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PAPUA NEW GUINEA ECONOMIC UPDATE DECEMBER 2017

Reinforcing Resilience

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Preface

This is the first in a new series of twice yearly Papua New Guinea Economic Updates (*PNG EU*). It has two principle aims. First, it analyzes the key recent developments in Papua New Guinea's economy, and places these in a longer-term and global context. Based on these developments, and on recent policy changes, the *PNG EU* updates the outlook for Papua New Guinea's economy and welfare of its citizens. Second, the *PNG EU* provides a more in-depth examination of a selected development issue, and evaluates the implications of recent trends and policy reforms in terms of the government's stated development objectives. It is intended for a wide audience, including policymakers, business leaders, and the community of analysts and professionals engaged in Papua New Guinea's evolving economy.

The *PNG EU* is compiled by the Macroeconomics & Fiscal Management Global Practice, under the guidance of Michel Kerf (Country Director), John Panzer (Practice Director), Ndiame Diop (Practice Manager), and Patricia Veevers-Carter (Country Manager). The core project team comprises Chandana Kularatne, Andrew Blackman, Anthony Obeyesekere and John Grinyer. Administrative support is provided by Angela Oswyn. Dissemination is organized by Ruth Moiam.

The team would like to acknowledge a background paper on PNG's health sector provided by Laurin James. The team is also grateful for contributions and feedback from: Toomas Palu, Aparnaa Somanathan, Robert Utz, Aneesa Arur, Nicolas Rosemberg, and Ryota Nakatani.

The team is grateful to the Department of Treasury, the Department of Finance, the Bank of Papua New Guinea, the Department of National Planning & Monitoring, PNG Customs Service, the Internal Revenue Commission, and the National Department of Health for their consultation, the provision of data, and their collaboration towards the development of this report.

This report is a product of the staff of the International Bank for Reconstruction and Development / The World Bank, supported by funding from the Australian Department of Foreign Affairs and Trade through the Papua New Guinea Governance Facility.

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Acronyms

APEC	Asia Pacific Economic Cooperation
BPNG	Bank of Papua New Guinea
CPI	Consumer Price Index
DIRD	Department of Implementation and Rural Development
DNPM	Department of National Planning & Monitoring
DSIP	District Service Improvement Programme
DTA	Double Taxation Agreement
DTP-HepB	Diphtheria-Tetanus-Pertussis-Hepatitis B
DTT	Double Taxation Treaty
EAP	East Asia and the Pacific
FMIS	Financial Management Information System
Gavi	Gavi, the Vaccine Alliance
GNI	Gross National Income
GST	Goods and Services Tax
HFG	Health Function Grant
HR	Human Resources
IFMIS	Integrated Financial Management Information System
IMF	International Monetary Fund
IRC	Internal Revenue Commission
ITC	Infrastructure Tax Credit
K	Kina
KFR	Kina Facility Rate
KPHL	Kumul Petroleum Holdings Limited
LNG	Liquefied Natural Gas
MDG	Millennium Development Goals
MPA	Minimum Priority Activities
MRSF	Mineral Resources Stabilization Fund
MTDP	Medium Term Development Plan
MYEFO	Mid-Year Economic and Fiscal Outlook
NCD	National Capital District
NEFC	National Economic and Fiscal Commission
NRPB	Non-Resource Primary Balance
NSO	National Statistical Office
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
OSPEAC	Organisational, Staffing and Personnel Emolument Audit Committee
PEFA	Public Expenditure and Fiscal Accountability
PFM	Public Financial Management
PHA	Provincial Health Authority
PMGH	Port Moresby General Hospital
PNG	Papua New Guinea
PNG EU	Papua New Guinea Economic Update
PNG LNG	Papua New Guinea Liquefied Natural Gas
PSIP	Provincial Service Improvement Programme
REER	Real Effective Exchange Rate
SDG	Sustainable Development Goals
SIGTAS	Standard Integrated Government Tax Administration System
SOE	State-Owned Enterprises
SWF	Sovereign Wealth Fund
TB	Tuberculosis
THE	Total Health Expenditure
USD	United States Dollars
WB	World Bank
WHO	World Health Organisation

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Executive summary: Reinforcing Resilience

Photograph 1: Reinforcing resilience – in the economy and for service delivery – is crucial to support stronger economic growth and improve citizens' welfare.

Papua New Guinea, like other resource-rich economies, is still feeling the impacts of the fall in global commodity prices. Following a wave of robust growth, the downward trend in commodity prices since 2012 and the generally low-commodity-price environment has resulted in lower than expected government revenues and a winding back of public spending. Additionally, adverse climatic conditions dented growth prospects in the agriculture sector. In contrast, economic growth was supported by the construction and later opening of the PNG LNG plant in 2014.

GDP growth is estimated to have been 8.0 percent in 2015 and 2.4 percent in 2016, and is projected to register 2.1 percent in 2017. PNG LNG began operation in the second quarter of 2014, meaning 2015 was the first full year of production. Regular production continued in 2016 and 2017 with some efficiency gains. Additionally, growth is being curtailed – particularly in the non-resource economy – due to a combination of a slowdown in government spending as revenue receipts came in lower than expected, coupled with foreign currency shortages from efforts to limit the depreciation of the Kina.

A rebounding agricultural sector supported by broadly stable prices gives some cause for optimism. The effects of the El Niño southern oscillation have now passed, and agricultural commodities are set to perform well due to the improved weather and growing conditions. Palm oil, in particular, is looking strong – with rising volumes in 2017 and strengthening international prices – and soaring vanilla demand provides an opportunity for growth. However cocoa prices have fallen, and the presence of the coffee berry borer beetle poses a risk to rural incomes and will need to be managed carefully.

Despite lower growth in the resources sector, the sector continues to be the main driver of overall GDP growth in 2017. The sector is now dominated by liquefied natural gas (LNG) production. PNG is proving itself an efficient and low-cost producer, with output from the landmark PNG LNG project higher than planned and production costs falling, helping to increase the value added in the sector. LNG output from the project reached 8.6 million tons in 2016, 32 percent higher than the planned 6.5-million-ton nameplate capacity. Of particular importance to PNG will be the sentiment surrounding future regional LNG demand. Given the low costs of PNG's gas production, and the potential for regional LNG demand to exceed supply by the mid-2020s, PNG should be well positioned for future large-scale investment in the sector which will boost GDP. However, the capital intensive, enclave nature of LNG extraction and processing provide limited direct opportunities for job creation.

In response to lower growth, following the 2017 election the O'Neill-Abel Government announced the 100-Day Economic Stimulus Plan to reinforce macroeconomic resilience and support inclusive growth. The Plan establishes an ambitious set of 25 priority objectives, aimed at strengthening confidence in the medium-term sustainability of the economy and public finances. Key elements include: limiting the budget deficit to 2.5 percent of GDP in 2017; strengthening payroll management; and the identification of 18 priority capital projects. The Plan serves as a strong signal of the incoming administration's likely policy orientation over the coming years.

As part of the Plan, the Government introduced a supplementary budget to reduce and reallocate expenditure in the face of lower-than-expected revenues.[1] With revenue growing by 6.7 percent in nominal terms year-on-year, less than the 15 percent planned in the budget, sizeable cuts to spending plans have been necessary to contain the annual deficit, and to stay within the government's debt ceiling. Spending numbers for the first half of 2017 show that spending on personnel emoluments, rather than declining by 14 percent as per the budget, have increased 8 percent compared to the first half of 2016. Budget cuts in an environment of weak commitment controls have also been leading to a rise in spending arrears, with suppliers going unpaid for months at a time.

Inflation has been averaging 6 percent a year, but is forecast to fall toward 4 percent if there is no shock to food or import prices. Underlying inflation has been falling since 2015, and is now around 2 percent a year. Yet, overall inflation has remained around six percent due to high food price inflation in 2016 and high alcohol and betel nut price inflation in 2017. As these price pressures dissipate, the headline CPI will fall. However, a drought or a rise in import prices would put upward pressure on inflation.

With the limited take-up of government treasury bills and bonds by PNG's commercial banks, the Bank of Papua New Guinea has purchased the excess. The Bank of Papua New Guinea's net holdings of government debt have been increasing sharply since 2016 and the Bank now holds more government debt than Central Bank Bills it has issued. This policy is in part motivated by a desire to dampen interest rate rises for government debt, given the sharp increase in the government's debt interest costs, which are now estimated at 2.2 percent of GDP – more than is spent on education. The central bank has begun the process of on-selling its holding of government paper to the public.

Looking at the external sector, the start of LNG exports has moved the current account strongly in to surplus. This means that exports are now much higher than imports, with an estimated current account surplus of 14 percent of GDP. However, this surplus is not translating into growing foreign currency reserves, as very little of the revenue from the sale of LNG flows back in to the country, which translates as a large capital and financial account deficit. Flows are low due to low tax and royalty receipts by government (explored in Box 7 and Box 8). Foreign exchange reserves have fallen from their highs of over USD 4 billion during the

[1] The 2018 National Budget was released shortly before the PNG EU went to print. Consequently, the PNG EU does not account for new information or policy announcements contained in the latest budget.

commodities boom in 2011 and 2012 to USD 1.7 billion in November 2017, equivalent to 5 months' import cover.

In spite of the large current account surplus, shortages of foreign currency continue to inhibit business activity. In order to soften the impact of 'imported inflation' from a weaker nominal exchange rate, the authorities have resorted to slowing the depreciation of the currency. Given the shortage of foreign currency in the market and to maintain adequate foreign exchange reserves, there has been some rationing of foreign currency. This shortage of foreign currency is contributing to the decline in imports, with firms struggling to source spare parts and materials needed for their production processes, and retailers finding it hard to restock.

Looking ahead to 2018, GDP growth is forecast to increase to 2.5 percent. This reflects a continuation of the incremental improvements in the efficiency of existing mining and petroleum operations, in particular falling costs in the PNG LNG project; higher growth emanating from a recovering agricultural sector and APEC-related expenditure. In the non-resource economy, restrained government spending and shortages of foreign currency will limit growth. In the longer-term, the outlook for growth is relatively more sanguine with the establishment of more resource projects in the 2020s. GDP growth is expected to edge towards trend in the longer term, which is estimated at 4 percent per year.

Upside risks to this outlook are both external and domestic in nature. A sustained increase in commodity prices could help to bring forward investments, improving the growth outlook. Strengthening prices for PNG's agricultural exports, in particular palm oil – which is the largest agricultural export by value – will help to alleviate foreign currency shortages and encourage further investment in this sector. On the domestic front, improvements in the government's revenue collections – both through improved administration and changes in revenue policy – would help lower the need for continued fiscal consolidation, helping growth over the medium term.

Downside risks include worsening foreign-currency shortages and the possibility of a disorderly exit towards a more flexible exchange rate regime. This would have subsequent impacts on macroeconomic stability and investor confidence, and could possibly harm the likelihood of future investment in the LNG sector. A gradual depreciation would help to discourage imports and lift competitiveness. An additional risk is the continued purchase of excess government securities by the central bank, which runs the risk of placing upward pressure on inflation.

Failure to keep government spending under control will undermine macroeconomic stability. The government wage bill and rising interest expenditure are areas of particular concern. Failure to adequately control spending in these areas could easily wipe out any hard-won gains from improving revenue collections or gains from a fortuitous terms of trade improvement, contributing to a further accumulation of arrears, and necessitating additional borrowing and possibly continued financing of the budget by the central bank.

Over the longer term, Papua New Guinea will need to carefully consider the terms for any future LNG project, to ensure the benefits of the investment are not unnecessarily generous to foreign investors. Almost no revenue has yet flown to government from the existing PNG LNG project, compounding the fiscal pressures being felt due to lower revenues from elsewhere in the economy. This lack of revenue also contributes to the shortages of foreign currency. Papua New Guinea will be unable to finance the investments needed in education, health and infrastructure to make a meaningful impact on poverty levels if this sector of the economy continues to contribute only marginally to government revenues. Lessons can be learned from international experience on how to ensure sufficient revenue flows to government from the resources sector whilst minimizing disincentives to inward investment.

Focus Topic: Towards an Integrated Macroeconomic Policy Framework

Building resilience will require an integrated approach to macroeconomic policy development and implementation. As is common to all economies, adjustments to specific policy levers in PNG – such as fiscal policy, monetary policy, and exchange rate policy – cannot be considered in isolation. Instead, an integrated approach is required to deliver a fit-for-purpose macroeconomic policy framework which can support stronger economic growth and ensure macroeconomic stability over the medium term.

In the past, PNG's fiscal policy framework has not adequately delinked government spending from volatile revenues associated with large swings in global commodity prices. Public expenditure has historically been highly procyclical, with government spending rising and falling in line with fluctuations in global commodity prices. These dynamics have traditionally put substantial pressure on monetary and exchange rate policy, and debt and liability management – as procyclical fiscal policy can lead to inefficient spending and further upward pressure on wages and prices after positive shocks, but also accentuate downturns in demand and the labor market after negative shocks. Countercyclical fiscal policy, on the other hand, helps to smooth out the volatility of the business cycle, providing fiscal space for authorities to boost spending and protect vulnerable households during a downturn.

Consequently, strengthening the fiscal rule(s) are a priority, while steps should be taken to operationalize the Sovereign Wealth Fund (SWF) over the medium term. Importantly, an amendment to the Fiscal Responsibility Act introduced a non-resource primary balance (NRPB)-to-non-resource GDP fiscal rule, which can help to manage the volatility of resource revenues, and thus contribute to a more sustainable fiscal policy framework. It is now important that the details of its implementation are defined and operationalized. A complementary rule limiting the growth rate of expenditure-to-non-resource GDP per annum could also be considered. The current low-commodity-price environment provides some leeway in the operationalization of the SWF, as there are likely to be limited inflows from the resource sector in the short term.

Initiatives to improve revenue performance are essential, but should be prioritized according to their likely impact on revenue collections. Authorities are currently undertaking various reforms to both strengthen revenue administration and update revenue policy and legislation, with the aim to reduce compliance costs and increase collections. However, the decline in the tax-to-GDP ratio in recent years is due to a systemic weakness in tax revenue mobilization. To enhance tax revenue performance, further actions are needed to: (i) strengthen the capacity of tax administration institutions (the Internal Revenue Commission and Customs); and (ii) reverse the erosion of the tax base by addressing policy gaps – specifically by reviewing tax exemptions, streamlining the allocation of Infrastructure Tax Credits, and closing loopholes in Double Taxation Agreements. Authorities should prioritize the initiatives that will deliver the largest impact for their expended efforts.

A plan to identify and cover arrears and contingent liabilities is a first-order priority to restore confidence in fiscal sustainability. The recent build-up in expenditure arrears to the private sector is a form of unofficial deficit financing which add to the stock of public debt, and can create serious fiscal risks if left unchecked. Clearing these arrears can help to reactivate domestic demand and encourage greater lending to domestic firms. The 2017 Supplementary Budget allocated K150 million to discharge some of these obligations. Yet, strengthening controls in budget execution will be essential to address the structural causes of arrears build-ups. This can be achieved by completing the: (i) implementation of the government's 2015-2018 Public Financial Management (PFM) Roadmap; and (ii) roll-out the Integrated Financial Management Information System (IFMIS) across the public sector.

Establishing a prudent medium-term debt management strategy is important, however, immediate efforts should be focused on addressing noted shortcomings in debt management. Authorities have

stated their intention to re-orientate the debt portfolio to reduce interest costs, lengthen average debt maturities, and lower rollover and foreign exchange risks. While these objectives are necessary and commendable policy actions, efforts must be made to contain the rising level of debt. Additionally, there are some 'low-hanging fruit' actions – such as establishing a comprehensive, up-to-date central register of loan agreements and guarantees (including implicit and explicit guarantees on borrowing by state-owned enterprises) – which can deliver immediate gains.

Over the medium term, greater exchange rate flexibility will be required; however, any such move should be predicated on the prior strengthening of the functioning of monetary policy, foreign exchange market development, and risk management capacity. Given the structural constraints in the foreign exchange market, an instantaneous shift to a completely free-floating exchange rate mechanism may not be appropriate. The transition to a more market-driven exchange rate mechanism needs to be consistent with gradual policy changes to strengthen the foreign exchange market structures in the country to support greater competition amongst authorized foreign exchange dealers. These changes should occur in concert with efforts to improve the functioning of monetary policy – including the strengthening of the Kina Facility Rate as a credible benchmark for money market operations – to combat the inflationary consequences of a more flexible exchange rate system. This could be done by mopping up the excess Kina liquidity in the banking system to create an effective interbank money market. Only once this is achieved should a gradual, properly-sequenced process of transition to a more market-driven exchange rate mechanism be undertaken.

Focus Topic: Health Service Delivery in PNG

Despite higher public spending on health, outcomes in PNG are generally lower than in comparator countries, and the burden of poor health and malnutrition on the economy and the health system is large. Public spending on health in PNG is high given the nation's income level, and greater than in most comparator countries. While the nation has made steady progress in reducing estimated infant, under-five and maternal mortality rates, the gains have been slow and less than in comparator countries, and rates of stunting and child undernutrition are among the highest in the world. Aside from its severe social impacts, child malnutrition also has significant economic costs – estimated to be USD 508 million (2.8 percent of GDP); far greater than the budgeted expenditure for 2017 for both the health sector and education sector (USD 385 million and USD 366 million, respectively). Furthermore, the incidence of non-communicable diseases (NCDs: including diabetes, ischemic heart disease and cancer) is rising, creating a double burden on the public health system. Experience from other settings suggests that a high prevalence of NCDs and tuberculosis (TB) also negatively impacts labor force participation and productivity.

Despite a commitment to achieve universal health coverage, access to primary health services is low, and has declined over the past decade, due to a myriad of constraints related to human resources, the availability of supplies, infrastructure, financing and geography. Notwithstanding a Government goal of providing universal primary health coverage, service delivery indicators – such as outpatients visits per person, immunization rates, skilled birth attendance and antenatal care – have generally declined over the period from 2006 to 2016. These gaps are even more acute in rural and remote areas, where rural aid posts continue to close, and facilities conduct only a fraction of planned outreach activities. A lack of basic supplies and infrastructure continues to inhibit frontline service delivery, and the sector suffers from a severe shortfall in trained medical professionals.

Consistent with fiscal consolidation across all sectors, health financing is projected to contract over the medium-term, meaning the sector must rely on efficiency gains to improve service delivery; realizing these efficiency gains will require improvements in cash flow to frontline health providers and protecting funding for basic health services. Slow progress in health outcomes and stagnant or declining trends in utilization rates indicate there is a risk that gains could be reversed as public spending on

health declines over coming years. Improvements in spending efficiency are thus critical to improve service delivery. International evidence suggests that protecting spending for basic services is more effective at maintaining quality care for the poor than attempting to spread the expenditure cuts across all health services. Primary among the required reforms is to relax cash flow constraints, such as delays in the disbursement of financing and in-kind support from higher levels down to the spending units responsible for implementation, and the diversion of funds allocated for frontline service delivery to cover administrative expenses. Improved accountability and reporting on infrastructure spending (particularly the Provincial Service Improvement Program, PSIP, and District Service Improvement Program, DSIP) is also crucial, as this can help to integrate the budget frameworks for capital and operational spending. Many of the weaknesses in the health sector are symptomatic of broader PFM challenges faced across the public sector. Thus, the implementation of the government's IFMIS and the reforms outlined in the 2015-2018 PFM Roadmap should remain first-order priorities.

In a context of projected cuts to health spending, frontline service delivery – including outreach activities – should be prioritized, along with interventions to address malnutrition and cost-effective services for the prevention and control of NCDs. Ensuring adequate health services for the roughly 80 percent of Papua New Guineans who live in rural areas remains critical. In this context, priority should be given to ensuring the effective delivery of the government's well-established three Minimum Priority Activities (MPAs) for rural health spending, which are: (i) operational funding for rural facilities; (ii) rural outreach activities; and (iii) the distribution of drugs and medical supplies. Innovative new methods and partnerships for rural service delivery may need to be considered, such as expanding partnerships with churches, telemedicine, and supportive supervision. Addressing the very high rates of malnutrition and stunting will require comprehensive coverage of an evidence-based set of interventions to target child undernutrition delivered through the health system (such as breastfeeding promotion, counselling on nutrition and hygiene practices, micronutrient supplementation, health services to prevent and treat childhood illness, etc.) as well as complementary actions beyond the health sector (such as improved water and sanitation). Limiting the additional fiscal burden of NCDs on the already-stretched health system will require a sharp focus on cost-effective methods for prevention and control – along with complementary public policy measures, such as raising taxes on tobacco, alcohol, and food and drinks that have a high fat and/or sugar content.

Complementary measures are required to ensure that the Provincial Health Authorities (PHAs) can fulfil their potential to improve service delivery. The PHA model was selected as the preferred solution to attempt to resolve the myriad of constraints – related to human resources, the availability of supplies, infrastructure, financing and geography – present in the health sector. Despite implementation issues, initial results suggest that the model has led to improvements in provincial governance, financing and administration of service delivery. Yet, performance can be improved. Future strengthening of the PHA model requires commitments in terms of adequate levels of resourcing, timely releases of funds, recruitment of skilled staff, improved communication, coordination and effective reporting between all stakeholders, and sufficient levels of support from national departments. To this end, there is a need to address the inconsistencies in legislation and administrative norms that impede the functioning of PHAs, including either legislation to compel provincial treasuries to release the Health Function Grant (HFG) immediately, or reforms to allow the national government to transfer funds to PHAs directly. Parallel efforts to enhance capacity and governance at the sub-national level are also crucial. In the absence of: (i) improved district capacity to support frontline service delivery; and (ii) governance processes that encourage performance – health facilities will be affected, independent of whether the responsibility for provincial management of services lies with a provincial government or an independent PHA.

Performance-based financing mechanisms may help to address some of the main constraints to effective frontline service delivery, although this should not be seen as a 'silver bullet'. Performance-

based financing seeks to enhance the effectiveness of public spending by linking payments directly to results. With the monitoring and verification of results a key factor in determining disbursements, the approach also seeks to strengthen transparency and local accountability by leveraging existing mechanisms for effective community participation in decentralized planning, delivery and monitoring of service provision. There is increasing international evidence that these types of financing mechanisms can have a positive impact on public system performance, provider behavior, and the quality of services delivered. Nevertheless, simply paying for results in the PNG health sector may not be sufficient, as long as there remain substantial gaps in sub-national capacity. Technical assistance, ensuring local 'ownership' of any performance-based program, and strong monitoring and learning dissemination are crucial to build the capacity and the accountability of local actors for improved delivery of health service.

Finally, the transition of vertical disease programs from donor systems to government systems poses a critical risk to the continuity of health services. The expected withdrawal of Gavi, the Vaccine Alliance (Gavi) in 2021 makes it imperative that authorities and donors consider the sequencing of any transition of vertical disease programs from donor systems to government systems, to ensure services and capacity are not lost during the transition, and that the resilience of the national systems is developed to both manage day-to-day operations, and respond to an epidemic. If done well, the transition offers an opportunity to explore innovative service delivery mechanisms and to utilize the capacity of these transferred systems to deliver additional health services – both of which can increase sector efficiency.

Photograph 2: Protecting spending for basic health services is crucial to maintaining quality care for the poor. Photo credit: Conor Ashleigh.

A. Economic Update

Photograph 3: Agriculture remains the principle economic activity for the 80 percent of the country's population who live outside the urban centers. Photo credit: PNG Tourism Promotion Authority.

1. Setting the scene – resource booms and PNG's economy

1. **Similar to other resource-rich countries, the PNG economy rode a wave of robust growth from 2003 to 2011.** Growth was supported by the fortuitous terms of trade developments arising from the upturn in global commodity prices for minerals and petroleum (2003-2011), which encouraged inward investment in the minerals, forestry and palm oil sectors, and supported strong government revenue growth and the resulting spending increases.[2] In this respect, PNG benefited along with its peer-group countries (Box 1), and annual GDP growth between 2003 and 2011 averaged 5.7 percent.

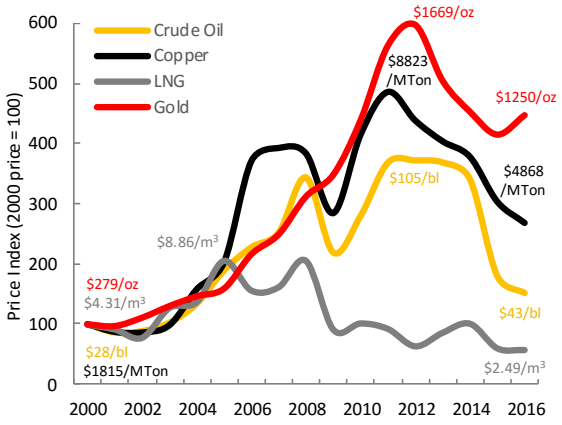
2. **However, throughout PNG's history, growth has been susceptible to the vagaries of the commodity price cycle.** Commodity prices began to fall in 2012 (Figure 1), hurting government revenues and putting a brake on inward investment and public spending growth. In particular, between 2014 and 2015, with energy commodities (coal, oil and gas) experiencing a greater price decline (45 percent) than metals and minerals (15 percent) or agricultural commodities (13 percent),[3] Figure 2 reveals that PNG, along with other net energy exporters, endured a significant deterioration in its terms of trade.

[2] Commodity prices declined sharply in 2008/09 during the global financial crisis, and then resumed their upward trend.
[3] It is worth noting that net energy-exporting countries gained relatively little from lower world prices for non-energy commodities, since these typically account for a relatively small share of their import basket.

3. **The adverse impact of the commodity price slowdown from 2012 onwards was mitigated by the construction and later opening of the PNG LNG plant in 2014.** For this reason, Papua New Guinea's economy is estimated to have grown at an average rate of 6.6 percent per year between 2012 and 2016, above the average during the commodity price boom (2003-2011). The production of LNG resulted in resource GDP more than doubling over the space of a few months. Output in the oil and gas sector increased from K1.4 billion in 2013 to K12.5 billion in 2015, and is now larger than PNG's mineral resource and agricultural export sectors of gold, copper, nickel, wood and palm oil combined.

