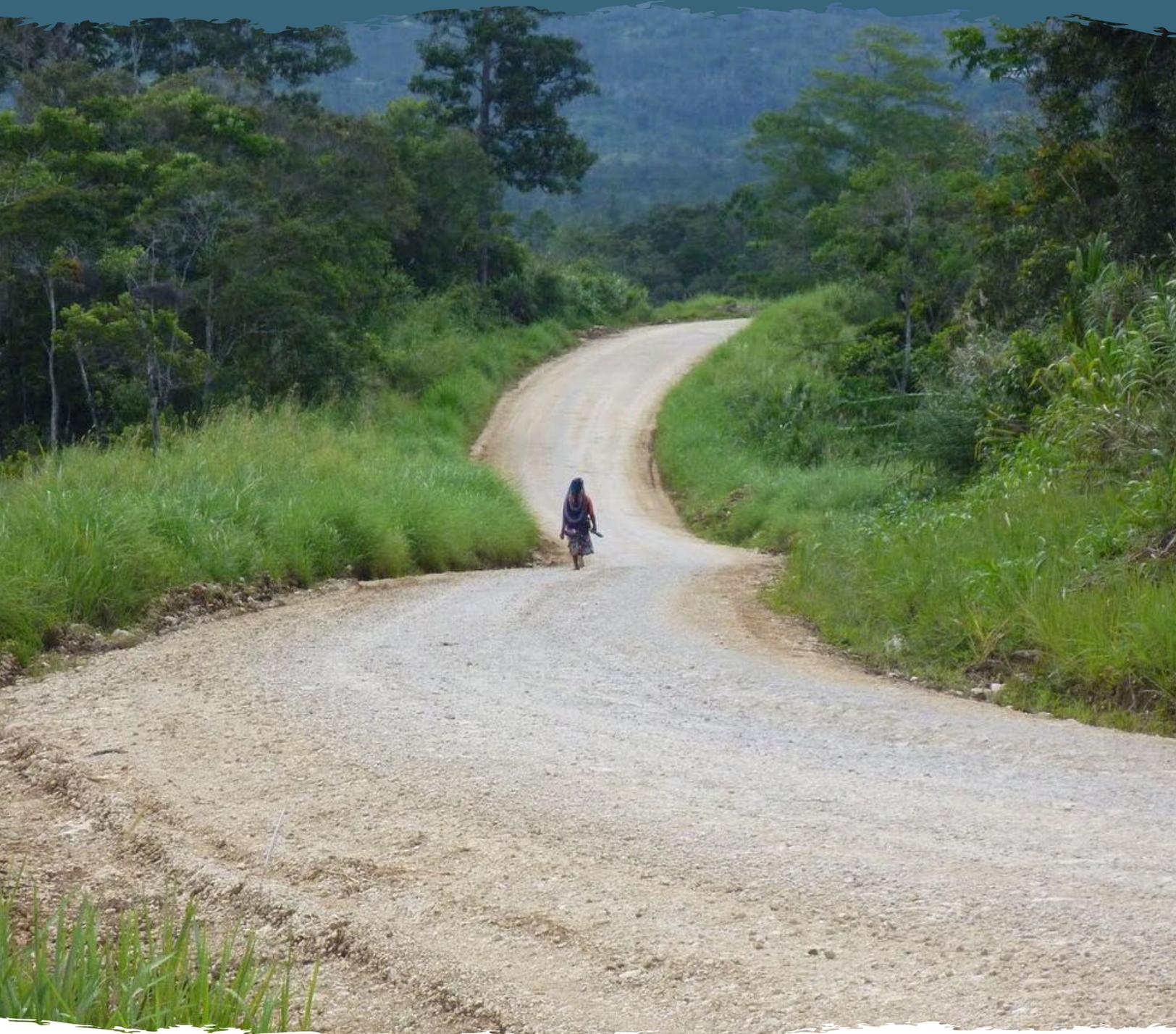


FROM EXTRACTION TO INCLUSION

CHANGING THE PATH TO DEVELOPMENT IN PAPUA NEW GUINEA



FROM EXTRACTION TO INCLUSION

CHANGING THE PATH TO DEVELOPMENT IN PAPUA NEW GUINEA



Acknowledgements

This report is a joint publication between ACT NOW!, Jubilee Australia and the Oakland Institute.

Author: Luke Fletcher

Editors: Eddie Tanago & Frederic Mousseau

Graphic Design: Amy Woloszyn

Maps: Mellie Musonera

Charts: Dina Hopstad Rui

Acknowledgements: We would like to thank the following people for their advice and assistance with various drafts: Effrey Dademo, Kate McDonald and Emily Mitchell.

Cover Photo: Walking into Nogoli, PNG Highlands © James McIlraith / University of Otago

Attribution: You must attribute the work to ACT NOW, Jubilee Australia and the Oakland Institute.

Non Commercial: You may not use this work for commercial purposes.

Photo page 10: Walking into Nogoli, PNG Highlands © James McIlraith / University of Otago

Photo page 29: Bath and laundry in Turubu, East Sepik © The Oakland Institute

Photo page 42: PNG LNG site © James McIlraith / University of Otago

Photo page 56: Sausi Village, Madang Province © The Oakland Institute

Photo page 70: Working on the road to Tari, PNG LNG construction phase © James McIlraith / University of Otago

Licensing: This work is licensed under the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0).

You are free to share, copy, distribute, and transmit this work under the following conditions:

ABOUT US

ACT NOW! is a community advocacy organisation based in Papua New Guinea. Its vision is for a 'gutpela sindaun blong olgeta' (a just and equitable society) that embraces PNG's rich and diverse cultural and biological heritage and is based on the principles of sharing, communal land ownership and environmental stewardship.

P.O. Box 5218, Boroko 111, NCD, Papua New Guinea

www.actnowpng.org

info@actnowpng.org

Jubilee Australia (full name: The Jubilee Australia Research Centre) engages in research and advocacy to promote economic justice for communities in the Asia Pacific region and accountability for Australian corporations and government agencies operating there.

PO Box 20885, World Square, NSW 2002 Australia

www.jubileeaustralia.org

info@jubileeaustralia.org

The Oakland Institute is an independent policy think tank bringing fresh ideas and bold action to the most pressing social, economic, and environmental issues.

PO Box 18978 Oakland, CA 94619 USA

www.oaklandinstitute.org

info@oaklandinstitute.org

ACT NOW!, Jubilee Australia and the Oakland Institute, October 2020

TABLE OF CONTENTS

EXECUTIVE SUMMARY	5
FIGURES	7
ABBREVIATIONS	8
INTRODUCTION	9

PART I: THE STORY OF PNG'S DEVELOPMENT

CHAPTER 1: THE EVOLUTION OF A DEVELOPMENT PATH	10
1.1: Independence and its Challenges	11
1.2: Two Choices for a Development Path	12
1.3: The Expansion of the Mining Sector	14
1.4: The Expansion of the Forestry Sector.....	16
1.5: The Two Principles of 'Development by Extraction'	19
CHAPTER 2: TRENDS IN PNG'S HUMAN DEVELOPMENT	21
2.1: Economic Growth: GDP and its Limitations.....	22
2.2: Living Standards, Poverty and Inequality.....	23
2.3: The Human Development Index.....	24
2.4: Access to Basic Services.....	26
2.5: Child and Maternal Health	27

PART II: THE PARADOX OF WEALTH WITHOUT DEVELOPMENT

CHAPTER 3: ENCLAVE ECONOMIES	29
3.1: Resource Extraction and Exports	30
3.2: Resource Extraction and GDP	31
3.3: Resource Extraction and Employment	32
3.4: The Lack of Multipliers	34
CHAPTER 4: REVENUE COLLECTION, MANAGEMENT AND SPENDING	35
4.1. The Contribution to National Revenues	35
4.2: Mining, Oil and Gas Companies: Tax Avoidance	36
4.3: Logging Companies: Tax Evasion.....	37
4.4: Dodgy Loans and Spending Sprees.....	39
4.5: Disappearing Foreign Exchange Reserves	40
4.6: Revenue Misappropriation and Spending.....	41

PART III: THE LOCAL PICTURE

CHAPTER 5: ECONOMIC AND SOCIAL IMPACTS	42
5.1: Direct Economic Benefits.....	43
5.2: Infrastructure Development and Services	44
5.3: Internal Migration and Foreign Workers	45
CHAPTER 6: ENVIRONMENTAL IMPACT	46
6.1: The Environmental Impacts of Mining	47
6.2: The Steady Destruction of One of the World's Great Rainforests.....	48
6.3: The Environmental Impacts of Logging and Oil Palm.....	51

CHAPTER 7: CONSENT, CONFLICT AND HUMAN RIGHTS	52
7.1: Customary Land Alienation and Natural Resource Extraction.....	53
7.2: Free, Prior and Informed Consent	53
7.3: Human Rights and Conflict.....	54

PART IV: SECURING A BETTER FUTURE

CHAPTER 8: THE ECONOMY OF THE PEOPLE	56
8.1: The Strength and Resilience of Agriculture and the Rural Economy.....	57
8.2: Agricultural Policy: Opportunities and Constraints	58
8.3: Customary Land Under Threat.....	59
8.4: Strengthening the Agricultural Sector	61

CHAPTER 9: SUSTAINABLE EXTRACTION	62
9.1: A Resource Curse?	63
9.2: Institutional Changes to the Minerals and Forest Governance Regimes.....	63
9.3: The Limits of Reform: Minerals	65
9.4: A Moratorium on New Mining and Petroleum Projects.....	65
9.5: Principles of Sustainable Forest Management.....	66
9.6: A Ban on Round Log Exports.....	67
9.7: Downstream Processing of Timber Products	67

CONCLUSION	69
-------------------------	----

BIBLIOGRAPHY	71
---------------------------	----

ENDNOTES	75
-----------------------	----

Executive Summary

This report stems from a simple observation: that since Independence in 1975, Papua New Guinea's economic and social development outcomes have not matched people's aspirations or government promises. Indeed, despite the abundance of its riches, PNG lags behind its Pacific neighbours on many important development indicators.

This can, in large-part, be attributed to the development path that has been followed by successive governments. Rather than a people-centred approach, which was considered and promoted in the years leading up to Independence and embedded in the nation's Constitution, it is large-scale resource extraction that has dominated among policy makers and been sold to the people under the promise it will improve their lives.

In pursuit of this goal, PNG has allowed some of the world's largest mining, petroleum and timber companies onto its shores to extract gold, silver, copper, nickel, oil, natural gas, tropical hardwoods and palm oil.

While there have been some positive developments, particularly in access to education and life expectancy, the economic and social development that has been repeatedly promised has not been delivered. Although it is hard to get reliable scientific data on the standard of living, evidence suggests that for most families, it has either stagnated or declined. Health services are trading water or have gone backwards. There is poor access to clean water, sanitation and electricity. Child malnutrition, easily preventable diseases and other health issues are widespread. Meanwhile, PNG's traditional strengths in agricultural know-how and the continued resilience of the informal economies and clan kinship networks at the heart of its village life continue to sustain and support most of the population. In 2020, the COVID-19 pandemic has once again illustrated this strength and resilience.

The strategy to rely on the extraction of natural resources has failed to improve people's lives for a number of reasons. Extractive industries like mining, oil and gas and industrial scale logging are enclaves with little connection to the rest of the economy. Foreign companies bank most of the profits offshore, and contribute relatively little to

government revenues. And the growth of these sectors has been accompanied by poor governance, theft of public money, and corruption.

Meanwhile, the extractive industries are allowed to externalise their enormous social and environmental costs. PNG has already lost much of its accessible forests, a disaster for a country where forests constitute a key source of construction materials, food, and medicine for large swathes of the population.

The pollution of land and waterways by mining waste has also had devastating consequences for local communities compromising their access to fresh water, to food sources and to prime gardening land.

In addition to this high social, economic and environmental toll on the population, extractive operations involve widespread human rights abuses. Communities opposing extractive projects often face repression, threats and violence. When they have projects forced upon them, or when they consent to them in the name of empty promises that are never delivered, legitimate dissent and protests are often met with violence and abuses by police forces or private security operatives.

Through its comprehensive and objective review of the above facts and figures, this report makes it clear that it is urgent for PNG to change course and put people back at the centre of its development policies.

The country has important assets. It still has a largely rural population, living on their own land with the skills and ability to work, produce, trade, and innovate in a way that will improve their lives and those of future generations. PNG's wealth of natural resources can continue to be the basis of people's livelihoods, provided these are managed by and for the people in a sustainable, responsible, and wise way.

The change of course requires important policy shifts for the government, which should start by halting its attack on customary land tenure, which is the basis of the village economy and the livelihood of most of the population.



PNG LNG construction phase © James McIlraith / University of Otago

The next step is to reject new large-scale resource extraction projects, at least until genuine reform of the governance regimes is accomplished. In the forestry sector, a ban on round log exports is urgently needed. Local communities must be placed at the heart of future forest management. Downstream processing of sustainably and ethically produced timber products should be the priority. Halting the expansion of oil palm is another priority that must come with public policy and investment in appropriate agriculture

that benefits farmers, feeds the country, and uses natural resources in a responsible way.

There are hopeful signs that PNG policy makers have started the necessary shift, but a much greater, whole-of government approach across multiple sectors is required.

Understanding the nature of the problem is a first essential step for these changes to happen. It is hoped that this report will help serve such a purpose.

Figures

Chapter 1

Figure 1.1: Timeline of major events in evolution of the mining and petroleum sectors

Figure 1.2: Major mines & petroleum projects

Figure 1.3: Log exports by concession type

Figure 1.4: Carving up a country

Chapter 2:

Figure 2.1: PNG real GDP per capita

Figure 2.2: PNG poverty figures compared to its neighbours (% of population)

Figure 2.3: Life expectancy: PNG and its neighbours

Figure 2.4: Expected years of schooling, PNG and its neighbours

Figure 2.5: PNG access to sanitation compared to its neighbours (% of population)

Figure 2.6: Under 5 mortality rates per 1,000 live births

Figure 2.7: PNG prevalence of stunting compared to its neighbours (% of under-five)

Chapter 3

Figure 3.1: Share of exports by value: agriculture vs resources

Figure 3.2: PNG employment by sector

Chapter 4

Figure 4.1: Minerals and petroleum sectors' contribution to budget revenues

Figure 4.2: Export value of products from 5 largest extractive projects (2018)

Figure 4.3: Sales vs government revenues for mining and petroleum sectors

Figure 4.4: Log export prices: PNG vs other major exporters (US\$)

Figure 4.5: PNG balance of payments: current account vs capital account

Chapter 6

Figure 6.1: Forest loss due to deforestation and forest degradation

Figure 6.2: Where has the forest loss occurred?

Abbreviations & Acronyms

CEPA	Conservation and Environment Protection Authority
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EIS	Environmental Impact Statement
EDF	Electoral Development Fund
FCA	Forest Clearance Authority
FMA	Forest Management Agreement
FPIC	Free, Prior and Informed Consent
GDP	Gross Domestic Product
HDI	Human Development Index
HIES	Household Income and Economic Survey
ILG	Incorporated Landowner Group
ITTO	International Tropical Timber Organization
K	Kina
LFA	Local Forest Area
LNG	Liquified Natural Gas
MTDP	Medium Term Development Plan
NGDPs	National Goals and Development Principles
StaRS	National Strategy for Responsible Sustainable Development
PNG	Papua New Guinea
PNGDSP	PNG Development Strategic Plan 2010-2030
PNGFA	PNG Forest Authority
RH	Rimbunan Hijau
SABL	Special Agricultural Business Lease
SIDS	Small Island Developing States
TRP	Timber Rights Purchase
UNDP	United Nations Development Program
UPNG	University of Papua New Guinea
VAT	Value Added Tax

Introduction

In the years leading up to and immediately after Papua New Guinea's independence in 1975, the new nation faced a choice. Should it open itself and its natural resources up to multinational companies and allow them in to exploit its newly discovered mineral wealth? Should it do the same with its forest resources? Or should it focus on the strengths that had sustained its inhabitants for thousands of years: village life, its agricultural diversity and know-how, the values of customary land ownership, and the sustainable use and management of its abundant natural resources? We might characterise this decision as a choice between a development path that is localised and people-centred, versus one that is globalised and based on large-scale resource extraction.

A people-centred approach, which emphasised the concepts of equality, self-reliance and rural development, had a lot of support amongst Papua New Guineans, and as a result, found its way into the National Goals in the Constitution. Foreigners, both inside and outside PNG, were largely supportive of the extractive path, with the backing of some powerful local allies. In the end, it was the latter that the politicians decided to follow. The belief was that although PNG's mineral resources were not renewable, the revenue that could be raised from their sale in international markets would fund economic development and prosperity for the nation as a whole.

This promise did not materialize, which raises important questions that this report seeks to answer: why has the massive exploitation of the country in the mining, oil, gas, forestry and oil palm sectors not trickled down into the rest of the economy? Why has the revenue generated not brought about sustainable economic development? What have been the costs to communities and to the natural resources that they rely on for their livelihoods? Finally, what would the

alternative approach - the path not taken - look like today, and what steps are needed now to re-invigorate it?

This report intends to answer these questions, describing what has happened, what the consequences have been, and highlighting a new and better way forward. It is structured in the following four parts:

Part I - The Story of PNG's Development - examines the early debates about the two development paths and whether the extraction of natural resources has indeed been successful in terms of its stated aims of financing development.

Part II - The Paradox of Wealth Without Development - describes the consequences of the focus on large-scale resource extraction for the national economy and the collection and spending of public revenues.

Part III - The Local Picture - examines the economic, social, environmental and human rights impacts of the extractive development path at the local level.

Part IV, Securing a Better Future, looks to the future and what a return to a people-centred development path could look like.

Finally, a note on terminology. In this report, the terms 'natural resource sectors' and 'large-scale resource extraction' are used as umbrella terms to refer to large scale or industrial mining; the oil and gas sector; industrial scale logging and some industrial scale agricultural plantations, especially oil palm. This is necessary to point out because in much of the academic literature, the 'resources sector' and the 'extractive industries' are often specially used to refer to only mining, oil and gas. We are using the terms in the broader sense, as all these industries extract resources from the country for sale overseas.¹



Chapter 1: The Evolution Of A Development Path

Even before PNG became independent, its leaders and policy-makers were aware that the new country had a choice between two quite different development paths. Initially, it appeared that it would take the people-centred, and more self-reliant approach, as reflected in the National Goals in its newly minted Constitution. Instead though, the government soon committed itself to a different approach, wherein foreign corporations were invited to extract the nation's natural resources, in the hope that the revenue from their activities would finance economic and social development. At first, the focus was on mineral resources; however, a growing forestry sector and eventually a petroleum sector also meant that timber, oil and gas joined minerals as raw materials extracted by foreign corporations. Despite the increasing scepticism from many observers, the nation has more or less remained on this path ever since.

1.1: Independence and its Challenges

Before Europeans arrived, PNG was a complex Melanesian society with a population divided up into 800 or so different language groups. The economy was based on trade between and among these groups, although most were largely self-sufficient for staple foods and basic goods, as a result of naturally abundant resources and well-developed agricultural practices.

Agriculture has a long and successful history in PNG. People have inhabited the islands that make up PNG for about 50,000 years and it is estimated that they began practising organised agriculture about 10,000 years ago. Prior to European arrival, more than 170 plant species were used by local people for food, and many others for shelter, transport, firewood, medicine, etc; pigs and chickens were a source of protein in the forest areas, seafood for coastal communities. Evidence suggests many important food plants were first domesticated in PNG including taro, some yam species, banana, breadfruit, and others.²

For most of the twentieth century, Papua New Guinea was a 'mandate' of the Australian government, which administered the country after the German and British colonies of Papua and New Guinea were combined into one territory after the First World War.

After several decades of Australian administration, PNG's economy became inseparably linked to that of Australia. PNG did not have a separate currency, and therefore there had been little focus on how it might earn its own

foreign exchange. In addition, 50,000 expatriates, mostly Australians, made up the bulk of its administration, with the cost being borne by the colonial power. In the early 1970s, over 50 per cent of public expenditure was financed by Australia.³

During the 1960s, as policymakers wrestled with the inevitability of the nation's independence, speculations began on what would be the best way to put the country on an independent but sustainable footing. Independence meant a move towards financial viability and paying its own way, both in terms of government revenues and earning foreign exchange. A 1965 World Bank report stated that 'economic development means expanding production for export' and that agriculture and forestry were the only resources about which 'enough was known to permit a rapid development in the next several decades.' The report further observed that the 'current data' at the time only indicated a 'limited potential for mining'.⁴

This situation was altered by the discovery of a large copper and gold deposit on the island of Bougainville, which the Australian administration sought to develop with the collaboration of Cozinc Rio Tinto Australia. An agreement was reached in 1967, and the Panguna mine started production in 1972. At a time of high copper prices, profits were so high that the company recouped its construction costs of AUD\$134 million within two and a half years, along with a 16.5 per cent return on investment.⁵

1.2: Two Choices for a Development Path

In the late 1960s, in line with the global trend, steps were being taken towards granting PNG its independence. By the early 1970s, as the country entered a transitional period towards independence, the important question about which development path should be pursued was still being fiercely debated. On the one side was the argument for an accelerated capitalist growth path – one that welcomed exploitation of natural resources, land reform, foreign investment, and openness to the global economy – the type of strategy being pursued by many countries in Latin America and South-East Asia.

However, those holding to an alternative strategy were wary of the environmental damage of large-scale natural resource extraction and of the exploitative nature of foreign investment. This approach instead favoured a focus on small-scale production, local markets and the development of existing skill-sets. For the purpose of this report, we label this model a people-centred approach to development.⁶

Given that the vast majority of the nation's population lived in villages, and grew most of their own food on customary land in the Melanesian tradition, this people-centred approach had a lot of appeal, and it was encapsulated in two very important policy statements that were developed in the lead up to independence. The first declaration, set out eight principles which were subsequently adopted by the PNG House of Assembly in 1973, and which have become known as the 'eight aims'. The eight aims emphasised concepts such as self-reliance, a more equal distribution of economic benefits, Papua New Guinean control of the economy and small-scale artisan production.⁷

The approach set out by the eight aims was sanctioned and extended by the Constitutional Planning Committee (CPC), a committee comprised of 15 parliamentarians, established in 1972 to set PNG's post-independence priorities. The committee's 1974 report included a chapter on what it called the 'National Goals and Directive Principles' (NGDPs). According to the NGDP Statement, the eight aims could be encapsulated in three ideas: equality, self-reliance and rural development.⁸ The NGDPs were later enshrined in the Preamble to the Constitution.

