacity, as well as combat graft and mismanagement. The functionality of these programmes may turn out to be equally important as the construction itself in the years ahead. For investors, the opportunities are significant, with the country looking for everything from project financing, to international expertise in design and engineering. PNG may well be a challenging environment, but it remains one that is also full of possibility.

While lower LNG revenues are expected to reduce the flexibility of the state's budget in the 2014-16 period, the commitment to infrastructure spending is being maintained.

Greyling Park, CEO, Post PNG

Special delivery

OBG talks to Greyling Park, CEO, Post PNG

What role does the postal service play in Papua New Guinea, following widespread use of the internet and global communications methods?

PARK: Over the past 10 to 15 years, the internet has really taken off internationally, as well as in PNG, and the massive use of smartphones, laptops and all sorts of technological applications has inevitably had a negative impact on the industry. However, having said that, postal services remain an integral and irreplaceable component of the communications industry in PNG and historically it has been an important force driving the country's socio-economic progress.

Everybody talks about the fact that as much as 80% of the country's population still resides in remote areas, but very few institutions have the means to do something about bringing relief to these people, and clearly the postal service is one of them. The postal service does not only deliver letters, but also medicine, phones and other vital items for rural dwellers. Connectivity, or rather the lack of it, continues to be a major stumbling block in PNG and it is not unheard of for people to paddle for days in a canoe or walk through thick forests in order to reach postal branches in areas we cannot reach them via road. Due to the *wantok* social support system, many people who work in major cities send money back home through the postal service and often that money gets used to pay for essential needs of wantok members, such as tuition fees for schools.

What sort of legislation should be introduced to maintain competition on a level playing field?

PARK: To remain competitive the regulatory environment has to adapt to a new dynamic. Our current pricing structure is based on a complex formula created about 20 years ago, when postal services had a monopoly in this business. Nowadays, competition has mounted, and well-known competitors – both small and large, including multinationals – are a major part of the industry and do not have to obey any price controls. In other words, our revenues have been regulated, but not our costs. Over the years demand for letters has decreased dramatically, while all the costs of power, real estate and workers' salaries have escalated. That obviously is a recipe for failure. This is an issue that affects not only our industry, of course, but also other sectors over which the government continues to exercise a certain amount of control on economic activities, despite having corporatised some of the state's assets.

To what extent will the privatisation of state-owned assets in PNG be able to engender a more sustainable business environment, in your opinion?

PARK: Post PNG was corporatised in 1997, but we still cannot decide independently on our pricing structure, so I would say much remains to be done in order to create fully independent companies within the country's corporate landscape. The same will likely happen in the power sector or in aviation, if Air Niuguini is unable to decide on the most convenient routes prior to corporatisation, which is to take place by the end of 2015.

An initial public offering seems to me the most effective formula for raising capital and responding to shareholders instead of to state bodies, as the two groups often have different objectives and timeframes. Raising capital will allow institutions like Post PNG to invest in technology, such as mail-sorting equipment and a new fleet, while continuing to explore new areas where it can compete with financial service providers, such as the micro-banks and traditional banks that have recently moved into the market.

Improving the management of existing properties and opening agency sites will help maintain connections between the capital and parts of the country that are less appealing to multinational firms. I believe that local companies with knowledge of the domestic market have a lot to offer in PNG, considering the country's physical and cultural peculiarities, and the work that has been accomplished over the years with churches, schools and supermarkets, which would be wasted if the administration overlooks their role in development.

The country has 27 major ports and more than 400 smaller harbours

Full steam ahead

The maritime segment is key to the nation's future growth

Some 15 of PNG's 22 provinces are coastal or island provinces, with these regions also home to around 60% of the country's inhabitants. Thus, road links outside the main cities are sparse, and commercial and passenger traffic from the periphery to the country's urban centres is often done by sea. Furthermore, PNG occupies a strategic position on north-south routes between northern Asia and Australia and New Zealand. Major international shipping lanes cross the Bismarck Sea, which lies to the north of mainland PNG and encompasses New Ireland and Manus Island, and the Solomon Sea, between the mainland, New Britain and Bougainville.

MARITIME NATION: The two largest ports in PNG are those of the capital, Port Moresby, and Lae, with the latter the busiest. Lae is the second-largest city in the country and capital of Morobe Province, on the north-eastern coast. Both are run by PNG Ports Corporation (PNGPC), which also runs 14 of the country's other main ports. Mining firms operate 11 ports, with an estimated 400-plus smaller jetties and harbours operated by local communities. PNGPC replaced PNG Harbours Limited in 2006 as the country's main operator.

Given the importance of the ports to the country's economy overall, the government has focused on their development in recent years. A series of plans has been produced to provide a roadmap for this. These begin with PNG Vision 2050; the Development Strategic Plan (DSP) 2010-30; and the five-year Medium-Term Development Plan (MTDP). The latest MTDP was completed in early 2015 and a new one is beginning roll-out the same year. All these plans make ports an area of focus.

FACILITY UPGRADES: With the emphasis on ports, Lae Port has been undergoing a major upgrade in recent times, with the first phase of a tidal basin project completed in December 2014. This new facility, which will be run by PNGPC, cost over PGK700m ($264.9m) and has the aim of making Lae a central port for large vessels serving both PNG and Asia Pacific. The Asian Development Bank (ADB) funded 70% – making it the bank's largest maritime initiative in the Pacific to date – with the state contributing the remainder. The Independent Public Business Corporation (IPBC) was the implementing agency and the China Harbour Engineering Company undertook the work. The project adds two new container berths to the port, which, when added to a third also recently completed, dramatically increases Lae Port's container capacity. The project also sees the expansion of storage and warehousing areas; improved electricity, sewerage, water and drainage facilities; dredging; and new crane improvements.

The Lae Port already accounted for some 60% of PNG's overall trade, according to statements in the local press from Minister of Public Enterprises Mekere Morauta. Almost all the country's coffee exports ship out through Lae, while the port has also grown in line with PNG's liquefied natural gas (LNG) industry. For example, machinery and equipment for the large Hela Province LNG project has been coming through the port.

The minister's figures would illustrate rapid recent expansion, too. Up to date data for trade through the country's maritime gateways was unavailable at the time of writing, yet PNGPC's 2012 annual report stated that Lae handled 51% of the corporation's overall cargo volume that year, while Port Moresby handled 24% and the third-largest port, Kimbe, handled 8%. These three were also cited as the three profit-making ports in PNGPC's portfolio. The fourth-largest was Rabaul, with 4%.

The most recently available figures indicated the overall cargo total was 7.9m revenue tonnes in 2012, up 3% on 2011. Some 336,740 twenty-foot equivalent units passed through the nation's ports, with 63% of these deriving from international trade and the rest from coastal trade. In terms of vessel calls, there were 7322 at PNGPC's ports in 2012, with overseas calls accounting for 54% of these. Port Moresby was the nation's leading port, in terms of port calls, with 31% of the total that year. It is thought these totals likely declined in 2013, however, as the construction of LNG projects wound down, but no more recent data was available when OBG went to press. The working environment has also

Out of the nation's 22 provinces, 15 are coastal or island provinces and home to approximately 60% of PNG's population. As a result, maritime transport is a key priority.

As of 2012 the overall cargo total for PNG was 7.9m revenue tonnes, a 3% rise over 2011, with about 336,740 twenty-foot equivalent units passing through the nation's ports.

Facilities upgrades are a major part of maritime expansion plans, but improvements are also being made to safety and services provision.

become more competitive in recent years. "Margins are shrinking at the moment, as competition has mounted and the level of economic activity has diminished considerably since the completion of the LNG project," Tony Raats, general manager of logistics firm Agility, told OBG. "I anticipate some consolidation."

BUILDING UP: Major expansions are ongoing. In 2012 Port Moresby (POM) received upgrade and PNGPC invested in three rubber-tired gantries, with these and mobile harbour cranes improving efficiency. In 2013, the firm then budgeted for the reclamation, acquisition and development of the Port Moresby naval base. Most recently, in October 2014, plans were discussed to relocate the port, with a site identified at Motukea. A deal was reportedly struck between PNGPC, the IPBC and Curtain Brothers for a PGK725m ($274.4m) project moving POM's wharfs to a site previously used for transport equipment during construction of the PNG LNG plant. "The relocation of POM will be one of the most important developments for the city's functionality, as it will offer plenty of new opportunities right in the middle of the business district," Peter Langslow, CEO of Steamships Trading, told OBG.

At Alotau Port, PNGPC is investing in wharf upgrades that allow the port to accommodate more cruise ships. At Oro Bay, a PGK10m ($3.8m) rehabilitation has begun, with IPBC and PNGPC upgrading old wharves. POM has recently seen investment in a new depot by GFS, which transports material and equipment for the oil and gas industry. The company now operates a barge that can navigate the rivers of the interior as well as serve drilling platforms in the Gulf of Papua.

Indeed, PNG's shipping firms have been expanding as well. Bismarck Maritime, for example, has more than doubled its capacity to 13 vessels over the past seven years, on the back of growth in the hydrocarbons, minerals, and food and beverage segments. The sector has otherwise long been dominated by Steamships Trading, which has 16 coastal vessels operating in PNG waters, according to its 2014 annual report.

EVEN STEVEN: As for stevedoring, PNGPC does not provide its own services, but contracts out. At Lae Port, it does this with three firms: Riback, United Stevedores and Lae Port Services. At POM, United Stevedores and Port Services are the main sub-contractors. The Independent Consumer and Competition Commission monitors prices to ensure competitiveness. Another key body is the National Maritime Safety Authority (NMSA), whose duties include search and rescue, controlling marine pollution and improving ship safety. The NMSA has received major assistance from international donors, with the ADB beginning work on a navigational aids rehabilitation project back in 2000, then extending this into a wider safety project in 2012. These projects seek to redress deficiencies in hydrographic surveys, tide gauge networks, and the installation and maintenance of the automatic identification system. Safety has thus been improving for ships traversing through PNG's waters.

Spikes in air traffic have accompanied major industrial projects

Driving demand

Extractive industries continue to generate growth in other areas

The recent surge of natural resources out of Papua New Guinea, along with the inflow of manpower and material needed to develop industrial infrastructure, is fuelling demand for transportation and logistics services internally and internationally. Although the country lacks established international trade hubs and the associated scales of economy, the lure of PNG's lucrative resources remains incentive enough to establish more efficient transportation links from which to boost international trade.

The ongoing expansion of PNG's extractive resource industries, which often provide the impetus for greater transportation connectivity, is also being aided by basic organic trade growth through a growing list of international trade agreements, both regional and global. Although the country is not yet included in some of the most prominent trade groups, such as the Association of South-East Asian Nations and the fledgling Trans-Pacific Partnership, PNG has signed on to a number of other regional agreements such as: the South Pacific Regional Trade and Economic Cooperation Agreement; the Pacific Island Countries' Trade Agreement; the PNG-EU Economic Partnership Agreement; the Pacific Agreement on Closer Economic Relations Plus; and the Melanesian Spearhead Group Trade Agreement.

GOOD NEIGHBOURS: PNG also has a handful of bilateral deals with its largest trading partner Australia, including the PNG-Australia Trade and Commercial Relations Agreement; the Agreement for the Promotion and Protection of Investment; the Double Taxation Agreement; and the Torres Strait Treaty.

The tangible advantages of developing transport infrastructure can be seen in the huge investments made as part of the PNG liquefied natural gas (LNG) project, which saw hundreds of millions of dollars spent upgrading road, sea and air links from the coast to the highlands, which will benefit the private sector and the public for years to come. The PNG LNG project is not an outlier in this, as surges in transportation demand and the resulting infrastructure upgrades follow a historic pattern in the country, most recently the mining boom of the 1980s.

As these projects unfold they create knock-on effects which are now driving secondary demand for logistics and support services, providing a substantial boost to both sea and air transport providers.

REMOTE ACCESS: The domestic air network has always been key to PNG's development, with the lack of land connections giving air a primary transportation role usually reserved for the more efficient road and rail. As economic development spreads into ever more remote areas of the country, these links have become even more vital, with demand for imported machinery and goods showing no signs of abating.

The amount of air freight moving around PNG has doubled from 17.1m tonne-km (mtk) in 2003 to a high of 33.4 mtk in 2014, according to the World Bank. Air freight figures are calculated as the volume of freight, express and diplomatic bags carried on each flight stage, measured in tonnes multiplied by km travelled. The most dramatic growth in the sector has mirrored the waves of investment into the extractive industries, the first coming with the development of copper and gold mines in the late 1980s, during which air freight increased from an average of 8-9 mtk per year prior to 1988 to 12.9 mtk in 1989 and 18 mtk by 1995. A decade of inconsistent air freight movement followed, before a second surge in air cargo resulting from the PNG LNG project investment in 2010, as cargo flights rose by 48% from 19.3 mtk in 2009 to 28.5 mtk in 2010, and have continued to steadily increase since.

UP IN THE AIR: This boom catering to PNG's extractive resources and seafood exports has created opportunities for both domestic airlines, such as state-owned Air Niugini, and a host of charter services, but has also attracted larger regional competitors. With much of the workforce and material for these industrial products sourced from Australia, its

The PNG LNG project saw hundreds of millions of dollars spent upgrading road, sea and air links from the coast to the highlands, which will benefit both the private sector and the public for years to come.

Following the development of copper and gold mines in the late 1980s, air freight increased from an average of 8-9 mtk per year prior to 1988 to 12.9 mtk in 1989 and 18 mtk by 1995.

Shipping container traffic has grown at a controlled rate, without the spikes seen in air. For instance, air freight increased by 48% between 2009 and 2010, while container traffic rose by just 3% in the same year.

national air carrier Qantas moved to take on a growing piece of the expanding market when it launched a new weekly freight service between the two countries in June 2013. "This is a popular freight route with increasing volumes in both directions, particularly for seafood, general cargo, mining equipment and machinery," said Qantas' freight executive manager, Lisa Brock. The state of Queensland is a major source of supplies for PNG's mining sector, while also serving as a transit point for some of the country's Japan-bound fresh tuna exports.

TONNE DEALS: The new cargo flight came a month after Qantas subsidiary Express Freighters Australia, along with Sydney-based Skyforce Aviation, applied to the Australian International Air Services Commission (AIASC) for 53 tonnes of freight capacity per week each way for Australia-PNG routes. A bilateral air services agreement signed in 1980 provides for 100 tonnes of air freight per week in each direction. Skyforce Aviation, which operates Pionair in PNG, applied for 18 tonnes of this, which it was allocated by the AIASC in July 2013 for a period of three years. Pacific Air Express also extended its permit for an additional five years in April 2014 to move 17.5 tonnes per week between the two countries.

PASSENGER TRAFFIC: A similar trend took place in passenger flights over the same period, as employees working to develop the industries were shuttled in and out of PNG. With the resource development boom of the 1980s, flights increased nearly threefold from 1983 to 1984 from 18,300 to 55,400, according to the World Bank. These figures included both registered carriers departing domestically and takeoffs abroad of air carriers registered in PNG. Passenger traffic peaked in 1989 with 71,400 departures, before dwindling to less than 30,000 by 1995. The next boom, which started in the late 2000s, saw departures jump from 21,450 in 2009 to 32,741 in 2010, up 53%, after which annual departures have averaged 34,438 between 2011 and 2014.

Additional capacity continues to be added by foreign carriers eager to wrestle market share away from Air Niugini. Virgin Australia applied for an allocation of 160 seats per week for an Australia-PNG route in May 2014 but was granted a 108-seat allocation by the AIASC for five years later that month. Qantas also renewed its 888-seat-per-week allocation for an additional five years in March 2015.

CONTRAST: Illustrating the dynamic effect that air transport has on internal and external links, shipping container traffic has grown at a much more controlled rate, without the spikes seen in air travel. While air freight saw a dramatic 48% increase between 2009 and 2010, for instance, container traffic in PNG rose by just 3% from 254,592 twenty-foot equivalent units (TEUs) in 2009 to 262,209 TEUs. The sector has since shown moderate but stable growth as traffic has risen each year, to a high of 363,750 TEUs in 2014.

Airlines will play a key role in PNG's multi-modal transport options

Getting off the ground

International events are spurring airport expansion

Although Papua New Guinea's public infrastructure investment has focused more on road upgrades until recently, the country's dual hosting duties for the 2015 Pacific Games and 2018 APEC Summit have made airport upgrades a top priority. Ongoing construction is expected to see the number of airports offering international connections in the country increase from just one to three, easing congestion at the over-crowded Port Moresby International Airport (PMIA), while Nadzab Airport of the secondary city, Lae, is also set for a major facelift and the construction of a new airport city that will boost multi-modal connectivity.

Funding presents the most serious challenge to planned expansion efforts, and budgetary allocations to airport projects have been declining. The recently established Infrastructure Development Authority (IDA) will not be financed using new liquefied natural gas (LNG) revenues, raising questions about the feasibility of carrying out all the planned upgrades with public funds. While support from the Asian Development Bank (ADB) has significantly bolstered aviation investment in PNG, private participation in airport projects stands as the most viable option for future expansion, and the government is increasingly targeting foreign investment in airport upgrades under a public-private partnership (PPP) model. The PPP Act, promulgated in 2014, is expected to see a surge of new foreign investment in high-priority air infrastructure projects.

RECENT INVESTMENT: PNG's government has increasingly targeted infrastructure investment in recent years, bumping expenditures on this segment by one-third in 2014 to reach PGK2.7bn ($1bn) for major projects, including the Lae and Port Moresby City Roads, Lae Port Tidal Basin, schools and hospitals. However, airport spending has been lagging behind the budget allocations for roads and the 2014 budget only allocated PGK217.2m ($82.2m) to airport upgrades, compared to PGK1.4bn ($537.3m) for roads and bridges. Of this, PGK30m ($11.6m) was allocated for upgrades to PMIA and PGK15m ($5.7m) for the Tokua Airport in Kokopo.

However, both airport and total infrastructure spending declined in 2015, to PGK151m ($57m) and PGK2.3bn ($870m), respectively, and donor funding remains a critical source of support for PNG's airport upgrades. The ADB has played the most significant role in ongoing aviation reforms, signing a host of successive country partnership strategies with PNG, with the latest iteration, running from 2016 to 2020, allocating 68% of $436m in funding to transportation projects, split evenly between land transport and civil aviation.

INVESTMENT OPTIONS: The bank's Civil Aviation Development Investment Programme (CADIP), launched in 2009, targets upgrades at airports including Burns Peak, Radar Hill, Mount Robinson, Mount Nauwein, Mount Kegum, Lorengau, PMIA, Nadzab, Hoskins, Madang, Goroka, Mount Hagen and Tokua. A $25m reform and restructuring programme which split the Civil Aviation Authority into three separate entities – the National Airports Corporation (NAC), PNG Air Services and the Civil Aviation Safety Authority – was also launched under the programme. In the first tranche of CADIP, ADB allocated $112m to airport upgrades, including investments in a new instrument landing system and airport apron extension at PMIA, as well as upgrades at Mount Hagen Airport and Hoskins Airport, aimed at bringing them in line with International Civil Aviation Organisation standards. These security upgrades are expected to be finished by the end of 2015, while the programme's second tranche, which will close in September 2017, includes $130m of new investment.

PMIA: Upgrades to PMIA, PNG's sole international airport at present, have been a priority in light of the country hosting two high-profile international events — the 2015 Pacific Games, which took place in July, and the upcoming APEC 2018 Summit. The two-terminal airport serves as the primary hub of Airlines PNG and Air Niugini, PNG's national carrier, both of which provide domestic and international connectivity to Singapore, Kuala Lumpur, Hong Kong and Tokyo. Air Niugini is currently in the midst of a $253m fleet upgrade and

Overall spending on infrastructure projects declined in 2015 to $870m from $1bn the previous year. As a result, the private sector and foreign donors are becoming an increasingly important source of financing.

Roads have been the main focus of infrastructure spending in recent years, with the 2014 budget allocating $537.3m to road projects, compared to just $82.2m to airport projects.

Three of PNG's airports will be able to handle international traffic

The passing of the PPP Act in 2014 has paved the way for greater cooperation between the public and private sectors and is supporting new infrastructure projects.

is expanding its services regionally, most recently launching a route to Vanuatu in June 2015. Qantas and Virgin Australia also offer service to PMIA.

As work on the PNG LNG project saw a surge of new residents enter the country over the previous decade, PMIA has struggled to meet rising demand; the airport handled 1.6m passengers in 2013, and the NAC forecast traffic would rise to 1.69m in 2014, despite the fact that its maximum capacity is just 400,000.

Recognising the constraints, the government is in the midst of an ambitious $400m expansion plan, launched in partnership with ADB under CADIP. Works completed so far include construction of a new food court, parking lot, public concourse, walkways and retail facilities, and in May 2014 workers began building a 30-metre extension to the airport's north end, a 20-metre extension on the south end, and improvements to Customs and handling facilities, which will reduce the processing time for air passengers to three minutes, from 10.

In the same month the NAC announced that the expansion project's first phase was 30% complete and it wrapped up in June 2015. The next phase will entail construction of a new 35,000-sq-metre, three-storey building connecting the international and domestic terminals at PMIA. The NAC is aiming to complete the new building and facilities by the end of 2017, although it had not announced tenders for a PPP as of mid-2015.

LAE & MOUNT HAGEN: Outside of PMIA, developments at the Lae Nadzab Airport represent the most significant boost to PNG's air transport sector. In November 2014 Ben Micah, minister of public enterprises and state investment, announced plans to build a new Nadzab International Airport, as well as an expansive Airport City offering multi-modal connectivity. Stakeholders have set the ambitious target of launching international connections to Australia and Japan by the second quarter of 2016, and later to Beijing, bringing the total number of international airports in the country to three. In April 2015 the office of Prime Minster Peter O'Neill announced that the PGK60m ($22.7m) upgrade of the Kagamuga Terminal at Mount Hagen Airport was progressing well and would see the airport begin offering international flights shortly after a domestic launch planned for August 2015.

FINANCE & IDA CONCERNS: With infrastructure spending recording a modest decline in 2015 and subdued hydrocarbons prices affecting government revenues, funding constraints stand as the primary obstacle to new infrastructure projects. The government established the long-awaited IDA in 2014, which targeted rehabilitation projects using revenues from the PNG LNG project. Under a draft bill finalised in May 2014, IDA will oversee procurement and implementation of projects requiring capital investment in excess of PGK50m ($19m). Fifty such projects worth a cumulative PGK4.1bn ($1.6bn) have been identified under this scheme, including further upgrades to PMIA, as well as nearly PGK120m ($45.4m) in unspecified civil aviation projects. The government's draft Organic Law on the Sovereign Wealth Fund did not include plans to fund these projects with LNG revenues, and IDA is to be funded from annual budgetary allocations, which have been described by Australia's Development Policy Centre as "inadequate".

In light of these developments, the PPP Act stands as the most promising means to advance new airport projects. The act aims to reduce barriers to market access and bolster foreign investment, and it will see the establishment of an ADB-supported PPP centre to assist the government in developing, tendering and implementing PPPs. These reforms are expected to help improve PNG's air network in the coming years.

PNG was ranked 126th out of 160 countries for logistics in 2014

Maximising trade potential

Expanding transport projects to facilitate the flow of goods

As the largest trading economy in the Pacific region, with links to Australia, Pacific island nations and Asian economies, it is essential that Papua New Guinea have efficient transportation and logistics infrastructure to maximise its trade potential. PNG's economy is dependent on international trade, both in terms of revenue generation from exporting energy, mining and agricultural products as well as relying on imports from Australia and other countries for food, machinery and equipment.

INTERNATIONAL STORY: The country's interdependence is expected to continue, given the trend of increased trade within the Asia-Pacific region. Interconnectivity between Asia and Western markets has improved over the past few decades along, with intra-regional trade pacts like ASEAN. With robust growth in the West proving elusive, regional markets are more attractive among Asian countries, including PNG, highlighting the importance of enhancing integration.

Economic growth in Asia continues to outpace most other regions, with the IMF projecting GDP growth for Asia of 5.6% in 2015 and 5.5% the following year. The UN was slightly more optimistic in its projections, placing economic growth of the East and South Asia region at 6% for 2015 and 2016, compared to global growth of 3.1% and 3.3%, respectively. Over half of the world's trade takes place between members of regional trade agreements and while South-east Asia is shoring up its economic integration efforts through ASEAN, South Pacific nations remain less strongly integrated both economically and politically through the deals such as the South Pacific Regional Trade and Economic Cooperation Agreement, Melanesian Spearhead Group and the Pacific Island Countries' Trade Agreement.

REALISING POTENTIAL: While PNG is uniquely placed within the region to provide a wide array of raw materials and, eventually, value-added products to eager buyers throughout the Asia Pacific sphere, substantial work needs to be done to create the logistical infrastructure necessary for efficient and profitable trade. The lack of road links from the resource-rich interior of the country remains an impediment to trade, and continues to constrain the agricultural and mining industries operating there. Upgraded sea and air links are also necessary, particularly due to the lack of other transport options, while administrative and bureaucratic procedures are also in need of streamlining.

MIXED SCORES: The World Bank gave PNG a score of 2.43 out of 5 on its logistics performance index in 2014, placing it 126th of the 160 countries in the survey. The international score uses six factors to benchmark countries' performance. Calculated on a weighted average, these six key dimensions are: efficiency of the clearance process (speed, simplicity and predictability of bureaucracy) by border control agencies, including Customs; quality of trade and transport infrastructure (ports, railroads, roads and information technology); ease of arranging competitively priced shipments; competence and quality of logistics services; ability to track and trace consignments; and extent to which shipments reach their destinations on time. The 2.43 score is the highest achieved by PNG to date, although the country has overall shown little forward progress over the past seven years after posting scores of 2.38 in 2012, 2.41 in 2010 and 2.38 again in 2007.

The highest-rated category for PNG was timeliness at 2.73, down from 3.01 in 2012, though it ranked 135 out of the 160 countries included. The next two dimensions registered identical scores – 2.47 for international shipments (ranked 126) and logistics competence (ranked 115). Customs garnered a score of 2.4, a marked improvement from 1.98 in 2012, with the category capturing the rank of 107. Tracking and tracing was rated at 2.27 for a ranking of 135 with infrastructure faring the worst at 2.23 and a ranking of 127. Meanwhile, scores for both the infrastructure and Customs categories have shown moderate improvements – 0.23 and 0.24, respectively – since the initial index was created in 2007. International shipments, logistics competence, tracking and tracing, and timeliness have all demonstrated declining performance over the same period.

Asia is expected to see economic growth of 5.6% in 2015 and 5.5% in 2016, according to the IMF. However, the UN's forecast is slightly higher, at 6% growth each year.

It takes an average of about 30 days to import goods into PNG

Some $1bn was allocated to infrastructure spending – which includes transport infrastructure – in the budgets for both 2014 and 2015.

MARITIME WOES: PNG's maritime transport segment – the most crucial to foreign trade – was also found to be lacking in a number of categories. The liner shipping index ranking compiled by the World Bank indicates a country's integration level into global shipping networks. PNG's score was 6.61 out of 100 in 2013, putting it in the bottom 10% worldwide. This figure improved somewhat in 2014 to 9.02. The metric is based on five components of the maritime transport sector: number of ships, container-carrying capacity, maximum vessel size, number of services and number of companies that deploy container ships in a country's ports.

A 2014 report on PNG included in the Bertelsmann Stiftung's Transformation Index echoed this sentiment, stating, "The government encourages foreign trade, especially with those states participating in the Melanesian Spearhead Group Preferential Trade Agreement, which includes Vanuatu, PNG, the Solomon Islands and, recently, Fiji. However, bureaucratic red tape and the high cost of transportation between the island states constitute significant barriers to free trade and foreign investment. In practice, this means large and well-established companies have a distinct advantage over new entrants and small companies."

Unfortunately, these issues have not been showing marked improvement in recent years, according to the World Bank's "Doing Business 2015" report. The time it takes to import goods has increased from 2006 to 2014, from 29 days to 30 days, while the cost has risen from just over $1000 in 2006 to $1350.

The time needed to export goods has remained static at 23 days and costs $1335, compared to less than $1000 per container in 2006. Globally, PNG stands at 138 in the ranking of 189 economies on the ease of trading across borders – a relatively low ranking compare with the regional average for East Asia and the Pacific, which is significantly higher at 82.

NEW PLANS: To address shortcomings, the government has rolled out several development plans, including the National Transport Strategy 2014-30 and the PNG Road Fund. The importance of reform is reflected in budget allocations for infrastructure. A total of PGK2.7bn ($1bn) was earmarked for infrastructure spending in the 2015 budget – equal to 16.7% of annual expenditures – following an equal amount allocated in 2014 and up from PGK1.9bn ($719m) spent in 2013. These outlays are complemented by development programmes funded by foreign aid organisations and governments, along with entities such as the IMF, the Asian Development Bank (ADB) and others. The ADB, for instance, has set aside $484m to improve transportation in the Pacific region in the 2014-16 period, with PNG the single largest investment target in civil aviation, road, port, border and community water projects.

The WTO includes PNG in its Aid for Trade (AFT) programme, which targets developing countries facing supply-side and trade-related infrastructure obstacles that constrain their ability to participate in international trade. The country received $157.76m in AFT funds in 2013 for the transportation and storage sector, up 164% from the $59.7m allocated from 2006-08.

Construction & Real Estate

In search of new opportunities post-PNG LNG

New PPP Act offers promise to private sector

Infrastructure upgrades for the Pacific Games

Recent growth has driven up rental rates

New government scheme on home ownership

Public infrastructure investment rose to $1bn in 2014

A new direction

State infrastructure spending to drive growth as sector looks for new revenue sources

The construction industry experienced a marked expansion in 2010 thanks to the start of construction on the PNG LNG project, with the sector contributing 16% of GDP by 2011.

Although public spending on infrastructure is forecast to decline slightly in 2015, government investment in the sector remains high, with $870.3m in infrastructure funding earmarked in the 2015 national budget.

Although Papua New Guinea's construction sector contracted in 2014 after a four-year boom from the massive PNG liquefied natural gas (LNG) project, industry growth is expected to pick up again in 2015. New petroleum revenues are set to support the government's sizeable infrastructure investment programme, which will see major improvements to roads, ports and airports, part of the country's preparations to host the 2015 Pacific Games and the 2018 APEC summit.

The business environment remains challenging for private contractors, particularly in terms of obtaining construction permits; however, a growing emphasis on public-private partnerships (PPPs) and rising foreign financing has improved the near-term outlook, and new efforts to supply affordable housing and expand home ownership will underpin steady, long-term growth.

BOOM YEARS: PNG's construction industry experienced a marked expansion in 2010 thanks to the start of construction on the ExxonMobil-led PNG LNG project, with the sector contributing 16% of GDP by 2011, according to the Department of Treasury (DoT). The industry recorded five consecutive years of double-digit growth through to 2012, growing at an average rate of 20.38%. Meanwhile, the real value of construction activity rose from PGK1.83bn ($692.5m) in 2010 to reach an estimated PGK3.4bn ($1.29bn) by 2013.

The PNG LNG project began commercial operations ahead of schedule in April 2014, with the country delivering its first LNG cargo the following month. While this has had a positive impact on state revenues, with mining, petroleum and gas dividends hitting PGK513.8m ($194.4m) in 2014, ahead of earlier projections of PGK133m ($50.3m), the booming construction industry has slowed in the wake of the project's completion.

SLOWDOWN: In a 2014 economic forecast, the DoT projected an 8% contraction in the sector due to completion of the project, and the Asian Development Bank (ADB) reported a 6.4% decline for the year. Contractors reported disappointing growth in mining and petroleum construction, although the worst of the shocks were cushioned by state investment in infrastructure projects, while long-term plans to upgrade the national power grid and planned development of the Konebada Petroleum Park and Elk-Antelope LNG project could see the industry return to double-digit growth in the medium term (see Energy chapter).

Public infrastructure spending rose to PGK2.7bn ($1bn) in 2014, with funding for major upgrades of the Lae and Port Moresby city roads, the Lae Port tidal basin and various provincial hospitals, as well as projects ahead of the 2015 Pacific Games (see analysis).

SPENDING IN 2015: Although public spending on infrastructure is forecast to decline slightly in 2015, government investment in the sector remains high, with PGK2.3bn ($870.3m) in infrastructure funding earmarked in the 2015 national budget. Transportation in particular is set to benefit, with some PGK151m ($57.1m) in planned investment in airport upgrades, PGK50.8m ($19.2m) for port upgrades, and over PGK680m ($257.3m) for road and highway projects.

Social infrastructure will also receive a boost, with plans to invest PGK216m ($81.7m) on major works at the Angau Memorial Hospital and the New Enga Provincial Hospital, as well as PGK93m ($35.2m) for capital works at the remaining provincial hospitals. The budget also includes PGK62.5m ($23.7m) for rehabilitation works at seven universities, PGK40m ($15.1m) for upgrades to 13 technical colleges, and PGK80m ($30.3m) for works at eight teachers' colleges and eight nursing colleges. With a raft of upcoming projects, the ADB forecasts 3.8% growth in the sector in 2015.

POLICY PROGRESS: Recent policy developments have supported the roll-out of state-supported infrastructure projects. The new National Transport Strategy, launched in 2013, clarified and delineated responsibilities for various infrastructure assets, and was characterised by Australia's Development Policy Centre (DPC) as "a big step in the right direction," in a September 2014 report. The government also established the Infrastructure Development Authority (IDA) in a 2014 draft bill

that originally targeted rehabilitating and maintaining the nation's infrastructure using LNG revenues.

The IDA will oversee procurement and implementation of projects with capital investment of over PGK50m ($18.9m), with 50 projects worth a combined PGK4.1bn ($1.55bn) already identified that could fall under its purview, including PGK359.2m ($135.9m) in Pacific Games-related infrastructure, the PGK53.8m ($20.4m) Pacific Marine Industrial Zone and PGK170.5m ($64.5m) to build 116 classrooms and supporting infrastructure.

FUNDING: However, recent developments have given stakeholders cause for concern; while the IDA was originally expected to receive secure funding from PNG's sovereign wealth fund (SWF), the government's draft Organic Law on the SWF did not include plans for this, with the IDA instead to be funded by budget allocations. "In our view, this does not bode well for the establishment of the IDA. We consider reliance on annual budget allocations to fund IDA activities to be inadequate. The binding constraint for infrastructure development in PNG, particularly maintenance activities, is the availability of resources," the DPC wrote.

While the bill grants the IDA the power to invest in maintenance, according to the DPC, the authority is likely to maintain its focus on new projects, as it was modelled on the infrastructure development authority in New South Wales, Australia, which does not have the same maintenance challenges as PNG.

With infrastructure funding under the public investment programme forecast to decline from PGK1.54bn ($582.7m) in 2015 to PGK3m ($1.14m) by 2019, the government will need to develop new sources of capital to complete and maintain major projects.

REFORMS: According to the ADB, the PNG government is in the early phases of a reform strategy that is expected to lead to large gains and significantly reduce the challenges faced by private construction players. The strategy targets expansion and restoration of the road network, including user-funded maintenance activities, with the goal of delivering all-weather transportation access to 95% of the population and access to 95% of developable agricultural land, in addition to upgrades to urban traffic networks and public transit systems. Reforms will hinge on new inflows of private investment in roads, ports and airports, with a PPP-based model representing the best way forward, the ADB noted.

The government has been working towards a more business-friendly framework, with the National Executive Council (NEC) launching a comprehensive review of the existing PPP framework in 2012 with the goal of reducing barriers to market access and improving foreign inflows. These reforms got a shot in the arm with the promulgation of the long-awaited PPP Act in September 2014, which builds on PNG's National PPP Policy, first established by the NEC in 2008.

Although the original policy attempted to establish a transparent and predictable process for the PPP project cycle in an effort to mitigate project development risks, prior PPPs have nonetheless been marred by delays and budgeting problems, and this has slowed the development of critical infrastructure projects.

The long-awaited PPP Act was promulgated in September 2014

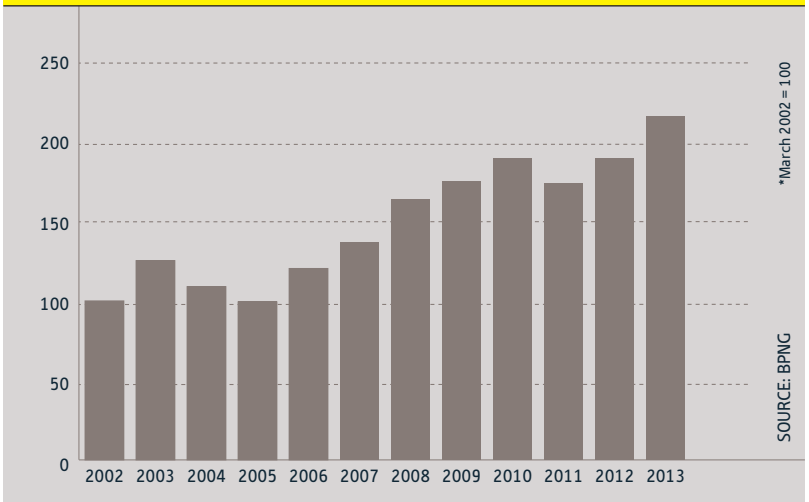
PRIVATE SECTOR: PNG fell two places in the World Bank's 2015 "Doing Business" report, and now ranks 133th out of 189 countries. It also fell two spots in the "dealing with construction permits" category to 141st place, with investors required to complete 17 procedures, taking an average of 217 days, before obtaining a permit, compared to the East Asia and Pacific average of 14.6 procedures and 134 days.

Deficiencies in the country's institutional framework have also posed significant problems for contractors who have successfully entered and bid on new government projects, including PPPs. In a 2011 report, the ADB noted the sector's poor record of completing contracts on time and within budget due to various structural factors, including flaws in the procurement and large-scale contracting processes, insufficient community compensation and the small size of the market.

At the time, there were fewer than 15 national contractors and less than five international players operating in the country, which limited the government's ability to carry out competitive tendering. Furthermore, many companies were over-committed as a result of

With infrastructure funding under the public investment programme forecast to decline from $582.7m in 2015 to just $1.14m by 2019, the government will need to develop new sources of capital.

Employment index for building & construction, 2002-13*



Many of the World Bank's 19 active projects in PNG are targeting infrastructure development

The Asian Development Bank's active portfolio in PNG comprises $1.1bn in funding, including 22 loans for 11 projects, eight grants, nine technical assistance projects, and two private sector loan and equity operations.

PNG LNG, which in turn created some development delays on key infrastructure.

OPPORTUNITIES ABOUND: The PPP Act will help to address these challenges, primarily by creating a PPP Centre to assist the government in tendering and implementing PPPs, as well as creating a PPP project pipeline. The undertaking is being supported by the ADB, with stakeholders welcoming the move, which is set to significantly reduce both the barriers to market entry and the development risks of large-scale builds.

At the same time, PNG's portfolio of private contractors has expanded considerably since 2011, creating a healthier and more robust private construction sector ecosystem that should allow for more efficient delivery of new projects. According to the Commonwealth Network, there are now 41 private construction and engineering companies active in PNG, and several major multinational firms have flourished as a result of the country's rapid economic development.

Major private firms include Avenell Engineering Systems (AES), Hebou Constructions, Lamana Development, Kramer Ausenco, Monier and Hornibrook, with *Business Advantage PNG* reporting in February 2014 that several recent market entrants have decided to stay on despite the completion of construction on the PNG LNG project, attracted by ongoing opportunities in terms of public infrastructure and growth in the housing sector. Although this has created an increasingly competitive environment for private contractors, many firms remained busy and profitable in 2014.

REAL ESTATE: For its part, AES reported several projects that were finished or near completion in early 2014, many of which were in the real estate sector, including the second stage of the Windward Apartments complex at Ela Beach and a new harbourside office building for Steamships, which was completed in early 2014. The group's upcoming project portfolio is sizeable and includes the PGK250m ($94.6m), 300-bed Enga Hospital; a PGK85m ($32.2m) refurbishment of the Marea House office building in Waigani; a PGK100m ($37.8m) office complex for the Western Highlands Development Corporation; and millions in road and bridges for the Ok Tedi Development Foundation.

Indeed, stakeholders report that as projects in the resources sector decline, construction companies are now looking to the housing sector to maintain momentum. The boom years saw housing prices skyrocket, and the government launched a national affordable housing programme in August 2014, announcing plans to allocate over PGK41m ($15.5m) in funding for institutional housing in 41 districts.

PNG has also partnered with Bank South Pacific to launch its First Home Ownership Scheme (FHOS), offering low-cost loans to first-time buyers, and private contractors have been quick to capitalise on this opening. The PGK250m ($94.6m) Edai Town project is one such participant and its developer, Portion 11, expects the development will eventually house up to 2000 residents, many of whom will be FHOS beneficiaries.

More promising still, the National Housing Corporation has announced plans to build 40,000 new affordable units for PNG citizens, at a rate of around 2000 per year. Although land allocation poses a problem, the announcement bodes well for future growth in real estate construction (see analysis).

INFRASTRUCTURE SUPPORT: With the government still hammering out the details of the IDA's framework and its new PPP scheme, foreign assistance will likely remain a critical pillar for construction growth. The industry has already benefitted from foreign assistance in recent years; the World Bank's total lending to PNG stood at $343.4m as of April 2015, with many of its 19 active projects targeting infrastructure, including the $157m second phase of the Road Maintenance and Rehabilitation Programme, which has already seen improvements to national and provincial road networks elsewhere in the country. The Australian Agency for International Development (AusAID), meanwhile, has committed up to $786m for infrastructure upgrades between 2007 and 2019.

ADB: PNG's partnership with the ADB, however, is perhaps the most significant for the country's construction portfolio. PNG joined the ADB in 1971, and today stands as the bank's largest Pacific region borrower for public and private sector development, while the bank represents the nation's second-largest development partner after AusAID. The ADB's active portfolio in PNG comprises $1.1bn in funding, including 22 loans for 11 projects, eight grants, nine technical assistance projects, and two private sector loan and equity operations. Although the bank has been active in providing employment and finance programmes, it has focused much of its activity on transport and infrastructure.

In March 2015 the ADB announced it had approved a five-year country partnership strategy with PNG, from 2016 to 2020, which will support government efforts to remove infrastructure bottlenecks, as well as barriers to job and business creation. The country will receive $637m in funding in the first phase of the strategy to upgrade the national transportation networks and develop new renewable energy and power projects.

SEA & AIR: Through its partnership with the ADB, PNG has made significant progress in updating major infrastructure, most notably the Lae Port tidal basin, in addition to improvements under way at its airports. With 15 of the country's 20 provinces located in coastal areas, over 60% of the population widely dispersed across the country and land links in need of repair and expansion, sea transport represents a critical lifeline for the country, and upgrades at Lae Port have been a welcome development for the business community.

In progress since 2005, the Lae tidal basin project will greatly expand the port's cargo handling capacity, which stood at 3.3m tonnes in 2011. Current construction is being carried out by the China Harbour Engineering Company (CHEC) under a contract awarded in March 2012. While the second phase is set to begin in the near term, the operating environment has added to costs. "We have spent anywhere from 5-10% on security for the completion of the Lae tidal basin project, and if you considered that this was a PGK800m ($302.7m) project, one gets a sense of the impact that law and order has on business developments in PNG," Ma Jinhua, CHEC's general manager, told OBG. The ADB's second flagship project, the $640m Civil Aviation Development Investment Programme, will upgrade safety and security infrastructure at seven airports, including Jackson's International Airport in Port Moresby.

ROADS: PNG's road infrastructure has been identified as one of the foremost impediments to conducting efficient business operations in the country. As such, road construction stands as the future opportunity with perhaps the most potential for private contractors. Infrastructure is set to receive a total of PSK2.3bn ($870.3m) in 2015, some PSK681.9m ($258m) of which will be allocated to roads. The government has also partnered with a host of foreign players in recent years to roll out major highway projects.

The World Bank has committed $126.5m to the Road Maintenance and Rehabilitation Programme's second phase, approved in February 2014, while the ADB's Highlands Region Road Improvement Programme launched its second phase, with $109m of new funding, in December 2013, which will see improvements to 118 km of priority national roads and maintenance work on 500 km of national highways.