Figure 1: The global commodity price cycle, 2000-2016

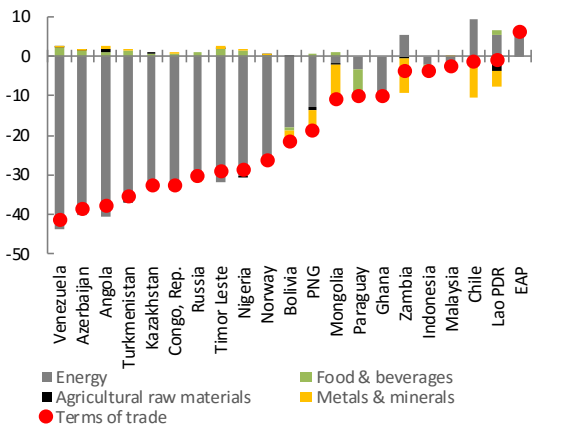
Price index, 2000=100



Source: IMF World Economic Outlook

Figure 2: PNG has experienced a similar change in its terms of trade to other commodity exporters

Percent change (2014-2015)



Source: World Bank staff estimates

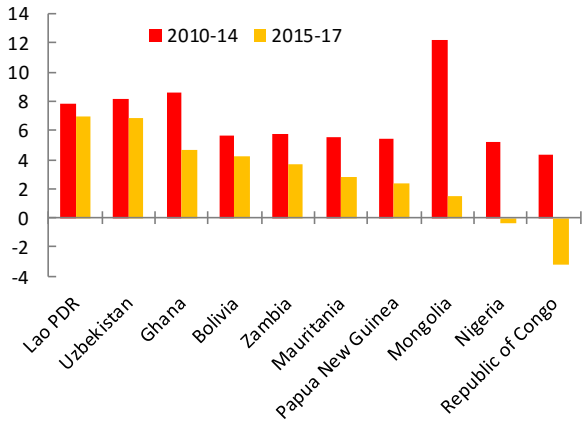
4. **Once the base effects following the commencement of LNG production has been accounted for, similar to other resource-rich economies, owing to the precipitous decline in commodity prices between 2014 and 2015, Papua New Guinea experienced a commodity-driven slowdown in growth.** Looking at PNG's peer group comparator countries shows that other commodity exporters also saw a slowdown in growth since 2015. Average real GDP growth for the 10 commodity exporters in Figure 3 was 6.9 percent per year between 2010 and 2014. This fell to 2.9 percent for 2015 to 2017.[4]

5. **Figure 4 and Figure 5 reveal a general slowing in the non-resource economy, which expanded by only 1.6 percent annually between 2012 and 2016.** PNG's growth performance shows signs of there being "two economies" – one that has been growing fast (services, construction, oil and gas) and one that has expanded more slowly (agriculture, manufacturing) (see Box 2 for a description of PNG's economic landscape). 'Other mining' has contracted over the period, although this sub-sector is characterized by large volatility dependent on prevailing commodity prices and climatic factors. Nevertheless, outside of oil and gas, no new mining operations have opened in recent years.

[4] To calculate the average GDP growth between 2015 and 2017, the growth rate for 2017 is an estimate.

Figure 3: PNG's growth dynamics in recent years have been similar to comparator countries

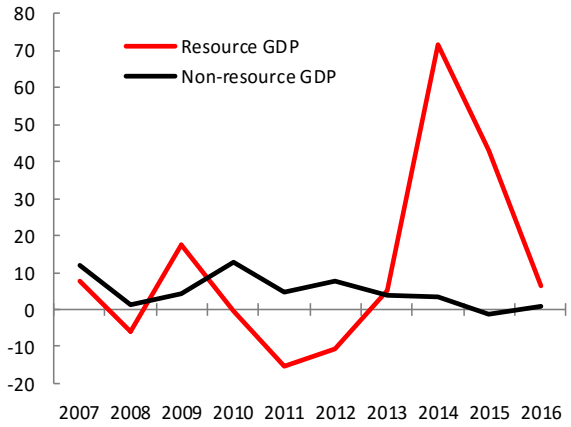
Average annual percent change in real GDP



Source: World Economic Outlook database, October 2017

Figure 4: Growth in the resource sector has driven overall real GDP growth volatility

Real resource and non-resource GDP, annual percent change

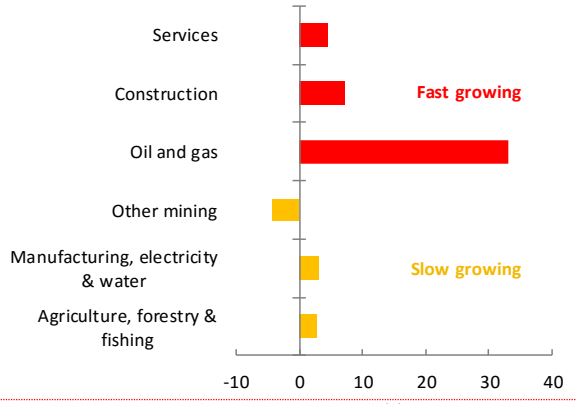


Source: NSO National Accounts 2014, PNG Treasury
Note: Estimates are used for GDP from 2015 onwards

6. **Additionally, Papua New Guinea's recent growth performance has been hampered by adverse climatic conditions.** The El Niño southern oscillation had a double effect in 2015 and 2016. First, the lack of rainfall affected the availability of water needed for mineral processing, and the running dry of the Fly River used for navigation forced the temporary closure of mining operations at the Ok Tedi mine. Second, the drought and frost-like conditions adversely affected production in the agriculture sector, which is a source of livelihood for a significant majority of the economically active population, with harvests of coffee, cocoa and palm oil suffering.

Figure 5: Papua New Guinea's "two economies"

Average annual percent change for real GDP, 2009-2016



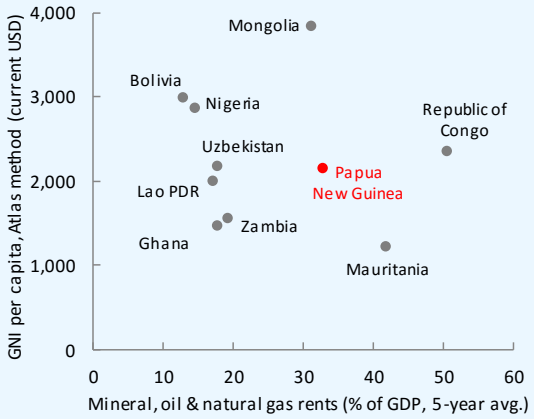
Source: NSO National Accounts 2014, PNG Treasury

7. **In response to these adverse shocks, the new O'Neill-Abel Government announced a 100-Day Economic Stimulus Plan designed to reinforce macroeconomic resilience and support inclusive growth.** The first action of the new government was to set about strengthening confidence in the medium-term sustainability of the economy and public finances. To this end, the 100-Day Plan establishes an ambitious set of 25 priority objectives, which serves as a strong signal of the incoming administration's likely policy orientation over the coming years (see Box 3 for a summary of the Plan).

Box 1: Find my friends
Defining a set of comparator countries for PNG

Whilst PNG is situated in the Pacific, the country is not typical of the region. Whilst it shares some Pacific traits such as high costs of providing services to dispersed populations, PNG has a much larger landmass and population than other Pacific states. Comparing it to other East and South East Asian countries is also unsatisfactory. PNG is more dependent on exporting mineral resources than much of East and South East Asia. Hence in this piece PNG is benchmarked to other lower-middle income countries which are endowed with a significant amount of mineral and/or petroleum resources. According to the World Bank's definition for 2017, lower middle-income economies are those with a GNI per capita between USD 1,026 and USD 4,035, calculated using the World Bank Atlas method. Countries with a significant amount of mineral and/or petroleum resources are categorized as those countries where, according to the World Bank, the ratio of mineral and petroleum rents to GDP are greater than or equal to 10 percent. This classification yields the following set of comparator countries: Bolivia, Republic of Congo, Ghana, Lao PDR, Mauritania, Mongolia, Nigeria, Uzbekistan and Zambia (Figure 6). This set of countries are often used in this report.

Figure 6: Defining a set of comparator countries
Countries with similar per capita incomes and resource rents, 2014

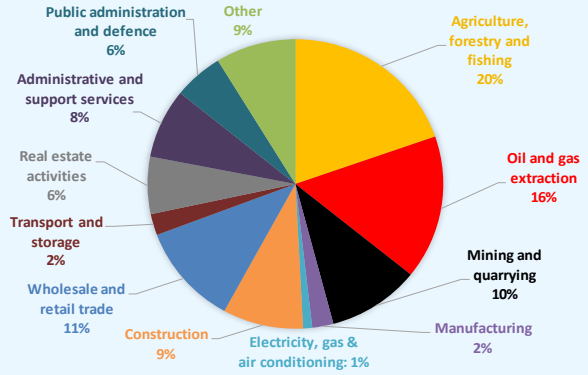


Source: World Bank World Development Indicators.

Box 2: A dichotomy
Papua New Guinea's economic landscape and economy

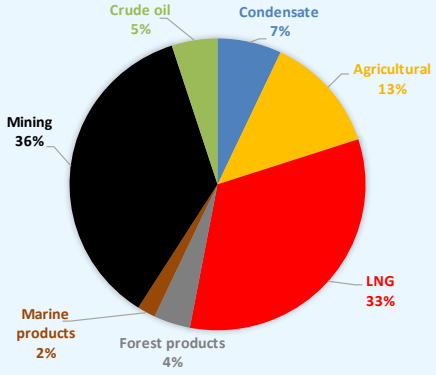
Papua New Guinea, with a per capita GDP of USD 2,688 in 2016, is a lower-middle income, resource-dependent economy. It is a country dependent on its primary sectors, the resource sector (mining, petroleum and gas) and the agricultural, forestry and fishing sector. Combined, these account for 46 percent of GDP and nearly 100 percent of exports (Figure 7 and Figure 8). Further, the formal economy is centered on mining, petroleum and gas while the agriculture sector, with the exception of the palm oil plantations, is largely informal.

Figure 7: The PNG economy is dominated by the resource and agriculture, forestry and fishing sectors...
Composition of the PNG economy, 2016



Source: PNG Treasury

Figure 8: …As is PNG's export basket
Composition of nominal exports, 2016



Source: PNG Treasury

Whilst Papua New Guinea has experienced robust growth in the recent past, performance in the non-resource economy has been less impressive than the resource sector. In per capita terms, recent evidence suggests that

growth in non-resource sectors has been more subdued. The average per capita growth rate between 1990 and 2015 in non-resource sectors (1.8 percent) trails that for the resource sector (5.6 percent). Within the non-resource sector, more recently agriculture experienced relatively slower growth on average (3.9 percent per annum over 2008-2014) vis-à-vis either of the two other large sectors – construction (11.3 percent) and services (5.7 percent).

The distinct dichotomy in the economy – relatively fast-growing (though volatile) resource sectors which accounts for significantly less employment than the non-resource sectors (primarily rural, informal agriculture) which account for the majority of total employment – limits the inclusivity of PNG's growth performance. This dichotomy is driven by the fact that the resource sectors comprise enclave, capital-intensive industries (minerals and petroleum) whose direct employment contribution is limited. Further, much economic development has been focused on urban areas, with many rural areas, where the majority of Papua New Guineans live, seeing little from the 2010-2015 government infrastructure spending boom. As most Papua New Guineans rely on income-generating opportunities in the informal, non-resource sectors (such as agriculture), strong growth in these sectors has the potential to boost shared prosperity and reduce poverty. This implies that the relatively lower growth performance of the non-resource sector, coupled with the fact that most of the recent economic development has been focused on urban areas, limits the inclusivity of PNG's recent growth performance.

Box 3: Reinforcing resilience, 100 days at a time
The new O'Neill Government's 100-Day Plan

The 100-Day Economic Stimulus Plan, released in August 2017 following the general elections, sets out 25 policy objectives separated in to five broad areas covering public finance and the management of the economy. The Plan is a positive step in that some – although far from all – of the 25 points and 52 sub-points have clear and timebound objectives, and it provides a guide to parliamentarians, investors and the general public as to what are the immediate and medium-term policy objectives of the new government.

Related to public finance, notable objectives include limiting the budget deficit to 2.5 percent of GDP in 2017, strengthening payroll management, drawing down the Credit Suisse loan, and assessing development bank budget support by March 2018. The Plan does not include any changes to tax rates, removal of exemptions or other revenue raising measures, although some changes were announced in the 2017 Supplementary Budget speech. Rather, the Plan sets out the establishment of new taskforces and pushes the use of Taxpayer Identification Numbers. With the ambition to ease access to foreign exchange, the Plan states that USD 100 million will be released by the Bank of Papua New Guinea, presumably running down international reserves by the same amount, and a deal to settle purchases of crude oil for the Napa Napa refinery in Kina – this could mean freeing up around USD 20 million a month.

In terms of strengthening the economy, the Plan sets out a wish list of 18 capital projects with few details as to what progress is expected over the 100 days of the Plan. Further, amendments to various legislation are proposed, a target for all SOEs and Statutory Authorities to submit their audited accounts to Parliament by June 2018, and unspecified progress on PNG LNG and Ok Tedi landowner benefits is to be made. Also mentioned is a policy to restrict rice imports to encourage domestic production.

Overall the Plan is perhaps most useful in signaling future public finance and economic management priorities of the government for the coming five-year term, helping to encourage discussion and debate. Nevertheless, addressing the underlying long-term priorities of poverty reduction and improving citizens' welfare will require efforts across a wider range of sectors than those covered in the Plan, including health, education, agriculture and security.

2. Recent economic developments

2.1. Economic growth

Photograph 4: Copra heading to market. Copra production was 29 percent higher in 2016 with 43,500 tons going for export. Photo credit: Joanne Gardner.

8. **GDP is estimated to have expanded by 2.4 percent in 2016, down from 8 percent in 2015.**[5] Even though 2016 was the second year of full production for the PNG LNG project, the economic expansion in 2016 continued to be driven by the petroleum and gas sector, which accounted for over half of total 2016 growth. This reflected an increase in gas volumes with the excess being sold on the spot market. Growth in the mining and quarrying sector was the second largest contributor, reflecting the reopening of the Ok Tedi and Pogera mines. Agriculture, forestry and fishing expanded by 1.5 percent, and was the third largest contributor to growth, with coffee and palm oil exports having their best year since 2011. More generally, the agriculture sector was recovering to the pre-drought levels of 2013 and 2014. The service sector was broadly flat, reflecting a levelling-off in government spending (Figure 9).

9. **In 2017, global commodity prices have remained subdued, whilst global economic growth is strengthening.** The recovery in global growth, which has been underway since mid-2016, has continued during 2017. In the first two quarters of 2017, global growth is estimated at 3.1 percent on average, up slightly from 2.9 percent in the final two quarters of 2016. The expected improvement in growth reflects both growth in commodity-importing emerging economies led by China and India, and an investment-led recovery in advanced economies. Japan, China and Australia are PNG's three largest export destinations. Over the medium-term, growth in Japan and China is excepted to slow – only in Australia is growth forecast to accelerate, from 2.2 percent in 2017 to 2.9 percent in 2018 and 3 percent in 2019, potentially providing some additional demand for PNG's exports.

[5] GDP data from the National Statistics Office is not available after 2014. Thus, the PNG EU relies on World Bank estimates, determined in discussion with the IMF, for more recent years.

10. **For the domestic economy, in 2017 real GDP growth is forecast to decelerate further to 2.1 percent.** This is driven by a slowdown in government spending, a shortage of foreign currency, an overvaluation of the Kina and generally a lower level of business confidence.

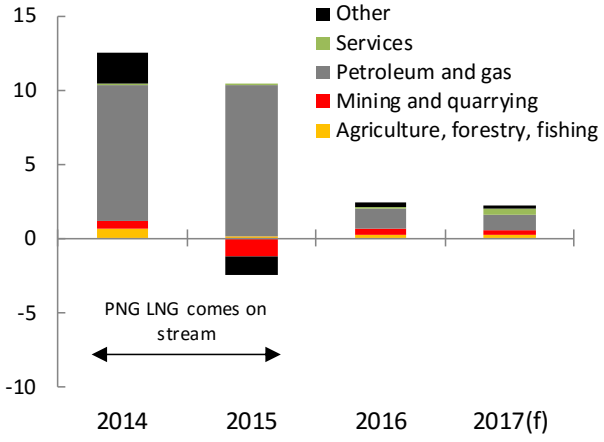
11. **Based on data thus far, on the production side overall growth in 2017 is expected to be driven by the resource sector.** In particular:

i. For the *petroleum and gas sector*, growth arises from higher value-added in the LNG sector due to falling production costs. Average production costs are comparatively low for PNG LNG. Oil Search, one of the PNG LNG consortium partners, reported a 12 percent fall in unit production costs in the first 6 months of 2017 to USD 8.52 per boe (barrel of oil equivalent) and an operating margin of 74 percent. This lowering of costs is the main driver of growth. Additionally, LNG prices have rallied, increasing 20 percent in the first six months of 2017 over the average price for 2016. Interestingly this means that, for the first time, PNG is receiving a price for its LNG above the benchmark East Asian LNG price (Figure 10).

ii. The *mining sector* has expanded in 2017, with gold volumes up 9 percent, and nickel and copper volumes almost doubling year-on-year to June 2017. This is due to a return to full production at the Ok Tedi and Pogera mines, rather than as the result of new investment or an increase in productivity.

Figure 9: Growth continues to be driven by the oil and gas sector

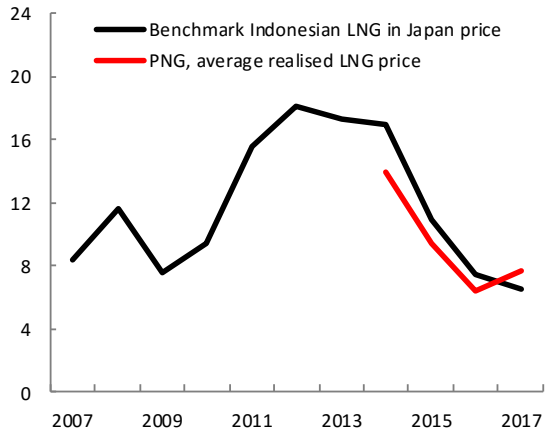
Sectoral contributions to aggregate annual real GDP growth, percent



Source: PNG Treasury, World Bank staff estimates

Figure 10: The PNG LNG price rose above the regional benchmark for the first time in 2017

USD per million British Thermal Unit



Source: IMF World Economic Outlook, Oil Search

12. **There are also signs of expansion in the agriculture sector**. The effects of the El Niño southern oscillation have now passed and agricultural commodities are set to perform well due to the improved weather and growing conditions. Palm oil production is expected to return to normal following the effect of the El Niño with January-June exports data suggesting 7.4 percent year-on-year growth in volumes. Palm oil prices have also strengthened (see Figure 31 in Section 2.4). If this price and volume increase is maintained palm oil export earnings could grow 40 percent in 2017 to USD 450 million. The cocoa harvest is expected to increase with new areas coming into production, especially the Sepik province, despite a fall in cocoa prices. Copra oil production will continue to benefit from favorable prices, while a recovery in coffee production is less certain given the challenges presented by the coffee berry borer beetle outbreak. Nevertheless, January to June export data for coffee show a 9 percent year-on-year growth in volumes. Additionally, strengthening international vanilla prices provides another growth opportunity in the sector (Box 4).

Box 4: A hint of vanilla

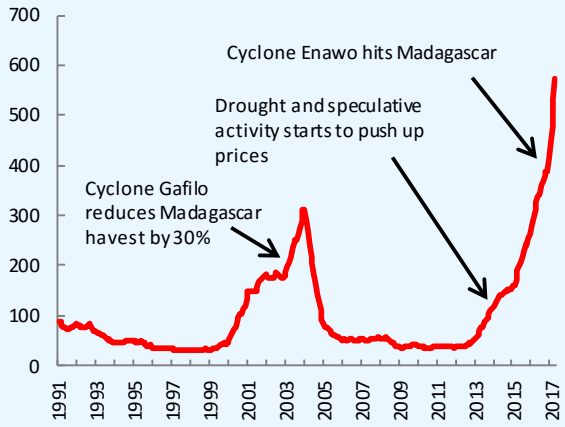
Opportunity to capitalize on global shortages of natural vanilla

In 2015, Papua New Guinea was the world's third largest producer of vanilla. Natural vanilla is said to be the second most expensive spice in the world, with only saffron being more expensive. Its high price reflects the high labor intensity of its cultivation; following a process of delicate hand pollination, it can take three years for a plant to mature and produce beans, and a further 12 months to dry and cure the beans, and prepare for export. Demand has been increasing as consumers switch away from artificial flavorings towards natural vanilla (traditionally only 1 per cent of the vanilla flavoring used in food and cosmetics comes from real vanilla). Prices started to rise in 2014, with reports of speculative activity in the market, and in 2017 prices have rocketed (Figure 11) – a cyclone in Madagascar, the world's largest producer, has created shortages. There is no trading exchange for vanilla, but prices are reported to be over USD 500 per kilogram in August 2017, encouraging some buyers to switch back to synthetic vanilla.

For PNG, the vanilla shortage presents a short-term windfall, and a longer-term opportunity to increase global market share. A 2,000 percent increase in prices could translate to export sales of over USD 100 million in 2017, compared to USD 5 million in 2015, and there are reports that total exports for cured vanilla from PNG for 2017 could exceed 400 tons, much of which are 'unofficial' exports via Indonesia. However, opportunities for a quick profit, such as early harvesting, and 'bulking out' shipments to increase their weight, should be resisted. Rather, efforts to build a reputation for quality, so that when Madagascan supplies return to normal levels buyers will still value the Papuan crop, will help to grow long-term markets for PNG's vanilla (Figure 12).

Figure 11: The global price of natural vanilla has risen sharply in response to supply-side shocks

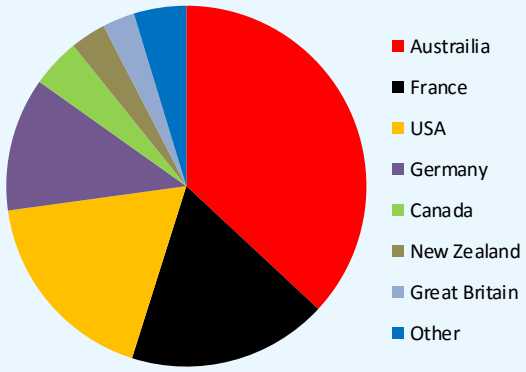
USD per kilogram



Source: Terazono (2017)

Figure 12: PNG's vanilla is exported to high-income countries across the globe

Importers of PNG natural vanilla, 2015



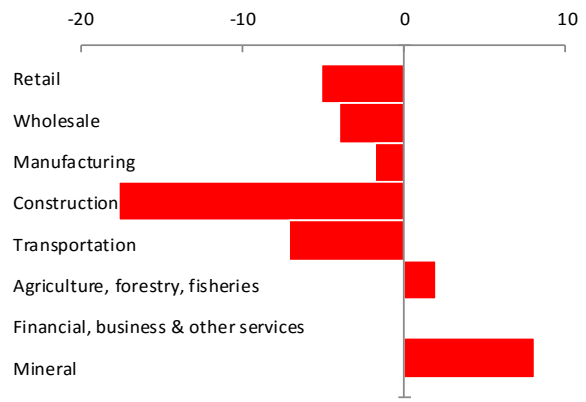
Source: The Observatory of Economic Complexity (2017)

13. **The shortage of foreign currency is having an impact on economic performance, but it is too early to tell the size of this impact.** The foreign currency shortage has become more acute, with reports from business groups and others in the private sector stating that sourcing foreign currency is becoming ever more challenging, with businesses facing waits of several months for commercial banks to fulfil requests to purchase foreign currency. This is making it difficult for businesses to source spare parts, restock their inventories and conduct other international transactions, and is contributing to a general compression in imports. The shortages are likely to hurt the prospects for economic growth. However, with the slowdown in government spending, it is difficult to disentangle the impact of these different issues on overall growth.

14. **Reflecting the slowdown in growth, formal sector employment declined by 2.2 percent over the year to June 2017, according to BPNG's quarterly employment survey.** In particular, the two sectors (mineral and agriculture) expected to support growth in 2017 are the only sectors to experience an increase in formal sector employment, as illustrated in Figure 13. This was offset by the construction sector experiencing a 17 percent decline in employment. This ties in with the scaling back of government investment spending in 2017 and the freezing of some capital projects. Compressed government spending is also contributing to reduced formal employment in the transport, retail and wholesale sectors, which fell 7 percent, 5 percent and 4 percent, respectively.[6]

Figure 13: Formal sector employment contracted across most sectors

Percent change, first half of 2017 compared to first half of 2016



Source: Bank of Papua New Guinea

Photograph 5: Formal sector employment, which is concentrated in urban centers, has declined during 2017. Photo credit: Stephen Rae.

[6] This reflects the mediocre growth in the services sector estimated at 0.1 percent for 2017.

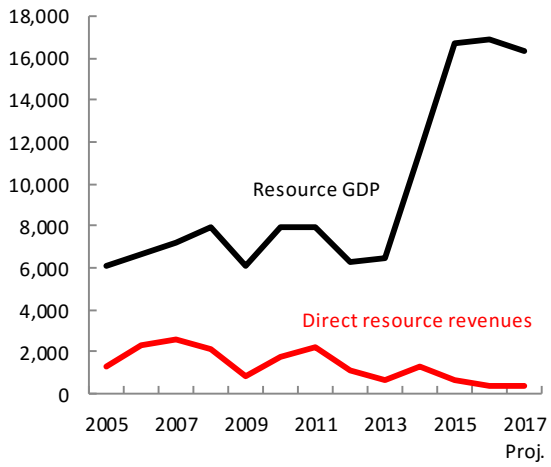
2.2. Fiscal developments

Photograph 6: Key policy changes have been announced to strengthen economic resilience.

15. **The sharp downturn in commodity prices which began in 2014 has had an adverse impact on revenue receipts.** As Figure 14 illustrates, whilst resource GDP has sharply increased – driven primarily by PNG LNG coming onstream – increased LNG output has generated little additional revenue for government or royalties for landowners, owing to the terms of the PNG LNG project agreement (highlighted in Box 7 and Box 8, at the end of this chapter). In fact, revenues from the resource sector have actually declined. Non-resource revenues have also fallen (Figure 15). Except for GST, all tax revenues have declined since 2014 in nominal terms, even though the economy has been growing, albeit slowly. The declines in personal income tax are attributed to falling employment across a range of sectors, whilst the fall in company tax reflects lower profitability in the corporate sector, largely stemming from lower commodity prices and lower government spending. The fall in import duties echoes the decline in GDP growth, the shortage of foreign currency and the relative decline in the Kina's value.