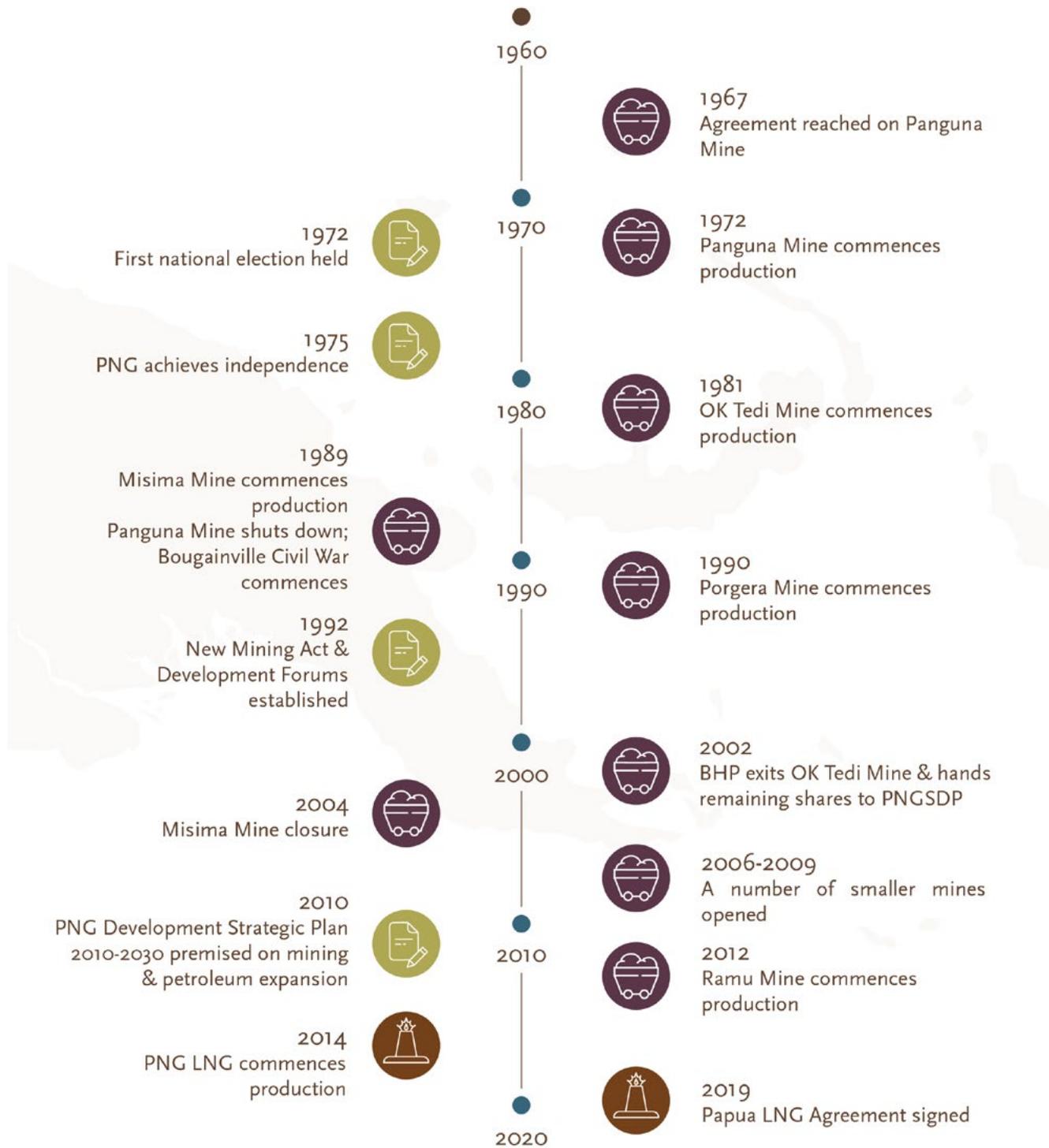
The NGDPs also contained language that was very critical of an approach that relied on foreign exploitation. For example, the NGDP Statement asserted that 'the price of the impact of Western colonisation has been the sapping of the initiative of our people'. The Statement further questioned a development model in which 'foreign investment (and foreign domination of the economy) is uncritically encouraged'. The NGDP Statement called this model 'dominant development' and found that the approach 'has not been successful elsewhere'.⁹

Then-Chief Minister Michael Somare, in endorsing the eight aims and the NGDP statement, appeared to be backing a people-centred development strategy.

But the approach recommended by the eight aims and the NGDP had sceptics, both among influential expatriate advisers such as Ross Garnaut as well as some representatives of PNG's emerging policy elite, such as Finance Minister, Julius Chan. Chan and his allies seized on the unexpected early revenues from the Panguna mine to push for their preferred approach. They renegotiated the Bougainville Mining Agreement to levy an additional profits tax, which the company (Cozinc Rio Tinto) reluctantly agreed to. They also lured Australian company BHP into signing an agreement for a new mine at Ok Tedi in Western Province.¹⁰

With these new agreements, and the withering of institutions that had been set up to promote a people-centred approach, the government gradually began to reorient itself towards the more conventional approach, one which had greater support from outside influences such as the World Bank and Australian policy circles. Once formal independence had been achieved in 1975, anxieties about foreign investment lessened even further, and the government began to actively seek out foreign investment opportunities with the release of a new national investment strategy in 1976. The academic Donald Denoon later reflected that negotiations with mining companies 'turned the country's back on a development strategy based on peasant agriculture or economic self-reliance... in exchange for unprocessed ores, Papua New Guinea imported highly processed ideas.'¹¹

Figure 1.1: Timeline of major events in evolution of the mining and petroleum sectors



1.3: The Expansion of the Mining Sector

Initially, it was Australian companies who capitalised on the opportunities presented by the PNG's mineral wealth. Cozinc Rio Tinto Australia's Panguna Mine in 1972 was followed by BHP, which won the right to exploit the Ok Tedi deposit in Western Province in 1974, over the US-based miner Kennecott. The Ok Tedi Mine would become operational in 1981. These two mines, which have become synonymous with controversy and failed environmental standards, were proclaimed in the late 1970s to be the twin pillars on which PNG's development would be based.

Canadian companies soon entered the fray. During the 1980s, Placer Pacific established the huge Porgera gold mine, and Placer Dome established a large gold mine on Misima Island. In the late 1990s, the same company established a smaller gold mine on the island of Lihir. In the late 1990s, the Tolukuma gold mine began operating in Central Province. In the meantime, a new minerals policy regime was set up by the Namaliu Government, with a new Mining Act and a new process for distribution of royalties to landowners (called Development Forums) both instituted in 1992.

The 1990s was an unsettled time in PNG, with the forced shut down of the Panguna mine in Bougainville, and the state's fiscal problems, which many attributed to financial mismanagement. However, the return of high commodity prices and political and economic stability in the 2000s saw a new boom in mining exploration and investment. A number of new mines opened in this period including the Kainantu (2006), Edie Creek (2007) Simberi (2008) and the Hidden Valley (2009) gold mines. This was followed by the opening of the Ramu nickel and cobalt mine in Madang Province in 2012.

Another fall in commodity prices and, according to the PNG Chamber of Mines, resulting instability in the fiscal and regulatory regime, saw exploration activity and applications for licenses drop from 2012. At present, the country has four large-scale mines operating (Ok Tedi, Lihir, Porgera and Ramu), three smaller mines (Hidden Valley, Simberi and

Edie Creek), a few new or proposed mines that are in various stages of development (including Wafi-Golpu, Mt Kare and Frieda River) and the potential reopening of production at Misima and Tolukuma.

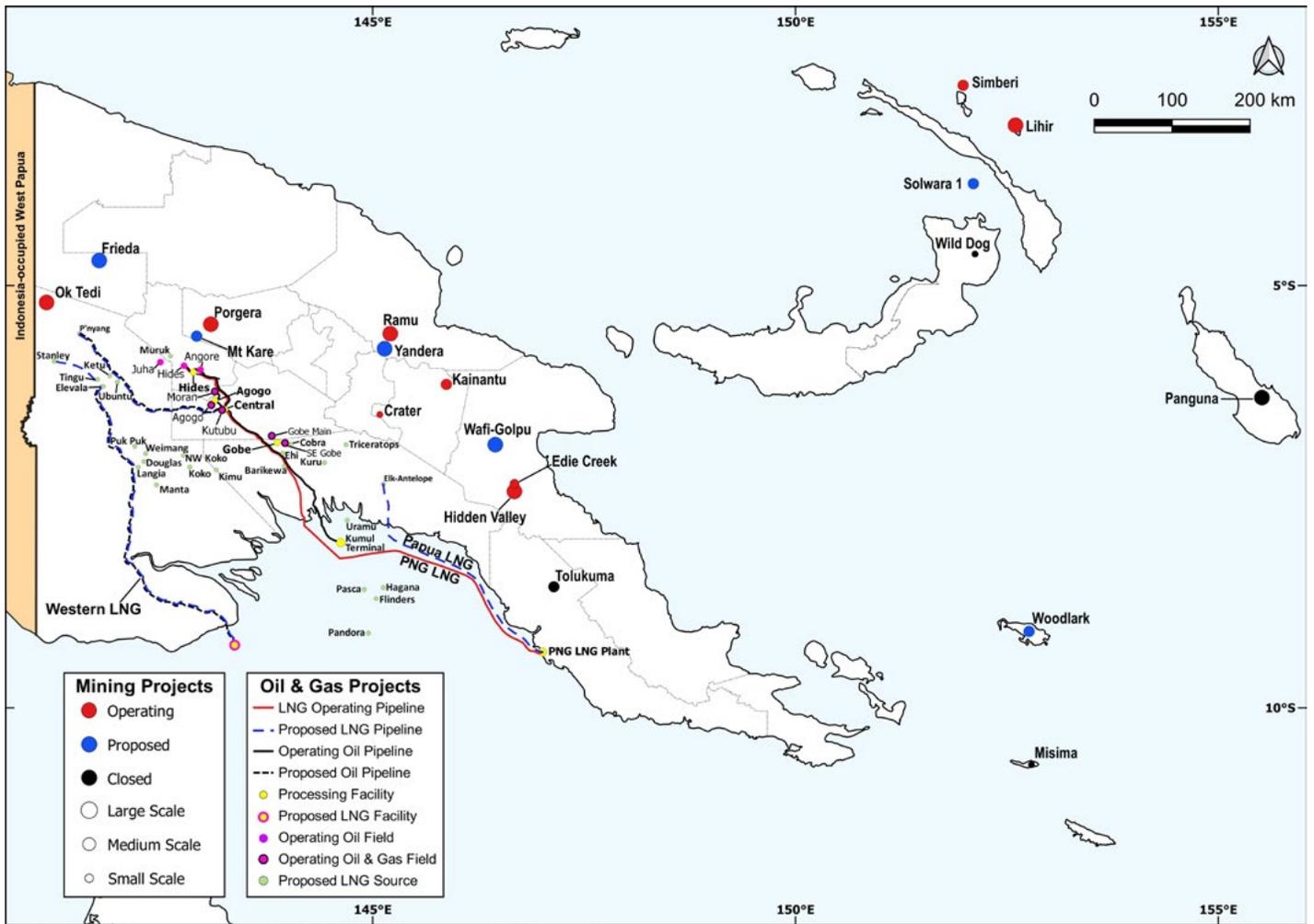
In the last decade, as the mining sector has stalled somewhat, a boom has occurred in the oil and gas sector. United States-based Chevron and UK-based British Petroleum entered the scene early on with the nation's first petroleum project in 1992, after the discovery of the Kutubu oil fields of the Southern Highlands in the mid 1980s (now owned by Oil Search).

However, it was ExxonMobil's PNG LNG Project, developed in 2010-2014 in partnership with the Australian company Oil Search, in what is now Hela Province that really put the natural gas sector on the map. The government has also signed an agreement with French group Total for the construction of a second major LNG project in the Elk-Antelope gas field (Papua LNG). Talks are currently underway to open up other fields such as P'ynang, which is led by ExxonMobil.¹²

The same arguments were made about these new gas resources as were made about the mining and forestry sectors: that the revenues generated could be used to fund development. Two key planning documents that were produced at the end of the 2000s, *Papua New Guinea Vision 2050* and even more so the *Papua New Guinea Development Strategic Plan 2010-2030* (PNGDSP), set ambitious goals for national development that were premised upon assumptions about the exploitation of PNG's mineral and petroleum wealth, capital-intensive economic development, and the alienation of customary land.¹³

Speaking about the planned PNG LNG project in 2010, which was at that stage just at the beginning of its construction, future Prime Minister Peter O'Neill (then Treasurer) said: 'we cannot underestimate the opportunity the PNG LNG project offers to transform our economy and substantially improve our socio-economic development'.¹⁴

Figure 1.2: Major mines & petroleum projects



1.4: The Expansion of the Forestry Sector

In the early years of independence, the government appeared more cautious about exploiting its forests than its mineral resources. For example, the government's *Framework for Industrial Development* in 1976 was ambivalent about the importance of the forestry sector to the new nation. Utilization of the nation's forestry resources had to be 'carefully planned'; systematic logging or clear felling purely for the export of unprocessed wood would 'not be allowed'.¹⁵

Consequently, logging that did occur in the 1970s and the 1980s was at a relatively small scale compared to what was to follow. During this time, logging took place under Timber Rights Purchase agreements (TRPs) and Local Forest Areas (LFAs). Nevertheless, the environmental management of the forestry sector in these early days was lax, and there was little control over the logging agreements or the timber operations.¹⁶ In 1989, a Commission of Inquiry led by Justice Thomas Barnett criticised unsustainable practices as well as the human rights abuses and the corruption, as being rife in the forest industry.¹⁷

Reportedly in response to the Barnett Inquiry, PNG instituted a new *Forestry Act* in 1991. The Act was intended to put forest management onto a sustainable footing and to cut the levels of corruption by placing the newly created PNG Forest Authority as an 'honest broker' in dealings between forest owners and the logging industry. As well as the PNG Forest Authority, the Act created a National Forest Board,

the National Forest Service and mandated the formulation of a National Forest Plan. The old TRPs and LFAs were discarded and the new concept of the Forest Management Agreement (FMA) was created.

Despite its intentions, the 1991 *Forestry Act* failed to prevent vast swathes of the nation's rainforest being opened up to logging. The area of forest acquired for logging concessions during the 1980s was 2 million hectares; it tripled in the 1990s to 6 million hectares. Indeed, more land was set aside for logging in the 1990s alone than in the previous three decades combined.¹⁸

Malaysian logging companies from Sarawak were at the forefront of the logging rush, as huge amounts of accessible forest in East and West New Britain and, in particular, Western Province, were opened up to logging. These companies still dominate the sector.

Some have argued that a sustainable volume of timber harvesting for PNG would be around two million cubic metres per annum, although the idea of a sustainable harvest is controversial given the unsustainable practices of the logging companies (see Chapter 6 – Environmental Impacts).¹⁹ As figure 1.3 shows, even if, even if a sustainable harvest is possible, the two million cubic metres figure has been exceeded almost every year since 1993. Before the 1991 *Forestry Act*, PNG's exports of round logs had never



Palm oil nursery in cleared forest near Wewak © The Oakland Institute

risen above 1.5 million cubic metres in a single year. Since 1992, it has never again fallen below that mark, and in 2018 exports topped 4 million cubic metres. The devastation this has wrought in terms of forest loss, as well as other social impacts is described in Part III – The local picture.²⁰

The expansion in export logging was given a further impetus by a new taxation regime, introduced in 1998, which reduced the tax burden on exported logs, and thereafter by legal changes which made it easier for the logging companies to access new areas of forest.²¹

During the expansion of logging in the 1990s and 2000s, the World Bank became increasingly concerned about the growing influence of Malaysian companies' on forest regulation, or lack of it, and their exploitation of PNG's forests with little development benefit.²² Those concerns though were given short-shrift by the government.

Legal amendments to the *Forestry Act* in 2005 and 2007 opened up the possibility for Forest Clearance Authorities (FCAs) to be issued in conjunction with new agricultural projects approved under Special Agricultural Business Leases (SABLs). Logging companies were able to manipulate these changes to access new forest areas for logging by abusing the requirement for landowner consent and exaggerating the size of the intended agricultural planting. Logging companies were also absolved from any requirement for sustainable forest management, and they

could engage in wholesale land clearing.²³

It is estimated that in the 2000s, SABLs were used to alienate over 5.5 million hectares of land. While there is limited data about exactly what has transpired across the whole of these 5.5 million hectares; what is evident is that some of it has been completely cleared and planted with oil palm, some has been cleared, ostensibly for planting but no agriculture has followed, some has been selectively logged, and some remains as yet untouched.²⁴

The resulting patchwork of logging concessions and SABLs that now dominate the country's landscape is shown in figure 1.4.

Although the avenue for gaining access to forests for harvesting using SABLs was closed after a Commission of Inquiry confirmed in 2013 that almost all the leases had been unlawfully issued, the PNG Forest Authority has continued to allow logging in SABL areas and has continued to issue new FCAs.

Moreover, research shows that despite the 1991 reforms, the majority of logging is still occurring under the pre-1991 concession types, which were supposed to be done away with. In some cases those colonial-era agreements are still being extended by the PNG Forest Authority, even after their original expiry dates.²⁵



A ship waiting to load logs in Turubu Bay, East Sepik © The Oakland Institute

Figure 1.3: Log exports by concession type

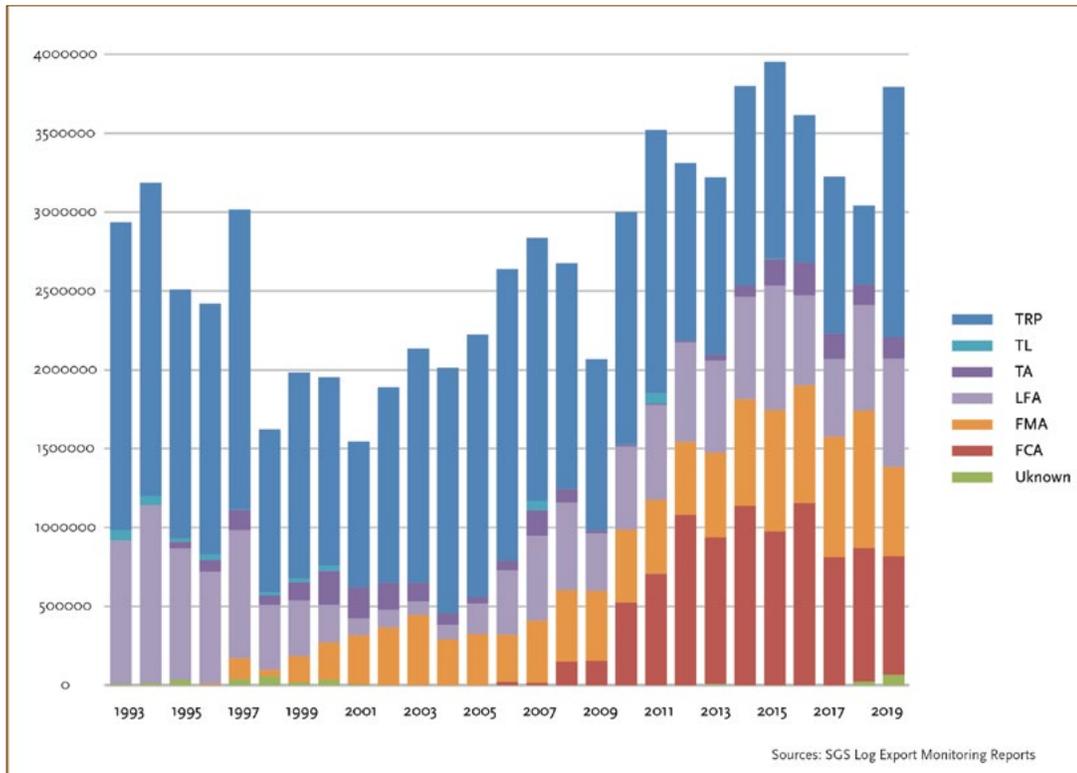
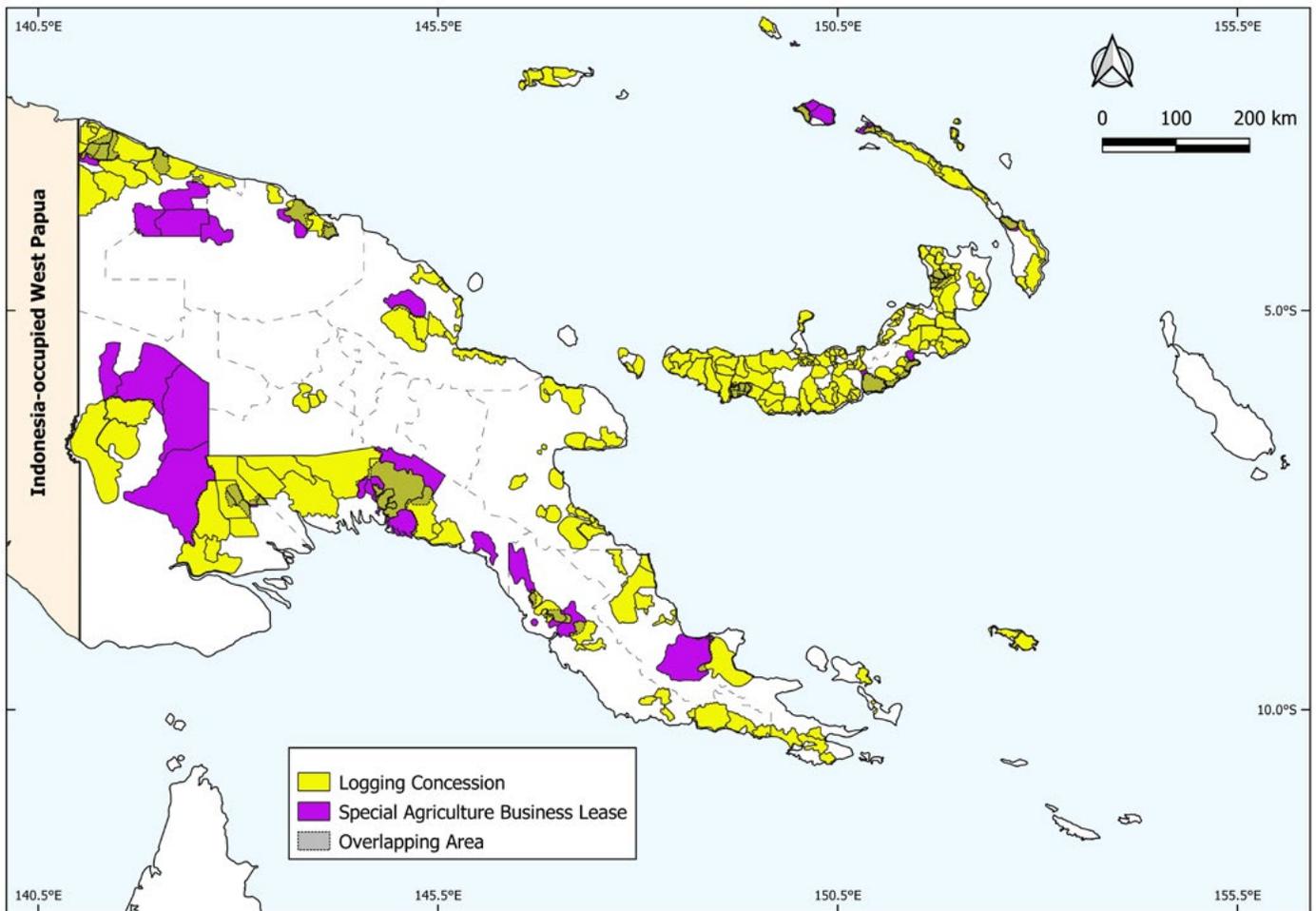


Figure 1.4: Carving up a country



1.5: The Two Principles of ‘Development by Extraction’

Two principles evolved in the early days of post-independence government that would underlay PNG’s chosen development approach in the coming decades: the acceptability of exploiting natural resources and an openness to foreign investment.