OUTLOOK: Despite facing headwinds in 2014, the construction industry is expected to return to growth as the government, private sector and foreign entities work to address PNG's sizeable infrastructure backlog. Policy reforms aimed at transforming the country's institutional framework have led to cautious optimism among stakeholders, with the new PPP Act and the IDA lending a brighter near-term outlook to construction growth. Plans to deliver thousands of new affordable housing units will further support long-term expansion, and although construction on the PNG LNG project has ended, considerable future opportunities exist in infrastructure, real estate and eventually new energy builds.

PNG's road infrastructure has been identified as one of the foremost impediments to efficient business operations. To that end, $258m in infrastructure spending for 2015 is being allocated to roads.

Marcelo Minc, Country Director, Asian Development Bank's (ADB) Papua New Guinea Resident Mission

A long-term partner

OBG talks to Marcelo Minc, Country Director, Asian Development Bank's (ADB) Papua New Guinea Resident Mission

What role should development partners play in the context of the Papua New Guinea economy?

MINC: As part of the Country Partnership Strategy (CPS), ADB plans to invest as much as $1bn in the next five years in PNG, while the development partners' contribution as a whole accounts for 10% of the national budget. These numbers give you an idea of the importance that partnerships hold for the country's development. However, while the ADB concentrates on removing infrastructure bottlenecks – as we believe that this is one of the biggest stumbling blocks to alleviating poverty anywhere in the world – more could be done, in our opinion, to implement some of these major projects.

Improving implementation is the next step for development partners. If we help the government with implementation in the second half of projects, the difference can be truly substantial when it comes to the goal of achieving inclusive and environmentally sustainable growth with investments in transport and energy. It would also reduce the overall cost of doing business and create more jobs, which represents one of the biggest challenges for PNG. In general, there has been significant progress in recent years, but much more remains to be done to improve implementation, without which it will be impossible to achieve long-term strategies, for us or for any other development partner.

How could the city of Lae make the most of the new extension of the port and unblock congestion to reposition itself as a regional hub?

MINC: The completion of the first stage of Lae's port upgrade, including a tidal basin, a multipurpose berth and terminal works, significantly boosts cargo handling capacity at PNG's busiest port, and the government has already launched phase two of the project. In our opinion, there is great potential for Lae to be transformed into a regional transportation centre, once phase two of the upgrade is complete, meaning that the port will be able to handle Panamax-sized ships. However, the financial structure for this second phase will be more complex than just a simple loan and for this reason we think that a public-private partnership agreement would be the best formula for moving the project forward.

In fact, we have put together a package that enables the ADB to function as a guarantor, vis-a-vis a private sector partner, so that it can operate the port while also attracting additional private institutions in the future. This type of approach is extremely common on the international market and, as far as we have seen, there is substantial interest from large multinationals to enter into a public-private partnership structured in this manner.

What kind of legislation is needed in order for PNG to streamline the transportation sector and emerge as a regional logistics leader?

MINC: Thanks to its vast natural wealth, PNG has immense potential to emerge as a regional leader, and not only in transportation in my opinion. With the right reforms in place, we expect that new business will emerge while existing ones expand, so that the benefits of future resource exports could be spread across the economy for decades to come. Capital will unlock the potential of rural workers and that is why we believe that upgrading the national transport network to improve services delivery should be a priority – it will spur economic growth.

PNG is a large country in the Pacific region and the biggest obstacle to its development is the lack of connectivity, which could alleviate poverty if reversed. As a development partner, we implement our projects following the government's input and initiatives, which involve long-term planning for the country. However, the fact that 68% of our investments are dedicated to infrastructure development projects indirectly suggests to the government what we think are the development priorities for PNG.

PNG hosted the Pacific Games for the third time in July 2015

Game on

Preparations for the 2015 Pacific Games created plenty of work for private contractors

The construction boom from the Papua New Guinea liquefied natural gas project may be slowing after years of fast growth, but the sector is still in the midst of expansion, led by infrastructure projects ahead of the 2015 Pacific Games. An opportunity to showcase the country's rapid development and natural beauty, the games prompted major upgrades to stadia and transport networks, to the benefit of private contractors.

WINNING BID: The games, which took place July 4-18, 2015, attracted more than 3000 athletes and thousands of spectators from 21 neighbouring Pacific nations, with 28 separate sporting events. This marked the third time that PNG had hosted the event, and coincided with celebrations marking 40 years of independence.

The arrival of thousands of tourists for the games gave extra impetus to existing infrastructure development plans, with a wide array of construction projects, including stadia and airport upgrades, and the building of commercial facilities, helping to underpin construction sector growth in 2015.

GOOD TIMING: With GDP growth set to reach 15% in 2015, according the Asian Development Bank (ADB), the government now has the fiscal space needed to move forward on infrastructure projects. After the 2014 budget increased infrastructure spending to PGK2.7bn ($1bn), including PGK180m ($68.1m) related to the Pacific Games, the 2015 budget promised even higher spending, with an estimated PGK360m ($136.2m) for Pacific Games infrastructure alone. According to the National Capital District Commission, more than PGK3.2bn ($1.2bn) in infrastructure projects were under way in August 2014, including PGK200m ($75.7m) for an athletes' village at the University of PNG, PGK109m ($41.3m) for the Taurama Aquatic Centre and over PGK260m ($98.4m) for stadia upgrades.

AIRPORT: Infrastructure upgrades were critical as the country prepared for an influx of visitors, with Jackson's International Airport (JIA) in Port Moresby, PNG's sole international airport, handling more than 1.5m passengers annually, despite maximum capacity of closer to 400,000. The PGK140m ($53m) expansion was completed in July 2015. JIA's terminal facilities can now process up to 2m passengers per year, while efficiency improvements have reduced the average passenger processing time from 7-10 minutes to three. The next phase, which plans to expand another 26,000 sq metres of the terminal building, will help to further absorb rising passenger numbers ahead of the 2018 APEC summit, also to be hosted by PNG.

STADIA: The government has invested heavily in stadia upgrades, including PGK60m ($22.7m) for refurbishments at the Sir John Guise Indoor Complex, which doubled its capacity to 2000 people. The construction contract for the project was awarded to Phoenix Construction, with New Zealand's Peddle Thorp Architects acting as project designer. Peddle Thorp also provided design work for the 15,000-sq-metre Taurama Aquatic and Indoor Sports Centre.

Port Moresby has also welcomed PGK150m ($56.8m) in outside investment to reconstruct a multipurpose stadium to replace the Sir Hubert Murray Stadium in Port Moresby. The sprawling complex is being constructed in the heart of the city, offering a football and rugby field, gymnasium, and facilities for Paralympics events and weightlifting, with total capacity of 18,000.

STEADY WINS THE RACE: According to a report from the Department of Treasury, although construction on Pacific Games projects was delayed by six months, progress was largely satisfactory thereafter, with overall implementation at 65-70% by early 2015, and the games going ahead as scheduled in July.

Thanks to preparations for the Pacific Games and investment in public infrastructure development, the construction sector is likely to witness a modest recovery in 2015, with the ADB forecasting expansion of 3.8% for the year, helping contractors to maintain growth and profits into 2016. According to contractors that OBG spoke with, however, overspending on the games has also resulted in delays in payment from the government and work on some projects remains on hold.

The arrival of thousands of tourists for the games gave extra impetus to existing infrastructure development plans, with a wide array of construction projects, including stadia and airport upgrades, and the building of commercial facilities, helping to underpin construction growth in 2015.

Thanks to preparations ahead of the Pacific Games and public infrastructure investment, the construction industry is likely to witness a modest recovery in 2015, with growth forecast at 3.8%.

The housing CPI rose from 92.3 in 2011 to a high of 126.3 in 2014

Making space

Affordable housing schemes and the commercial and industrial segments are offering new opportunities for investment

The Department of Treasury reported collective growth of 69% in the finance, real estate and business services sectors between 2008 and 2013 to reach $260m.

Much like the construction industry, Papua New Guinea's real estate sector has recorded strong growth in recent years as the nation rolled out its $19bn PNG liquefied natural gas (LNG) project. Rising inflation, as recorded in the country's consumer price index (CPI) housing category, saw property prices and rental rates spike between 2008 and 2013. This trend continued into 2014, suggesting that the property market is likely to remain on an upwards trajectory, reinforced by robust GDP growth and a growing urban population.

At the same time, developers are moving to capitalise on the government's plans to deliver tens of thousands of housing units in the affordable segment. This has remained underdeveloped for decades despite the best efforts of the National Housing Corporation (NHC). With a new emphasis on private sector participation in the housing programme, developers are slated to see sustained growth in 2015 and the commercial segment is forecast to remain strong, with favourable macroeconomic growth, and a host of new energy and mineral resource projects set to launch in 2015.

GROWTH TRAJECTORY: Although sector-specific data is limited, available statistics show PNG's real estate sector has undergone a marked expansion in recent years. The Department of Treasury (DoT) reported collective growth of 69% in the finance, real estate and business services sectors between 2008 and 2013 to reach PGK687.2m ($260m).

Meanwhile, Port Moresby's Gerehu suburb saw a 236% increase in nominal house prices over the same period, according to the National Research Institute (NRI). Rental and housing inflation echoed this, with the housing CPI up from 92.3 in 2011 to a high of 126.3 in 2014. The Bank of PNG (BPNG) reported that the housing category of the CPI rose by 14.9% in the fourth quarter of 2014 alone, indicating that the boom years are far from over (see analysis).

INDICATORS: The performance of PNG's two largest property investors, Nambawan Super and Nasfund, are widely viewed as proxies for the health of the real estate sector, and both have recorded strong profit growth in recent years. Despite a gradual slowdown in LNG construction, Nasfund's net profit rose by 50% to PGK335m ($126.8m) in 2013, while Nambawan Super's profits were up 17% at PGK410m ($155.1m).

The trend continued in 2014, with Nasfund announcing net profits of PGK258.5m ($97.8m) for the year – a moderate decline compared to 2013, but still higher than officials had anticipated, given the overall economic slowdown triggered by the end of PNG LNG construction. Nambawan Super, meanwhile, posted net profits of PGK338m ($127.9m), similarly lower than in 2013, but a solid performance nonetheless.

SUPPLY SIDE: A significant influx of high-end units in Port Moresby has seen the residential market contract somewhat in recent months. New offerings include the 69-unit Avara Apartments Complex and Square, currently under development by Malaysia's Khor Eng Hock & Sons, as well as the PGK1.4bn ($529.8m) Seaview International Gardens, which broke ground in May 2013, with Chinese developer Jinyn Developments reporting it will include 122 apartment units priced between PGK1.7m ($643,280) and PGK4m ($1.5m).

Developers are also moving forward on the second stage of the Windward Apartments, with work on the original 12-storey, 24-unit apartment block originally finishing in 1987. Phase two will see a new 13-storey residential complex add 40 new luxury apartments to the market, with construction kicking off in 2014.

Century 21 Siule reported in May 2014 that market maturation and an increase in availability saw top-end rents decline by up to 30% from their 2011-12 peak, with rents in the mid-range segment falling by 10-20%. Prices were largely unaffected at the lower end of the market, as affordable housing remains in critically short supply, owing to a combination of low average incomes, high mortgage rates and a lack of land to develop.

This has presented considerable opportunities for property developers in the affordable housing segment, with the government planning to invest PGK70m

($26.5m) in its National Land and Housing Programme in 2015, with total funding to reach PGK178m ($67.4m) by 2019. The outlook for the residential segment nonetheless remains mixed; a January 2015 article in local property portal Hausples reported that while Century 21 Siule and DAC Real Estate expect prices – and rents in particular – to decline in 2015, others, such as LJ Hooker, are projecting that prices will remain flat or even possibly rise over the year.

INVESTMENT ENVIRONMENT: Recent price fluctuations notwithstanding, the country's real estate market is generally favourable to property investors. The government has been active in promoting and developing alienated land and establishing industrial centres to attract investors. The country has established a number of new free trade zones (FTZ), with the Free Trade Zone Act No. 18 of 2000 granting investors unrestricted access to land in FTZs.

Tax regulations also demonstrate PNG's openness to real estate investors. According to the Global Property Guide, rental income earned by non-residents is taxed at progressive income tax rates, ranging from 22% to 42%, though capital gains unrelated to business-making activities are not taxed.

The country also has no inheritance tax. Purchase costs are relatively low and buyers only pay for the stamp duty, which ranges from 2% to 5% of the property value. Moreover, developers launching new projects in rural areas can qualify for a 10-year exemption from corporate income tax.

ACTIVE PLAYERS: There are a number of private real estate agencies active in the country, most notably the Professionals Real Estate Group, which has offices in Port Moresby, Lae, Mt Hagen and Madang, and resident agents in Rabaul, Wewak and Goroka. Other notable players include Century 21 Siule, DAC Real Estate, Pacific Comfort Real Estate and PNG Real Estate.

Employment in the sector is also rising; in its June 2014 quarterly economic update, the BPNG reported that employment in the business services sector, including real estate, expanded by 0.4% in the second quarter 2014, driven in part by new recruitment in the property management division of an unnamed real estate company in Port Moresby's National Capital District.

LAND REFORMS: Government reforms are also helping to drive development. Land in PNG is categorised as either alienated land, owned by the government and mainly located in urban areas, or customary land, which comprises 97% of the total supply.

The government has introduced two notable land reforms in recent years; the Land Groups Incorporation Amendment Act of 2000 and the Land Registration Amendment Act of 2009 – both of which were enacted in March 2012.

The Land Groups Act provided the legislative framework for customary landowners to incorporate as legal entities and register their unused land to be leased, while the Land Registration Act allows for leases of up to 99 years, in addition to permitting mortgages to be created and used as security or transferred. In addition, the act allows mortgage providers to enter and take possession of land in the event of a default – an important reform aimed at bolstering investor confidence.

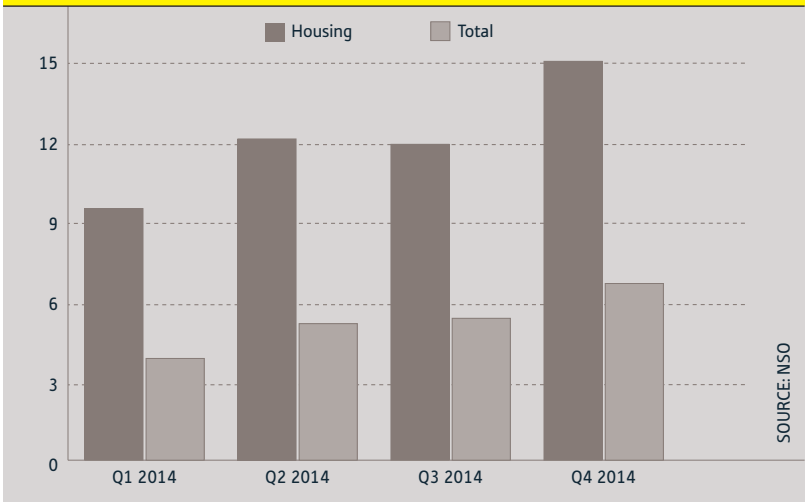
An influx of high-end units has seen the residential market contract

Unfortunately, land allocation remains one of the most significant challenges to real estate development, particularly in terms of developing more affordable housing. The process of acquiring land is costly, complicated and time-intensive, and this will likely require further reforms if the government is to meet its ambitious affordable housing goals.

LENDING: Given the lack of sector-specific data, lending provides another good indication of real estate activity. According to the BPNG, total lending to the private sector, public non-financial corporations, and provincial and local governments rose by a total of PGK796.8m ($301.5m) in the fourth quarter of 2014 to reach PGK14.3bn ($5.4bn). This was driven by increases of PGK354.8m ($134.3m) and PGK442m ($167.3m) in new lending to the private sector and public non-financial corporations, respectively. The BPNG reported a broader rise in lending across several sectors, including real estate (disaggregated data is not available), with annualised domestic credit growth at 11.8%.

Rental income earned by non-residents is taxed at progressive income tax rates, ranging from 22% to 42%, while capital gains that are unrelated to business-making activities are not taxed.

Year-on-year inflation, 2014 (%)



Securing land titles continues to be a significant challenge for real estate developers

The first six months of the government's First Home Ownership Scheme saw $1.6bn in new home loans provided to programme participants.

PRICE TAG: With real estate lending on the rise, home ownership is expected to expand in the coming months, although interest rates remain elevated at most institutions in the country. According to a March 2015 report from the NRI, average annual interest rates on housing finance as of the fourth quarter of 2013 stood at 9.1%, with banks that are active in both Australia and PNG often charging considerably higher rates on residential loans in PNG than in Australia. In one example, rates in Australia were 5.88% plus a $5 monthly fee, compared to 9.25% plus a quarterly account administration fee of 0.16-0.35% of the loan value in PNG.

PNG's mortgage rates are some of the highest in the region. Overall lending rates averaged 10.5% between 2010 and 2013, according to the World Bank, compared to 10.2% in Samoa, 7% in Fiji, 5.9% in New Zealand, and 5.5% in Vanuatu, although rates in the Solomon Islands averaged 12.4% over the period. The NRI attributes PNG's high rates to low levels of competition in the banking sector and an elevated incidence of default, with high rates and restrictive lending conditions continuing to inhibit expansion of home ownership in the country. For example, some commercial banks require a minimum equity of 35% for a home loan, which is a substantial burden for borrowers. Indeed, continuing price rises in the real estate sector have caused increasing concern that affordability is at an all-time low.

AFFORDABLE INITIATIVES: The government has accordingly taken steps to address this issue, launching the First Home Ownership Scheme (FHOS) in September 2014. The initiative, which offers long-term mortgages at 4% interest rates to first-time buyers, was initially limited by the requirement that potential homeowners obtain a land title as security for the loan.

New LNG revenues will allow the government to move forward on a long-awaited infrastructure development programme that will see significant upgrades to PNG's roads, ports and airports.

To rectify this, the government later announced it would release 40,000 new plots of land with free titles to facilitate the programme's roll out. As a result, the first six months of the scheme saw PGK4.2bn ($1.6bn) in new loans provided to FHOS participants, with Hausples reporting that real estate agents in Port Moresby expect the initiative will lead to higher sales of homes in the PGK200,000-700,000 ($75,500-265,000) range.

The scheme will also benefit property developers like Portion 11 Management, which is currently overseeing construction of the PGK250m ($94.6m) Edai Town project. Located just outside of Port Moresby, Edai Town is a 500-unit gated community with prices ranging from PGK280,000 ($106,000) to PGK500,000 ($189,000) and above. Upon completion it will house up to 2000 residents, and include ancillary facilities such as police and fire stations, retail space and office buildings, with Portion 11 offering financing to potential buyers under FHOS. This will be particularly advantageous for buyers who are unable to secure their own land title, and marks an important step forward for development of affordable housing in the country.

While recent construction activity has largely focused on development of the PNG LNG project and related works, new LNG revenues – albeit lower than originally projected due to weaker oil prices – will allow the government to move forward on a long-awaited infrastructure development programme that will see significant upgrades to PNG's roads, ports and airports (see Construction chapter) and simultaneously make significant progress in addressing the nation's housing shortage through the NHC's Build-Sell-Share scheme. As part of the NHC's broader National Housing Policy Framework, the government also expects to deliver 40,000 new affordable units to its citizens over the next 20 years (see analysis).

COMMERCIAL & INDUSTRIAL: Stakeholders report that demand for commercial property in Port Moresby remains strong despite completion of the PNG LNG project, with the majority of demand concentrated in the Gardens area in the city centre, as well as the western coastal neighbourhood of Harbour City. In May 2014 David Conn, CEO of the Port Moresby Chamber of Commerce and Industry, told *Business Advantage PNG* that market confidence was being supported by the government's planned infrastructure investments, which has led many private construction firms to maintain a long-term presence in the country. Citing the examples of the DoT's planned new office complex, new units under construction for ExxonMobil in Harbour City and the potential commercial development of the Paga Hill region, Conn said he expects growth in Port Moresby's commercial real estate market to be robust in 2015.

Industrial development is also expected to accelerate in the coming years as the government moves to further develop PNG LNG-related infrastructure. For instance, the 72-ha Ravuvu Business Park, located on the western shores of Fairfax Harbour, is already operating as a warehousing, logistics and staging point for incoming shipments, offering a variety of commercial and industrial facilities, while Curtain Brothers' PNG Dockyard has been constructing a new dry dock facility, valued at PGK500m ($189.2m), allowing for ship repair at Fairfax Harbour and significantly increasing the country's competitive advantage.

Long-term industrial development will be supported by the planned Konebada Petrochemical Park and

the Independent Public Business Corporation's plan to relocate the Port Moresby port.

LAE: Outside of Port Moresby, the real estate market in the second city of Lae is also showing robust growth, particularly in the commercial segment. *Business Advantage PNG* reported in February 2014 that although weaker demand for executive rentals has affected the property market, rising demand for new commercial space is expected to drive future real estate growth in Lae. Indeed, the city has welcomed a number of new industrial and commercial developments in recent years, with more expected in 2015 and beyond.

Paradise Foods is currently building a new Pepsi bottling plant in the city, while SP Brewery is in the midst of a multi-year capital investment programme for its plants in both Lae and Port Moresby. Perhaps most significantly, Nestlé unveiled the first stage of a $9.5m expansion of its plant in Lae in February 2014, which is expected to boost production by 30%.

That being said, future growth is still likely to face some challenges. Joe Tupana, property manager at Arthur Strachan Real Estate, told OBG that most of the city's commercial buildings, including warehouses and workshops, are all completely leased, while new developments are constrained by lack of available land.

However, new infrastructure projects have improved the outlook for commercial and industrial development. In July 2014 authorities announced plans to develop plots of land surrounding the Lae Nadzab Airport. Located around 40 km outside of Lae, the airport is already undergoing upgrades to its operational facilities under the supervision of the National Airport Corporation (NAC), with the expansion to focus on developing the surrounding area. According to the NAC, the planned airport city at Lae Nadzab Airport will include commercial land for airport and transportation businesses, truck parking bays, retail outlets and hospitality facilities. The authority has issued a call for expressions of interest from commercial developers, offering a potential solution to Lae's land shortages.

HOW PROVINCIAL: With land supply limited in Port Moresby and Lae, ambitious developers are increasingly seeking new opportunities outside of PNG's major urban centres. East New Britain presents considerable opportunities in this regard. Although its former capital city Rabaul was largely destroyed by volcanic activity in 1994, the new provincial capital, Kokopo, is the fastest-growing city in the country.

A number of new projects have been planned within Kokopo's city limits, including the Gazelle International Hotel, the Gazelle Restoration Authority and the Kokopo Sports Stadium. Recent years have already witnessed the development of a number of new housing estates, including Tibur, Kenabot and Takubar, while the Warangoi area represents an undeveloped, high-potential location for future development.

In March 2015 Thomas ToBunbun, chairman of the East New Britain chapter of Communal Land Development, said the province plans to move forward on a number of mixed-use developments in the coming years, emphasising the growing opportunities for tourism development in the province. ToBunbun lauded the connection that was established between Kokopo and the Tokua airport, which has facilitated tourism development and stimulated the local economy.

PNG's mortgage rates are some of the highest in the region, averaging 9.1% as of end-2013

Madang province, located on the country's northern coast, has also been identified as a rising real estate destination owing to several factors, including a growing community of people who have relocated from other parts of the country. This has prompted an increase in investment in new residential builds.

The province's residential property market is likely to receive a further boost as the country moves to establish the long-awaited Pacific Marine Industrial Zone (PMIZ) in Madang, with the Chinese contractor Shenyang International signing a $95m agreement to develop the free zone in March 2013.

New investment in fisheries is expected once early infrastructure works are completed, and the government has budgeted more than PGK50m ($18.9m) annually between 2014 and 2018 to develop the PMIZ. The zone is likely to have positive knock-on effects for the local economy, with Prime Minister Peter O'Neill forecasting that the PMIZ will generate PGK2bn ($756.8m) in economic activity per annum and create 20,000 jobs.

OUTLOOK: Although the real estate sector is unlikely to return to the highs witnessed during the PNG LNG construction boom, the industry remains robust, supported by the government's efforts to roll out new affordable housing units, as well as infrastructure development projects that will keep the construction and real estate industries on a growth path in 2015.

With GDP growth expected to reach 15% in 2015 – nearly double the 8% growth that was recorded in 2014 – the country's real estate market will likely remain vibrant and active into 2016. Although issues surrounding land allocation continue to hinder major new developments in PNG, the government's plans to deliver new land plots and expand the areas available to commercial and industrial companies, particularly outside of Port Moresby, bode well for future sector growth.

With land supply limited in Port Moresby and Lae, ambitious developers are increasingly seeking new opportunities outside of PNG's major urban centres.

With GDP growth expected to reach 15% in 2015, nearly double the 8% growth recorded in 2014, the real estate market will likely remain vibrant and active into 2016.

PNG's urban population is expected to reach 3.5m by 2030

Up and away

Capital inflows and urbanisation are driving up rental rates

Rental rates for high-end residential units in Port Moresby doubled between 2008 and 2012, to $2080 to $3000 per week.

The residential real estate sector has soared in recent years, as the government wrapped up construction on the $19bn PNG liquefied natural gas (LNG) project in Port Moresby. With rents and home prices showing a sharp increase, there is a growing concern that home ownership remains out of reach for the average citizen. If the strong GDP growth projections for 2015 are any indication, PNG will continue to grapple with elevated residential prices. While inflation is expected to ease in 2015, an ongoing shortage of mid-range and affordable housing units will see residents confronted with high property prices, though government efforts to roll out new low-cost units could change this situation over the medium term.

RESOURCE RUSH: The PNG LNG project had an significant impact on real estate activity, with the sector outperforming much of the rest of the economy in recent years, bolstered by knock-on benefits from rising foreign direct investment (FDI) and urbanisation. The country's urban population grew from roughly 700,000 in 2000 to 1.2m as of 2012, according to a report by the Alfred Deakin Research Institute, and is expected to reach 3.5m by 2030.

The PNG LNG project, which began production in April 2014, has already started to yield economic benefits, with PNG set to record the world's highest GDP growth in 2015; the Asian Development Bank (ADB) expects 15% growth, though falling oil prices have darkened the near-term forecast for LNG revenues.

INFLATION: Growth has been accompanied by rising inflation, with housing prices recording double-digit average annual growth in 2010-14. The Bank of PNG (BPNG) reported that annual headline inflation was 6.6% in the fourth quarter of 2014, up from 2.9% the year before. Don Poyle, the former minister of treasury, told media in June 2014 this was being driven by an influx of public and foreign capital. Although this has had a positive impact on the economy, it has also seen rental and property prices soar. As PNG LNG construction accelerated, 2011 saw a marked rise in the housing consumer price index (CPI), which rose to 92.3. Inflation continued on a strong upwards trajectory, reaching 101.8 in 2012 and 112.7 in 2013. By the end of 2014, it had hit 126.3.

As a result of capital inflows and urbanisation, rental rates for high-end residential units in Port Moresby doubled between 2008 and 2012, to PGK5500 ($2080) to PGK8000 ($3000) per week, with developers in the segment earning returns of 10-15% on new projects. By 2012 the median price for high-end houses in the city stood at $670,000 and $200,000 for apartments, according to a report in *Property Observer*, while availability of mid-range and affordable units simultaneously declined. The IMF warned that the high-end expat market was becoming saturated as early as 2011, with concurrent increases in building costs creating significant challenges for new builds, particularly in the mid- and low-end segments.

UNAFFORDABLE: Indeed, Community Housing Limited (CHL), a non-profit affordable housing company active across Asia, reported in August 2014 that the average employed Port Moresby resident can afford home prices up to PGK240,000 ($90,800), which should be enough to cover the cost of a 400-sq-metre, two-bedroom house and land package, although rising inflation has made this all but impossible.

"An 'affordable dwelling' for sale is more than double this price on the market, and private rents are exorbitant. Close to 97% of the land in PNG is customary land and unable to be developed for housing and other uses. The shortage of affordable housing is a major challenge in PNG," CHL's report noted.

The Bank of PNG reported a 14.9% increase in the housing consumer price index in the fourth quarter of 2014, painting a gloomier forecast for renters and buyers.

Real estate inflation continued to rise last year, with BPNG reports of a 14.9% rise in the CPI's housing category in the fourth quarter of 2014 painting a gloomier forecast for renters and buyers. However, the ADB projects inflation will steady at 7% in 2015 and 5% in 2016, while new state initiatives to deliver affordable housing units should offer mid-term relief to first-time and low-income homebuyers (see analysis).

Andrew Potter, General Manager, Pacific Palms Property

Change of housing

OBG talks to Andrew Potter, General Manager, Pacific Palms Property

With real estate prices in Papua New Guinea gradually coming down, is the country likely to see an end to its property boom?

POTTER: Historically the residential market in PNG has seen high demand and short supply. This has led to a construction frenzy over the last few years, even though at the moment the market is in consolidation mode. The premium segment is in fact coming down significantly – by as much as 25-30% – but prices at the lower and middle end stayed roughly the same, and the market is nowhere close to experiencing the burst some people had predicted in the past. Though the residential segment is experiencing a bit of deceleration, this is not always bad news, as it provides an opportunity for renovation, especially of mid-tier properties that have hardly been attended to since 2009.

Meanwhile, commercial real estate activities in Port Moresby and other major centres remain quite healthy and have retained momentum as investors continue to look for new opportunities in these segments. In this state of affairs, competition in the future will gravitate towards improved services, due to increased demand for better facilities in real estate investments. What used to be palatable four or five years ago would not withstand today's level of competition.

With the PNG liquefied natural gas (LNG) project fully operational and thus employing a fraction of the workforce used during its construction, do you expect a further decrease in housing demand?

POTTER: As many as 20,000 people were employed during the peak construction period, but most of them resided on-site, so the residential segment did not benefit directly, although Port Moresby hosted a handful of LNG workers and there was an exceptional influx of lawyers, engineers and other professionals. Moving forward, new energy projects in the pipeline, especially the Total/InterOil LNG project, coupled with general business confidence in the economy, should sustain the market for residential and commercial properties.

Rental prices remain prohibitive, especially in the major cities. What steps must be taken to normalise the market and boost development?

POTTER: The only measure that could truly make a difference is if more state land is finally freed up. Currently most land is customary. There is mounting demand, especially for commercial properties, yet it is nearly impossible to find available land for development in Port Moresby, Lae and Mount Hagen, where virtually every new project must be a joint venture with local partners, as most of the cities' commercial properties are fully occupied. In short, there is definitely a problem of supply, but certainly not of demand. The same is true for retail; customer demand is maturing, which may mean more opportunities in this area.

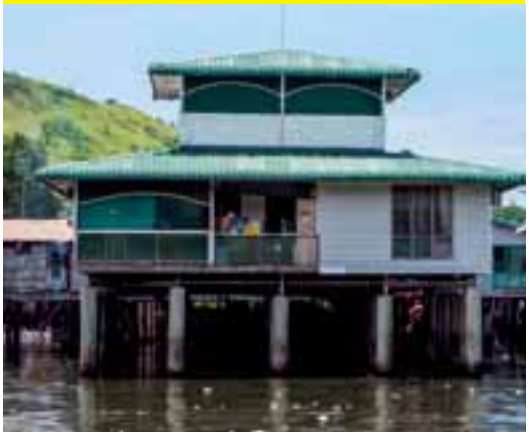
To what extent can the private sector help meet PNG's urgent need for affordable housing?

POTTER: More and more people are migrating to major cities, and this influx will most likely increase as the highways connecting the capital with Lae and the Southern Highlands are progressed. This will put greater stress on the city's infrastructure, which already operates at maximum capacity and often beyond.

Yet the cost of doing business in PNG continues to be prohibitive, and venturing into affordable housing is quite risky. It would be unrealistic, therefore, to expect significant involvement from the private sector in the process of jump-starting affordable housing.

Given the limitations of customary land ownership, where are cities like Port Moresby likely to expand?

POTTER: Revamping parts of the cities will create new opportunities for mixed-use real estate projects, as seen in other cities around the world. In Port Moresby there is great potential to develop the harbour area, as the commercial port will be relocated to Motukea Island just across the bay within the next five years. We can expect more office, residential and commercial projects to follow, redefining the real estate market in PNG.



PNG LNG put upwards pressure on rents and property prices

A place to call home

Government efforts under way to build affordable housing

The housing consumer price index reported average annual growth of 11% between 2011 and 2014, and rental rates in the high-end segment roughly doubled between 2008 and 2012.

First-time and low-income homebuyers in Papua New Guinea face significant obstacles to property market entrance. A five-year construction boom due to the recently completed PNG liquefied natural gas (LNG) project placed upward pressure on inflation, rents and property prices, while the nation remains one of the poorest in the Pacific, putting homeownership out of reach for the majority of citizens.

However, with robust GDP growth forecast for 2015 on the back of new energy revenues, the government is moving to address the affordable housing shortage, launching a host of new initiatives aimed at expanding home ownership across the country. Although some challenges persist, particularly in terms of land allocation and high construction costs, several of these new initiatives have already met with considerable success, lending an optimistic outlook to homeownership growth in PNG.

HOUSING CHALLENGES: Although the nation's $19bn PNG LNG project, which began commercial production in April 2014, has offered PNG enormous economic benefits, with GDP growing by 8% in 2014 and set to reach 15% in 2015, the project has also created significant challenges for the real estate sector. Rapid growth has seen inflation, and housing and rental inflation in particular, soar in recent years, with the housing consumer price index (CPI) reporting average annual growth of 11% between 2011 and 2014, and rental rates in the high-end segment roughly doubling between 2008 and 2012.

By 2012 the median home price for high-end residences in Port Moresby stood at $670,000 for houses and $200,000 for apartments. Affordable housing prices also rose significantly, with non-profit affordable housing company Community Housing Limited estimating the average price of an affordable home was close to PGK480,000 ($181,600) in August 2014.

By 2012 the median home price for high-end residences in Port Moresby stood at $670,000 for houses and $200,000 for apartments.

According to the IMF, the poverty rate hovers at 40% and the nation ranks 156th out of 187 countries on the human development index as of 2014, making PNG one of the poorest and least-developed countries in the Pacific. This presents considerable challenges to residents hoping to climb the property ladder, challenges which have been exacerbated by high rental and lending rates (see overview), while housing inflation has recorded double-digit average annual growth between 2011 and 2014. The government and private sector are both moving to address these challenges, with the National Housing Corporation (NHC) set to play an increasingly prominent role in addressing PNG's housing shortage.

NHC: Established in 1990, the NHC is charged with facilitating the development of an affordable, private market for low to mid-tier housing. The state-owned NHC is overseen by the minister for housing and urbanisation and the National Executive Council. In 2012 the National Executive Council endorsed a comprehensive review of PNG's existing public-private partnership (PPP) framework, and in 2014 the country passed its long-awaited PPP law, which could have significant implications for the NHC's activities.

With authorities reporting that the corporation had not been sufficiently proactive in redeveloping PNG's current stock of housing supply, the NHC underwent an extensive review in 2011. The NHC's updated objectives now include land and materials development, as well as provision of homes, home financing, and property and project management services.

The NHC has also adopted a new approach to providing low-cost housing. It is currently in the process of rolling out tens of thousands of new affordable housing units in partnership with the private sector, most notably domestic banks, although property developers, construction companies and real estate brokerages will almost certainly benefit as well.

BUILD-SELL-SHARE: In its first major effort to boost low levels of home ownership in PNG, the NHC has implemented a flagship build-sell-share (BSS) scheme, which aims to profitably develop low-cost housing. Under the scheme, private developers will build homes

on NHC-registered land, which will then be sold at reduced and affordable prices.

The NHC is targeting a profit margin of 20% of the principal investment cost, with ANZ Bank purchasing the homes for around PGK300,000 ($113,500) and distributing them to approved buyers. The NHC plans to subsidise the bulk of the cost of developing land and civil works, making homes affordable for the average citizen and offering a more promising forecast for mid-tier and affordable housing growth.

40,000 HOMES: The BSS scheme gathered momentum in February 2014, when the NHC announced plans to build 40,000 affordable units nationwide. This will see the launch of the first phase of the Duran Farm project, worth PGK7m ($2.6m) and expected to supply some 5000 new homes just outside of Port Moresby. According to an October 2014 report in *Loop PNG*, the homes being built in Duran Farm will range from 400 to 600 sq metres.

NHC officials expect that the price of a house and land package will be within the PGK300,000 ($113,500) to PGK350,000 ($132,500) range, with land development costs, estimated at PGK60,000 ($22,700) or less per plot, to be covered by the state. The NHC has already secured two urban development leases, one at Duran Farm and one in Waigani, with construction expected to kick off within three years.

LAND ALLOCATION: The scheme faces a significant challenge, however, as land allocation remains problematic for real estate development in PNG. The Land Act is the primary legislation regulating land ownership in PNG, although recent reforms have sought to clarify and simplify the land allocation process (see overview). Under the act, all land in PNG other than customary land is the property of the state and subject to any estates, rights, titles or interests in force under any law. JLL reports that 97% of land in PNG is held under customary ownership, although the Land Act has provided mechanisms by which the state may acquire and lease new parcels. Land dealings are usually undertaken using state leases, which generally range from 50 to 99 years, with the state able to grant an extension upon expiration.

In a February 2014 roundtable interview, the NHC's managing director John Dege told the press that the corporation's 40,000-home plan will involve construction of 2000 homes annually over the next 20 years; however, Thomas Webster, director of the National Research Institute (NRI), noted in the same interview that land allocation challenges will need to be addressed before this construction moves forward.

"In fact, the 40,000 houses that they're talking about, they have to build on land that they don't have at the moment. So we propose that the state should look at improving the planning systems and the administration systems, so that more land is released for development both by state agencies and [the] private sector," Webster told Radio New Zealand.

According to the NRI, the best approach to successfully deliver these new, affordable units requires development of a new multi-pronged housing strategy, which should include detailed guidelines for design and construction of affordable housing and finance schemes, highlighting the recently established ministerial committee on housing as the entity most likely to successfully develop such a policy.

The First Home Ownership Scheme is offering 40-year home loans of up to $151,400 to first-time borrowers

FIRST-TIME BUYERS: Home ownership schemes continue to gather pace in PNG, and Bank South Pacific (BSP) has also moved to bolster purchases of houses and mortgage penetration by improving access to affordable home financing.

BSP has partnered with the national government to launch the First Home Ownership Scheme (FHOS) in September 2014. The programme aims to establish a long-term deposit base supported by the national government, with the goal of offering a series of 40-year home loans of up to PGK400,000 ($151,400) to first-time borrowers, with affordable interest rates set at just 4% per annum.

The scheme is not a guarantee facility, but rather a product offered by BSP, which has adopted a commercial approach, despite the favourable tenure and rates of FHOS mortgages. Although the government scheme initially required homebuyers to supply a land title as security for the home loan – a provision that was expected to severely constrain its nationwide rollout – the government later announced that it would supply 2000 new land titles in each of PNG's 20 provinces to support the FHOS. The FHOS is also launching a pilot programme to allocate new plots near Jackson's International Airport in Port Moresby.

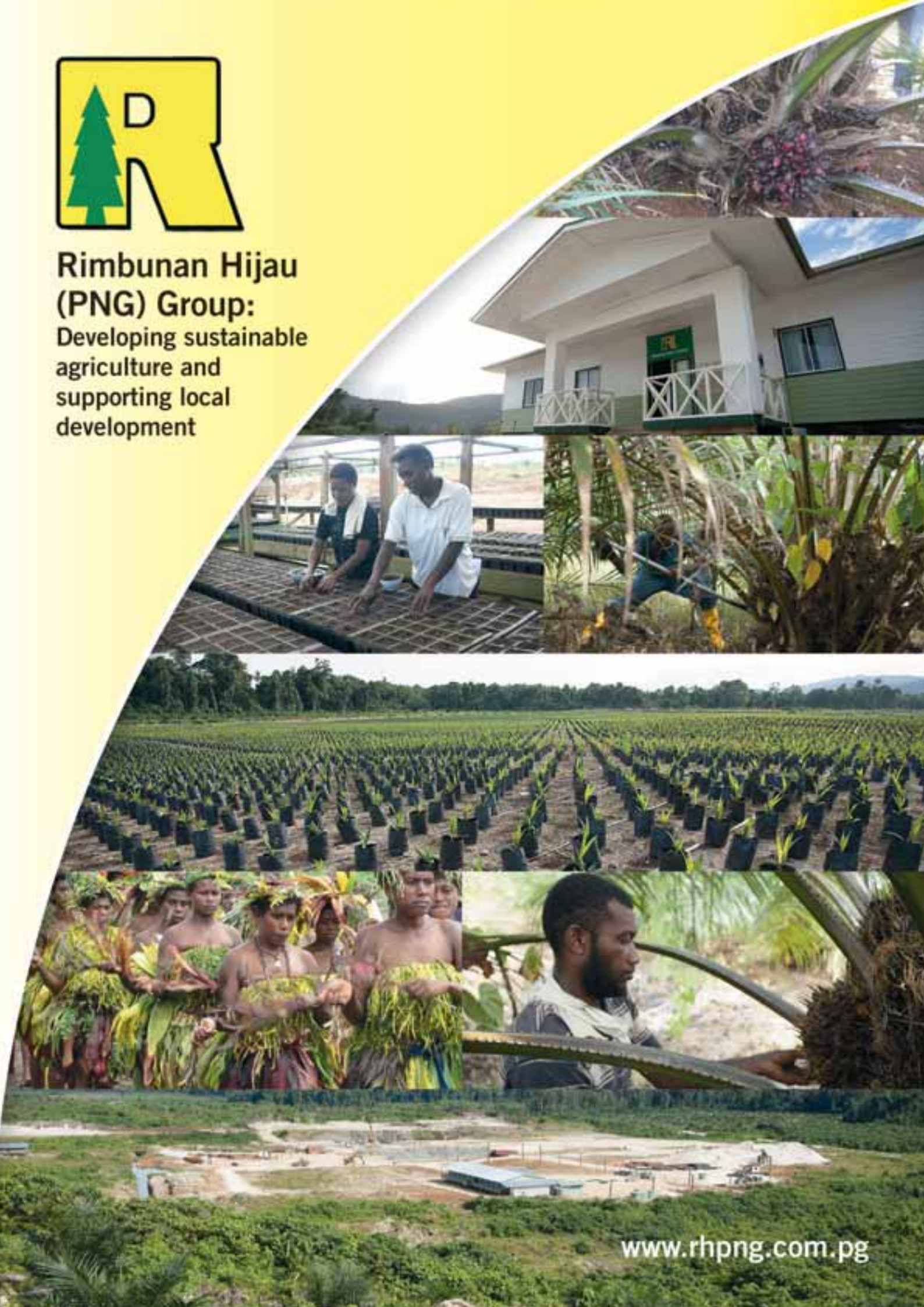
In March 2015, just six months after the FHOS programme was launched, BSP announced that it had funded a total of PGK4.2m ($1.6m) in loans, the majority of which are located in the national capital district. With the affordable housing segment witnessing unprecedented demand for home financing and long-term government efforts expected to deliver a significant influx of affordable units over the next two decades, both the near- and long-term prospects for rising home ownership in PNG are largely positive.

The build-sell-share scheme gathered momentum in February 2014, when the National Housing Corporation announced plans to build 40,000 affordable units nationwide.

In March 2015, just six months after the First Home Ownership Scheme was launched, Bank South Pacific announced that it had funded a total of $1.6m in loans.

Rimbunan Hijau (PNG) Group:

Developing sustainable agriculture and supporting local development



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Industry

Efforts to diversify into sectors other than mining
Infrastructure challenges limiting trade volumes
Shopping malls are now attracting more consumers
Investments expected to improve agricultural output

Prospects for more advanced manufacturing are expanding

Clearing the obstacles

The production base is moving up the value chain, provided ongoing reforms continue to bear fruit

As well as hedging against an over-reliance on the potentially volatile mining and petroleum sectors, bolstering the country's domestic production base will also help Papua New Guineans access formal sector job opportunities.

While Papua New Guinea has a long history of manufacturing, the sector accounts for only around one-tenth of GDP, and output is mostly confined to staple goods bound for the domestic market. PNG is endowed with a number of highly traded global commodities, including timber, coffee, cocoa, palm oil and fish. With hydrocarbons production pegged to expand the economy by 15% in 2015 and 5% thereafter, there are prospects for more advanced manufacturing to take root, and for locally extracted commodities to receive more in-country value addition prior to export.

However, a range of physical bottlenecks and market shortcomings need to be overcome before the country can emerge as a more competitive industrial player. At present, infrastructure constraints, insufficient power generation, poor labour productivity, corruption and security concerns all contribute to production costs that remain higher than the manufacturing powerhouses that dominate supply within the wider region.