Figure 14: Divergence between nominal resource GDP and resource revenues to central government

Kina, millions



Source: PNG Treasury, IMF and WB staff estimates

16. **The downturn in revenue receipts has necessitated spending cuts.** Between 2014 and 2016 the government underwent a period of fiscal consolidation. Total spending fell from K15.5 billion in 2014 to K13.6 billion in 2016 (a fall of over 12 percent). Capital spending has seen the largest cuts with a 78 percent

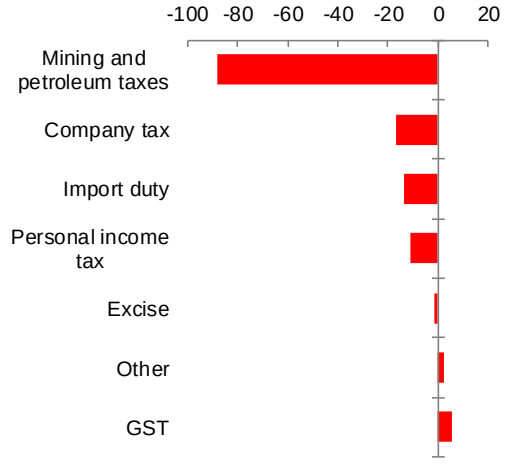
fall over 2014-2016. Recurrent spending has been broadly flat, all whilst inflation is running at over 6 percent. These cuts have significant implications for service delivery (see Part C for a discussion of this effect in the context of the health sector).

17. **Whilst overall spending has been falling, interest costs and compensation of government employees have been rising.** Interest costs have increased at an average of 28 percent a year since 2012. Interest costs have doubled as a share of expenditure between 2012 and 2016, rising in nominal terms from K452 million to K1.3 billion over the period. This reflects both a growing stock of debt, which has increased from K8.5 billion to K21.9 billion between 2012 and 2016, and higher interest rates which have risen from 3.0 percent to 7.6 percent over the same period. Figure 16 illustrates that compensation paid to government employees increased by 120 percent between 2014 and 2016 (see Box 5 at the end of this section for a discussion of the challenges to containing the public payroll). Consequently, the share of total expenditure in salaries and wages has more than doubled, rising from 13 percent (K2.0 billion) to 33 percent (K4.5 billion) over these three years.

18. **As has occurred in the preceding three years, revenue performance in the first six months of 2017 has come in lower than expected.** The Mid-Year Economic and Fiscal Outlook (MYEFO) reports revenue growth of 6.8 percent over the first half of 2017. This is lower than the 10 percent growth forecast in the 2017 Budget. GST is performing well, showing 25.2 percent growth. Poor performers include company tax with a year-on-year decline of 6.9 percent, and dividends from state owned enterprises – none were received in the first six months of 2017 – although the Treasury is expecting K850 million to be paid by the end of the year, K225 million less than anticipated in the 2017 Budget.

Figure 15: Revenues have fallen substantially over the period

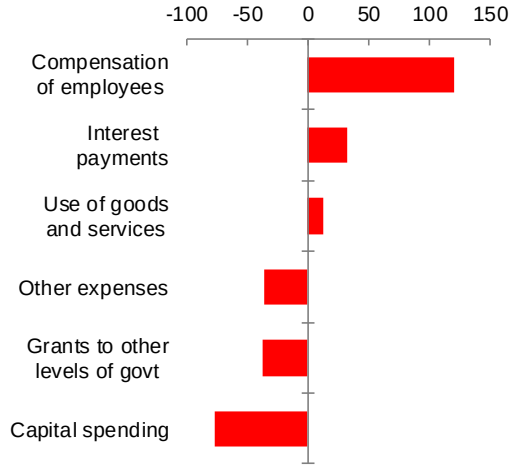
Percent change, 2014-2016



Source: PNG Treasury Final Budget Outcome

Figure 16: While capital spending and sub-national grants have been slashed, the wage bill and interest expenditure continue to grow

Percent change, 2014-2016



Source: PNG Treasury Final Budget Outcome

19. **Additionally, Table 1 illustrates that in the first six months of 2017 the government has been unable to keep spending within its budget ceiling for particular categories of expenditure.** Spending on Personnel Emoluments (salaries) totaled K2,101 million in the six months to June 2017, 8.4 percent higher than in the first six months of 2016, and 54 percent of the original 2017 Budget allocation of K3,875 million – suggesting a year-end overspend of K500 million (0.7 percent of GDP). Similarly, based on the MYEFO, interest expenditure has increased by 33 percent in the first six months of 2017 compared to the same period in 2016. The MYEFO forecasts interest expenditure to be K1.5 billion, nearly K200 million above that expected in the 2017 Budget (Figure 17). This would imply that interest expenditure is expected to increase by

just over 20 percent between 2016 and 2017. In contrast, spending on Goods and Services was below target. Similarly, net acquisition nonfinancial assets (capital spending) in the year to June, whilst being well below budget, shows a 19 percent increase year-on-year compared to 2016.

Table 1: Planned and actual government expenditure, 2016 and 2017

Kina, millions

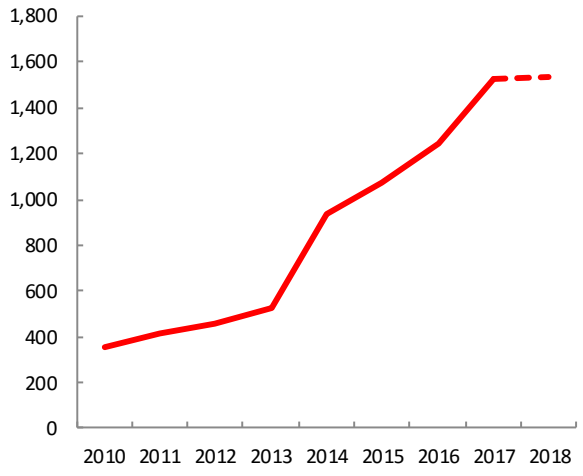
	2016		2017			
	Spending to June	Full year	Original budget	Spending to June	Growth in spending 2017:H1 vs 2016:H1	MYEFO forecast
Personnel emoluments	1,938.5	4,021.6	3,874.6	2,101.3	8.4%	4,304.7
Use of goods and services	1,294.9	2,781.9	3,517.4	1,022.0	-21.1%	3,446.0
Interest payments	593.8	1,264.3	1,382.8	792.1	33.4%	1,532.8
Grants to other general government units	1,247.9	4,309.0	3,604.4	1,015.0	-18.7%	2,597.2
Net acquisition of nonfinancial assets	185.5	677.9	1,241.9	220.2	18.7%	812.7
Other expenses	34.2	92.1	78.2	36.1	5.6%	78.2

Source: PNG Treasury, IMF and World Bank staff calculations
Note: Grants include spending on wages and salaries, goods and services and capital expenditure.

20. **The lower-than-expected revenue receipts coupled with expenditure overruns have increased expenditure arrears related to both capital projects and goods and services, such as rental expenditure.** The low rate of budget execution, particularly for goods and services and capital expenditure, may reflect a general lack of cash to settle accounts rather than restrained spending by departments and agencies. This raises a concern that the deficit could be higher, with a growing stock of accumulated expenditure arrears being used as a form of unofficial deficit financing. Meanwhile, the cuts in the budget between 2016 and 2017 have resulted in some capital projects being paused, resulting in funding shortages in provinces and some government departments. The accumulation of arrears adds to the stock of public debt and can create fiscal risks if left unchecked (see Box 6).

Figure 17: Interest payments on government debt are expected to continue to rise in a scenario without policy changes

Kina, millions



Source: PNG Treasury, WB-IMF staff estimates

21. **The 2017 Supplementary Budget aims to steady the ship, maintaining the deficit at 2.5 percent of GDP in spite of overspending and lower than expected revenues, primarily by reallocating expenditure from capital to certain items in recurrent expenditure.** Overall, the supplementary budget is forecasting revenues and grants to total K11.0 billion for 2017, down from the K11.5 billion originally projected in the 2017 Budget. This revised total will require revenue growth of 6.8 percent for the year, in line with the level achieved in the six months to June.[7] The supplementary budget also notes the shortfall in funds for Personnel Emoluments (K430 million), higher debt interest charges (K150 million), arrears in pharmaceutical

[7] The 2017 Supplementary Budget raised excise duty rates but these increases are only effective from 2018, and therefore will not have an impact on revenue receipts for 2017.

imports (K100 million), and a further K120 million shortfall to cover a range of smaller activities. To cover this shortfall, allocations to capital projects and capital grants to provinces have been cut by K1.3 billion, and allocations to recurrent spending increased by K800 million (1.1 percent of GDP).

22. **The primary balance has been improving since 2013 but is likely to remain in deficit over the medium term.** The primary balance, that is the budget deficit or surplus excluding debt interest payments, is a useful indicator as it shows whether the stock of government debt will continue to increase into the future. For Papua New Guinea to begin to reduce its debt stock and build up fiscal buffers for the future, a positive primary balance needs to be achieved. The primary balance fell sharply between 2010 and 2013, but has since been slowly improving as expenditure growth has slowed (Figure 18).

23. **Extending the primary balance concept, the non-resource primary balance can be used as an anchor to shield against resource-price volatility.** Given the volatility of resource revenues, which can rise and fall sharply as commodity prices change, it can be good practice to decouple annual spending from total revenues, and instead link spending to more stable and predictable non-resource revenues. Resource revenues can still be spent, but in a smooth and predictable manner, for example through collecting resource revenues in a sovereign wealth fund (SWF) which then provides a stable flow of revenues into the budget each year.[8] The non-resource primary balance has also been improving since 2014.

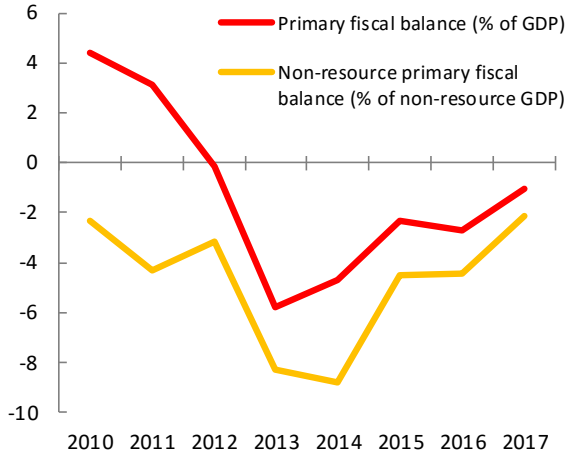
24. **As part of the 2017 Supplementary Budget, the government announced that it would be targeting an average non-resource primary fiscal balance of zero over the medium term.** This has been legislated through an amendment to the Fiscal Responsibility Act, and is a positive step to better management of public finances. The legislated, but yet-to-be-fully-operationalized SWF, can complement this strengthened fiscal anchor through absorbing volatile resource flows and providing a predictable stream of financing to the annual budget.

25. **Notwithstanding the fiscal consolidation undertaken by the government, the shortfall in revenue has resulted in higher levels of debt.** By 2016, government domestic debt had increased to 24.4 percent of GDP (up from 21.9 percent in 2015) and external debt to 8.2 percent of GDP (up from 6.4 percent of GDP in 2015). The latter was driven in large part by the authorities resorting to commercial external borrowing via a USD 280 million loan from Credit Suisse. With commercial banks claiming that their internal limits are being reached with respect to holdings of government debt, the Bank of Papua New Guinea is becoming a significant purchaser of government's treasury bills and inscribed stock as a means to help finance the government's fiscal deficit. Public debt is expected to increase to 35.4 percent of GDP by the end of 2017, marginally above the new upper limit set in the 2017 Fiscal Responsibility Act amendment (Figure 19).

26. **Against this backdrop, the risk of debt distress has heightened.** This conclusion arises from the increasingly short-term profile of government debt, with Treasury Bills becoming ever more prevalent, which in turn increases rollover risks. However, this assessment crucially depends on whether public finances can be brought under control, and if a primary fiscal surplus can be achieved. Furthermore, the calculated public debt burden understates the true level of debt, as the debt figures do not fully capture the debts and debt guarantees of many statutory authorities and state-owned enterprises.

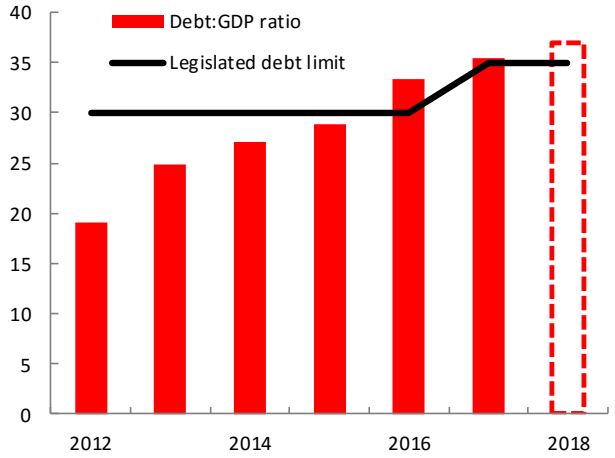
[8] See Part B for a discussion on fiscal anchors and the SWF.

Figure 18: Primary balances have been improving
Percent of GDP and non-resource GDP, 2010-2017



Source: PNG Treasury, WB-IMF staff estimates

Figure 19: In the central scenario of no policy change, the central government debt to GDP ratio is expected to marginally breach the legislated debt limit
Percent of GDP



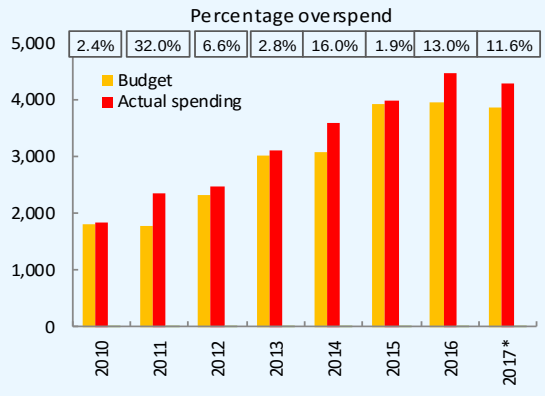
Source: PNG Treasury, WB-IMF staff estimates

Box 5: Trying to keep a lid on it
Struggling to Contain the Government Payroll

The anticipated K430 million overspending on salaries and wages for 2017 is not a one off. In every year since 2010 the government has spent more than planned on its payroll. Personnel Emoluments, as it is known in public finance jargon, have on average exceeded the budget by 10 percent every year over the past seven years (Figure 20).

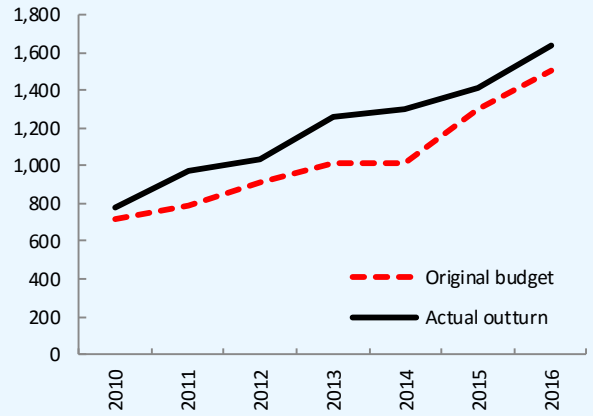
The greatest struggle appears to be at the provincial government level. Whilst for National Departments, overspends have only occurred in two of the past seven years, for Provincial Governments it has been for all seven. A particular issue exists whereby expenditure in compensation of employees exceeds authorized warrants, suggesting that the government's system of expenditure controls is not effective (Figure 21).

Figure 20: Government spending on salaries and wages consistently exceeds budget estimates
Kina, millions



Source: PNG Treasury, Final Budget Outcome, various years
Note: *Based on expenditure outturn over January to June

Figure 21: Systematic overspending on personnel emoluments by provincial governments is evident
Kina, millions



Source: PNG Treasury, Final Budget Outcome, various years

Cutting the payroll is often the most difficult action a government can undertake. Reading through the budget documents over this period shows that the Treasury is well aware of this challenge, and in each year attempts are made

to restrain Personnel Emolument spending, freezing its budget for the following year, or even cutting it, as has been attempted in 2017. Nevertheless, with predictable regularity, National Departments and Provisional Governments complain that they don't have the budget to pay their workers, and requests for additional funding come thick and fast. Again, with predictable regularity, the Treasury agree a fractious supplementary budget, trimming budgets on international travel, car purchases, other goods and services, and capital spending, and move those funds to cover the personnel emoluments shortfall.

Whilst this situation can be tolerated for one or two years, if it becomes a permanent feature of the annual budget cycle it undermines the credibility of the entire budgeting process. It can even institutionalize a process whereby eventually Personnel Emoluments will absorb almost the entire budget, as squeezed non-salary spending in one year becomes the base on which the budget is agreed for the next. Eventually you end up with plenty of staff, but no funding for building maintenance, printing paper, health center supplies, spare parts for machinery - the list goes on. This undermines the government's ability to provide quality services to its population.

Controlling the growth in the wage bill is difficult. Staff redundancy is an expensive exercise which can hit the morale of the workforce whilst encouraging the most able staff, who can more easily find alternative employment, to leave. Early retirements may not save much if the retirees are receiving generous pensions. Recruitment freezes, in particular in decentralized systems, are difficult to implement, and can lead to much time and effort spent administering exemptions and special treatment for certain departments or to implement a policy priority.

To get a handle on the public payroll, the government has revived the Organizational, Staffing and Personnel Emolument Audit Committee (OSPEAC) in 2016, chaired by the Department of Treasury, to look into the structure of the public sector, including the number of agencies, their roles and functions, and internal agency structures. The supplementary budget also announced several measures to try and contain Personnel Emoluments growth: (i) a physical audit of the payroll; (ii) migrating all public servants on to a centralized government payroll system that incorporates the national identification registration; (iii) and a recruitment freeze.

Box 6: A Promise Made is a Debt Unpaid

The causes and consequences of government expenditure arrears

Government expenditure arrears are financial obligations that have been incurred by the public sector for which payments have not been made by the due date, and thus essentially add to the stock of government debt.[9] Arrears can accrue at both central and provincial government levels, in statutory authorities and state-owned enterprises, and cover all types of spending (salaries, pensions, goods and services, social transfers, and capital projects). The definition of when a payment falls into arrears differs from country to country, but typically it is between 30 and 90 days. Many governments face challenges in quantifying the total size of their payment arrears, and once identified their size can come as a shock. In 2011, Portugal estimated a stock of arrears equivalent to 4 percent of GDP, Greece 5 percent, and Angola 10 percent. A large flow of arrears may disguise the true size of the government deficit, providing an incomplete picture of the country's true budget constraint and required fiscal adjustment.[10]

Evidence indicates that delays in government payments reduce private sector profitability, increase the likelihood of bankruptcies, and slow economic growth.[11] Arrears are thus a mechanism of contagion, insofar as delayed payments to government suppliers can transfer liquidity constraints from the public to the private sector. This can have immediate consequences for economic activity, as firms curtail demand along their supply chain and delay investment. If arrears are to wage-earners or pensioners, households may reduce their consumption. Firms can also delay tax payments, arguing that if the government owes them money, why should they pay their tax bill? At the extreme, non-payment of wages to public servants can result in the rationing or closure of public services, such as schools and health clinics. Delaying payments is thus a costly way of dealing with government liquidity challenges or a debt limit. In fact, efforts to clear outstanding obligations can boost the economy in the short term. Over the

[9] See Flynn & Pessoa (2014) for an overview of the issues arising in preventing and managing government arrears.
[10] Diamond & Schiller (1993).
[11] Checherita-Westphal et al. (2015).

medium term, resolving the structural causes of arrears build-ups can reduce public procurement costs – as government suppliers no longer need to mitigate the risks and opportunity cost of delayed payments by adjusting their initial prices upward.

In PNG – as in many other low- and middle-income countries – build-ups in arrears are frequent, and the underlying cause of their persistence are weaknesses in public financial management practices and systems. Over the past 25 years PNG has experienced numerous episodes of arrears build-up.[12] Yet, the 2015 Public Expenditure and Financial Accountability (PEFA) assessment found that PNG has no mechanisms for recording and monitoring payment arrears.[13] Thus, although the PEFA report cites the accumulation of arrears at both the central and sub-national levels, without a mechanism to aggregate all overdue payments, it is difficult to quantify their size. The roll-out of the Integrated Financial Management Information System (IFMIS) across the public sector is an important first step to resolving this weakness. See Part B for a discussion of how the IFMIS, combined with other reforms to strengthen debt and liability management, can contribute to an integrated macroeconomic policy framework that can support growth and ensure macroeconomic stability.

A two-pronged approach is recommended for tackling expenditure arrears:

i) **Preventing further arrears accumulation.**

The most effective way to control the accumulation of arrears is to prevent arrears from being incurred. Therefore, the first step in preventing arrears is to understand the underlying causes. Once identified, potential remedies could include: (a) strengthening the legal and regulatory framework; (b) enhancing the credibility and realism of the budget; (c) improving accounting and reporting; (d) strengthening commitment controls; (e) improving cash and debt management; (f) enhancing oversight of subnational governments and state-owned enterprises; and (g) upgrading the government financial management information systems

ii) **Clearing existing arrears.** This has five steps:

- *Stocktaking.* A timetabled stock-taking exercise, with a clear cut-off date and a clear definition of the information requirements needed from all relevant institutions. This will likely involve additional data collection as many financial management information systems do not cover all public sector spending (e.g. provincial governments or SOEs).
- *Verification.* Unpaid invoices should be: collected; subject to tests to verify their existence, value, and vintage; and categorized as to their validity. Only original documentation should be accepted, not photocopies, to avoid fraudulent claims.
- *Classification.* A database of valid outstanding payments should be established and maintained centrally by the ministry of finance. This can be a resource-intensive and time-consuming exercise, requiring dedicated staff resources. A practical approach would be to focus in the first instance on large claims, gradually expanding the coverage of the database.
- *Prioritization.* Once a database of valid claims on government has been established, a set of criteria for prioritizing their liquidation should be determined. A transparent set of prioritization criteria could include socioeconomic impact, age of the arrears, type of creditor, cost of penalties and interest, and the currency of the arrears.
- *Liquidation.* Some countries facing the challenge of clearing a significant stock of arrears have constituted an arrears committee in the ministry of finance. Such a committee should ensure that payments are made in accordance with the agreed prioritization criteria.

[12] In 1994 arrears reached around 4 percent of GDP following a slump in mineral export receipts. Arrears peaked again in 1998-99, as the Asian financial crisis caused another negative shock to commodity exports. Arrears were reduced during 2000-01 under the purview of a Stand-By Agreement with the IMF, but rose again to around 2 percent of GDP in 2003 as new expenditure controls were either circumvented or ignored. In recent years, arrears to a superannuation fund have accrued, in response to which the fund has ceased paying out the government share of pensions to retirees.

[13] A 2014 survey of 121 low- and middle-income countries found that in almost 20 percent of countries the stock of central government arrears was more than 10 percent of total central government expenditure, while 38 percent of countries were unable to generate reliable data on the stock of unpaid bills from the past two years (Flynn & Pessoa, 2014).

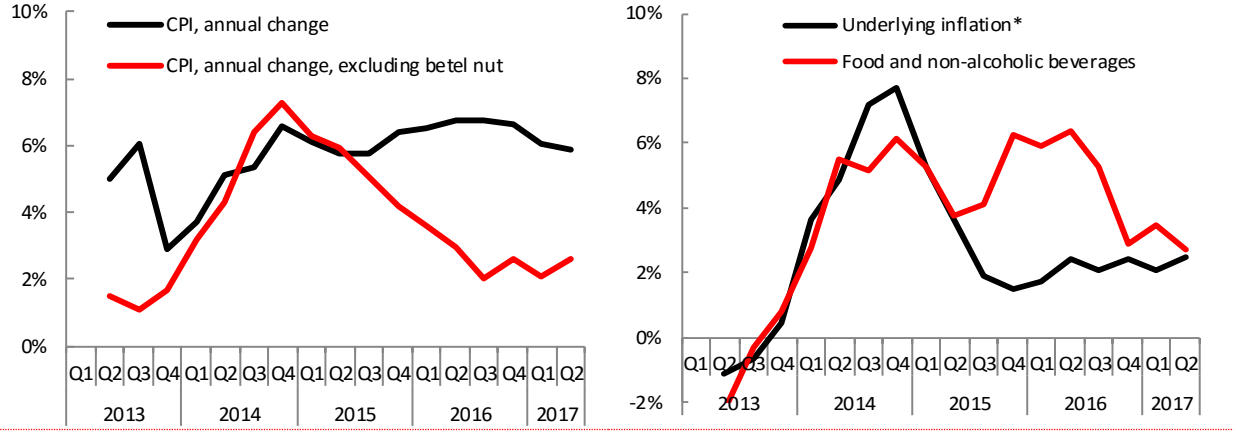
2.3. Monetary policy and price developments

Photograph 7: The fluctuating price of betel nut has been impacting on inflation.

27. **The inflation rate, which has been hovering just above 6.5 percent throughout the course of 2016, has begun to decline.** Headline inflation was 5.8 percent in the year to June 2017, however, if betel nut is excluded from the Consumer Price Index (CPI) then inflation falls to 2.6 percent. Betel nut, with a weight of 10.8 percent in the CPI, has seen a 34 percent increase in prices between June 2016 and June 2017, and this alone accounts for 3.7 percentage points of the headline 5.8 percent inflation rate (Figure 22).

Figure 22: Underlying inflation has remained low, but food and non-alcoholic beverages and betel nut prices have kept headline inflation around 6 percent

Annual percentage change



Source: National Statistical Office, WB Staff calculations

Note: *Underlying inflation excludes goods subject to seasonal price movements (e.g. fruit and vegetables; betel nut), excised goods (e.g. fuel, alcohol, tobacco) and goods subject to government controlled prices (transport fares, council charges, telephone charges and healthcare).

28. **The slowdown in non-betel nut inflation has been due to two factors.** First, the pressure from imported inflation appears to have eased, coinciding with the stabilization in the exchange rate, which, as of November 2016, was K3.20 to the US dollar. Second, price rises for food and non-alcoholic beverages, which make up 31 percent of the CPI basket, have also slowed since 2016:Q2 to under 3 percent a year, taking the pressure off headline CPI.