The first principle was that the exploitation of non-renewable natural resources was acceptable, on the proviso that it must serve some purpose beyond simply the revenues and foreign exchange they generate: it was necessary, instead, that the revenues be put to work to develop the country. The marquee mining projects were principally aimed to bring in bumper revenues that would finance a national program of economic development. The rationale has been aptly summed up by Colin Filer and Benedict Imbun:

‘Since non-renewable resources could not exactly be replenished for the benefit of future generations, the wealth derived from their extraction should ideally be invested in another form of development in which a lot more of Papua New Guinea would participate for a period which would not simply come to an end with the closure of a mine whose location was an accident of geography.’²⁶

As mentioned earlier, in the early years of independence, while this type of thinking dominated the attitude towards the minerals sector, it did not extend to PNG’s forest resources. Firstly, forests, unlike minerals, were thought of as renewable resource. Secondly, there was no expectation, initially, that revenues from the forest sector would lead to national development. Forestry was intended mostly for regional development for the communities in the places where the forests were located. In the words of the 1976 *Framework for Industrial Development*: ‘the main objectives of the development of timber-based industries will be their contribution to the regional dispersal of economic activities and regional welfare, and thus to greater regional equality’.²⁷

However, by the 1990s and 2000s, attitudes towards forest resources began to adapt to those held regarding PNG’s mineral riches: that forestry should be contributors to the engine of PNG’s economic development. The 1991 *National Forestry Policy*, which accompanied the new forestry act of the same year, made clear that PNG’s forests were another resource to be exploited for the benefit of the nation’s economic growth.²⁸ New forest permits that were issued in the late 1990s were alleged to be part of the nation’s response to its fiscal crisis of that period.²⁹ Former Prime Minister, Michael Somare, at the beginning of his second term as head of the nation’s government in the early 2000s,

summed up the new attitude: ‘we must use our land, our forests and our sea to propel our economy and meet our responsibilities to our people’.³⁰

The second principle of PNG’s development strategy was an openness to and encouragement of foreign investment. As mentioned previously, the transitional period to full independence saw a vibrant policy debate, at the front and centre of which lay the question of foreign ownership. However, by 1976, those welcoming foreign ownership had won the day. The PNG government’s position was approvingly summarised by the World Bank in 1978 in the following way:

‘[The Government of PNG] realises that a small number of large scale natural resource projects will be the key to greater internal and external financial viability for many years, and that such projects will depend on foreign managerial, technical and financial resources. Foreign investors will be assured of attractive returns, but Papua New Guinea, rather than the foreign investor, is to be the main beneficiary of above-average returns.’³¹

PNG, the mainstream consensus was, could have its cake and eat it too. It could focus its energies on resource extraction in collaboration with multinational companies, without sacrificing development for its people. At least, that was the theory.

As the decades continued, PNG threw itself more and more into the arms of foreign multinationals. With the exception of Ok Tedi, today all of PNG’s major mines and petroleum projects are majority owned by foreign multinationals. Traditionally, Australian, Canadian and American companies have dominated this sector, although in recent years, Chinese companies have had an increasing presence, gaining complete ownership of both the Ramu mine and the proposed Frieda River copper-gold mine, as well as a fifty per cent stake in the Porgera gold mine.

Foreign companies also dominate the forestry sector. Although there are a few dozen foreign-owned logging companies operating in the country, the so-called ‘big six’ have dominated the sector in recent years—Rimbunan Hijau, WTK, Samling, KTS, Shin Yang and Ta Ann. All are Malaysian, predominantly emerging from the East Malaysian state of Sarawak on the island of Borneo. In the 1980s and 1990s, with little valuable rainforest left to cut down in Sarawak, these companies began to move to other forest rich countries like PNG.³²

The largest and most influential logging company has been Rimbunan Hijau, which is also linked to WTK via family connections. Rimbunan Hijau has since diversified its business in PNG, and now has interests in an extensive range of sectors including newspaper publishing, aviation, shipping, printing, trading, office equipment, forest

management, restaurants, shopping, mining and oil palm. Rimbunan Hijau's success, it has been suggested, has been built in Malaysia, Indonesia, PNG and elsewhere, on networks of political patronage and influence in the highest corridors of power.³³



An excavator works the ground next to a palm oil nursery © Paul Hilton / Greenpeace

Chapter 2: Trends In PNG's Human Development

As Chapter 1 explored, the large-scale extraction of PNG's natural resources by foreign multinational enterprises has been justified by the premise that it would bring development.

However, this chapter reveals that the expected improvement in livelihoods and living standards have not materialised. Over the last couple of decades, real Gross Domestic Product per capita has shown some modest growth, yet such GDP data is limited in what it can genuinely tell us about living standards for most people in PNG. Data on other measures such as household income, poverty and inequality remains scant.

Further data though is more revealing. PNG rates among the lowest of its Pacific Island neighbours in its rate of poverty, in its position on the Human Development Index, in its rate of access to health care and in its rates of child mortality. It is evident that access to basic services such as water, electricity and health services are low, and that child malnutrition is rife throughout the country. While there have been some improvements, such as in life expectancy and in access to education, these are small gains in light of PNG's fallings in so many other areas of development.

There is therefore little in the data to suggest that PNG's current development strategy is actually working, despite the high-levels of natural resource extraction driven by the mining, petroleum, and forestry sectors over the past forty-five years.



2.1: Economic Growth: GDP and its Limitations

The first and most obvious place to start when considering economic trends is of course to look at economic growth, which is most often measured in Gross Domestic Product (GDP). GDP is a measure of the monetary value of all the goods and services produced in the formal economy every year.

Analysis of PNG's inflation-adjusted per capita GDP over time shows an improvement in the last couple of decades from approximately five and a half thousand Kina per capita in 2002 to around seven and a half thousand Kina per capita in 2018.³⁴

However, there are a number of flaws in relying on GDP figures as a measure of development.

For example, GDP does not take into account what economists call the 'negative externalities' of certain

activities. So, for example, if mining projects or industrial scale logging involve environmental damage or create social conflict, neither the logging or mining companies nor the people buying the minerals or the logs will be affected. However, the population of PNG as a whole will be affected, because polluted land and rivers, and violence and conflict are all phenomena which permeate throughout the society and the nation as a whole. These negative externalities are discussed in detail in *Part III – The local picture*.

There are further limitations in what GDP can and cannot tell us. GDP does not say anything about the distribution of any wealth that is created. It is possible, and indeed it often happens across the world, that much of a country's GDP growth can be captured by a minority of the population. If this happens, data regarding GDP per capita shows growth, and yet most people can be worse off as the benefits are not equally distributed.

Figure 2.1: PNG real GDP per capita



2.2: Living Standards, Poverty And Inequality

Because of the limitations of GDP referred to in the previous section, economists normally prefer to look at other measures to assess the changes in living standards across time. For example, they might look at changes in the amount of money each household spends (household income); or they might look at changes in the proportion of the population who do not have enough resources to get by (the poverty rate); or they might look at the distribution of resources between rich and poor (inequality).

Household Income

Unfortunately, there are few studies available regarding household income in PNG. The only major study in recent times, the government-run *Household Income and Expenditure Study* (HIES), was completed in 2010. Prior to this, only two studies were undertaken in forty years.³⁵ This lack of evidence makes it almost impossible to measure changes in household income over time. For this reason, we have to identify a proxy, for which measurements do exist, and use that instead.

Poverty

The extreme poverty rate (percentage of people living below US\$1.90 per day) in PNG significantly increased from 25 per cent in 1996 to about 39 per cent in 2010.³⁶ This represents a 50 per cent increase in extreme poverty over 20 years. Recent estimates from 2017 also reveal that 37.5 per cent of the population lives below the national poverty line.³⁷

Although the relevance of these global measures of poverty can be questioned in the PNG context where the majority of people have access to their own land to provide the basic staples for a healthy existence, there are still aspects of these results that are concerning.

As shown in figure 2.2, PNG's poverty rate is well above Fiji (28 per cent), Nauru (24 per cent), Tonga (22 per cent), Samoa (19 per cent) and Solomon Islands (13 per cent) on this rating. Only Timor-Leste (42 per cent) and Micronesia (41 per cent) fare worse among PNG's Pacific neighbours.³⁸

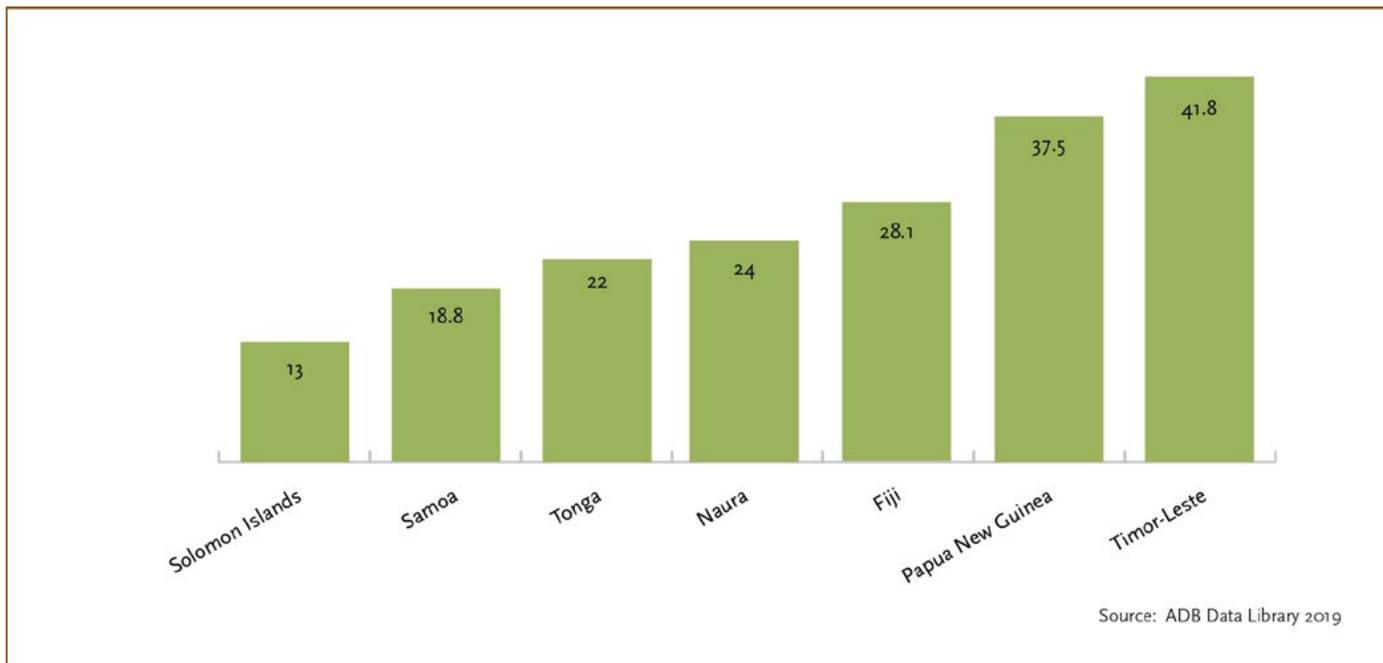
Inequality

Aside from global measures of poverty, PNG is also a nation characterised by high levels of inequality. In 1996, PNG's Gini coefficient (the standard measure for income inequality) of 48.0 made it the worst in the East Asia Pacific region.³⁹

Inequality did improve somewhat over the following fifteen years. By 2009, PNG's Gini coefficient was 41.9 and this is still the most recent figure for PNG. However, PNG is still the most unequal country of all Pacific island countries for whom there are records, including Micronesia (40.1), Tuvalu (39.1) Samoa (38.7), Solomon Islands (37.1), Tonga and Vanuatu (37.6), Kiribati (37.0), Fiji (36.7) and Timor-Leste (28.7).⁴⁰

While these types of statistics are concerning, they also have limitations in a place like PNG, where the informal economy is larger than the formal economy.⁴¹ Measurements like GDP, non-resource GDP (a proxy for living standards), poverty rate, and inequality statistics simply cannot accurately measure the actual wealth or living standards of the majority of the population. This is because the measurements do not capture, or indeed value, the enormous impact of the informal economy in PNG, such as the production of food in local gardens for family consumption or for trading in local markets.

Figure 2.2: PNG poverty figures compared to its neighbours (% of population)



2.3: The Human Development Index

Given the problems identified with formal measurement of the size of the economy and living standards, what other measures could be looked at in order to make an assessment of the extent to which quality of life has improved or declined for the PNG population?

One of the most commonly accepted measures to use is the United Nations Development Program's (UNDP's) Human Development Index (HDI). The HDI is made up of three measurements: life expectancy, education, and Gross National Income (GNI) per capita, which is used as a proxy for standard of living.

PNG's HDI score increased from 0.389 to 0.544 between 1990 (when the index began) and 2017. At a first glance, this might seem to be impressive. For example, it is an improvement of 40 per cent over that period. The UNDP also claims that it is also the fastest growth in HDI of any of the 38 Small Island Developing States (SIDS) over the period (the average HDI SIDS growth was 18 per cent).⁴²

There is no doubt that PNG has indeed progressed in certain areas of human development. For example, life expectancy has gradually increased since independence, from 48 in the early 1970s to 56 in 1990, and 64 in 2017.⁴³

Access to education has also increased over this period. The primary completion rate has increased from 42 per cent in

1990 to 77 per cent in 2018. Likewise, gross primary school enrolment ratios have increased from 56 per cent in 1990 to 109 per cent in 2018 (enrolment ratios can be over 100 per cent because it includes students who are younger or older than the official age group). Secondary education rates have also increased.⁴⁴ Along with the increased life expectancy, these changes have contributed to PNG's strong improvement in HDI score over the past three decades.

But a closer look reveals that the story has not been so positive. For one thing, PNG is not really a small island developing state—indeed, the island of New Guinea is one of the largest islands in the world. Secondly, if you look at rankings, PNG dropped from 123rd in 1990 to 153rd in 2017.⁴⁵

Moreover, we might have reason to question the validity of this improvement in PNG's HDI. For one thing, the improved HDI ranking is also due to the UNDP's calculation that the GNI per capita has increased by 50 per cent between 1990 and 2018.⁴⁶ Given the discussion in section 2.1 above, it is hard to see how this figure can be accurate. And if the GNI per capita figure is questionable, it is hard to see how the UNDP's HDI estimate for 2017 could be correct. Finally, despite the improvements in education mentioned above, PNG is still behind its neighbours, with the exception of the Solomon Islands, in years of schooling completed (see figure 2.4).

Perhaps most importantly, PNG still sits below the majority of its Pacific neighbours in its HDI ranking. At place number 154 out of 189 countries, it ranks below the Solomon Islands (152), Vanuatu (140), Kiribati (131), Timor-Leste (130), the Marshall Islands (116), Samoa (111), Tonga (104) and Fiji (99).⁴⁷ As figure 2.3 below shows, PNG is well behind its neighbours in life expectancy.

In general then, while there has been some improvements in specific areas, the overall picture looking at all the different measures of living standards shows minimal improvement—and indeed suggests regression in many areas. As we will see from the next two sections, when it comes to health service delivery and malnutrition, the country may indeed be going backwards.

Figure 2.3: PNG life expectancy compared to its neighbours

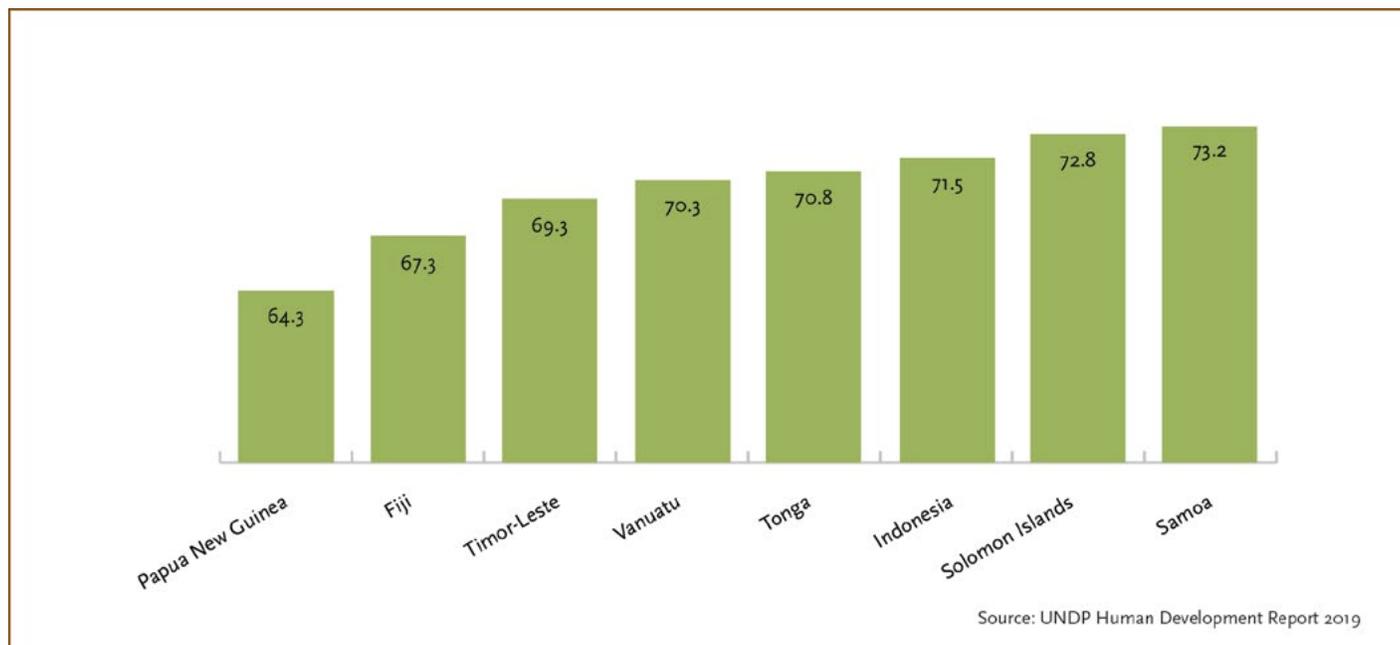
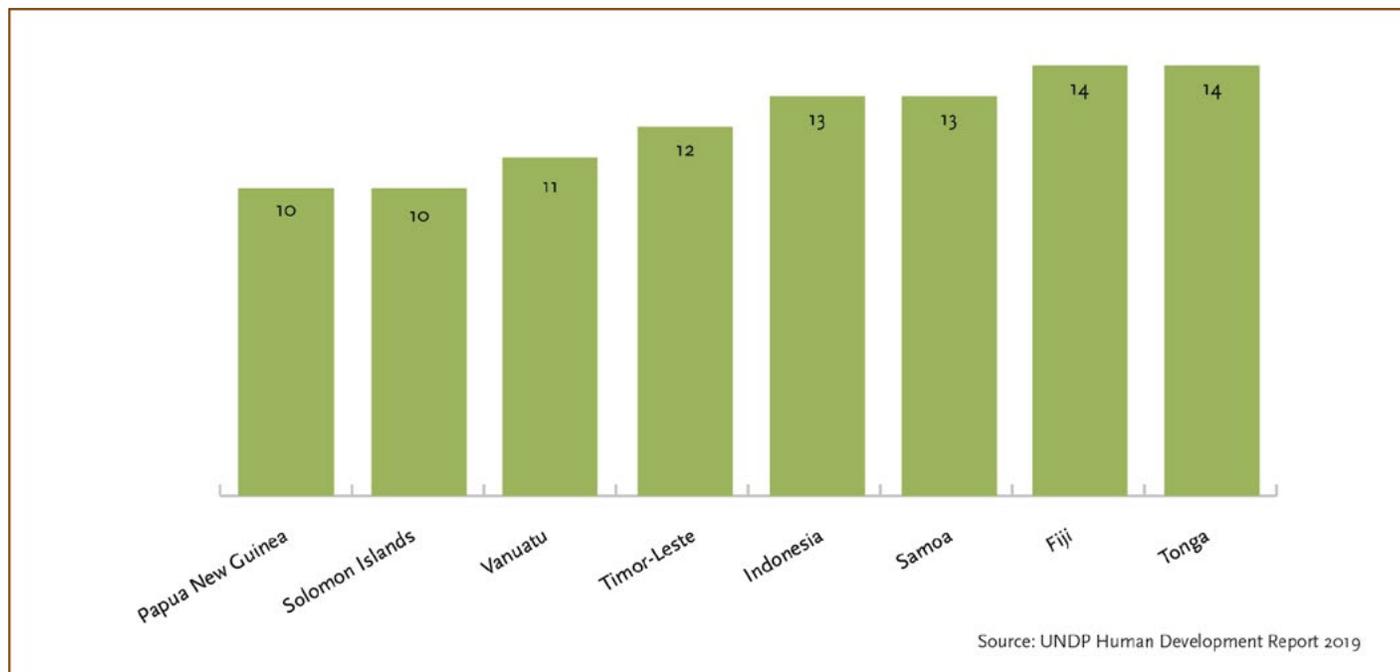


Figure 2.4: Expected years of schooling, PNG compared to its neighbours



2.4: Access To Basic Services

PNG has also seen limited progress in access to basic services such as water, electricity, sanitation and healthcare.