OVER RESOURCEFUL: In 2012, gold and gold content accounted for 57% of exported products, while crude petroleum oil and timber each made up 11%. Australia was the destination for 44% of exports, followed by Japan and China. Overall, mineral deposits, including copper, gold and oil, account for nearly two-thirds of export earnings. In recent years, the country's development narrative has been dominated by the $19bn PNG liquefied natural gas (LNG) project led by Exxon Mobil that, according to some studies, could over time double PNG's GDP and triple its export revenues.

Foreign capital being injected into the country's extractive sectors is set to provide the government, which has traditionally been heavily dependent on foreign aid and development partner funding, with newfound funds to invest in infrastructure expansion and upgrades. However, there are concerns about an over-dependence on extractive resource exports that are susceptible to swings in global commodity prices, something which the creation of a sustainable and counter-cyclical manufacturing base could mitigate against.

In 2012, gold and gold content accounted for 57% of exported products, while crude petroleum oil and timber each made up 11%. Australia was the destination for 44% of exports, followed by Japan and China.

"When you are a developing country like PNG, you understandably lack the luxury of giving too much thought to which sectors need to be driven, and work with what you have. In PNG's case, what they have at the moment is a strong natural resource base," Gavin Murray, the International Finance Corporation (IFC) country manager for Australia, New Zealand, Timor-Leste, PNG and the Pacific Islands, told OBG.

INDUSTRY ADVOCACY: As well as hedging against an over-reliance on the potentially volatile mining and petroleum sectors, the Manufacturing Council of PNG has cited formal job creation and import substitution as motivations for the state to introduce additional incentives to bolster domestic production. According to the Asian Development Bank's Pacific Economic Monitor, less than 10% of Papua New Guineans are able to access formal sector job opportunities. The Manufacturing Council has adopted an industry-driven initiative to promote the consumption of locally made products through a "Made in PNG" campaign, and the Department of Treasury has adopted the Extractive Industry Transparency Initiative (EITI).

With a GDP per capita of around $1100, the spending power of much of the population is limited, and most consumers are extremely cost-conscious. In turn, the retail price, rather than the country of origin, factors most strongly into any purchase decision. In light of the influx of cheaper imported products to the market, some manufacturers have chosen to import products and shift focus to distribution (see analysis).

COUNTING THE COSTS: Challenging geographical circumstances contribute towards high overall operational costs in PNG. According to the World Bank, bureaucratic inefficiencies make doing business in the country particularly expensive. In its "Doing Business" survey in 2015, the multilateral lender ranked PNG in 133rd place, down from 131st in 2014. While better than Kiribati (134th) or the Marshall Islands (139th), other countries in the region such as Samoa (67th), Tonga (69th) and Fiji (81st) fared substantially better.

PNG was ranked poorly in several categories, including the ease of trading across borders (138th), enforcing contracts (181th), the tax system (110th) and resolving insolvency (114th). The country is in the bottom quartile of Transparency International's most recent Corruption Perception Index, ranking 145th out of 175 countries evaluated in the watchdog's 2014 study.

Environmental factors also present natural barriers for access to infrastructure. "We are a young country and geologically challenged. There are 7m of us spread over a landmass of nearly 500 sq km. Many parts of the country lie on seismic areas and experience incredibly high rainfall. This makes moving goods a major challenge," Frank Kramer, the chairman of the National Petroleum Company of PNG (NPCP), told OBG.

Challenges arising from lower-cost imports is also a possibility. "Doing business in PNG continues to be expensive, due to the high cost of basic services such as power and other utilities, as well as poor road infrastructure," Doug Rosenberg, the general manager for Goodman Fielder Asia Pacific, told OBG. "Due to these relatively high costs, domestic firms will continue to be threatened by lower-cost imports that have the potential to put local manufacturing out of business."

PNG Power's industrial rates as of May 2014 were PGK0.63 ($0.24) per KWh, among the highest in the world. The charges are higher than rates in the UK and US, and around the same as the EU average. Phone rates also remain high. According to the Manufacturing Council, the cost of renting factory space comes in at around PGK600-700 ($227-265) per square metre, versus PGK300 ($114) to rent a similar space in Malaysia.

Security problems also add significantly to the cost of doing business. In a 2013 survey by the Institute of National Affairs, 81% of businesses indicated that they were fairly or highly affected by law and order problems, while spending an average of PGK15,000 ($6098) annually on security systems; 55% employed security guards. Of the firms questioned, 67% mentioned crime as an operating constraint, more than four times the 16% regional average for firms in East Asia and the Pacific. In the survey, law and order problems were cited as the foremost hindrance to business and the most pressing issue for the government to address.

The cost of renting factory space is about $227-265 per sq metre

CURRENCY SWINGS: The national currency, the kina, has seen significant swings in its fortune. A near-30% appreciation took place from 2010 to 2012, followed by a sudden drop in 2013 as construction activity for the PNG LNG project tapered off and export revenues contracted. In early 2013, the Bank of PNG (BPNG) moved away from a market-based exchange rate system and opted to deploy an interbank rate to cushion the fall. In June 2014, the central bank appreciated the kina against the US dollar by 15%, a move questioned by some economists during a period in which exporters have been suffering from falling oil and cash crop prices. Those justifying the intervention will counter that a stronger currency makes imported products, including essentials like clothing that are mostly manufactured abroad, cheaper for the average consumer, while reducing the cost for the government of repaying loans.

Security problems add significantly to the cost of doing business. In a 2013 survey by the Institute of National Affairs, 81% of businesses indicated that they were fairly or highly affected by law and order problems, while spending an average of $6098 annually on security systems.

In 2014 workers on minimum wage benefitted from a 40% pay rise

While manufacturers have voiced concerns over a rise in the minimum wage, others have countered that a wage hike was long overdue. Indeed, according to the union, only 12.1% of national income now goes to wages, down from around 40% as recently as the 1990s.

WAGES: In mid-2014 the government implemented a 40% increase in the hourly minimum wage from PGK2.29 ($0.87) to PGK3.20 ($1.21). While manufacturers have voiced concerns that the measure adds to their costs, the PNG Trade Union Congress has countered that a wage hike was long overdue. Indeed, according to the union, only 12.1% of national income now goes to wages, from around 40% as recently as the 1990s.

For employers in PNG, as is the case in most countries, an aversion to paying higher salaries stems from whether or not the increased outlays are matched by improved labour productivity. While accurate labour market statistics for the country are difficult to access, the consensus amongst industry participants OBG has spoken with is that domestic productivity does not match international standards, and that employee motivation can at times be lacking.

"A large portion of the country are subsistent and are not interested in pursuing formal employment," Murray told OBG. "The broader *wantok* (clan support) system also creates some disincentives towards seeking one's own employment."

While a higher minimum wage could end up having a detrimental effect on labour-intensive companies operating in PNG – by increasing costs without a parallel rise in productivity – it could equally help retailers of consumer goods by increasing disposable incomes.

TARIFFS: PNG has a fairly open market when it comes to import duties and tariffs, and is a signatory to a number of global and regional trade agreements. In 2011, tariffs on intermediate rate goods were reduced from 30% to 12.5%, and dropped further to 10% in January 2015. Manufacturing executives, however, contend that as local business costs have not come down at a similar pace, it is increasingly difficult to compete with the imports entering PNG from destinations such as China, Indonesia and Malaysia that possess significant economies of scale and, as a result, lower per-unit fixed costs. "Import tariffs have already fallen by around 80% since the 1980s as PNG has tried to meet and exceed World Trade Organisation and other trade treaty obligations. APEC's stated aim of abolishing all tariffs by 2020 is a further dark cloud on the horizon for PNG manufacturers," Rosenberg told OBG.

EXCESS INVENTORY: In addition to an inability to compete on market size, allegations persist that some countries within APEC are receiving built-in subsidies from their governments, alongside accusations that dumping, in the form of foreign companies selling excess inventory at cost, continues to take place. However, such claims are difficult to prove, leaving the sector in a challenging position, as increasingly cost-competitive goods are imported into the country and improvements in infrastructure are not able to keep pace.

"It is always in the public's interest to be able to access the cheapest and best products without market distortion. Tariffs and duties are not the optimal approach to supporting local industry," the IFC's Murray told OBG. The price and selection of canned drinks serves to exemplify how tariff reductions can help spur domestic competition to the ultimate benefit of the con-

sumer. According to an article published by EM TV, prior to the reduction of government tariffs, the local drinks market was monopolised by Coca Cola Amatil and Pacific Industries, with the average can selling for around PGK3 ($1.13) five years ago. Conversely, today, due to the entry of imports such as Coca-Cola and Pepsi, the average price has fallen to PGK2.25 ($0.84).

ILLICIT TRADE: Smuggled goods, particularly from the Indonesian province of Papua with which PNG shares a 760-km border, can result in significant lost revenues for both local manufacturers and the government. "The illicit trade in cigarettes amounted to 30m cigarettes a year in 2005 and is now estimated to have reached 200m cigarettes per year, representing 17% of the total market," Michael Penrose, the general manager for British American Tobacco, told OBG. "We estimate that the government is losing up to PGK100m ($40.6m) per annum through unpaid excise and duties."

For the NPCP's Kramer, of equal concern is the fact that many of PNG's domestic commodities and resources eventually leave the country unaccounted for. "We must improve on the policing of illicit trade as a lot of our trees are being logged, and our fish being caught, without any local benefit."

Dubious land transfers have become a major problem, with the prime minister publicly acknowledging that foreign logging companies have been engaged in scams to acquire land improperly under the guise of claiming that it will be applied for agricultural purposes. According to Fred Pearce, author of *The Land Grabbers*, 11% of the country – a land mass the size of Costa Rica – was leased out in a period of less than 10 years. In 2014, a Commission of Inquiry found that 90% of all Special Agriculture and Business Leases (SABLE) were illegally issued through fraud and corruption, and recommended that all SABLE licences be revoked.

INFRASTRUCTURE SPEND: The PNG LNG project will have a multiplier effect well beyond the construction sector and is expected to overcome the bureaucratic hurdles that have plagued larger infrastructure projects in the past. "Now that the plant is moving into production, there is a significant decline in construction activity. To help bridge the gap and keep activity going during the lull, the government is trying to invest in other high-impact infrastructure projects, such as new airports and power plants," Kramer said. "At the same time, the Pacific Games is providing an impetus to improve infrastructure in and around the capital."

CLUSTER DEVELOPMENT: The government, when allocating its infrastructure spending – $238.5m in stimulus is earmarked to create 500,000 new businesses and 2m jobs by 2050 – is doing so with the aim of developing four economic centres across the country, each with a distinct focus. Port Moresby, the capital and the home to most corporate head offices, is set to continue its role as the country's financial centre. Lae, PNG's second-largest city, will become the focal point for manufacturing, while Mount Hagen will be the centre for agriculture, and Kokop for tourism.

According to the Lae Chamber of Commerce, Lae's seaport currently handles in excess of 60% of PNG's import and export cargo each year, while the city and its surroundings have the highest concentration of factories in the country. "Lae lends itself to becoming the national industrial centre and the plan makes sense," Kramer told OBG. "It has the largest seaport in the country and offers good road connectivity to the hinterland where agriculture, fishing and mining takes place and raw materials can be sourced."

The PNG LNG project is expected to have a multiplier effect well beyond the construction sector

RETAIL: Despite a slowdown in retail sales in the months following the end of the PNG LNG project's construction phase, the long-term trajectory for the retail sector remains bullish. Over 60% of the population in PNG is under the age of 18, and an emerging middle class is fuelling demand for greater product choice, higher-quality goods and a change in environment from the country's traditional market shops and stalls. Shopping malls with multiplexes are springing up around Port Moresby, with a tenant mix comprising general merchandisers alongside a range of specialty stores that are introducing consumers to designer fashion brands, barista-made coffee and fast food.

The CPL Group, which traces its origins to a single City Pharmacy store in 1987, is the largest retailer in the country, and today has 59 outlets in its portfolio.

OUTLOOK: As a young and resource-rich country, PNG is still far from seeing its production base move up the value chain from primary into secondary manufacturing. The majority of its mining, oil and gas, and agricultural products are extracted and exported in raw form. As government revenues from the PNG LNG project are re-invested into much-needed infrastructure projects, and domestic spending power expands, the business case for downstream investments will improve.

Should ongoing economic reforms and crackdowns on corruption improve perceptions about the ease and predictability of doing business, PNG could emerge as a regional destination for the processing of mid-stream and finished goods. "If we are smart about how we develop the economy and our industries, we have a number of advantages working in our favour," Kramer said.

Should ongoing economic reforms result in improved perceptions of the ease of doing business in the country, PNG could emerge as a regional destination for the processing of a number of mid-stream and finished goods.

Despite a slowdown in retail sales in the months following the end of the PNG LNG project's construction phase, the long-term trajectory for the retail sector remains bullish due in part to the country's emerging middle class.

Somu Bhattacharya, General Manager, Coca-Cola Amatil

Poised for the future

Somu Bhattacharya, General Manager, Coca-Cola Amatil, on the business climate for manufacturers

Manufacturing currently contributes around 9% of Papua New Guinea's total GDP and has a multiplying effect on other sectors, which is good news for economic growth in PNG as a whole. At the same time, however, operators would like to see a stronger commitment from the administration to ensuring that this growth remains sustainable. For instance, the infrastructure network currently hinders growth and needs to be overhauled.

Moreover, more needs to be done to curb parallel imports, which reportedly account for 10-15% of the country's entire beverage industry. The soft drinks segment is not alone in suffering from the effects of unfair competition. The food industry as a whole faces similar challenges and therefore, it is high time that we boosted our efforts to fight the scourge of parallel imports. This can only be done by strengthening the existing regulatory framework, as other countries in the region – most notably the Solomon Islands – have already demonstrated. In PNG industry leaders say a lack of political will, rather than a lack of capacity, is the primary challenge.

PNG has been largely successful in controlling the illegal import of automotive products. The same model could be followed to assist local manufacturers in other fields, particularly within the food and beverage industry. Traceability is becoming increasingly important to the functioning of many industries these days, including the soft drinks segment. However, it is pointless to invest so many resources in a business if products clearly displaying a different point of origin are allowed to circulate freely in the market, even though it may say on the label that this should not be the case.

Similarly, distributors of parallel products, which usually originate in Asian markets, have established businesses in prime locations such as Port Moresby, sometimes next to factories providing employment for thousands of people, as well as state tax revenues. Manufacturers in PNG need more than tax holidays to continue to operate in the market – they need a level playing field.

Although the government plays a key role in regulating the market, I believe that the private sector can also contribute towards this effort by supporting the work of international risk assessment institutions. They could identify exactly where the weak links within the system are and propose a new structure to improve monitoring in the long run. At the same time, we require the government's support, as it is not appropriate for a private company to fund research that should benefit the market as a whole, rather than a single firm's own interests.

The negative perception of PNG as an investment destination, which is usually undeserved, is due in part to its weak regulatory framework, which often leaves enterprises exposed to unfair competition. The high cost of doing business exacerbates this situation. Furthermore, parallel imports contribute to social as well as economic problems. These traders could be importing products that have been compromised and do not follow good manufacturing practices for the food and beverage industry. In the remote possibility of any consumer complaints, local manufacturers will bear the consequences, even if the product was bottled elsewhere. While the likelihood of this occurring is slim, it should not be entirely discounted. As such, including the importer's details on the label would help improve traceability.

These challenges aside, manufacturing will remain vital for the country's growth in the coming years. Taking into account the persistence of low oil prices in the market, talks about diversification have been gaining momentum, which is good news for everyone. Recent investment has been directed towards developing automated production in areas such as Port Moresby and Lae, where industry has been poised to contribute to long-term development. That shows the level of continued commitment that many manufacturers operating in the market have to PNG.

A range of tropical crops account for 80% of all agricultural exports

Seeds of success

The fertile climate and agricultural programmes point to growth in the years ahead

Papua New Guinea's climate is characterised by fertile soil and abundant rainfall, enabling the country to grow a number of tropical crops such as palm oil, coffee and cocoa, which account for around 80% of all agricultural exports. Meanwhile, sweet potatoes, cassava, fruits and vegetables are all farmed to serve the local market. In total, agriculture contributes around a quarter of the country's GDP and according to PwC, 85% of the population is involved in farming. While some value-added conversion is taking place, most commodities are exported in raw form, and the country's agriculture sector faces the challenge of converting cash crops to commercial farms. When it comes to securing an export niche and reputation, despite the high quality of some of its crops, country of origin branding is lacking.

As an increasing number of consumers worldwide demand organic produce, PNG's remoteness and non-industrialised farming methods could be leveraged as a competitive advantage. "We have good farmers and we produce some fantastic coffee and cocoa. The problem is that we are not well known for it. There is room to better promote our high-quality, low-volume agricultural products," Frank Kramer, the chairman of the National Petroleum Company of PNG (NPCP), told OBG.

COCOA: At present, all of PNG's cocoa production is shipped overseas, and the sector provides a strong working example of some of the challenges and opportunities its agro-processing sector faces as a whole. In line with its broader aim of supporting value-added industry, the government, with the aid of the World Bank, is looking to foster a local manufacturing industry. Farmers are being assisted in raising production levels in order to take advantage of rising demand from easy to access Asian markets. Demand is being boosted by dwindling supply from West Africa's cocoa-producing nations, in the wake of that region's continued efforts to recover from the ongoing effects of the 2013 Ebola outbreak.

PNG's growers are still feeling the impact of an earlier cocoa pod borer infestation that transpired between 2008 and 2013 and prompted many to abandon their fields. Moreover, a World Bank-led Productive Partners in Agriculture programme launched in 2014 is aiming to help rejuvenate production by injecting $30m in projects in six provinces with the intention of increasing plantation sizes and improving yields. Around 234,000 cocoa seedlings were distributed under the scheme by the end of the year, with priority being given to improving access to technology and services.

The government has also offered to co-fund a feasibility study assessing the viability of producing chocolate and non-chocolate finished products such as drinks, fertilisers and vinegar. During an EU trade delegation to the country in early 2015, the CEO of the Belgian Chocolate Group stated that his company was considering using PNG as a sourcing base. Should the World Bank programme result in growing yields and increased investment in downstream manufacturing, the country could see its output recover to pre-2008 levels, when average production volumes came in at 35,000 to 40,000 tonnes per annum and contributed $70m in national earnings.

COFFEE: As with cocoa, locally grown coffee is considered to be of high quality. Even so, further investments to improve crop output and marketing efforts to establish a national brand are needed to reinvigorate the sector. In the early 1970s, PNG produced 27% of global coffee supply, and coffee production accounted for around one-third of the national economy. Due to ageing coffee trees and reduced assistance from development agencies, the sector fell into neglect over time. The country's share of global production today stands at a marginal 1%.

Therefore, for the sector to make a comeback, the country must find the right balance of injecting funding and support to assist the 500,000 small hold growers in improving their yields, while keeping some

Due to ageing coffee trees and reduced assistance from development agencies, coffee production in PNG has fallen over the past few decades. As a result, the country's share of global production has dropped today to a marginal 1%.

Farmers are being assisted in raising production levels in order to take advantage of growing demand from easy to access Asian markets. Demand is being boosted by dwindling supply from West Africa's cocoa-producing nations.

At present around 85% of the country's annual forestry harvest is exported in timber form

Around 75% of PNG's land mass is covered by rainforests, and a delicate balance must be struck between conserving one of the world's most pristine eco-systems, and creating a profitable logging industry.

elements of the production chain traditional to capitalise on the global trend for fair-trade sourcing.

PALM OIL: PNG is one of the world's foremost secondary producers of palm oil after Indonesia and Malaysia, which together account for over 80% of global production. "The country should be applauded for the way it is processing and exporting palm oil competitively," Gavin Murray, the International Finance Corporation's (IFC) country manager for Australia, New Zealand, Timor-Leste, PNG and the Pacific Islands, told OBG. According to the US Department of Agriculture, in 1971 the country was producing just 3000 tonnes of palm oil per year. By 2013 this figure had grown to 630,000 tonnes.

Although PNG currently accounts for just 1% of global exports, the sector's growth potential is vast. At present, 150,000 ha of land is being exploited for palm oil crop production, with an estimated additional 5.1m ha of suitable land going unused.

FORESTRIES: Around 75% of PNG's land mass is covered by rainforests, and as is the case with palm oil clear felling everywhere, a balance must be struck between conserving one of the world's most pristine eco-systems while creating a profitable logging industry that stimulates jobs and earnings.

According to a 2014 report by UK think-tank Chatham House, 70% of all logging in PNG is illegal. Moreover, efforts are under way to reform the Special Agricultural and Business Leases system that, while intended to empower the indigenous communities, has been ripe with corruption and abuse. At present around 85% of the country's annual harvest is exported in log form, leaving potential for downstream processing. Timber lends itself well to products, both artisanal, such as furniture making, and industrial, such as pulp and paper milling.

PNG is one of the world's foremost secondary producers of palm oil after Indonesia and Malaysia, which together account for over 80% of global production.

INVESTMENTS: Given the opportunity to manufacture and package food products for an increasingly affluent population, food and beverage manufacturers are upgrading their plant capacities. Global food giant Nestlé, in early 2014, announced that it would inject PGK21.6m ($8.17m) – creating 75 new jobs – to expand its factory in Lae and meet demand for its products, including Maggi noodles and bouillon.

Also in Lae, the food manufacturer Goodman Fielder has completed a snack plant, while the local fast-moving consumer goods (FMCG) group Paradise Foods is constructing a bottling plant as part of its efforts to re-introduce the Pepsi-Cola brand to the local market. "Considering some of the constraints and challenges associated with industry in PNG, the country would be well suited to start at the bottom of the pyramid. The local market demands fairly basic food products, and PNG has a strong agricultural base," the IFC's Murray told OBG. "Over time, manufacturing can evolve to become more sophisticated by moving into packaging using local materials."

Companies are also exploring ways to incorporate locally sourced crops into their finished products. SP Brewery, for instance, is trialling the use of cassava (tapioca) as a beer brewing starch. Cassava, which is widely grown throughout PNG, has the advantage of being resistant to drought. Cassava-based beers have been launched in markets throughout West Africa, garnering popularity due to the lower selling price associated with using a locally grown crop as the main input starch instead of imported barley.

EXPORTS: While most FMCG investment is geared to the domestic market, the tuna canning industry is taking advantage of bilateral trade agreements that offer EU member states liberalised access to canned fish products. In 2013 Thai Union Frozen, one of the world's largest seafood producers, partnered with PNG's Majestic Seafood on a $38m factory in Lae.

Previously, a large proportion of fish caught in PNG had made its way for processing to Thailand, where labour is cheaper. Investment in a local facility signals PNG's potential to develop into a regional processing hub, with the possibility that tuna caught in other waters could be sent to PNG for canning before being exported to the EU market.

In addition, after a five-year delay, the Pacific Marine Industrial Zone (PMIZ) is moving toward completion after the government signed a $95m deal with China-based contractor Shenyang International in March 2013. Having allocated $24.6m toward the project in 2013 and another $21.9m in 2014, the government is set to spend at least $21.1m per year from 2015 through 2018. The Niugini Tuna processing plant currently under construction will be one of the first canneries in the PMIZ. The $500m complex will include a processing plant, a 300-metre wharf, 400-metre dry dock, and a cold storage plant.

Other projects currently in the works include the Malahang Industrial Centre which will include four new canneries; a Majestic Seafood plant, a joint venture between Philippines-based Frabelle Fishing and Century Canning with Thailand's Thai Union Frozen Product; and the Nambawan Seafoods Tuna Project, a joint venture between Trans Pacific Journey Fishing and TSP Mariner Industries of the Philippines.

Michael Kingston, CEO, KK Kingston

Adapting and evolving

OBG talks to Michael Kingston, CEO, KK Kingston

How would you define Lae's corporate landscape, and how has it evolved over the years?

KINGSTON: Historically Lae's corporate landscape has always been quite cosmopolitan, with expatriates and global companies working under the same roof as Papua New Guineans. By contrast, in recent years Papua New Guinea-owned businesses are becoming increasingly prominent thanks to an emerging middle class that is more involved than ever in shaping the socio-economic fabric of our nation. Needless to say, I think that this is a positive development for PNG and it is exciting to see local companies move up the ranks and compete with stronger international players.

If we take KK Kingston as an example, over the years we have gone from being purely an importer and reseller of machinery and industrial products to being a manufacturer that takes advantage of Lae's competitive advantages to reach the rest of the country. Today manufacturing accounts for as much as 85% of our turnover. A number of companies in Lae have been through a similar process, which I believe is a testament to the city and the wider region's transformation into the manufacturing hub of PNG.

How would you assess the country's present economic situation, and how is it impacting the business environment in Lae?

KINGSTON: Just as for the rest of the country, the business environment in Lae is getting increasingly tougher. The cost of doing business is not getting any cheaper, while infrastructure development lags behind the growing demand. Competition is also mounting, even though globally PNG is not yet a hotly contested market.

Against this economic backdrop, the system badly needs legislation to improve the general business climate, but some of the measures introduced by the current administration – like increasing the minimum wage – seem to be pointing in another direction. When prices go up, demand goes down, hindering job creation. High unemployment among young people creates social instability, and this is something that we need to tackle quickly if we want to avoid social tension in the future. There is also less cash in the local economy at the moment, as opposed to a few years ago during the boom from the construction of the PNG liquefied natural gas project. As a result, more people are resorting to opportunistic crime than 10 years ago.

How would you compare Lae's economy to Port Moresby's, and how are the two interconnected?

KINGSTON: Port Moresby has the tendency to develop economic bubbles of various sorts and the construction of the South Pacific Games facilities may turn out to be one of them, although it supported economic growth at the time. By contrast, Lae doesn't attract the same level of investment and its fortunes are very closely tied up to key sectors like mining and agriculture, which unfortunately continue to struggle at the moment due to low global commodity prices.

Unlike extractive industries, where you tend to find that the benefits are shared among a small number of people, agriculture has a much broader effect and it quickly impacts the livelihood of entire communities.

The price of commodities like coffee, palm oil and cocoa determine the purchasing power of the population in the Lae region, which is why manufacturers are moving away from higher-grade products and back towards staple products. This is a trend we watched happen during the last quarter of 2014 and continue into 2015. As a result, the corporate landscape is undergoing a period of consolidation, readjusting its cost structure in order to retain market competitiveness.

In favour of the current administration, I can say that we have seen a significant improvement in the road network, with more work done in the last couple of years than in some past decades. It is easy to be critical about the pace of the process, but I think that many people underestimate how difficult such projects can be in PNG, once you take into account prominent hurdles such as landowner, resettlement and compensation issues.

New government policy aims to give better opportunities to women

A helping hand

New legislation aims to overhaul SME culture

As part of its push to support SME development, in February 2015 the government established the Small and Medium Enterprise Corporation, which replaced the Small Business Development Corporation as the agency charged with developing and promoting SMEs.

With the prime minister noting in April 2015 that just 20% of SMEs survive for five years or more, both the private and public sectors have recently launched initiatives to help new entrepreneurs develop their businesses in a sustainable fashion.

Small and medium-sized enterprises (SMEs) are to receive new incentives in Papua New Guinea, as the government aims for a 10-fold increase in the number of such businesses, from 50,000 to 500,000, and a five-fold increase in the segment's contribution to GDP, from 10% to 50%. This builds on a 12-point stimulus package launched in 2012, which included financial support and subsidised lending for SMEs.

NEW GOVERNMENT BODY: New legislation passed in February 2015 established the Small and Medium Enterprise Corporation (SMEC), which replaced the Small Business Development Corporation as the lead agency charged with developing and promoting SMEs. The SMEC has been placed under the office of Prime Minister Peter O'Neill to draft a master plan for parliament before the end of the second quarter in 2015. A 22-member council headed by the prime minister and including ministers from sectors such as treasury, planning and finance will oversee the SMEC. The structure of the bill is similar to legislative framework found in Malaysia, according to the minister for trade, commerce and industry, Richard Maru, who visited several emerging economies to learn from their experiences.

In mid-2013, the Department of Trade, Commerce and Industry introduced a national interest test administered by the Securities Commission. Building upon this, the SMEC's master plan is expected to be wide-ranging, including: a list of businesses restricted to local ownership, such as in agriculture and media; national content requirements; a foreign investment review board; and a dedicated SME Act offering tax incentives.

FUNDING & TRAINING NEEDS: The World Bank has pointed to significant constraints to SME growth and investment in PNG. Chief among these was the difficulty in accessing credit despite liquidity in the banking sector. Many SMEs lack the collateral, information or guarantees needed to meet commercial banks' requirements for lending, and the perception persists among banks that small businesses are high-risk. However, funding is not the only hurdle to the success of SMEs. The level of attrition among small businesses is high, with just 20% of SMEs in PNG surviving for five years or more, according to the prime minister, speaking in April 2015. To counter this high failure rate, closer attention is being paid to helping new entrepreneurs develop a medium-term business plan.

In the private sector, ANZ Bank announced the MoneyMinded SME Business Basics Programme in April 2015 to help entrepreneurs gain a better grounding in finance and management. The launch recognises "that the development of successful SMEs is critical in PNG to generate new employment opportunities and to spread the economic benefits that flow from the large-scale resources developments back into the community," said Mark Baker, ANZ's chief executive for PNG.

The need for improved business and financial training was underscored in late March 2015, when only 10 out of 5000 applications for assistance through the National Development Bank's retail incubator programme were successful. The main purpose of the initiative was to provide indigenous PNG couples with training and support, which would eventually see them take ownership of shops created under the scheme.

WOMEN IN THE SPOTLIGHT: One of the focal points for the government's new SME strategy will be the provision of business and employment opportunities for women, currently accounting for only a quarter of business entrepreneurs in PNG. According to the World Bank, many women and young people depend on small-scale informal businesses for their livelihood, despite large external investments in PNG's resource sector. To help address this discrepancy, the World Bank and the government of PNG launched the SME Access to Finance Project, which will put increased emphasis on targeted training for women entrepreneurs.

However, representatives of women's groups have argued that the government's SME policy does not go far enough in advancing the interests of female entrepreneurs, such as increasing financial literacy and opportunities for women to own and operate businesses.

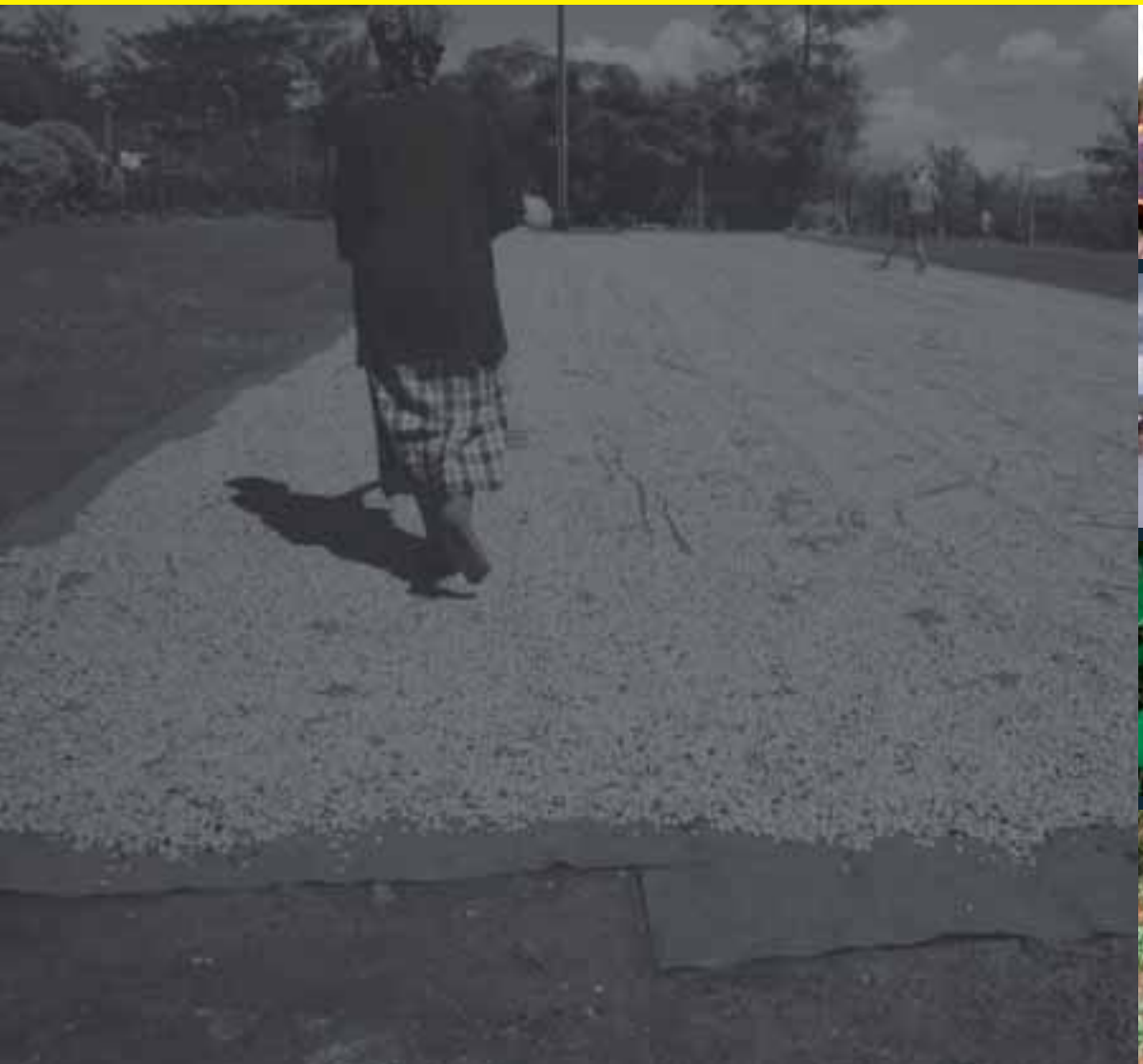
Agriculture & Fisheries

Palm oil accounts for two-thirds of export revenues

Revival of global commodity prices helps cocoa farmers

Timber harvesting's contribution to GDP increasing

Local fishing operations attract international attention



Agriculture plays a crucial role as an employer for many citizens

On the upswing

Provided that development projects are rolled out successfully, the sector is on course to expand in the years ahead

The palm oil industry dominates the sector, accounting for two-thirds of all agriculture exports excluding the forestry and fisheries industries.

While overshadowed by energy and mining investments, Papua New Guinea's agricultural sector is both as a key earner of foreign currency and as a primary employer for many of its citizens. The country's fertile land makes the sector and its downstream processing and value-added spin-offs the most viable option for absorbing its growing workforce, while continuing to provide potential for the economy in the long term.

In recent years weak commodity prices for some of the industry's key cash crops have hit the sector hard, setting the stage for a rebound in 2015. Price increases for important exports such as coffee, copra, palm oil and cocoa led modest growth, which was also bolstered by the recent decline in the value of the kina.

SECTOR GROWTH: The agriculture, forestry and fisheries sector grew at an estimated 3.9% in 2014, according to the PNG Treasury Department. This was attributed largely to increases in copra, cocoa and palm oil production which offset the low copra oil production and a downgrade in coffee production. Commodity prices of the country's key agricultural exports rebounded mid-way through the year as well, resulting in copra farmers taking full advantage of the higher prices by bringing more product to market, while cocoa and coffee were hindered by ongoing industry concerns including the cocoa pod borer (CPB), ageing trees, security concerns and poor export documentation processes that persist in the export industry. In contrast to the growth in the copra sector, copra oil production continues to stagnate primarily due to the loss of a major coconut oil processing mill which burned down in East New Britain in 2013. This trend should reverse once the mill re-opens for production by the end of 2015.

Price increases for many important exports such as coffee, copra, palm oil and cocoa led modest growth in 2014, which was also bolstered by the recent decline in the kina's value.

CASH CROPS: Shipments of PNG's primary agriculture export crops totalled PGK1.51bn ($571.4m) in 2013, down nearly half from the high of PGK3.02bn ($1.14bn) registered just two years earlier. Exports for 2014 were on pace to eclipse 2013 levels by a fair margin through the first nine months of the year, totalling PGK1.46bn ($552.5m) in 2014 compared with PGK1.15bn ($435.2m) over the same period in the previous year. Forestry product exports contributed another PGK624m ($236.1m), PGK613.4m ($232.1m) of which came from raw logs, while marine exports totalled PGK240.2m ($90.9m) through the first three quarters of 2014.

PALM OIL: The palm oil industry dominates the sector, accounting for two-thirds of all agriculture exports excluding the forestry and fisheries industries (see analysis). Dry weather across South-east Asia in the first half of 2014 affected supply and increased palm oil prices until they retreated in the second half of the year due to rising output from primary producers Indonesia and Malaysia. Crude palm oil and other associated product exports totalled PGK1.5bn ($567.6m) in 2014, up 24.3% compared to the previous year, according to data from the Palm Oil Council (POC).

Palm oil farmers sold another PGK20.56m ($7.78m) worth of refined palm oil and other products on the domestic market along with PGK4.87m ($1.84m) worth of oil palm seed. The largest purchaser of PNG palm products was the Netherlands, which purchased 33.0% of the output followed closely by the UK with 32.8%, Germany (22.5%) and Spain accounting for 11.7% of the total 514,757 tonnes. Data from the Bank of PNG, which calculates export data differently, placed palm oil exports at PGK903.5m ($341.9m) in 2013 and PGK880.3m ($333.1m) in the first three quarters of 2014.

COFFEE & COCOA: Coffee continues to hold second place in agriculture exports with PGK331.8m ($125.6m) in coffee beans shipped out from January to September 2014, nearly as much as the PGK336.7m ($127.4m) sold in all of 2013. While the sluggish global economy through the first half of 2014 had a detrimental effect on coffee demand and prices in the early part of the year, a long spell of dry weather in Brazil – the world's largest producer of Arabica coffee – greatly reduced the size of crop for the year, resulting in a sharp increase in coffee prices. Cocoa exports also benefitted from the effects of the devastating Ebola outbreak in West Africa which sent prices spiking in September 2014.

Fears that the virus could spread to cocoa producers in the Côte d'Ivoire and Ghana from neighbouring Liberia and Guinea never materialised and coffee shipments continued to arrive, allowing prices to subside.

Even so, the temporary price spike bumped up profits for coffee exporters from PNG, although the segment performance could improve further. "Marketing is the real challenge for the coffee industry in PNG, as at the moment our volume accounts for only 1% of the world's production, despite the excellent quality that we are able to produce," Anton Benjamin, the former CEO of the Coffee Industry Association, told OBG.

Cocoa exports were valued at PGK162.9m ($61.6m) through the first three quarters of 2014 after totalling PGK206m ($78m) for all of 2013. Other agricultural export crops from PNG include tea, copra, coconut oil and rubber. Over the course of 2014 coffee prices increased by 64.5% and cocoa by 10%, while copra oil prices decreased by 9.5% and palm oil decreased by 14.2% according to the PNG Treasury Department.

TOP DOWN: In 2015 the government allocated funds for agricultural projects across a wide range of sub-sectors to expand PNG's revenue base. More notable expenditures included the PGK141.3m ($53.5m) targeted at developing the potential of agriculture and small and medium-sized enterprises (SMEs); PGK180m ($68.1m) for the Department of Agriculture and Livestock to implement the National Agriculture Development Plan 2007-16; PGK50m ($18.9m) for the National Development Bank; PGK33.8m ($12.8m) for the Pacific Marine Industrial Zone (PMIZ) seafood processing centre; PGK50m ($18.9m) for basic infrastructure in agricultural corridors; and PGK50m ($18.9m) for the Agriculture Commercialisation Equity Fund. The latter will attract investors in the coffee, cocoa, oil palm, rubber and livestock industries. "If PNG wishes to attract investment and growth in its agricultural sector it must continue to strengthen its bio-security agency and bio-security policies in line with international standards," Stanley Leahy, CEO of Zenag Chicken, told OBG.

POOLING RESOURCES: The agricultural sector has also been a primary focus for international aid and development funding over the years. The largest single ongoing programme is the Productive Partnerships in Agriculture Project (PPAP), operated by the World Bank, which is targeting benefits for up to 60,000 coffee and cocoa farmers and their families.

In boosting the profitability of two of the country's most productive cash crops, the World Bank and the government are hoping to both widen the overall economic base while at the same time improving the lot of some of PNG's less affluent citizens. "PPAP is a hugely important initiative, designed to help thousands of growers get higher earnings from their produce," said Laura Bailey, World Bank country manager for PNG, in a February 2014 statement. "It is also providing a critical boost to the coffee and cocoa industries which remain significant forces for the economy. In this sense, it is truly a win-win for agriculture in PNG." Initially launched in 2010, PPAP has already shown sufficient potential for the World Bank to extend an additional

Challenges faced by coffee and cocoa farmers are being addressed

$30m of funding in February 2015. This has brought the total funding package of the project to $73m spread among various donors – the International Development Association ($30m), International Fund for Agriculture Development ($22m), Foreign Private Commercial Sources ($10.1m), the European Commission ($6.4m) and $4.5m in borrowing.

These funds are being used to tackle many of the recent challenges faced by coffee and cocoa farmers. chief among them a lack of extension services in many areas; inadequate replanting with many trees long past their prime at more than 40 years old; and the devastating impact of CPB. Through the project, the partnerships between farmers and NGOs, farmer group cooperatives and local businesses are selected and established under a competitive process.

The partnerships have provided selected farmers with planting materials including high-yielding hybrid crops, extension services, access to certification schemes and other services. The additional financing received in early 2015 will allow the programme to increase the number of partnerships from 25 to 50 before the project's scheduled closure in 2019. As of June 2015 a total of 33 partnerships had been implemented involving 27,352 beneficiary farmers with an

The largest ongoing development programme in the sector is the Productive Partnerships in Agriculture Project (PPAP), operated by the World Bank, which is targeting benefits for up to 60,000 coffee and cocoa farmers and their families.

Agricultural exports, 2005-14 (PGK m)

Period	Cocoa	Coffee	Tea	Copra	Copra oil	Palm oil	Rubber
2005	198.7	471	20.2	17.3	93.7	391.4	18
2006	204.4	337	21.2	8.3	60.4	430.1	23.8
2007	276.5	408.4	20	10.3	121.9	672.2	22.9
2008	345.6	520.2	18.9	45.1	202.7	1011.9	32.6
2009	337.3	460.3	18.4	12.4	87.9	714.3	26
2010	347.6	521	18.4	21.9	130.2	1024.7	32.4
2011	320.3	927.4	14.2	70.8	173.9	1477.4	40.9
2012	182.6	478.5	11.7	33.1	56.1	1009.9	33.1
2013	206	336.7	10.4	13.2	24.5	903.5	19.4
2014	213.3	450.3	8.4	63.7	19.9	1086.4	13.8

SOURCE: BPNG

Coffee growers who are participating in the World Bank's programme have exhibited impressive growth from 2011 baseline yields of 382 kg per ha to 816 kg per ha by December 2014, far exceeding the target of 600 kg per ha.

additional 23 partnerships under preparation involving 21,500 beneficiary farmers, according to the World Bank. With the scaling up of the cocoa partnerships, a further 11,000 beneficiaries are expected to be added, bringing the expected number of beneficiaries to 59,852 farmers, which is almost equal to the project's target of 60,000 beneficiaries. Cocoa yields among project beneficiaries have increased by 122% from a 2011 baseline production level of 169 kg per ha through December 2014, and stood at 63% of the project target.

With the further distribution of high-yielding clones and consolidation of training on best cocoa management practices, the project is now on track to meet the target of 600 kg per ha by 2019. Coffee growers participating in the programme have exhibited similarly impressive yield growth from 2011 baseline yields of 382 kg per ha to 816 kg per ha by December 2014, far exceeding the targeted yields of 600 kg per ha.

Increasing access to financing would improve the sector on a wider scale too. "The challenge for farmers, particularly smallholders, to access commercial finance needs to be addressed through the government or multilateral organisations such as the World Bank or the ADB, who could be underwriting some of the risk with the commercial banks. This has been proven around the world as efficient in creating growth in the sector," Ilan Weiss, CEO of Innovative Agro Industries, told OBG.