29. **The slowdown in the inflation rate is reflected in BPNG's measure of underlying inflation.**[14] Underlying inflation has been falling, registering 2.5 percent over the year to June 2017. This has been due to slowing price rises for clothing and footwear, health services, education and transport, which together saw an average price increase of only 1.5 percent over the year to June. Increasing housing costs have been the largest contributor to underlying inflation with a 14 percent increase in rental prices adding 1.1 percentage points to underlying inflation in the year to June.

30. **Inflation is forecast to fall to 4.5 percent per year in 2018 if there is no change in government policy.** With food and non-alcoholic beverages accounting for 31 percent of the CPI basket, the end of the drought and stabilizing food prices have taken the pressure off inflation. Additionally, the relatively stable nominal exchange rate and restraint in government spending is also helping to limit inflationary pressures, although a disorderly exit from the managed exchange rate system and continuing central bank financing of the budget deficit are adverse risks to the inflation outlook.

31. **Credit to the private sector has been declining.** Both as a share of GDP and in nominal terms, commercial bank lending to the private sector has been falling. Figure 23 shows how private sector credit fell 4 percent in nominal terms between December 2016 and June 2017, from K11.4 billion to K10.9 billion, respectively. The decline has been concentrated in business lending, with credit to the engineering and metal processing, electricity, gas and water supply, construction and housing sectors seeing the largest falls. Commercial banks have for a long time reported a reluctance to lend to new private sector borrowers, in part due to perceived credit risks,[15] and in part due to the plentiful opportunities to lend money to government. However, the high levels of cash held by domestic banks (discussed further in Paragraph 38) suggests that government crowding out lending to the private sector is not such a significant issue.

32. **In contrast, commercial bank lending in foreign currency has, until recently, been on an upward trend.** Lending in foreign currency, which has always been a much smaller market, increased significantly from mid-2015, reaching a peak of K1.3 billion in November 2016. B PNG states that the reason for the increase in foreign currency lending was that commercial banks were increasingly engaging in trade finance without clearing the foreign currency spot market. The central bank then issued foreign exchange market directives in September and November 2016 to authorized foreign exchange dealers to first clear the foreign currency backlog in the spot market prior to engaging in trade finance. Consequently, foreign currency lending by commercial banks declined significantly to K0.67 billion at the end of June 2017, the most recent month for which data is available (Figure 24).

33. **Lending for housebuilding and mortgage purposes has bounced back to previous levels.** Total advances for housebuilding were K515 million in June 2017, recovering from the low of K180 million in March 2016, however these recovered levels are still less than 1 percent of GDP. Meanwhile general personal loans continue to increase, reaching K1.38 billion in the latest quarter.

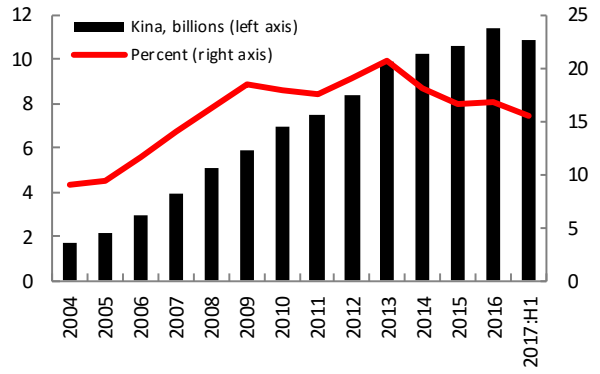
34. **Large and persistent fiscal deficits are increasing levels of government borrowing, that in turn is pushing up interest rates.** The interest rate on one-year Treasury bills has risen from 3.1 percent in 2012

[14] The measure of underlying inflation excludes goods with seasonal price changes (such as fruits and vegetables), price changes in excise duties (alcoholic beverages and tobacco) and changes in government controlled prices (including fuel).

[15] The establishment of the Credit and Data Bureau in 2014 is helping to lower lending risks by establishing credit histories for borrowers. The Bureau is growing strongly, with the number of consumer records exceeding 300,000 in 2017.

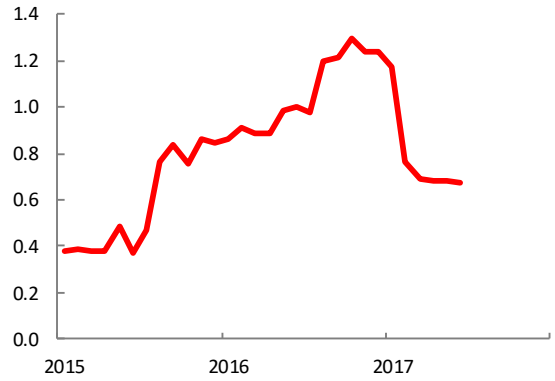
to over 7.8 percent in 2017, the highest since 2002 (Figure 25). However, Treasury Bill rates are edging up only very slowly – it has taken two years for rates to move from 7.4 percent (March 2015) to 7.9 percent (June 2017). This reflects how interest rates are not entirely market determined. Should an auction of T-bills be undersubscribed, the Bank of Papua New Guinea steps in and purchases the surplus, rather than the interest rate being bid upwards to clear the market.

Figure 23: Total commercial bank lending to the private sector has declined in 2017
Kina, billions and percent of GDP



Source: Bank of Papua New Guinea

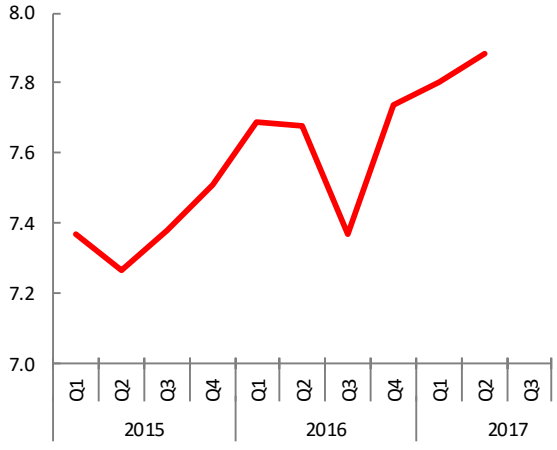
Figure 24: Commercial bank lending in foreign currency to the private sector has fallen sharply due to policy directives
Kina, billions



Source: Bank of Papua New Guinea

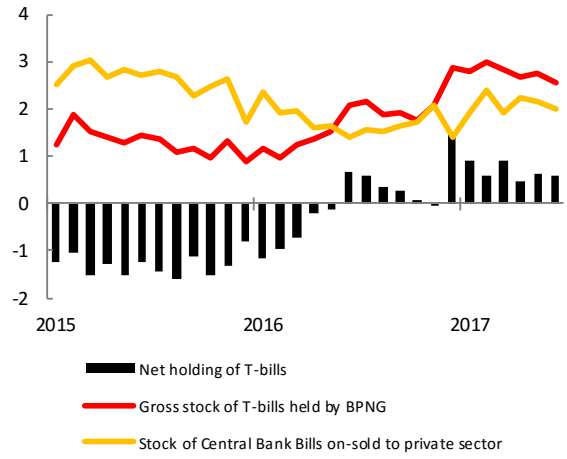
35. **Commercial banks are becoming less willing to lend to government, forcing the central bank to step in.** Commercial banks are reporting that they are reaching or have reached their upper limits on exposure to government debt. The central bank has been stepping in and purchasing unsold T-bills and then attempting to on-sell them via its so-called Tap Facility. However, since the end of 2016, the central bank has been unable to on-sell these T-bills at the prevailing interest rate. This is illustrated in Figure 26 which shows that the net stock of government debt held by BPNG has been rising.

Figure 25: 365-day Treasury Bill interest rate has risen gradually during 2017
Annual rate, percent



Source: Bank of Papua New Guinea

Figure 26: BPNG: Stocks of Treasury Bills held and Central Bank Bills issued, 2015-2017
Kina, billions



Source: Bank of Papua New Guinea

36. **This effectively means that BPNG has been financing the budget deficit.** Economic theory would suggest that this situation will stoke inflation, however there has not been a strong signal yet that this is the case due to several countervailing forces: (i) restrained government spending reflecting the ongoing fiscal

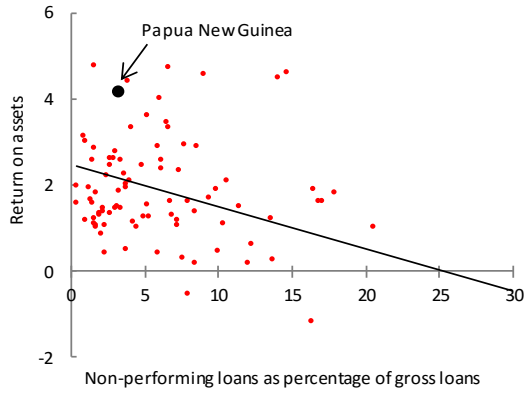
consolidation; and (ii) a general slowing of cost-push inflation. However, as these effects are transitory, we may expect continued central bank financing of the government's deficit (without a proportional increase in transactions through the Tap Facility) to accelerate inflation.

37. **Papua New Guinea's banking sector is in comparatively good shape.** The proportion of non-performing loans is below 4 percent and the return on assets is high, at 4.2 percent, showing that the commercial banking sector is more profitable than in most other emerging economies (Figure 27). In part, this reflects that banks only hold around half of their assets as loans, with the rest held in T-bills and cash. The spread between deposit rates for savers (an average of 0.5 percent per year) and the current rate for T-bills (7.9 percent per year) means that banks can make a healthy profit lending to government.

38. **The banking sector continues to hold a high level of cash.** The Bank of Papua New Guinea's Cash Reserve Requirement asks commercial banks to hold 9 percent of their total deposits and other liabilities in cash, however banks are holding 28 percent as of end 2016 (Figure 28). This reflects two primary phenomena. First, a growing money supply, driven by: previous inflows of partially unsterilized foreign exchange; the presence of public (trust) accounts held by commercial banks; and BPNG directly financing the budget. Second, the unwillingness of commercial banks to on-lend deposits to households and businesses.

Figure 27: Standard indicators suggest that the PNG banking sector is relatively healthy, with high returns and low NPLs

Emerging and developing countries, Non-performing loans and return on assets, percent, 2015

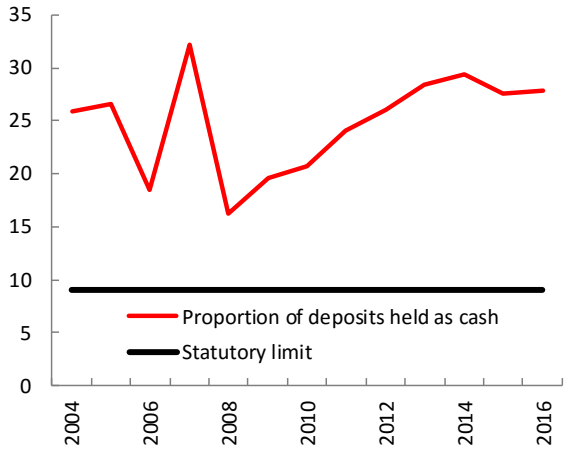


Source: IMF Financial Soundness Indicators database

39. **This high level of liquidity greatly weakens the ability of the authorities to conduct monetary policy.** The high level of cash in the banking sector limits the efficient functioning of the interbank money market. Consequently, this limits the effectiveness of the Kina Facility Rate (KFR) as a monetary policy instrument to manage inflation. Thus, the KFR has remained unchanged since August 2012 in spite of changes to the rate of inflation and economic growth (Figure 29).

Figure 28: Banking sector liquidity remains at elevated levels

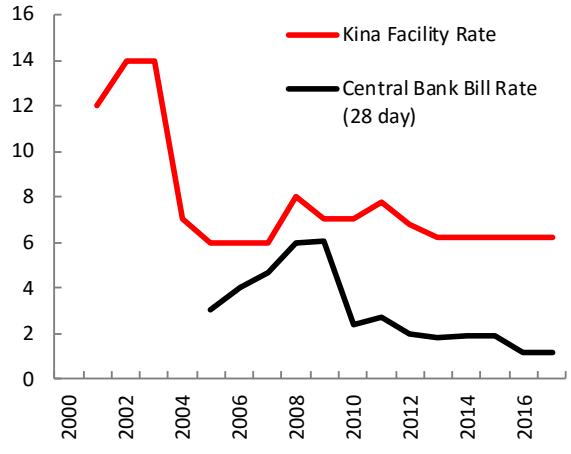
Percent of commercial bank deposits held as cash, 2004-2016



Source: Bank of Papua New Guinea

Figure 29: The spread between the Kina Facility Rate and Central Bank Bill rate continues to widen

Annual rate, percent, 2000 - March 2017



Source: Bank of Papua New Guinea

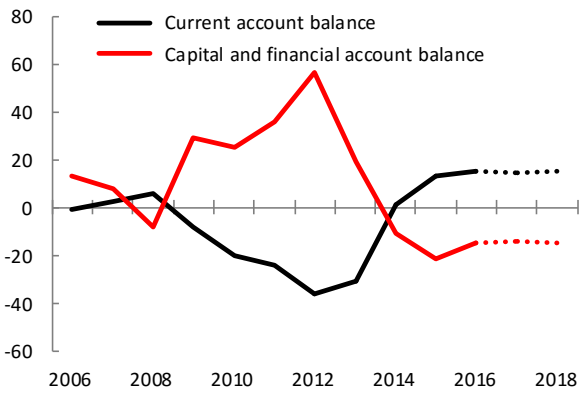
2.4. External sector

Photograph 8: Cocoa is one of PNG's major agricultural exports. Photo credit: Conor Ashleigh.

40. **The commencement of LNG exports has caused a structural change in PNG's balance of payments.** Prior to PNG LNG the current account was broadly in balance from year to year. However, the construction of the PNG LNG plant led to a large current account deficit as materials and services were imported to the country, financed by foreign direct investment inflows on the financial account. Since the commencement of LNG exports the current account has shifted strongly into surplus, equivalent to 14 percent of GDP, on average, between 2015 and 2016 (Figure 30). On the surface this looks very healthy for PNG, showing that the country now exports significantly more goods and services than it imports. However, this surplus on the current account is matched by a deficit on the capital and financial accounts, as funds flow out to the foreign owners of PNG LNG, who in turn service the debts incurred to finance the project. Moreover, as taxes are paid in US dollars and owing to the terms in the PNG LNG project agreement generating little additional tax revenue (see Box 7 at the end of this chapter), this further limits foreign currency inflows.

Figure 30: The current account swung into surplus in 2014, driven by the commencement of LNG exports

Percent of GDP



Source: Bank of Papua New Guinea, WB & IMF Staff estimates

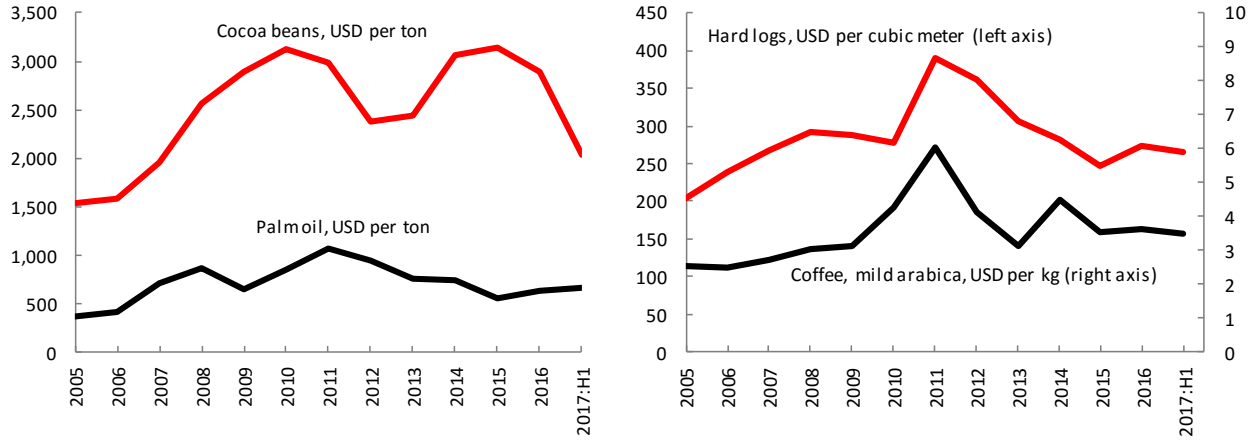
41. **As such, in spite of the large current account surplus, there continues to be unmet demand for foreign currency, which inhibits business activity.** The foreign exchange market has remained short, as reflected in long queues of unmet orders reported by banks, although businesses do acknowledge that they are

placing multiple orders with different banks to improve their chances of getting foreign currency.[16] Government meanwhile acknowledges that orders of foreign currency are being prioritized for imports of fuel and food. Manufacturers and non-export sector firms supplying the domestic market report struggling to source spare parts and materials needed for the production process, whilst retailers are finding it harder to restock.

42. **There are both one-off and systemic factors contributing to the shortages of foreign currency.** One-off factors include the temporary closing of the Ok Tedi and Porgera gold mines in 2015; a fall in cash crop exports due to inclement weather (El Niño phenomenon); the dip in commodity prices which commenced in 2012; and the completion of PNG LNG plant construction and the ending of the associated foreign currency inflows. Systemic factors include: limited foreign exchange inflows relative to exports from the mineral sector (particularly PNG LNG); excess Kina liquidity which has contributed to the relatively strong demand for imports and hence foreign exchange; and exchange rate misalignment.

43. **Most recently, a contributing factor to the shortage of foreign currency inflows is the decline in international prices for PNG's four largest agricultural and forestry exports by 4 percent on a trade-weighted basis.** Comparing US dollar prices in the first 6 months of 2017 to average 2016 prices shows broadly stable prices for coffee (-4%), hard logs (-3%) and palm oil (+4%), however cocoa beans have seen a 30 percent fall in prices, due to good harvests in west Africa that saw global production in 2016 increase by 18 percent. This fall drags down overall average prices for PNG's four largest agricultural and forestry exports (Figure 31).

Figure 31: International prices for PNG's four largest agricultural and forestry exports
US dollars per unit



Source: IMF World Economic Outlook Commodity Price Database

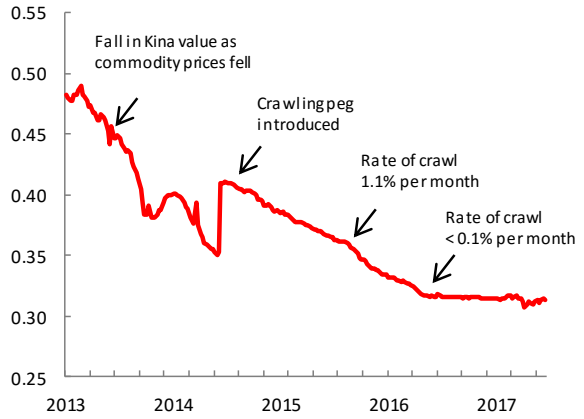
44. **The nominal effective exchange rate (NEER) has depreciated moderately vis-à-vis other resource-rich economies.** The end of the period of high resource prices has seen demand for the Kina weaken, putting downward pressure on the currency. The NEER depreciated by 10 percent between end-2014 and end-2016. To soften the impact of 'imported inflation' from a weaker currency the authorities slowed the depreciation of the Kina between June 2014 and April 2016, and held the currency more or less fixed to the dollar at a rate of USD 1:K3.20 since May 2016 (Figure 32).

45. **The real effective exchange rate (REER)[17] has remained relatively stable.** Figure 33 shows that PNG's REER remained broadly constant, declining by 2 percent between end-2014 and end-2016, and has

[16] Additionally, as discussed in Paragraph 31, trade credits particularly to importers, repaid in Kina, may have diverted the supply of foreign exchange from the spot market.
[17] The real effective exchange rate (REER) is the average trade-weighted exchange rate adjusted for differences in prices.

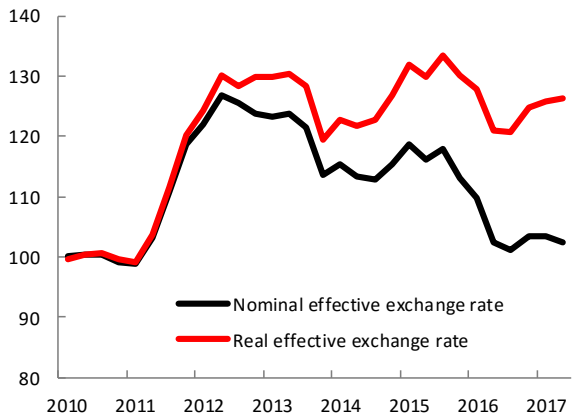
appreciated from 2016:Q2. An increase in the REER implies that exports become more expensive and imports become cheaper; therefore, an increase indicates a loss in trade competitiveness. This increase is in contrast to many other commodity-exporting countries who have seen their REERs fall, helping in the adjustment to lower commodity prices.

Figure 32: Following a gradual depreciation, the nominal exchange rate has remained largely unchanged against the US dollar since mid-2016
US dollar/Kina exchange rate, 2013-2017



Source: Bank of Papua New Guinea

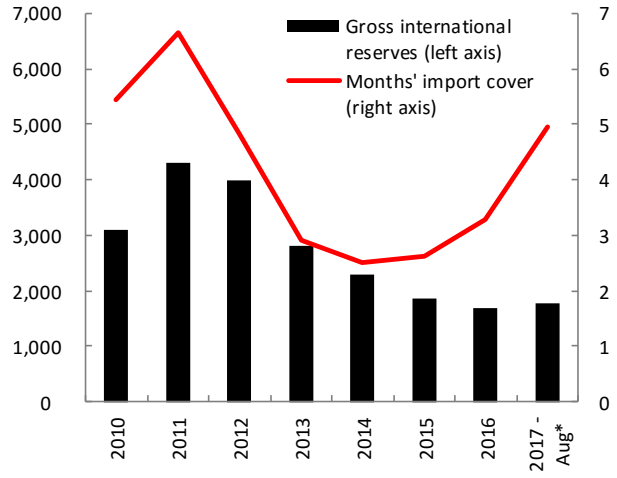
Figure 33: Although the NEER has depreciated recently, the REER has remained elevated
Nominal and real effective exchange rates, Index, 2005=100



Source: IMF staff estimates

46. **Foreign exchange reserves have fallen from their highs, but import cover (in months of imports) has rebounded.** From over USD 4 billion during the highs of the commodities boom in 2011 and 2012, foreign exchange reserves have declined to USD 1.7 billion (in August 2017). Months of import cover has also fallen from a high of 7 months in 2011, but has rebounded from the lows of 2.5 months cover in 2013 to 4.7 months by August 2017 (Figure 34). This rebound has been largely due to a compression of imports, which has been caused by three factors: the marginal weakening of the nominal exchange rate; a reduction in government spending; and the shortage of foreign currency.

Figure 34: International reserves have fallen, but months of import cover have recovered recently, mainly due to a fall in imports
Gross international reserves (USD, millions) and months' import cover



Source: Bank of Papua New Guinea
Note: *Based on forecast imports for 2017

3. Outlook and risks

Photograph 9: A cruise ship docked at Alotau in Milne Bay province. Cruise ships provide a means for tourists to visit more remote destinations around the country. Photo credit: Joanne Gardner.

47. **In 2018, GDP growth is forecast to increase to 2.5 percent (Table 2).** This reflects a continuation of incremental improvements in the efficiency of existing mining and petroleum operations (in particular, falling costs in the PNG LNG project), higher growth emanating from a recovering agricultural sector, and APEC-related expenditure. In the non-resource economy, restrained government spending and shortages of foreign currency will limit growth. In the longer-term, the outlook for growth is relatively more sanguine with the establishment of more resource projects in the 2020s. GDP growth is expected to edge towards trend in the longer term, which is estimated at 4 percent per year.

48. **Upside risks to this outlook are both external and domestic in nature.** A sustained increase in commodity prices could help to bring forward investments, improving the growth outlook. Of particular importance will be the sentiment surrounding future regional LNG demand. With PNG being a low-cost producer, the country should be well positioned for future investment in the sector. Strengthening prices for PNG's agricultural exports, in particular palm oil – which is the largest agricultural export by value – will help to alleviate foreign currency shortages and encourage further investment in this sector. On the domestic front, improvement in the government's revenue collections – both through improved administration and changes in revenue policy – would help lower the need for continued fiscal consolidation, helping growth over the medium term.

49. **Downside risks include worsening foreign currency shortages and the possibility of a disorderly exit from the current managed exchange rate regime.** This would have subsequent impacts on macroeconomic stability and investor confidence, and could possibly harm the likelihood of future investment in the LNG sector. A managed depreciation would help to discourage imports and lift competitiveness. An

additional risk is the continued BPNG financing of the government deficit, which will add to aggregate demand, placing upward pressure on inflation.

50. **Failure to keep government spending under control will undermine macroeconomic stability.** Particular concerns are with regard to the government wage bill, rising interest expenditure, and the accumulation of expenditure arrears. These spending leakages could easily wipe out any hard-won gains from improving revenue collections or gains from a fortuitous terms of trade improvement, and necessitate additional borrowing and possibly continued financing of the budget by the central bank.

51. **Over the longer term a significant risk exists from offering overly generous terms to future non-renewable resource extraction activities.** The end of the commodities boom has seen a collapse in resource revenues accruing to government, in spite of strong growth in the sector. Papua New Guinea will be unable to finance the investments needed in education, health and infrastructure to make a meaningful impact on poverty levels if the mineral and petroleum sectors of the economy continue to contribute only marginally to government revenues. As explored in Box 8, it is important that government authorities carefully consider the terms for any future LNG project to ensure the benefits of the investment are not unnecessarily generous to foreign investors. Lessons can be learned from international experience on how to ensure sufficient revenue flows to government from the resources sector whilst minimizing disincentives to inward investment. Further, it is important to translate the tax and non-tax revenue earned from these projects to benefit the non-resource sector through human and physical capital development by following prudent macro and microeconomic policy implementation (see Parts B and C).