The 2009-10 *Household Income and Expenditure Survey* (HIES) found that only 26 per cent of households had access to tap water (either into the house or a communal tap in the village), 11 per cent had no access to a toilet and 45 per cent relied on a kerosene or spirit lamp for light.⁴⁸

Reports vary on the extent of the population's access to electricity. Despite the government setting an ambitious target of 70 per cent of the population to have access by 2030, there is a long way to go to achieve this aim. Some estimates suggest around 13 per cent of the population have access. Although the HIES put the figure rather higher, it was still just below 20 per cent.⁴⁹

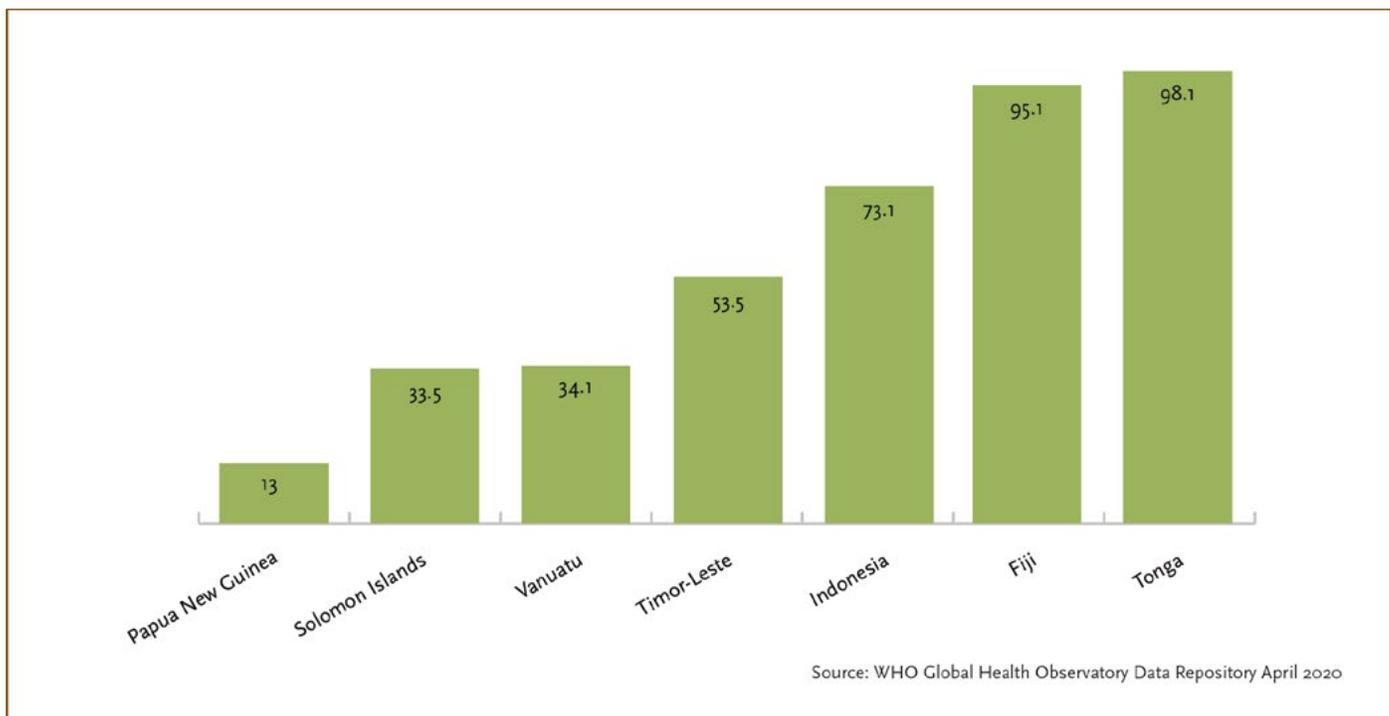
Even these marginal basic services are not uniformly distributed. According to the 2010 HIES, rural communities

are worse off compared to the urban population in their access to drinking water, basic sanitation and electricity.⁵⁰

Throughout the 1990s and 2000s, health service delivery declined precipitously. Between 1988 and 2003, outpatient visits fell from 2.39 to 1.39 visits per year. Between 1991 and 2004, antenatal care coverage fell from 80 per cent to 58 per cent. Births attended by skilled health staff fell from 52 per cent to 39 per cent across the same period.⁵¹

The health coverage situation remains poor. In 2017, the percentage of women getting regular antenatal treatment increased to 66 per cent, yet the percentage of births attended by skilled health staff had fallen once again, to 37 per cent. Only 41 per cent of the population had access to universal health care coverage, well below the Solomon Islands (50 per cent), Tonga (62 per cent) and Timor-Leste (47 per cent).⁵²

Figure 2.5: PNG access to sanitation compared to its neighbours (% of population)



2.5: Child And Maternal Health

Poor health services are one of the reasons why PNG has some alarming figures when it comes to child and maternal mortality. PNG's maternal mortality rate, most recently estimated by UNICEF at 215 per 100,000 live births, is very poor. Although it has improved from a rate of 258 per 100,000 live births in 2008, this remains more than triple than the average maternal mortality rates for the East Asia and the Pacific region (59 per 100,000 live births) and the Pacific Island small states (75 per 100,000 live births).⁵³

PNG's infant mortality rate has gradually fallen over the last 30 years. PNG's under-five mortality rate has fallen from 89 per 1,000 live births in 1990, to 64 in 2007 to 48 in 2018.⁵⁴ Nevertheless, as figure 2.6 shows, with the exception of Timor-Leste, PNG's child mortality rate is double, or more than double, most of its neighbours.⁵⁵

Perhaps the most alarming aspect of PNG's development is that the country is facing a nutrition crisis, with nearly one in two children suffering from stunted growth as a result of chronic malnutrition. This is more than double the global average and the fourth highest rate of stunting in the world. As of 2015, stunting, underweight and wasting rates were 46 percent, 25 percent and 15.8 percent, respectively.⁵⁶

The stunting, wasting, and deficiencies of micronutrients are significant causes of child mortality—potentially causing up to 76 per cent of deaths of children under five. For those children that do survive, stunting causes impairments that are permanent and irreversible. The losses to the economy due to child mortality, physical and cognitive impairments later in life, and the increased health care burden from subsequent disease, results in costs to the country equivalent to 2.1 per cent of GDP.⁵⁷

Household analysis performed by the World Bank identified three key factors associated with the high stunting rate: household income, quality of food (especially, the intake of protein), and the incidence of malaria.⁵⁸

A Save the Children study has proposed a more complex conceptual framework for the problem, which includes underlying causes such as household food insecurity, inadequate care and feeding practices and inadequate health services.⁵⁹ Both studies noted how the stunting rate had not improved across the early years of the 21st century despite the GDP growth in that period.

Figure 2.6: Under 5 mortality rate per 1,000 live births

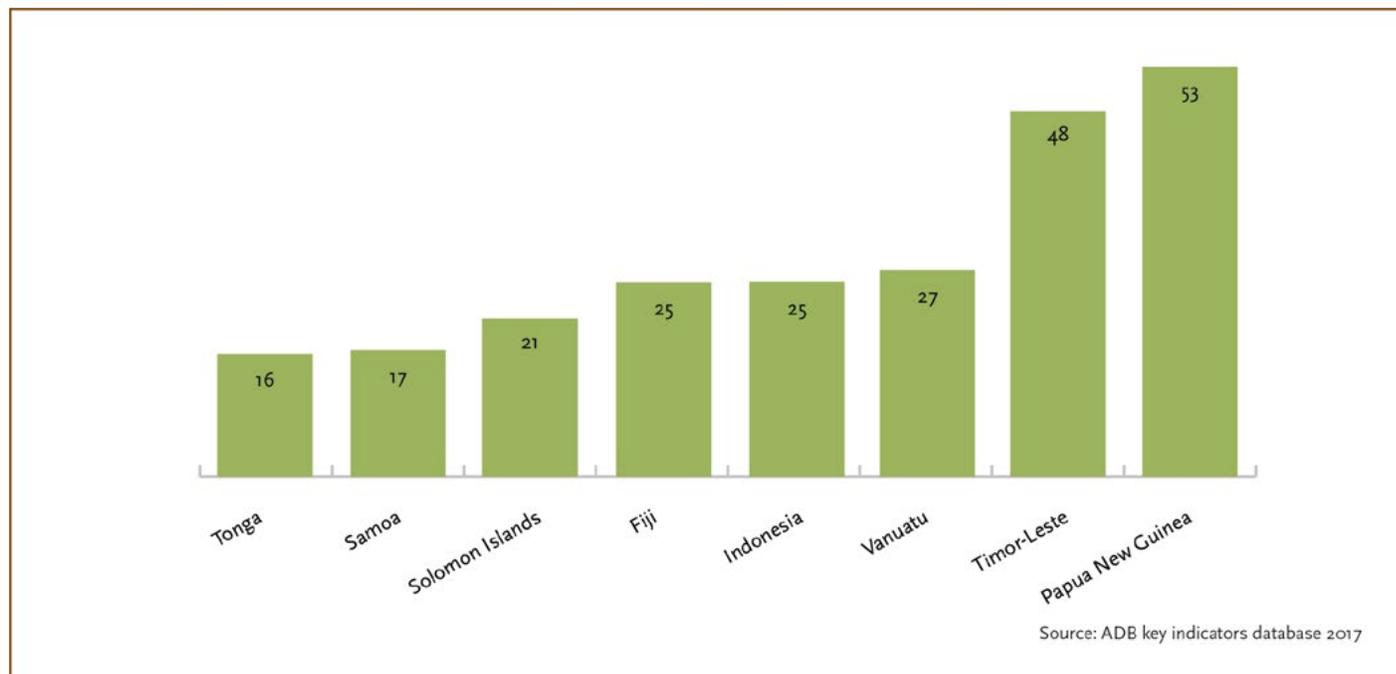
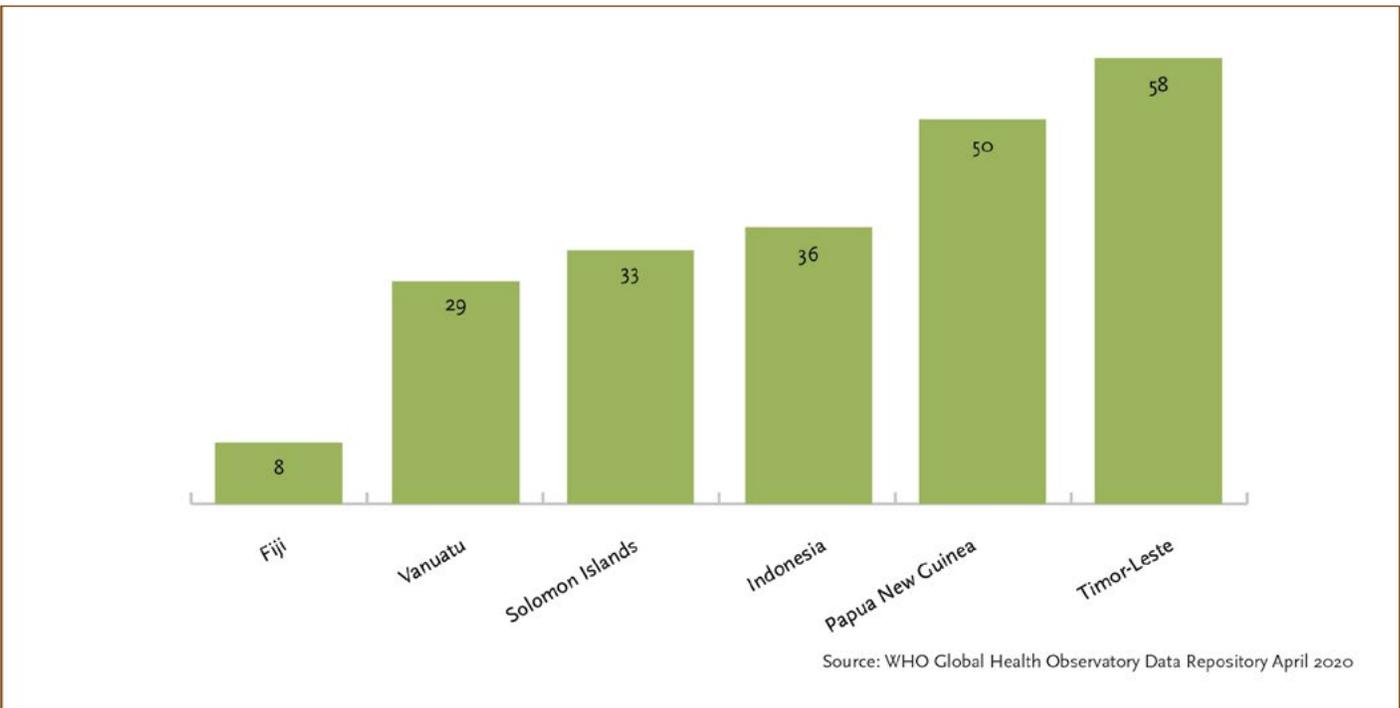


Figure 2.7: PNG prevalence of stunting compared to its neighbours (% of under-five)



Women in Yehimbole Village, East Sepik Province © Richard Kendall / Oxfam Australia



Chapter 3: Enclave Economies

Chapter 2 identified that PNG has fallen behind its Melanesian and Pacific neighbours in human development outcomes. However, these trends have occurred at the same time that the mining and petroleum sectors have boomed, and while there has also been a significant growth in the forestry sector. The next two chapters are dedicated to explaining this paradox of wealth without development, which is known in the academic literature as the ‘resource curse.’⁶⁰

Part of the paradox is explained by the fact that the extractive sectors have a relatively small impact on the rest of the economy. They employ a relatively small workforce and rely a lot on imported foreign labour. They also look offshore for much of the equipment and machinery needed in their operations. And because the raw materials they extract are simply shipped overseas, they do not produce knock-on effects for the rest of the economy.

3.1: Resource Extraction And Exports

The clearest case that can be made about the reliance of PNG's economy on large-scale resource extraction is in the case of exports.

At the time of independence, mining contributed about 50 per cent of exports by value (due to the Panguna mine) and agriculture, forestry and fisheries contributed the other 50 per cent. This remained consistent until the mid 1980s. This all began to change when more mining (and later, petroleum) projects began and the share of exports from mining, oil and gas began to pull away from that of agriculture, forestry and fisheries. By the early 2000s, the mining and petroleum sector's share of exports reached 80 per cent, and it has stayed on or around that amount ever since.⁶¹

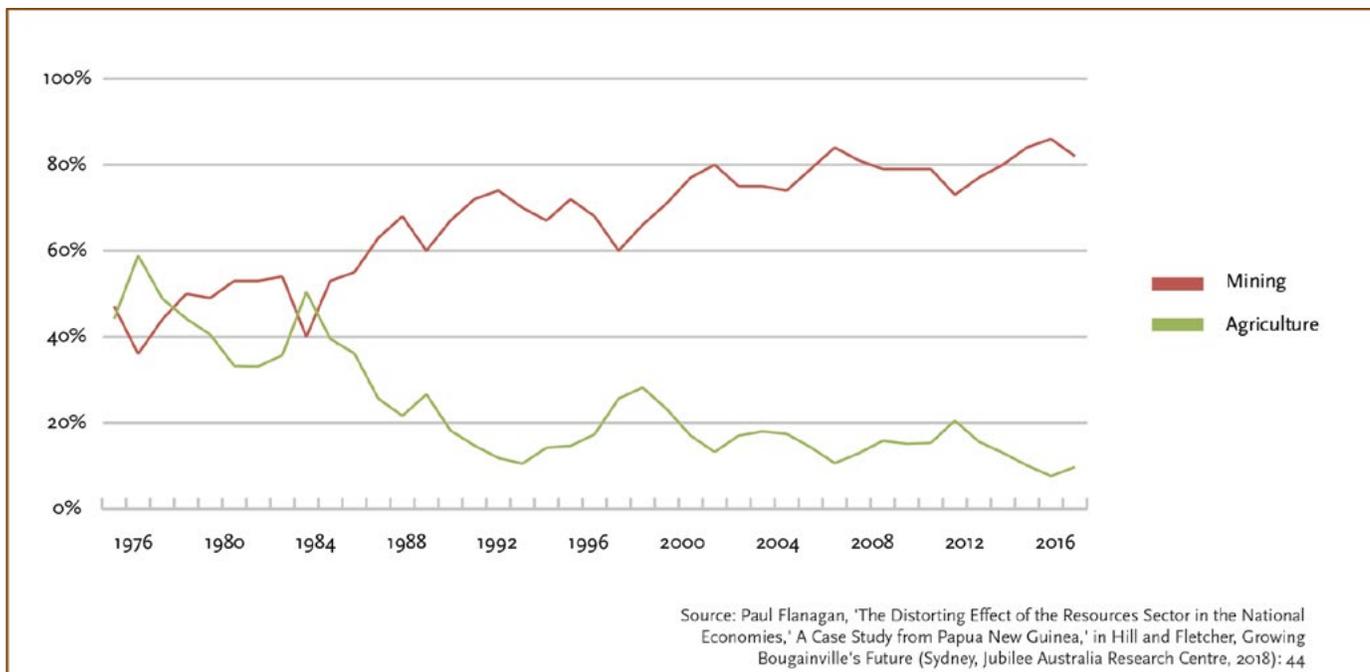
Since then, log exports and palm oil exports have both increased astronomically. From independence until 2016, log exports grew by 597 per cent by volume and palm oil by 1,537 per cent by volume.⁶² Nevertheless, despite the six-fold increase in log exports, the forestry sector still only contributes a tiny amount to total exports (by value)—calculations from 2013 put it at a mere 3 per cent.⁶³

More recent figures show the continued dominance of the extractives sector: petroleum products (55 per cent) and minerals (30 per cent) made up 85 per cent of PNG's total exports (by value) in 2015. A further 4.5 per cent of exports (by value) came from timber and palm oil.⁶⁴

At the same time as the exploitation of PNG's mineral and petroleum resources has increased, there has been a corresponding decline in export volumes in many of PNG's agricultural commodities. Indeed, when economist and PNG expert Paul Flanagan compared five-year export volumes between 1976 to 1980 and 2012 to 2016, he found a decline in export volumes of 67 per cent for tea, 63 per cent for copra, 48 per cent for copra oil and 22 per cent for rubber. Coffee and cocoa volumes increased by small amounts (14 and 22 per cent respectively). However, these positive changes are modest, especially given that the population had grown by 158 per cent (from 3.1 to 8.0 million) in this time.⁶⁵ Moreover, this decline in agricultural exports has occurred while there has been a general growth in production of agricultural commodities generally, as discussed in section 8.2.

In summary, since independence, PNG has seen exponential increase in the volume of mining and petroleum sector exports. It has also seen significant increases in exports of round logs and of palm oil, although these sectors still earn less in exports than mining and petroleum. Other key agricultural export commodities have either reduced or only slightly increased by volume. These trends are powerfully demonstrated in figure 3.1 below.

Figure 3.1: Share of exports by value: agriculture vs resources



3.2: Resource Extraction And GDP

Although the extractive industries dominate the economic picture in terms of exports, their contribution to GDP, the value of all the goods and services produced in the country each year, is much more modest.

The year 2015 provides a good example to determine the contribution of the mining, oil and gas sectors to the PNG economy. This was the first full year that the PNG LNG project was in operation.

PNG Budget documents reveal that in 2015, the mining sector contributed 7.6 per cent to GDP, and the oil and gas sector, 15.8 per cent. The total for both was therefore just over a quarter, at 23.4 per cent of GDP. This compares to agriculture, forestry and fisheries at 17.6 per cent of GDP.⁶⁶

Other major sectors include wholesale and retail trade (10.2 per cent), construction (8.0 per cent), administration and support services (7.1 per cent), real estate (5.8 per cent) and public administration and defence (4.8 per cent).

It is important to note that the figure for 2015 is actually above the trend for the mining, oil and gas sector's contribution to GDP, which the budget documents reveal to be on average around 16 per cent.⁶⁷

We must bear in mind that these GDP figures are just for the formal economy, they do not include the informal economy.

The informal economy is mostly made up of production and consumption of agricultural products for food and other uses at the village level (for more on the role of the village-level informal economy, see section 8.2). GDP figures also exclude things like informal roadside sellers (which are very prevalent in PNG) and unpaid domestic labour.

Research by the PNG Department of Community Development, Youth and Religion suggests that on a cash basis alone, the informal economy is the second biggest income generator for PNG households.⁶⁸ Cash transactions for goods produced in the informal economy are estimated at K12 billion, which is equivalent to about 20 per cent of GDP. However, the informal economy also includes the production of non-cash goods (e.g. food grown for household consumption or shared around in villages without cash payments). If agricultural production that is not exchanged for cash were to be included, it would be close to half of GDP.⁶⁹

Another way of putting this is, that if the informal economy were included in GDP, then the agricultural sector would be the dominant sector—one estimate puts it at 45 per cent.⁷⁰

Taking the informal economy into consideration, this would mean that mining, oil and gas's contribution to GDP would be halved, to around eight per cent. This is just an approximation, but an illuminating one.

3.3: Resource Extraction And Employment

So mining, oil and gas make up a huge proportion of PNG's export revenues, but a relatively small amount of the overall economy. But could they contribute to development or reduce poverty in other ways, for example by bringing a lot of jobs to the country or by providing stimulation to other types of economic activity?

Good jobs (which are well paid, locally filled and non-exploitative) help reduce poverty and inequality, and they grow the economic pie that (with the appropriate government policies in place) can then be spread around to benefit the entire population. Such jobs allow people to use their income to support their families and to spend on consuming goods and services that then provide work for others.

Unfortunately, the extractive sectors employ very few people. In 2011, the mining sector employed around 9,000 people, or around 2.5 per cent of formal sector workforce.⁷¹ The figures look even less impressive when one considers that the majority of PNG's population is part of the informal economy: most of who living in rural villages, grow their own crops, and sell various products at street side market stalls.