WHEELING & DEALING: One of the country's most profitable agriculture companies, New Britain Palm Oil (NBPOL), has caught the eye of some of the palm oil sector's largest agro-industrial companies, including the Malaysian palm oil giant Sime Darby. After expanding its operations over the years through plantation expansion and buying out a number of competitors on its way, the London-listed NBPOL itself became an acquisition target for the world's largest oil palm growers. The sale was initiated in 2014 with an offer price of £7.15 per share and consummated in March 2015 when Sime Darby Plantation Berhad, the plantation arm of Malaysia's conglomerate Sime Darby Berhad, paid out $1.74bn for NBPOL. The purchase will add another 135,000 ha of land to Sime Darby's sizeable land bank, pushing it over the 1m ha mark spread over five countries.

New Britain has more than 81,500 ha of planted oil palm estates along with around 7500 ha of sugar cane and another 9150 ha of grazing pasture, some of which will be converted to oil palm. It also owns 12 oil mills, two refineries, and a seed production and plant breeding facility. The company's 20,375 head of cattle make it PNG's top beef producer, according to Sime Darby.

NATIONAL ASSET: The deal was solidified after years of efforts by Sime Darby, which previously sought to purchase a smaller 20% share in the company held by the government as well as a larger minority stake from Kulim Holdings Berhad. Part of the reason the original deal had been unsuccessful in 2013 was the lower offer price of £5.50 per share, which Sime Darby increased to a 30% premium in the 2015 agreement.

While the buyout adds a good chunk of acreage to Sime Darby's sprawling international land , it also remains consistent with the company's focus on producing certified sustainable palm oil which allows it access to Western markets. However, prior to the takeover, which required the approval of the government owing to its status as a strategic national asset, the ownership of NBPOL was split between Kulim Malaysia Berhad, a Malaysia-based palm oil investment company holding a 49% stake; institutional and retail investors with another 24% share, NBPOL management with 5% and the PNG government and other interests with 22%.

FISHERIES: One of the Pacific Ocean's largest fishery zones encompassing some 2.4m sq km of exclusive water territory surrounding more than 600 separate islands, the PNG fishing industry remains a vital component of the country's economy. The area is home to a wide variety of ecosystems providing a habitat for creatures ranging from coast-dwelling bêche-de-mer (commonly known as the sea cucumber), to reef fish, to schools of tuna patrolling deepwater expanses, not to mention freshwater fisheries and aquaculture.

On a commercial level the National Fisheries Administration (NFA) oversees six commercial fisheries: prawn, lobster, sedentary, inshore, aquaculture and tuna. Led by the tuna industry PNG exported 50,600 tonnes of marine products (worth PGK240.2m ($90.9m)) in the first three quarters of 2014. This represented a rebound year for the industry, which exported a total of 46,200 tonnes of fishery products worth PGK234.4m ($88.7m) for all of 2013 after shipping 71,100 tonnes valued at PGK329.5m ($124.7m) the previous year.

TUNA TRADE: While the smaller fisheries benefit the country by supplying local markets with fish and modest exports when their respective fisheries are healthy, the sector remains largely reliant upon the tuna trade. Boasting some of the most productive tuna catchments in the world, PNG is a member to the Parties of Naru Agreement (PNA) which fellow Pacific Island nations of the Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Solomon Islands, and Tuvalu formed to collectively manage tuna stocks, catches and market prices. By implementing a vessel day scheme (VDS) requiring foreign-flagged fishing boats to pay a daily fee to ply their waters, PNA members have been able to take in an increasing amount in fees while at the same time expanding their own domestic fisheries sector along with associated value-added services such as canning and packaging facilities.

The cornerstone of PNA management is the skipjack tuna fishery, in which the VDS system has increased revenue flowing to the eight PNA members since its inception, from $64m in 2010 to $357m in 2015, according to the PNA. The organisation set the total allowable effort (the number of cumulative days sold by member states in a given year) at 46,610 VDS days for 2015 and 45,881 VDS days for 2016, while the benchmark price set by PNG in 2015 was $8000 per day.

The NFA is also looking to capitalise on the tuna trade by bolstering its value-added services with processing and canning facilities. The focus of these efforts is the PMIZ, being developed near the port city of Lae, in which a number of large canneries are being built. These include investments in new facilities by both foreign and domestic companies such as Nambawan Seafoods, Niugini Tuna, Heilshing of China, DonWong of Korea and Sapmer of France, which will join the established Frabelle and Majestic seafood processing plants in PNG. Nambawan Seafoods Tuna is a joint venture between Trans Pacific Journey Fishing Corporation and TSP Marine Industries (TSP Livestock and Development Corporation) of the Philippines, which is planning to build a PGK36m ($13.6m), 150-tonnes-per-day tuna processing facility. Niugini Tuna is a tripartite joint venture between RD Corporation of Philippines, Fairwell Fishery Group of Taiwan and Tri Marine International of Singapore, which will build a PGK87m ($32.9m), 200-tonnes-per-day facility, according to the NFA.

PNG is home to one of the largest fishery zones in the Pacific, with 2.4m sq km of exclusive water territory

OUTLOOK: The government has allocated significant funding for agriculture development, which should help the industry become more cost competitive in the long run. However, concerns remain about the direction of government policy. "Trukai is concerned about moves by the government to implement a quota system," Greg Worthington-Eyre, CEO of Trukai Industries, told OBG. "It does not make economic sense to limit a company's ability to grow and be profitable, yet expect them to invest heavily in a very high-risk environment."

Even so, the agriculture, forestry and fisheries sector is expected to continue on a path of recovery, with the government projecting sustained modest growth for the sector at 3.6% in 2015 and 3.7% in 2016. This growth will come from several sub-sectors, including improvements in the cultivation of coffee and cocoa as a result of yield-boosting initiatives such as the PPAP.

Copra oil production is also expected to increase in 2015 as oil processing mills recommence operations in East New Britain. These positive developments along with the ongoing expansion in the palm oil industry and profitability of the tuna fishery should ensure that the sector will remain a significant source of growth.

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Cocoa production is forecast to reach 42,000 tonnes in 2014/15

Sweet tooth

A revival of global cocoa commodity prices has been a boon for local growers' efforts to increase exports

Cocoa exports peaked in 2010, when PNG shipped $131.5m worth of beans worldwide. This was up from $127.6m the previous year and bested the former high-water mark of $130.8m in 2008.

The past decade have seen trying times for cocoa farmers in Papua New Guinea. They have dealt with devastating attacks by the maligned cocoa pod borer (CPB) starting in 2006, followed by a drop in cocoa market prices which have brought the industry to the brink of collapse in recent years. Concerted efforts to revive the crop were led by farmers, international aid organisations and local trade organisations such as the Cocoa and Coconut Institute, and are now beginning to show results, with producers and exporters turning the corner in 2014.

DOMESTIC PRODUCTION: Domestic cocoa production is forecast to reach 42,000 tonnes for the 2014/15 crop season, up from 40,000 tonnes the previous season. Indeed, this is the largest harvest since the 48,000 tonnes produced in 2010/11, according to data from industry body International Cocoa Association. PNG ranks as the second-largest producer of the crop in the Pacific Oceania region behind Indonesia, which is forecast to produce 380,000 tonnes of cocoa during the 2014/15 harvest, with other countries combining to account for the remaining 42,000 tonnes produced regionally.

The rebound has been crucial not just for local farmers who depend upon the cash crop for their livelihoods, but also for the economy as a whole as cocoa export receipts are the fourth-largest cash earner for agriculture in PNG behind palm oil, tuna and coffee. Cocoa exports peaked in 2010 when the country shipped PGK347.6m ($131.5m) worth of beans worldwide after exporting PGK337.3m ($127.6m) the previous year and besting the former high-water mark of PGK345.6m ($130.8m) in 2008.

EXPORT QUANTITY: In 2010 this trailed only palm oil exports valued at PGK1.03bn ($389.8m) and coffee exports of PGK521m ($197.1m) in all agricultural exports, excluding seafood. In terms of export quantity, 2008 remains the single-largest year in terms of export volume with 53,300 tonnes of cocoa shipped, followed by 48,200 tonnes the next year.

However, the sector was devastated by a rampant pest infestation of crops decimated by CPB just two short years later. Declining commodity prices further amplified the effects. Foreign sales of cocoa beans were nearly halved from the 2010 peak to PGK182.6m ($69.1m) in 2008 on a harvest of 38,100 tonnes. Numerous revitalisation programmes have since made progress in restoring the industry to its former glory. Domestic cocoa farmers are showing signs of slowly but surely increasing output in recent years as exports inched upward to 38,700 tonnes in 2013.

COMMODITY PRICES: While the increase in output has helped exporters, a revival of global cocoa commodity prices has also given the sector a significant boost. After retaining average monthly prices well above $3000 per tonne through the first half of 2011, prices tanked in the second half of the year and lost around a third of their value by that December when the price bottomed out at $2196 per tonne. Prices continued to flounder under the $3000 level for most of the next two years. However, they have recently begun to rebound after hitting $3042 per tonne in March 2014 and maintained their value through most of the year before tailing off slightly to just under $3000 per tonne by January 2015.

Local growers can command a premium for their exports, with PNG producing a greater proportion of highly regarded cocoa beans than Indonesia, which churns out nearly 10 times the amount of product but sacrifices quantity for quality. Approximately 90% of the cocoa beans produced in PNG for export are classified as "fine or flavour" beans by the ICCO Panel on Fine or Flavour Cocoa compared to only 1% for Indonesian beans, most of which are "bulk" or "ordinary". Fine or flavour beans, which make up around 40-50% of the total global cocoa market, command a premium price. As a result, they are used by major chocolate manufacturers in Western Europe and to a lesser extent in Japan, the US and Latin America to produce premium-quality chocolate.

Local growers can command a premium for their exports, with PNG producing a greater proportion of highly regarded cocoa beans than Indonesia, which churns out nearly 10 times the amount of product but sacrifices quality for quantity.

Pedro Celso, CEO, RD Tuna

Fishing for growth

OBG talks to Pedro Celso, CEO, RD Tuna

To what extent are the limits of the current vessel day scheme affecting stocks in Papua New Guinea?

CELSO: The current system was put in place by regional governments as part of the Nauru Agreement to reduce catches of target tuna species, as well as to maximise the economic benefits by collecting the access fees paid by distant fishing nations. Although industry was supportive of this initiative, there are currently concerns about the sustainability of the scheme, based on statistical data we gathered from the PNG National Fisheries Authority. Indeed, the PNG administration has not managed to control the number of foreign boats fishing in the country's rich national waters, which are considered to contain the largest and most valuable tuna purse seine fishery in the world.

A single vessel pays $10,000 on average in access fees for a whole fishing day, which is a considerable investment on their part. As a result, they have been fishing very aggressively to recoup the investment, frequently casting nets several times a day in the same area to maximise output and minimise costs. Fishing vessels nowadays are equipped with cutting-edge technologies, and use sophisticated satellite facilities and helicopters to track stocks, while most of the work onboard is carried out mechanically to boost efficiency. Vessel owners in the past used to pay on the basis of their catch with no time constraints, which was more effective in terms of sustainability. After all, if you fish constantly over the same area, the stock will inevitably become smaller. This is something we have noticed in recent years, and is also confirmed by statistics from the National Fisheries Authority.

What kind of management system would be more sustainable to ensure sustainability in the long run?

CELSO: The Palau arrangement was based on restricting the total number of vessel licences available, so that there would be a maximum of 205 fishing vessels casting nets in any given area. Today that number can easily go up to 300 or more, with undesired effects on the size of the stock. In more general terms, however, I believe that the government should focus on supporting onshore production for a more diversified sector by adding value to the industry's output. The current approach of allowing an increasingly large number of foreign vessels to fish in PNG waters seems to me to be too simplistic in light of the existing context.

As far as we know, as many as 75% of these vessels process their catches overseas, with a significant impact on the growth of the canning industry in PNG. By making domestic processing plants more competitive, they would have a better chance on the international market. Despite the high cost of doing business in PNG, more investments and expansions are happening, resulting in economies of scale that enable investors to produce more, lower freight costs and spread out the fixed costs to many more units. That said, the northern coast of PNG has been attracting sizeable investments from other international companies willing to process fish onshore, who have taken advantage of the tuna stocks available in PNG's 2.5m-sq-km exclusive economic zone.

What measures can be taken to counter the EU's "yellow card" warning for lack of cooperation in the fight against unregulated fishing?

CELSO: The PNG NFA has initiated many reforms in order to satisfy the main demands of the EU. More specifically, the Fisheries Act has already been amended to reflect the changes that were being sought by the bloc. In addition to these, a Tuna Management and Development Plan reflecting major reforms is in place and other issues such as the Catch Documentation Scheme and Memorandum of Agreements with fishing partners and countries are as well. Many improvements have been made too: 100% observer coverage, a modern VMS system, the Catch Documentation Scheme, Catch Certificate details and others that have been in place. Thus, the industry expects that the yellow card issue will now be put to rest and that PNG will again be restored to its original green card status.

John Nightingale, Managing Director, Agmark

Keeping the advantage

OBG talks to John Nightingale, Managing Director, Agmark

What are the major competitive advantages of coffee and cocoa from Papua New Guinea?

NIGHTINGALE: Demand for cocoa from PNG on the international market has remained strong, relative to other origins, due to the consistency of quality, its unique flavour and its traceability. We have some concerns that quality control standards have slipped, but our own internal controls remain very high.

PNG cocoa production could quadruple and we would have no trouble selling every bean, such is the demand, but production has fallen from a high of 56,000 tonnes in 2013 to 31,500 tonnes in 2014. This was due to an infestation by cocoa pod borers and the senility of many cocoa trees. Agmark has been at the forefront of the development of management strategies to combat pests by replanting trees with high-yield clones, spot spraying, harvesting regularly, maintaining rigid pruning regimes and improving cocoa block hygiene practices. East New Britain was the hardest hit province, with production dropping from over 20,000 tonnes to 4100 in 2013. This has removed more than PGK100m ($37.8m) from farmers' pockets each year for several years. Traders margins have also been reduced, because the decline in production has eroded economies of scale.

How would you evaluate claims that traders' margins are too high compared to those of farmers?

NIGHTINGALE: Many people make the assumption that farmers are kept at the low end of the chain. However, it is well known that farmers in PNG get over 90% of the world's market price for cocoa. We are proud of the very short marketing chain that has evolved since the late 1980's for PNG cocoa beans.

Considering the small size of the PNG cocoa crop, the number of exporters is far too many. Then is a continual cycle of those entering and those leaving after only a short time attempting to compete This proves that exporters do not make a huge profits. The only way for exporters to increase their incomes is through adding volume, while controlling the costs and overhead, which can be a real challenge in PNG.

In the case of Agmark, we buy cocoa from the farmers and sell it directly to chocolate factories, which involves a very short marketing chain. Indeed, most of the time traders act as banks to the growers and make it possible for them to turn their crops into ready-made cash. Note needs to be taken of price transferring by foreigner-owned or controlled cocoa exporters. This is highlighted within the Cocoa Boards own records. This price transferring benefits the sovereign wealth fund of another country. Despite their knowledge of price transferring, neither the Cocoa Board, Customs, nor the Bank of PNG have taken action to curtail this activity.

How will changes to government policy regarding licences for traders affect the industry?

NIGHTINGALE: The government has announced that it will not renew licences for traders unless they agree to invest in plantations covering a minimum of 10,000 ha. However, traders have been operating in this country for many decades. As a result, I doubt very much that investors would want to put their money in PNG if they were aware that there would be no exporter access through the private sector.

We were cocoa growers and we became exporters. Agmark is now a listed firm with 4500 shareholders and over 1500 employees, with about 2600 ha of land. So, it would be odd – to say the least – if we were no longer allowed to continue exporting from PNG. In general, there is not enough consultation between the cocoa board and the industry as a whole. It is possible to find people in Port Moresby dictating conditions for other regions that are impossible to implement on the ground. Further to this, the availability of land continues to be one of the biggest stumbling blocks for the growth of the agriculture industry in PNG, and I do wonder where the proposed 10,000 ha of land for each trader and exporter could come from.

Large plantations provide most agricultural export revenues

Favourable conditions

Palm oil production is continuing to expand and serves as a crucial component of PNG's economic diversification efforts

Palm oil has long been a success story for Papua New Guinea's agricultural sector, with large plantations providing the bulk of agricultural export revenues and serving as a crucial component of economic diversification efforts to balance out the heavily weighted extractive industry sectors. Established in the 1960s, the original Hoskins and Bialla (now Hargy Oil Palms) oil palm plantations were set up in New Britain according to the nucleus estate smallholder (NES) model.

The NES system was designed to be not only profitable but to also benefit local communities which were already largely dependent on agriculture as a means of subsistence. Under this system the small holder is responsible for cultivating and harvesting their own crops on their land, while nearby milling companies (the nucleus) are responsible for the collection, transportation, and processing of the fresh fruit bunches, along with their own supply. These local small holders participate in the system under two primary structures: the Land Settlement Scheme (LSS) and Village Oil Palm (VOP). The LSS scheme was used in the older plantations which alienated customary land under 99-year leases, some of which were then farmed by settlers from other areas of the country and are now becoming stressed as multiple generations from the original farmers are now working the same plots. The LSS scheme was gradually replaced by the VOP, which is generally less productive but allows for the development of workers' own customary land. The Clan Land Usage Agreement (CLUA) has more recently been developed for customary landowners and migrant smallholders growing oil palm on customary land which allows for the purchase of usage rights rather than land title. As of December 2014 there were a total of 21,101 smallholder blocks established across the country composed of 14,904 VOP, 5231 LSS and 966 CLUA and independent estates according to data from the PNG Palm Oil Council (POC).

MAJOR PRODUCERS: There are currently two major palm oil producers operating in the country: New Britain Palm Oil (NBPOL), and Hargy Oil Palms. Industry leader NBPOL has acquired a number of competing plantations over the years and currently accounts for the vast majority of output in the sector including five of the six primary growing areas.

The company controls a total 64,427 ha of palm oil at the West New Britain plantation area (43.5% of the total palm oil area) around Hoskins which is split between 36,985 ha of plantation acreage and 27,442 ha of smallholder and other out growers. The other four areas NBPOL works are Higaturu (22,822 ha) in Popondetta, Milne Bay Estates (12,907 ha) at Milne Bay, Poliamba (8352 ha) in New Ireland and Ramu Agri Industries (12,918 ha) at Ramu.

The Bialla Oil Palm Project, managed by Hargy Oil Palms was established in 1969 and has a total planted area in production of 26,843 ha (13,002 ha plantation, 13,841 ha smallholders and 1948 ha other growers). A third competitor – Malaysian agribusiness giant RH, which is already a major player in PNG's forestry sector– is developing a 42,000-ha oil palm plantation in East New Britain province. The Sigite Mukus Integrated Rural Development Project will include 31,000 ha dedicated to oil palm as well as three oil mills requiring an investment of PGK600m ($227m).

WEATHER CONDITIONS: Buoyed by favourable weather conditions and an expansion of the plantation area, the production of palm oil fresh fruit bunches increased 10.6% in 2014 to 2.63m tonnes from 2.34m tonnes the previous year. Plantation harvests accounted for 1.6m tonnes in 2014 (up 12.1% over the previous year) with the remaining 776,402 tonnes harvested by smallholders and other out growers (up 7.3% over 2013 levels). Palm oil companies exported 514,757 tonnes of crude palm oil (CPO) in 2014, easily outpacing 487,200 tonnes shipped the previous year. Shipped exclusively to the EU, CPO and other palm-derived exports remain the largest source of revenue for the agriculture sector in PNG, netting PGK1.5bn ($567.6m) in 2014 and PGK1.2bn ($454.1m) in 2013.

Buoyed by favourable weather conditions and an expansion of the plantation area, the production of palm oil fresh fruit bunches increased 10.6% in 2014 to 2.63m tonnes, up from 2.34m tonnes in 2013.

The nucleus estate small holder model was designed to be not only profitable but to also benefit local communities that were already largely dependent on agriculture as a means of subsistence.

Timber exports are a major source of foreign currency for the nation

Shiver me timbers

Raw logs are a key export commodity for the country

Timber exports reached an all-time high of 3.79m cu metres in 2014, up from 3.32m cu metres in 2013 and 3.15m cu metres in 2012.

Second in the agriculture segment to the palm oil industry in export value, Papua New Guinea's forestry sector continues to expand on the back of strong regional demand for raw materials. The rate of growth for the industry has accelerated over the past decade as the government has allocated large swaths of land for agricultural development which has allowed companies to fell increasing amounts of valuable tropical hardwoods for export. A very diverse range of timber species are harvested from PNG forests, with no single species generally representing more than 15% of production. This has propelled the country to its current status as the second-largest exporter of tropical timber in the world after Malaysia.

Annual export volumes increased gradually during the 1970s and 1980s, expanded rapidly in the 1990s to a peak of 3m cu metres, then dropped to an average of 2m cu metres a year in the late 1990s and early 2000s, before increasing again over the past decade. Production and exports hit an all-time high in 2011 as a surge of new special agriculture and business leases (SABLs) opened up large tracts of private land for development. The surge in output was not without its detractors, however, as a substantial row ensued in 2012 over the validity of many of the SABLs, which led to a freeze on development.

The ensuing downturn now looks to be a temporary setback in the segment, as timber exports regained momentum and reached a new all-time high in 2014, with a total of 3.79m cu metres of raw logs shipped out on the year, according to data from the Bank of PNG. This easily outpaced the previous peak of 3.53m cu metres achieved in 2011 and marked the third consecutive year of growth. A total of 3.15m cu metres of logs were exported in 2012 followed by 3.32m cu metres in 2013.

China was the primary buyer of PNG's timber exports in 2014, purchasing 3.23m cu metres out of the 3.79m cu metres exported that year.

SHIFTING MARKETS: The vast majority of PNG's forestry products are currently destined for China, which retains a substantial appetite for wood as both an input to its own domestic construction industry as well as a raw material for the manufacturing of goods for export. Because PNG's traditional land ownership laws outlined in its constitution have historically restricted large-scale harvesting of domestic timber, the country is one of the few locations in the South Pacific to have its primary growth forests largely intact. As other tropical hardwood repositories like Borneo see forests reduced and draw more scrutiny from environmental non-government organisations (NGO), PNG's vast swaths of virgin forest are becoming more sought after than ever.

EXPORT MARKETS: China's growing appetite for raw materials resulted in the country surpassing other large importers of PNG forestry products, such as Japan around the turn of the millennium, while other regional importers such as Australia, South Korea and the Philippines have also seen their purchases of PNG lumber dwindle in the ensuing years.

In 2014 China imported 3.23m cu metres of logs from PNG, up from 2.75m cu metres in 2013 and 2.58m cu metres in 2012, according to the General Administration of Customs of the People's Republic of China. Imports were on pace to come in below 2014 totals through the first five months of 2015, with a total of 1.25m cu metres of logs imported through May 2015, compared with 1.42m cu metres over the same period in 2014.

Many of the larger forestry operations are run by Malaysian firms based out of the Malaysian state of Sarawak, on the island of Borneo – also a major tropical timber exporter. The largest single forestry company currently operating in PNG it is Rimbunan Hijau, commonly referred to as RH, and is involved in the export of raw logs as well as milled wood products – including four saw mills producing various lumber products, like plywood and veneer.

This demand has proven to be a windfall for forestry companies operating in PNG as export receipts now dwarf all other agriculture exports except for the country's only major plantation crop of palm oil. In

2014 forestry product shipments hit a high of PGK962.1m ($364.1m), eclipsing the record of PGK768.3m ($290.7m) set in 2011 with a 32% increase over the 2013 total of PGK729.7m ($276.1m) and one-third greater than the PGK627.1m ($237.3m) registered in 2012. The majority of these exports consisted of raw logs, which accounted for PGK950.3m ($359.6m), or some 99% of the annual total. At nearly PGK1bn ($378.4m) in value, forestry exports are a substantial portion of agriculture and one of the major sources of foreign currency, outside the energy and mineral sectors. Forestry shipments were worth more than the next two most valuable export commodities combined, with 2014 cocoa and coffee exports totalling less than PGK700m ($264.9m).

ACCOUNTABILITY: Apart from continued demand for increasingly scarce raw materials, another major contributor to the dominance of Chinese purchases of PNG timber exports is the growing reticence among Western markets to purchase non-sustainable products. This lack of sustainable accreditation has posed a significant hurdle for the PNG timber sector outside of China as the US, EU and Australia have all cracked down on importing illegally logged timber which can exacerbate deforestation and the release of carbon dioxide gas emissions.

Australia, for instance, a major purchaser of PNG forestry products in the not-so-distant past, has shied away from PNG products since 2012, when the country passed the Australian Illegal Logging Prohibition Act. The legislation prohibits both the import of illegally logged timber and the processing of illegally logged raw logs and compels Australian importers and processors of raw logs to carry out due diligence so as to minimise the risk of illegally logged timber being present in their supply chains. In order to prove that due diligence has been undertaken, the importer must submit a declaration to the Customs minister at the time of import.

US policy is likewise dictated by the Lacey Act, first passed in 1900 but amended in 2008 to include timber, paper and other forest products. Meanwhile, the EU presents its own Forest Law Enforcement, Governance and Trade regulations (FLEGT), which are designed to similarly exclude all illegal timber from markets, help improve the supply of legal timber and push to increase the demand for responsible wood products. This was further bolstered by the adoption of the EU Timber Regulation in March 2013 which prohibits placing illegally harvested timber and products derived from such timber on the EU market. Timber which carries a FLEGT licence or a Convention on International Trade in Endangered Species of Wild Fauna and Flora permit are considered to comply with the Timber Regulation.

While these policies have reduced the amount of illegally and unsustainably felled wood products in their respective markets, they have also led timber exporters into the waiting arms of less scrupulous purchasers who are more than happy to fill the demand gap. As the amount of PNG-sourced wood

Forestry exports had a combined value of nearly $1bn in 2014

China is the main buyer of PNG timber exports, both due to its continuing demand, as well as the growing reluctance among Western markets to buy non-sustainable wood.

Since the 1980s, approximately 400 SABL licences have been issued

Efforts to reform the SABL programme and improve oversight of forested land are being considered by the government, following the COI's investigation.

imported to Western countries has declined, this surplus is being picked up by China, which has no such regulations about importing non-certified or illegally logged wood and has subsequently become the trade's biggest importer.

THE SABL INQUIRY: The lack of certification and traceability for some of PNG's exports was highlighted in the recent controversy surrounding the government's SABL programme, which resulted in breached contracts and a government inquiry detailing significant misconduct within the sector. The SABL programme was tweaked in 2009 to open up land for development, because under PNG law, all land is owned by its ancestral claimants by default. As a result, it can only be leased out to private interests or even the government for other use, and selling it is complicated and often unworkable. As a result of this, approximately 97% of PNG land is owned and managed by customary landowners and extensive (often contentious) consultations between resource owners, government agencies and commercial forestry companies are usually necessary before any forest activity can take place.

SABLs were originally promoted as a way to help navigate customary land titles in a manner that would support local agriculture and foster the expansion of more efficient plantations. However, upon review, the vast majority of SABLs were found to have been used exclusively for timber harvesting, which is a violation of the terms of agreements. In many cases, full informed consent of the customary landowners was never achieved, resulting in further violations of landowner laws. Pressure from landowner groups as well as international NGOs led the government to open a commission of inquiry (COI) in 2011 into the matter, with the summary results tabled in parliament in September 2013.

The inquiry found that of 42 SABLs examined, only four had proper landowner consent and viable agricultural projects, whereas the remainder (more than 90%) were obtained through fraudulent or corrupt means. This figure was later revised in 2014 to 66 of 75 SABLs examined found to be in non-compliance. The commission brought to light "abuse, fraud, lack of coordination and incompetence" in the issuance of SABL licences. Legal requirements were "deliberately breached and proper processes either by-passed or simply ignored". In all, the COI estimated more than 5.2m ha of customary land around the country had been alienated, mostly for "special agriculture activities" in virgin forest tracts containing tropical hardwoods. It was estimated that more than 400 SABLs have been issued over customary land from the 1980s to the time this COI was set up.

REFORMING THE SYSTEM: Final reports submitted by COI commissioners contained recommendations for the government, as a way to rectify SABL, including reclaiming land leased in non-compliant agreements as well as reforming administrative and enforcement policies. A study on the subject by London-based think tank Chatham House released in April 2014 included its own recommendations: increasing enforcement, finalising a new legal standard and creating a transparent chain of custody. As a result of the report, the prime minister promised changes in the regulatory framework and to establish a ministerial committee to decide on next steps, but stopped short of cancelling any of the SABLs involved, as of mid-2015. Although new SABLs are not being issued, clear-felling under agreements issued before May 2011 has been allowed to go on.

PNG shipped 18,400 tonnes of marine products in first-quarter 2015

Monitoring the catch

Sustainably managing key fishing sources is a state priority

Endowed with some of the most bountiful fisheries in the world, PNG's waters have traditionally supplied abundant amounts of protein- and nutrient-rich food for settlements dotting the country's 17,000 km of coastline. While seafood remains a key staple for many Papua New Guineans' diets, the presence of highly sought after catches, such as tuna, prawns, lobster and others, has fuelled a growing commercial industry. Participants operate a diverse array of fisheries across the country in varied marine ecosystems, with small-scale artisanal communities, local small and medium-sized enterprises, and large-scale international purse seine fishing operations. In all, PNG boasts one of the largest fishery zones in the Pacific region, at 3.1m sq km.

STATE OPERATION: Six commercial fisheries are currently managed by the National Fisheries Authority (NFA), consisting of the key tuna and prawn industries along with lobster, sedentary, inshore and aquaculture/inland categories. The sedentary fishery includes a number of species, among them sea cucumber, along with gold and black lipped oysters, green snail and trochus shells, which are harvested for their thick interior layer of nacre (mother of pearl). The inshore fishery also includes a wide variety of subcategories ranging from reef fish targeted for the aquarium fish trade to crabs, lobster barramundi and other fish caught for live sale. Lastly, aquaculture and inland fisheries cultivate various species for both domestic consumption and export including prawn, carp, tilapia, carp, rainbow trout, barramundi, seaweed and pearls.

In 2014 the country exported 69,600 tonnes of marine products, up from 46,200 tonnes in 2013 and just off the record shipment of 71,100 tonnes recorded in 2012, according to data from the Bank of PNG. Exports have climbed over the past decade, and averaged 63,600 tonnes annually from 2011-14. Preliminary data from the first quarter of 2015 indicates that the industry is on a record pace for the first three months of the year, with 18,400 tonnes of product shipped. In terms of value, exports achieved a high in 2014 of PGK345.9m ($131m), up from PGK234.4m ($88.7m) the previous year and PGK329.5m ($124.7m) in 2012.

OVERSIGHT: The fisheries sector is managed principally under the aegis of the Fisheries Management Act of 1998 and the Fisheries Regulations of 2000. This legislation empowers the NFA to manage all fisheries and marine resources and regulate all related activities in a sustainable and equitable manner. As part of its domestic duties, the NFA also began developing forward-looking fisheries management plans starting in 1994. These cover a range of fisheries including tuna, beche-de-mer, barramundi, prawn, shark, lobster, aquaculture, aquarium fish and live reef fish. Tools used to implement and enforce these polices include gear restrictions, control of by-catch, control of effort, area closures, and size and species restriction.

The NFA is also required to comply with the conservation and management measures contained in international agreements and partnerships. Two of the most important such agreement deal primarily with managing valuable tuna stocks in the western and central Pacific Ocean – the Parties of Nauru Agreement (PNA) and the Western and Central Pacific Fisheries Commission (WCPFC). Both regional fisheries management organisations are intended to successfully manage wide-ranging businesses across borders and in international waters – a necessity, given the transient nature of tuna schools. Since 1992 the countries of the Solomon Islands, Tuvalu, Kiribati, Marshall Islands, PNG, Nauru, Federated States of Micronesia and Palau included in the PNA have worked collaboratively to manage tuna stocks within their waters.

The multilateral arrangement under which these countries have worked is the Palau Arrangement for the Management of the Western and Central Pacific Purse Seine Fishery (Palau Arrangement). At its core, the Palau Arrangement essentially governs the operation of purse seine vessels in the national waters of the PNA, primarily by placing limits on the number of vessels operating through the vessel day scheme (VDS).

The country has approximately 17,000 km of coastline and seafood is an important staple in the local diet, with tuna, prawns and lobster among the catches.

In 2014 the country exported some 69,600 tonnes of marine products, and in the 2011-14 period average annual output has been 63,600 tonnes.

The total number of days a nation's waters can be fished are capped

Tuna is the largest contributor to PNG's fishing industry, accounting for about 30% of output. PNG controls about 15% of the global tuna trade.

Another organisation with similar aims is the Pacific Islands Forum Fisheries Agency (FFA), established to help its 17 member countries manage fishery resources that fall within their 200-mile exclusive economic zones. The Niue Treaty signed by all FFA members furthers management cooperation in monitoring, control and surveillance of fishing, and includes provisions on the exchange of information about the position and speed of vessels at sea, unlicenced vessels and procedures for cooperation in monitoring, prosecuting and penalising illegal fishing. Individual members within the FFA have also adopted more strict enforcement laws extending the range of sustainability laws to make it unlawful to import fish that has been taken contrary to the laws of other countries. The first signatory to the clause in 1994, PNG signed onto the cross-border regulations which state that any party whom lands, imports, exports, transports, sells, receives, acquires or purchases any fish taken, transported or sold contrary to the law of another state is guilty of an offence and liable to a fine.

GONE FISHING: The largest contributor to PNG's fishing industry is the tuna fishery. The NFA estimates PNG controls around 15% of the global tuna trade valued at $4bn-5bn globally each year. This accounts for half the cumulative PNA contribution of about 30% of the world tuna supply, and translates into PGK300m ($113.5m) annually in export revenue for PNG fishermen. In addition to the income derived from tuna sales, the industry is also driving a growing value-added sector of tuna processing across a number of industrial areas and provides the government a substantial cash flow through the sale of fishing rights within its waters. The VDS system, for example, has increased the amount of revenue flowing to the eight PNA members since its inception, from $64m in 2010 to $357m expected for 2015 – more than the total of all export revenue generated from the marine segment in 2014.

Under the VDS management scheme the PNA sets the total number of days that can be fished in their waters combined and the apportionment of the total number of days between each country. These allocations of fishing days are set for 12-month cycles and can be established up to three-years in advance.

Decisions about how many fishing days to allocate are calculated to allow for sustainable levels of commercial activity, using fishing stock assessments on skipjack, yellowfin and bigeye tuna, as well as economic data for maximising economic returns and optimally utilising resources. The PNA set the total allowable effort (number of cumulative days sold by member countries in a given year) at 46,610 VDS days for 2015 and 45,881 VDS days for 2016. The benchmark price set by PNG in 2015 was $8000 per day.

Given the importance of tuna to the fisheries sector as a whole, maintaining stocks for generations to come is crucial for all stakeholders, and effective management and enforcement is now more important ever. In addition to maintaining vigilance for illegitimate fishing practices, the governments of the PNA and WCPFC must balance the cash derived from the lucrative sale of fishing rights and the future viability of the sector.

Tourism

Business and employment travel continues to dominate
Major investments in infrastructure bode well for sector
Wide array of natural and cultural offerings for visitors
Host of Pacific Games and upcoming APEC summit

The sector's contribution to GDP is set to rise 5.3% per year until 2025

A whole new world

New efforts and investments are set to invigorate the sector

With fewer than 50,000 visitors travelling to Papua New Guinea each year for leisure, according to figures from the PNG Tourism Promotion Authority (TPA), the country is far from a mainstream tourism destination. The sector remains largely undeveloped and is a relatively minor contributor to the overall economy. PNG is a challenging destination to travel to and within.

Yet the more intrepid traveller who is willing to overcome some of the associated concerns and costs will be rewarded with a sense of adventure and authenticity that is difficult to match elsewhere. PNG boasts a diversity of attractions bundled together. And while not catering to the mass holiday market, enthusiasts in pursuit of any combination of distinct local cultures, history from the Second World War, unique flora and fauna, and some of the world's best hiking, surfing and dive spots will not leave disappointed.

OVERALL HEALTH: PNG's economy, buoyed by new hydrocarbons projects, is currently attracting significant inbound investment and a foreign business presence. As a result, for the time being, the tourism sector is dominated by corporate travel, but this is set to expand, with the economy pegged to grow in excess of 15% in 2015 and around 5% a year thereafter.

Regional and international exposure should be enhanced as a result of the Pacific Games, which took place in July, followed by the Asia-Pacific Economic Cooperation (APEC) summit in 2018, providing a business case for allocating capital expenditure on hospitality infrastructure and travel services that are currently undersupplied. In time, as improved infrastructure and competition lead to reduced costs, and government promotion efforts show signs of becoming more coordinated, the inbound leisure segment should expand. A burgeoning cruise industry is also providing a platform for short-haul visitors to arrive onshore in more remote parts of the country.

ARRIVAL FIGURES: Of the 182,188 inbound visitors recorded by the TPA in 2013, less than a quarter, or 41,000, were categorised as leisure travellers. This reflects the trend of business travel in the country, which has more than tripled since 2002, outpacing the growth in visitors coming for leisure purposes, which has only increased by around 10,000 people over the past five years. The predominance of visitors coming for business and employment purposes is also reflected in the demographics of those arriving in the country. In 2013, 82.3% of all arrivals were recorded by the TPA as being in the working age group of 20-59 years, whereas only 4.2% were under 20 years and 13.5% were over 60. There is also a pronounced gender imbalance, with 78% of arrivals being men.

According to the World Tourism & Travel Council (WTTC), international tourist arrivals for 2015 are expected to fall to 172,000, with the drop-off largely due to the fact that many large-scale infrastructure and extractive sector projects, such as the PNG liquefied natural gas (LNG) plant, have been reliant on expatriate labour but are now transitioning from the construction to operational phases. However, by 2025 the WTTC projects that foreign arrivals will reach 238,000, which would mark an increase of 2.1% per annum. The forecast is an indication that economic activity, despite an intermediate lull, is set to pick up.

ECONOMIC CONTRIBUTION: Also expected to increase is the contribution of the sector to the overall economy. According to the WTTC, in 2014 the direct contribution of travel and tourism was just $107.8m, or 0.7% of GDP, placing PNG 164th out of the 184 countries surveyed, far below the average contribution for the Asia Pacific region of $21.7bn. The sector's total contribution – direct and indirect – to the economy was pegged at $340.1m in 2014, equal to 2.1% of GDP. Over the 10-year period between 2015 and 2025, the sector's total economic contribution is expected to increase by 5.3% per annum, to reach $608.4m. According to the South Pacific Tourism Organisation, PNG, despite being the region's largest country in terms of both population and landmass, had just a 10.4% market share of tourism traffic. Fiji

Of the 182,188 visitors that travelled to the country in 2013, only 41,000 did so for leisure purposes. Business and employment travel has more than tripled since 2002, significantly outpacing growth in leisure visitors.

In 2014 the direct contribution of travel and tourism was just $107.8m, or 0.7% of GDP, far below the average contribution for the Asia-Pacific region of $21.7bn. The sector's total contribution – direct and indirect – to the economy was pegged at $340.1m in 2014, equal to 2.1% of GDP.

Authenticity and adventure are major draws for visitors to PNG

While travellers in the leisure segment were outnumbered by business visitors, they outspent all other segments, making up 67.8% of direct travel and tourism GDP in 2014, with $187.99m.

is the undisputed leader in tourism, hosting 41.3% of all visitors to the region.

EMPLOYMENT: The sector's role in national employment is also minimal, having accounted for just 16,000 jobs, or 0.5% of the total workforce, in 2014. And while this is set to fall by 8.2% in 2015 to 15,000, or 0.5% of jobs in the country, it should rise by 3.7% every year over the next 10 years to total 21,000 jobs. However, the amount of investment received was more significant in 2014 at PGK304m ($115.03m), which was a 7.5% jump over PGK282.8m ($107.01m) in 2013.

BUSINESS & LEISURE: Furthermore, while business visitors outnumber those in the leisure segment, travel spending by the later grouping made up 67.8% of direct travel and tourism GDP in 2014, or PGK496.8m ($187.99m), compared to just PGK242.3m ($91.69m) spent by business travellers. And the WTTC expects the pace of spending growth by both segments to be roughly the same at 5.6% and 5.5% per annum for leisure and business, respectively, leading up to 2025.

"With more hotels coming on stream in Port Moresby, I think that competition will be increasingly around meetings, incentives, conferencing, exhibitions tourism, which hopefully will spark interest to visit the rest of the country as well," Alex Wilson, general manager at the Grand Papua, told OBG.

NOT LACKING IN ASSETS: That tourism has been a fledging sector and has had a minimal impact on the economy does not mean the country lacks marketable attributes and advantages to be exploited. To date, the government's economic development efforts have focused mainly on extracting value from domestic mining and petroleum reserves, which has translated into huge revenues and immediate returns for the Treasury. Unlocking tourism assets, however, arguably requires more coordinated planning and time to bear fruit. "When you are a developing country like PNG, you understandably lack the luxury of giving too much thought as to which sectors need to be driven, and work with what you have. And in PNG's case, what they have at the moment is a strong extractive resource base," Gavin Murray, the International Finance Corporation's country manager for Australia, New Zealand, Timor-Leste, PNG and the Pacific Islands, told OBG.

Looking forward, because the country's natural and cultural resources have remained largely intact, PNG is placed in a strong position to grow its tourism sector, containing a raw beauty and cultural heritage that is yet to be discovered more widely and that holds appeal for those in pursuit of adventure.

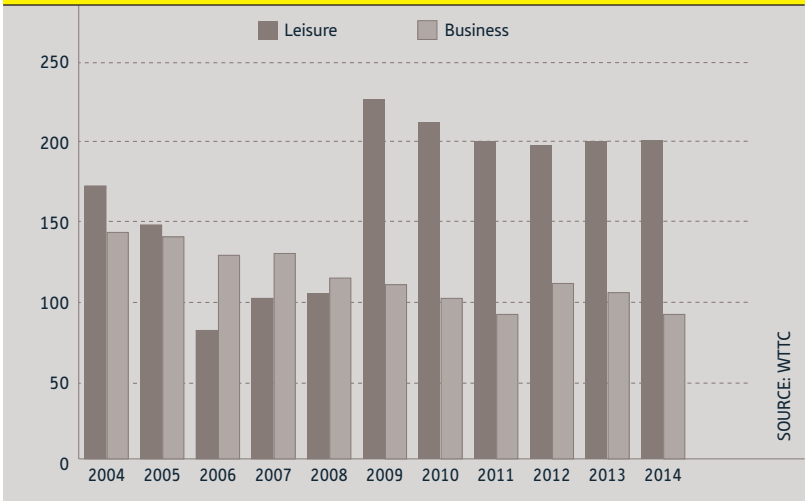
Developing a niche offering also comes with the advantage of being significantly cheaper in terms of required infrastructure and related costs. It is also less taxing on the environment in the long term and, therefore, more sustainable and ultimately more profitable, as service and hospitality providers are able to operate with higher margins.

BIODIVERSITY: The World Wildlife Fund estimates that PNG is home to between 15,000 and 20,000 species of plant life, 80% of which are unique to the country. It is one of the world's true biodiversity hotspots, with a wide variety of flora and fauna species that are rarely found elsewhere. The country holds unique appeal for birdwatchers, who can find 38 of the 43 known species of birds of paradise within its borders. Canoeists, kayakers and fishing aficionados can take advantage of the country's substantial river system, while hiking enthusiasts can partake in some of the world's most famous and challenging trails, including the highly popular 96-km Kokoda Track that traverses both jungle terrain and many historic Second World War battle sites.

PNG's territorial landmass is made up of 600 islands, and one can find unspoiled beaches that are warm enough for swimming year round. The country's shoreline is said to contain twice the number of marine species found in the Red Sea and five times the number found in the Caribbean. In addition to a surplus of marine life, divers can navigate around a number of Second World War naval and aircraft wrecks.

HISTORY & CULTURE: PNG formed part of the British empire in the late 19th century and was administered by Australia from 1906 until 1975. Remnants of its

Tourism spending, 2004-14 ($ m)



colonial past can be found in the capital, Port Moresby, as well as on Samarai Island. The country served as a major battleground for the allied forces' campaigns against the Japanese during the Second World War, and many Australians and New Zealanders in particular visit the country's battle and memorial sites.