Table 2: Selected Economic Indicators

	2014	2015	2016	2017 Est.	2018 Proj.
Real Economy			Annual percentage change		
GDP, at market prices	12.5	8.0	2.4	2.1	2.5
Of which: Mining and petroleum	9.7	8.9	1.8	1.0	1.1
Non-mining and non-petroleum	2.8	-0.9	0.6	1.1	1.4
Consumer Price Index	5.3	6.0	6.7	4.1	4.5
Fiscal Accounts			Percent of GDP		
Revenue	21.0	17.2	15.6	15.0	14.9
Expenditure	27.3	21.2	20.2	18.2	18.0
Balance	-6.3	-4.0	-4.6	-3.2	-3.1
Debt	27.1	28.9	33.3	35.4	37.0
External			Percent of GDP		
Current account balance	1.3	13.3	15.2	13.9	14.4
Resource	12.8	20.1	19.4	19.6	20.2
Non-resource	-11.5	-6.8	-4.2	-5.7	-5.8

Source: PNG Treasury, IMF, WB staff estimates

Box 7: Waiting for Godot (and gas revenues)

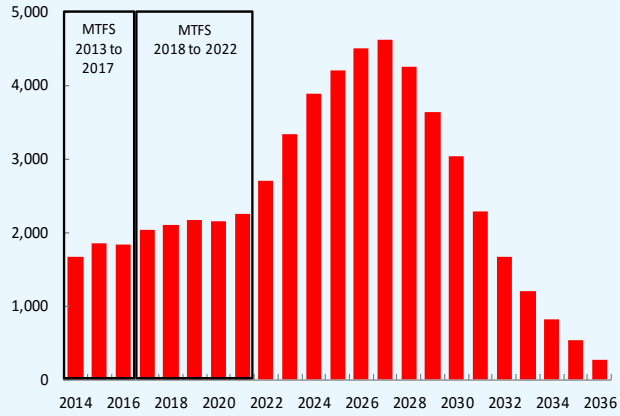
Government revenues from PNG LNG

The PNG LNG project – both in sheer size and potential to promote greater economic development in PNG – is enormous. The project is founded on the extraction of gas from the Southern Highlands, Hela, Western and Gulf provinces, which is then – via pipeline and ship – liquefied and transported to customers in East Asia under long term supply contracts. Construction began in 2010 and the first shipment left the LNG terminal just outside Port Moresby in May 2014. Total construction costs were USD 19 billion (compared to PNG's 2010 GDP of USD 14 billion), and annual output was planned at 6.6 million tons of gas and condensate per year. As of 2017, actual output is running at over 8 million tons per year, with the excess output being sold on the spot market. There is a potential for expansion for the project to include the Elk Antelope gas field, adding 7.6 to 10.6 million tons output per year.

The 2013 National Budget estimated total government revenues from the project of around K2 billion per year between 2014 and 2021 (around 2.6 percent of GDP), rising to an average of over K3.5 billion 2022-2030, and tailing off to zero by 2036 (Figure 35). To put that amount in perspective, expected revenues from the project were greater than the annual average of total GST collections over the past five years (2012-2016), and more than half of the annual average of total personal income tax (Figure 36). Most revenues from the project would be paid in US dollars, helping to alleviate shortages of foreign exchange. At October 2017 exchange rates, K2 billion would cover 3 to 4 months of imports in 2017.

Figure 35: In 2013, authorities expected the project to generate substantial government revenues over the medium term

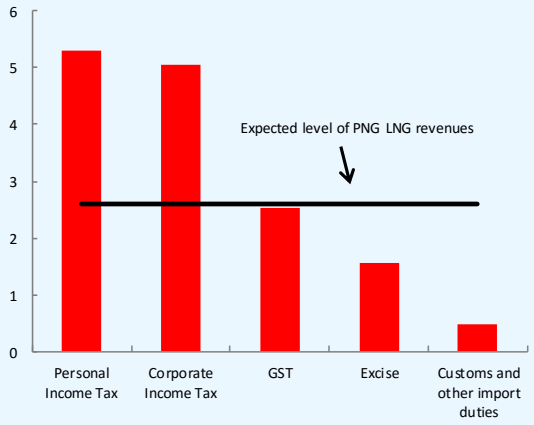
2013 Budget projections of government revenues from PNG LNG for 2014-2036, Kina, millions



Source: 2013 National Budget, volume 1.

Figure 36: The expected revenues were higher than actual GST collections, and about half of personal income tax and corporate income tax

Revenue by tax type, five-year average: 2012-2016, percent of GDP



Source: 2016 Final Budget Outcome. World Bank staff estimates.

Revenues to government from the project were anticipated to originate from four principle sources;

i. **Royalties:** 2 percent of the well-head value (payable to landowners, and affected provincial and local governments);

ii. **Development levy**: 2 percent of the well-head value (payable to affected provincial and local governments);

iii. **Income tax**: 30 percent tax on the profits of the project (payable to the central government);

iv. **Dividends**: governments share of profits from its 16.57 percent shareholding through Kumul Petroleum, and 2.8 percent shareholding by the Mineral Resources Development Company, held on behalf of landowners.

However as of September 2017, only K150 million in royalties had been received by government, equivalent to 0.2 percent of GDP. Clearly, the lack of revenues from the project has left a sizeable hole in the government's finances.

There are several reasons why revenues to government from PNG LNG have been below expectations:

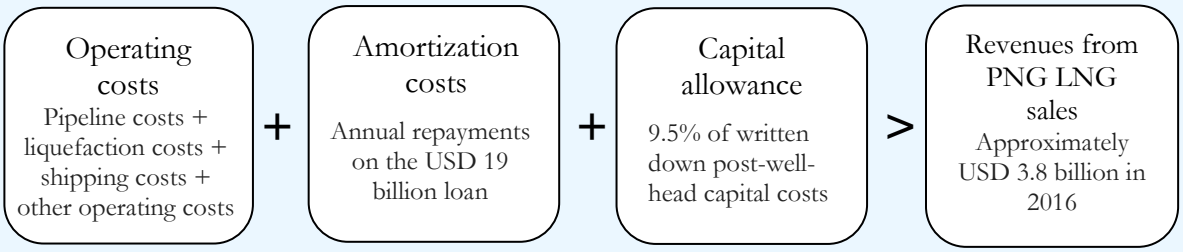
a) **The definition of 'well-head value'**: Paragraph 3(d) of the Petroleum (Determination of well-head value, PNG LNG project) regulation 2008 states:

> *"The well-head value of petroleum… shall be calculated by deducting the direct costs, amortization, and capital allowance from the sum of revenues and adjustments."*

Hence 'well-head value' can be thought of as revenues less operating and capital costs (Figure 37). It is important to note that exploration costs are not included in this calculation, hence well-head value is not equivalent to 'profits' for the project as a whole. Rather, it is the profits from extracting the gas and selling it to buyers in East Asia, once the gas has been discovered and tapped. This definition of 'well-head value' as revenues less operating and capital costs is also known as the *netback value* in the jargon of the oil and gas industry.

This definition means that in times of low prices the well-head value could be negative, in other words the revenues are less than the costs even if large operating profits are being made. For PNG LNG the costs are substantial, with USD 19 billion in capital investment, in addition to pipeline transport, liquefaction, and shipping costs. Further the capital allowance mentioned in Paragraph 3(d) above is valued at around 9.5 percent of the depreciated post well-head capital costs, making the chances of a negative well-head value greater.

Figure 37: Calculating the negative well-head value in 2016



Source: World Bank staff.

For the Kutubu and Gobe oil projects of the 1980s and 1990s, well-head value was set at 93 percent of the 'Free on board' value of the petroleum exported, this made the royalty payments easy to measure, and meant that they would always be positive.

b) **Additional contingent tax allowances:** Depending on the ratio of cumulative revenues to cumulative expenditure (costs) in 2024, additional tax allowances can be claimed for the next 5 years until 2029. These tax allowances are in addition to existing tax concessions (special accelerated depreciation rules and exemptions from GST, import duties, and export levies).

c) **Negative royalties and development levies:** It would appear that for PNG LNG *negative royalties and development levies* are being accrued which will be used to write-off any future positive royalty payment obligations in much the same way corporate income tax losses can be carried forward. This provision is not explicitly stated in the PNG LNG Gas Agreement 2008.

d) **Royalties are treated as advanced payments of income tax:** So for every one USD paid in royalty, one USD less is payable as income tax.

e) **Development levies are tax deductible like any other business expense:** So at a 30 percent tax rate, for every one USD in development levies paid by a profitable project, USD 0.30 less is payable as income tax. The tax credit and tax deductible status of royalties and development levies is consistent with the 2003 Petroleum Policy Handbook.

f) **Infrastructure Tax Credits (ITCs):** The cost of infrastructure deemed to be of a benefit to the local community can be treated as payment of tax.[18] The PNG LNG project is eligible for ITCs, through which mining firms can charge a 100 percent deduction on capital expenditure on infrastructure projects, to a maximum of 2 percent of assessable income each year.

Taken together these six factors create a complex web of exemptions and allowances that effectively mean that little revenue is received by government and landowners, either through taxes, royalties or development levies. In their 2016 Article IV report, the IMF commented that "the tax arrangements for PNG's mining and petroleum sectors are very generous compared to other resource rich countries and do not reflect the maturity of the PNG resource sector" (pg. 9).

There is also little information on dividends that should be paid to the state. Government should receive dividends from the project from its 16.57 percent shareholding, held by the government owned Kumul Petroleum Holdings Limited (KPHL). However little information is made publicly available as to what dividends KPHL receive.[19]

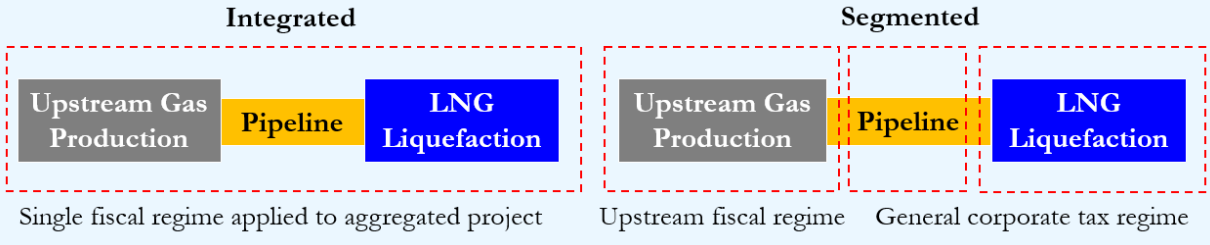
Furthermore, for many resource extraction projects, the government face challenges in independently verifying and auditing: (i) the information provided by project operators; and (ii) the information needed to calculate royalties, profits, and tax liabilities. Information on export volumes, revenues received, and costs incurred can be impossible for national tax authorities to verify, in particular when these transactions are settled overseas. The PNG LNG project is exempt from the Central Banking Act 2000, meaning that revenues from sales do not have to be brought 'on-shore' and hence records of financial transactions relating to the project are not visible to the central bank, nor to the tax authorities. These data challenges are highlighted by the reports of the Extractive Industries Transparency Initiative which note many incidences where production and financial information reported by ExxonMobil, Oil Search and Santos does not match information held by the Department of Petroleum and Energy, which in turn may be substantively different from information provided by the Treasury.

Box 8: Choose your royalties carefully

Different approaches to royalties' calculations

The PNG LNG is an integrated mega-project. A typical LNG export project can be separated into three parts: (i) upstream gas production; (ii) the pipeline; and (iii) LNG liquefaction (Figure 38). The PNG LNG project combines all three in to one project led by ExxonMobil. Other approaches are to segment the project, having the riskier 'upstream' gas production being treated (and perhaps owned) separately from mid- and down-stream facilities.

Figure 38: Alternative structures for an Integrated and a Segmented project.



Source: World Bank staff.

[18] This can mean that a landing strip or a road necessary for the operations of the project are a legitimate tax deductible expense, and can also qualify for a tax credit if considered to be beneficial to the local area.

[19] Publicly available information on the project is limited. The principle shareholders, ExxonMobil, Oil Search and Santos are publicly listed companies, however for ExxonMobil, PNG LNG is only a small part of its global operations, and little specific information is made available through the company's annual report. For Oil Search, listed on the Australian stock exchange, PNG LNG is its largest source of revenue, and the annual reports and half yearly results publications provide the most detail on the project. The Extractive Industries Transparency Initiative is a second source of information. However, lags are present in the publication of reports, with the 2014 report only being published in February 2017.

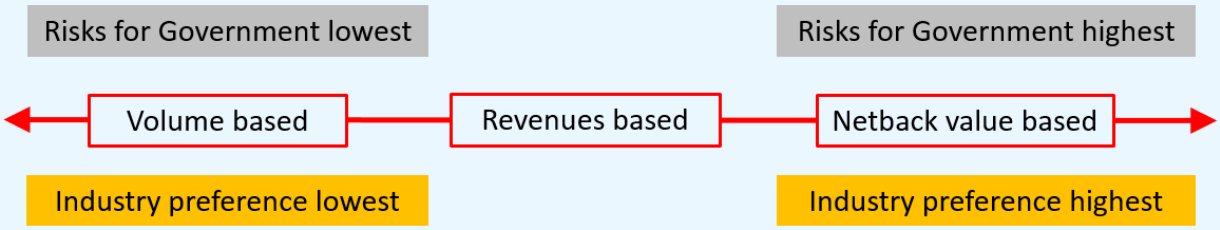
Industry prefers a netback approach to royalties' calculations. As detailed in Box 7, the royalties and development levies received from PNG LNG are linked to the *netback value* of the gas sold, which can be thought of as the *revenues less operating and capital costs* from supplying the gas. Such approaches are favored by the mining and petroleum industries as they ensure that royalties are only paid if and when a project's revenues are higher than costs.

However, royalties that factor in project costs are the most complex for government authorities to administer. This is particularly the case where the resource extractor is foreign-owned, and a significant proportion of costs are incurred overseas (e.g. imports of foreign machinery, foreign technicians and engineers, management overheads, shipping costs, etc.). This is due to the well-known risks of transfer pricing, in particular when the owning corporation purchases these items from itself (this is known as the problem of 'arms-length pricing'). This, in turn, lowers the ability for national tax authorities to collect revenues from a project, including royalties and corporate income taxes.

Further, the level of integration or segmentation of a project influences the cost base of netback value-based royalties. An integrated project has a much larger cost base than the upstream portion of a segmented project, which can lower the netback value, and hence, royalties. A segmented project can, for example, levy royalties on the upstream gas production operations, and treat the lower risk downstream pipeline, liquefaction and shipping operations the same as any other industrial activity (so no royalties, only income taxes).

Easier to administer royalty regimes include, at the simplest: (i) a volume based royalty, which for LNG would be a fixed sum per ton; or (ii) a revenue based royalty, which would be a fixed percentage of the *gross* revenue from the sale of the gas (Figure 39). For economies with less-advanced tax administrations, a volume- or revenue-based royalty may ensure that some revenue is received even if the operator is declaring that costs are higher than revenues.

Figure 39: Conceptual approaches to royalties' calculations

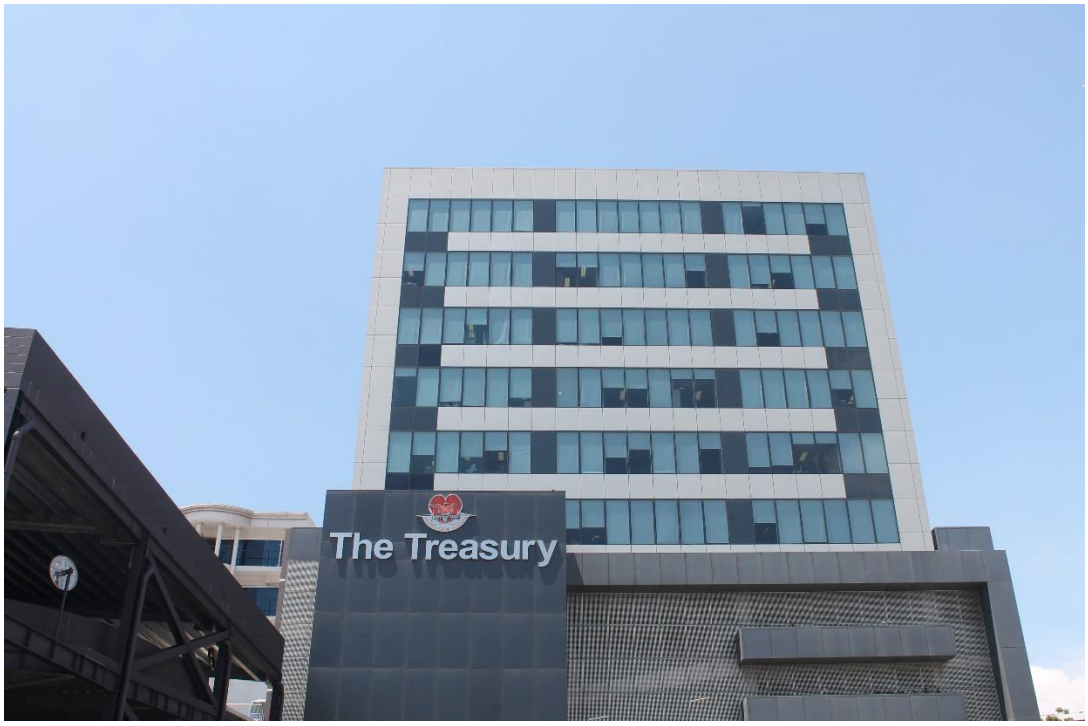


Source: World Bank staff.

A revenue based royalty system has a history in PNG. For the Kutubu and Gobe oil projects of the 1980s and 1990s, well-head value was set at 93 percent of the 'Free on board' export value, which can be calculated from customs records of exports and international payments data from the central bank, and can even double checked against the import statistics of the purchasing country. For economies with less advanced tax administrations, a volume- or revenue-based royalty may ensure that some revenue is received even if the operator is not declaring any profits.

Negotiations over royalty regimes for future resource extraction projects in PNG should keep these different approaches in mind, to ensure that the most appropriate regime is selected.

B. Towards an Integrated Macroeconomic Policy Framework



Photograph 10: The Treasury has announced important policy changes to strengthen economic resilience.

1. Macroeconomic policies that are fit-for-purpose

52. **Building resilience will require an integrated approach to macroeconomic policy development and implementation**. As outlined in Part A, over recent years PNG – like other resource-rich developing countries – has faced a challenging external environment of low global commodity prices, which has had adverse impacts on domestic economic conditions. Authorities have responded to these challenges by implementing a range of policy actions designed to shield the economy from the full force of these adverse shocks. However, macroeconomic conditions remain delicate, and further government policy changes are necessary. As is common to all economies, adjustments to specific macroeconomic policy levers – fiscal policy, monetary policy and exchange rate policy – cannot be considered in isolation. Instead, an integrated approach is required to deliver a fit-for-purpose macroeconomic policy framework which can support stronger economic growth and ensure macroeconomic stability over the medium term. Part B presents such an integrated set of macroeconomic policies, designed to strengthen the resilience of the PNG economy in the face of future global commodity market volatility, and to support the transformation of PNG's rich natural resource wealth into improved human development outcomes for both current and future generations.

2. Improving expenditure controls and management of mineral resource flows

53. **In the past, PNG's fiscal policy framework has not adequately delinked government spending from volatile revenues associated with large swings in global commodity prices**. As outlined in Part A (Section 2), public expenditure has historically been highly procyclical, with government spending rising and falling in line with fluctuations in global commodity prices. Procyclical fiscal policy can lead to inefficient

spending and put further upward pressure on wages and prices after positive shocks, but also accentuate downturns in demand and labor markets after negative shocks.[20] Countercyclical fiscal policy, on the other hand, helps to smooth out the volatility of the business cycle, providing fiscal space for authorities to boost spending and protect vulnerable households during a downturn. There are two broad areas where PNG authorities can help to dampen the impact of revenue volatility on government spending:

i. Strengthen the fiscal anchors

54. **A fiscal anchor is a numerical target which guides the medium-term revenue and expenditure policies of government**. Following a change earlier this year, PNG's current fiscal anchor limits the level of public debt to between 30 and 35 percent of GDP. This ceiling discourages running fiscal deficits and accumulating debts. However, it does not break the link between resource revenues and government spending – if revenues are high in one year, they can be spent, while the debt-to-GDP ratio remains unchanged. The rule also does not address the challenge of the economy's absorptive capacity (i.e. the ability of the government to actually spend the allocated funds) and, more importantly, the government's ability to spend well in the short term (i.e. the efficiency of spending).

55. **Here we highlight two possible fiscal anchors which are not mutually exclusive:**

i. **The non-resource primary balance (NRPB)-to-non-resource GDP rule.** This anchor was recently adopted as part of the 2017 Supplementary Budget and is an appropriate fiscal anchor given the inherent volatility of resource GDP and revenue. This rule will help to remove the link between resource revenue flows and government spending in any year, and instead base the budget on the non-resource economy. Growth in the non-resource economy is more stable and less at risk of sharp accelerations and downturns, and hence should lower the likelihood of large fiscal adjustments in the future. The NRPB rule can thus contribute to a more sustainable fiscal policy framework.[21] It also ensures consistency in government expenditure for service delivery over the volatile commodity price cycle.

ii. **An expenditure growth rule.** This rule places limits on expenditure growth to guide the scaling up of public investment in relation to the absorptive capacity of the economy. For instance, authorities could place a limit on the growth rate of expenditure–to-non-resource GDP per annum. This would help to ensure that increases in government spending do not put upward pressure on inflation. Such limits would also help to make certain that any scaling up of government spending can be managed by the relevant government ministries, avoiding budget shortfalls, and lowering the risks of inefficient end-of-year spending.

ii. Operationalize the sovereign wealth fund

56. **Complementing strengthened fiscal anchors, a sovereign wealth fund (SWF) would act to absorb volatile resource flows and provide a predictable stream of financing to the annual budget**. The legislation to establish the SWF is now in place.[22] The country's SWF is expected to support macroeconomic stabilization, intergenerational equity, and the management of assets accrued from mineral and petroleum revenue. Steps should be taken to prepare for the operationalization of the SWF to coincide with expected inflows into the Fund.

[20] A pro-cyclical fiscal stance has been shown to lead to lower economic growth, higher volatility in output and higher levels of inflation (Van der Ploeg & Poelhekke, 2009; Arezki et al., 2011; McManus & Ozkan, 2015).
[21] IMF (2012).
[22] A law establishing a SWF was enacted and certified by Parliament in 2016.

57. **Additionally, when operationalizing the SWF, a sound governance and technical base for the SWF is required that draws upon international good practice (Box 9).**[23] The Santiago Principles – which the legislation establishing PNG's SWF is designed to follow – provide a good base on which to agree the technical operation of the SWF, with transparency, sound governance and effective risk management being the guiding principles. In addition, the SWF should be fully integrated with the national budget. Precise agreement on what funds will flow in to the SWF is needed. This will require a clear and simple definition of what is and what is not a 'resource revenue' that can be easily implemented with all sources being properly identified and reported. Additionally, clear and transparent rules on withdrawals are required, and withdrawals should be predictable in size so not to disrupt the annual budgeting process. It is vital that all withdrawals from the SWF go through the annual budget and are approved by Parliament. The SWF's institutional framework should also determine the investment strategy, and clearly recognize that investment decisions should be independent of short-term monetary and exchange rate considerations.[24] Finally, the SWF should not be permitted to take out or underwrite loans, nor provide other guarantees.

Box 9: Diamonds are forever
Botswana's sovereign wealth fund experience

The international experience shows that SWFs with robust governance, a sound investment strategy, clear rules regarding deposits and withdrawals, and strong institutional structures can deliver significant benefits for a resource-rich economy. Botswana provides an example of how a well-designed SWF can transform a nation's natural resources into productive physical and human capital, facilitating sustainable economic growth and avoiding many of the adverse effects to which developing countries with abundant natural resources are often subject. Through its SWF, the country accrued large-scale reserves during commodity booms in the mid-2000s, which they were able to draw upon to finance countercyclical fiscal policies to mitigate the impact of the global financial crisis later in the decade. Consequently, Botswana experienced only a short downturn during 2007, before returning to strong growth in 2008. Further, the nation enjoyed sustained strong growth rates averaging over 4 percent annually over the past two decades, as well as investment rates of around 25-30 percent of GDP and low, manageable inflation. However, it is important to recognize that Botswana's economic success was driven in large part by its strong governance, fiscal restraint, and robust institutions, rather than as an immediate consequence of the nation's natural resource wealth. The lesson for other resource-rich developing nations such as PNG is that fostering reliable institutions and sound governance is critical to harnessing the development opportunities offered by natural-resource wealth.

Botswana's Pula Fund combines a SWF with three fiscal rules to help smooth the receipt of volatile diamond revenues and to save resources for future generations. Established in 1994, the Pula Fund is the oldest SWF in sub-Saharan Africa. It has had a broadly successful record, although a lack of transparency and unclear deposit and withdrawal rules have been a source of concern. The Fund operates in tandem with a suite of three fiscal rules that act to limit procyclical spending; a debt rule limiting government debt to 40 percent of GDP, a budget balance rule advocating that the government should balance the budget over the 5-year National Development Plan period, and an expenditure rule limiting spending to 40 percent of GDP. The Fund consists of two parts: the Government Investment Account belonging to the government of Botswana, and the Pula Fund's foreign reserves, which belong to the Bank of Botswana. The fund is prohibited from making domestic investments, and the portfolio is split between long-term fixed income securities and equity investments in G7 countries.

[23] In 1974 the Mineral Resources Stabilization Fund (MRSF) was established to smooth resource flows from two large mining operations, and was initially successful in these aims until the mid-1980s when pressures to spend grew and public debt increased. The rules surrounding the fund were subsequently loosened, its funds exhausted, and it eventually closed in 2001. The collapse of the MRSF provides a clear illustration of the importance of sound governance when operationalizing the SWF.

[24] In general, the objectives of a central bank and a SWF are aligned. For example, a SWF should complement central bank sterilization of foreign exchange inflows by investing the accumulated funds off-shore. However, a SWF's institutional arrangements should ensure that investment decisions are made to achieve the medium-term objectives of the SWF, rather than to achieve short-term monetary or exchange rate objectives.

3. Strengthening revenue performance

58. **Tangible steps are being taken by the government to enhance revenue mobilization**. Various efforts at revising government policy are being implemented to both strengthen revenue administration and to update revenue policy and legislation, with the aim to reduce compliance costs and increase collections. At the center of the changes is the upcoming Medium Term Revenue Strategy, expected to be published with the 2018 Budget. Additionally, various policy initiatives and projects have been launched to support these modernization efforts. For example, the government has announced that it will review existing Double Taxation Agreements (DTAs) and suspend the negotiation on new agreements, and revamp the Additional Profits Tax. A large administrative reform is underway computerizing the Internal Revenue Commission (IRC) through introducing the Standard Integrated Government Tax Administration System (SIGTAS). To ensure increased accountability and transparency in the resource sector (as it applies to revenue mobilization), PNG also signed the Extractive Industries Transparency Initiative in 2014, and published its first report in 2017.