The total number of people in formal employment in 2011 was approximately 360,000, or 0.36 million. This was estimated to be approximately 11 per cent of the total workforce (3.24 million). In other words, 89 per cent, or 2.88 million people, were employed in the informal economy.⁷²

Giving further weight to the significance of the informal economy in PNG, in 2018, the Department of Community Development and Religion published the first ever audit of the informal economy. The audit estimated that 80 per cent of the adult population is employed informally.⁷³ Given a (conservative) estimate of the adult population, this would mean that in 2018, around 3.9 million people were employed in the informal economy.⁷⁴

As figure 3.2 shows, if the mining, oil and petroleum sectors in 2011 employed around 2.5 per cent of the workers in the formal economy, that would represent a mere 0.3 per cent of the total workforce.

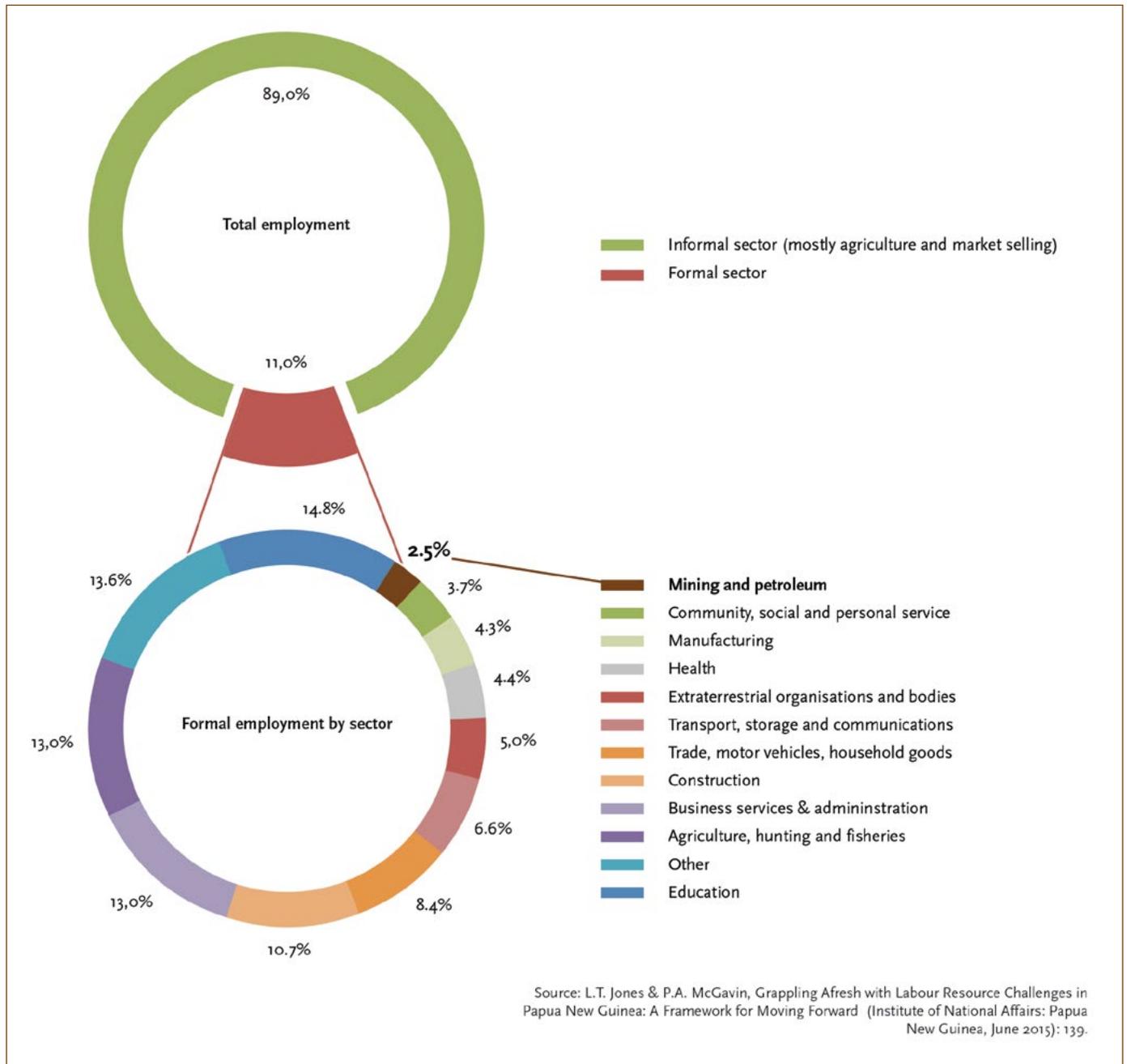
Recent figures from the Bank of PNG suggest that the mining, and petroleum sectors workforce has grown by at most two and a half times between 2011 and 2019.⁷⁵ If correct, this generous assumption, would put the workforce at around 22,500 people, which is still well below 1 per cent of the total workforce.

The logging industry is also not a big employer—although it is hard to come up with an exact figure because forestry employment data is not disaggregated from the rest of the agricultural sector. It was estimated in 2006 that forestry provided jobs to around 9,000 people (many of whom are foreign workers—see section 5.1.).



The Kawerong river in Bougainville has been polluted with contaminated water from the Panguna mine pit © Dina Rui

Figure 3.2: Employment by sector



3.4: The Lack of Multipliers

The second way that the resources sector could stimulate the economy is through knock-on or multiplier effects in other sectors. That is to say, do the mining, oil & gas and forestry sectors produce or consume goods and services that are used or produced by other parts of the economy to stimulate business and economic growth, or do they not?

A country like Australia provides a useful illustration of the point. Australia, like PNG, also saw a resources boom in the 1990s and 2000s. A huge demand for its iron ore, coal, aluminium, copper and natural gas has come from China, Japan, India and other industrialised or industrialising countries.⁷⁶ However, as an industrialised economy, Australia has the businesses that provide many of the goods and services to support these mining operations. These businesses build and manufacture much of the equipment the mining companies use, and also process much of the material extracted in Australia. This means that there have been knock-on effects of the mining boom that have spread throughout the economy.

For mining, oil and gas, it is actually very difficult for a relatively small and non-industrialised country like PNG to build and sustain the businesses that would be able to take advantage of this type of resource extraction. The

World Bank has said that ‘the multiplier effect of mineral investments is small’ and has been warning, for the last 30 years or so, that reliance on mining is dangerous because it is an ‘enclave’ sector.⁷⁷

More recently other observers, such as the University of New South Wales economist Satish Chand, have highlighted Papua New Guinea’s ‘dualistic economy, one comprising the extractive sector that has enjoyed significant growth; while the remainder, which is mainly agriculture, has enjoyed minimal growth.’⁷⁸

These trends continue to the forestry sector. In theory, processing timber is not as complicated as refining minerals, oil and gas. This is why there have been many calls to develop downstream processing of timber rather than allowing the wholesale exporting of raw logs. Nevertheless, despite some efforts by some companies to build downstream processing facilities, raw logs continue to constitute close to 100 per cent of PNG timber exports.⁷⁹

The result is that minerals, oil and gas and even timber are extracted, packed off and sold to overseas buyers with little involvement of and little benefit to most other parts of the economy.



Logging roads between Bintepuna and Bairaman River concessions © Paul Hilton / Greenpeace

Chapter 4: Revenue Collection, Management and Spending

Chapter 3 examined the first aspect of the paradox of wealth without development: the tendency of extractive sectors to form enclave economies. But there is a second aspect of the paradox, which is that, despite strong sales and profits for the companies involved in extractive activities, the collection and spending of public revenues from these activities has failed to significantly improve access to essential services, overall investment or increase sustainable development outcomes.

Part of the problem comes from poor tax collection. Mining and petroleum companies accomplish tax avoidance via the negotiation of secret agreements, from which they extract highly favourable financial concessions. Logging companies favour a strategy of tax evasion, transfer pricing and the use of tax havens. However, the leakage of funds from PNG's capital account, and the use of shell companies in known tax havens, suggests that mining, oil and gas companies are probably also parking their profits offshore, though perhaps not so blatantly.

Financial mismanagement has also been a feature. Excessive government spending, often in the expectation of the budgetary boom that resource revenues would bring, has actually led to significant instances of financial crisis for the country. Thus resource revenues (or at least the management thereof) have, paradoxically actually increased PNG's financial woes. Finally, corruption, financial misappropriation and poor systems of oversight of public spending has plagued PNG in general, which has in turn impeded the ability of natural resource revenues to benefit the country.

4.1: The Contribution to National Revenues

The previous sections discussed ways that mining, petroleum and logging industries could in theory benefit the economy - directly via employment, or indirectly, via multiplier effects. In the PNG economy, neither phenomenon is observed, as Chapter 3 showed

There is a third way that the extraction of natural resources could benefit the economy as a whole, and that is if the revenues from the sale of these products were used to fund services that will support development. This, as Chapter 1 identified, was often the premise used for the licensing of new mining projects.

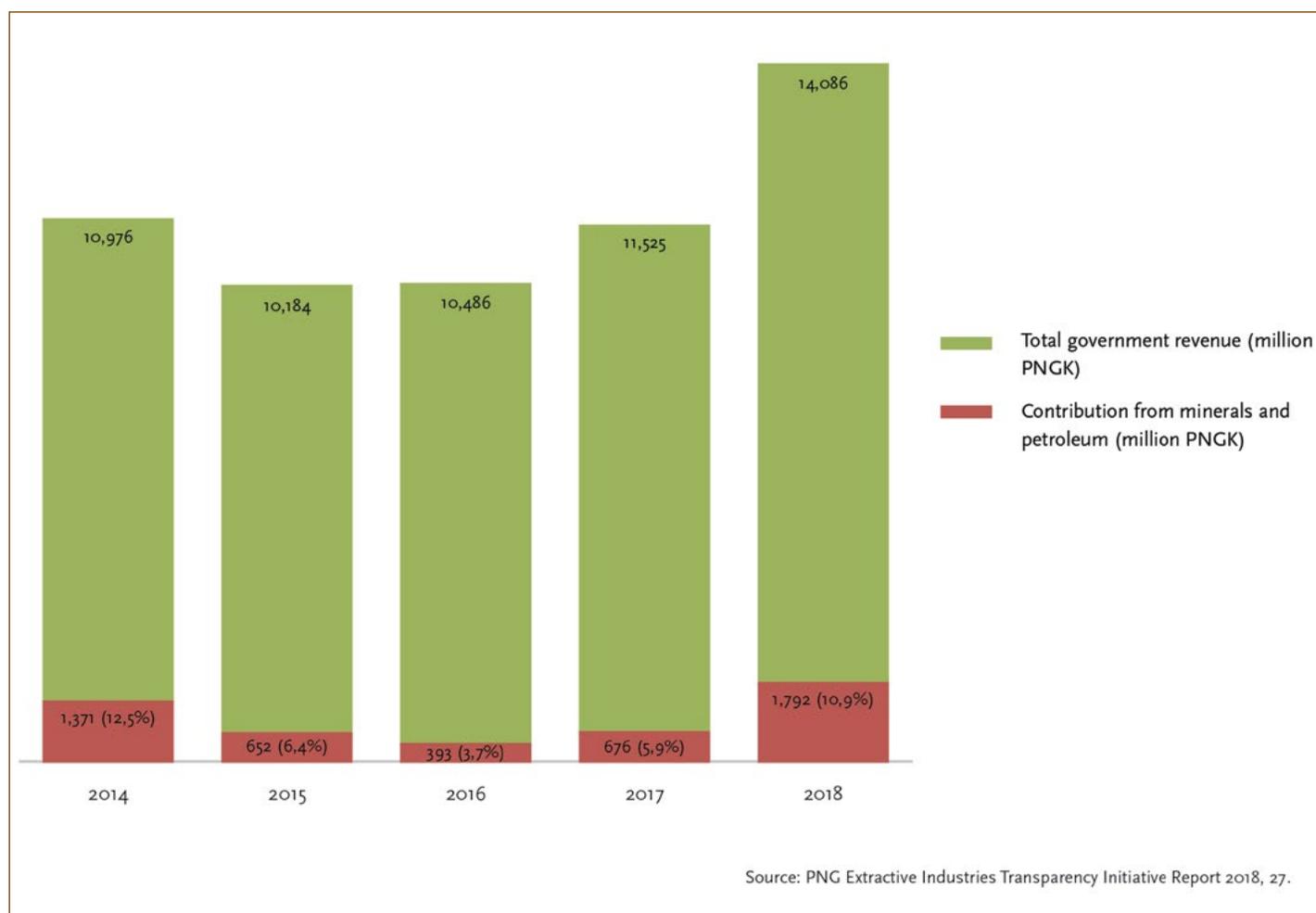
Just what has been the contribution of the natural resources boom to the national budget? Despite all the rhetoric over the years about how important extracting minerals, petroleum, and, later on, timber resources and natural gas would be for the financing of national development, it turns out that these sectors' contributions to the national budget have been relatively modest.

Turning first to the contribution of the minerals and petroleum sectors to PNG budget revenues (taxation in the logging sector is discussed in 4.3) in this case, trends over time have been highly variable. In the period from 1975 to the early 1990s, the payments by the minerals and petroleum sectors oscillated between 5 and 20 per cent of

total government revenues, although mostly under 10 per cent. With more projects operating in the 1990s, payments were on average higher, hovering between 12 and 15 per cent. During the 2000s, resource revenues grew again, peaking at around 35 per cent for a couple of years. Since then there has been a steady decline, with the second half of the 2010s seeing government revenues from the sector return to a much lower average. Between 1978 and 2016 the extractive sector taxes have averaged just 13 per cent of PNG's total revenues.⁸⁰ This is a relatively low number for a sector which was supposed to stimulate and fund the nation's sustainable development. It is also low, considering that these sectors account for approximately 80 per cent of exports in PNG.

The low tax taken from the mining and petroleum sectors in recent years is even more alarming. PNG's total tax revenue has hovered between 10 to 12 billion Kina between 2014 and 2017. The 2019 National Budget reported that the extractives industries' contribution to government revenues was around K650 million (6.4 per cent) in 2015, K390 million (3.7 per cent) in 2016 and K675 million (5.9 per cent) in 2017 (excluding salary and wages tax by sector employees). This is despite the fact that contribution of the extractive sector to GDP in these years has been estimated at 25 per cent in 2015 and 29 per cent in both 2016 and 2017.⁸¹

Figure 4.1: Minerals and petroleum sectors' contribution to budget revenues



4.2: Mining, Oil and Gas Companies: Tax Avoidance

The shocking thing about the relatively modest contribution that mining, oil and gas companies are making to government revenues is that they are earning tremendous amounts from the sale of the natural resources they extract. As figure 4.2 shows, in 2018 (a typical year), the five biggest extractive projects all generated many billions of Kina in sales.

Figure 4.3 shows that in the most recent years for which there are reliable figures, the sale of minerals and gas exported from PNG generated between 19 and 27 billion Kina per year (slightly growing each year). And yet, the returns to the people of PNG through government revenues were just a fraction of this: between 2 and 6 per cent. So, not only do

these companies make a relatively small contribution to the national budget: the contribution they do make represents an even smaller fraction of their gross earnings.

A key reason why government income from the mining, oil and gas sectors is so low, especially at present, is the relatively small amount of corporate income tax being gathered. In an effectively operating tax system, corporate income tax should be the largest revenue stream collected from mining, oil and gas companies. However, in 2017, the PNG government received only K116 million from extractive sector corporate income tax revenues (just five per cent of combined revenues from all sectors). 2018 was a slightly better year, with the PNG government receiving K766

million of corporate income tax revenues from extractive companies (ten per cent of sectoral revenues).⁸²

The ability to write off both exploration and capital expenditure over the lifetime of a project, and thus reduce one’s effective tax rate to zero for a number of years, might explain some of the shortfall in corporate tax receipts. For example, the PNG LNG project, which began production (and therefore started recording earnings) in 2014, laid out US\$19 billion in capital expenditure during the construction phase. It is likely that this expenditure could produce tax write offs for a number of years into the future. Indeed, previous projections by Jubilee Australia Research Centre indicated that the PNG LNG project would not add net revenues to the PNG budget until 2024—ten years into the project’s life.⁸³

The PNG LNG joint venture companies and analysts alike have tended to blame lower than expected gas prices for the lower than projected tax revenues from the PNG LNG project, however, as Jubilee’s previous research showed, blaming the gas price is misleading.⁸⁴ It is much more likely that tax write-offs have been the main culprit, although there may also have been tax holidays and other tax exemptions granted to the PNG LNG joint venture companies in the confidential agreement they made with the government. Such concessions are the reason that Lihir gold mine has paid almost zero in company tax since 2013; Ramu Nickel was also the beneficiary of favourable tax treatment.⁸⁵

The problem extends beyond company tax. As Paul Flanagan has argued, the various loopholes in PNG’s minerals tax regime are rendering it largely ineffective in terms of raising an appropriate amount of revenue:

PNG has been reducing its tax rates on the resource sector down to 30%, it has an ineffective additional profits tax, generous depreciation arrangements over 10 years even though project life is 30 years, has struggled to pay for the equity share it takes in projects (from 22.5% in gas to 30% in oil), allows its royalties and development levies (2% each for the PNG LNG project) to be calculated on a discounted well-head value of production, has granted tax holidays of up to 10 years and has allowed tax credit claims for infrastructure work outside the project site.⁸⁶

Another tax loophole often used is that companies can recoup all the Value Added Tax (VAT) they pay on their inputs, as VAT is not charged on exports. These generous loopholes have enabled companies to legally avoid paying a good deal of tax (tax avoidance). The presence of shell companies associated with the PNG LNG project in known tax havens such as the Bahamas and elsewhere means that there has likely also been some tax evasion as well.⁸⁷ But this has been an even bigger problem in the forest sector.

Figure 4.2: Export value of products from 5 largest extractive projects (2018)

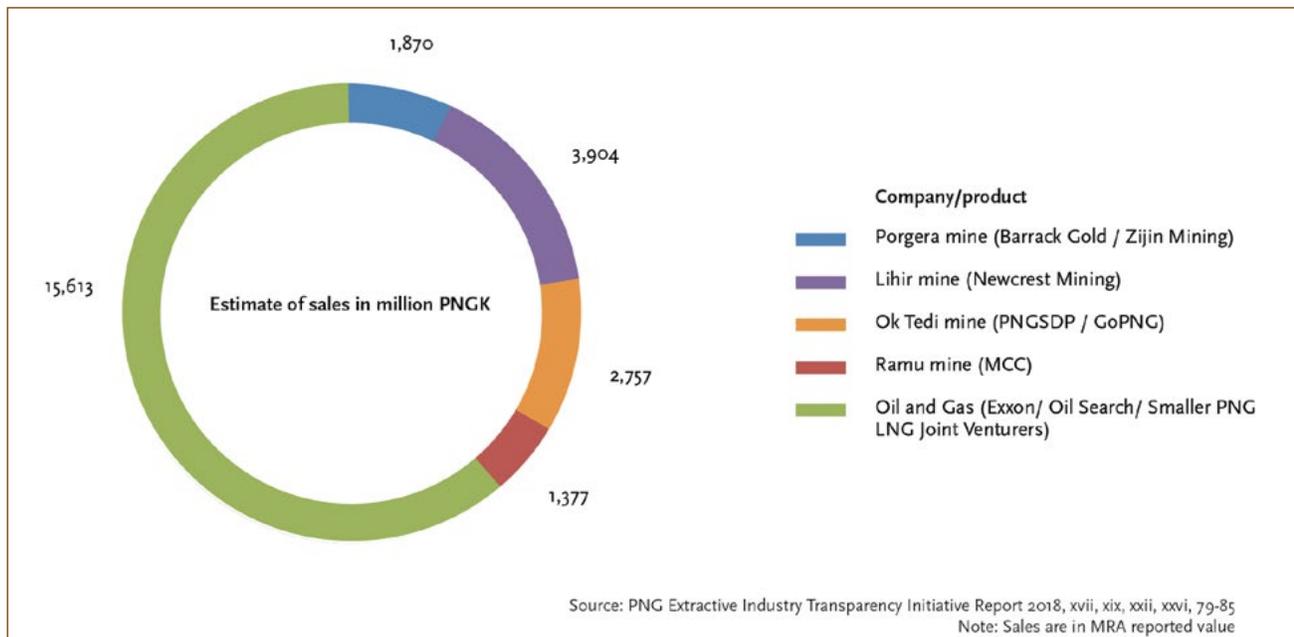
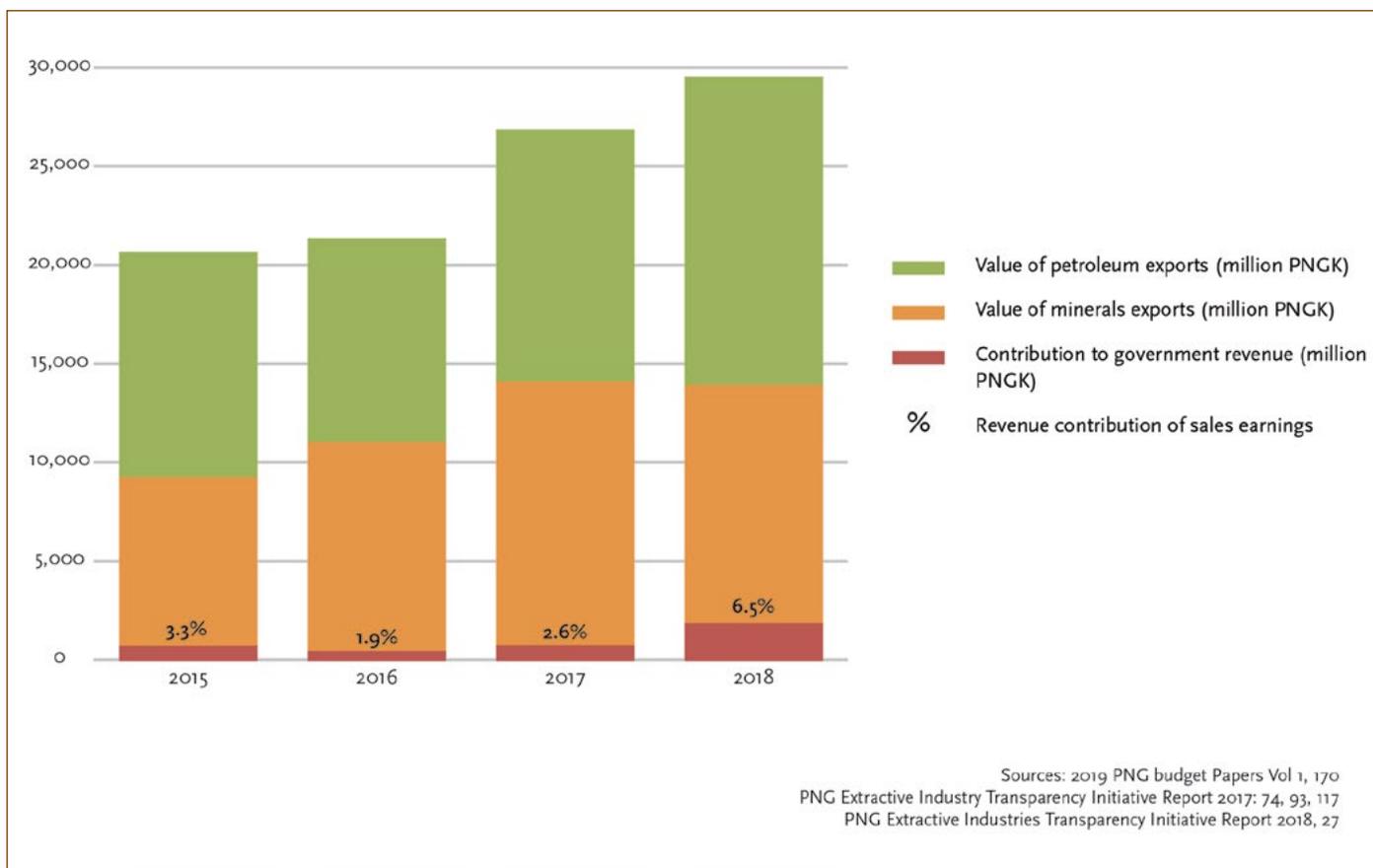


Figure 4.3: Sales vs government revenues for mining and petroleum sector



4.3: Logging Companies: Tax Evasion

In economic terms, the forestry sector in PNG is smaller than the mining, oil and gas sectors, generating approximately US\$200 to 300 million in export revenues in the early years of the 2010s.⁸⁸

Although the export revenues in the logging sector are significantly lower than the mining and petroleum industries (hundreds of millions of Kina as opposed to billions of Kina), logging companies are also avoiding paying their fair share of tax, although they tend to use different methods.