As with its natural attractions, PNG's cultural offerings are also distinct, and local communities continue to preserve their traditional cultural practices. In excess of 800 languages are spoken by the country's indigenous social groups, many of which were without outside contact until the 20th century and have maintained their customs and way of life. A common option for tourists looking to experience traditional cultures is to attend one of the many festivals and cultural shows that take place throughout the year. A Sing-sing is the colloquial term given to a meeting of tribes or villages, with the occasion calling for a peaceful gathering to put tribal differences aside and showcase cultural distinctness. Sing-sings are considered to be relatively authentic, as the intended audience is primarily local rather than an event being staged for touristic consumption. Village homestays have become another popular way to gain access to local tribes. Global guidebook publisher Lonely Planet even listed a PNG village homestay as being among the 26 "hottest" tourist experiences for 2015.

COSTS: While PNG has plenty to offer business and adventure tourists, a major drawback for the leisure segment as compared to other Asian holiday destinations such as Thailand and Indonesia is the cost and difficulty associated with visiting the country. Most goods are imported by air or sea, telecommunications is expensive and many firms are forced to provide their own power generation, resulting in higher costs for the end-consumer. Lack of competition has also led to fewer options, as well as a demand and supply imbalance for accommodation and flights.

Better hotels in Port Moresby can run from $200 to $300 per night, and establishments in some of the ore remote cities can be more expensive. Singapore is one of the few Asian aviation hubs that offers direct flights to the capital. The national carrier, Air Niugini, is the only airline servicing the route, and round trip fares for the 6.5-hour flight cost around $1600. Domestic flights are also expensive. Port Moresby to Lae, a 45-minute journey, costs PGK667 ($252) round trip. Port Moresby to Mount Hagen costs PGK825 ($312), while Port Moresby to Buka is PGK1156 ($437).

Lonely Planet advises budget travellers to anticipate spending around PGK300 ($113.52) per day in PNG, compared to $30.60 in Thailand, $30 in Malaysia and $25 in Indonesia. Although this is largely based on costs for Port Moresby. Meanwhile, other guidebooks and travel agencies warn against independent and budget travel entirely, advising visitors to move around "expedition" style with experienced operators as inland travel requires professional logistics coordination,

A Sing-sing, or gathering of tribes and villages to showcase their distinct cultural practices, is one of the best ways for visitors to the country to learn about and witness local traditions.

as well as security in some regions. The high costs associated with staying in PNG can also be seen in the per diem pay that the US Department of State allocates for its posted employees. Those stationed in PNG are provided $504 in Port Moresby and $323 outside of the capital. That compares with $219 in Suva, Fiji, $110 in the Solomon Islands, $362 in Jakarta, $408 in Tokyo and $237 in Manila.

AVIATION ACCESS: Many of the country's attractions are difficult to access overland due to the lack of roads and a challenging mountainous terrain, placing significant importance on airport infrastructure and an efficient domestic route network. According to the CAPA Centre for Aviation, runways in PNG are often poorly maintained, terminals are not up to standard and on-time performance is low, creating a strong impetus to upgrade facilities and improve operations. The Civil Aviation Safety Authority owns and operates 21 airports across the country, with Port Moresby's Jacksons International Airport acting as the main international gateway. The capital's airport is having its main terminal extended in preparation for the 2015 South Pacific Games, and there are further plans to link its two terminals with a 35,000-sq-metre, three-level building by the APEC summit in 2018.

With no road links between Port Moresby and other major cities, authorities would like to see airports outside the capital handle more international traffic. To this end, Mount Hagen's Kagamuga Airport is expected to open in the near future, with Kimbe's Hoskins Airport also currently being redeveloped.

Of the 245,844 foreign visitors to PNG in 2013, 96%, or 235,616, arrived in Port Moresby by air. While the capital acts as the main commercial and government centre, it has a somewhat gritty and unsavoury reputation. The TPA has stated that it would ideally like for leisure visitors to be able to bypass the capital entirely and enter the country directly through some of the safer and more tourist-friendly areas, such as New Ireland, East New Britain and Milne Bay.

Airfare is relatively high compared to other countries in the region

Due to a shortage of high-quality accommodation, rates are often much higher than elsewhere in the region

Lae, the main industrial centre, is also receiving upgrades to its airport, Nadzab, to create a secondary embarkation point into PNG. Short-haul flights have launched between Cairns, Australia, and Alotau, the capital of Milne Bay Province, and talks are also under way to begin flights between the Solomon Islands and the newly re-opened Aropa Airport at Kieta, Bougainville. Adding new routes involves more than just building infrastructure and arranging bilateral agreements, as Customs, immigration and security handling operations also need improvement.

AIRLINE COMPETITION: Flights into and within the country are expensive versus island nations nearby, an issue that CAPA attributes to a lack of competition and protectionist measures. In recent years, the nation's flag carrier, Air Niugini, has seen its monopoly over domestic routes removed, and new private entrants, such as Airlines PNG, have entered the market to push down fares. Liberalisation of international routes has not kept pace, and while Virgin Australia Airlines, formerly Virgin Blue, and Qantas Airways compete with the national carrier in servicing the Australian market, Air Niugini is the lone airline trafficking routes to key Asian markets such as Singapore, Malaysia, Philippines, Japan, Hong Kong, Fiji and the Solomon Islands. Whenever a foreign airline has added a route into PNG – a recent example being Qantas's launching of services between Cairns and Port Moresby – fares have been shown to reduce. And both Philippines Airlines and an airline from the Solomon Islands have shown interest in gaining access to the country.

In the meantime, Air Niugini is looking to expand its reach into other Melanesian countries from 2015 onwards. In addition, during talks with Chinese President Xi Jinping, PNG's prime minister, Peter O'Neill, discussed the idea of the airline launching a direct service to Beijing. The state-owned carrier is also undergoing a major restructuring, under which its subsidiary Link PNG, which was launched in late 2014, will operate as a domestic low-cost carrier. Although Link

Of the 245,844 foreign visitors to PNG in 2013, 96% arrived in Port Moresby by air. However, the government is working to ensure other airports handle more traffic and to divert international flights to tourist centres throughout the country.

The government has created a hotel classification scheme

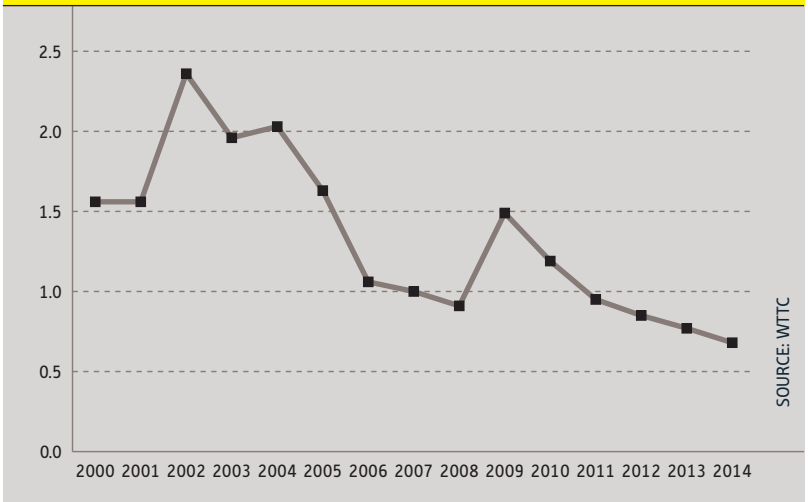
There has been a concerted effort to improve the country's image abroad, as well as to enhance security for foreign visitors.

PNG will conduct business under a community service obligation by operating some less-profitable routes to remote provinces of the country, private investors will also be involved, and there are plans to make some 50% of the subsidiary's shares available to them.

A PLACE TO STAY: As is the case with flights, a shortage of hotel stock results in accommodation costs in PNG veering towards the high side. Occupancy rates, particularly in Port Moresby, tend to be around 80-90%, and an up-surge in business and diplomatic travel to the capital means that good quality hotel rooms are often in short supply and that visitors are advised to book well in advance.

In addition, aside from the InterContinental Hotels Group, which has three properties in Port Moresby, the presence of major hotel chains is limited, meaning international visitors who are not familiar with local hotel groups can be uncertain about the property they are booking. Measures to address the issue have been taken and in 2013 a national grading and classification system, which is known as the Accommodation Accreditation Scheme, was introduced.

Direct contribution to GDP, 2000-14 (%)



Due to the accommodation shortfall and the lucrative market opportunity this presents, refurbishments and new hotel developments are in the works throughout the country. As new properties come on-line and the growth in demand for hotel rooms slows down temporarily due to the construction phase of the PNG LNG project coming to an end, prices should drop, but are likely still a ways from normalising as analysts believe surplus demand will remain in the country for some time, especially for high-standard accommodation in the country's capital. "There is need for more high-end facilities catering for business travellers in Port Moresby," Pauline Chua, hotel manager at Laguna Hotel, told OBG. Though she explained that expansion of the hospitality sector should prove beneficial.

A burgeoning cruise industry, which allows passengers to arrive by and lodge on ship, is proving a creative way to circumvent the shortfall in flights and accommodation within the country, and a number of leading global cruise operators are adding PNG to their itineraries (see analysis).

REPUTATION MANAGEMENT: The country also suffers from something of an image problem. Whether deserved, as crime levels, especially in urban areas, are undeniably high and large gatherings and ethnic disputes have been known to turn violent, or whether down to overly negative reporting and overzealous travel advisories from the governments of some key source markets, the fact remains that PNG suffers from a poor reputation when it comes to personal safety. As much as the tourism authorities invest in branding and public relations to offset some of the negative associations, isolated events – such as the September 2013 attack and kidnapping of Australian and New Zealand hikers – can be a considerable setback for the country, undermining these efforts and negating any goodwill earned.

As mentioned previously, most travel guides advise visitors against independent travel, especially lone female travellers and those in the capital and certain parts of the highlands region. Visitors are encouraged to instead see the country through a packaged tour. However, not only does the need to travel with an operator increase the costs of a visit, making cost-conscious travel a challenge, but it also contributes to a tendency for the independent-oriented backpacker segment, which is so prevalent throughout the Asia-Pacific, to shy away.

GOVERNMENT SUPPORT: Since PNG gained independence in 1975, tourism has largely been overlooked by successive governments, which have instead focused on resource extraction. As the country matures and the initial wave of excitement over the commodity boom wanes, the value of tourism is being realised for its ability to provide clean and sustainable counter-cyclical earnings when commodity prices drop.

The government devised the PNG Tourism Master Plan 2007-17 aims to double tourist numbers every five years. In addition to visitor growth, the plan also stresses the importance of ensuring that the sector is developed in a more sustainable and integrated

manner, especially as the development of other national industries like mining, logging and fishing can have a harmful effect on some of the natural and cultural tourism assets that the country is looking to maintain and protect. While visitor growth is on pace to meet the targets set out, industry participants have told OBG that corruption and inefficiencies on the part of the government have been known to hamper sector development. In early 2015 Boka Kondra, the minister of tourism, was among several government officials that were found guilty of misusing public funds, with a tribunal set for a later date to decide what kind of disciplinary action would be enforced.

VISA SCHEME: PNG's visa regime provides a working example of how in recent years the country has implemented measures to support the sector, although it still has a ways to go in matching tourism hotspots such as Thailand and Malaysia in terms of liberalisation and open market access. PNG now offers a visa-on-arrival scheme for many nationalities. However, a fee of PGK100 ($38) is charged, which can be reduced to PGK75 ($28) if the visa is attained in advance before one enters the country. The time and administrative effort associated with purchasing the visa are not likely to be a major impediment, and while this is a fairly low barrier, all else being equal, travellers with many options may choose a destination with more simple entry requirements. The visa regime can also be subject to sudden changes, adding an element of uncertainty for travellers. For instance, in February 2014 Australians were removed from the list of nationalities eligible for a visa on arrival as a reciprocal measure, as the Australian government does not afford PNG nationals similar status. However, the government had previously said the ban only applied "to anyone who is not a tourist", adding to the confusion.

GOVERNMENT EFFORTS: The responsibility of promoting tourism falls to the TPA, an entity created in 1993. As part of its mandate it also offers advice to the government on tourism policy, provides assistance with the development of sector products and infrastructure, advises investors interested in the industry and disseminates data on sector performance.

PNG accounts for just 10.4% of regional tourism traffic

The body has been acknowledged for having made significant strides in fostering international awareness, something that was very limited at the time of its inception. In 2013 the TPA won the Pacific Asia Travel Association's Gold Award for its "What Tribe Are You?" advertising campaign.

The authority has opened offices in key markets, including Tokyo, Los Angeles, Sydney, Munich and the UK. In addition, it has also created a fairly strong online presence, launching a trade website specifically aimed at educating and aiding overseas travel agents that are looking to sell packages to the country.

At a federal level, since 2006, the government has unveiled a number of industry-specific investment incentives, ranging from tariff and duty exemptions for hospitality-related items to double tax deductions for marketing expenses. There is currently a proposed tax package being negotiated for new large-scale

Created in 1993, the Tourism Promotion Authority has made significant strides in fostering international awareness of PNG as a destination. It has opened offices in key markets, including Tokyo, Los Angeles, Sydney, Munich and the UK.

PNG holds unique appeal for birdwatchers and outdoor enthusiasts

Under government development plans, Port Moresby will remain the country's financial and administrative centre, Lae is intended to be manufacturing city, Mount Hagen will focus on agriculture, and Kokopo and Rabaul will be centres for tourism.

investments in tourism that would incorporate a 10-year tax concession into the legal framework.

CENTRE OF ATTENTION: As part of a national plan, the government is aiming to develop four distinct economic centres across PNG, each of which will focus on an activity aligned with its comparative advantages. Port Moresby is set to continue its role as the country's financial and administrative nerve centre. Lae, PNG's second-largest city, is to be the focal point for manufacturing, while Mount Hagen will serve as the centre for agriculture.

When it comes to tourism, Kokopo and Rabaul, the capital and former capital of East New Britain Province, are set to emerge as major centres. The region, which contains war cemeteries and museums, a volcano observatory, diving sites, festivals and cultural activities, was selected due to the variety and strength of its tourism offering, as well as its reputation for safety and hospitality. The aforementioned twice-weekly flight service launched by Air Niugini in May 2014 between Rabaul and Cairns, Australia, is set to boost direct international connectivity from the country's largest source market. Meanwhile, the provincial government has provided PGK1.5m ($567,600) to the TPA to promote and expand tourism to the province over the next three years.

OUTLOOK: Although PNG has recorded impressive growth in visitor numbers, which have tripled over the past decade, the figures can be deceiving. The initial base was quite low, and most of the growth can be attributed to a rise in business travel that has been part and parcel of a broader economic expansion brought about by a resources boom and the accompanying increase in employment opportunities. Despite an abundance of marketable cultural and natural attractions, PNG is far from a recognised leisure destination internationally, and the tourism industry, much like the country itself, is still very much in its infancy.

If the country is to carve out a niche as a viable tourism destination, the very fact that it offers something far from conventional is perhaps the main attribute to leverage for generating higher and more sustainable returns. Though logistical and capacity constraints will likely prevent PNG from emerging as a mass tourism player, this is not the authorities' ultimate objective, as its very appeal lies in the fact that it offers an authentic, more natural experience.

Slowly but surely, the cost of travel to the country is falling as competition heats up among utilities and telecommunications providers, and as demand for hotels and flights cools down with the PNG LNG project drawing to completion. The government, meanwhile, is allocating more spending and delivering better on infrastructure projects, a number of which are focused on transport and should help to bolster connectivity. At the same time, a range of tax and duty incentives are being made eligible to foreign and local investors in large-scale tourism projects. In all, tourism, after years of neglect, has been identified as a priority by the government for the positive impact it can have on inclusive and sustainable economic growth.

The year 2015 marks the 40th anniversary of PNG's independence

Taking centre stage

Upcoming events will allow the country to showcase its strengths

The capital of Port Moresby is set to undergo a significant transformation, while the country as a whole should be left with a lasting legacy when Papua New Guinea plays host to two recognised sporting events over the next two years. The 2015 Pacific Games took place in the capital in July, and the FIFA U-20 Women's World Cup is scheduled for November 2016. If successfully organised and held, they should convey to the world that PNG is capable of hosting large-scale events and provide significant marketing exposure for the country's sights and sounds to an international television audience. The tournaments also serve as a prelude and vote of confidence for 2018, when PNG will act as the host country for the Asia-Pacific Economic Cooperation (APEC) summit.

MAKING A GAME OF IT: The year 2015 will also mark PNG's 40th anniversary of independence, and the Pacific Games are seen as a major achievement in terms of helping to raise its profile on the global stage. Australia and New Zealand have been added as participating nations for the competition, and the games will feature 28 sports at venues throughout the city, with over 3000 athletes from 23 nations.

The government has spent PGK1.2bn ($454.08m) on preparations for the games, with new and upgraded infrastructure to extend beyond the venues themselves into ancillary facilities, such as athlete accommodations, which after the event will be converted into student residences at the University of PNG and other tertiary institutions. The games are also providing the impetus for other major infrastructure projects, such as the expansion of Jacksons International Airport's (JIA) main terminal, as well as a road flyover connecting the airport to the main Sir John Guise Stadium in Waigani, to be completed within a fixed deadline. The flyover, estimated to cost just over PGK160m ($60.5m), is expected to ease congestion and reduce traffic times, while the extension of the international terminal building, estimated at PGK100m ($37.84m), should dramatically reduce the average passenger processing time from between seven and 10 minutes to just three minutes, according to the National Airports Corporation.

The new venues and stadiums in Port Moresby should not be idle for long, while facilities in secondary cities such as Lae and Kokopo will also be put to use when football takes centre stage in 2016 and rugby possibly the year after. The awarding of the FIFA U-20 Women's World Cup is considered a landmark for the country, as unlike the Pacific Games, which is a regional event and one that PNG has hosted before, the tournament is truly global, with 24 teams being represented. Prime Minister Peter O'Neill has stated that PGK10m ($3.78m) worth of funding will go towards the event.

While nothing has been officially confirmed and talks are still ongoing, 2017 could see PNG joining co-hosts Australia and New Zealand in holding group pool matches for the Rugby League World Cup. PNG is ranked seventh in the world, and if negotiations are successful, it will engender huge goodwill among the people of PNG, as rugby is far and away the most popular and widely played sport in the country.

THE BUSINESS OF POLITICS: In 2018 PNG's coming of age in the international arena will see it transition from sports to diplomacy with the hosting of the APEC summit. The 21-member bloc accounts for close to half the world's trade and commerce, and PNG's being awarded host status is viewed by Prime Minister O'Neill as a validation of the country's growing economic and bilateral prominence within the grouping.

Not only will the country's hospitality capacity be tested, with the summit expected to attract in excess of 10,000 visitors, but its security operations will come under strong scrutiny considering the number of high-level government officials and dignitaries attending. In preparation for the former, a 35,000-square-metre building connecting the current international and domestic terminal buildings will be constructed at JIA. Additionally, the government has set up a dedicated authority to oversee preparation to ensure that the event runs smoothly and services are well organised.

The Pacific Games took place in PNG in July and featured 28 sports and over 3000 athletes. In 2018 PNG will host the 21-nation Asia-Pacific Economic Cooperation summit, which is expected to attract more 10,000 visitors.

The government is also hoping to secure a position as co-host of the Rugby League World Cup, along with Australia and New Zealand, which will also allow them to make use of new venues, stadiums and infrastructure.

Richard Knight, Owner, Loloata Island Resort

Niche appeal

OBG talks to Richard Knight, Owner, Loloata Island Resort

To what extent are issues of law and order keeping tourists from visiting Papua New Guinea? What can be done to improve the country's image abroad?

KNIGHT: Anybody who has visited PNG for a period of time knows that the issue of law and order has often been blown out of proportion over the years. Of course crime does exist, just as in any other country, but most of these incidents occur miles away from potential tourist destinations and they are mainly concentrated in major cities where rapid urbanisation is precipitating serious social challenges. With enough common sense and knowledge of which areas to avoid, especially at night, a city like Port Moresby is actually a relatively safe place when compared to other metropolises around the world. Inevitably, this negative perception has affected the growth of tourism in PNG, and sadly we have not done enough to change it in the eyes of the international community.

To what extent is the private sector helping to promote the industry abroad? Or should this be the mandate of the government alone?

KNIGHT: The private sector puts its heart and soul into promoting PNG because it is in its interest to do so, but I am not entirely sure that the government thinks along the same lines. Tourism is a labour-intensive industry that already creates plenty of jobs in PNG, a country in which there is currently rapid population growth. There are millions of young Papua New Guineans entering the job market every year, and the tourism industry can provide great opportunities for them.

By investing in the tourism industry, the government would be investing in the future of the nation. A small to medium-sized resort in PNG generally employs about 40 people, but if you account for the local social custom of *wantok* (community loyalty), roughly 4000 people benefit indirectly from it. Resorts buy fresh fruit, vegetables and other food products from nearby villages, as well as create direct employment opportunities. For too long this country has concentrated on the extractive industries, and we all know this is not a sustainable approach in the long run.

Because of the lack of infrastructure, the costs of running a business continue to be very high, and this cost is inevitably passed on to the consumer. In this regard, the private sector could lobby the government more concertedly for the introduction of structural reforms and incentives to encourage foreign investment.

What does PNG have to offer as a tourist destination? What is unique about the country in comparison to others in the region?

KNIGHT: Not many places on Earth still boast areas of untouched natural beauty, and luckily PNG is one of them. Not only are its forests, beaches and coral reefs intact, but the same can be said for its unique and varied cultural landscape. However, perhaps what defines PNG as a destination is its diversity: there at least five popular niche markets, including cultural tourism, diving, surfing, birdwatching and trekking. PNG offers an exceptional package to travellers who are willing to go beyond the myths and truly discover this country.

For instance, diving in PNG offers excellent conditions nearly all year round and a marine environment as diverse as any in the world. Birdwatchers can find a plethora of tropical birds, including the world-famous birds of paradise. Surfing is another activity that is quickly gathering momentum, with uncrowded waves that are impossible to find in more popular destinations like Bali. Geographically, PNG is far from many places, but its remoteness can actually be a boon for those willing to go the extra mile to discover the place.

With its relative proximity to Australia and New Zealand, there is much potential for future growth. PNG may never turn into a mass market, but it can be a niche market of great appeal to more affluent Asian countries like Japan, Korea and Singapore, not to mention China, where 98m people took holidays abroad in 2013 alone. Capturing even a fraction of these markets would make a huge difference to tourism in PNG.

Many cruises from Australia are one-way so visitors extend their stay

Sail away

The country looks to capitalise on growth in cruise tourism

Steady growth in global cruise tourism is reaching the South Pacific, and Papua New Guinea is no exception. In 2014 some 22.1m passengers boarded cruise ships, up from 21.3m in 2013, according to the Cruise Lines International Association (CLIA), which forecasts 23m for 2015. One of the fastest-growing source markets is Australia, where passenger numbers rose 130.3% in the five years to end-2013. While most global cruises head for the Caribbean (37.3%), the Mediterranean (18.9%) or Northern Europe (11.1%), Asia, though it made up just 4.4% of 2013 traffic, was expected to see the highest surge in ship deployments of any region in 2014, at 31.6%. For Australasia the figure was 22%.

Pacific islands near the growing Australian source market, including PNG, are looking to capitalise on this. Many offer pristine natural settings and unique cultural attractions to any North American and European cruise travellers willing to venture farther from home. In anticipation of new visitors, they are thus ramping up their cruise facilities and promotional efforts. With just 1% of international cruisers visiting a Pacific island each year – about 220,000 – the South Pacific Tourism Organisation, an intergovernmental promotion and development body, has been sending delegations to the world's leading trade shows as part of its Pacific Cruise Tourism Development Strategy 2015-19.

CRUISE CONTROL: Aware of the segment's potential, PNG launched its own cruise tourism strategy in 2010, focused on improving port facilities and promoting near-shore excursions. In the towns of Kitava and Kaibola in Milne Bay Province – well-known for its diving sites and home to the Kokodo Trail, which is popular with Australians – new jetties have been built. In Alotau, the province's capital and already a port city, wharfs have been extended and new facilities added.

Besides building infrastructure, the PNG Tourism Authority (PNGTPA) is working to make docking easier by reducing paperwork and protocols. It is engaging with relevant state bodies – such as the PNG Ports Corporation, National Agriculture Quarantine Inspection Authority, National Maritime Safety Authority, PNG Customs Service, and the PNG Immigration and Citizenship Service Authority – to encourage cruise ships to dock, including at undeclared ports. Among the measures proposed or taken to draw more ships are waiving visa fees for cruise passengers and reducing pilot fees.

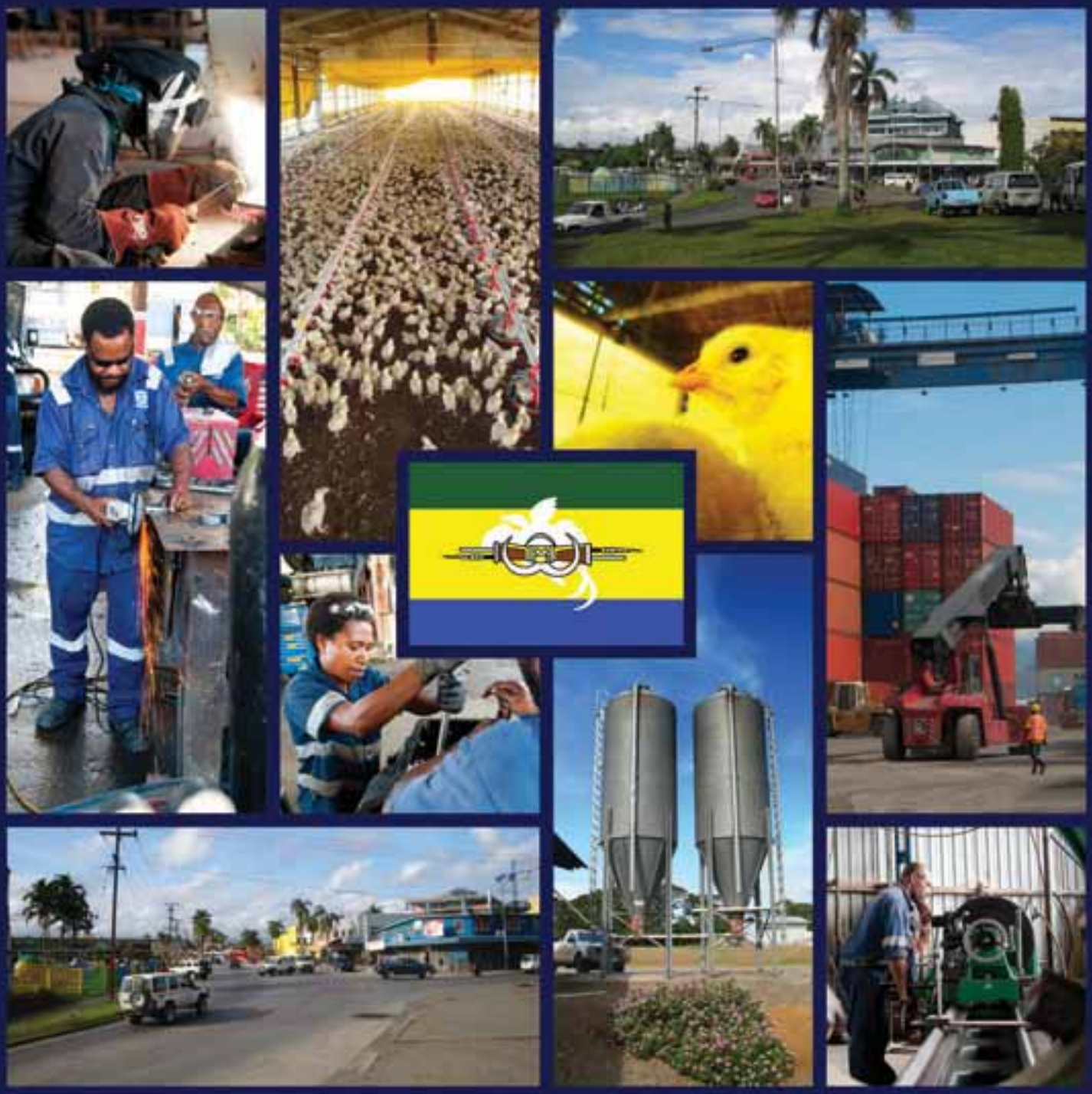
SOUTHERN NEIGHBOUR: Over half of all cruise passengers that come to PNG are Australian, according to the PNGTPA. Not only is Australia the undisputed source market leader; it is also considered more lucrative. Many cruise itineraries arriving from Australia are one-way, so that passengers can opt to extend their stay with a land-based holiday before flying home.

P&O Cruises, which originated in the UK and is the largest cruise line operating out of Australia, currently visits five ports in PNG. For 2015, two more – Kavieng and Madang – have been added. The company also operates four PNG-only excursions, departing from Brisbane, Sidney and Cairns. "P&O's return to PNG was possible because of the strong support of the national government and local authorities, particularly in relation to the provision of infrastructure to accommodate cruise ship visits," Ann Sherry, the CEO, told the media in May 2015. "As the Australian cruise market grows and matures, our passengers are keen to experience new destinations and culture." It is not just Australian cruise lines that are adding PNG to their itineraries; others that stop at PNG include NYK Cruises from Japan, Holland-America from Amsterdam, Paul Gaugain from French Polynesia and Princess Cruises from the US.

CROSS-BREEZE: One general downside to cruise tourism, critics charge, is that it does not benefit the local hotel and restaurant trade, especially in the case of "all-inclusive" packages. In PNG, however, where reaching destinations outside major cities and finding suitable accommodation and amenities can be challenging, the opposite is true: cruise lines bring tourists to parts of the country that otherwise cannot be accessed and visited. This allows villages to receive a boost from cultural performances and handicraft sales.

In 2014 some 22.1m passengers boarded cruise ships, up from 21.3m in 2013, and 23m are forecast for 2015. One of the fastest-growing sources markets is Australia, where passenger numbers rose 130% in the five years to end-2013.

With just 1% of international cruisers visiting a Pacific island each year, the segment's potential spurred PNG to launch a cruise tourism strategy in 2010, focused on improving port facilities and developing near-shore excursion activities.



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Regions

Industrial heartland of Morobe abounds in resources
A focus on Lae, the province's capital and transit hub
Tuna, livestock and coffee among key industries
Authorities encouraging local value-added processing
Funding shifts between various levels of government

Morobe is PNG's industrial heartland as well as a commercial centre

Collage of colour

The remarkable variety of the industrial heartland, Morobe

The provincial assembly, known as the Tutumang, has 47 members: nine local MPs, one regional member who is automatically governor, 33 presidents of local government councils and four appointed members – one each representing women, community, business and the church.

Across its four regions and 22 provinces, Papua New Guinea contains an impressive diversity of linguistic, ethnic and cultural groups. From the coasts of autonomous Bougainville to the rocky peaks of the Bismarck range in the highlands, and from the dense quarters of the National Capital District to the remote and less-inhabited tributaries of Western Fly Province, these areas – even within themselves – show a high degree of geographical, cultural and political variety.

Among the most dynamic patches is the province of Morobe, on the north-east coast, due north of Port Moresby. This region is PNG's industrial heartland, as well as a thriving commercial hub. Its capital, Lae, is also an educational centre and the staging point for transport into the highlands and beyond. Through its port, Lae connects the farm and mineral produce of the interior with the busy sea-lanes of the South Pacific.

LOCAL AFFAIRS: Under the country's political system, Morobe is one of four provinces in the Momase Region, alongside East Sepik, Madang and Sandaun (West Sepik). Regions in PNG have no specific political or administrative structure; instead, local government begins at the provincial level. Morobe has its own provincial assembly known as the Tutumang, or "coming together" in the widespread local Kote language. The Tutumang has 47 members: nine local MPs, one elected regional member (who is automatically governor) 33 presidents of local government councils and four appointed members (one each to represent business, the church, community and women). The provincial government's executive arm is the 18-member Provincial Executive Council, known as *Sam Sewe* in Kote, with current governor Kelly Naru serving as chairperson. Governors function as heads of state for each province, while since 1995, they have also served as members of the national parliament, a role that for Morobe went to Kasiga Kelly Naru at the last elections, in 2011.

The Ministry of Provincial and Local Government Affairs has statutory oversight of all areas of local government, including the provincial administration.

For all provinces, a key national figure is the Minister for Provincial and Local Government Affairs, whose ministry has statutory oversight of all areas of local government. The Morobe Provincial Administration (MPA), in turn, is led by a provincial administrator – currently Patilias Gamato – who was appointed by the National Executive Council in Port Moresby. The MPA itself has divisions dealing with specific areas like education, mining, agriculture and policy planning.

DISTRICTS: Morobe has nine districts, each of them further divided into 33 areas with local level governments (LLGs). Districts in PNG have administrative functions only, while the LLGs are also political subdivisions. LLGs are divided more along urban-rural lines than by number of inhabitants: most of them (275 out of the country's 315) are rural, as are most PNG inhabitants. Because rural areas are often quite isolated from each other and contain different ethnicities and languages, LLGs tend to be very numerous, keeping government close to community needs. LLGs are elected bodies of varying size, headed by a president. In Morobe, the average is 19 members. The three urban LLGs – Lae, Wau/Bulolo and Finschhafen – can appoint three members, one each from the PNG Trade Union Congress, the Employers Federation and women's organisations. Elections are held every five years, with members standing in local wards – the lowest political subdivision. At least two women must be on the ballot in each LLG.

Morobe's most populous district is Lae, whose two LLGs – Ahi Rural and Lae Urban – had 148,934 inhabitants at the 2011 census. The least populous is Kabwum, with four LLGs and 43,472 inhabitants. The others are Finschhafen, formerly a key port under German colonial rule; Bulolo, the second most populous with 101,568 inhabitants; and six others – Huon, Markham, Menyamya, Nawae and Tewae-Siassi. Each of these districts has distinct geographical, cultural and ethnographical features. Lae is a busy coastal port region, the hub for the province and a melting pot of many different groups. Other districts, such as Huon, Tewae-Siassi and Finschhafen, are on the Huon Peninsula, with its steep, razorback mountains and unique raised-beach coastal terraces, lately the subject of UNESCO interest.

GEOGRAPHY: Another major feature of the province is the 180-km long Markham River and its delta, which flows from the PNG Highlands into the Huon Gulf at the city of Lae. Within the province's 34,472 sq km of land and 719 sq km of territorial waters, there is also a wide variety of flora and fauna, including some 100-odd species of bird and mammal, and over 15,000 indigenous species of plant. Among the former group are the Matschie's tree kangaroo, an endangered species, and the emperor bird-of-paradise. These natural wonders are a major resource for the province's ecotourism industry. To preserve them, the government has established the YUS Conservation Area (named for the Yopno, Uruwa and Som rivers that flow through it) to protect habitats that stretch from the coral reefs on the coast to alpine ecospheres in the area's 4000-metre-high Saruwaged Mountains.

LANGUAGE & ETHNICITY: Morobe has many linguistic and ethnic divisions. Up to 100 languages from 27 linguistic families are spoken in the province, the two main tongues being Kote and English – including Pidgin. Broadly speaking, the mountainous interior is home to more Papuan languages and ethnic groups, while the coast and Markham River valley are home to more Austronesian peoples. Indeed, the two most widely spoken native languages follow a similar pattern: Kote in the interior, Yabem on the coast. In urban centres such as Lae, there is a diverse mixture of ethnicities and languages, along with a significant expatriate population.

In Morobe, as in PNG in general, no single ethnic group has a clear majority. The province is home to ethnicities including Bukawa, Wampar, Labu, Musom, Guwot, Mesem, Burum-Mindik, Tami, Mape, Yabem, Kote, Kosorong, Mongi, Dedua, Sene and Momare. Clan and family loyalties remain strong – particularly in the interior – with these often being the foundations of political, economic and business arrangements.

The church also has a wide reach in Morobe, with Christianity in the province stretching back to the days of European missionaries. From 1884 until 1918, Morobe was part of German Neu Guinea, a protectorate of the German Empire (though from 1914 it came under British-Australian occupation). During this period, Lutheran and Catholic congregations sent missionaries to the territory, and their influence is still noticeable today. Many other, traditionally animist, religious practices are also widespread in the region.

PURSE STRINGS: In terms of budgetary powers, the province is able to levy taxes and is responsible for education at the local level, along with business and industrial development. LLGs, too, have the power to raise revenue through local taxes and fees, as well as receive grants from the central government. They are also responsible for some road maintenance works, as well as for waste collection and disposal.

In recent times, grants from the central government have become the subject of some controversy, with the allocation to each LLG slashed by as much as half in

The province contains some 100-odd species of bird and mammal, and over 15,000 indigenous species of plant, with the former group including the marsupial tree kangaroo and the emperor bird-of-paradise.

Morobe is one of PNG's key coffee-producing regions, growing chiefly Arabica and Robusta, and responsible for about a third of the country's total production.

many cases between the 2014 and 2015 budgets. The government has said this was the result of a central budget squeeze, but has also pointed out a PGK5m ($1.9m) increase in funding at the district level. This has led to some conjecture that the district may in time take on a greater role in local government functions.

DOING BUSINESS: As PNG's largest province – the 2011 census showed a population of 674,810, or 9.3% of the total – Morobe has long been accustomed to a leading role in the country's economy. The province has an abundance of natural resources, which have formed the traditional basis for its economy, including mining, coffee, cocoa, livestock, poultry, forest fruits and fisheries – some 12-14% of the world's tuna is caught in PNG's territorial waters (see analysis). This has also given rise to a major food processing industry: Morobe is now PNG's manufacturing centre. Logistics and transport, centred on Lae, is also a major sector.

COFFEE: According to the Lae Chamber of Commerce Incorporated (LCCI), Morobe is one of PNG's key coffee-producing regions. Together with the provinces of Western Highlands, Eastern Highlands and Simbu, it produces some 80% of the country's entire crop; Morobe itself is responsible for about a third of the total. The most common type of bean grown there is Arabica, which thrives in the cooler highlands, though some Robusta is also grown in Morobe's lowland areas.

As elsewhere in PNG, coffee in Morobe is typically grown by smallholders, on plots with an average of about 20 trees. This model – a result of land ownership patterns that have largely evolved piecemeal, without large plantations – has helped PNG establish itself as a source of high-grade, organic coffee, which can be sold at a premium in developed markets.

Morobe's coffee industry has grown rapidly in PNG, hitting a high in 1998, when coffee accounted for some 13% of the country's total exports and 38% of its non-mineral exports despite negative GDP growth that year. The subsequent boom in Brazilian coffee production and collapse in world coffee prices, however, soon forced many farmers out of business, and output shrank.

According to the most recent statistics from the UN Food and Agriculture Organisation (up-to-date data was unavailable as of mid-2015) by 2011 the country's green coffee exports were worth $317.7m, with roasted coffee adding another $572,000. This made coffee PNG's second-largest agricultural export, at 30.5%. The LCCI figure for that year was higher, with coffee exports worth $433m – a big leap on 2010 – and with PNG exporting around 1m bags of green coffee beans each year, mainly to Germany, the US, Japan and Australia.

LIVESTOCK & POULTRY: Livestock and poultry is another major sector in Morobe, with PNG's two largest chicken producers – Niugini Tablebirds and Zenag – both based in Lae. Besides fresh and frozen poultry, Tablebirds produces eggs, flour, stock feed, and crocodile meat, all produced under the ownership of Lae-based Mainland Holdings, the largest diversified agri-business in the South-west Pacific. The widespread expectation is that rising incomes, due to economic growth and new revenue from PNG's liquefied natural gas (LNG) plant, will see a surge in demand for poultry over the next few years. "The table eggs segment is the fastest-growing part of the PNG poultry industry," Stanley Leahy, CEO of Zenag Chicken, told OBG. "The entry of new commercial egg producers fuelled production growth of 23% a year between 2009 and 2013."

In livestock, Morobe's main cattle business is Ramu Agri Industries, the largest such venture in PNG. Located in the Markham Valley 200-odd km from Lae, Ramu's ranch grazes some 20,000 head, and the company puts out more than 1500 tonnes of beef per year, according to the LCCI. Additionally, Ramu is PNG's only commercial sugar producer, and it also produces palm oil.

MINING: While PNG has long had a mining sector, the industry has only recently become a major part of Morobe's economy. This is largely thanks to the Hidden Valley gold and silver mine, an open-pit operation first developed by South Africa's Harmony Gold Mining, which was joined by Australia's Newcrest Mining in 2008. The two now run a 50:50 partnership as Morobe Mining Joint Ventures (MMJV). According to Harmony

Gold's 2014 annual report, gold output was up 25% up that year, yielding a production profit of $33m.

MMJV is also developing the Wafi-Golpu project, a deposit of high-grade copper-gold porphyries, in a two-stage plan. A feasibility study for stage one and a pre-feasibility study for stage two were approved in December 2014. The mine will have a 27-year lifespan and total capital expenditure of $3.1bn, with production to start in 2020 and peak in 2025 at 320,000 troy ounces of gold and 150,000 tonnes of copper. Within the MMJV, Harmony also carries out its own exploration work.

PORT: The port of Lae is PNG's largest and busiest, with up to 60% of the country's total annual import and export cargo passing through it, according to the LCCI. One reason for this is its location at the end of the Highlands Highway, the main route to the seven highland provinces in the interior. Another is its status as the gateway for machinery and equipment bound for PNG's LNG projects in the interior (though the transport activity tied to these is now tailing off). A slew of logistics operators are therefore based in Lae, such as Express Freight Management, East West Transport, Mapai Transport, Traisa Transport, Kutubu Transport and Michaels & Michaels Hauliers. Shipping and stevedore firms include Consort Express Lines, Steamships Trading, Lae Port Services and Riback Stevedores.

Run by PNG Ports Corporation, Lae port has been undergoing a major upgrade. The centrepiece is a PGK700m ($265m) tidal basin project finished in December 2014 that enables the port to cater to much larger vessels, thus becoming a competitor for north-south and east-west trade in the Asia Pacific. Managed by the Independent Public Business Corporation and built by China Harbour Engineering Company, the project added three new container berths, dramatically increasing the port's capacity. Further components include expansion of storage and warehousing areas, improved electricity, sewerage, water and drainage, dredging, and crane improvements. As of June 2015, the new facility had not yet opened, as a new management structure was being organised, but there are plans to add a dedicated fisheries wharf, relieving congestion between fishing boats and commercial vessels. The new wharf would form the centre of a marine industries area, encouraging boat-building and related trades.

AIRPORT: The city's Nadzab Airport is receiving its own upgrade with the help of the Japanese International Cooperation Agency. The goal is to make Nadzab an international destination by the end of 2016, with links to China and Australia. The expansion, which includes a new runway and terminal, is also being linked to a new road upgrade, connecting the airport to the city, 40 km away. Construction began in 2013 with a completion date of 2016 and a cost of PGK470m ($177.8m). The operator, the National Airports Corporation, has also proposed commercial development opportunities around the airport, including business parks, warehousing, accommodation and storage.

ROADS: Road upgrades have been going on elsewhere in the province, too, with the national government disbursing some PGK250m ($94.6m) for this purpose over the last three years, according to the LCCI. A major on-going scheme to upgrade the Highlands Highway will also benefit the province, easing the flow of goods, especially into Lae (see Transport chapter).

Agricultural goods form part of the basis of Morobe's economy, including coffee, cocoa and forest fruits

The port of Lae is PNG's largest and busiest, handling up to 60% of the country's total annual import and export cargo, partly because of its location at the end of the main route to the seven interior provinces.

One difficulty in developing infrastructure has been the absence of an authority that transcends municipal boundaries, which has led to uncoordinated development, and the airport area is no exception. To solve this, a new Lae City Authority has been formed, which will administer the urban area as far as Nadzab Airport. Many hope this will ease planning in future.

HEALTH & EDUCATION: Lae is also the centre for PNG's top two technical training institutes, the PNG University of Technology (UNITECH) and the National Polytechnic College. In recent years, the LCCI has been working with education authorities to make Lae a centre for educational excellence. Australia-Pacific Technical College began welding courses in Lae in 2014, with plans to expand. UNITECH has the largest technological library in the South Pacific. In health, Lae is home to the Angau Memorial Hospital, a joint operation of PNG and Australia. In 2013, the two countries agreed on a PGK300m ($114m) upgrade, with master-planning on-going and construction set to start in 2016-17.