59. **However, the decline in the tax-to-GDP ratio in recent years is due to a systemic weakness in tax revenue mobilization**. Improving tax revenue performance could be achieved by focusing efforts in two areas: (i) strengthening the capacity of tax administration institutions; and (ii) reversing the erosion of the tax base by addressing policy gaps.

i. Strengthening the capacity of tax administration institutions

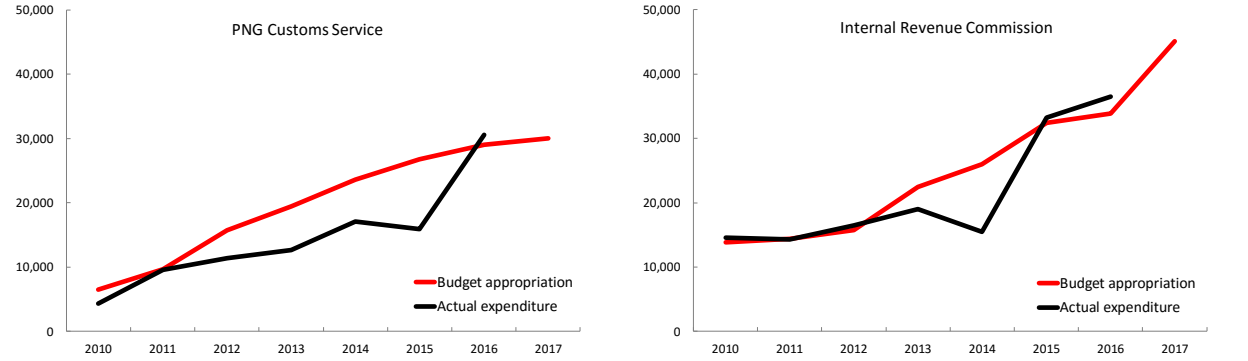
60. **Improving administration of the tax system is, and will remain, crucial in the government's efforts to improve revenue mobilization going forward**. PNG's revenue administration capacity has struggled to keep up with the growth in economic activity resulting from the resources boom. This growth has been accompanied by an increase in both the complexity and the international nature of the business environment – as cross-border trade has been increasingly facilitated by the internet and e-commerce, and the numbers of non-citizens working in PNG and foreign-registered businesses operating in the country have both expanded. The 2015 Taxation Review notes a sustained level of underinvestment in revenue administration that has resulted in the use of outdated systems that are inappropriate for the rapidly-modernizing business environment.

61. **Although efforts have been made to increase both staffing numbers and average salary levels since 2012, further efforts on both may be needed**. Staff numbers in the IRC and Customs has not kept pace with economic growth, and remain low relative to population size. The 2017 Budget document reported that combined, Customs and the IRC have 345 unfilled vacancies, a vacancy rate of 25 percent. Staff at the revenue collections agencies also need more training to enhance their requisite technical skills and experience to administer revenue collections.

62. **However, actual expenditures for personnel emoluments by Customs and the IRC are struggling to keep up with increased budget allocations (Figure 40)**. Budgets have increased in recent years, yet only in 2015 (IRC) and 2016 (Customs) did each agency manage to spend its enlarged personnel emoluments budget. Clearly 'throwing money at the problem' is not enough, especially given that revenue collections (as a ratio of GDP) have been stagnating or falling over the same period. Instead, there is a need for revenue administration to be more results- and less process-orientated. For instance, authorities would do well to strategize and focus on improving compliance with respect to particular tax-payers and types of tax in order to increase collections.

Figure 40: IRC and Customs have generally been unable to spend their increased budget for salaries, indicating that more fundamental changes to revenue administration are necessary

Budgeted and actual spending on personnel emoluments, Kina, '000s, 2010-2017



Source: PNG Treasury budget documents, Volume 2, various years.

63. **Improving tax payer compliance through improved tax administration is key.** All types of taxes are prone to taxpayer non-compliance. Chief among these, according to the report of the 2015 Taxation Review Committee, is GST – where "there appears to be significant non-compliance."[25] In addition, GST collections are particularly hampered by the 'zero-rating' of all companies involved in resource extraction (i.e. the GST rate is zero percent for these companies). Over time, exemptions from GST have been extended further up the supply chain, broadening the scope for non-compliant taxpayer behavior (Box 10).

64. **Significant administrative challenges for taxing foreign contractors are present**. The recent growth in both the resource and the non-resource economy has driven the increase in the numbers of non-citizens working in PNG's labor market. This presents additional challenges for tax enforcement that requires targeted intervention. For example, collecting income tax when salary payments happen entirely off-shore (i.e. between two Australian bank accounts) and the contractor covers living expenses in PNG using his or her foreign ATM card.

65. **Reducing the use of tax incentives across a variety of sectors can alleviate the burden on the administration of such incentives**.[26] Many of these incentives have been put in place in the hope of making PNG a more favorable investment destination, supporting existing firms, and attracting new ones. Administering tax incentives can entail having to separate income from one activity (manufacturing) from another (construction), or separating imports used in the production process (a car used to visit remote project sites) from other uses (the same type and model of car used for personal journeys in the capital city). Such administrative challenges consume time and resources, and create disputes with tax payers. As such, the benefits of tax incentives need to be weighed against the costs, both from revenue foregone and the additional costs of administering the incentives.

Box 10: Nothing is certain except death and taxes?
Implementation issues with the GST

The GST was originally named the Value-Added Tax, and was introduced in 1998. Despite the change of name, the GST operates as a value-added tax. GST should apply throughout the supply chain, with suppliers charging GST to their customers and claiming refund credits on the GST paid on their supplies. In the end, final consumers pay the tax through a higher price on the finished good or service. Businesses only collect the tax and remit it to government.

[25] Taxation Review Committee (2015, pg. 36).

[26] The Taxation Review identified over 40 separate tax incentives within the PNG tax system. These incentives span across different tax types (income tax, withholding tax, customs duties, stamp duties) and different sectors (agriculture, fishing, financial services, manufacturing, tourism, mining and petroleum). The policy objective behind these incentives has been to promote the development of areas outside the main urban centers.

For this tax to operate smoothly the entire supply chain needs to be charging GST, and refund credits need to operate smoothly so not to create cash flow problems for businesses.

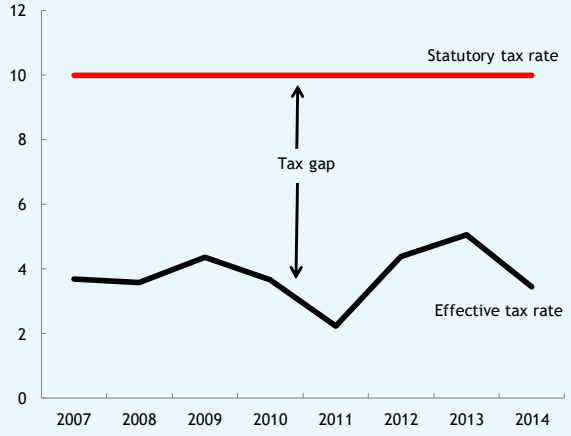
The GST is levied at a flat 10 percent rate, but is subject to multiple exemptions, zero-ratings, and discretionary treatment. This 'breaks the chain' that is at the heart of efficient GST administration, and gives rise to both a complex and costly administrative regime and multiple opportunities for taxpayer non-compliance. The 2015 Tax Reform Committee notes some examples including: businesses charging customers GST but not remitting collections to the IRC; over-claiming input tax credits and GST refunds; and abuses of GST exemptions, for example in the education sector and housing/office rentals.

Comparing GST collections to total consumption in the economy shows a 'tax gap' of approximately 50 percent (Figure 41). The untaxed 50 percent includes both exemptions and allowances included as conscious policy choices, and revenue lost due to non-compliance, fraud and other leakages. Refunds of GST have been growing sharply, with refunds in 2011 and 2012 exceeding net collections.

Resource companies, as exporters, are zero-rated for GST. In 2000 this zero-rating was extended to suppliers of resource companies, so that the administrative costs and cash flow problems of paying refunds could be avoided. Contractors and suppliers do not charge GST when invoicing resource companies, but should charge GST when supplying other businesses. This provides the potential for suppliers to disguise taxable supplies as zero-rated, and hence claim excessive refunds from the IRC. Historically the IRC has had almost no resources to undertake audits and proving under-reporting of GST payments without an audit is near impossible. The low perceived risk of an audit encourages additional non-compliant behavior that in turn further erodes tax receipts.

Figure 41: The large number of exemptions, zero-ratings and discretionary treatment means the effective rate of GST is below half the statutory rate

GST statutory vs effective tax rate, 2007-2014



Source: National Statistics Office and Devpolicy PNG Budget Database.

To minimize opportunities for non-compliance the GST should aim to have as few exemptions and zero-ratings as possible. The decision to exempt or zero rate certain goods, services or sectors needs to weigh up the social and economic benefits against the additional administrative and compliance costs.

ii. Reversing the erosion of the tax base by addressing policy gaps

66. **The use of tax incentives has contributed to the erosion of the tax base and, consequently, the decline in the tax-to-GDP ratio**. The government has recognized this and has previously repealed some tax incentives. In 2014, the 150 percent income tax deduction allowable under the Research and Development Incentive was removed after the authorities recognized "the challenges in administering the highly technical provisions and in obtaining individuals with the necessary skills and experience to effectively assess applications."[27] In 2017, the double deduction provisions for exploration expenditures were repealed.

67. **Streamlining the allocation of Infrastructure Tax Credits (ITCs) – which have contributed to reducing tax collection – should be considered**. ITCs reduce corporate income tax receipts by incentivizing investors to build infrastructure in remote regions. The cost of the investment is then treated as a payment of

[27] Taxation Review Committee (2014b, pg. 6).

tax.[28] This policy has been criticized for allowing investors to inflate the costs (which are not verified by the government) or to claim ITCs on infrastructure the investor was going to build anyway as part of the project.

68. **Taxation of the mining and petroleum sectors is generous compared to other resource-rich countries, and has eroded potential government revenues**. An example of this includes a discretionary 10-year tax exemption for the Ramu-Nickel mine and near zero fiscal revenues from the new PNG LNG investment. The result is the project is not expected to generate significant tax revenues until the mid-2020s, largely due to a profit-based royalty regime and generous capital allowances cancelling out any tax liabilities (see Box 7 and Box 8 in Part A). Discretionary exemptions granted to specific firms or projects create precedents that in turn build pressure to grant further exemptions to new investors and existing firms who feel they are disadvantaged due to the exemptions enjoyed by their competitors.

69. **Authorities should also address loopholes in Double Taxation Agreements (DTAs) which further erode tax receipts**. These agreements grant lower rates for dividends, interest and royalty payments, and can open the door to lower tax receipts through allowing contractors and foreign workers to maintain non-residency status (see Box 11).

Box 11: DTAs: Past, present and future
Double taxation agreements in PNG

PNG has negotiated 9 DTAs (also known as double taxation treaties, DTTs), some dating to before independence. The primary aim of DTAs is, in territories where residents are taxed on their global income, to avoid situations where income sourced overseas is taxed twice, the logic being that this will then deter investment between the two countries.

DTAs are not standard. However, the OECD and the United Nations have recommended clauses and text for these legal agreements that have resulted in much commonality across DTAs. DTAs also cover such issues as the definition of residency, and can impose upper limits on tax rates (in particular withholding taxes) which are lower than the rates that would be levied on individuals and companies from third countries.

Whilst DTAs can be effective in preventing double taxation and in clarifying tax matters for investors, there are increasing concerns that they can also be used to give the unintended outcome of not taxing income in any jurisdiction – usually referred to as 'double non-taxation'. Inconsistencies in legal definitions of residency allow the taxpayer (individuals in particular) to float between different tax jurisdictions over the tax year so to avoid being legally resident in any jurisdiction, and hence avoid any tax liability. It is for this reason that withholding taxes, levied as a final tax, are popular, to ensure that floating taxpayers pay at least some tax.

For PNG, two DTAs stand out as the most widely invoked; with Australia (signed in 1989) and Singapore (signed in 1993). Challenges have been noted in applying the articles within these treaties (Table 3 below). The 183-day residency condition allows a contractor to remain non-resident for up to a full year if it straddles two tax years, and enforcing 90- or 183-day residency clauses is challenging as there is no link between immigration records and the tax office.

Finally, it is worth noting that the risk of double taxation is minimized in many modern tax administrations without the need for a double taxation agreement. This is achieved by allowing tax paid on overseas income to be deductible from gross income if proof of tax being paid on foreign income can be provided. This applies regardless of whether a DTA is in place between the two tax jurisdictions.

The 2015 Taxation Review recommended the suspension of all ongoing double taxation agreement negotiations.

[28] Firms can charge a 100 percent deduction on capital expenditure on infrastructure projects, to a maximum of 0.75 percent of taxable income allowed for each year. However, the full capital cost of the infrastructure can be carried to the next year until the full capital cost is accounted for.

Table 3: Comparison of key elements of the Australian and Singaporean DTAs

Tax item	Standard	Australia DTA	Singapore DTA
Dividends	17% 10% mining income 0% oil and gas income	20%	15%
Interest	15%	10%	10%
Royalties	10% (or 30% if paid to an associate)	10%	10%
Resident for tax purposes	90 days	90 days	90 days. 183 days for construction, or 183 days for Independent Personal Services

Source: Taxation Review Committee (2014a), World Bank staff.

4. A sustainable debt and liability management strategy

70. **Fiscal, monetary, exchange rate and debt management policy are highly interdependent, and thus, a prudent debt and liability management strategy is crucial to an integrated macroeconomic policy framework and to managing risk.** The objective of national debt management is to ensure that the government's financing needs and its payment obligations are met at the lowest possible cost over the medium term, consistent with a prudent degree of risk. The instrument to achieve this is the composition of public debt, in terms of its maturity, currency denomination and interest rates. This compositional choice, however, is highly interdependent with fiscal and monetary policy. For example, a poorly structured debt strategy can raise the costs of servicing debt, reducing fiscal space, and can jeopardize the central bank's ability to manage interest rates and exchange rate policy. Similarly, poor fiscal planning which results in cash shortfalls that require additional financing at short notice will complicate debt and liability management, and can create expenditure arrears. Coordination between fiscal, monetary, exchange rate and debt management policies is thus essential to ensure credibility in, and sustainability of, the macroeconomic policy framework.

71. **The government's medium-term debt strategy covering the period from 2013 to 2017 was annexed to the budget law and approved by the National Parliament; while the 2018 to 2022 strategy was annexed to the 2018 budget law**. Furthermore, annual updates are included in the budget laws, and are approved annually. The scope of the strategy is limited to explicit central government debt. The strategy is aligned with the Fiscal Responsibility Act, with objectives such as maintaining debt at sustainable levels, maintaining financial risks at prudent levels, and developing the domestic debt market. The rapid increase in debt levels as discussed in Part A (Paragraph 25) reflects changes in the fundamentals underpinning PNG's debt landscape, and warrants a reassessment of the debt management strategy.

72. **Authorities have stated their intention to re-orientate the debt portfolio to reduce interest costs, lengthen average debt maturities, and lower rollover and foreign exchange risks**. These ambitions are stated in the authorities' Medium-Term Debt Management Strategy. However, the options for rebalancing the government's debt portfolio are limited and led to the government resorting to external commercial borrowing in 2016 (taking a USD 280 million loan from Credit Suisse). Such borrowing increases exposure to foreign exchange risk and links the ability to service debts to inflows of foreign exchange. In turn, this increases the vulnerability of PNG's public finances to the ups and downs of international commodity prices whilst placing additional strain on international currency reserves, adding to the disincentives of allowing the Kina to depreciate.

73. **Going forward, immediate efforts should be directed towards addressing noted shortcomings in debt management operations**. The 2015 Public Expenditure and Financial Accountability (PEFA) Assessment gave PNG a score of 'D' for debt management, noting that the debt records maintained by Treasury risk being incomplete due to the absence of a comprehensive, up-to-date central register of loan agreements and guarantees, including implicit and explicit guarantees on borrowing by state-owned enterprises. Resolving this weakness is a 'low-hanging fruit' activity that can provide valuable information to underpin better decision-making and financial planning.

74. **The reporting and monitoring of contract payments should be strengthened, and efforts made to understand the size and scope of accumulated expenditure arrears**. As outlined in Part A (Paragraph 0 and Box 6), expenditure arrears are being used as a form of unofficial deficit financing which add to the stock of public debt, and can create serious fiscal risks if left unchecked. The allocation of resources in the 2017 Supplementary Budget to discharge some of these arrears is an important first step (see Box 6 in Part A). However, this will not resolve the structural causes of periodic build-ups of arrears.[29] Departments do not always follow the established commitment control procedures, which in turn results in the over-commitment of expenditure and the creation of arrears. Reports have cited the accumulation of expenditure arrears at both the central and sub-national levels, but with limitations in the system to record and report overdue payments, quantification of the magnitude of arrears is challenging. This is another strong reason why the roll-out of the Integrated Financial Management Information System across the public sector needs to be expedited – to create a single, centralized database to control and track supplier contracts and payments. It also reinforces the need to continue the implementation of the government's 2015-2018 Public Financial Management (PFM) Roadmap, which identified four key areas for improvements, two of which are: (i) the comprehensiveness and transparency of recording and reporting in the budget; and (ii) the control of budget execution.

75. **Along with measures to increase the depth in the domestic financial market, a broader strategy to guide public debt management could also contribute to reducing the cost of government borrowing**. As outlined in Part A (Paragraph 17), debt servicing costs have been on the rise. Interest rates have risen due to increased borrowing by the central government to finance the deficit, coupled with a shallow domestic financial market. To reduce roll-over risk for debt refinancing, authorities are making attempts to shift towards issuing a greater proportion of longer-term debt instruments. A new debt strategy, given the elevated yields in the domestic market, could entail making more frequent use of external sources of concessional financing. In particular, concessional loans from development partners should be drawn on to fund necessary infrastructure and development projects.

5. Improving the functioning of monetary policy and foreign exchange market

76. **There are number of steps the authorities can undertake to improve the effectiveness of the monetary policy framework to ensure that the Kina Facility Rate (KFR) is a credible benchmark for money market operations.** First, the central bank should absorb the excess Kina liquidity in the economy. Second, improve the coordination between the Treasury and BPNG on fiscal and monetary policies, including Treasury cash management to ensure cooperation in terms of the views of each institution on the dynamics of the economy to support better liquidity management by BPNG. Third, the central bank should transition to an inflation targeting framework to anchor inflation expectations. The latter should be undertaken gradually, as the capacity of the National Statistics Office to provide more accurate CPI inflation information will need to be enhanced prior to the establishment of an effective inflation targeting framework.

77. **A more flexible exchange rate regime would help to take the pressure off currency reserves and improve the private sector's access to foreign exchange.** Greater exchange rate flexibility and

[29] See Box 6 in Part A for a discussion of PNG's numerous episodes of arrears build-up over the past 25 years.

improved market efficiency and transparency would reduce the cost of adjustment to lower commodity prices, and help to curtail risks involved with a disorderly exchange rate adjustment. However, as discussed in Part A (Paragraph 39), since currently the effectiveness of monetary policy is constrained by excess liquidity, both monetary and exchange rate policy would be needed to improve the functioning of the foreign exchange market and manage the potential inflationary consequences.

78. **Given the structural constraints in the foreign exchange market, an instantaneous shift to a completely free-floating exchange rate mechanism may not be appropriate**. With the relatively inelastic supply of foreign exchange and limited number of market participants, a freely operating interbank foreign exchange market may result in excessive exchange rate volatility together with persistent and prolonged overshooting of the currency, as the few market participants with market power attempt to extract rents from the currency volatility. Therefore, the transition to a more market-driven exchange rate mechanism needs to be consistent with the foreign exchange market structures in the country. Furthermore, progress will need to be adequately paced and carefully sequenced, to ensure that the requisite elements of the domestic financial system – many of which are currently ill-prepared for a 'big-bang' policy shift – are sufficiently strengthened and bedded down prior to incremental steps towards greater market determination. This will help to avoid a disorderly exit from the crawling peg regime.

79. **Continuing the status quo would entail a continuation of the persistent exchange rate misalignment, a depletion of foreign exchange reserves, and the potential growth in a parallel foreign exchange market which would stifle interbank trading further**. These developments would also have severe repercussions for the business environment, further weakening the non-resource sector, and undermining efforts to diversify PNG's economy. To prevent this, there is a need to begin the orderly transition to a more flexible exchange rate regime. Some possible steps include: (i) reducing the central bank's role in the foreign exchange market by supporting the entry of more authorized foreign exchange dealers in the interbank market; (ii) increasing foreign exchange market information by BPNG gathering and providing more detailed information on the sources and uses of foreign exchange and more detailed balance of payments data; (iii) introducing a more transparent foreign exchange auction with BPNG committing to the stated rules of the bidding process while ensuring that participants do not collude in order to manipulate the auction.

6. Bringing it all together: Operationalizing an integrated macroeconomic policy framework

80. **Strengthening macro-economic management and effective implementation provides the enabling environment for poverty reduction and boosting shared prosperity**. A well-designed, fit-for-purpose macroeconomic policy framework and its effective implementation can support growth and ensure macroeconomic stability. Such a prudent policy environment can also help to maintain public spending to deliver adequate public services; support private sector development; and help to mitigate risks. A strong fiscal anchor(s), a prudently-managed sovereign wealth fund, improved revenue mobilization, a sound debt management strategy, and an effective monetary and exchange rate policy will maximize the benefits of commodity-driven upswings and mitigate the negative effects of downswings on economic development and public services, and enable more responsive and accountable institutions.

81. **Given that the fiscal policy framework does not adequately delink government spending from volatile revenue originating from abroad, strengthening the fiscal anchor(s) is a priority**. With the Fiscal Responsibility Act amended to include a non-resource primary balance (NRPB)-to-non-resource GDP rule, it is now important that the details of its implementation are defined and operationalized. Furthermore, a rule limiting the growth rate of expenditure-to-non-resource GDP per annum could also be considered as part of the upcoming Medium Term Fiscal Strategy 2018-2022. The current low commodity price environment

provides some leeway in the operationalization of the SWF as there are likely to be limited inflows from the resource sector.

82. **Initiatives to improve revenue performance should be prioritized according to their likely impact on revenue collections**. In any context – not just in PNG – the government and the public service have a limited 'bandwidth' to implement change. Consequently, it is important that attention is focused on the 'big issues' first, in order to achieve the largest impact for the expended efforts. It is also important to sequence any changes and avoid prematurely placing excessive pressure on new systems, as this may overwhelm both the nascent capacity of the institution and the organizational appetite for change. Through a medium-term revenue strategy, the areas that can help to strengthen revenue performance can be divided into: (a) strengthening the capacity of tax administration institutions; and (b) reversing the erosion of the tax base by addressing policy gaps.

83. **Addressing noted shortcomings in debt management, and a plan to identify and cover arrears and contingent liabilities, are first-order priorities to restore confidence in fiscal sustainability**. Clearing arrears with the private sector can help to reactivate domestic demand and encourage greater lending to domestic firms. Likewise, some 'low-hanging fruit' actions to enhance debt management, such as establishing a comprehensive, up-to-date central register of loan agreements and guarantees (including on borrowings by SOEs) – combined with measures to increase the depth in the domestic financial market – are essential to creating the fiscal space to support the government's wider development agenda.

84. **Efforts to improve the functioning of monetary policy and the foreign exchange market should be undertaken in concert with one another.** First, efforts must be made to improve the functioning of monetary policy – and the KFR as the instrument – to combat the inflationary consequences of a more flexible exchange rate system. Only once this is achieved should a gradual, properly-sequenced process of transition to a more market-driven exchange rate mechanism be undertaken.

C. Health Service Delivery in PNG

Photograph 11: Frontline service delivery remains a priority. Photo credit: Conor Ashleigh.

1. The strong case for investing in health and nutrition

85. **Mounting evidence indicates that health and nutrition interventions – particularly early in life – improve long-term welfare, productivity and earnings, and can reduce future public health costs and inequality.**[30] Research from economics, psychology, and neuroscience indicate that interventions to reduce malnutrition and infection can significantly raise the survival rates of young children and relieve the burden of illness. This translates into healthier adults who can expect to live longer lives. The research highlights the striking positive effects of improved childhood health and nutrition on school attendance, learning, adult health, productivity and lifelong earnings.[31] Undernutrition thus has significant costs, in the form of lower earnings at the household level, and lower productivity at the national level. Further, effective preventative health care for all age groups reduces public spending on ex-post medical treatment, including by preventing the early onset of non-communicable diseases (NCDs, such as lung disease, diabetes, cancer and cardiovascular diseases), which result in lost productivity due to time spent out of work and early withdrawals from the labor market.[32] Interventions to reduce morbidity and mortality can also have important implications for poverty and inequality. For example, by reducing the likelihood of catastrophic shocks that require households to exhaust savings, and by avoiding negative intergenerational impacts of parental health shocks and death on children's schooling and consumption.

86. **Investing in health and nutrition are thus critical for PNG to capture the 'demographic**

[30] See Black et al. (2016), Britto et al. (2016), Richter et al. (2016), Campbell et al. (2014), and Jack & Lewis (2007).
[31] The World Bank (2006) estimates that undernutrition in childhood results in 10 percent lower life-time earnings, while other studies that model the impact of undernutrition in the first five years of life place this figure at 20 percent.
[32] The costs of inaction as a share of GDP could be up to double what some countries currently spend on health (Richter et al., 2016).

dividend'.[33] In a young country such as PNG, investing in good health and nutrition are a foundational prerequisite for converting the nation's 'demographic opportunity' into a 'demographic dividend' – in the form of higher productivity and per capita income.

87. **Investing in health systems is also crucial to ensure the sector can respond to emergencies or outbreaks of communicable disease**. The West Africa Ebola outbreak had profound adverse health and economic impacts – costing an estimated USD 2.8 billion over the period 2014-2016[34] – and drew into sharp focus the critical role of a national health system in effectively responding to an epidemic. The rapid increase in drug-resistant tuberculosis (TB) in PNG reinforces the need to develop a more resilient and inclusive health system that extends to rural areas, establish a sensitive early warning system, and invest in more intensive prevention and control strategies.