There are two ways in which the logging industry in PNG is currently avoiding paying proper tax.

The first way is that the industry appears to be deliberately undervaluing the price of logs it is selling to overseas buyers, in order to reduce the amount of export tax paid. Between 2000 and 2014, PNG was receiving 20 per cent less of revenue per cubic metre of exported logs than the average of the five other major log exporters. In 2014, PNG's export price per cubic metre, US\$210, was just under half the average of the other five major exporters (US\$388).

Applied to the 2014 volume of log exports (3.8 million cubic meters), this variation makes a \$679 million difference in annual revenue for the industry.⁸⁹

Deliberately undervaluing the cost of logs is an example of a type of accounting fraud called transfer pricing. Inadequate checks and balances, including the inability or unwillingness of the PNG Forest Authority to investigate this phenomenon and root it out, allows this to continue with impunity. As a result, in the early 2010s, the forest sector paid only US\$80 million per year in export duties and levies, which was at least US\$60 million less than it should have been paying—likely much more.⁹⁰

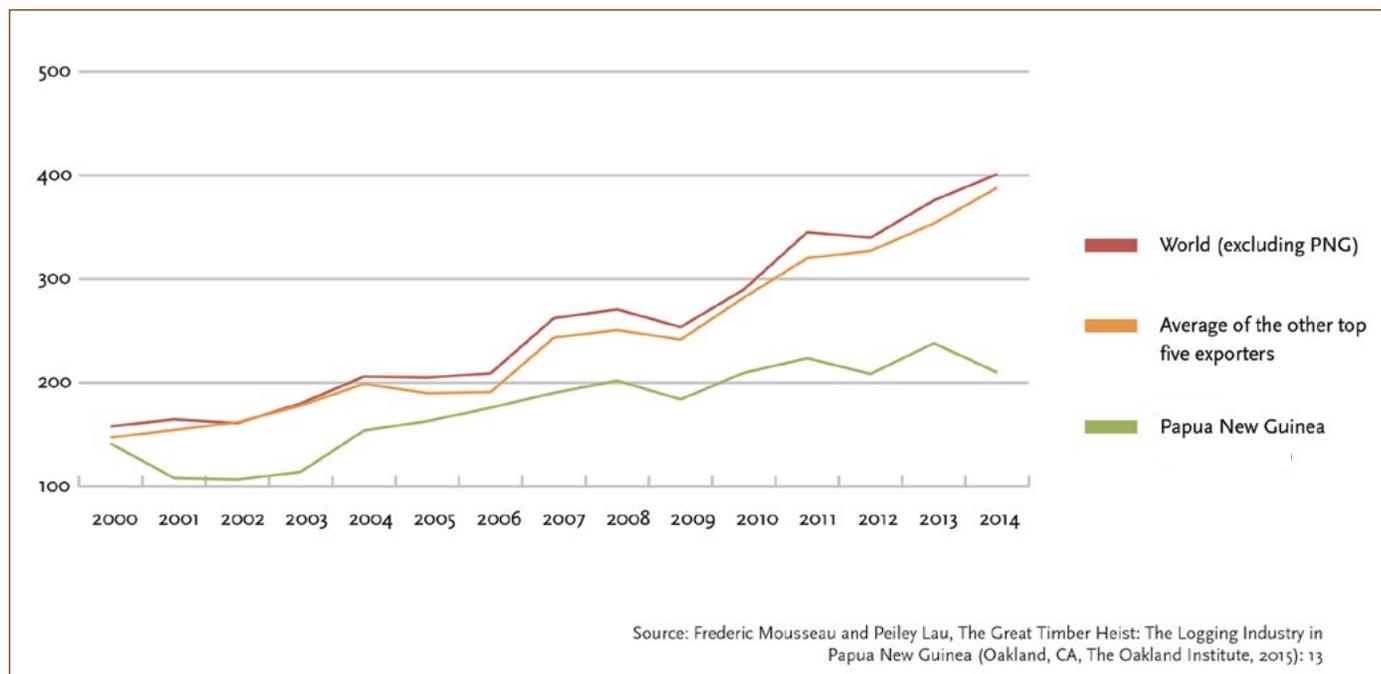
The second way that the industry avoids paying proper tax is through reducing the amount of company tax it pays to the government. As with the extractive sector, logging companies are obliged to pay 30 per cent corporate tax rate on their profits, allowing for acceptable deductions. Like the mining companies, logging companies are paying tiny amounts of corporate tax despite handsome profits. For example, the forestry industry paid between two and three

million dollars (US) per year in income taxes between 2008 and 2011, despite the industry earning between 300 and 400 million dollars a year in revenues. This means the industry paid less than one per cent in income tax. Moreover, most of this was paid by one company, PNG Forest Products Ltd, which had a profit margin of about 15 per cent—whereas the rest of the industry declared a much lower profit margin, between zero and two per cent.⁹¹

In addition to the use of transfer pricing, the mechanism by which this may be accomplished is via shifting profits

offshore via the use of subsidiary or sister companies registered in other jurisdictions. The subsidiaries overinflate the costs of goods and services supplied to the companies, allowing the PNG based companies to operate at a very low profit rate, or (more commonly) at a loss. This results in a low tax payment in PNG and high profits in the low tax jurisdictions. Rimbunan Hijau, the largest logging company in PNG, has previously become a past master at this type of tax evasion. In fact, the largest 16 Rimbunan Hijau logging companies in PNG have reported operating at a loss in all years from 2000 to 2011, except for 2002 and 2003.⁹²

Figure 4.4: Log export prices: PNG vs other major exporters (US\$)



4.4: Dodgy Loans and Spending Sprees

Although the majority of problems with the natural resources sector and the government’s budget have become apparent at the revenue collection part of the cycle, the expected future sale of the resources have often distorted governance and fiscal policy at the national level. Indeed, there is a history in PNG of governments significantly increasing public spending with the initiation of new resource projects, in the belief that the expected budget windfalls would permit greater government largesse. If lower than expected revenues do eventuate, the resulting budget crisis can result

in a fiscal squeeze and resultant social discord. This has happened twice in PNG’s recent history.

In 1994, the opening of the Porgera gold mine and the Kutubu oilfields saw historically high GDP growth and a huge increase in government spending. However, a commodity price collapse in 1994 spelt disaster, as anticipated revenues had been spent that did not eventuate. A budget blowout and a balance of payments crisis followed. The World Bank and the IMF were called in, and along with other creditors, this resulted in a new fiscal and monetary regime

being implemented in PNG in August 1995. The resulting economic reforms had a mixed success and caused a good deal of economic pain.⁹³

Something of a repeat of this problem occurred twenty years later, with the onset of the gas boom and Exxon's PNG LNG project. There were myriad warnings that PNG not become too carried away with the anticipated revenues and increase spending too much, including from officials within PNG's governing institutions, such as then-Treasurer and from the Bank of PNG. However, the economic injection of the project's construction boom in 2010-2013 was too tempting, and the O'Neill government initiated a deficit spending program for its 2013 budget. As we have seen, the end of the construction phase and the beginning of the production

phase in 2014 saw a significant fall in revenues associated with the project, as the companies took advantage of overly generous tax concessions, contributing very little to the economy. Soon, the budget was in deficit, government employees were not being paid, and strikes and unrest became commonplace.⁹⁴

Matters were made worse by the fact that the government borrowed US\$1.2 billion from UBS bank in 2014 in order to buy shares in Oil Search. The transaction allowed Oil Search to buy a stake in the Elk and Antelope gas fields, the next huge LNG project slated for development. The government ended up losing approximately US\$250 million on the deal, when it was forced to sell its Oil Search shares in 2017 due to mounting debt problems.⁹⁵

4.5: Disappearing Foreign Exchange Reserves

An even more serious financial mismanagement problem is revealed by examining the case of PNG's dwindling foreign exchange reserves. In general terms, total export revenues have taken off since 2014, which has been the major contributor to the fact that PNG has had a growing trade surplus: upwards of K10 billion a year and heading towards K20 billion. A fall in imports in recent years has also contributed to this current account surplus.⁹⁶

In normal circumstances, a large current account surplus would mean that a nation's foreign exchange situation would improve, because the resulting trade surplus results in more foreign exchange being put away for a rainy day. However, this current account surplus has been undermined by an even larger deficit on the capital account. This capital account deficit, as Howes et al explain: 'is not due to foreign direct investment abroad by PNG investors or offshore portfolio investment in PNG. Rather, it is due to profits being taken offshore in the form of dividends and loan repayments by resource owners.'⁹⁷

Indeed, the leakage of money on the capital account from PNG in the last few years has been so extreme that PNG has seen a reduction in its foreign exchange reserves from approximately US\$4 billion in 2012 to under US\$2 billion in 2017.⁹⁸ That this has occurred at the same time as a

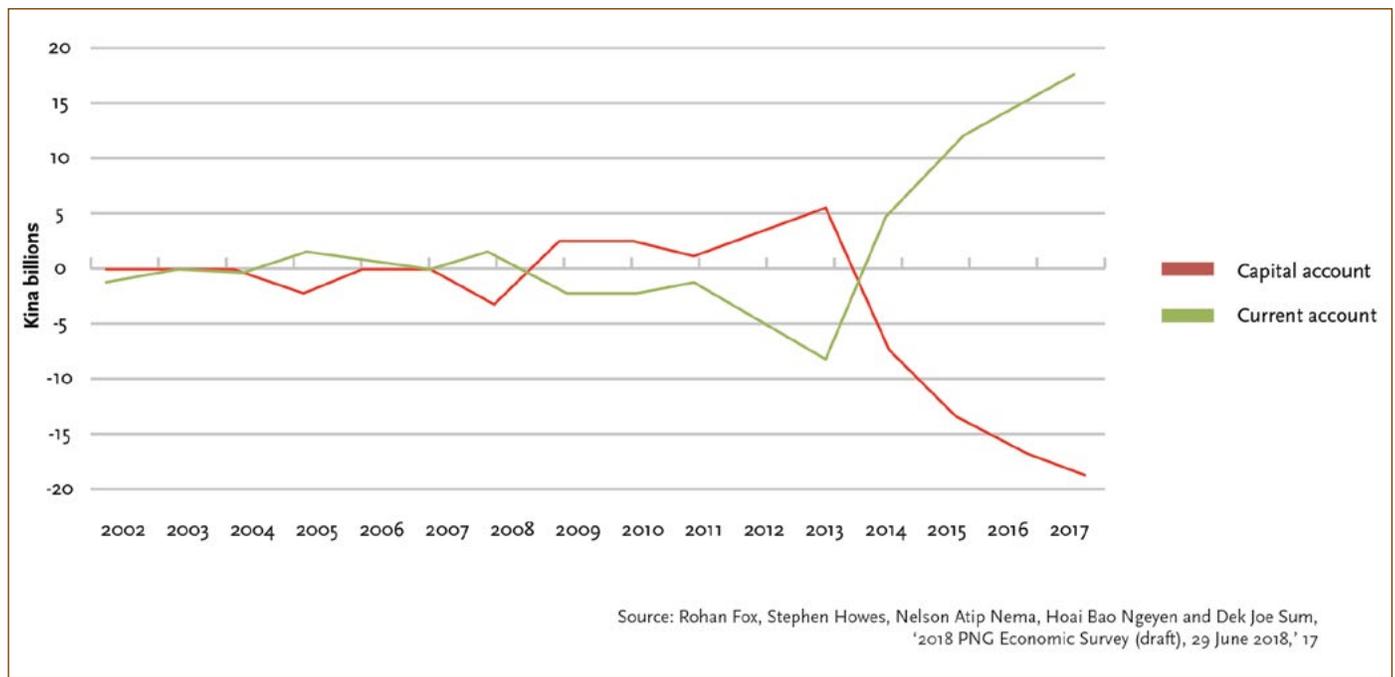
significant rise in export earnings and a significant fall in import earnings is quite extraordinary, and raises serious questions about the policy choices and governance of PNG's finances, especially in association with the offshore investment of profits from resource projects.

The situation has been so serious that bailouts from the Asian Development Bank and from the Australian government have been necessary, including an AU\$300 million loan in November 2019, and with a further COVID-related bailout package announced in April 2020.⁹⁹ Moreover, the shortage of foreign exchange is likely to have significantly contributed to PNG's recent economic woes. Recent surveys suggest that only five per cent of PNG firms were getting foreign exchange when they needed it, and that 73 per cent had to wait three weeks for it.¹⁰⁰ This acts as a serious constraint on business activity and confidence.

The problem is summarised by Paul Barker, the Executive Director of the Institute of National Affairs:

'We really aren't seeing any benefit from our dominant resources sector. We are not getting any foreign exchange despite this vast positive current account and not getting tax revenue either.'¹⁰¹

Figure 4.5: PNG balance of payments: current account vs capital account



4.6: Revenue Misappropriation and Spending

Historically, good governance is an important feature of traditional Pacific societies. Participation, information sharing and consensus were integral features of the decision-making process at the village level, and natural resources were carefully and sustainably managed.¹⁰²

However, the modern PNG state has developed huge problems when it comes to financial misappropriation and mismanagement.

Widespread corruption is leading to financial misappropriation of public funds by public officials and private businesses, but studies have found that it is very difficult to put a figure on the losses.¹⁰³ Late in 2019, Police Minister Bryan Kramer estimated that between K2 and 3 billion has been lost to white collar corruption, funds which, according to Kramer, 'end up in the pockets of corrupt government officials and their foreign cronies who assist them to defraud the people of PNG.' Kramer estimated that approximately K1 billion of these funds ends up in offshore bank accounts.¹⁰⁴ Sam Koim, now Commissioner General for the Internal Revenue Commission, estimated in 2013 that around 40 per cent of the government's annual budget was lost to corruption, waste and mismanagement.¹⁰⁵

Another aspect of financial mismanagement occurs at the distribution end of the revenue cycle, i.e. the decision-making and accountability of public spending. Provincial governments have a very small revenue base, receiving most of their money in the form of grants from the national government. However, those grants have been significantly reduced over the decades, thanks to the development of a parallel system. Funds that could have been used to support health, education, infrastructure and agricultural services at a local level have been redirected to 'slush funds' for local politicians such as the Electoral Development Fund (EDF). The amount of funding controlled by Members of Parliament is huge—roughly equivalent to the amount of funding coming directly to the provincial governments. And yet there is a long documented history of misappropriation of EDF funds.¹⁰⁶

Of course, this is a problem that extends beyond simply the revenues from natural resource taxation: all government revenues fall into this trap. However, without a unified system in place and without stronger accountability at the national, provincial and local level, poor oversight and self-interest will see to it that leakage and poor choices will surround the distribution of all government revenues, including those from the natural resources sectors.



Chapter 5: Economic and Social Impacts

The social and economic impact of mining, petroleum and logging projects on the communities which host them are mixed at best. Some people certainly do well: especially in the construction phase of larger projects, business opportunities arise for those in the position to take them. But such projects in general increase inequality, not to mention altering the culture by changing the community's relationship with money. The influx of migrants from neighbouring provinces and foreign workers that accompany such projects also bring a host of social problems. Even with improved public services that can sometimes be funded by project revenues, these social problems have serious negative social impacts. Moreover, there are many instances where the public services do not improve.

5.1: Direct Economic Benefits

Mining Oil and Gas

The promise of direct economic benefits are one of the ways in which extractive projects are sold to local communities. In mining and petroleum projects, various revenue streams flow to the communities living in close proximity to such projects. Since the 1990s, two per cent of gross value of project profits to the state has been divided between landowners, provincial governments and local governments. Initially, the proportion of these royalties going directly to landowners was very low (five per cent, in the case of the Panguna landowners), but over the years, landowners and local level institutions have negotiated an ever-increasing part of this pie (up to around 50 per cent or more) in royalties. Landowners also often negotiate to hold an amount of direct equity in the project, which can lead to larger payments. Finally, certain landowners receive compensation payments for the loss of their land.¹⁰⁷

Other direct economic impacts in the mining, oil and gas sectors occur through employment – community members working directly for the leaseholder or for other spin-off businesses. In 2001, in one of the few general surveys of the impacts of mining projects across a number of communities in PNG, Glenn Banks reported that the majority of jobs in the mining sector go to Papua New Guineans; nevertheless, not all of the jobs go to local community members, with fly-in, fly-out contracts being extended not just to expatriate but also to PNG workers. Business opportunities are also another path to employment, although some argue that these hold more prestige than economic value because of the high costs of operating businesses, the cultural constraints on good business practices, and the reality that many of the businesses are joint ventures with international firms.¹⁰⁸

However, promised or expected benefits can be ephemeral. This is graphically illustrated by the PNG LNG project. It is PNG's largest ever natural resource extraction project, yet incomplete landowner identification has essentially halted any distribution of royalties and other revenues directly to the majority of landowners due to legal disputes. This, along with the drying up of economic opportunities that were relatively abundant during the construction period (2010 to 2014), has led to further discontent in the local communities, especially in the Hela region at the heart of the project.¹⁰⁹

Although this may appear to be a worst case example, royalty payments create problems in other communities as well. A study of the impact of royalties on communities surrounding

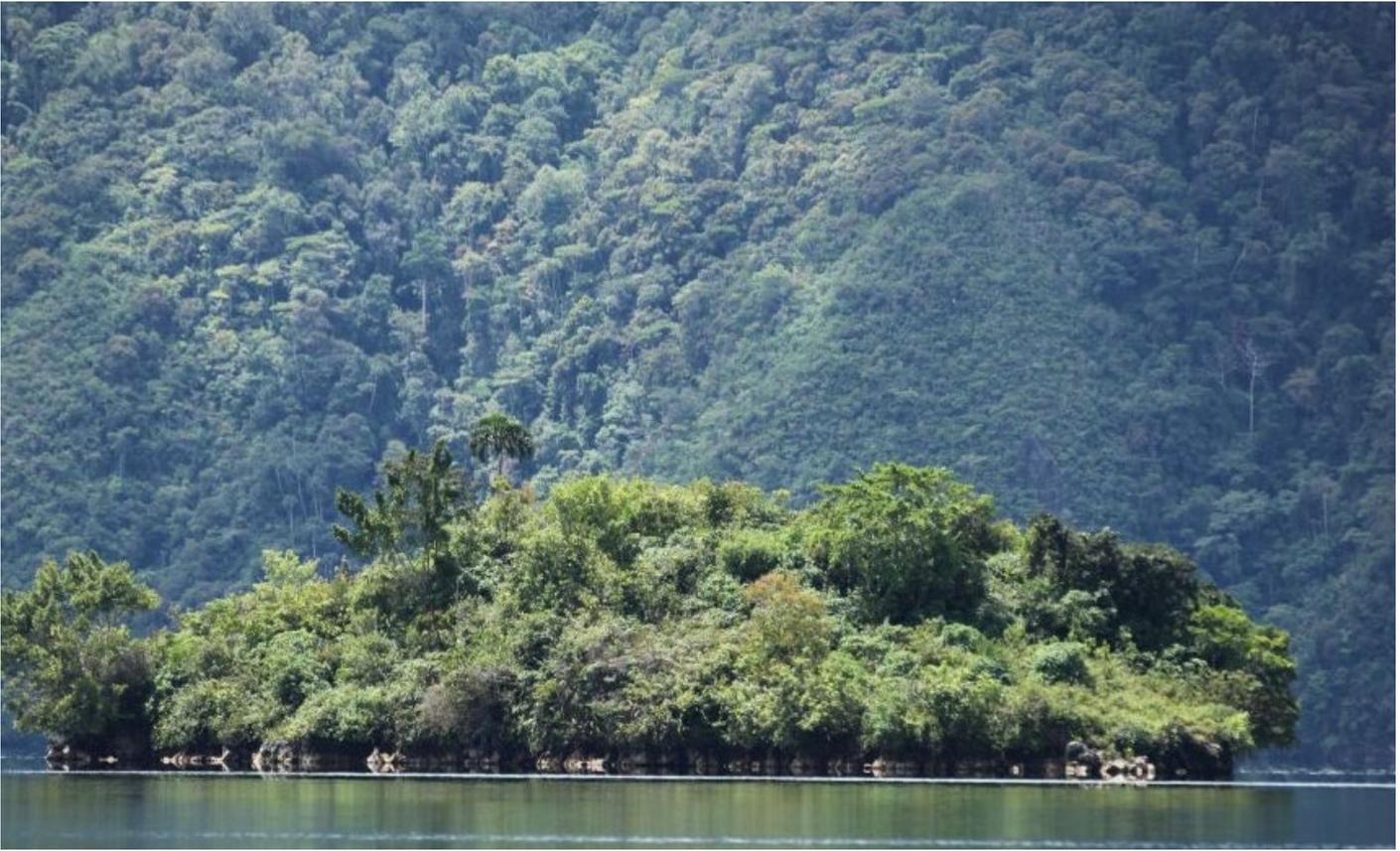
the Ok Tedi mine noted some landowners were identified as deserving of royalties and others as non-deserving, creating a distinction that did not exist, and increasing inequality by creating an economic and social enclave characterised by the import and consumption of western consumer goods.¹¹⁰ The introduction of a cash economy also creates and exacerbates inequalities in other ways. Research has shown that differences build up between those who are able to gain access to the jobs, and educational opportunities that flow from the new situation and are able to trade on them to increase their social and economic status, and those who do not have the same access to these opportunities. The inflation of bride price is another example where increased amounts of cash money benefits some and disadvantages others.¹¹¹