OUTLOOK: With abundant natural resources and a strategic location, Morobe is likely to benefit considerably from PNG's economic growth in the near to medium term. Steep challenges remain as the province seeks to ensure sustainable distribution of the benefits of this growth. Many of its inhabitants remain poor, with rural areas, especially, in need of the social infrastructure now generally available in Lae. Addressing issues like crime and corruption are also vital, as are coordinating development plans and delivering projects on time. However, policymakers, business leaders and ordinary citizens do not underestimate the challenges, and Morobe presents many investment opportunities in farming, mining, fishing and transport. In this light, the province looks likely to continue setting the pace for much of the country in the years ahead.

Over the last three years the national government has disbursed some $94.6m to improve roads in Morobe, while a scheme to upgrade the Highlands Highway will ease the flow of goods into Lae.

Development grants represent 15% of national budget spending

Tensile strength

The dynamic between devolution of powers and central control

An organic law passed in 1995 replaced provincial assemblies with provincial governments headed by elected governors, who are selected from among the regional members of the national parliament.

Ever since Papua New Guinea gained independence from Australia in 1975, its wide diversity in language, ethnicity, culture and geography has created a tendency towards decentralised institutions. At the same time, however, there has been an opposite tendency: towards more control over local affairs by national authorities. To strike a balance between the levels of government – national, regional, provincial, district and local – is thus among PNG's main political and economic challenges.

DEVOLUTION MOVEMENT: In 1977 Parliament passed the Organic Law on Provincial Government, establishing directly elected provincial assemblies. These in turn would elect provincial governments in the same way as the national parliament elected the national one – with a cabinet and a premier, according to the Westminster model. By 1995, however, a consensus had emerged that the system needed changing. This led to the Organic Law on Provincial Government and Local Level Government (OLPGLLG), which instead set up provincial governments headed by elected provincial governors, who would be selected from among the regional members of the national parliament.

SMALLER UNITS: Local level governments (LLGs) – sub-provincial, sub-district units – gained in influence under the reforms; their presidents also sit in the new provincial legislature (see Country Profile chapter). Meanwhile, a new Joint District Planning and Budget Priorities Committee, run by national MPs, strengthened Parliament's control over district funding and programmes, as well as funding at other levels. The OLPGLLG thus put much of the onus for execution on the LLGs while shifting funding powers to Parliament. Capacity-building at the LLG level – for both physical infrastructure and human resources – needed to be a top priority if the system was to succeed.

Recognising this, in 2012 the central government increased funding to provinces, districts and LLGs. In the 2013 budget, it allocated these institutions development grants of some $700m, representing 15% of national budget spending, up from 5% the year before.

Armed separatist conflict in Bougainville led to greater autonomy for the former province after elections in 2005. A referendum on full independence is due before 2020.

CHALLENGES: The OLPGLLG system has not been without criticism. Since national MPs have more say over budget allocations at all levels, funds have tended to go towards their particular constituencies rather than towards broader strategic goals. Some say the model has weakened accountability, accusing Provincial Administrators – the civil service arm of local governments – of failure to perform their role responsibly. LLGs also often have their seat of power far from urban and communications centres, making local service delivery more expensive and complex. Reforms in 2008 aimed at improving LLG finances by diverting PGK10m ($3.8m) in District Services Improvement Programme (DSIP) funds to the LLGs had the unintended result of increasing political competition at the LLG level. Funding delivery for the DSIP and its counterparts at the provincial and LLG levels has not always been smooth, with some local authorities claiming long delays in payment.

SPECIAL CASE: A more radical devolution has taken place in Bougainville. Armed separatist conflict in the former province led to an eventual settlement and the creation, after elections in 2005, of the Autonomous Government of Bougainville (ABG). The ABG now manages its own resources, with an executive arm headed by the president, a single chamber house of representatives and an independent judicial system. The political groundwork is being laid for a referendum on full independence which, according to the agreement that ended the conflict, must occur before 2020.

CURRENT DEVELOPMENTS: In 2013 the District Authorities Bill strengthened districts' control over development funding. The 2015 budget showed a shift away from LLGs, reducing funding for these but increasing it for provinces and districts and instituting more central monitoring of projects at the latter two levels. Decentralisation is thus very much a work in progress, with the elusive balance still being sought. Meanwhile, governors and the opposition have voiced demands for more regional autonomy. How the government responds to this will be decisive in the months and years ahead.

Kelly Naru, Governor, Morobe Province

Strength in diversity

OBG talks to Kelly Naru, Governor, Morobe Province

In the context of the improving national economy, what role can Morobe Province play?

NARU: Morobe is the country's biggest province, with a population of about 750,000 people, and it has probably grown to over 1m since the last census. I would say that location is perhaps the province's best asset, as it is located in the middle of the country and ideally positioned to connect to the other provinces via land and sea routes. In the context of Papua New Guinea's economy, which unfortunately fell behind in terms of connectivity over the years, location is a tremendous asset. Consider Port Moresby, which has been growing quickly in recent years thanks to the implementation of the PNG liquefied natural gas project. The city continues to be one of the few capitals in the region that remains unconnected to any other major city.

This means that there are tremendous opportunities for growth in a province like Morobe, which boasts the country's largest port, located in the city of Lae. It absorbs most of the import and export movement in PNG and offers an ideal platform for local manufacturing, as well as for fishing companies that have invested in canneries to reach the lucrative markets of Europe and beyond.

Economic diversity is also one of the province's strongest features. Morobe is responsible for the production of many of PNG's mineral resources and boasts two of the country's most important mining projects: Hidden Valley and Wafi-Golpu. It is also a major source of timber, cash crops and tuna stocks.

Devolution is one of the most important reforms introduced by the government. How is Morobe taking advantage of this unique opportunity?

NARU: Our goal as an administration is to create a more conducive environment for business and, in order to do so, we will need to solve the biggest issue for the province and, perhaps, the country: the lack of power necessary to support industrial growth.

In my opinion, the present administration truly believes in the fundamental benefits of decentralisation, but at the same time more could be done to ensure increased independence in the management of critical assets. Independent power production has been widely recognised as a priority for addressing power shortages, but it would be much more effective if it was managed at the provincial and district levels. Local oversight would ensure that the additional capacity was used more efficiently.

The cost of supplying power through independent diesel generators continues to be astronomical in Morobe, and it hinders economic growth and poses a hazard to the environment. Similar models implemented in other countries like the Philippines, which used to experience frequent blackouts like we currently do in PNG, shows that the decentralisation of power generation and distribution pays dividends in the long run. This is what we should do in PNG.

To what extent should PNG's provinces create their own models for economic development?

NARU: Diversity if one of PNG's main assets culturally speaking, but also in geographical and economic terms as well. Each province should be positioned to develop its own unique economic model. In Morobe, our biggest challenge is the availability of land, as the majority of land belongs to landowners and little remains in state's hands. Finding a formula that allows landowners to be participants in, and not just mere spectators of, economic activity would be beneficial to Morobe. The government often discusses the importance of public-private partnerships as the way forward for PNG, but we would like to also add landowners as participants in this model. We believe that including this dimension is key for the province's economic growth and all its future projects, particularly in agribusiness, as it invites landowners into the development process. Hopefully, this example can be utilised by all the provinces.

David J Alcock, CEO, Mainland Holdings

Destined for growth

David J Alcock, CEO, Mainland Holdings, on the importance of infrastructure and bio-security to the poultry industry

We should all recognise that a lot has been done by the current administration when compared to previous ones in overhauling the city's infrastructure. However, inadequate roads and infrastructure in general represent perhaps the first and foremost challenge for any company operating in what is considered to be the industrial centre of Papua New Guinea. In our industry, due to the poor condition of the roads, vehicles frequently break down while delivering services to farmers and this has a huge impact on costs and time management.

Power is the second major issue I would say and even though additional gas turbines were installed in Lae city in 2015, we often have to rely on our own generators, which means in many cases having to buy as much as 100,000 litres of diesel weekly. The manufacturing base in Lae is destined to grow in the future, taking advantage of the city's strategic position as a gateway to the Highlands, and a more sustainable long-term measure needs to be put in place to spur economic growth.

Thirdly, I would say that the lack of law and order clearly hinders investment not only for the manufacturing industry, but for the economy as a whole. The upgrading of the highway to link Lae with Nadzab, being built by China Railways International, is certainly a good initiative, and upon completion by the end of 2017 this link will provide an immediate relief to some of the problems listed above.

A few well placed police posts along the way would certainly make a great difference security-wise, as private companies are obliged to employ security companies in order to protect the movement of their goods and personnel, which again adds to the already high cost of doing business in PNG.

Boosting infrastructure and power supply while addressing law and order will help to facilitate the export of manufactured products from Lae to both the domestic and international markets. Take for instance the poultry industry. PNG is the only country outside of Australia and New Zealand that boasts grandparent and parent chicken farms. Therefore, we have a real desire to drive the genetic base extension, and competitively supply the Asian market with our products. The export of poultry products requires a very high standard, when it comes to bio-security.

Our parent stock could leave the airport in Moresby tomorrow and reach Kuala Lumpur overnight with a very competitive offer for the Malaysia market. This would eventually contribute to lifting our standards even higher in the future. That is the direction where we want to move, as we are very serious about the opportunities ahead of us, but of course we will need the government to support the industry with the adequate infrastructure, as at the moment our production continues to be too expensive within the region and beyond. The overall goal is to become the Pacific's top poultry supplier for the Asian market.

When it comes to bio-security, PNG has also recently banned the import of uncooked poultry from Australia, as there have been serious cases there of both campylobacteriosis and Newcastle Disease. If imported, these diseases could wipe out our entire flock. That would trigger enormous economical consequences as one can imagine.

In fact it is not the first time that this has occurred, as a similar ban was also imposed in 2012 because of an outbreak of H7 bird flu in New South Wales.

At the end of the day what PNG wants is the same standard of bio-security applied in Australia, New Zealand and even Fiji, which allows only cooked poultry to be imported into their countries. Of course this ban will also have a positive impact on the domestic industry here in PNG, which is worth approximately PGK750m ($283.8m), according to the PNG Poultry Association, while imports amounted to roughly 5-10% of the total production. There is enough capacity to supply the vacuum, also because most of the imports were basically wasteful products that had no real market back in Australia.

Some 12-17% of the world's tuna is caught within PNG's waters

Lae on industry

Manufacturing in Morobe's capital city centres on fisheries

In recent years, Lae, the capital of Morobe Province, has become PNG's main manufacturing centre, with one of the most vibrant segments arising in the fisheries sector, especially tuna processing and canning. The country's economic growth – expected to accelerate quickly now that the Exxon-Mobil liquefied natural gas project has come on-stream – is likely to benefit PNG's industry tremendously, as the local market expands to supplement existing export trade. Planned industrial and commercial parks, if successful, will also bring new benefits for manufacturers and food processors.

Morobe's industries face many obstacles, however. Infrastructure and land access are major concerns. In fishing and related businesses, global worries about depletion of fish stocks threaten new restrictions. The coming years will therefore be crucial for Lae's manufacturers as they confront these issues while positioning themselves to take full advantage of GDP growth.

NATIONAL CENTRE: Since Lae sits at the end of the Highlands Highway, the main transit artery between PNG's most populous provinces, the city has long been a centre for all sorts of economic activity. Its port is now the country's busiest, with a strategic location whose international connections rival those of the national capital, Port Moresby. Businesses involved in processing goods from the interior have thus long made Lae their home. Manufacturing employs around 25% of PNG's formal workforce, according to the Lae Chamber of Commerce Incorporated (LCCI), with the sector responsible for some 6-12% of national GDP.

Among the major local manufacturers with factories in the city are PNG's oldest food manufacturer, Paradise Foods, and KK Kingston, founded in Lae in 1972. The Lae Biscuit Company, Prima Smallgoods, Laga Industries, Mainland Holdings, Trukai Industries and Amalpack also have operations there. Lae's international links are also evident from the presence of several multinationals in the city, including Colgate, Coca-Cola, Nestlé, Dulux Group, Japan's PNG Taiheiyo Cement and Heineken, which operates through the SP Brewery.

FISH: Lae benefits from the country's large fishing operations. Some 12-17% of the world's tuna (mainly skipjack and yellowfin) is caught within PNG's 2.4m-sq-km exclusive economic zone. Data on annual exports vary widely: the LCCI reports around 580,000 tonnes; the National Fisheries Authority (NFA) says it is 150,000-200,000 tonnes a year; and the European Fisheries Commission claimed a total of 700,000 tonnes for 2012. Whatever the true figure, it is clear that the fish is one of PNG's leading revenue-earners: the Pacific Tuna Forum (PTF) estimates that the yearly catch is worth some $1.3bn. Major overseas markets include Japan, the US, and the EU, and access agreements are in place with China, the Philippines, Taiwan and South Korea.

TRADE DEAL: Adding to these benefits is PNG's Economic Partnership Agreement (EPA) with the EU, which also covers neighbouring Fiji. Inked in 2009 and ratified in 2011, the EPA allows duty-free, quota-free access to the European market for PNG-made goods, which would otherwise be subject to the EU's "rules of origin". This means vessels can fish outside PNG's waters and still take advantage of the EPA, provided that their catch is processed in PNG. The result has been a major surge in the number of tuna processing factories in Lae and in the export of canned fish. Germany, the UK and the Netherlands are now major export markets for PNG's canned products, while Spain and Italy are growing markets for tuna loin.

INCENTIVES: A further advantage is state incentives for investment in the fishing sector. These include 100% "accelerated depreciation" tax deductions on outlays for new plants and materials; a three-year corporate income tax holiday on profits from the sale of canned, loined and smoked fish; and a potential double deduction for export market development costs.

ONSHORE UNITS: Vessels belonging to these onshore investments now bring ashore about half of PNG's catch, according to the NFA, while the rest is caught by foreign purse seine vessels – boats that use large, round, vertical dragnets. In the past, the latter group

Morobe's capital of Lae is the country's main centre for manufacturing, with the sector employing around 25% of PNG's formal workforce and responsible for some 6-12% of GDP.

PNG's catch of tuna is worth about $1.3bn a year, ranging from 150,000-700,000 tonnes a year, according to various estimates. It is sold to markets like Japan, the US and the EU.

Authorities are encouraging the rise of local value-added processing

In 2014, the EU warned PNG to take stronger measures against illegal fishing, granting a six-month extension in February 2015 to come up with further plans.

had had the largest haul, with much of the tuna catch going abroad for processing elsewhere.

Anxious to stem this outflow, the city, provincial and national authorities have all encouraged the rise of local value-added processing. Indeed, this was one rationale behind the EPA, as the EU supports the growth of local value-added operations as part of its economic aid strategy. The PTF estimates that, if more value-added methods were employed, the tuna industry in PNG could be worth some $2.7bn a year.

JOINT VENTURES: Many onshore operations are joint ventures with foreign companies, whose bases in PNG enable them to benefit from the EPA. One example is Majestic Seafood, a joint venture between Frabelle Fishing Corporation, Century Canning Corporation (both from the Philippines) and Thai Union, a subsidiary of Thailand's Union Frozen Products, the world's largest tuna cannery. Majestic opened a new, $38m cannery at the Malahang Industrial Park in Lae in 2013. The joint venture exports the products, while Frabelle (which has a cannery of its own in Lae) sells to the local market. Frabelle has invested much in Lae since it began operations, refurbishing six of its boats and spending $4.5m on phase one of a new wharf, with the same sum earmarked for phase two. By 2018, this will give the company 500 metres of wharfage, along with a 300-tonne storage unit for sunflower, olive and soyabean oils – products used in the canning process.

There are other such ventures in Lae. Malaysia's International Food Corporation has a plant that began processing imported mackerel, and later tuna as well. China's Zhoushan Zhenyang Deep-Sea Fishing Company has invested $20m in a canning plant. A joint venture by Nambawan Seafoods, a Filipino-Taiwanese joint venture, has a tuna cannery due to open in late 2015. PNG's largest canner, RD Tuna (owned and run by the Philippines' RD Group), though based in Madang Province, uses Lae as an export point for processed goods.

CHALLENGES: Though Lae offers considerable advantages to manufacturers, infrastructure often falls short. Rapid expansion of trade has led to congestion at Lae Port, delaying boats in cargo offload and pushing up costs. Power supply has been patchy, with blackouts frequent enough that many firms buy their own generators. The state electricity provider, PNG Power, announced in February 2015 it was installing a 25-MW standby generator for the city. Frabelle has even bought a biomass plant fuelled by coconut shells.

Another recent challenge has been securing property for new processing plants. As the port city has expanded, traditional urban areas have filled up, pushing demand for real estate into areas subject to customary ownership laws, whereby land is owned not by individuals but by a clan or tribe. The search for an agreeable formula for putting this land to industrial use continues. Currently, much of it is leased to companies on a long-term basis, rather than purchased.

Finally, the tuna industry faces the challenge of sustainability. It must ensure that illegal, unreported and unregulated (IUU) fishing is curtailed, if PNG is to keep its EPA in this area. In 2014, the EU warned the country to take stronger measures against IUU fishing, granting a six-month extension in February 2015 to come up with further plans. The solution may well involve future restrictions on the "vessel day scheme" under which licences for fishing days are auctioned to national bidders. For now, though, the fish processing sector, like manufacturing overall, continues to expand. With a dedicated fishing wharf likely on the way at Lae Port, as well as a satellite industrial city near the expanded airport at Nadzab, busy times lie ahead for Morobe.

Health & Education

Free primary health care recently launched
New opportunities for private investment
Growing demand for tertiary education
20,000 high school students graduate in 2014
Private higher education institutions welcomed

New reforms are set to improve the availability of pharmaceuticals

Complex development

Public-private partnerships are helping to improve health care service delivery

PNG's health care system is delineated in the National Health Plan 2011-20, which places a distinct emphasis on the provision of basic care for the country's poor and rural population.

The health care landscape in Papua New Guinea is informed by its topography and culture: its highland mountains and deep valleys are home to a multitude of indigenous peoples maintaining traditional ways of life while coping with health issues symptomatic of a developing country. Meanwhile, on the coast and in cities such as Port Moresby, rising incomes are increasingly leading to the kinds of non-communicable health issues more often seen in developed countries.

The government is thus faced with the complex challenge of funding and delivering appropriate health care to at least two distinct populations at once. Private investors, including churches and NGOs, already play crucial roles in bridging gaps and developing innovative solutions to the country's health care needs, and such partnerships are both encouraged and expected to expand in the foreseeable future.

BASIC & UNIVERSAL: PNG's health care system is delineated in the National Health Plan 2011-20, which places an emphasis on the provision of basic care for the country's poor and rural population. The plan aligns with the PNG Development Strategic Plan 2010-30, as well as the nation's Vision 2050 goals – one of which is to be among the top 50 countries in the UN Development Programme's (UNDP) human development index (HDI) by 2050. PNG also measures its progress against the UN's Millennium Development Goals.

Complementing the National Health Plan, the National Health Service Standards of 2011 outline a seven-level model of health service delivery. For the first time, minimum standards for health facility infrastructure and staffing levels were defined, standard equipment lists for each level of service delivery were compiled, and an accreditation system for hospitals and health centres was implemented. With the tacit acknowledgement that improvements in health care service delivery are required at all levels, the plan targets better integration between hospitals and rural health services such as community health posts. It also calls for the construction of new hospitals, including at the district level, as well as regional specialists and national referral mechanisms.

Health services can be accessed at public hospitals and clinics, as well as at church-run health centres, which supply about half of all rural health services.

In addition, as its primary and principal objective, the National Health Plan aims to provide universal health coverage and equal access for the country's rural population and the urban poor. At the national level, the National Department of Health makes and administers health policy, but the management of the National Health Plan is devolved to the provincial, district and local level governments under a system of decentralisation. The central government administers the national referral hospital, Port Moresby General Hospital (PMGH), along with specialist, regional and provincial public hospitals. Health services can be accessed at public hospitals and clinics, as well as at church-run health centres, which supply about half of all rural health services, and at aid posts staffed by community health workers and run by local governments and NGOs.

CHURCH ASSISTANCE: Indeed, church-provided health services form an integral part of the national health system in rural areas. The Churches Medical Council (CMC) is the main body representing churches in PNG that are involved in the delivery of rural health services. Church organisations operate the majority of the country's nursing schools and community health worker training schools, as well as many rural aid posts and clinics. These not-for-profit organisations are subsidised heavily by the government to the tune of about 80% of their service costs, but are overseen by the CMC. In general, they operate autonomously in terms of management, with no formal contractual arrangements with the government and no apparent connection to PNG's health workforce formation or requirements.

PRIVATE CARE: In addition to the public and church care facilities, PNG has 15-20 private health facilities – concentrated in Port Moresby and Lae – that provide inpatient and outpatient medical and diagnostic services. Enhancing these are clinics and centres set up by large companies operating in PNG to provide onsite health care for employees and their families.

ALTERNATIVE HEALTH CARE: Traditional medicine and healers play an important role in PNG's health system, especially at the village and district levels, and in areas that lack aid posts and health centres. To encourage and manage the use of traditional medicine, the government in 2007 passed the National Policy on Traditional Medicine, which aims to integrate traditional medicine into PNG's basic health care system.

FUNDING: The government of PNG spent 4.5% of GDP, or about $114 per capita, on health care in 2013, according to the World Health Organisation (WHO). Approximately 20% of health sector spending comes from donors, with Australia being the largest of these. In addition, PNG has received special funding due to its status as a priority country according to the WHO's Commission on Information and Accountability for the Global Strategy for Women's and Children's Health.

The coordination of these donor funds is managed by the Health Sector Improvement Programme, with the programme's trust account pooling funds received from donors, government and global initiatives. Meanwhile, the Independent Annual Sector Review Group conducts health sector reviews, while a partnership policy steers cooperation between the PNG government and non-governmental health service providers.

FREE ACCESS: A new free primary health care programme, launched by the government in 2014, eliminates all user fees from medical centres and clinics, with the aim of making basic health care free for all Papua New Guineans. The government allocated PGK20m ($7.6m) in 2014 to launch the new system.

However, according to the "Promoting Effective Public Expenditure Project" report by the National Research Institute and the Australian National University's Development Policy Centre, which examined expenditure in the country's health sector and beyond, the new free programme might be the wrong prescription for the health of the nation. This is in part because user fees have been the only source of funds for 29% of health clinics surveyed in the report. Although the enhanced government subsidies should prove beneficial for clinics, this may not be the case in practice, according to one report author, Stephen Howes.

According to Howes, most of these health facilities do not have bank accounts and use cash derived from user fees to pay suppliers, and so have limited ability to receive the subsidy. The authors of the report, which was conducted over three years from 2012 to 2014, argue that the free system will actually leave clinics in worse shape than they are already in. Indeed, many of the health facilities surveyed in the report are already in dire straits. The report authors found that in 2012, 67% of surveyed clinic rooms and 77% of health worker accommodations required rebuilding or maintenance. A little over half of clinics they visited had year-round access to water, some 40% had electricity and refrigeration, 30% had access to fuel, about 20% had beds with mattresses and a kitchen, and only 33% had the ability to make patient transfers. Meanwhile, 75% of health workers said they had used a portion of their own salary to contribute to the clinics' operations.

A DIVERSE POPULATION: To say that PNG is multicultural would be an understatement. PNG is home to about 7.8m people speaking more than 800 indigenous languages and disbursed over 600 islands. For much of its history, the people who have inhabited the country's mountains and valleys have lived in isolated settlements with minimal access to the amenities of modern life – including, in many places, health care.

The population of PNG is growing at an estimated annual rate of 2.1%, according to 2013 statistics from the World Bank. PNG is also a youthful country, with 38% of its citizens younger than 15 years and only 5% aged 60 or older. The fertility rate of 3.8 live births per woman contrasts with an infant mortality rate of 49 deaths per 1000 live births. Furthermore, people born between 2010 and 2015 can expect to live only into their early to mid-60s – compared to Australians born during the same period, who will live into their 80s.

In 2013, PNG scored 0.5 on the UNDP's HDI, a ranking that places it below the average for the low human development group of countries and equal to that of the Solomon Islands. Lower respiratory infections, tuberculosis, diabetes and malaria were the biggest causes of death in 2012.

One of the main problems hindering the health sector's development is that there simply are not enough medical professionals in the country. According to the WHO, PNG has 0.58 health workers per 1000 people. The organisation recommends 2.5 health professionals per 1000 people solely to maintain primary care. Indeed, this is borne out by the country's ranking in the

A new free primary health care programme, launched by the government in 2014, eliminates all user fees from medical centres and clinics, with the aim of making basic health care free for all Papua New Guineans.

Of the overall urban population, about 318,000 people live in the capital, Port Moresby, which is also where most modern health services are located.

lower 20 countries – 149 of 161 – on Save the Children's health worker index, a measure of the density of health workers, vaccine coverage and skilled birth attendance. The country's low score is a reflection of the relative density of physicians in urban areas to the shortage in rural areas.

Of the overall urban population, about 318,000 live in the capital, Port Moresby, which is also where most modern health services are located. Furthermore, of the country's fewer than 400 doctors, only about 50 practice outside Port Moresby. This concentration of physicians in the capital significantly skews the already startling statistic of one doctor per 17,068 people, since large portions of the country's inhabitants do not have access to a physician at all. Still, a comparison of PNG's doctor-to-person ratio to neighbours Fiji (one per 1000) and Australia (one per 302) highlights how important it is that the health sector receives urgent attention.

DISEASE PROFILE: While PNG is seeing rising rates of communicable diseases such as HIV/AIDS, malaria, tuberculosis, leprosy and water-borne diseases such as cholera, it is also seeing rising non-communicable diseases such as obesity, hypertension, diabetes, cancer and heart disease. This combination of typically developing- versus developed-country health issues makes providing the right kind of care to the right population even more complicated and costly.

PARTNERING FOR HEALTH: An important objective of the National Health Plan is the implementation of the National Public-Private Partnerships (PPP) Policy, under which innovative and cost-effective options for delivering health care services are to be introduced. The plan defines PPPs as partnerships with capital investments of more than PGK50m ($18.9m).

Clearly, opportunities abound for private investment in PNG's health sector. More teaching hospitals are needed to complement the PMGH, which has a partnership with the University of Papua New Guinea (UPNG). Until recently, PMGH had been the country's sole clinical school. In fact, the country is beginning to reap the benefits of PPPs involving not only the private sector and government agencies but also in partnership with NGOs. A good example came in August 2014 when upgrades to Port Moresby's Kaugere Health Centre were commissioned, resulting in a brand new PGK1.5m ($567,600) health facility with emergency services and an outpatient ward, as well as doctor, dental and family health services, and clinics specifically to treat tuberculosis and sexually transmitted infections.

At the inauguration of the new church-operated hospital, the prime minister, Peter O'Neill, said, "Today is an important occasion not only for Kaugere, but for PNG. It is an example of private, church and government partnership. We are able to achieve great things like this, the opening of the health centre at Kaugere."

Two months later, in October 2014, O'Neill made another announcement about improvements to hospitals in the country. Goroka Provincial Hospital, in Eastern Highlands Province, is set to be redeveloped with funding from loans issued by Austria and the Czech Republic. Austrian company VAMED will conduct the redevelopment, which will see the construction of a new diagnostic and surgical centre, and a clinical school, the country's second. A PGK30m ($11.4m) appropriation for the project will be included in annual budgets beginning in 2018 and will continue until the loan is repaid.

CLINICAL SCHOOLS: In February 2015, a memorandum of understanding between PMGH and UPNG was signed to establish an additional clinical school, either in Madang or on one of the New Guinea Island provinces. The hope is that as the country begins to train more physicians and other health care workers, more human resources to staff new hospitals and clinics will extend the reach of health care further into the country's rural, hard-to-reach areas. "In a hospital environment you need people who care for human lives and I feel that the current administration has understood this fundamental issue," Dr Jim Abrahams, the administrator of Angau Hospital, told OBG. New clinical schools will open up opportunities for medical students from all over the region. Space for students at UPNG's medical school is limited, and most doctors for all 14 Pacific Island nations have traditionally been educated either there or at Fiji's National University School of Medicine, with costs of up to $50,000 to educate each medical doctor.

Another long-awaited PPP initiative was announced when Pacific International Hospital (PIH), one of the country's premier private medical and training hospitals, opened a new facility in Port Moresby's Three Mile neighbourhood equipped with a cardiac unit, a heart lab and an MRI machine, among other cutting-edge medical devices. For the first time, PNG patients are now

able to receive treatments such as open-heart surgery, previously not available at all in PNG. O'Neill has stated that the government intends to partner with PIH by allocating subsidies to treat public patients requiring cardiac operations and other specialist medical care.

"Our hope is to complement public hospitals, and for the government to have more PPPs to give more access to subsidised services," Amyna Sultan, CEO of PIH, said in the run-up to the new hospital's opening.

PPPs are also being leveraged to bring down disease rates. Oil Search, which controls more than 60% of PNG's oil and gas assets, has called on the corporate sector to commit to regional health projects and embrace PPPs for development. Oil Search itself is working with the PNG Department of Health to combat HIV/AIDS, malaria and tuberculosis via its Oil Search Health Foundation. In conjunction with the government and NGOs, the foundation operates clinics in five provinces, providing treatment for HIV/AIDS, malaria, tuberculosis and maternal health. Oil Search's managing director, Peter Botton, said the cooperation provides benefits for both sides. "Working with the Department of Health and others we can leverage our skills from all sides, and deliver much better outcomes than just on our own," Botton told Australian media in July 2014.

Another partnership, this time with NGO Australian Doctors International (ADI), sees volunteer doctors conducting health patrols to deliver basic health care services to rural communities in New Ireland Province. PNG's largest bank, Bank South Pacific, donated PGK50,000 ($18,920) to ADI in February 2015, which will go towards more immunisations for New Ireland children, antenatal care for expectant mothers, dental services and general health education.

GOOD NEIGHBOURS: The disparity between the quality of life in PNG and neighbouring Australia, just 160 km south but worlds away in terms of health and wealth indicators, cannot be overstated. The Australian government recognises its responsibility to help those in need in its neighbourhood and has been a major contributor to PNG's efforts to improve its health system, especially in the fight against HIV/AIDS.

On December 1, 2014, World Aids Day, Australia's foreign minister, Julie Bishop, underscored her government's particular focus on PNG by providing about $153m over three years to the Global Fund to Fight AIDS, Tuberculosis and Malaria in PNG. The fund connects various stakeholders with technical expertise and multilateral funding. Foreign donors provided 82% of total in-country spending on HIV/AIDS in PNG in 2012.

THE RIGHT MEDICINE: In 2012 the government updated the Essential Medicines List and developed its first National Medicines Formulary, and in 2014 the National Drug Policy was revised. The government is also continually instigating reforms to improve pharmaceutical and medical device procurement and distribution. A significant obstacle for rural health centres is acquiring adequate medications and supplies.

Between 1999 and 2010, the frequency that basic essential medical supplies were available in health centres seldom exceeded 60%. With the assistance of NGOs and other partners, novel pathways for procurement and distribution of drug kits saw this rate rise to 83% in 2011. However, without reliable electrical supplies and refrigeration, the storage of drugs and intravenous fluids at rural clinics poses another challenge.

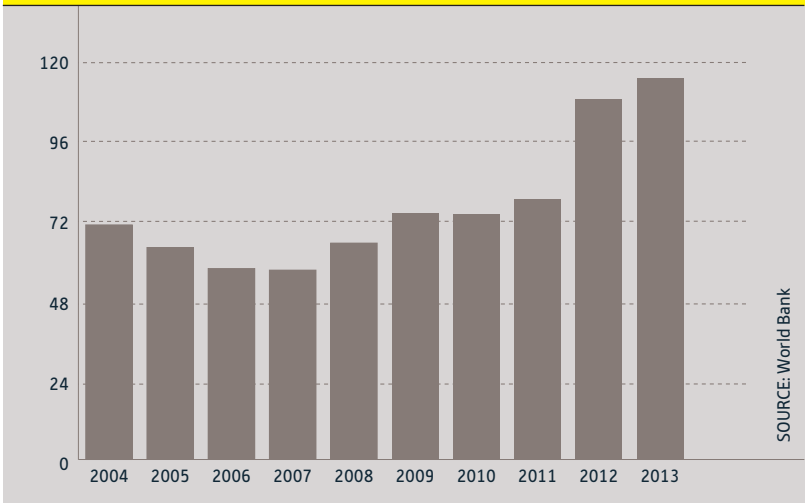
Access to physicians continues to be a major challenge in rural areas

OUTLOOK: Many of the challenges in health care provision are linked to obstacles in other sectors, such as transport, infrastructure, manufacturing, education and security. The international community is contributing and playing its part to help PNG improve its health care delivery, facilities and services, but there is room for more activity, especially from the private sector.

As the free basic health care scheme becomes more established, the government will likely devise ways to further encourage more private sector participation beyond what is already on offer, and the number of PPPs already operating in the country will likely proliferate. Participation in this effort by firms involved in resource extraction is not only good public relations, but also good business practice. As the health of all PNG's citizens improves, their ability to contribute to further economic growth also increases, to the benefit of all in PNG.

In 2012 the government updated the Essential Medicines List and developed its first National Medicines Formulary, and in 2014 the National Drug Policy was revised.

Health expenditure per capita, 2004-13 (constant 2011 international $)



Dr Amyna Sultan, CEO, Pacific International Hospital

The way forward

OBG talks to Dr Amyna Sultan, CEO, Pacific International Hospital

What benefits can private services bring to the health sector in Papua New Guinea?

SULTAN: It is important that the benefits derived from private-sector involvement stay within the country, in the form of both physical assets and skills transfer. To this end, public-private partnerships where the state builds the infrastructure while the private sector contributes capital and human resources represent a sustainable model for the future of the industry, as the government struggles to cope with growing demand for technology to improve health care delivery.

Private health institutions are able to provide services that were previously unavailable in PNG. In the past, people had to fly abroad at a very high cost, and it is not uncommon to hear of people having to raise large sums of money for cardiac surgery, MRIs, neurosurgery or retina surgery. Now, we can provide these treatments locally at a fraction of the cost. The redesigning and refurbishing of existing public hospital facilities is an expensive exercise in PNG. It will take years to revamp these hospitals, since most of them have been long neglected. As far as I can see, there is a growing demand for private tertiary health care in PNG.

What sorts of synergy may arise between public and private institutions in health care delivery in PNG?

SULTAN: The government could outsource tertiary services unavailable in public hospitals to private ones. There could be sharing of facilities and technology required for interventional cardiology, cardiac-thoracic surgery, MRIs, neurosurgery or radiation oncology. These services can be set up by private investors even at public hospitals, as has been done successfully in more mature markets like Australia and the US. This would allow public-referral patients to receive preferential tariffs that would reduce costs substantially.

Ideally, the government would outsource services and then subsidise private providers to offer treatments that public centres currently do not offer, thus widening the choice of services. Building, for example, a new cardiac centre from scratch at a public hospital where even basic facilities are still being revived would be a very expensive exercise. Clearly, it would be more economical to involve the private sector.

Private involvement can provide cutting-edge technology and facilitate knowledge transfer through a pool of international doctors who could help build capacity in PNG. Plenty of funds have been directed to the health sector in this country; yet the shortcomings are not always about money, but about capacity, management and efficiency. Doctors from both the public and private sectors are starting to believe in the possible synergies, and we are confident it will not be long before such engagement occurs in PNG.

Which segments of the population could afford private hospitals given PNG's low-income status and need for primary health care?

SULTAN: Only a small portion of the population – those in the higher socio-economic strata and employed citizens with health insurance – will benefit from institutions like Pacific International Hospital if the state does not ensure that subsidies are given to private partners to reach out to every citizen who needs, say, heart surgery. We are already reaching out to plenty of Papua New Guineans who in the past could not afford to fly overseas for treatment but now can afford surgery in PNG. The introduction of new, state-of-the-art hospitals with cutting-edge technology will also help raise the bar for health care in PNG and encourage public hospitals to achieve the same standard.

We are very supportive of the government's efforts to introduce universal health care, but for it to be effective, the infrastructure must first be in place. The principle in the new legislation that each province will take responsibility for its own health care, from primary care all the way up to tertiary referral hospitals, seems the right way forward. Only devolution will ensure that funds are spent correctly, in line with the specific needs of each institution within the provincial health plan.

Population growth is driving demand for education at all levels

Spaces needed

Growing demand for tertiary degrees sees expansion in higher education institutions

As Papua New Guinea's population increases, the demand for education at all levels is also rising. The country is starting to build the infrastructure and train the educators necessary to cater for this large group of students. Even so, outside assistance is welcome in terms of funding and managerial assistance.

Human development through education is one of the country's foundational principals. In 1986 a Philosophy of Education was amended to PNG's national constitution. The philosophy recognised that the nation's goals and principles are based on the concept of integral human development, and that an education should impart citizens with the knowledge, skills and attitudes required for successful communication and numeracy in the workplace, as well as social and spiritual development.

STANDARDS-BASED SYSTEM: PNG's basic education system is structured along the 2-6-6 model, with two years of elementary education followed by six years each of primary and secondary education. In 2011 the government announced a change from an outcomes-based education model (OBE) to a standards-based education (SBE) model in an attempt to improve education quality, following widespread complaints that classroom learning was ineffective under the OBE model. The SBE curriculum is expected to advance the use of testing and improve governance. Despite some resistance from teachers and administrators, who have raised concerns about a lack of preparedness, awareness and training, the Department of Education is planning a phased implementation for SBE, with elementary schools to grade five converting to it in 2015, grades six to nine in 2016, and grades 10-12 by 2017.

International schools are also a presence in PNG's education system. These schools provide private education that can begin as early as pre-school and continue through to grade 12, with the number of years offered differing for each school. The not-for-profit International Education Agency (IEA) of PNG operates 19 international schools and vocational institutions in the country. Around 80% of IEA teachers and 90% of students are Papua New Guineans, with the bulk of the remaining student population consisting of students of expatriate families.

These private international schools function as important stop-gaps in education provision when government schools fall short. In addition, they are able to offer placements for students who might otherwise leave the system altogether.

A tuition-fee free (TFF) system was introduced in 2012, in which the government subsidises the fees of students in public elementary, secondary and vocational institutions, as well as in special education institutions and distance-learning schools. The TFF system aims to improve the quality and equity of education by providing better access to schools, increasing retention rates and strengthening management skills. In 2012 gross enrolment in primary and secondary education was 114.2% and 40.2%, respectively, according to data from the UN Educational, Scientific and Cultural Organisation. Net enrolment in primary education was 86.8%, according to UN statistics. Of the pupils who enter first grade, more boys (83.9%) than girls (79.1%) will complete their primary-level schooling. The literacy rate among people aged 15-24 stood at 71.2% in 2012.

FUNDING: The government spent 5.2% of GDP on education in 2012, or about $200m. The TFF system experienced a variety of administrative and distribution challenges in 2014 and 2015, with some school administrators claiming not to have received their funding in a timely manner.

In April 2015 the government launched an official investigation into the reasons for these bottlenecks. A separate investigation into teacher's pay and leave entitlements was launched in February 2015. Despite such bumps in the road, the PNG government has continued to roll out the TFF system and disburse payments to schools across the country.

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A tuition-free fee system was introduced in 2012, in which the government subsidises the school fees of students in public elementary, secondary and vocational institutions, as well as in special education institutions and privately run and open distance-learning schools.

PNG's higher education institutions are struggling to absorb growing numbers of grade 12 graduates

About 138 regional and national high schools produce grade 12 graduates each year. In 2014 the number of students graduating from secondary schools increased to 21,000.

In addition, the government is rehabilitating infrastructure in several universities, including the University of Papua New Guinea. The total allocation for the redevelopment is PGK62.5m ($23.7m).

HIGHER EDUCATION: The responsibility for policy planning, management, coordination and delivery of higher education in PNG lies with the Ministry for Higher Education, Research, Science and Technology, and the Commission for Higher Education.

The country has four public universities: the University of PNG, in Port Moresby; the University of Goroka (UOG), in Goroka; PNG University of Technology, in Lae; and the University of Natural Resources and Environment, in East New Britain. PNG also has two church-run universities: Pacific Adventist University, in Port Moresby, and Divine Word University (DWU), which has campuses in Port Moresby, Madang, Mount Hagen and Wewak, and is supported by government funding but is entirely privately administered.

One of the government's development policy goals is to increase access to higher education. The strategy is aimed at growing the country's currently small higher education sector by encouraging private players to complement the public sector's participation. In this, the government is eager to partner with private higher education institutions (HEIs) to supplement its public universities, colleges and vocational schools. The Ministry of Higher Education, Research, Science and Technology works closely with private sector providers to supply further higher education opportunities to the increasing number of students wanting to access such education.

The country has seen a surge in the number of students applying for tertiary education as a result of both the TFF policy and the brisk rate of population growth. Indeed, about 138 regional and national high schools produce grade 12 graduates each year, and every year the number of students graduating increases. In 2014 the number of students graduating from secondary schools increased to 21,000.

GROWING DEMAND: PNG's HEIs have limited space to cater to the increase in the number of students and are struggling to absorb the majority of these grade 12 graduates. Of the country's more than 20,000 grade 12 students who completed their secondary school education in 2014, only 5628 have been offered places in PNG tertiary institutions in 2015, according to Australian government data.

To deal with this shortfall, the government has directed the Ministry of Higher Education, Research, Science and Technology to expand the HEI sector, while maintaining and improving the quality of PNG's HEIs. "Capacity is a serious issue for our sector and often in the past money went back to the development partners unutilised," Joe Williams Lalie, the executive director of the IEA, told OBG. "I believe the private sector can fill up some of these gaps, as institutions like the IEA offer a good foundation in primary and upper primary education, and technical and further education, partnering with the government in providing basic education to the masses."

On a positive note, more HEIs are seeking quality assessment through accreditation. For now, that comes from the Commission for Higher Education, but under the Higher Education General Provisions Act 2014, that function will become the remit of the National Higher and Technical Education Board. The act repealed the 1983 Higher Education Act and replaced the Commission for Higher Education and the Office of Higher Education with the National Higher and Technical Education Board as the agency for quality assessment and accreditation. In addition, it established the Department of Higher Education, Research and Science Technology (DHERST).

PRIVATE PARTNERSHIPS: DHERST is actively encouraging both current and potential private higher education providers to more actively participate in PNG's provision of quality higher education. To signify a new beginning for PNG's tertiary education sector and assist prospective HEI providers, the government has tasked the department to work on attracting and collaborating with private institutions. To accomplish this, DHERST has revised policies and procedures and invested heavily in the country's higher and technical education sectors.

In March 2015 DWU and the PNG University of Technology signed a memorandum of understanding to share resources and staff. The partnership is set to extend to conducting joint research projects, supervising postgraduate students and enhancing

Assorted education indicators, 2014

	PNG	Indonesia
Mean years of schooling	3.91	7.51
Expected years of schooling	8.9	12.7
Adult literacy rate (% aged 15 and older)	62.4	92.8
Population with at least some secondary education (% aged 25 and above)	10.5	44.5
Pupil-teacher ratio	36	16

SOURCE: UNDP

professional skills development. The collaboration between the two universities is also expected to help achieve the government's goals for delivering quality higher education and increasing the number of student places available in tertiary institutions.

The country also has a variety of tertiary institutions offering technical and vocational education and training (TVET). In 2013 PNG had nine technical and business colleges, and 141 vocational centres. These include the National Polytechnic Institute at Lae, the West New Britain Technical College, Bougainville Technical College and secretarial colleges in Port Moresby and Goroka. In 2014, five new institutions were accredited by DHERST. These included the Institute of Business Studies, the Institute of Banking and Business Management, the International Training Institute, Enga Nursing College and Sonoma Adventist College. In 2015 it is expected that more private tertiary institutions will achieve accreditation, increasing the options for graduating grade 12 students wishing to continue their education.

RESEARCH RANKINGS: Research of varying types is undertaken by public, private, ecumenical and non-profit institutions. PNG's leading public policy and development think tank is the National Research Institute, an independent government statutory authority that receives annual governmental budgetary support. Moreover, the PNG University of Technology serves as the country's only technological institution, and the PNG Institute of Medical Research forms the research arm of the Department of Health.

Independent research is carried out by a privately funded think tank, the Institute of National Affairs; an NGO, the Wau Ecology Institute; and an industry affiliate, the PNG Cocoa and Coconut Research Institute. Finally, the Melanesian Institute, an ecumenical research, teaching and publishing institute, focuses on research related to the Melanesian peoples.