2. Health financing and health outcomes in PNG

88. **PNG made moderate progress in achieving nationally-defined development targets, although did not meet the ambitious global Millennium Development Goals (MDGs) targets.** In 2004 PNG authorities translated the MDGs targets into national objectives in the Medium Term Development Strategy 2005-2010, and adjusted these objectives in the Medium Term Development Plan 2011-2015 (MTDP 2015). Overall, PNG made reasonable progress compared to these national targets (Table 4, and see Box 12 for a discussion of the quality of PNG health sector data). In particular, from 1990 to 2015 the maternal mortality ratio is projected to have declined from 470 to 215 per 100,000 live births, far exceeding the national target of 274. Over the same period, the under-five mortality rate is estimated to have decreased from 89 to 57 per 1,000 live births, and infant mortality is estimated to have declined from 65 to 45 per 1,000 live births – slightly above the targets for each indicator. However, PNG did not achieve the ambitious reductions for these indicators established in the MDGs targets.

Table 4: PNG made moderate progress in achieving nationally-defined development targets

Baseline, local (MTDP) development targets, and results for selected health indicators, 2011 and 2015, unless otherwise indicated

Indicator	MTDP 2011 Baseline	MTDP 2015 Target	2015 Result	Achieved MTDP Target?
Proportion (%) of underweight births	9.4	9.1	7[a]	Yes
Proportion (%) of underweight children under 5 years of age	28	26	23[a]	Yes
Under-five years mortality rate (per 1,000 live births)	75 (2006)	56	57[c]	Close*
Infant mortality rate (per 1,000 live births)	57 (2006)	43	45[c]	Close*
Measles immunization of 1 year of age (%)	58 (2009) 48[a]	73	79 39[a]	Unclear
Maternal mortality (per 100,000 live births)	470 (1990) 300 (2000)[b]	274	215[c]	Yes*
Skilled birth attendance (%)	40	54	53[d]	Close
Contraceptive prevalence rate (%)	32	40	24[d]	No
Antenatal care coverage, > 1 visit (%)	59 65[a]	70	63[a]	No
HIV prevalence of 15-24 years of age (%)	1.0	0.9	0.9[d]	Yes
Access to antiretroviral drugs (%)	17	34	48[c] 86[d]	Yes
Malaria incidence rate (per 100,000)	230 205[a]	180	122[c] 102[a]	Yes

Source: PNG Department of National Planning and Monitoring (DNPM, 2015) unless otherwise indicated.
Note: a) PNG National Department of Health (2016); b) PNG DNPM (2004); c) World Bank World Development Indicators; d) Results are for 2014, from PNG DNPM (2015). *Denotes based on 2015 projected results.

[33] The 'demographic dividend' refers to an acceleration in economic growth that may result when there is a higher ratio of people who can work, save and pay taxes compared to dependent young and older people (known as the 'dependency ratio'). South East Asia is projected to reach its lowest dependency ratio in 2020. PNG will not reach this point until 2065 (UN Population Division, 2017).
[34] World Bank (2016).

Box 12: It's a numbers game
The challenge of accurate data in the PNG health sector

Severe data challenges exist in PNG, which are often of a magnitude that make answering fundamental questions difficult. This includes basic questions such as whether national sector expenditure, workforce or infrastructure have increased or decreased in recent years. This can significantly change the narrative around particular issues and therefore affect the ability to adequately plan and implement policy and make effective policy recommendations. This in itself represents a constraint to effective health service delivery in the country. These challenges include:

- **Data fragmentation:** Data relevant to the health sector is held by many agencies, without open access. This includes budget data that is held in different central agencies and provincial governments, and health system data on infrastructure, staff and outcomes, which is held in various units within the National Department of Health (NDoH) and implementing partners.
- **Quality of data:** Health sector budget data captured in the Integrated Financial Management Information System and in budget reports varies significantly from report to report, and actual expenditure data is recorded with significant deviations from budgets. Data on health outputs and outcomes relies on reporting from provincial governments, which do not fully comply, overstate the quality of facilities or outcomes, or provide otherwise unreliable figures.
- **Data sharing:** Accessing data often requires formal requests between departmental heads, which are sometimes not endorsed. No agency provides online data repositories in an accessible format, even for data which is in the public domain (e.g. detailed budget outcome figures after completion of the budget year).
- **Inconsistency between national and international data:** Information available in both national and international repositories is often difficult to reconcile or differs significantly (e.g. health workforce ratios, health access and outcome statistics, and budget figures). In many cases updated data is lacking, meaning that analysis and decision-making rely on estimates. For example, the latest household survey that allowed for the calculation of maternal mortality was conducted in 2006.

In light of these challenges, this note draws on a wide range of sources, clearly referencing all data used, and presents multiple data and their sources when variations in a particular indicator across sources materially affects the interpretation of recent developments (for example, Table 4 includes the recorded outcomes on a range of health indicators as reported by the PNG Department of National Planning and Monitoring (DNPM), the PNG NDoH, and the World Bank World Development Indicators database).

89. **Public spending on health in PNG is high given the nation's income level, and greater than in most comparator countries (Figure 42).**[35] From 1995 to 2014, public health expenditure in PNG averaged 4.1 percent of GDP. This is substantially higher than for lower-middle income countries (1.5 percent of GDP), and the group of comparator countries for PNG (2.3 percent of GDP). This partially reflects the higher costs of service delivery in PNG relative to its comparator group. As an archipelago of around 600 islands, with poor connectivity to and within the main island, and roughly 80 percent of the population living in rural and remote areas, PNG's geography is a key factor contributing to the higher costs of service delivery.

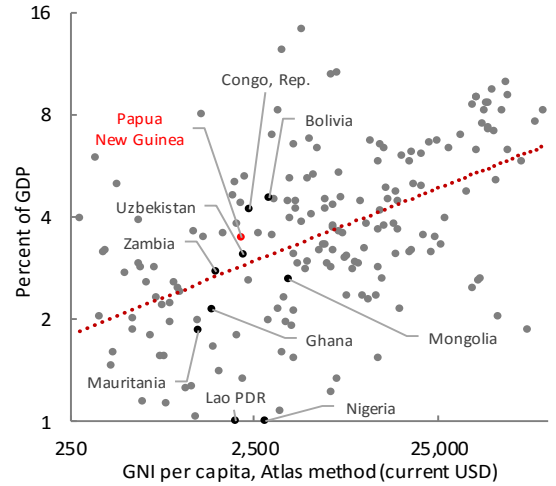
90. **Despite higher public spending, health outcomes are generally lower than in comparator countries, and rates of stunting and child undernutrition are among the highest in the world.** Life expectancy in PNG has risen considerable since independence, as key mortality indicators have improved (Figure 43). Nevertheless, life expectancy in PNG (65.4 years) remains below the average for lower-middle income countries (67.7 years) and for East Asia & the Pacific (75.3 years). At the same time, PNG's maternal,

[35] Throughout this section, we again utilize the set of comparator countries for PNG that was outlined in Part A (Box 1).

infant, and under-five mortality rates remain higher than the averages for lower middle-income countries and what would be expected of a country at its income level (Figure 44). Furthermore, child malnutrition has not improved in over a generation.[36] Using the 2009-10 Household Income and Expenditure Survey (HIES), the World Health Organization (WHO) estimates that the percentage of children aged under five who are stunted, underweight and wasting were 49.5 percent, 27.9 percent and 14.3 percent, respectively, with a marginal difference across gender groups.[37] This is the fourth highest rate of stunting in the world, and the sixteenth highest rate of undernutrition (Figure 45).

Figure 42: Public health spending is high for PNG's level of income, and relative to comparator countries

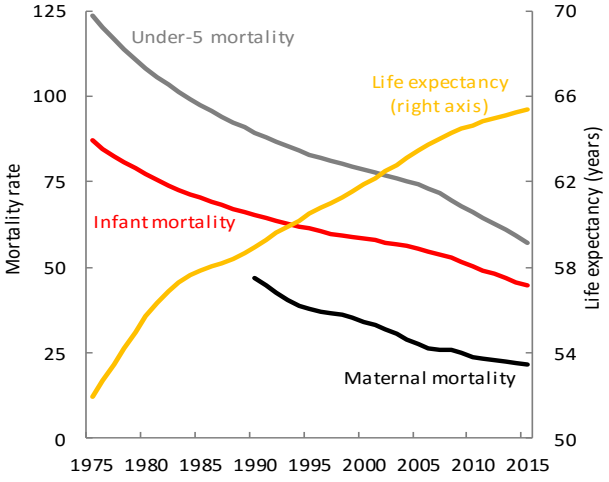
Public health expenditure as a percent of GDP, and GNI per capita, 2014



Source: World Bank World Development Indicators

Figure 43: Mortality rates have been trending down, while life expectancy has improved (1975-2015)

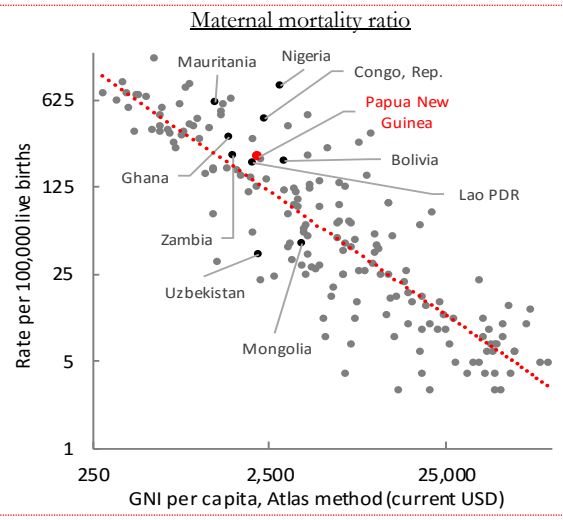
Life expectancy at birth, maternal mortality per 10,000 live births, infant and under-5 mortality rates per 1,000 live births



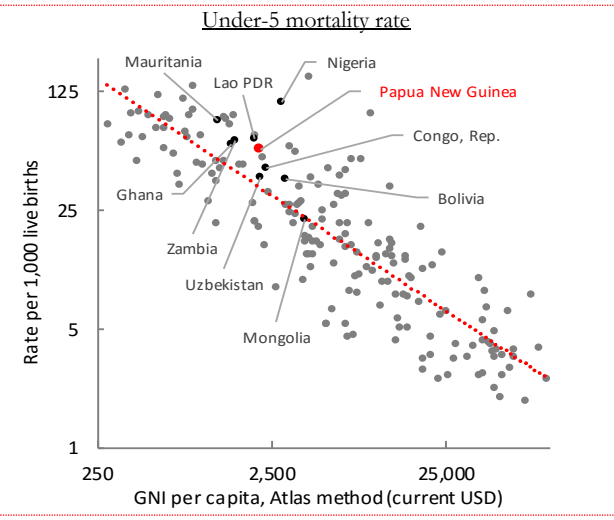
Source: World Bank World Development Indicators
Note: For comparative purposes, maternal mortality is shown per 10,000 live births. Standard reporting is per 100,000 live births.

Figure 44: Maternal and under-5 mortality in PNG remain above what would be expected for a country at its income level

Maternal mortality ratio per 100,000 live births, under-5 mortality rate per 1,000 live births, and GNI per capita, latest available data 2013-2016



Source: World Bank World Development Indicators

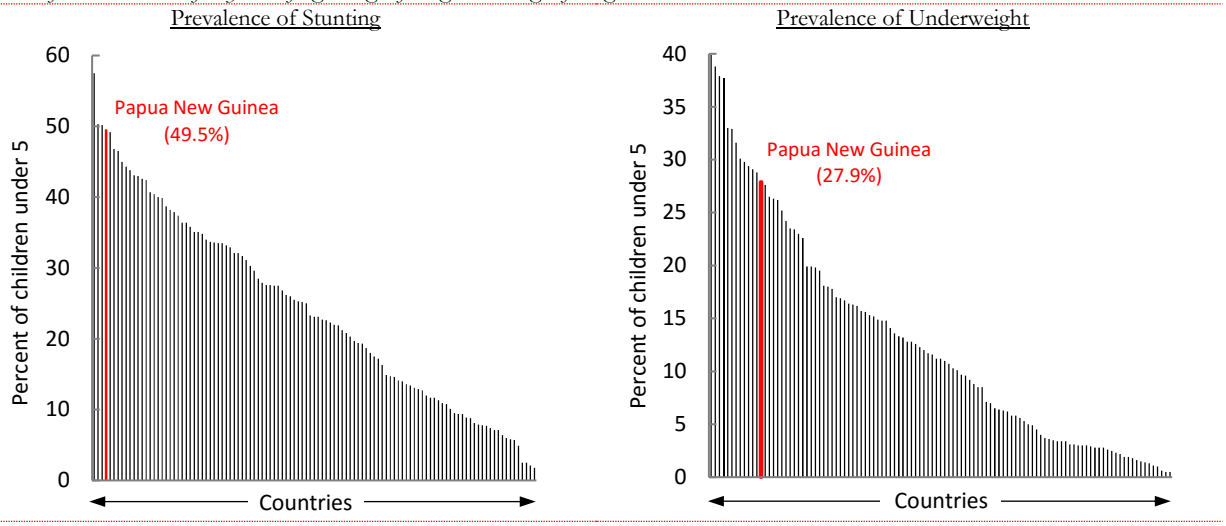


Source: World Bank World Development Indicators

[36] For example, in 1983, 50.2 and 24.6 percent of children under five years of age were stunted and underweight, respectively.
[37] See Hou (2015).

Figure 45: The proportions of PNG children that are stunted or underweight are among the highest in the world

Percent of children under five years of age, height for age and weight for age, latest available data 2009-2015



Source: World Bank World Development Indicators

91. **Child undernutrition, in addition to impeding poverty reduction and shared prosperity, also has significant economic costs.** The estimated cost of child undernutrition significantly exceeds PNG's budgeted expenditure for 2017 for both the health sector and education sector (USD 385 million and USD 366 million, respectively).[38] It is estimated that child undernutrition cost the PNG economy the equivalent of USD 508 million (2.81 percent of its annual GDP) in the financial year 2015-16, through three main pathways:

i. losses in productivity from a reduction in labor force due to increased childhood mortality, estimated at USD 46 million (0.26 percent of GDP);

ii. losses in potential income and productivity from poor physical status and reduced cognitive function, estimated at USD 459 million (2.54 percent of GDP); and

iii. losses from increased health care expenditure in treating diseases associated with childhood undernutrition, estimated at USD 3 million (0.02 percent of GDP).[39]

92. **Furthermore, the incidence of non-communicable diseases (NCDs) in PNG is rising, creating a double burden.** Although communicable diseases are responsible for 62 percent of deaths nationwide, PNG is undergoing an epidemiological transition as the share of NCDs has been rising sharply, particularly for diabetes, heart disease, chronic kidney conditions, and tobacco and alcohol related illnesses – including cancer (especially oral cancer caused by chewing betel and tobacco).[40] This double disease burden is placing additional pressure on the health system.

93. **Achieving the Sustainable Development Goals (SDGs) targets will require faster improvement from now until 2030 compared to recent trends.** If PNG maintains the pace of improvement achieved over 2010 to 2015, it will reach an under-five mortality rate of 31 and a maternal mortality ratio of 146 by 2030, compared to respective SDG targets of 25 and 70 (Figure 46). In other words, if PNG is to achieve the global SDG targets for under-five and maternal mortality, then sustained faster improvements will be required over the period 2015 to 2030 compared to what has been achieved in recent years.

[38] Based on the 2017 Budget.

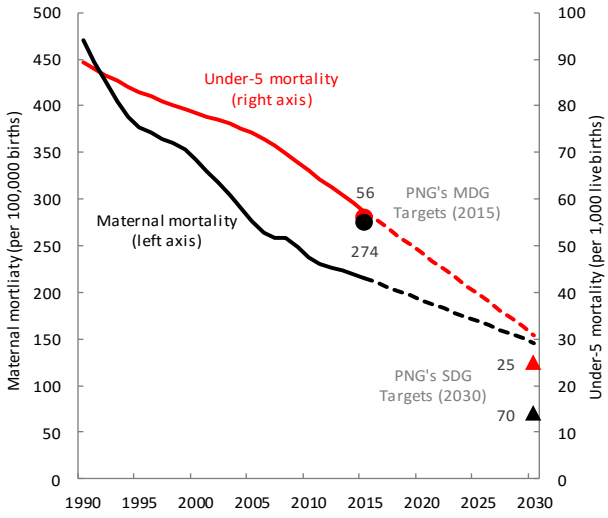
[39] Save the Children and Frontier Economics (2017).

[40] For example, the share of disability-adjusted life years (DALYs) attributable to NCDs has risen from 38 percent in 1990 to 54 percent in 2015 (Institute for Health Metrics and Evaluation, 2016). The DALY is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death. Thus, it incorporates losses due to morbidity and mortality into a single metric.

94. **Despite the pressing need to improve health outcomes, current budget projections indicate that health spending is likely to decline substantially in the coming years, forcing the sector to rely on efficiency rather than additional resources to improve service delivery**. As outlined in Part A, substantial downward revisions to government revenues have necessitated cuts in public spending across all sectors (including health), with the greatest adjustment being borne by capital spending and grants to subnational spending units. Public spending represents over 80 percent of total health expenditure (THE).[41] Thus, the current budget projections of a 29 percent decline in public health expenditure from 2016 to 2021 are likely to result in a sharp fall in THE (Figure 47). These cuts, combined with high projected population growth,[42] will likely see real per capita THE in 2021 fall to levels of the late 1990s.[43] Consequently, improving the quality of spending will be vital if PNG is to minimize the impact of reduced financial resources on the delivery of health services, and to translate the available funds into improved health outcomes.

Figure 46: Faster progress will be required if PNG is to achieve its country-specific SDG targets for maternal and under-5 mortality

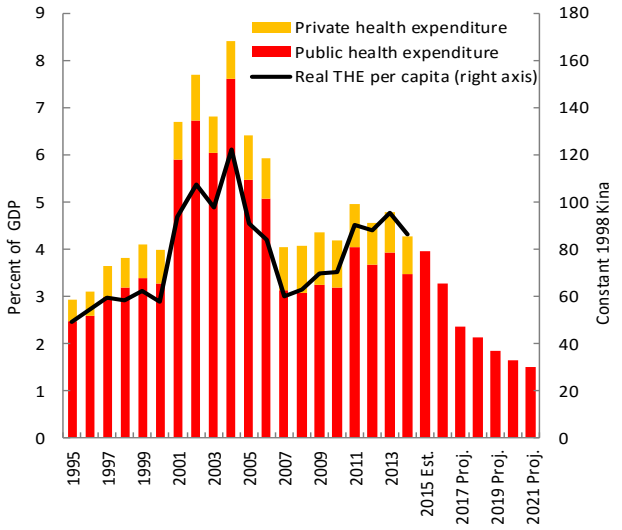
Under-5 mortality per 1,000 live births and maternal mortality per 100,000 live births. Country-specific SDG targets versus expected results if progress continues at a similar trend to 2010-2015



Source: World Bank World Development Indicators and World Bank staff calculations

Figure 47: Projected cuts to public health spending will likely see real total health expenditure per capita fall to levels of the late 1990s

Public, private and total health expenditure, percent of GDP and per capita constant Kina



Source: World Bank World Development Indicators and World Bank staff calculations

Note: Projections based on projected health spending from the 2017 Budget and GDP growth and deflator projections from IMF (2016).

95. **Furthermore, experience suggests that during periods of fiscal contraction, broad strategies to maintain public health spending as a proportion of GDP or total government spending have failed to protect access to quality care for the poor; and that focused efforts to sustain the supply of basic services may be more effective.** International evidence indicates that health spending can be even more procyclical than general government expenditure, and that less pro-poor social expenditures are more likely to be protected during periods of spending adjustment.[44] The poor allocation of scarce resources for health can have profound consequences for human development, including short-term nutritional deprivations that may

[41] This proportion has remained stable over the past 20 years. The remaining roughly 20 percent comprises out-of-pocket spending by households and minimal private insurance.

[42] Population growth is projected to be around 2 percent over the medium term, with fertility rates expected to remain high (26 births per 1,000 people from 2015 to 2030) (UN Population Division, 2017).

[43] Department of Treasury (2016).

[44] Gottret, et al. (2009).

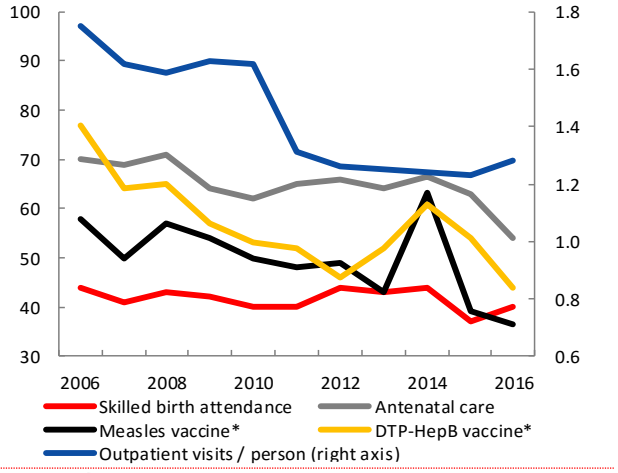
increase child mortality, as well as long-lasting negative effects on cognitive ability and physical growth. Efforts to protect government health expenditure as a proportion of GDP, or as a proportion of total government expenditure, may not be sufficient, as government expenditures per capita in real terms may still decline substantially. A more effective strategy, therefore, may be to prioritize spending on basic services delivered by frontline providers. In this context, it will be vital for PNG authorities to ensure that spending for frontline services is relatively protected (for example, to finance medicines, equipment and outreach activities), while unproductive spending – such as international travel and non-essential equipment – is eliminated.

3. Current challenges to health service delivery

96. **A myriad of constraints – to human resources, the availability of supplies, infrastructure, financing and geography – have inhibited PNG from more rapid progress in health**. The National Health Plan 2011-2020 emphasizes universal coverage of basic health services as a government priority. Despite this commitment, the interaction of these systemic issues has meant that access to basic health services is low, and has generally declined over the past decade (Figure 48). For example, in 2016, only a third of women had access to modern contraceptive methods, only 54 percent of pregnant women attended at least one antenatal care visit and only 40 percent of women delivered with the assistance of a skilled birth attendant.[45] Further, the average number of outpatient visits per person per year has fallen from 1.75 to 1.23. Lower outpatient visits are not because people are healthier so they seek less care; on the contrary, given the slow improvements in maternal and infant health outcomes and the increasing burden of NCDs, this trend is worrisome.

Figure 48: Indicators of health services utilization have fallen over the past decade (2006-2016)

Utilization rates, percent, and outpatient visits per person per year



Source: NDoH (2017)

Note: *Refers to the proportion of children under 1 year of age.

97. **These constraints are particularly acute in rural and remote areas, and have restricted the delivery of the government's three Minimum Priority Activities (MPAs) for rural health spending**. The delivery of health services to the over 80 percent of the country's population who live outside the urban centers relies heavily on the MPAs, which are: (i) operational funding for rural facilities; (ii) rural outreach activities (where facilities organize staff, equipment and drugs to travel out to remote areas to provide primary care); and (iii) the distribution of drugs and medical supplies. Despite regularly being proclaimed the 'backbone' of primary service delivery, rural aid posts continue to close, facilities conduct only a fraction of planned outreach visits (Table 5), and there remain large variations in coverage across provinces.[46]

Table 5: Facilities conduct only a fraction of planned outreach activities

Planned and completed outreach activities, by facility type, 2014

Outreach Activities	Level 3-4 Public*	Level 3-4 Church*
Planned	18.2	51.2
Completed	4.9	38.7
Completion Rate (%)	**27%**	**76%**

Source: World Bank (forthcoming).

Note: *See Box 13 for a description of facility levels.

[45] National Department of Health (2017).

[46] For example, Over the decade 2006-2015, the best serviced provinces (in terms of outreach activities) averaging over 100 visits per 1,000 children under five years of age, compared to the worst serviced provinces with under 20 visits per 1,000 children. The national average for the period was 33 (NDoH SPAR data, various years).

98. **Accessibility indicators suggest that provincial and district health facilities are ill-equipped to provide basic health services.** The National Health Plan (2011-2020) states that the responsibility for the delivery of primary health services should be borne by provincial and district facilities (levels 1-4) (see Box 13 for a summary of the different facility levels in PNG). Yet, a composite measure of availability of basic service shows that the public health centers and district hospitals (level 3-4 facilities) are generally ill-prepared to provide the core set of basic health services (Table 6). Church-run level 3-4 facilities are better able to provide different types of services, which may be because they are larger on average within the same facility level, and generally direct a greater share of spending to productive recurrent costs (such as medicines and equipment).[47]

Table 6: Many health facilities are ill-equipped to provide basic health services

Availability indices for various health products and services, by level and type of facility, 2014

Index	Level 3-4 Public	Level 3-4 Church	Level 5-7
Family Planning items	86%	84%	91%
Vaccines	76%	83%	83%
Antenatal care items	72%	81%	72%
Maternal and neonatal items	64%	78%	87%
Drugs	61%	65%	74%
Information system	54%	59%	77%
Overall Readiness	49%	60%	84%
General Services	44%	53%	64%
Laboratory Services	30%	55%	95%
Overall	**61%**	**71%**	**82%**

Source: World Bank (forthcoming)

Box 13: Separation of church and state

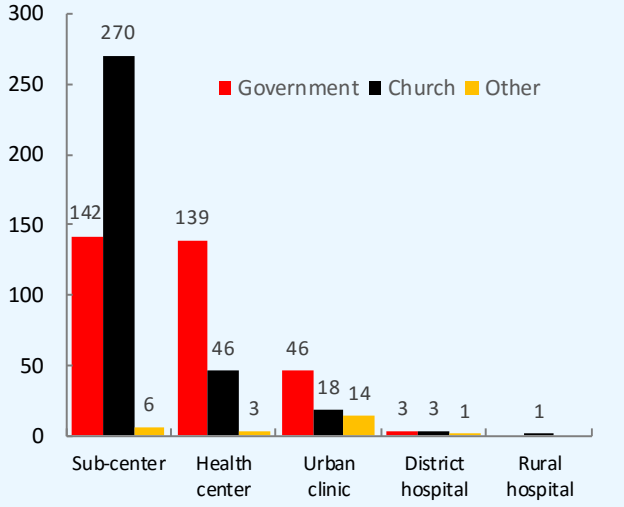
The composition of health facilities in PNG

The main service providers in PNG are the government and churches, with the private sector playing a relatively minor role. In PNG, public health facilities deliver the bulk of primary care services to the population. Public facilities are complemented by church-run facilities, that provide frontline services on behalf of, and with financial support from, the government. Church-run facilities (the vast majority of which are community health posts or aid posts – "Sub-Centers" in Figure 49) – are more likely to be located in rural and remote areas and to serve a poorer population[48] – and thus play an important role in improving the equity of service delivery. Public and church run facilities are classified according to the hierarchical structure defined by the National Health Service Standards:

- L1 – Aid Posts
- L2 – Community Health Posts
- L3 – Health Centers/Urban Clinics
- L4 – District Hospitals
- L5 – Provincial Public Hospitals
- L6 – Regional Hospitals (ANGAU Memorial, Nonga, Mt Hagen, PMGH)
- L7 – National Referral Hospital (PMGH).