Logging and Oil Palm

There are both similarities and differences between the logging and the mining sector when it comes to direct economic benefits. In the case of direct payments, timber royalties are due to landowners. These are calculated on the volume of timber harvested, and there is often an additional premium placed on top of this. A review in 2006 found that communities who had entered into logging concessions received about K20 million of income from these concessions per year, and that the largest ten logging projects were distributing around K1 million in cash payments per year. However, it also found that payments to the poorest and most remotely located communities were too small to have lasting impacts. Transparency and accountability on how the sums were distributed also raised questions about the fairness and equitability of the payments. Other problems include a lack of sustained and ongoing income because of the tendency for companies to log an area and quickly move on, and local leaders purloining much of the revenues for themselves.¹¹²

A 2001 review of the forest revenue system funded by the World Bank found that 'many of the stakeholders consulted were of the view that most of the payments to landowners had been wasted, and those from logged areas were made worse off by logging'.¹¹³ Oxfam investigations found that compensation for the sizeable Turubu logging concessions in East Sepik to be small, and only reaching certain community members.¹¹⁴

In terms of employment, there are not a lot of differences between the logging and the mining sector. In 2006,



Lake Kutubu © Paul Barker

logging was reported to employ around 9,000 people in PNG—numbers that were in the same region as mining employment numbers. However, in contrast with the mining sector, most logging companies have an extensive foreign employee base.¹¹⁵ In-depth ethnographic research of a Malaysian-owned forestry project in West New Britain found a fixed racial hierarchy among logging company employees. The managers were ethnic Chinese, surveyors and mechanics were Filipino, and operators of the logging machinery tended to be Malaysian.¹¹⁶ Furthermore, Greenpeace research in 2008 suggested that pay was low, and workers lost wages because of the need to buy food and credit from the company store, leaving workers with not much to survive on.¹¹⁷

In the case of oil palm plantations, research in different provinces suggests that the economic opportunities for local people are poor. In West New Britain, where some plantations have been established for decades, incomes have stagnated despite significant increases in the number of families who own small out-grower plots. Returns from royalty payments have also slowed or ceased in some areas.¹¹⁸ Oil palm has been criticised as a ‘greedy crop’ by Rose Avusi, a community leader in Kimbe, West New Britain,

because unlike cocoa or coconut, other food crops cannot be grown alongside it, thus lessening food security and increasing the risk of poverty in regions where it is grown. Ana Sipona, from Pomio, East New Britain, also spoke about oil palm taking away much needed land for gardens. Despite the promise of royalties, she said that most people had not received anything.¹¹⁹

In summary, the data on direct economic benefits to local communities for both the mining and the forestry sector tells a mixed story, but the overall picture is one in which the promises of long-term and sustainable economic opportunities are rarely delivered upon.

5.2: Infrastructure Development and Services

The fiscal regime governing the amount and distribution of mining revenues going to local communities took shape during the 1990s. Legislation in this period saw the creation of Development Levies that the mining company had to pay to provincial and local level governments to fund development in the region. Additionally, an Infrastructure Tax Credits Scheme was created, whereby operators of large scale mining and petroleum projects could build social and economic infrastructure for local communities in exchange

for tax write offs. Mining companies also sometimes fund their own development initiatives, claiming the costs back via the aforementioned Tax Credits Scheme. As explored in the previous section, provincial and local level governments also have the rights to a certain percentage of the royalties that are calculated via the 2 per cent value of project profits.¹²⁰

How do these revenues and tax incentives translate into services? Human Rights Watch, for example, concluded in 2010 that 'in spite of all the wealth it generates, Porgera still suffers from poverty and a dearth of basic services'.¹²¹ The PNG LNG project serves as another example. Research by Jubilee Australia Research Centre in 2018 found that the vast majority of promised infrastructure projects were not delivered. Most of the few projects that had been delivered, such as the Komo Hospital, were classic white elephants.¹²² The provincial authorities have blamed the lack of development and infrastructure on the inability of the government and the companies to deliver the promised project revenues. Governor Phillip Undialu of Hela Province said in May 2019, 'I want to ask Oil Search, ExxonMobil, Department of Treasury, and all the line agencies, where is all the money?'¹²³

The problems are similar in the forestry and palm oil sectors. A 2006 review by Forest Trends found that logging companies' compliance with infrastructure obligations in logging agreements was 'generally fairly poor'.¹²⁴ In-depth ethnographic research has borne this out. One study which investigated the building of a road network in Pomio, East New Britain, concluded that logging roads were built simply to suit the logging company, and not to service the local communities, many of whom were left cut off from the road network. Community activists who have been affected by oil palm plantations in the province have expressed similar disappointment over the lack of promised infrastructure.¹²⁵ In West New Britain, ethnographic researchers and community activists alike have noted that promises about development including transportation, education and health care by logging and palm oil companies have not been delivered.¹²⁶ The lack of delivery of promised services has also been noted by Greenpeace in its investigations in Gulf Province.¹²⁷

5.3: Internal Migration and Foreign Workers

Internal migration is one of the largest social impacts that accompany mining, oil and gas projects, with populations

from surrounding regions relocating to seek employment or other opportunities. This has been a particular problem at the Porgera mine due to the ease of access; but even island mining sites such as Lihir and Misima, which are more difficult to access, have experienced internal migration. Apart from the inward migration, the economic flows into the mining communities and the generation of a new cash economy into regions that are not used to such economic relations have also generated associated problems of rising violence, alcoholism, prostitution and general social breakdown. Although these processes are socially destructive, some analysts have been at pains to point out that they are in some sense related to aspirational or progressive outcomes and a desire for communities to access a greater material standard of living. Another point to note is that these phenomena put more strains on the health and educational facilities that were allegedly one of the main justifications for the project in the first place.¹²⁸ Whether the mitigating circumstances justify the social costs that mining has on communities, especially when the human rights considerations are taken into account (see chapter 6) will remain a subject of some debate.

The influx of foreign workers that accompanies logging projects can be expected to have social repercussions that share both similarities and differences with those connected with mining projects. Foreign workers are generally kept separate from the local community, but this does not prevent social conflict that is exacerbated by the cultural differences. While data is somewhat scarce, there have been reports of increased prostitution and sexual abuse, for example.¹²⁹ Lattas, in his study of the impact of a Malaysian logging company in East New Britain, has argued that community frustrations with logging have resulted in attacks on the foreign staff working for the company, which has resulted in the companies reframing the protests as part of a nationwide breakdown in law and order, thus justifying a strong crack-down. This is where the social impacts again flow into problems of human rights (section 7.3).¹³⁰

The impact that logging and oil palm plantations have on traditional culture is another aspect that community spokespeople have raised, such as Paul Pavol Palosualrea of Pomio, East New Britain.¹³¹ In Gulf Province, reported social problems with logging included the destruction of sacred sites by the loggers, and the noise of trucks and ships scaring away native wildlife that were an important food source for the local community.¹³²

Chapter 6: Environmental Impacts

This chapter examines the environmental impacts of natural resource extraction. It is hard to underemphasise the damage that the mining and logging sectors have done to PNG's natural environment. PNG has the dubious honour of being a world leader in riverine disposal of untreated mine tailings waste, a phenomenon that has essentially destroyed most, if not all life, in some of the country's most important river systems. PNG's precious rainforests are being clear-felled or, if not, severely degraded, at an alarming rate, thus severely diminishing some of the world's most important tropical forests. The logging is often accompanied by the planting of oil palm monocultures that further degrade the environment.

Environmental harm and damage are most keenly felt by the local communities themselves, who depend on sustainable management of the land, the rivers and the coastal waters for their livelihood. Sadly, as this chapter demonstrates, mining, logging and oil palm plantations have had a devastating and irreversible impact on so much of PNG's natural inheritance. A continuation of the destruction will only do more harm.

Of course, environmental impacts go beyond the local because of the interconnectedness of ecological phenomena and their broader effects. Further, polluted rivers and degraded or denuded forests impact not only the entire population, they also negatively impact future generations who inherit the waterways and forests as their birth right. Finally, the broader economy, both in a present and a future tense, is affected by ecological damage and destruction.



Tumbi landslide near Exxon-Mobil gas operations © LNGWatch/PNGblogspot.com

6.1: The Environmental Impacts of Mining

The history of mining in PNG has left a tragic legacy on the environment. Mining's poor environmental record in PNG is due to a number of factors: firstly, most of the ore bodies tend to be located in the nation's valuable and richly biodiverse tropical rainforests, often in mountainous terrain with high rainfall and high seismic activity making safe tailings management expensive or impossible.¹³³ Secondly, many of PNG's major deposits are copper or copper-gold deposits, the geochemistry of which means that the tailings waste is susceptible to acid rock drainage, leaching heavy metals into water bodies, killing much flora and fauna. Thirdly, the state has found itself in a conflicted relationship, insofar as it has been both protector of the nation's natural resources as well as the advocate for their exploitation.¹³⁴

Of the 2,500 industrial-sized mines operating in the world in 2013, four were found to rely on riverine tailings disposal and fourteen rely on marine tailings disposal. Three of the four riverine tailings disposal mines were in PNG; three of the 14 marine tailings disposal mines were also in PNG. The most egregious environmental damages in PNG's mining sector involve riverine tailings disposal, where tailings waste is directly dumped into rivers. This has been at the Porgera, Ok Tedi and Tolukuma mines (gold and silver, copper-gold and gold respectively), as well as the copper-gold Panguna mine.

Indeed, as a number of mining experts recently noted, 'PNG is one of the exceedingly few countries where mine wastes, specifically tailings and waste rock, are allowed to be discharged into rivers or oceans' and along with Indonesia and Turkey, only one of three countries where it has allowed the practice for large mines.¹³⁵

No environmental assessment studies were carried out for Panguna in the 1960s when it was being planned: it was, in the words of one author, 'commissioned with no regard for its environmental impact'. With the failure of the poorly designed tailings facility early in the mine's life, about 135,000 tonnes of waste rock and tailings were discharged per day into the Jaba River Valley during the mine's operation from 1972 to 1989. Vast quantities of sediment choked the river system and the toxic concentration of heavy metals eliminated local fish populations.¹³⁶ Although the mine has not been operational since 1989, copper-infused tailings have continued to leak into the river system and in recent years, large areas of wetlands have been inundated by the tailings sludge, rendering them lifeless. The pollution of this waterway has hindered many local communities' access to

fresh water, to riverine food sources and destroyed valuable garden land.¹³⁷

In the years after Panguna opened, the negotiations towards the initiation of the Ok Tedi mine in Western Province also clearly saw inadequate environmental assessment and planning. At the beginning of 1984, the year mining started, a landslide stymied plans to construct a permanent tailings dam at the site. Instead, an interim tailings disposal scheme was adopted which resulted, amongst other things, in the dumping of 80,000 tonnes of fine tailings every year into the Ok Tedi river system. Extensive areas of tropical rainforest and garden land have been subsequently inundated with the resulting tailings sludge. At the request of the government, the company was required to report on alternative waste disposal options, but the solution was deemed too expensive to make the mine profitable and was abandoned in 1989. An Australian court case in the 1990s prompted PNG to adopt legislation resulting in some compensation for the affected communities.¹³⁸ In 1999, BHP Managing Director Paul Anderson said that 'the mine is not compatible with our environmental values and the company should never have become involved'.¹³⁹ BHP transferred its majority shareholding in the project to the PNGSDP (a private PNG controlled company — although registered in Singapore) which took on any further environmental liability for the disaster. More recent assessments suggest that OK Tedi releases around 250,000 tonnes of tailings and waste rock into the river every day.¹⁴⁰

Controversy surrounds the river tailings disposal at other mines as well. Soon after the Porgera mine in Enga Province began operating in the early 1990s, downstream communities claimed that they were experiencing sickness and death due to the environmental contamination. The Commonwealth Scientific and Industrial Research Organisation (CSIRO), the research arm of the Australian Government, conducted a report that cleared the company of any negative impacts in 1996.¹⁴¹ The estimated daily release of waste rock and tailings at Porgera is much less than Ok Tedi and Panguna, around 15,000-16,000 tonnes, but these amounts are still significant. In 2011, a tailings waste plant was installed that removes some of the coarser tailings.¹⁴² Nonetheless, recent detailed research on the impact of the riverine tailings disposal/leakage has on the communities living at or downstream from the mine site, undertaken by Columbia University researchers, found that many communities who live by the river are experiencing health problems due to exposure to the toxins in the river.¹⁴³

In 2007, an independent study of river tailings disposal at the Tolukuma mine in Central Province found that the water pollution due to riverine tailings disposal there put locals at risk of cancer, deformities, infertility, and various illnesses.¹⁴⁴

The consequences of the disposal of tailings and waste rock into rivers, a hallmark of the PNG mining industry, upon the local environment have been summarised by Mudd et al. These include increased sedimentation, leading to changes on river hydrology and greater flooding; the release of heavy metal loads into aquatic ecosystems and food chains; the uptake of heavy metals—including mercury—by biodiversity; lower dissolved oxygen also impacting biodiversity; and acid mine draining (the release of high levels of acids, salts and heavy metals due to sulphides in the tailings).¹⁴⁵

Marine tailings disposal has also caused problems. The August 2019 catastrophe with the Ramu mine in Madang Province, where spillage from the mine's refinery saw the allegedly toxic mixture overflow into Basamuk Bay and out to sea, doing unknown damage to marine life, shows how the environmental problems with PNG's mining sector are far from resolved.¹⁴⁶ In February 2020, the Madang provincial government and 13 landowners initiated legal action against the company for damages, although the Conservation and Environment Protection Authority (CEPA) maintains that the spillage was not toxic.¹⁴⁷

The pollution of the land and especially the waterways, so evident from the above case studies, is not just an environmental tragedy, it is also a human tragedy: in all these cases, local communities' access to fresh water, to food sources and to prime gardening land has severely affected the quality of life and livelihoods.

6.2: The Steady Destruction of One of the World's Great Rainforests

Following the devastating destruction of Malaysian and Indonesian forests in Kalimantan and Sumatra in recent decades at the hands of Malaysian logging companies, the island of New Guinea now possesses the third largest contiguous tropical rainforest on the planet after the Amazon and Congo rainforests. Unfortunately, large parts of this forest have been lost, and equally large amounts have been degraded.

In 1972, PNG had 33.2 million hectares of primary intact rainforest (over two thirds of the total land area of 46 million hectares). By 2002, this had been reduced to 25.3 million hectares; by 2014, it had been further reduced to 24.2

million hectares—a total loss of approximately 9.0 million hectares, almost one third of the nation's rainforests.

According to University of PNG (UPNG) estimates, approximately 5.3 of the 9.0 million hectares of rainforest loss was totally cleared (deforested). Five million hectares were cut down between 1972 and 2002, and a further 375,000 hectares was cleared between 2002 and 2014. According to UPNG classifications, between 40 and 50 per cent of this deforestation has been caused by logging.¹⁴⁸ Most of the rest has been for the purposes of shifting cultivation and agricultural plantations (although in recent years, agricultural plantations are sometimes just used as a pretext for logging operations).

The balance of the primary rainforest loss, approximately 3.7 million of the 9.0 million hectares, is what the scientists call 'land degradation'—technically conversion from primary to secondary rainforest. 3 million hectares were degraded between 1972 and 2002, and a further 770,000 hectares was degraded between 2002 and 2014. Almost all of this forest degradation has been due to so-called 'selective logging', a practice that is supposed to only log selected trees and species. Other estimates put the proportion of forest loss due to degradation much higher – at about ten times as much land as has been deforested—but this does not tally with UPNG measurements.¹⁴⁹ These changes are represented graphically in figure 6.1.

Although sophisticated data for the period 2014 to 2020 is not available, the continued (and increasing) volume of timber exports suggests that forest losses have continued at similar levels as the 2002-2014 period. In 2018, for example, log exports rose 25 per cent from 3.2 to 4 million cubic metres.¹⁵⁰

The impacts of selective logging can be severe, especially if, as is the case in PNG, it is not done sustainably. Studies in similar rainforests in Southeast Asia have estimated the ground biomass loss from selective logging at approximately 50 per cent; and half the trees with a stem diameter of more than 5 cm are destroyed. The UPNG study estimated that to generate the 2007 estimate of 2.8 million cubic metres of export logs, as much as 42-45 million cubic metres of wood was felled or extracted. Diagnostic surveys by the International Tropical Timber Organization (ITTO), and World Bank and PNG government sponsored studies have found that unsustainable logging is rife.¹⁵¹

A different study has found that even when selective logging practices only target larger trees, it is still unsustainable because the available timber volume that could be extracted



Palm oil nursery in West Pomio © Paul Hilton/Greenpeace

per hectare is overestimated. A number of factors, including inadequate, biased or out of date inventory design, the degradation of timber quality, and the small amount of timber species sought by international buyers, all contribute to chronic over-harvesting. This means that logging leases that are intended to be sustainably logged for 35 to 40 years (enough time for the forest to regenerate) are effectively tapped out in the first 10 to 15 years.¹⁵²

Compounding the situation, the expansion of SABLs schemes over the past decade has resulted in increased

clearfelling of forests for the expansion of palm oil plantations. Instead of already destructive selective logging practices, clearfelling means that all the vegetation is removed from large areas to plant monocultures.

The lowland coastal areas of PNG have seen the bulk of the logging. Western Province, Gulf Province and West Sepik on the mainland have suffered huge losses, as have West New Britain and East New Britain. See the map in figure 6.2 for the location of the parts of the country most affected by logging.

Figure 6.1: Forest loss due to deforestation and forest degradation

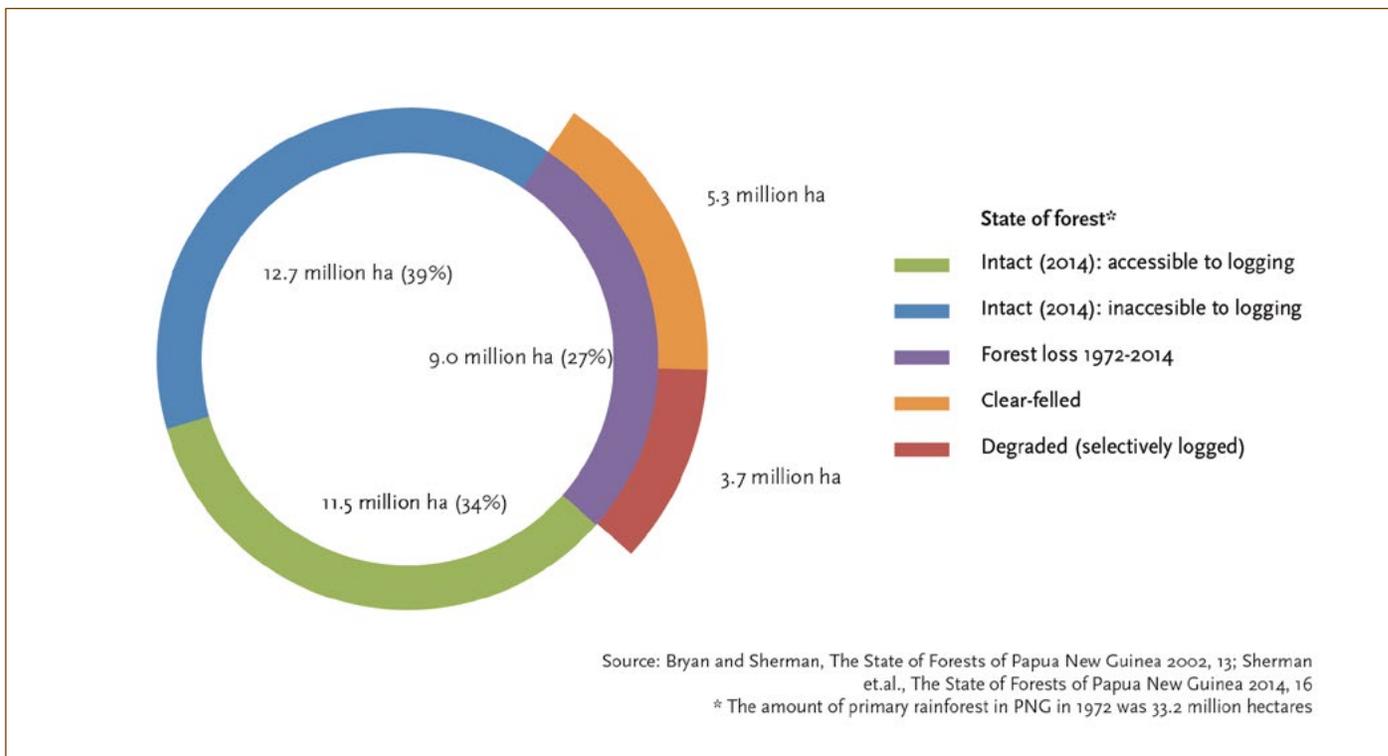
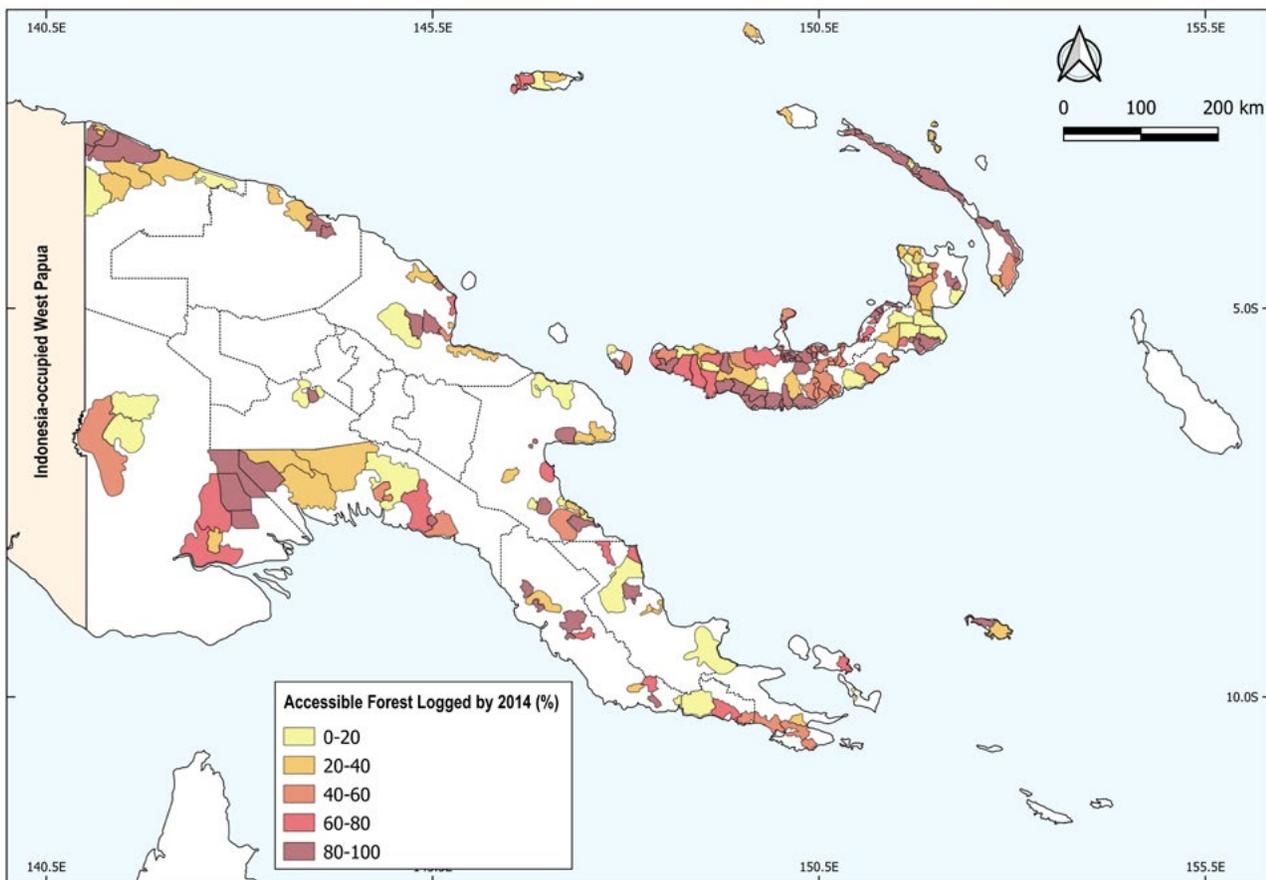


Figure 6.2: Where has the forest loss occurred?