ACADEMIC PUBLICATIONS: A key measure of tertiary education quality and research capabiliy is the number of research papers a country publishes each year. In recent years, the Centre for Natural Resources, Research and Development (CNRRD) at the School of Science and Technology at UOG has published 40 research papers in international and national scientific journals. CNRRD's research activities have increased considerably and are expected to grow further after the allocation of a supply of new high technology equipment funded by DHERST.

New equipment is set to improve PNG's capacity to conduct research

The country is home to a number of research institutes and think tanks, both public and private

Costing around PGK500,000 ($189,200), the equipment includes technologies essential to carrying out research in a contemporary laboratory such as a high performance liquid chromatography system, a rotary evaporator, a real-time polymerase chain reaction DNA analyser and an atomic absorption spectrophotometer. These upgrades to the school's research capacity are expected to contribute to the country's research rankings as well as its ability to attract researchers to its institutions.

TECHNOLOGICAL SOLUTIONS: Education NGOs and civil society organisations (CSOs) operating in the country include Health, Education, Livelihood and Participation; the Foundation of the Peoples of the South Pacific International; the PNG Teachers' Association; and Save the Children.

These NGOs and CSOs have been actively applying technological solutions to some of PNG's educational problems. One innovative project to encourage learning English in rural schools was headed by volunteer organisation VSO. In partnership with the Department of Education, VSO trialled a research project, called SMS Stories, to determine whether daily mobile phone text message stories can improve English teaching and student literacy in the country's rural primary schools.

The rationale for the project was that although teaching materials and textbooks are in short supply in rural schools, almost every teacher has a mobile phone. The SMS Stories project took advantage of this technology by texting a daily lesson plan and short story to teachers, who then wrote the story

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Alternative course distribution methods are helping bring new curricula to hard-to-reach rural areas

out on a blackboard and taught it to their classes. Student literacy was assessed before and after the trial, and the results showed that students in SMS Stories classes experienced a 50% increase in English-language literacy. In fact, SMS Stories was so successful that the stories and lesson plans have been included in the new national curriculum. The cost, PGK2 ($0.8) per student, will likely decrease as the project is taken up more broadly.

Leveraging more technological resources, the Department of Education will in 2016 adopt a programme to enhance the quality of education in rural schools by placing televisions in classrooms. The Project for Enhancing Quality in Teaching through TV (EQUITV), originally spearheaded by the Japan International Cooperation Agency (JICA), saw mathematics and science lessons broadcast to rural schools participating in the project. EQUITV has generally been seen as a successful distance-learning project, and now JICA plans to develop mathematics and science curricula for PNG's schools.

HELPING HANDS: Creating a large skilled labour force is an important component of the country's long-term growth goals. As of November 2014, PNG had about 36 private training providers registered with the National Training Council.

The curricula of these schools run the gamut from mining to finance, agribusiness, hospitality and professional development. With the number of grade 12 graduates overwhelming the tertiary system, these TVET schools are an increasingly popular choice for graduates and school-leavers that are looking to continue their education.

"Without private training providers, how can the government accommodate those who drop out from grade 10 or 12?" Max Kuri, the principal of Kumul Training Institute at Waigani, asked at a recent graduation ceremony. "[The] government draws up big policies but is slow in implementing [them] and [training schools] step in to help in areas where the government cannot help. We are the government's hands and feet," Kuri continued.

In addition to TVET, distance learning provides an alternative for students who have left school. The World Bank-funded Flexible and Open Distance Education (FODE) project delivers courses in science, mathematics, English and social science principally through correspondence-based distance learning, with sporadic support from tutors and teachers at its provincial centres. The $6m project, the only one of its kind in the public sphere for upper primary and secondary school leavers, began in 2011 and runs until 2016. In that time, it has proved to be a resounding success among the country's out-of-school youth. Currently, about 46,000 students are actively enrolled in FODE classes, a significant figure when evaluated against the active enrolment in PNG's formal secondary education sector, which numbers approximately 65,000 students.

FODE is considered a success despite issues such as inadequate resources and technical support. For these reasons, FODE's goals until the end of the project have been whittled down from a much larger scope to three main objectives: support curriculum development for all subjects for grades seven through 12, extend internet connectivity between FODE headquarters in Port Moresby and its 22 provincial centres, and provide training in project management, monitoring and evaluation.

OUTLOOK: NGOs and private funders are collaborating closely with the Department of Education and DHERST to implement wide-ranging changes to the provision of education in the country, both in its urban and rural areas. The task is challenging but early reports show promising results. As the country becomes wealthier as a result of its mineral and liquefied natural gas deposits, it is essential that no one is left behind on PNG's path towards prosperity and innovation. Now is the time to start planning for that future, and a high-quality education for all of PNG's citizens is the right tool needed to achieve it.

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Training institutes are an increasingly popular tertiary option

Tax

Government focus on improving tax compliance
New double tax agreements recently signed
Outline of current corporate taxation guidelines
Residency status determines withholding rates

Different types of legal entities are available to businesses

Duty to state

A run-down on taxation rules

Papua New Guinea has recorded high levels of economic growth for a number of years, mainly on the back of the PNG liquefied natural gas (LNG) project, which began production in mid-2014. The country's abundance of natural resources has also seen many of the world's largest oil and gas and mining companies enter the market. While the economic signs continue to be positive, a major issue facing the PNG government is delivering quality services to the country and its people, especially in health care and education, as well as quality infrastructure.

THE NATIONAL BUDGET: In the 2014 budget, the government stated its commitment to improving the country's future by making key investments in many sectors of the economy and focusing on inclusive and sustainable growth for all.

With an eye to ensuring that tax revenues are increased, the Treasury Department, with technical assistance from the International Monetary Fund (IMF), will be conducting a review into the mining and petroleum taxation in 2014. The purpose of the review is to determine the appropriateness of the mining and petroleum taxation arrangements compared with similar resource-rich countries. In addition, the government has established its own committee to review the fiscal system and the report prepared by the IMF.

The 2014 budget also proposed a number of medium- to long-term tax-related actions that are designed to lift revenues in the next five years. These measures include:

1. Increased focus on tax compliance: This is needed to improve revenues and includes continuing strong support for the financing of the Internal Revenue Commission (IRC) and the revenue collection sections of PNG Customs services through the budget process. A key part of this effort was the roll-out on July 1, 2013 of the IRC's Standard Integrated Government Taxation Administration System (SIGTAS), a new information management system designed to increase the efficiency of both tax compliance and collection.

2. Review of taxation: A review of PNG's tax system is overdue. Funding is being provided in the 2014 budget for the first stage of the review, which will focus on the appropriateness of current resource tax arrangements.

3. Improve the integrity of the tax base: Improving the integrity of the tax base is needed to reverse the fall in resource revenues. The tax system is severely compromised when concessions are provided to specific projects or taxpayers. For example:

- The use of project agreements to create special tax arrangements for individual projects has encouraged a wide range of investors to seek a growing list of additional tax concessions, even when forms of tax relief are already provided by tax law for investors in the type of business involved;
- Project agreements containing project-specific tax concessions have created an uneven playing field on which businesses must operate;
- The PNG LNG project concessions were granted on a first-mover basis for this particular industry and should not be used as a benchmark for future projects; and
- Often the concessions sought are difficult to cost, but in many cases they can deprive the government of significant amounts of revenue.

The key taxation developments announced in the 2014 national budget included:

- As of January 2014, the additional 50% deduction for expenditure incurred on approved research and development (R&D) projects no longer applies (see R&D section).
- Amendment of the Business Income Withholding Tax System to cover certain industries. Taxpayers in these industries are required to provide a certificate of compliance for contracts exceeding PGK5000 ($203.25) transferred to one payee.

TAX REGIME: PNG's tax regime is based on the Income Tax Act, the Goods and Services Tax Act, the Customs

Act and the Excise Tax Act, and supported by related legislation and regulations. Within the Income Tax Act, a specific set of rules applies to taxpayers operating in the natural resources sector (namely the mining, gas and petroleum segments), while the general provisions of the other laws apply to all other taxpayers as well as to those taxpayers engaged in mining, petroleum or gas operations.

TYPES OF CORPORATE ENTITY: A number of different types of legal entities are available to those looking to do business in PNG. These include incorporating a PNG company (a "subsidiary"), registering as an overseas company in PNG (a "PNG branch"), entering into a partnership agreement, and establishing a trust. The choice of entity is generally based on the commercial goals of the enterprise, legal and regulatory requirements, and the consequences for taxation. Most foreign enterprises operating in PNG do so through a subsidiary or branch.

COMPANIES ACT REQUIREMENTS: Where a company incorporated outside PNG commences to carry on business in PNG it is required within one month of commencement to register as an overseas company under the Companies Act. For the purposes of the Companies Act the term "carrying on business" is given an extended meaning but otherwise has its ordinary meaning. As a general proposition, an overseas company that enters into a contract for work to be done in PNG and undertakes work in the country for a period of more than 30 days would be regarded as carrying on business in PNG for the purposes of the Companies Act.

INVESTMENT PROMOTION ACT: Companies with foreign shareholdings of 50% or more (held or controlled by non-citizens of PNG) are required to be certified by the Investment Promotion Authority (IPA) before they can carry on business in PNG.

The meaning of carrying on business for the purposes of the Investment Promotion Act, so far as is relevant, is identical to the meaning of carrying on business for the purposes of the Companies Act. It follows that this requirement applies whether an overseas company intends to carry on business in PNG through a subsidiary or through a branch.

RESIDENCE RULES FOR CORPORATE TAX: A company is deemed a resident for corporate income tax (CIT) purposes if it meets either the incorporation test or the management and control test.

- **Incorporation test:** A company incorporated in PNG is automatically regarded as a PNG tax resident. However, the law of another country and a relevant double taxation agreement (DTA) may result in a company also being treated as a resident in another country.
- **Management and control test:** A company is a PNG tax resident if it is managed and controlled in PNG, regardless of where it is incorporated. Generally, a company is managed and controlled in PNG if key decisions affecting the company are made at directors' meetings held in PNG. This includes a company incorporated outside PNG that trades in PNG and has its voting power controlled by resident shareholders.

The incorporation test or the management and control test are used to determine residency in PNG

PERMANENT ESTABLISHMENT: The concept of permanent establishment (PE) has limited significance in PNG's domestic taxation law and is defined to mean a place at or through which a person carries on any business. Under domestic taxation law, PNG will seek to tax the income of a non-resident that is sourced in PNG whether or not that income is derived at or through a PE in PNG.

Where PNG has entered into a DTA, the concept of PE becomes more important, as it will then be one of the factors determining PNG's taxing rights over income sourced in PNG, particularly with respect to the business profits of a non-resident company. In general terms, PNG's DTAs:

- Define a PE to be a fixed place at or through which the business of an enterprise is wholly or partly carried on; and
- Deem a PE to exist in various circumstances, including those relating to the presence of substantial equipment in PNG and the time spent by personnel of an enterprise furnishing services in PNG.

CORPORATE TAXATION: PNG resident companies are liable for income tax on their worldwide income. Companies that are not resident in PNG are only required to remit tax on income sourced in PNG. A non-resident's PNG-sourced passive income, including dividends, interest and royalties, is generally only subject to withholding tax (WHT). Generally, the payer of the dividend, interest or royalty must withhold the relevant amount of the tax and remit this to PNG's IRC.

PNG's CIT is levied on companies on a flat rate basis. It is the operations of a company, rather than its taxable income level, that dictate the rate applied to its taxable income. Generally, trading profits and other income (except income that is specifically exempt) of resident companies in PNG are assessed tax at a rate of 30%, whereas non-resident companies that carry on operations in PNG are assessed tax at a rate of 48%.

Domestic trading losses may be offset against all income received in the same accounting period

However, there are different tax rates for income derived from mining, petroleum and gas operations undertaken in the country.

Trading profits and other income from operations in PNG are liable for CIT at varying rates according to the source of income (see table):

1. Taxable income: Taxable income is defined as the sum of assessable income minus allowable deductions. In practice, profits are calculated for tax purposes by reference to the profits reported in the financial accounts. Accounts must be prepared in accordance with PNG accounting principles, which follow the International Financial Reporting Standards (IFRS).

2. Dividend income: Dividends are included in the assessable income of a resident company shareholder unless otherwise exempt from CIT.

- **Inter-company dividends**: Dividends received by a resident company from other companies, whether resident or non-resident, while being assessable to tax, are generally subject to a full tax rebate and are effectively received tax-free. However, where a company has losses on other activities or losses carried over from earlier years, those losses are applied against dividend income before the calculation of the dividend rebate.
- **Stock dividends:** In most cases, the payment of a dividend by way of the issue of shares is subject to the same taxation treatment as the payment of a dividend by way of cash or the distribution of other property. However, dividends paid by the issue of shares wholly and exclusively out of profits arising from the sale or revaluation of assets not acquired for the purpose of resale at a profit are exempt from income tax and dividends WHT.

3. Interest income: Unless exempt under specific provisions, any interest paid or credited by a financial institution, the central bank or a company to a person who is resident in PNG is included in income, and the institution or person paying the interest in the account is liable to withhold and pay tax upon the amount.

4. Exchange gains: Generally, foreign exchange gains realised and derived from debts made on or after November 11, 1986 and denominated in a currency other than the PNG kina are included in assessable income. Realised foreign exchange gains on revenue items are also included in assessable income.

5. Foreign income: PNG resident companies are liable for CIT on their income from all sources, including income that is derived from foreign sources. However, a foreign tax credit may be available to offset foreign tax paid against the tax payable in PNG (see tax credits and incentives section).

There are no provisions in PNG that permit the deferral of the taxation of income derived outside PNG. Subject to the operation of a DTA, foreign-sourced income derived by a resident of PNG is subject to tax in PNG in the year in which it is derived whether or not that income is repatriated to PNG.

6. Deductions: General deduction provisions provide that all losses and expenditures, to the extent that they are incurred in gaining or producing the assessable income or are necessarily incurred in carrying on a business for the purpose of gaining or producing that income, are allowable deductions.

However, the general deduction provisions do not allow a deduction to the extent that a loss or expenditure is an outgoing of capital, or of a capital, private, or domestic nature, or incurred in relation to the gaining or production of exempt income.

7. Exchange losses: Generally, foreign exchange losses realised and derived from debts made on or after November 11, 1986 and denominated in a currency other than the PNG kina are an allowable deduction. Realised foreign exchange losses on revenue items are also allowable deductions.

INTEREST EXPENSES – THIN CAPITALISATION: A deduction is generally available for interest incurred on an arm's-length basis, subject to meeting the general principles and conditions for deductibility. Where interest is incurred in connection with the construction or acquisition of an item of plant or a capital asset, that interest is not immediately deductible. Rather, such interest is deemed to form part of the cost of that asset itself. In the case of plant, this interest will

CIT rate by source of income

Source	CIT rate (%)
Income other than income from mining, petroleum, or gas operations:	
Resident company	30
Non-resident company	48
Income from petroleum operations: *	
Existing projects	50
New projects	45
Incentive rate projects	30
Income from mining operations:	
Resident company	30
Non-resident company	40
Income from gas operations *	30

* The same rates of CIT apply to income from the petroleum operations listed above or gas operations derived by a resident or non-resident company.

then form part of the base from which future depreciation deductions may be claimed.

PNG's thin capitalisation rules apply to PNG companies across all industries with a debt-to-equity ratio of 3:1 for taxpayers in the natural resource sector (namely mining, oil and gas) and a ratio of 2:1 for all other taxpayers. The thin capitalisation rules do not apply to licensed financial institutions. If the ratio is breached, a proportion of interest paid will be denied as a tax deduction.

CAPITAL GAINS: There is no general capital gains tax in PNG. However, profits arising from the sale of property acquired for the purpose of resale at a profit, or from the carrying out of a profit-making scheme, are taxable as ordinary income.

NET OPERATING LOSSES: Domestic trading losses may be offset against all income received in the same accounting period or carried forward and offset against future trading profits. The limitation period on the carrying forward of losses is generally 20 years. Losses may not be carried back against prior years' profits. Primary production losses and resource project losses may be carried forward without a time limitation, although, again, they may not be carried back (see tax credits and incentives section).

The deduction of losses is subject to a 50% or more continuity of shareholding and control test, or a continuity of business test where there is a breach of the ownership test.

Foreign losses incurred by a resident taxpayer from a source outside PNG (other than in relation to export market development) are not deductible against assessable income derived within PNG. In practice, overseas losses can be carried forward and offset against overseas income for up to 20 years.

PAYMENTS TO FOREIGN AFFILIATES (MANAGEMENT FEES): The deduction available to a taxpayer for management fees paid to an associated person is limited to the greater of:

- 2% of the assessable income derived from PNG sources by the taxpayer; or
- 2% of the total allowable deductions, excluding management fees incurred by the taxpayer in PNG.

The limitation applies to both resident and non-resident taxpayers. Special rules apply to mining, petroleum and gas companies. These limits may not apply where the recipient of the management fee is resident in a country with which PNG has a DTA or where it can be demonstrated that the management fee arrangements do not have the purposes or effect of avoiding or altering the income tax payable in PNG.

WITHHOLDING TAXES: As with most jurisdictions around the world, withholding taxes comprise an important part of PNG's tax revenue collection regime. Details of PNG's major withholding taxes are provided below.

Dividend (withholding) tax: Dividends, including those paid to residents, are generally subject to a 17% dividend withholding tax, except dividends paid by mining companies, which attract a 10% withholding tax, and dividends paid out of petroleum or gas income, which are exempt from income tax and dividend withholding tax. Dividends paid to any of the country's superannuation funds are exempt from the withholding tax.

Accounts must be prepared in accordance with PNG accounting principles, which follow IFRS

Interest (withholding) tax: Where interest is paid or credited by any person to a non-resident or to a resident, a 15% withholding tax must be deducted. The withholding tax acts as a final tax for non-residents and the rate may be reduced where the recipient is a resident of a country with which PNG has a DTA. The withholding tax does not apply to interest paid to a non-resident lender by companies engaged in mining, petroleum or gas operations in PNG.

Royalty (withholding) tax: Tax is imposed on royalties and similar payments made to non-residents who do not have a permanent establishment in PNG. The tax must be withheld by the payer on behalf of the payee and remitted to the IRC. The tax payable on royalties to a party who is not an "associated person" is the lesser of:

- 48% of the net royalty – i.e. gross royalty, less applicable expenses; and
- 10% of the gross royalty.

Royalty payments to a non-resident "associated person" are liable for a withholding tax of 30% of gross payments (subject to any DTA), with no option to adopt the net income basis. The definition of "associated person" is detailed and widely drawn. Broadly, it encompasses relatives, partners, companies under effective common control, and related trust interests.

There is also a 5% withholding tax on mining, petroleum, timber and fishing royalties to landowners.

Management fee (withholding) tax: A 17% withholding tax applies to management fees and technical fees paid to non-residents. The withholding tax only applies to the amount allowable as a tax deduction. The tax must be remitted to the IRC within 21 days after the month in which such fees are paid or credited.

Foreign contractors withholding tax (FCWT): There are specific provisions included within the Income Tax Act which deal with the taxation of non-residents, other

The scope and rate of income tax for individuals varies by resident status and income source

than individuals, who carry out certain contract activities in the country. Such non-residents are referred to as "foreign contractors".

The contract activities include undertaking installation and construction projects or providing professional and consultancy services in PNG, and equipment lease and charter payments.

Income derived from these contacts is subject to foreign contractor withholding tax on a deemed taxable income equal to 25% of the gross contract income, which is taxed at the rate of 48%. This equates to a withholding tax of 12% of gross income.

If the IRC is satisfied as to the actual net profit, then it will, on application by the foreign contractor allow the foreign contractor to be taxed on the basis of the taxable income determined under normal principles. Where the foreign contractor is taxed on the actual taxable income, the amount which is deductible for general administration and management expenses (other than expenses relating directly to the derivation of the PNG income) may not exceed the lesser of:

- 5% of the gross income from the contract; or
- the same proportion of the worldwide general administration and management expenses as the gross income from the contract bears to the worldwide income.

The PNG contracting entity must provide the IRC with a copy of a relevant contract within 14 days of its signing following which the foreign contractor's withholding tax can be deducted from payment to the foreign contractor. A foreign contractor tax file number application must be lodged with the IRC at the same time.

Where tax is withheld from the foreign contractor, the deductions are to be remitted to the IRC within 21 days after the end of the month in which the payment was made.

NON-RESIDENT INSURER'S TAX: Premiums paid to non-resident insurers in respect of insurance contracts on property situated in PNG or insured events that can only occur in PNG are subject to tax in PNG. The tax is calculated on a deemed taxable income equal to 10% of the gross premium, which is taxed at the non-resident tax rates of 48% (companies) or 30% (unincorporated associations). Tax treaties may limit the rate of tax applied.

OVERSEAS SHIPPER TAX: Income derived by overseas shippers or charterers carrying passengers, livestock, mail or goods out of PNG is taxable in PNG. The tax is calculated on a deemed taxable income equal to 5% of the gross income, which is taxable at the non-resident rate of 48% in the case of companies.

The IRC may exempt the overseas shipper from such tax if the shipper's home country itself exempts PNG shippers from a similar tax.

DOUBLE TAX AGREEMENTS: PNG has concluded DTAs with Australia, Canada, China, Fiji, Germany, Indonesia, Korea, Malaysia, New Zealand, Singapore and the UK. However, as of May 2015, Germany had not yet ratified the treaty. Furthermore, PNG has negotiated but not yet ratified a DTA with Thailand (see table on this page).

Rates of tax imposed on payments to non-residents and the liability of non-residents to PNG tax may be affected by a DTA, and these rates are summarised below. PNG domestic legislation provides an exemption from withholding tax for interest and dividends under certain circumstances. The higher rates quoted are the maximum rates allowable under the DTA; however, the domestic exemption may still apply under some circumstances.

TRANSFER PRICING: Where transactions involving non-residents are held not to be at arm's length, the IRC may impose an arm's length consideration for income tax purposes and determine the source of any income arising from such transactions.

Corporate taxpayers (including companies, superannuation funds, associates and unit trusts) which have transactions or dealings with international related parties that exceed PGK100,000 ($40,650) in an income year, or have aggregated loan balances with international related parties in excess of PGK2m ($813,000) at any time during an income year, are required to prepare and lodge an International Deal-

Withholding tax rate, 2015

	Dividends (%)	Interest (%)	Royalities (%)	Technical fees (%)
Non-treaty				
Resident	17	15	0	0/10
Non-resident corporations	17	15	10/30	17
Treaty				
Australia	17	10	10	0
Canada	17	10	10	0
China	15	10	10	0
Fiji	17	10	15	15
Germany	15	10	10	10
Indonesia	15	10	10	10
South Korea	15	10	10	0
Malaysia	15	15	10	10
New Zealand	17	10	10	0
Singapore	15	10	10	0
UK	17	10	10	10

SOURCE: PwC

ings Schedule (IDS) with their income tax return for that year of income. The IDS requires disclosures to be made of the nature of the transactions with international related parties, the underlying transfer pricing methodologies followed to determine transfer prices and the nature of documentation supporting those pricing methodologies.

BUSINESS INCOME WITHHOLDING TAX: Payers who make an "eligible payment" of PGK5000 ($2032.50) or more in relation to one contract are required to register with the IRC as a paying authority and attend to the obligations imposed on it under the act.

Broadly, eligible payments are payments for services including construction, road transportation, motor vehicle repairs, joinery services, hiring or leasing of equipment, and security services.

Where a business income payee enters into a contract with a paying authority to perform work or becomes entitled to receive a business income payment and does not produce a certificate of compliance, a 10% business income withholding tax is required to be deducted by the paying authority based on the gross payment. The withholding tax deducted must be remitted to the IRC within 14 days after the end of the month in which the tax was deducted.

TAX CREDITS & INCENTIVES:

Foreign tax credit: A foreign tax credit may be available to offset foreign tax paid against PNG tax payable. The foreign tax credit is limited to either the foreign tax paid or the average PNG tax payable on that foreign income, whichever is less. There is no mechanism to carry forward excess foreign tax credits for utilisation in a subsequent year.

R&D deduction: A 100% tax deduction is available for approved expenditures on R&D. The deduction is available to all sectors and segments of the PNG economy. Broadly, R&D expenditures are defined as systematic, investigative, and experimental activities that involve innovation or a high degree of technical risk carried out for the purpose of acquiring new knowledge, or creating new or improved materials, products,

Employee benefits such as accommodation may be subject to tax

Some staff training costs, such as for hiring a full-time training officer, are eligible for double deduction

devices, processes or services. To qualify, the expenditure must be incurred in accordance with an approved R&D expenditure plan.

Incentive rate for large-scale tourist accommodation facilities: A 20% tax rate applies to income derived by a taxpayer from the operation of a large-scale tourist accommodation facility or a substantially improved large-scale tourist accommodation facility.

The rate applies for 14 years after the end of the year of income in which the taxpayer first derives income from the facility.

This incentive only applies to facilities where construction commenced between January 1, 2007 and December 31, 2011.

Double deduction for staff training costs: Certain staff training costs, including the cost of full-time training officers and tourism training, are eligible for a double deduction. The total tax saving is limited to 75% of the expenditure incurred.

Double deduction for export market development costs: Expenditures incurred in the promotion for sale outside PNG of goods manufactured in the country or incurred in the promotion of tourism are eligible for double deduction. The total tax saving cannot exceed 75% of the expenditure incurred.

Tax credit for infrastructure development: A tax credit is available to agricultural, mining, petroleum, gas and certain tourism companies that incur expenditure on a prescribed infrastructure development.

In the case of taxpayers that are engaged in mining, petroleum and natural gas operations, the tax credit is limited to a total of 0.75% of the assessable income or the amount of tax payable for the year (in respect of that mining, petroleum, or natural gas project), whichever is less. Excess expenditure over the 0.75% or tax payable may be included in the following year's tax credit claim.

Unutilised credits can generally only be carried forward for two years. In the case of taxpayers engaged in agricultural production, the credit is limited to 1.5%

Tax credits are available to companies engaging in designated types of infrastructure development

of the assessable income or the amount of tax payable for the year, whichever is less.

A prescribed infrastructure development includes a school, aid post, hospital road and other capital assets that have been approved as such by the Department of National Planning and the IRC. It cannot be an expenditure required under the Mining Act or the Oil and Gas Act.

A 1.25% tax credit scheme also exists in respect of expenditure incurred in connection with the emergency repair of the Highlands Highway.

Agricultural production extension services deduction: A 150% deduction is available for expenditure on services provided free of charge to smallholder growers, including the provision of advice, training, and technical assistance in relation to primary production and delivered for the purpose of assisting growers with production, processing, packaging and marketing issues.

OTHER TAX INCENTIVES IN PNG: Other tax incentives available in PNG include:

- Primary production – 100% deduction for most capital expenditure on primary production;
- Exemption of income derived from the export of certain manufactured goods;
- Immediate deduction for the costs of acquiring and installing solar heating plants;
- A 10-year tax exemption for qualifying new business located in prescribed remote areas of PNG; and
- A specific deduction for environmental protection and clean-up costs.

TAXATION OF OTHER ENTITIES:

Partnerships: A partnership is defined to include any association of persons in receipt of income jointly. The members of a partnership include their individual share of the profit or loss of the partnership in their own tax returns. The partnership itself is not subject to tax, although it is required to file a tax return.

Joint ventures: Unincorporated joint ventures are permitted to carry on mining and petroleum operations and the respective joint venture partners are assessed on their individual share of income on a project basis. Joint venture operators of a resource project are required to submit a "consolidated financial statement" for the joint venture as a whole, within two months of the end of the year of income. This consolidated financial statement must list details of all expenditure incurred during the year. Furthermore, each joint venture partner will be required to reconcile their tax return to the consolidated financial statement.

The joint venture itself is not subject to tax and is not required to file an income tax return.

Trusts: A trustee of a resident trust estate is taxed on the net income of the trust estate at the rate of 30%. The beneficiaries of a trust estate are also subject to income tax on their entitlement to the net income and on actual distribution.

Landowner Resources Trusts: Where interests in various natural resources projects are held in trust for landowners, a trust may be approved by the Minister of Finance to be a Landowner Resources Trust. Net income derived by the Landowner Resources Trust is taxed at the rate of 25%.

The tax is payable by the trustee. Distributions of income and capital by a Landowner Resources Trust to its beneficiaries are exempt from income tax in the hands of the beneficiaries.

Superannuation funds: A superannuation fund is resident if it is established or managed in PNG. The taxable income of a resident superannuation fund is subject to tax at the rate of 25%. Dividends paid to a superannuation fund qualify for the dividend rebate and are exempt from dividend withholding tax if the fund is an authorised fund.

Where an employer's contributions to a superannuation fund exceed 15% of an employee's fully taxed salary or wages, the excess contribution is included as assessable income of the superannuation fund.

INDIVIDUAL TAXATION: PNG taxation applies to individuals. However, the scope and tax rates that apply depend on the resident status of the individual and the source from which the income is derived. For individuals who are residents of PNG, PNG tax applies to their worldwide income at marginal tax rates.

For non-residents, however, only PNG source income is subject to PNG tax, at different tax rates to those which apply to residents.

In broad terms, an individual will be treated as a resident of PNG in a given year of income if they spend,

Tax rates for resident individuals, 2014

Taxable income (PGK)	Tax thereon	Rates of tax on excess (%)
10,000	0	22
18,000	1760	30
33,000	6260	35
70,000	19,210	40
250,000	91,210	42

Source: PwC

continuously or intermittently, more than six months in the country in that year.

Assessable income: Each resident individual is assessed separately; there is no joint assessment for husbands and wives. Taxpayers who have only employment income and are fully taxed at source by virtue of the salary or wages tax do not need to complete an annual income tax return. Taxpayers with other income such as interest, dividends, rental income, trust distribution or partnership income must disclose this in an annual income tax return.

Benefits provided to employees: Certain benefits provided to employees are taxed in the hands of the employees at "prescribed values". These benefits include accommodation, housing allowance, motor vehicle, education expenses, leave fares, meals, telephone, cash allowances and contributions by employer to an approved or overseas superannuation fund. Other fringe benefits such as the provision of entertainment, club subscriptions, domestic electricity and domestic services are not deductible to the employer for income tax purposes.

OTHER TAXES:

Goods and services tax (GST): Broadly, PNG's GST is imposed at the rate of 10% on the supply of most goods and services in PNG. The GST Act which came into force in 2003 defines the term "supply" as including all forms of supply, such as the sale, transfer, hire or lease of goods, and the provision of services. A supply for GST purposes falls into one of the following three categories:

- Taxable supply – which attracts GST at the rate of 10%;
- Zero-rated supply – which attracts GST at the rate of 0%; or
- Exempt supply, which is not subject to GST.

Where a taxable or zero-rated supply is made, a registered person is entitled to a credit for the input tax paid on goods or services used in making the supply. Where an exempt supply is made, GST is not charged in respect of that supply. However, no entitlement exists to allow a recovery of any input tax that is paid on goods or services used in making the supply.

Businesses having an annual turnover of PGK250,000 ($101,625) or more are required to register for GST, while businesses with annual income of less than PGK250,000 ($101,625) can register voluntarily. Persons or companies that are not registered are not permitted to charge GST.

Training Levy: All businesses whose annual payroll exceeds PGK200,000 ($81,300) are subject to a 2% training levy, which is calculated on the sum of the taxable salary/wages, including benefits, of all personnel. The levy is assessed on an annual basis. The amount of the levy payable is reduced by the amount of qualifying training expenses incurred in the training of citizen employees.

Tax rates for non-resident individuals, 2014

Taxable income (PGK)	Tax thereon	Rates of tax on excess (%)
0	0	22
18,000	3960	30
33,000	8460	35
70,000	21,410	40
250,000	93,410	42

Source: PwC

GST is imposed at a rate of 10% on the supply of most goods and services in PNG

Customs duties: Customs duties are imposed on the cost, insurance and freight (CIF) value of imports at varying rates. With the introduction of GST, the majority of manufacturing inputs attract no duty. Duty is now primarily imposed on items which are produced locally in PNG.

Duty can be deferred where goods are to be imported and re-exported within 12 months (or some other period as approved by the Collector of Customs) subject to the approval of the Collector of Customs. A bond must be provided.

Excise Duties: Excise, at varying rates, is imposed on certain locally manufactured and imported goods (primarily alcohol, tobacco and fuel products), as well as on goods deemed to be luxury items.

Stamp duties: Stamp duty applies at varying rates on documents and certain transactions. Of particular note is duty charged on the conveyance of real property, which rises to a maximum of 5% where the value of the real property being transferred exceeds PGK100,000 ($40,650). The duty is payable by the purchaser, and a 5% duty on the unencumbered value of land may also be payable where there is a transfer of shares in certain landholding companies.

Other dutiable transactions include share transfers (including some share buy-backs), subject to a rate of 1%. Leases of goods are also subject to stamp duty at a rate up to 1% of the rentals payable, depending on the term of the lease in question. Stamp duty is payable on documents executed outside PNG that relate to property or matters done or to be done in PNG.

OBG would like to thank *PwC* for its contribution to
THE REPORT Papua New Guinea 2015

Jonathan Seeto, Managing Partner, PwC

Unlocking potential

Jonathan Seeto, Managing Partner, PwC, on market conditions

With GDP growth for 2015 initially forecast as high as 21% but now projected at closer to 9%, there is a much more sobering view of short-term growth prospects for businesses in PNG. These sentiments have been shaped by some interesting turns in the business landscape over the last 12 months – not least, the fall in global oil and mineral prices that has caused a large decrease in government revenues. Many businesses are now pondering what the future holds for them in PNG.

From the start of 2015, there were clear signs of a changing outlook that required businesses to respond in a different way. The impact of lower oil prices on state revenues was the start of ongoing chatter about the economic outlook. We also continued to see businesses grappling with the new foreign exchange trading regime – the Bank of PNG introduced a "trading band" requiring commercial banks to trade within a prescribed range around the interbank rate, resulting in an immediate appreciation in the value of the kina.

This intervention was in part to reduce inflationary pressure caused by the declining value of the kina from the drop in export revenues and continuing high import demand. However, the main impact on business has been on the availability of foreign currency with which they could readily transact. We then continued to observe growing concern from many quarters about the sustainability of planned government spending in light of revenues. For example, it seems that fiscal imbalance and event vulnerability are key factors in Moody's changing its credit rating for PNG to a negative outlook. All these events have shaped confidence levels and ongoing debate about the budget deficit, country liquidity and the future direction of business growth.

That said, there have recently been many positive indicators, such as: more forward momentum on the Elk-Antelope project, with project appraisals under way and site selections confirmed; announcements that Wafi-Golpu would complete feasibility studies by the end of 2015; Sime Darby extending its footprint in PNG through its majority acquisition of New Britain Palm Oil; Guangdong Rising Asset Management signalling its intention to move forward with a feasibility study on Frieda River; Anglo American and Zijin Mining's entrance into the PNG mining sector for the first time; Bank South Pacific increasing its foothold across the Pacific; Kina Securities going public in Australia and PNG; and many other localised benefits, especially in the construction sector as PNG prepared to host the Pacific Games. This continually changing landscape, including the number of deals taking place in the market, tells us that while some sectors and businesses may appear less positive in the current climate, for others PNG continues to provide real opportunities for growth and investment, if not for now, then certainly for the future.

On business performance, 2015 is clearly a more difficult year for most companies. Put in context, the challenge for many is being realistic about the type of growth businesses have been experiencing over the last several years and about what is achievable now. Viewed through a global lens, businesses continue to perform fairly well. While growth has slowed, net income margins remain good compared to other markets, though they are potentially at risk in the short term.

The immediate challenge for businesses is to recognise that there is a clear change in the market outlook for now, and that they have to do things differently. They have to dig deeper for opportunities, be more responsive to customers, be prepared to re-organise or change their business models, and do more with less. Taking cost out of the business is important, but a sustainable recipe for success requires ongoing investment in the right places, innovation and disruption of old paradigms. The more successful companies are seeing opportunities and connecting emerging trends with innovative solutions. What they are doing differently is changing things up with new strategies, renewing human capital investment and ridding their teams of those who are unprepared to innovate – bringing in expertise to ensure analytical rigour, but also testing their ideas and creativity, while leveraging technology.

Legal Framework

A look at regulations affecting foreign investors

Laws encourage investment and ensure monitoring

Creation of a new environment protection authority

Two pieces of legislation governing business names

PNG has national, provincial and local governments

Laws of the land

An insight into legislation affecting foreign enterprises

GOVERNMENTS & THEIR POWERS: There are three levels of government in Papua New Guinea, the national, provincial and local-level governments.

The Constitution and the Organic Law on Provincial Government and Local Level Government (Organic Law) regulate the law-making powers of the national, provincial and local-level governments. Each level has its own distinct law-making powers. The law-making powers of the national Parliament are covered in section 41 of the Organic Law; the law-making powers of the provincial legislatures are covered in section 42; and the local governments are covered in section 44.

The division of law-making powers between the three levels is based on the following principles:

- The national, provincial and local-level governments, respectively, have specific powers;
- The powers that are not specified are assumed to remain with the national government;
- Where for any reason a level of government cannot exercise any of its powers effectively, then such powers may be delegated to either of the other levels of government to exercise on behalf of the first government;
- Both provincial and local-level government powers are subject to the National Law, but only to the extent that the national interest so requires, otherwise they have relative autonomy to operate;
- The powers of local-level governments are subject to the powers of provincial governments, but only to the extent that the provincial interest requires them to be made subject to the provincial laws.

The general principles above are non-justiciable, but may be used in the interpretation and implementation of the Organic Law (section 40).

Provincial and local-level government laws deal with such things as the sale, purchase and consumption of alcohol, cemeteries, community sport, use of local roads, pornography, driving of motor vehicles, sale and purchase of local foodstuffs, prostitution, practising of witchcraft, and so on. Locating up-to-date copies of provincial and local government legislation is notoriously time-consuming and difficult to do.

THE LAWS OF PAPUA NEW GUINEA: The laws of PNG consist of:

- The Constitution;
- The Organic Laws;
- The Acts of the Parliament;
- Emergency Regulations;
- The provincial laws;
- Laws made under or adopted by or under the Constitution or any of those laws, including subordinate legislative enactments made under the Constitution or any of those laws;
- The underlying law (customary law and English common law and equity), and none other.

All written laws, other than what is found in the Constitution, must be read and construed, subject to:

- In any case: the Constitution;
- In the case of Acts of the Parliament: any relevant Organic Laws;
- In the case of adopted laws or subordinate legislative enactments, the Organic Laws and the laws by or under which they were enacted or made;
- So as not to exceed the authority to make them properly given, to the intent that where any such law would have been in excess of the authority so given it is nevertheless treated as a valid law to the extent to which it is not in excess of that authority.

The Constitution and the Organic Laws are the supreme law of PNG and, subject to section 10 (construction of written laws) of the Constitution, all acts, whether legislative, executive or judicial, that are inconsistent with these documents are, to the extent of the inconsistency, invalid and ineffective.

An organic law may be altered only by another organic law, or by an alteration to the Constitution.

COMMON LAW: Importantly, PNG adopted the Common Law of England as in force on Independence Date (September 16, 1975) as part of the law of PNG. The principles and rules that formed, immediately before

independence, the principles and rules of common law and equity in England have been adopted, and are applied and enforced, except if, and to the extent that:

- They are inconsistent with a Constitutional Law or a statute;
- They are inapplicable or inappropriate to the circumstances of the country from time to time;
- In their application to any matter they are inconsistent with custom, as adopted by the Constitution.

The principles and rules of common law and equity have been adopted notwithstanding any revision of them by any statute of England that does not apply in PNG by virtue of section S, Chapter 2.6 (adoption of pre-independence laws) of the Constitution.

Concerning any particular question before a court, the applicability or appropriateness of a particular rule of English common law or equity is determined by reference, among other things, to the individual circumstances of the case, including the time and place of any relevant transaction, act or event.

FOREIGN COMPANIES DOING BUSINESS IN PNG: There are a variety of PNG laws that may impact a foreign enterprise in its business dealings in PNG.

As noted above, PNG has, subject to certain qualifications, adopted principles and rules of common law and equity from England that applied immediately prior to Independence Day in PNG.

English common law dealing with issues such as the law of penalties, rights of subrogation, estoppels, privity of contract and guarantees and indemnities may be relevant to a foreign enterprise doing business in PNG.

The courts will enforce financing and other documents governed by the laws of a country other than PNG. In international financing transactions involving a PNG party, it is common for the loan agreement, the security documents and other related instruments to be governed by English law or the laws of another foreign country. The PNG courts are familiar with this.

PROMOTION OF INVESTMENT: The Investment Promotion Act (IPA) 1992 provides for the promotion of investment in PNG in the interests of national, social and economic development. For that purpose, IPA establishes a body known as the Investment Promotion Authority and defines its powers and functions.

A foreign enterprise (including a PNG company owned or controlled by non-citizens) must be certified under the IPA to do business in the country.

As a general rule, an isolated transaction (broadly, one completed within 30 days) will not of itself amount to carrying on business in PNG and, accordingly, there is no need for a foreign enterprise carrying out an isolated transaction to be certified under the IPA. However, if a particular transaction is the first in a series of transactions, this may amount to doing business.

Subject to certain exceptions, if there is a change in the ownership, shareholding or beneficial ownership or control of a foreign enterprise doing business in PNG, the company must, within 14 days of the change, apply for a fresh certification under the IPA.

A foreign enterprise having been granted a certificate under the IPA to conduct business in PNG may apply

A foreign enterprise must be certified under the Investment Promotion Act to do business in the country

to the Investment Promotion Authority in the prescribed form and on payment of the prescribed fee for:

- Its activity;
- Its location of doing business in an activity;
- Any other prescribed term or condition of a certificate (IPA section 33).

Where a contract, agreement or understanding is entered into between a foreign enterprise and another enterprise, the court may, on the application of the other enterprise or the Investment Promotion Authority, declare the contract unlawful and void if:

- The foreign enterprise had not been issued a certificate at the time at which the contract, agreement or understanding was entered into;
- The subject matter of the contract relates to business activities outside of the nature of the activities for which the foreign enterprise is certified to conduct business.

REGULATION OF COMPANIES: PNG has comprehensive companies legislation. The Companies Act 1997 (Companies Act) is based on New Zealand legislation and adopts a simple and fairly effective system for dealing with companies. In 2014 the Companies Act was amended to simplify the business registration and filing processes, raise corporate governance standards for capital management and increase protection of both a shareholder and a creditor of a company operating in PNG. A company that is incorporated in PNG under the Companies Act and owned or controlled by foreign interests operates in PNG subject to that act. Similarly, a company incorporated outside PNG that is registered to do business in PNG operates subject to the Companies Act. The Companies Act deals with registration of charges, insolvency, as well as a host of other company-related matters.

A foreign enterprise doing business in PNG may, on occasion, want to grant to a third-party security over some or all of the assets of the foreign enterprise, it is appropriate to consider those provisions in the Companies Act dealing with registration of charges.

For the purposes of the Companies Act, the term "charge" is defined to include a right or interest in relation to property owned by a company, by virtue of which a creditor of the company is entitled to claim payment in priority to creditors entitled to be paid under Section 361, but does not include a charge under a charging order issued by a court in favour of a creditor.

Where a PNG company creates a charge to which Part XIII of the Companies Act applies, the company must submit the following to the registrar for registration within two months after the creation of the charge:

- A notice for registration of the charge in the prescribed form; and
- A certified copy of the document creating or evidencing the charge.

Where this requirement is not complied with, the charge is, so far as it confers any security on the company's property or undertaking, void against:

- The liquidator of the company; and
- Any creditor of the company.

This does not prejudice any contract or obligation for repayment of the money secured by a charge, and when a charge becomes void under section 222(2), the money it secures becomes immediately payable. The charges to which Part XIII applies are:

- Charges (other than charges solely on land) to secure any issue of debentures;
- Charges on uncalled share capital of a company;
- Charges or assignments created or evidenced by instruments (including instruments creating or evidencing absolute bills of sale or absolute assignments or transfers of book debts) that, if executed by an individual, would be invalid or of limited effect if not registered under the Instruments Act;
- Floating charges on the undertaking or property of a company;
- Charges on calls made but not paid; and
- Charges on a ship or aircraft, or on a share in a ship or aircraft;
- Charges on goodwill, on a patent or licence under a patent, on a trademark, or on a copyright or a licence under a copyright; and
- Charges on the book debts of a company (Companies Act section 222(4)).