Figure 49: Government and church facilities dominate the PNG health landscape

Number of health care facilities by ownership, 2014



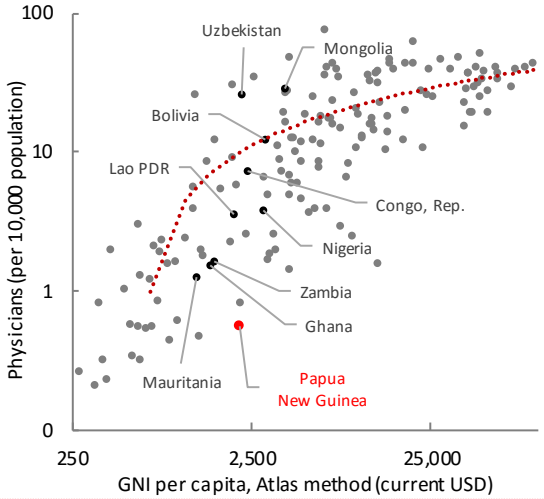
Source: NDoH (2016)

99. **Severe shortages of human resources for health – a constraint that is magnified in rural and remote areas – are an important contributor to gaps in the availability and quality of services.** PNG currently has 6 health workers per 10,000 people, around one quarter of the WHO-recommended minimum level of 23 health workers per 10,000 people. Furthermore, with 0.6 physicians per 10,000 people, PNG lies

[47] World Bank (forthcoming).
[48] World Bank (forthcoming).

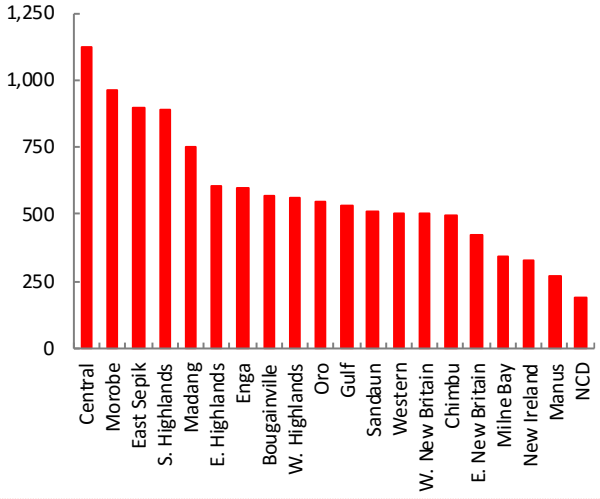
far below the expected level of resources based on the nation's income level (Figure 50). The current workforce lacks adequate training and is rapidly aging (in 2009 over 53 percent of the workforce was aged 45 years and above).[49] The training capacity of the sector has also weakened over the last 15 years, as real recurrent expenditure on nursing colleges dropped by 50 percent between the mid-1980s and 2009. These constraints are magnified in more remote and rural areas where public facilities regularly do not reach, with population-staff ratios varying from 188 to 1 in the National Capital District to 1,125 in Central Province (Figure 51). Together, these factors illustrate a sobering reality in which frontline staff, with limited training, are stretched to capacity.

Figure 50: PNG has far fewer doctors per capita than would be expected based on the nation's income level
Physicians per 10,000 population, latest data available



Source: WHO 2016 Global Health Workforce Statistics Database

Figure 51: Human resource constraints are particularly acute in remote and rural areas, with large disparities between regions
Population per health worker by Province, 2009



Source: World Bank (2011)

100. **Improvements in the availability of basic drugs, equipment and materials are also essential to improve service quality and access.** For example, the distribution of medical supplies to frontline providers remains unreliable and has led to cases of drugs expiring while in storage awaiting distribution. In a recent survey, only 10 percent of public health centers and district hospitals (level 3-4 facilities) had at least 75 percent of essential drugs available.[50] Public provincial and regional hospitals (level 5-6 facilities) performed better, but still only half had at 75 percent of essential drugs on stock.

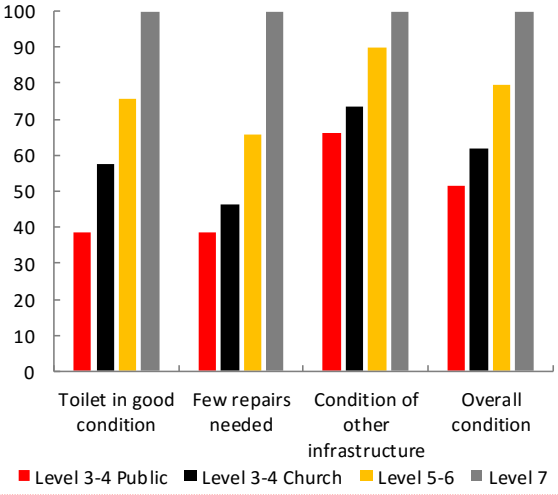
101. **Basic infrastructure is missing or degraded, especially at frontline facilities.** Through the Health Function Grant (HFG) to provincial governments – which increased almost sevenfold in real terms from 2007 to 2017 – the central government allocates sufficient operational funding for infrastructure maintenance to prevent degradation of existing facilities. However, it appears that an insufficient amount of this financing is passed on to maintenance activities, as a survey of basic infrastructure at different levels of health facilities shows that the overall condition of basic infrastructure in level 3-4 facilities is poor, and there is also considerable room for improvements at larger facilities (level 5-6) (Figure 52).

[49] World Bank (2011).
[50] World Bank (forthcoming).

102. **Decentralization of the health system has led to complex and fragmented accountabilities for accountabilities for allocating and using funds**. Over the past three decades the structure of the health system as undergone a gradual process of decentralization. This has created a complex and fragmented institutional framework in which a host of different institutions are responsible for different elements of policy, procurement, distribution, and facility management (Table 7). Budget allocation and spending decisions are thus undertaken by a variety of actors, often with little coordination, especially between the operational and capital investment components of the budget. Budget fragmentation is further exacerbated by the substantial role played by international donor financing in the health sector, and the delivery of donor-financed services through vertical disease programs that utilize parallel systems outside of the core public health system (see Box 14).

Figure 52: A lack of basic infrastructure also inhibits primary frontline service delivery

Percent, condition of infrastructure, by level and type of facility



Source: World Bank (forthcoming)

Table 7: Responsibilities for allocating and using funds remain complex

Spending Unit		Budget Component	
		Operational	**Capital Investment**
National	Allocation	Dept. of Treasury	Dept. of Planning
	Usage	NDoH (incl. drugs and medical supplies)	NDoH
	Reporting to	Treasury & Finance	Dept. of Planning
Subnational	Allocation	NEFC (endorsed by Treasury)	Cabinet
	Usage	Provinces, Provincial Health Authorities (PHAs), Districts, Facilities.	Governors, Open Members, District Development Authorities.
	Reporting to	Treasury, Department of Provincial and Local Level Government Affairs, Finance.	Department of Implementation and Rural Development.

Source: World Bank staff

103. **For example, the Medium Term Development Plan 2011-2015 established a balanced set of infrastructure targets by facility level, but fragmented implementation has led to spending inefficiencies**. Infrastructure funding in the first two years was consistently distributed across all priority areas. However, in 2013 the responsibility for funding primary healthcare facilities (level 1-4) shifted to provinces and districts, with a substantial increase in subnational financing via the Provincial Service Improvement Program (PSIP) and District Service Improvement Program (DSIP) (Figure 54). These programs are at the discretion of governors and open members of parliament. Evidence suggests that PSIP and DSIP infrastructure spending: (i) has not followed the policy priorities set out in the MTDP; (ii) often has not followed the standard specifications for health facilities defined by NDoH; and (iii) is not integrated into the broader budget process to ensure that operational resources are allocated to support new capital spending.

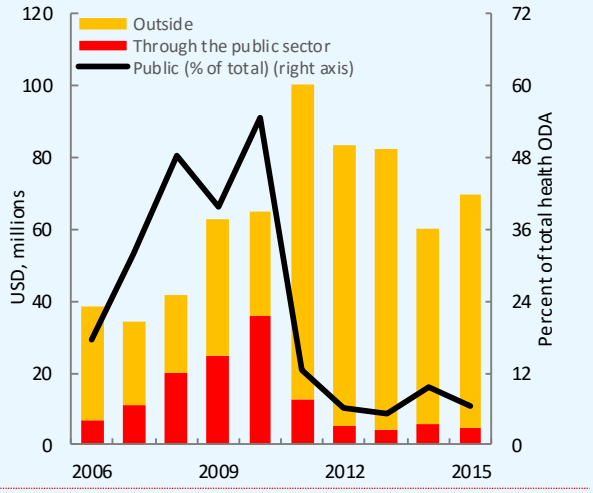
Box 14: Lost in transition

Donor financing and the risk of losing implementation capacity during transition to national systems

Official Development Assistance (ODA) in the health sector is significant – especially in vertical disease programs – but a push for the government to assume an increasing share of the costs, and an increase in off-system support, raises concerns about financial and institutional sustainability. External resources on health remain steady at around 20 percent of THE and thus represent a significant source of funding to the sector. The share of external resources is high relative to the average of 3.3 percent for lower-middle income countries, but lower than many countries in the region. Development partner assistance increasingly relies on implementation mechanisms outside the Government. To some degree, this is due to previous episodes of mismanagement of funds in donor trust accounts. Australia represents the largest donor, contributing over 55 percent of all ODA to the sector in 2015 (Figure 53). The Global Fund to Fight AIDS, Tuberculosis and Malaria and Gavi, the Vaccine Alliance (Gavi), represent important shares of ODA, and are dominant funding sources within their respective program areas. In 2015, only 6 percent of development partner assistance was channeled through government systems, with the remainder flowing through managing contractors and international non-governmental organizations (Figure 53). Providing assistance outside the government system means that not only financial but also technical and human resources bypass the government. This leads to concerns regarding the financial and institutional sustainability of donor programs.

Figure 53: The majority of ODA is managed outside of the PNG public health system

Health ODA channeled through the public system or outside systems, USD millions and percent channeled through public system



Source: OECD (2017)

A particularly pressing concern for sustainability lies in the immunization program. Since PNG has achieved lower-middle income status, Gavi has in 2017 begun a process of accelerated transition, a standard approach across all Gavi countries. This means that each year, the government must fund an additional 20 percent of the cost of vaccines, until it funds 100 percent by 2021. Without strong coordination and rapid improvements in sectoral administration, there is a substantial risk that current capacity and prevention and control strategies related to critical diseases could be 'lost in transition' during the shift from donor systems to the national system.

104. **Severe cash flow issues are also a key constraint to effective service delivery**. The pace of decentralization in PNG has arguably exceeded the speed at which subnational systems have been able to adapt to their increasing responsibilities. The result has been disbursement delays at all levels of government. The release of the HFG by the Department of Finance has been inconsistent (especially between provinces) and is often delayed until well into the financial year.[51] Authorities recognize the negative effects of the delays on service delivery,[52] yet progress on resolving them has been slow, and revenue constraints and ad hoc cash rationing in recent years has further exacerbated this issue.[53] Cash flows also face interruptions at the subnational level, where funds are transferred between provincial treasuries to provincial health offices, PHAs and districts, which then procure goods for health facilities. Aside from delays, Provincial Expenditure Reviews by the NEFC have highlighted that subnational governments also spend a disproportionately large amount on

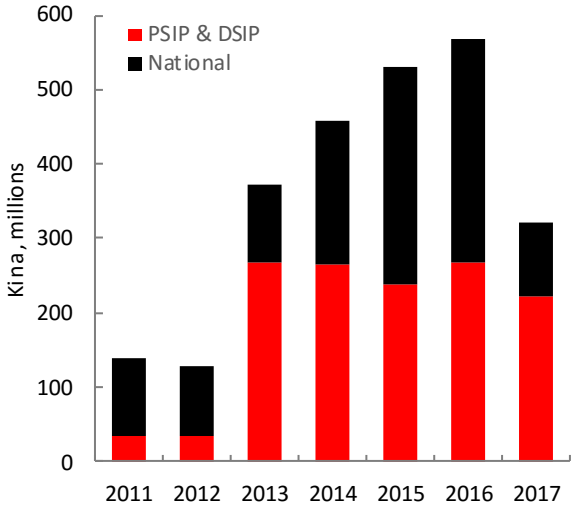
[51] Cairns & Hou (2015).
[52] NDoH (2013).
[53] For example, in 2016 only 11 percent of annual funds had been released by the end of June, with around 40 percent not released until December (based on data from the PNG Government's Integrated Financial Management Information System).

their own administrative costs, rather than supporting frontline service delivery (e.g. purchasing petrol for outreach activities and distributing drugs to facilities).

105. **In fact, recent initiatives that provided more public financing for health without addressing the structural problems of the sector have further restricted financing at the frontlines.** A recent study by the NEFC indicated that, in 2011, national funding combined with internal provincial revenue should have been sufficient to provide the most essential elements of universal primary healthcare without user fees.[54] Despite this, a 2012 survey showed that 41 percent of level 1-3 facilities did not receive any external support (including in-kind),[55] and instead relied entirely on user fees for service delivery.[56] Free universal health care was a central pillar of Prime Minister Peter O'Neill's campaign platform in the 2012 election. Introduced in 2014, the Free Primary Care and Subsidised Specialist Services Policy prohibited the charging of user fees for primary health services, in an attempt to increase access and provide greater equity in the health system – in effect providing a level of universal health coverage. Under the policy, the removal of user fees would be compensated by K20 million (USD 8.1 million) of extra funding to provinces. However, the policy did not address the underlying weaknesses in public resource allocation and controls. The result was that the additional funding was not released in 2015, was only released in September in 2016, and is yet to be released in 2017, forcing facilities to maintain the collection of user fees.

Figure 54: With national funding expected to fall, subnational authorities will control the majority of infrastructure financing for primary healthcare

Funding available under PSIP and DSIP compared to investments at the national level, 2011-2017, Kina, millions



Source: World Bank staff calculations based on data from the PNG Government's Integrated Financial Management Information System

106. **Improvements to the public financial management (PFM) system is one pathway to improving the quality of health spending**. The weaknesses encountered in the health sector are symptomatic of broader PFM challenges faced across the public sector. These weaknesses were diagnosed in the government's 2014 Public Expenditure and Financial Accountability (PEFA) assessment. Resolving these challenges is the focus of the government's 2015-2018 PFM Roadmap.[57] The following points summarize the four key areas for improvements identified in the PEFA, and examples of how they relate to the health sector:

i. *Improving the credibility of the fiscal strategy and budget.* In health, there is a tendency for recurrent expenditure to be higher than planned. Two key reasons for this are: (i) weak payroll processes which result in overpayments on wages and salaries;[58] and (ii) fragmented capital spending, meaning

[54] The 2011 Cost of Services Study (the latest available) estimated the operational and maintenance costs of providing the bare minimum of universal primary health services to be K123.7 million (NEFC, 2014). Theoretically, national funding of K133 million in 2011, plus additional financing from the internal revenue of some provinces, should have been sufficient to deliver the minimum level of free universal primary healthcare services.

[55] External support refers to financial or in-kind support from the government, a church health agency, private actors, or donors. In-kind support refers to the purchase and allocation of materials and drugs, or assistance to carry out activities.

[56] Howes et al. (2014).

[57] Department of Finance (2015).

[58] For example, in a survey of 146 staff in the Department of Health, 110 (75 percent) were receiving overpayments representing K2.23 million (Department of Finance, 2015).

operational and maintenance costs are not included in the budget, and require additional financing – particularly in relation to the PSIP and DSIP spending.

ii. *Improving the comprehensiveness and transparency in recording and reporting in the budget.* Greater devolution of health spending to subnational spending units has raised several issues that need to be addressed, including: (i) risks of reduced transparency and accountability on the flow of both financial and in-kind support (particularly for the PSIP and DSIP, and the HFG); and (ii) leakages or delays in the disbursement of funds, such as the HFG.

iii. *Improving control of budget execution.* Improving cash management would certainly improve cash flow disbursement and budget execution. For example, government deposits held in multiple trust accounts in commercial banks have not only contributed to excess liquidity but also reduced transparency and led to delays in procurement and distribution of equipment and drugs. There is also a need to strengthen controls, as decentralization has weakened the reconciliation of actual expenditure to initial allocation.

iv. *Enhancing external scrutiny and undertake corrective measures.* Ensuring systemic audits of government institutions and that penalties are imposed for breaches of the law and financial misconduct would strengthen accountability mechanisms and encourage performance.

4. The health service delivery mechanism and the PHA model

107. **The Provincial Health Authority (PHA) model is expected to relax these various constraints, by combining all provincial service delivery functions under one management structure**. Following extensive deliberation, the fragmentation of responsibilities at the provincial level was deemed one of the key causes of poor service delivery. The preferred solution to this problem was the establishment of the PHA model, where one entity is responsible for the management of all elements of the health system in the province, including policy implementation, resource allocation, facility supervision, human resources (HR) and financial management. Implementation of the model – an alternative to the facility-based approach which had previously been used in PNG – commenced in 2009.

108. **Despite implementation issues, evidence suggests that the PHA model has led to improvements in provincial governance, financing and administration of service delivery.** The rollout of the PHA model was slow during the first three years of implementation, as funding was limited and many institutional, staffing and financial management hurdles had to be resolved. Through lessons learnt, the establishment of subsequent PHAs has progressed faster. Initial results have been encouraging – an independent review found that financial management and service delivery support had improved under the PHAs.[59] Results in Milne Bay have been particularly striking, with strong political support and funding helping to deliver long-acting methods of contraception to 30,000 women, for example. The PHA model continues to be rolled out, with 10 fully established PHAs (Hela, Milne Bay, New Ireland, Eastern Highlands, Western Highlands, Southern Highlands, West New Britain, Enga, West Sepik and Manus) and 5 PHAs planned to be fully developed by the end of the year (East Sepik, Northern Province, Madang, Morobe and Simbu).[60]

109. **However, the PHA model continues to suffer from a lack of clarity in the legal framework and administrative processes, which inhibits performance**. A key example is the HFG, which should be immediately transferred from the Provincial Treasury to the PHA – as the latter is responsible for using these

[59] Independent Review (2015). The analysis was based on the three provinces that volunteered to 'pilot' the PHA model from 2009 to 2012, which comprised East Highlands, West Highlands and Milne Bay.
[60] NDoH (2017).

funds. However, some provincial governments are reluctant to release delegated powers to the PHA, and there is currently no legislation which requires the funding to be transferred (although a 2015 independent review of PHAs did recommend the need for Treasury to approve the release of the HFG directly to PHAs and not to provincial authorities[61]). The result is long delays or PHAs not receiving all the HFG. The PHA also has no inherent ability to improve the coordination of investment spending and operational priorities, given that the PSIP & DSIP funding remain the purview of governors and open members. PHAs also have limited scope to resolve shortfalls in staff and delays in HR processes, as HR allocations and approvals remain the responsibility of the Department of Personnel Management. Without a credible commitment to address these constraints that lie outside the PHA, there is a risk that the new management model may continue to suffer from the challenges outlined in Section 3.

110. **Maximizing the benefits of the PHA model will require parallel efforts to enhance capacity at the sub-national level and improve accountability for results.** Once the PHA implementation is completed, service delivery will be almost fully decentralized. However, any changes to the service delivery structure of the health sector will have limited impact if underlying capacity and governance constraints are not adequately addressed. If district capacity to support frontline service delivery is weak, and infrastructure spending is not coordinated with national plans or operational priorities, health facilities will be affected, independent of whether the responsibility for provincial management of services lies with a provincial government or a PHA. If performance is not adequately monitored and rewarded, neither provincial health offices nor PHAs will have incentives to improve the quality and reliability of service delivery.

5. The way forward

111. **Given limited and declining available financial resources for health, improving the efficiency of spending will be an important priority; one that will require PFM constraints to be addressed and better utilization of available human resources, infrastructure, and health materials**. Slow progress in health outcomes and stagnant or declining trends in utilization rates point to stalled progress, and the risk that gains could be reversed as public spending on health declines over coming years. Improvements in spending efficiency are thus critical to deliver on the objectives of the National Health Plan 2011-2020 and the commitment to universal basic health coverage. Primary among the required PFM reforms is streamlining the disbursement of financing and in-kind support from higher levels down to the spending units responsible for implementation. Improved accountability and reporting on PSIP and DSIP infrastructure spending is an important component of this – as greater access to information across the health sector can help to integrate capital and operational spending allocations.[62] The roll-out of the government's Integrated Financial Management Information System (IFMIS) should help facilitate this coordination. With budget projections indicating that national infrastructure funding will continue to decrease, while provincial funding will remain, it is imperative that PSIP & DSIP contribute more consistently and transparently to subnational health infrastructure. Regular reporting can also improve governance and align incentives, by providing greater capacity for monitoring and auditing, which can encourage improved performance, strengthen controls, and facilitate the application of corrective measures.

112. **In the context of projected cuts to health spending, frontline service delivery – including outreach activities – should be prioritized**. Ensuring adequate health services for the roughly 80 percent of

[61] Independent Review (2015).

[62] At present, NDoH has no access to information on whether funding through PSIP & DSIP has been spent on health, and over the period 2014 to 2017 the proportion of acquittals received by the Department for Implementation and Rural Development (DIRD, the department responsible for monitoring PSIP & DISP spending) has fallen from 83 percent to less than 5 percent in 2017, as reported by DIRD in the Post Courier Newspaper on 31 May, 2017 (Arnold, 2017).

Papua New Guineans who live in rural areas remains critical. Effective delivery of the three MPAs for rural health should be prioritized. Innovative new methods and partnerships for service delivery may need to be considered. For example, authorities could investigate the feasibility of expanding service delivery in remote and rural areas through continued partnerships with churches; and could explore telemedicine[63], supportive supervision[64] and other approaches to improve service delivery in remote areas.

113. **Complementary measures are required to ensure the PHAs can fulfil their potential to improve service delivery**. Future strengthening of the PHA model requires commitments in terms of: adequate levels of resourcing; timely releases of funds; recruitment of skilled staff; improved communication, coordination and effective reporting between all stakeholders; and sufficient levels of support from national departments. To this end, there is a need to address the inconsistencies in legislation and administrative norms that impede the functioning of PHAs, including either legislation to compel provincial treasuries to release the HFG immediately, or measures to allow the national government to transfer funds to PHAs directly. New initiatives will also be required to address the emerging severe shortfall in trained health professionals. In the short term, a first step is to find ways to retain existing health workers, and to improve the skills and productivity of this existing workforce. In parallel, there is a need to start investing for the medium-term, by attracting more young people to work in the health sector, investing in their training for the skills and professions that will be required over the coming decades, and channeling these new health workers into good jobs across the country.

114. **Funding for interventions to address malnutrition and cost-effective services for the prevention and control of NCDs are also a high priority**. Improving children's health outcomes is crucial if PNG is to maximize the benefits of their young population to improve productivity and welfare. This further emphasizes the importance of delivering the MPAs, as these are the modalities for expanding access to essential services for children, including immunizations and basic treatments for diarrhea. Addressing the very high rates of malnutrition and stunting will require comprehensive coverage of an evidence-based set of interventions to target child undernutrition delivered through the health system (such as breastfeeding promotion, counselling on nutrition and hygiene practices, micronutrient supplementation, health services to prevent and treat childhood illness, etc.) as well as complementary actions beyond the health sector (such as improved water and sanitation). Limiting the additional fiscal burden of NCDs on the already-stretched health system will also require a sharp focus on cost-effective methods for prevention and control – along with complementary public policy measures, such as raising taxes on tobacco, alcohol, and food and drinks that have a high fat and/or sugar content.

115. **Performance-based financing mechanisms may help to address some of the main constraints to effective frontline service delivery, although this should not be seen as a 'silver bullet'**. Performance-based financing seeks to enhance the effectiveness of public spending by linking payments directly to results. With the monitoring and verification of results a key factor in determining disbursements, the approach also seeks to strengthen transparency and local accountability by leveraging existing mechanisms for effective community participation in decentralized planning, delivery and monitoring of service provision. There is increasing international evidence that these types of financing mechanisms can have a positive impact on public system performance, provider behavior and the quality of services delivered.[65] Nevertheless, simply paying for results in the PNG health sector may not be sufficient, as long as there remain substantial gaps in sub-national capacity. Technical assistance, ensuring local 'ownership' of any performance-based program, and strong

[63] Telemedicine is the use of telecommunication and information technology to provide clinical health care from a distance.

[64] Supportive supervision is a facilitative approach to supervision that promotes mentorship, joint problem-solving and communication between supervisors and supervisees.

[65] In an evaluation conducted by the International Development Association (2009, page ii), "out of 22 closed Output Based Aid projects with Implementation Completion and Result Report ratings available, 90 percent of development outcomes were rated either *satisfactory* or *highly satisfactory*."

monitoring and learning dissemination are crucial to build the capacity and the accountability of local actors for improved delivery of health service.

116. **Finally, authorities and donors will need to consider the sequencing of any transition of vertical disease programs from donor systems to government systems to ensure services and capacity are not lost during the transition**. Most immediately these challenges must be overcome with the expected withdrawal of Gavi in 2021 – but it is also important to consider how a transition of the HIV/AIDS, TB and malaria programs might occur over the medium term. It is imperative that authorities and donors coordinate activities to maximize the transfer of financial, institutional and operational capacities that have been built up over recent years, strengthen partnerships between NDoH and current implementation partners of donor programs, and build the resilience of the national systems to both manage day-to-day operations, and respond to an epidemic. If done well, the transition offers an opportunity to explore innovative service delivery mechanisms and to integrate services – both of which can increase sector efficiency.

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