Where a charge created in PNG affects property outside the country an application for registration of the charge in the prescribed form and a certified copy of the document creating or evidencing the charge may be submitted for registration under and in accordance with the procedures outlined above, notwithstanding that further proceedings may also be necessary to make the charge valid or effectual according to the law of the place in which the property is situated (Companies Act section 222(5)).

TAXATION: The principles of taxation in PNG are similar to those which apply in Australia and a number of other countries in the region. A variety of taxes, imposts and duties are imposed on individuals and business organisations in PNG, including income tax, a form of value-added tax (referred to as goods and services tax, GST), land tax, payroll tax, withholding tax, Customs duties and excises, mining and petroleum royalties, stamp duty and training levies. The tax year is a calendar year running from January 1 to December 31. However, a substituted tax year can be adopted, subject to the approval of the Taxation Office. Income tax returns, where required, should be lodged by February 28 the following year. Losses may be carried forward up to 20 years for most businesses and indefinitely for businesses in the primary industry sector.

Companies incorporated in PNG and companies that do business in PNG and whose central management is located in PNG are resident companies. The worldwide income of resident companies and the PNG-sourced income of non-resident companies are taxed.

INCOME TAX: Income tax is administered under the Income Tax Act 1959. Its provisions apply to income derived by individuals, corporations, trusts and partnerships. A liability to pay tax arises for "taxable income", which is defined by the Income Tax Act 1959 to mean the amount remaining after deducting all allowable deductions from assessable income. The term "assessable income" includes not only salary and wages, business profits, rent and dividends, but also a number of other items which are set out in the act.

Details of "allowable deductions" are outlined in the Income Tax Act 1959. In general, all losses and outgoings, to the extent they are incurred in gaining or producing assessable income, or are necessarily incurred in doing business for the purpose of gaining or producing that income, are allowable deductions except to the extent they are losses or outgoings of capital, or of a capital, private or domestic nature, or are incurred in relation to the gaining or production of exempt income. However, taxpayers involved in mining or petroleum projects may be able to deduct from their assessable income certain items of capital expenditure, such as allowable exploration expenditure.

COMPANIES: Different rates apply depending on whether the taxpayer is a resident, non-resident, resident or non-resident mining or petroleum company. A company that conducts business in PNG must appoint a public officer to represent the company in all dealings with the PNG Taxation Office.

PARTNERSHIPS & JOINT VENTURES: Partnerships are required to lodge a tax return, but partnership income is not taxed separately. Rather, it is included in the assessable income of each partner. Joint ventures do not have to lodge a separate return, though each participant is taxed on income from the joint venture.

TAX CREDITS: Some tax credits are given for foreign tax paid on overseas income. PNG has entered into a number of double tax treaties with nations including Australia, Canada, China, Germany, Malaysia, Singapore, the UK, South Korea and Fiji.

GST: A GST of 10% is levied on the following in accordance with the Goods and Services Tax Act 2003:

- Supplies of goods and services by a registered person in the course or furtherance of a taxable activity (but not including an exempt supply); and
- Imports into PNG (except certain goods).

Export tax is 0%, providing for input tax credits.

The transfer of land is deemed not to be a supply. However, the transfer of improvements and structures on the land, whether transferred with or without the transfer of ownership of land are not defined as land. Exempt supplies under the GST Act 2003 include:

- Financial services;
- Fine metal;
- Medical and related services;
- Educational services by an educational institution;
- Public road transport to passengers by a registered public motor vehicle or taxi;
- Newspapers;
- Betting, lotteries and games of chance;
- Postage stamps; and
- Housing and motor vehicle to an employee by his employer in the course of employment.

PERSONAL CHATTELS: The Instruments Act (Chapter 254 of the Revised Laws), is an act relating to bills of sale of personal chattels and to liens on crops and wool and stock mortgages, and for related purposes.

In particular circumstances, it may desirable for a foreign lender to register as a bill of sale under the Instruments Act, a security granted to the foreign lender by a PNG company. This is likely to be the case if the security is not able to be registered under the Companies Act. Registration is important in terms of obtaining priority and generally serves to put third parties on notice about the particular dealing.

Certain securities may constitute a charge registrable under the Companies Act and a bill of sale registrable under the Instruments Act. A charge to which section 222 of the Companies Act applies:

- Does not need to be registered under the Instruments Act (Chapter 254);
- Is not subject to avoidance under the Instruments Act; and
- On registration under Part XIII of the Companies Act has effect and is as valid, for all purposes, as if it had been duly registered under the Instruments Act (Companies Act section 222(11)).

It is also important to note that the national Parliament has passed the Personal Property Security Act. This new legislation became operational as of December 2012 and has replaced all other legislation dealing with securities over personal property (that is, any property other than land).

Securities over real property (that is, land) will continue to be regulated by the Land Act 1996 and the Land Registration Act.

OTHER COMMERCIAL ISSUES: The Mercantile Act (Chapter 260 of the Revised Laws) contains various provisions that lenders in PNG need to be aware of. The Mercantile Act is a compendium of useful and sometimes odd provisions that have not been included in other legislation. All too often the provisions of the Mercantile Act are ignored.

ASSIGNMENT OF DEBT: In PNG a written absolute assignment under the hand of the assignor (not purporting to be by way of charge only) of a debt or other legal thing in action, of which express written notice has been given to the debtor, trustee or other person

In effect since 1995, the Insurance Act regulates the insurance of all risks with few exceptions

from whom the assignor would have been entitled to claim the debt or thing in action is, and is deemed always to have been, effectual in law (subject to all equities having priority over the right of the assignee) to pass and transfer from the date of the notice:

- The legal right to the debt or thing in action;
- All legal and other remedies for the debt or thing in action;
- The power to give a good discharge for the debt or thing in action without the concurrence of the assignor (Instruments Act section 3(1)).

If the debtor, trustee or other person liable for a debt or thing in action that is being assigned has notice:

- That the assignment is disputed by the assignor or a person claiming under him;
- Of any other opposing or conflicting claims to the debt or thing in action, he may, if he thinks fit;
- Call on the persons making claim to the debt or thing in action to interplead concerning it; or
- Pay the debt or other thing in action into court under the provisions of any Act for the relief of trustees. (Instruments Act section 3(2)).

POWERS OF ATTORNEY: Subject to any stipulation to the contrary in the instrument creating the power, a power of attorney concerning an act or thing done or suffered in good faith, continues in force until notice:

- Of the death of the donor of the power; or
- Of some other revocation of the power,

CONVEYANCES: A conveyance of property made with intent to defraud creditors is voidable, at the instance of any person prejudiced by it. This provision does not affect the operation of the law of insolvency. (Instruments Act section 7(2)). Nor does this provision apply to an estate or interest in property conveyed:

- For valuable consideration; or
- On good consideration to a person not having, at the time of the conveyance, notice of the intent to defraud creditors (Instruments Act section 7(3)).

A voluntary disposition of land made with intent to defraud a subsequent purchaser is voidable at the

instance of that purchase. In PNG, there is no voluntary disposition with intent to defraud by reason only that a subsequent conveyance for valuable consideration was made, if the subsequent conveyance was made after the commencement date (Instruments Act section 8(2)).

A "disposition" includes every mode of disposition referred to in the Land Registration Act (Chapter 191).

CUSTOMARY LAND: Approximately 97% of land in PNG is held by its traditional owners under customary principles of land ownership. The specific elements of rules of the system of customary land tenure vary from place to place. However, customary land ownership generally recognises the traditional users of land and their personal and clan arrangements for land use.

A foreign investor cannot purchase or lease customary land from its traditional owners. If a foreign investor requires access to customary land, it is possible for the government to acquire the land from its traditional owners and lease it to the foreign investor.

Previously, in order to enable customary land to be assigned or mortgaged, the PNG government issued special agricultural and business leases (SABLs) backed by a lease from the customary owners to the government. In a number of cases, under the label of agricultural development, some developers utilised SABLs as a guise to harvest native forests for the purpose of selling round logs on the export market.

As a result of those practices, the government set up a special commission of enquiry which has made various recommendations in relation to the grant of a number of SABLs, including a recommendation that several SABLs be revoked. To resolve this problem, in 2009 the government amended the Land Groups Incorporation Act and the Land Registration Act to improve the method of incorporation of incorporated land groups and to include appropriate accountability and management processes for transparent and effective governance of incorporated land groups.

The primary objective of the amended legislation is to empower customary landowners to utilise their land for development in a fair, equitable and convenient manner. The purpose of amending the legislation was to ensure that customary landowners do not divorce themselves from ownership of their land. They continue to have control of their land through the registration of incorporated land groups, without alienating the "parent" title from ownership by the incorporated land group, so that future generations of landowners will have a voice in how their customary land is used.

ALIENATED LAND: The balance of the land is known as alienated land. Alienated land is land that has been acquired from customary owners by the government either for its own use or for private development. However, some alienated land is held as freehold other than by the government. Most enterprises in which foreign investors are involved are located on alienated land.

Alienated land can be held either as freehold or leasehold from the state. However, freehold land makes up a small proportion of alienated land in PNG. Both freehold land and leasehold land are registered by the Registrar of Titles under a Torrens-type system of land registration. Under this system, an original certificate of title (for freehold land) or state lease (for leasehold land) is kept on a register maintained at the country's Titles Office. Land dealings are carried out by means of instruments which are perfected upon registration. A certificate of title or state lease kept on the register maintained by the Titles Office should reveal at any time the exact location of the land in question, as dimensions, the present owner or lessee and may also reveal sub-leases and mortgages to which the title may be subject. Certain dealings in land may also require the approval of the Minister for Lands.

FREEHOLD LAND: Under the Land (Ownership of Freeholds) Act, a non-citizen is precluded from owning freehold land. However, freehold land can be converted to leasehold land so that it may be used by a non-citizen.

Leasehold land can be more freely dealt with than freehold land. Leasehold land is land that the government has acquired from its customary owners and leased to a person or company for a term of up to 99 years for a specific purpose. The Land Act provides for:

- Agricultural leases;
- Pastoral leases;
- Business and residence leases;
- Mission leases;
- Leases of government owned buildings;
- Special purpose leases; and
- Town subdivision leases.

The act also deals with the granting of licences, transfer of customary land and compensation payments, and specifies which dealings require ministerial approval.

PATENTS & INDUSTRIAL DESIGN: The Patents and Industrial Design Act 2002 came into effect on July 1, 2002, introducing legislation for the protection of patents and industrial design in PNG for the first time. A patent for an invention under the act expires 20 years after the filing date of application for the patent. Annual renewal fees are payable commencing one year after the filing date of the application. The act recognises the rights of priority under the Paris Convention. An invention is patentable if it is new, involves an inventive step and is industrially applicable.

RESOURCE OWNERSHIP: Relevant legislation in PNG vests ownership of oil, petroleum, natural gas, gold, silver, copper and other minerals in the state. In 1990 and 1991, there was a constitutional challenge to the predecessor of the current Mining Act 1992 on the ground that the state's ownership of minerals under privately owned land was an unjust deprivation of property. The court determined that the reference had been made prematurely and dismissed it without making a decision as to its merits. The litigation was subsequently settled without a further reference being made. The point, therefore, has not been settled beyond doubt.

MINING: The Mining Act 1992 sets out a detailed regime dealing with types of mining tenements which may be granted by the state, including:

- Exploration licences;
- Special mining leases;
- Mining leases;

- Alluvial mining leases:
- Leases for mining purposes; and
- Mining easements;
- The terms and conditions of licences;
- Making mining development contracts;
- Paying rents, fees and royalties;
- Registering interests and dealings in tenements; and
- Compensating landowners.

REGISTER OF TENEMENTS: The register of tenements at the Department of Mining and Petroleum contains details of all applications, details of their grant or refusal and certain other information. Any dealing in a legal or equitable interest in a tenement must first be approved by the Minister for Mining and Petroleum and registered before becomes effective.

COMPENSATION: A tenement holder is liable to compensate the owners of that land, any adjoining land or improvements and land or improvements in the vicinity, for its entry on to or occupation of the land. The holder is also responsible for loss and damage caused or foreseen to be caused by exploration, mining or related activities. Compensation arrangements must be finalised before entry on to or occupation of the land.

HYDROCARBONS: The exploration and development of oil, petroleum and gas are regulated under the Oil and Gas Act 1998. Like the Mining Act 1992, it vests ownership of petroleum, natural gas and helium at or below the surface of land in the state.

The Oil and Gas Act 1998 sets out a comprehensive regime that deals with the types of petroleum licences that may be granted by the state, including:

- Petroleum prospecting licences;
- Petroleum retention licences;
- Petroleum development licences;
- Pipeline licences,
- Petroleum processing facilities licences and the terms and conditions of their issue;
- Registering interests and dealings in tenements;
- Compensating landowners; and
- Paying fees and royalties.

FORESTRY: The Forestry Act 1991 regulates the forestry industry. The purposes of the Forestry Act include:

- Managing, developing and protecting the country's forest resources and environment so as to conserve and renew them;
- Maximising citizens' participation in the use and development of forest resources;
- Using the country's forest resources to achieve economic benefits and create employment; and
- Encouraging study and research into forest resources so as to contribute to ecological balance.

The act deals with the establishment of a forestry authority and certain other entities, forest management and development (including the development of national and provincial forest plans), the approval of forest project proposals, the issue of timber permits, authorities and licences, customary ownership of forest resources, and the payment of royalties and levies.

A timber permit authorises the holder to carry out the operations specified in the permit within a specified area, for a specified term and subject to the conditions specified, including compliance with project statements, five-year plans and annual logging plans.

The government can acquire land from its traditional owners and lease it to foreign investors

FISHING: The Fisheries Management Act 1998 regulates the fishing industry and its aquatic resources and environment. The purposes of the act include:

- To manage, develop and protect the country's fisheries resources and marine, coastal and aquatic environments so as to conserve and replenish them;
- To maximise citizens' participation in the use and development of fisheries resources;
- To use the country's fisheries resources to achieve economic benefits and ecological balance and to create employment; and
- To pursue effective strategies for managing fisheries resources and national, provincial and local interests in them.

The Fisheries Management Act deals with the establishment of the National Fisheries Authority and certain other bodies, the management, development and regulation of fishing, conservation of fisheries, customary resource ownership and the issue of fishing licences. The act also details prohibitions in relation to certain fishing and associated activities. The act extends to all persons and boats in PNG waters.

EMPLOYMENT CONDITIONS: The Employment Act regulates the conditions under which citizens can be employed. Subject to certain exceptions, the act contains provisions relating to maximum daily hours and rest periods, overtime and overtime rates, recreation and sick leave and payment and protection of wages. Care should be taken in contracting with non-citizens, as these minimum conditions may apply.

Examples of common conditions of employment in force in the country include: a 40-hour week with overtime; three weeks' annual leave; six-month-long service leave after 15 years' of continuous service; and after three months' continuous service, a requirement of one week's notice of termination of employment by either party, or, if the employer terminates the employment, one week's wages in lieu of notice.

These and other conditions of employment may be negotiated and varied in the contract between the employer and the employee, but some minimum entitlements are set by law. The act contains detailed provisions relating to contracts of employment. Minimum wage levels are set by a government-appointed Minimum Wages Board. The board, which includes representatives of unions, employers and government, meets every three years and fixes a minimum wage after holding public hearings and making adjustments for changes in the cost of living. Some workers in major regional centres and at major natural resource projects belong to a trade union and all workers have the right to belong to a union. Other than the acts mentioned above, the key regulations relating to employment in PNG are:

- The Industrial Organisations Act, which provides for registration and control of industrial organisations;
- The Industrial Relations Act, which provides for the establishment and operation of the Minimum Wages Board, settlement of disputes and common rules;
- The Industrial Safety, Health and Welfare Act; and
- The Workers' Compensation Act.

INSURANCE ACT: A new Insurance Act came into force in PNG in October 1995. With limited exceptions, the act regulates the insurance of all risks. The act is administered by the Insurance Commissioner, who is appointed by the Minister for Finance and Planning. A corporation intending to conduct general insurance business, or business as a broker, loss adjuster or agent must first apply to the Insurance Commissioner for a licence. The Insurance Commissioner will grant a licence subject to such terms and conditions as he or she considers to be appropriate. Licences are issued for one year at a time only and can be renewed. All risks that are situated in PNG for which insurance (including reinsurance) is required must be insured with licensed insurers.

A person who insures, or as agent, broker or insurer, arranges insurance of a risk situated in PNG with a person other than a licensed insurer is guilty of an offence. The act contains an exemption to this prohibition where the Insurance Commissioner is satisfied the existing facilities and available capacity of licensed insurers are fully used.

An application for exemption must comply with certain formalities and provide certain information, including details of arrangements for the payment of income tax by non-resident insurers as well as for approvals required under the Central Banking (Foreign Exchange and Gold) Regulation.

STAMP DUTY: The Stamp Duties Act (SDA) imposes stamp duty (a form of indirect taxation) on a variety of documents (instruments) and transactions of the type and at the rates detailed in Schedule 1 to the SDA.

The duty is imposed as ad valorem duty (that is, the amount of the duty varies depending on the value of the transaction) or as fixed duty (the duty remains the same irrespective of the value of the transaction).

Stamp duty chargeable on an instrument is payable:

- In the case of an instrument that is first executed outside PNG before January 1, 1995—when the instrument comes into the country; and
- In all other cases, when it is first executed.

An instrument executed before July 1, 1953 (the date of commencement of the pre-Independence Stamp Duties Act 1952) is not chargeable with stamp duty under the SDA (section 5(2)).

Duty is chargeable in respect of an instrument that is outside PNG if the instrument (irrespective of whether it was executed in PNG or otherwise) relates to property situated, or any matter or thing done – or to be done – in PNG (SDA section 5A).

An instrument containing or relating to several distinct matters is chargeable with stamp duty in respect of each of those matters, as if each matter were expressed in a separate instrument (SDA section 11).

The consequences of not paying the correct amount of duty when due are severe. In addition to the actual duty itself, interest, fines and other penalties are payable in respect of unstamped instruments liable to duty.

The most important consequence, however, of not paying the correct duty is that, subject to certain exceptions and qualifications, an instrument must not be pleaded or given in evidence, except in criminal proceedings or admitted to be good, useful or available in law, unless it is duly stamped in accordance with the law in force at the time when it was first executed or came into the country, whichever is the latter.

Effectively, this makes an unstamped document that is otherwise liable to duty unenforceable until such time as the duty is paid. Stamp duty has been abolished in relation to loan agreements and loan securities (including mortgages) executed after January 1, 2008.

There is currently no stamp duty levied on guarantees whether executed under hand or under seal.

FOREIGN EXCHANGE CONTROL: The key legislation is the Central Banking (Foreign Exchange and Gold) Regulation. Until December 2004 PNG maintained a comprehensive regulated foreign exchange control regime with a variety of transactions requiring the approval of the Bank of PNG (the central bank).

Since December 2004, foreign exchange control has been progressively liberalised in PNG. However, the central bank still retains control over:

- The opening of offshore foreign currency accounts, including offshore kina accounts;
- Licensing of gold exporters;
- Licensing of foreign-exchange dealers;
- Removal from PNG of physical cash in excess of PGK20,000 ($9540) or foreign currency equivalent.

Approval from the central bank is still required for residents (broadly, any enterprise of whatever legal structure having an economic presence in the country) to give a guarantee or grant security over assets in PNG in favour of a non-resident (or enter into a transaction having a similar effect) where such guarantee or security is part of a transaction that is not for the direct benefit of a person resident in PNG.

Additionally, only "authorised dealers" (banks authorised by the central bank) may conduct foreign currency transactions. Residents still require central bank approval to enter into or perform an agreement with another resident in a currency other than kina.

The new environmental authority will be funded through fees

A new authority

Self-funded environmental regulator to keep tabs on permits

The establishment of the Conservation and Environment Protection Authority (CEPA) will see significant changes in the ways applicants for, and holders of, environment permits interface with the environmental regulator. CEPA was established under the Conservation and Environment Protection Act 2014 (CEPA Act) and takes over the role formerly undertaken by the Department of Environment and Conservation as PNG's environmental regulator. The head of the authority is the managing director who is broadly equivalent to the head of a government department. The managing director reports to a board. The minister, and through him the government, retains control over all policy matters and directs the managing director in this regard. The board exercises its powers under the act and the regulations, but also has power to make administrative orders to govern the internal affairs of CEPA, such as staff and financial matters. These administrative orders have legal force and will be used to provide for detailed rules regulating aspects of CEPA's operations.

MORE EFFICIENCY: The basic regulatory framework remains largely unchanged but the establishment of a self-funded regulator should see the administration of applications for, and enforcement of, existing permits made more efficient. With the workload of the regulator varying significantly depending on the number and, more particularly, the scale and complexity of new applications, the government has had significant practical challenges anticipating funding needs year by year. CEPA will be self-funded, with the legislation providing for environmental management fees of varying kinds.

The details of the fees will be set out in the regulations but are required to comply with the following principles as set out in the CEPA Act:

- The principle of certainty, so that annual volatility in fees is minimised or the manner of calculation of fees is known in advance;
- The principle of cost recovery, so that the authority ensures that the aggregate fees it proposes to recover are sufficient to recover its forecast ongoing expenditure and to provide for unforeseen and emergency risk management expenditure;
- The principle of fee minimisation, so that CEPA endeavours to minimise the fees payable, subject to the principle of cost recovery;
- The principle of non-discrimination, so that similarly situated persons undertaking the same activities are subject to similar fee structures; and
- The principle of transparency, so that persons to be charged an environmental management fee are informed of the rationale behind the fee-charging structure proposed by CEPA.

AMENDING THE ACT: While the basic regulatory philosophy under the Environment Act remains unchanged, the act was amended in 2014 to provide for strengthened assessment and approval processes for activities requiring permits and for certain administrative matters, as follows, to be dealt with in the regulations:

- Procedures for renewal of environment permits;
- Procedures for transfer of environment permits;
- Procedures for amendment of environment permits;
- Procedures for amalgamation of environment permits;
- Procedures for surrender of environment permits; and
- Reporting by permit holders.

These amendments complement the establishment of CEPA and enable a fee structure which will operate, subject to the principles above, on a "user pays" basis. The CEPA Act provides for surplus recurrent revenue to be returned to consolidated revenue following an annual audit of CEPA, other than where the National Executive Council agrees the amounts may be retained by CEPA for specified purposes.

One area of the changes that will be welcomed by permit holders is the ability to amalgamate permits. This possibility is viewed as a win-win for business and the regulator in terms of reducing the regulatory effort required as well as a corresponding reduction in fees.

The government intends to amend the new act and repeal the old act

Similar but not identical

PNG currently has two business names acts

In May 2014 the National Parliament enacted the Business Names Act 2014 (New Act). At the time the New Act came into force, PNG already had business names legislation – the Business Names Act (Chapter 145) (Old Act) in force. The New Act does not repeal or amend the Old Act so that, technically at least, PNG now has two business names acts in similar (but not identical) terms. The Legislative Counsel intended the New Act to repeal the Old Act, however, the provisions repealing the Old Act were omitted from the New Act. The government intends to introduce legislation amending the New Act so that it repeals the Old Act. In the meantime the Companies Office will apply the New Act as if it is the only business names' legislation.

DIFFERENCES: Although similar in terms to the Old Act, the New Act is different in important respects. Under the New Act a person wanting to transact business in PNG under a "business name" must, before commencing business under that name, obtain from the Registrar of Companies (registrar) a certificate of business name registration. In the New Act, "business name" means a name other than the true name of a sole proprietor, partnership, firm, company, association, business group, other entity or unincorporated collection of persons or entities, under which it conducts business or holds itself out for business, whether or not it is conducted for profit. Under the New Act:

- A separate certificate of business name registration must be obtained for each business name used;
- The certificate must list the business address for each location for which the exact same business name is being used; and
- A separate certificate is not required if the exact same business name is used in multiple locations.

The New Act (unlike the Old Act) does not define "carrying on business". The New Act, however, provides that a person is not carrying on business if only they:

- are party to an action or suit, or an administrative or arbitration proceeding, or effect settlement of an action, suit or proceeding or of a claim or dispute;
- maintain a bank account;
- effect a sale through an independent contractor;
- create evidence of a debt or a charge on property;
- secure or collect any of its debts or enforce its rights in regard to securities relating to its debts;
- conduct an isolated transaction that is completed within 31 days, not being one of a number of similar transactions repeated from time to time; or
- invest any of its funds or holds property.

The New Act (unlike the Old Act) does not restrict who may carry on business in PNG under a business name. This contrasts with the Old Act which provides that certain convicted persons may only carry on business in PNG with the leave of a magistrate. Under the New Act (Section 7), a certificate of business name registration is effective from the time of registration unless it is cancelled by registration with the registrar; or it is cancelled by action of the registrar.

COMPLIANCE: A registrant who fails to begin business within three months of the issuance of a certificate of business name registration or ceases to transact business under the business name, must cancel the certificate. Under the New Act the certificate of business name registration remains in force for one year (three years under the Old Act), but the registration may be renewed by lodging, within one month before the registration expires, a statement of renewal accompanied by the prescribed fee. The New Act does not allow the statement of renewal to be lodged after the registration expires. The New Act (Section 11) (unlike the Old Act) provides that any person who transacts business under a business name without complying with the requirements of the New Act may not maintain any legal action in PNG. The New Act also introduces for the first time detailed provisions dealing with the consequences of non-compliance with the registration requirements.

OBG would like to thank *Leahy Lewin Lowing Sullivan Lawyers* for its contribution to THE REPORT Papua New Guinea 2015

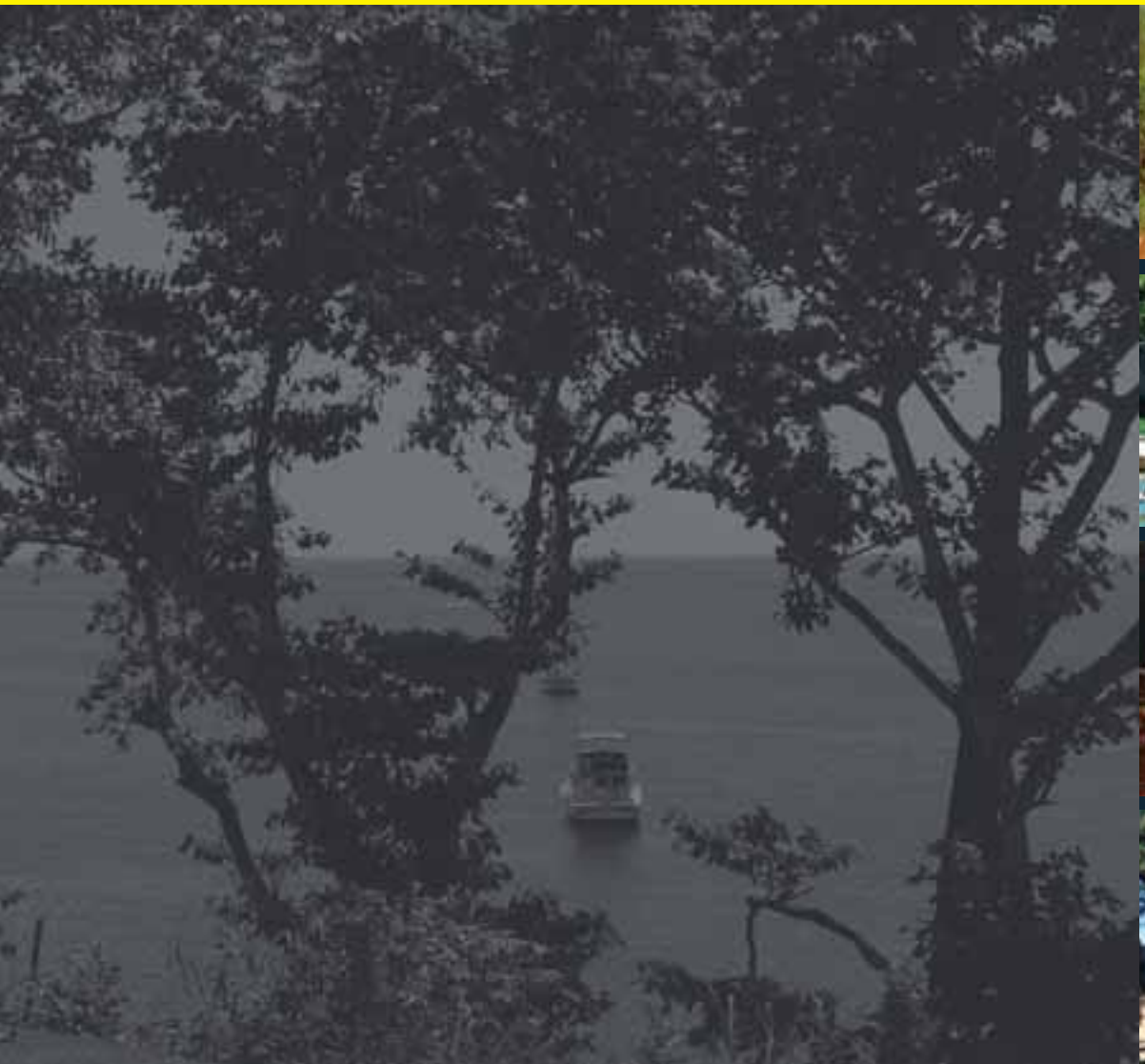
The Guide

A viewpoint on security and risk assessment in PNG

Listings of hotels for business and leisure travellers

Useful contact details for government and services

Facts for first time visitors to the country



Brian Kelly, CEO, Black Swan International

Safe and sound

Brian Kelly, CEO, Black Swan International, on the risk assessment of security in Papua New Guinea

Surveys show that security risks are the most pressing concern for businesses operating in PNG. While discussing risk, however, we often imply that it is possible to clearly articulate or measure the concept. However, the accuracy of crime data – usually provided by PNG's law enforcement agencies or the National Intelligence Organisation – are questionable, as the majority of crime goes unreported. The increased professionalism of criminal gangs, known as *raskols*, has forced public and private sector companies alike to reassess their approach to security management. The conventional approach which has been used in the past, of establishing a "3G" security plan (consisting of guards, gates and guns), is no longer relevant or cost-effective.

A more proactive approach to security based on insight and forecasting will be required. Businesses operating within PNG must accept responsibility for the elimination of crime within their own "areas of influence", meaning that they should identify threats where their company can actively participate in leveraging a positive outcome or minimising any negative consequences to the overall performance. For example, the majority of businesses within PNG provide employees with a transport service to and from work, both to ensure consistent attendance and because they are conscious of their social responsibility to their employees' safety, especially if they are working late hours.

The risk to people within PNG is no different than in any other country with a similar social environment. Levels of high unemployment and ongoing challenges with educational provision have contributed to high crime rates. Carjackings, armed robberies, assaults, rape and domestic violence have all been widely reported, despite the best efforts of the government and police to prevent such incidents from taking place.

Once risks have been identified, businesses can dedicate funds to minimise them, but only to the point that the costs of further risk minimisation outweigh the benefits gained. Deciding how much to spend on security is one of the most difficult decisions for any business in PNG, as resources can be spent on a range of items such as CCTV, alarms, guards, dogs, guns, vehicle tracking, environmental design, external barriers, personnel, lighting and anti-fraud devices.

As you travel throughout PNG you cannot help but notice the way in which businesses have fortified their premises to minimise the risk of external threats. In my experience, however, businesses tend to overlook the importance of implementing internal anti-fraud systems. The general impression is employees are above suspicion, owing to their compliant and friendly nature, and because they tend to remain loyal to a company throughout the term of their employment. Unfortunately, from a security analyst's perspective, this approach is misguided and not statistically accurate. Indeed, some employees will very quickly rationalise or justify an illegal act if the opportunity presents itself. Due to the Melanesian cultural practice of "wantokism", pressure can all too often be applied to an employee to assist their wantoks, or close friends, as they commit a crime.

Whichever country a business decides to operate in will always contain risks associated with managing a secure workplace. Most businesses already conduct risk and vulnerability assessments and generally have a clear evaluation of what measures can be taken. However, a more holistic security culture needs to be accepted in PNG, beginning with a system based around enterprises, which should in turn allocate appropriate funds to minimise internal and external threats. The next step should be to apply a multi-layered security plan which incorporates all aspects of the "known knowns" involved. For example, if we identify that a business could be susceptible to an armed robbery, how can we prevent this from occurring? Once the physical aspects of the plan have been developed the focus can shift to determining the "known unknowns". For instance, one may have installed software to prevent cash fraud but how can you be sure that the system has not been compromised? Finally, we ensure that systems rather than people are the primary crime identifiers for the business.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Melanesian Hotel & Apartments

Rooms: 38 deluxe king rooms, 10 deluxe twin rooms, 12 executive rooms.
Business & Conference Facilities: Business centre, 3 conference rooms/1 orchid ballroom, 1 boardroom, 1 VIP lounge.
Health & Leisure Facilities: Swimming pool, playground with children's pool, fitness centre (end-2015).
Guest Services: 24-hour airport shuttle, concierge, laundry service, 24-hour front desk service.
Wining & Dining: La'Café Restaurant, Lagoon Pool Side Bar, Sands Pokies and Bar, VIP Pokies, Chinese restaurant (end-2015).

LOLOATA ISLAND RESORT
PO Box 5290, Boroko, NCD
T: (+675) 325 8590 or (+675) 325 1369
F: (+675) 325 8933
Loloata@Loloata.com
www.Loloata.com

Rooms: 23 rooms.
Business & Conference Facilities: 2 conference rooms, max 30 pax and 10 pax.
Health & Leisure Facilities: Snorkelling, scuba diving, kayaking, leisure walks.
Guest Services: Internet in resort, ferry transfers, snorkelling transfers.
Wining & Dining: All meals inclusive in tariff.

HOLIDAY INN & SUITES PORT MORESBY
Cnr Waigani Drive & Wards Road
PO Box 1981, Boroko, NCD
T: (+675) 303 2000
F: (+675) 303 2979
reservations@holidayinnportmoresby.com.pg
www.holidayinn.com

Rooms: 240 rooms, including standard and premium rooms, executive suites, one- and two-bedroom apartments. The newly opened Holiday Inn All Suites contains 86 self-contained apartments.
Business & Conference Facilities: Ballroom for 300 guests (divides into 3 smaller rooms for 100), business centre.
Health & Leisure Facilities: Gym with three squash courts, pool, daily aerobics classes, weight room.
Guest Services: Concierge, 24-hour reception and room service, laundry service, on-site security, wireless internet, complimentary airport bus.
Wining & Dining: Kopi Haus, Gekko Bar, the Junction.

GATEWAY HOTEL & APARTMENTS
PO Box 1215, Boroko, NCD
T: (+675) 327 8100
F: (+675) 325 4585
gateway@coralseahotels.com.pg
coralseahotels.com.pg

Rooms: 130 guestrooms (35 executive and 95 premier rooms), 64 apartments with separate pool, tennis court and gymnasium.
Business & Conference Facilities: Business Centre, large conference facilities catering for 6 to 600.
Health & Leisure Facilities: 25-metre lap pool, walking track and fully equipped gym facilities.
Guest Services: Complimentary Wi-Fi (basic browser) for hotel guests, shuttle bus airport transfers, complimentary car park and 24-hour security.
Wining & Dining: Wild Orchid Restaurant, Rattle 'n' Hum Bistro, Enzo's Pizza, Departure Bar.

TUFI RESORT
Oro Province
T: (+675) 323 5995
F: (+675) 323 1303
reservations@tufiresort.com
www.tufiresort.com

Rooms: 28 boutique resort rooms.
Business & Conference Facilities: New conference room, 90 sq metres of meeting space for 10-40 delegates, full multimedia setup, including data projectors and screens, whiteboards and Wi-Fi connectivity.
Health & Leisure Facilities: Pool, PADI certification, dive shop, kayaking, cultural tours, village stay and fishing.
Guest Services: Airport transfer, free Wi-Fi, laundry services, child care, weddings and honeymoon packages.
Wining & Dining: À la carte dining, fully stocked bars.

MELANESIAN HOTEL & APARTMENTS
PO Box 756, Lae 441, Morobe
T: (+675) 472 3744
F: (+675) 472 7492
melanesian_reservations@coralseahotels.com.pg
www.coralseahotels.com.pg

Rooms: 22 premier king rooms, 36 premier queen rooms, 4 premier single, 3 premier suites, 7 two-bedroom apartments, 1 three-bedroom apartment.
Business & Conference Facilities: Conference and meeting facilities with capacity for 10-200 people.
Health & Leisure Facilities: Pool and internet access.
Guest Services: Hotel transfer to and from the airport.
Wining & Dining: Salamaua Restaurant & Bar.

HIGLANDER HOTEL & APARTMENTS
PO Box 34, Mt Hagen
T: (+675) 542 1355
F: (+675) 542 1216
highlander@coralseahotels.com.pg
www.coralseahotels.com.pg

Rooms: 80 guest rooms, including 20 executive, 30 premier rooms, 22 standard rooms and 8 premier suites, in addition to 15 apartments.
Business & Conference Facilities: Conference facilities catering for 15 to 200, boardroom.
Health & Leisure Facilities: Pool and gym facilities.
Guest Services: Shuttle bus airport transfers, complimentary car park, 24-hour security, complimentary Wi-Fi (basic browser) for hotel guests.

Over 800 languages are spoken throughout PNG. In colonial times, a pidgin English, Tok Pisin, emerged as a common language and is today one of PNG's official languages. While English is the official language of business, learning a few phrases in Tok Pisin is handy.

Anyone travelling to PNG for work, business, study or tourism purposes must have a visa entry permit. Applications for a 60-day tourist visa cost PGK100 ($41) and can be obtained upon arrival. Applications for single-entry 30-day business visas cost PGK250 ($102).

MINISTRIES

Agriculture & Livestock
675 327 7575
Mining
675 327 7357
Trade, Commerce & Industry
675 327 7587
Communication & Information Technology
675 325 3819
Environment & Conservation
675 301 4548
Petroleum & Energy
675 323 8959
Education
675 301 3332
Transport
675 327 7685
Works
675 327 7528
Housing & Urban Development
675 327 7377
Labour & Industrial Relations
675 320 0162
Higher Education, Research Science & Technology
675 301 2011
Fisheries
675 327 7549
Lands & Physical Planning
675 301 3206
Finance
675 328 8427
Treasury
675 327 7567
National Planning
675 327 7350

PUBLIC AUTHORITIES

Investment Promotion Authority
675 321 7311
Civil Aviation Safety Authority
675 323 9360
National Fisheries Authority
675 309 0444
Tourism Promotion Authority
675 320 0219
National Agriculture Quarantine and Inspection Authority
675 311 2100
National Information & Communications Technology Authority
675 303 3200
Mineral Resource Authority
675 321 3511

ASSOCIATIONS & SOCIETIES

Manufactures Council of PNG
675 321 7143
Port Moresby Chamber of Commerce & Industry
675 321 3077
PNG Chamber of Commerce & Industry
675 320 3333
Lae Chamber of Commerce & Industry
675 472 2340
Business Council of PNG
675 320 0700
PNG Chamber of Mines & Petroleum
675 321 2988
Fishing Industry Assoc.
675 323 1303
Forest Industries Associations
675 325 9458
Insurance Institute of PNG
675 321 2612
Lae National Business Associations
675 472 2521
PNG Associations of Accountants
675 325 9111
Real Estate Industry Assoc.
675 320 0944
PNG Contractors Assoc.
675 320 2239

BANKS

ANZ Bank Group
675 321 1079
Bank South Pacific
675 321 1999
Westpac (PNG)
675 322 0511
Maybank
675 325 0101
National Development Bank
675 324 7500
Nation Wide Micro Bank
675 321 3811

FOREIGN MISSIONS

Australian High Commission
675 325 9333
British High Commission
675 325 1677
Chinese Embassy
675 325 9836
France Embassy
675 321 5550
High Commission of India
675 321 4238
Indonesian High Commission
675 325 3544
Malaysian High Commission
675 325 1506
New Zealand High Commission
675 325 9444
Royal Thai Consulate
675 323 8330
US
675 321 1455
EU
675 321 3544

AIRLINES

Air Niugini
675 327 3444
Airlines PNG
675 302 3100
Qantas
675 308 3200

HOSPITALS

International SOS
675 302 8000
Pacific International Hospital
675 323 4400
Lae International Hospital
675 472 7133
Port Moresby General Hospital
675 324 8200

LEGAL SERVICES

Leahy Lewin Sullivan Lawyers
675 320 3333
Blake Dawson Waldron
675 309 2000
Allens Arthur Robinson
675 320 2000

CAR HIRE

Maoro Hire Cars
675 7218 8623
Budget Rent a Car
675 323 6244
Nortons Rent a Car
675 321 3480
Merz Hire Cars
675 7119 1137
675 7635 0945

ACCOUNTANCY

PwC
675 321 1500
Deloitte Touche Tohmatsu
675 308 7000
KPMG
675 321 2022

EMERGENCY

Police
000
Fire
675 325 5188
Ambulance
675 325 6822

RECREATIONAL ACTIVITIES

The Dive Centre
675 320 1200

Facts for visitors

Useful information for business and leisure travellers

ETIQUETTE: "For every village a different culture" is the expression that best describes the hundreds of separate behavioural rules and structures, cultures and languages of Papua New Guinea's population. Most locals will greet you with a warm, genuine smile, and the salutation "monin tru", or "a very good morning", is considered the polite early day greeting. Western etiquette in urban centres is the norm. In rural areas, an emphasis is placed on reciprocity and hospitality. If walking or sightseeing in rural areas, it is wise to have the approval of the landowner before crossing private land, and the owner may in fact provide a guide. In the event of an invitation to greet a chief or village head, visitors must bow before the leader and are prohibited from eating foods reserved for the chief and his family. To do otherwise would be considered discourteous.

DRESS: Given the year-round tropical climate, light and loose clothing is recommended, with long sleeves for dawn and dusk. Although PNG does not have a set standard for dress, most business meetings are conducted in standard Western business attire. Women should dress modestly; very short skirts or shorts, bikinis or brief swimwear are not appropriate in public. Sweaters or light jackets are recommended when visiting the Highlands Region or high-altitude areas.

LANGUAGE: Over 800 languages are spoken throughout PNG. Under colonisation, a pidgin English, Tok Pisin, emerged as a common language and is today one of PNG's official languages. While English is taught in school and is the official language of business and government affairs, learning a few phrases in Tok Pisin is handy, given that it is a symbol of national identity and is often the preferred means of communication.

CURRENCY: PNG's currency is the kina (pronounced "keena" and written as PGK). As of August 2014, $1 is worth PGK2.39. Most major currencies can be exchanged in banks with relative ease. Automatic teller machines accept Visa and MasterCard and allow withdrawals of up to PGK2000 ($813) daily. There may be an additional 3% charge on credit card transactions.

VISA: Anyone travelling to PNG for work, business, study or tourism purposes must have a visa entry permit. Applications for a 60-day tourist visa cost PGK100 ($41) and can be obtained upon arrival at international ports of entry. Applications for single-entry 30-day business visas cost PGK250 ($102) and can also be made upon arrival. The longer 12-month multi-entry business visa with a 60-day stay per entry must be obtained prior to arrival from the nearest PNG diplomatic mission. Fees may vary.

BUSINESS HOURS: Government offices and most private and state-run enterprises are usually open from 8am to 5pm Monday through to Friday. Banks generally remain open until 3pm.

HEALTH: Adequate medical staffing in hospitals and clinics can be found in urban areas. Rural areas are serviced by a network of aid posts and small health care centres. Trained nurses and paramedics are rare, as are trained doctors. The International SOS health care centre in Port Moresby operates at Western standards.

It is not advisable for visitors to drink tap water, and newcomers should drink only bottled or boiled water. Visitors should consult a doctor for the appropriate vaccinations before travelling to PNG. Mosquito nets, sprays and prescribed medication should be used to protect against malaria and dengue fever, which are widespread in both urban and rural areas.

SAFETY: Although visitors should remain vigilant and aware of personal safety when travelling in PNG, the country has made consistent progress in improving law and order, thanks to the PNG-Australia Policing Partnership. Exercising normal safety precautions is still advisable, and those arriving at Port Moresby's Jacksons International Airport at night should arrange for a pick-up. Visiting settlements and travelling by car outside the main cities at night, even on substantive roads, is not recommended and foreigners should avoid flagging down taxis. Using sponsored or rental vehicles is advised, provided that the car doors are locked with the windows up at all time to avoid opportunistic crime.