6.3: The Environmental Impacts of Logging and Oil Palm

The devastation wrought by logging is really brought home when one considers PNG's commercially accessible rainforest—that part of the forest accessible to loggers—is only 13.5 million hectares. It is estimated that by 2014, 36 per cent, or 4.8 million hectares of this, had been logged.¹⁵³

As the logging companies penetrate ever further into PNG's forests, their activities have environmental effects that cause profound disquiet to local communities who have always served as guardians of their land. Logging near roads and rivers causes sediment runoff which affects the health of local waterways and fish populations, as communities living by the Turama Extension in Gulf Province have noted.¹⁵⁴ Further losses to PNG's forests will have an adverse impact on the local environment. Forests are also a source of housing, food, and medicine for large swathes of the PNG population.

The oil palm plantations that are driving so much of the recent deforestation are also associated with environmental impacts. Activists from Kimbe in West New Britain have noted a number of impacts: as the shallow roots of the oil palm do not grow as deep as the forest trees they have replaced, the result is more flooding and more soil erosion, which sees soil washed downstream, damaging local coral reefs. Moreover, the loss of forest land to oil palm has seen the community cut down more forest for their gardens, reducing food supplies provided by local plants and animals

living there.¹⁵⁵ Communities on Manus Island, a haven of biodiversity, also noted how deforestation for the purposes of an alleged rubber plantation has led to a degradation of the land and water systems by exacerbating soil erosion.¹⁵⁶

At the global level, PNG's forests contain an incredible level of biodiversity, especially in animal species, with 200 mammal species, 300 reptile species, 200 amphibians, and over 750 bird species. They contain at least 3,000 species of fish and 200,000 to 400,000 insect species. The forest is so vast that it plays a large array of ecological services of regional and global importance such as watershed protection, water filtration, coastal and reef protection, preservation of fish stocks, soil stability and fertility.¹⁵⁷ Thus, it is not just PNG's forest communities, but also those living in coastal villages and towns, whose food supply and economic life will be affected by degradation and destruction of these forests.

PNG's forests' key role in the maintenance of the critically important regional water cycle is matched by their role in global carbon sequestration, helping to limit or slow down the devastating effects of climate change on the entire planet.¹⁵⁸ With approximately one third of PNG's primary rainforest destroyed or degraded in the last 45 to 50 years, a continuation of this trend will have serious ramifications on weather, food supplies and biodiversity both regionally and globally.



Logging concessions in Pomio © Paul Hilton / Greenpeace

Chapter 7: Consent, Conflict, and Human Rights

Landowners' discontent over social impacts (Chapter 5) and environmental impacts (Chapter 6) of natural resource extraction projects unsurprisingly leads communities to question whether they should allow, or continue to allow, resource projects to operate on their land.

Unfortunately, as this chapter shows, institutions that should protect the ability of PNG communities to approve extractive projects on their lands have, since their inception, been set up in a way that enables and encourages these projects. Incorporated Landowner Groups (ILGs) have been used as a mechanism for logging and petroleum companies in particular to unlock and access customary land for resource extraction. In these sectors, as with mining, Free, Prior and Informed Consent often exists in name only and companies have myriad ways by which to 'engineer' landowner approval.

Communities opposing extractive projects and operations often face repression, threats and violence. When they have projects forced upon them, or when they consent to them in the name of empty promises that are never delivered, legitimate dissent and protests are often met with violence and abuses at the hands of police forces or private security operatives hired by the firms.



Protesting about the proposed Frieda River mine on the Sepik River © Project Sepik

7.1: Customary Land Alienation and Natural Resource Extraction

Around 95 per cent of land in PNG is still reported to be held under customary control and plays a vital role in sustaining the lives and livelihoods of the majority of the population. It is for this reason that the Constitution stipulates customary land cannot be bought or sold by private interests.

For decades, however, successive PNG governments and private capital interests have viewed customary land as a vast untapped resource. Indeed, they have set in place mechanisms by which customary land may be alienated to pave the way for natural resource extraction.

Incorporated landowner groups (ILGs) were first created in the mid-1970s as a way for communities to regain control of land, alienated under the colonial administrations mainly for agricultural plantations. However, ILGs subsequently became part of an attempt to 'unlock' customary land for commercial use. Since the 1990s, ILGs have been able to lease their land, or part of their land, to the government, who can then hand them a lease which they can use to trade with private investors.

Thousands of ILGs were incorporated (estimates are around 20,000, but no one knows exactly how many), mostly in two bursts, the first corresponding with the explosion of Forest Management Agreements (FMAs) in the 1990s, and the second with the expansion of the SABL scheme in the 2000s. Indeed, most ILGs are connected in some way to the forestry, oil palm or petroleum sectors. The *Mining Act* does not require mining companies to make an agreement with ILGs in order to obtain a mining license, and therefore ILGs are less associated with mining projects.¹⁵⁹

Concerns over the widespread manipulation of the ILG process, including the tendency of ILGs to be set up with 'paper landowners', led to a national land summit in 2005, and new laws were proposed in 2009 and passed in 2012, reputedly to rectify these problems. However, research suggests that despite the stated intentions of the new legislation, the potential for the new regime to be taken advantage of by international commercial interests and local elites still remains. There are all sorts of discrepancies with respect to the registration process and single ILGs are still being recognised with control over suspiciously large land portions.¹⁶⁰

As a detailed paper on ILGs by Act Now PNG has argued, it is likely that despite the 2009 reforms, ILGs will 'continue to undermine customary social and governance structures, marginalise women, and allow a backdoor route for customary land alienation'.¹⁶¹

Whether or not it was the *intention* of the laws that established ILGs, the lease-leaseback schemes, SABLs, or the more recent reforms to the ILG regime, there is no doubt that their *primary consequence* has been the alienation of significant swathes of PNG's land by the forestry, palm oil and the petroleum sectors. This is a problem in and of itself, because of the importance of customary land to the ongoing strength and vitality of PNG's rural economy (see section 8.2). Moreover, distortions in the parcelling up and leasing of customary land into the hands of small numbers of powerful groups also increases inequality in PNG and facilitates the hold of international corporations on PNG's natural resources.

The continued threats posed to customary land by what the government calls 'land reform' is discussed later in Chapter 8 – The Economy of the People.

7.2: Free, Prior and Informed Consent

The Mining, Oil and Gas Sector

The doctrine of Free, Prior and Informed Consent (FPIC) means, in practice, the right of Indigenous peoples to be consulted and make informed choices about resource extraction projects that are considered on their land. It is enshrined in the *UN Declaration of the Rights of Indigenous Peoples* and in the Performance Standards of the World Bank's International Finance Corporation (IFC).

Consent for mining projects in PNG is theoretically ensured through the process of the Development Forum. Established during the negotiation of the Porgera mine agreement, a Development Forum requires that an agreement be signed with affected landholders before a mining lease can be granted to a company.

Some commentators have argued in favour of Development Forums as robust and positive.¹⁶² However, Development Forums have loopholes that undermine their capacity to deliver FPIC, especially when it comes to questions of centralisation, representation and communication (in a land with over 800 different languages and low rates of literacy). A good example of how the Development Forum process can be abused can be found in the PNG LNG project. Instead of holding the Forum in the Southern Highlands, where the project was to be located, the forum was conducted 1,000 kilometres away in Kokopo on the island of New Britain. Moreover, independent observers were ejected from the forum. This did not bode well for the future and it is therefore not surprising that the project has been beset with problems.¹⁶³

Another failure when it came to the PNG LNG project was that the Development Forum was held and the final agreement signed before the mapping of landowners had been completed, leading to an ongoing failure for the landowners to receive revenues from the project. The PNG Supreme Court specially cited this as a paradigmatic case where the private companies manifestly failed in gaining free, prior and informed consent from the landowners.¹⁶⁴

There are other concerns when it comes to FPIC for resource extraction projects. First, there is the ongoing problem with large projects, whereby the positive impacts are typically exaggerated and negative impacts minimised during the consultation process: overly rosy scenarios are painted and grand promises are made but not kept. This misleads communities about the impacts they will face and invalidates any consent that they do give.

Second, downstream communities who are affected by the impacts of mining — especially tailings disposal - tend to be left out of the process, even though the impacts they face can be every bit as severe as communities whose land contains the resource. Third, there are ongoing questions about the institutional capacity of various government departments and their ability to act independently and be immune from political pressure.

Thirdly, the communities are not given access to independent scientific and legal advice, and are often not given copies of the key project documentation. Any information that they are given is usually not communicated in local languages or in a manner or form that makes it comprehensible.

The Forest Sector

The forestry sector has been plagued by even more endemic failures when it comes to the lack of due process for Free, Prior and Informed Consent. Reviews covered in a 2006 report by Forest Trends showed ‘overwhelming evidence that local people are not giving informed consent to harvesting operations on their land’. Inadequate certification processes of Incorporated Landowner Groups (ILGs), a lack of knowledge from landowners about the land use agreements they were signing, and incorrect and biased information were all reported to be widespread problems.¹⁶⁵ Case study research in West New Britain has confirmed these findings in depth.¹⁶⁶

However the most problematic subversion of the landowner consent process has undoubtedly been the use of SABLs, which in combination with permits called Forest Clearance Authorities (FCAs) allow complete land clearing, ostensibly for intended agricultural plantations. The ownership

of SABLs has often been small numbers of individuals who have acquired the leases at the behest of the mostly Malaysian companies that dominate the logging sector.¹⁶⁷ So scandalous has the SABL process been that in 2011, the O’Neill Government was forced to launch a formal Commission of Inquiry into 77 SABLs. The inquiry found that almost all the leases were unlawfully issued, yet its recommendations have never been fully implemented.¹⁶⁸

So much evidence of widespread corruption, lack of due process, and lack of informed consent has accumulated over the years across a raft of provinces (including but not limited to East and West New Britain Provinces, East and West Sepik Provinces, Oro Province and Western Province) that it would be impossible to summarise the content in a few short sentences. Investigations by Greenpeace, The Oakland Institute and Oxfam, among others, have demonstrated what forced consent for logging concessions looks like at the community level.¹⁶⁹ Nor are the techniques limited to logging and palm oil plantations, as demonstrated by a recent investigation of land clearing for an alleged rubber plantation on the biological treasure of Manus Island.¹⁷⁰

7.3: Human Rights and Conflict

The Mining, Oil and Gas Sector

The tendency of state or private security forces to engage in human rights abuses, either for the purposes of suppressing the dissent of unhappy locals or simply through unchecked demonstrations of power, has been a well-documented trend in PNG’s mining sector.

An infamous instance of human rights violations in the mining sector was perpetrated by private security forces engaged by the Canadian operators of the Porgera mine, Barrick Gold. In the late 2000s, Barrick Gold’s private security forces perpetrated violent night-time raids on small scale miners operating (illegally) on the edges of the mine site, and in several instances engaged in gang rape.¹⁷¹

An even more well-known instance is, of course, the response by the PNG Government to the acts of sabotage carried out by certain groups who were discontented with many aspects of the Panguna mine operation. While some analysts have argued that resistance to the Panguna mine was about gaining access to more royalties, leaders of the resistance to the mine were motivated because they held to a worldview more in-line with the people-centred development model than the extractive-led model that the PNG Government and political class had committed to since the mid-1970s. In other words, they had in mind a different type of development.¹⁷²

The increasingly strident rebels stole explosives that they then used to attack infrastructure associated with the mine with the aim of making the operation of the mine untenable: they did not, however, seek to harm any civilians or mine workers. In response, the PNG Government security forces - aided, abetted and encouraged by the mining company Bougainville Copper Limited, as Kris Lasslett has shown - responded by letting loose mobile squads who went on a rampage, burning villages and then herding the homeless civilians into concentration camps. Incidences of rape were reported. It was the flashpoint that ensured that the crisis over the mine would escalate into a full-blown civil war. It was also the time in which most of the human rights abuses associated with the conflict are alleged to have occurred.¹⁷³

Although Panguna and Porgera are the most well-known instances, the ongoing connection between mining and human rights abuses in PNG is demonstrated by the recent reports of intimidation and violence in connection with the proposed Frieda River mine in the Sepik region.¹⁷⁴

The Forestry Sector

PNG has a long documented history of logging companies engaging in flagrant breaches of human rights. The PNG Government-appointed Review Team, engaged to carry out the 2004 Review of Current Logging Projects, uncovered disturbing evidence relating to the activities of police squads in logging areas in five of the fourteen logging projects it reviewed. The team received allegations of police squads being used to 'beat up and intimidate landowners and employees' who complained about the activities of the logging company. The Review Team's Situation Report from Rimbunan Hijau's Wawoi Guavi concession was particularly detailed and concerning as to the seriousness and extent of

the human rights abuses.¹⁷⁵ Further reporting in 2011 and 2012 revealed that the propensity for logging companies to enlist local police forces to protect and secure logging projects against the protests of unhappy locals was also being used in SABLs. As the Oakland Institute reported, by December 2011, 'the pattern had become so widespread that the police commissioner Tom Kulunga had to order the withdrawal of all police officers from logging sites across the country, following numerous abuses by police stationed in logging camps'.¹⁷⁶

Although the involvement of the police, specifically the Royal PNG Constabulary, in human rights abuses has been documented at a number of logging sites across many provinces, evidence from locations in East New Britain, where there has been specific investigatory work done, is nothing less than chilling. An independent report commissioned by an environmental NGO in 2013 found that Gilford Ltd, a subsidiary of Rimbunan Hijau, hired the Royal PNG Constabulary to suppress attempts by local people to resist operations at two concessions in West Pomio. Locals argued that these concessions had been approved without the consent of the people. The report gathered a wealth of evidence, such as establishing that the police carried out a series of raids across a number of villages, engaging in harassment, intimidation and assault against the communities disputing the lease.¹⁷⁷ Other research in the Kaliai hinterland of the same province uncovered another strategy that came about when local police were unsuccessful in suppressing resistance from discontented locals about the impacts of logging (partly because the police appeared to have been sympathetic to the grievances). In response, the Malaysian logging company, in partnership with local landowner companies, employed a riot squad made up of armed local gangs to violently put an end to the dissent.¹⁷⁸



Bougainville beach scene © Clive Parabou



Chapter 8: The Economy of the People

Despite the stagnation in GDP per capita and household incomes in PNG over the last few decades and the limited improvement of service provision, especially in health and education, the vast majority of people's lives have not changed that much. The strength and resilience of PNG's rural economy is the main reason why the disappointing and problematic aspects of a development model based on natural resource extraction has not done more long-term harm to the country. Blessed with a long tradition of agriculture, rich soils and a robust customary land tenure system, PNG's rural economy and agriculture continue to support the vast majority of the population, despite a certain indifference on behalf of the national government.

However, much more could be done to support the rural economy and use it as a springboard to further development, and it is somewhat encouraging that the current government is talking about a greater role for agriculture in the country's future. But attempts to chip away at the customary land tenure system would undermine any moves in this direction. Concrete steps that could be taken to provide greater support for the rural economy include the development of infrastructure, both hard and soft; more agricultural extension services; an improvement in rural health and education; and the adoption of agriculture-friendly trade and monetary policies.

8.1: The Strength and Resilience of Agriculture and of the Rural Economy

Agriculture in PNG draws on a long history of know-how when it comes to crop cultivation. It has been estimated that 83 per cent of food energy and 76 per cent of good protein consumed in PNG comes from locally-grown foods. Moreover, despite claims to the contrary, food production in PNG has generally kept pace with population growth, an impressive achievement when one considers how fast the population has been growing.¹⁷⁹

This does not mean that the rural economy in PNG has remained static. In-depth studies of PNG's rural economy reject a simplistic characterisation that makes a distinction between an older, subsistence economy and a newer cash economy. The reality is that the vast majority of rural Papua New Guineans (and therefore the vast majority of the total population) have for a long time engaged in both economies and live what Tim Anderson has called 'hybrid livelihoods'. These hybrid livelihoods are composed of three elements: first, the subsistence sector, i.e. production for non-monetised consumption (such as growing food and livestock, harvesting wild plant and animal products mostly for family consumption but also housing and community buildings and for cultural exchange). Second, production of fresh food and cash crops for sale in domestic markets, but also for export markets. Third, other formal and informal sector activity such as roadside selling, working in local businesses such as shops and market stalls, or other local jobs working in transport, community groups, government jobs, and even alluvial mining.¹⁸⁰

There are two particularly salient points demonstrated by this research. The first is the vital importance that the subsistence sector (food and other goods produced for

family consumption, construction or cultural exchange) plays in this equation. This role has been massively underestimated by researchers, because, as Anderson has shown, they have overlooked the opportunity cost of what would happen if families could not grow and consume much of their own food.¹⁸¹ The second cornerstone of the PNG rural economy is the production *for sale* of both fresh food and cash crops such as betel nut to domestic markets (both locally and within PNG).

As Matthew Allen, Mike Bourke and Andre McGregor have noted, 'more rural people earn an income from selling fresh food than from any other economic activity'. Moreover, the domestic cash economy, they wrote in 2009, has expanded over the last thirty years and is likely to continue to do so.¹⁸²

Cash crops for sale as agricultural exports is another source of income, but as Anderson has noted, this is generally less remunerative for local producers than producing fresh food for domestic markets.¹⁸³ The export sector is dominated by three commodities: palm oil, coffee and cocoa, but also includes other commodities such as copra, tea, vanilla and rubber. As with production for the domestic market, production of most export crops, with the exception of copra, has increased in recent decades. This has been due to an increase in village production, which is a welcome development.¹⁸⁴ Tim Anderson's research has shown the superiority of the village cooperative system over the plantation system, itself a legacy of PNG's colonial era, for local producers of export commodities in PNG.¹⁸⁵



A Daily harvest of garden food in Madang Province © The Oakland Institute



Children at a ceremony on Bougainville © Josselin Amalfi

8.2: Agricultural Policy: Opportunities and Constraints

Opportunities for the growth of PNG's agriculture sector abound, provided that adequate research and policy support is given to the sector. The domestic market could continue to grow, especially with a greater emphasis on root crops, fruits such as mango, mangosteen and rambutan, and edible nuts. Potential growth opportunities are identified in export markets for edible nuts, honey and the major export tree crops like coffee, cocoa and copra.¹⁸⁶

There is general agreement about the opportunities for the sector in terms of production for both the domestic and the export market. The main point where a difference of opinion exists is over the desirability of oil palm and other monocultures. Cash crop monocultures such as oil palm and rubber have all sorts of disadvantages for village producers. Unlike domestic crop options such as peanuts and watermelons or other cash crops like vanilla and cocoa, they are not companion planted in PNG, but rather established as monocultures in large plantations. Moreover, they tie up good land for years and they may be heavily reliant on huge amounts of costly and environmentally damaging pesticides and fertiliser.¹⁸⁷

Despite the opportunities, critics have pointed to poor governance and a general lack of priority shown by successive governments towards the agricultural sector as a serious impediment to progress. Bryant Allen has bemoaned the lack of a national development plan and of the decreasing importance of agriculture in many past *Medium Term Development Strategy* documents. He has

also been critical of a tendency to become concerned with the wrong priorities, such as rice production, which has distracted attention from where it was most needed.¹⁸⁸

But the biggest problem of all, according to Allen, has been governance failures. One issue was the 1995 reforms to the Organic Law on Provincial Government which 'introduced confusion about relationships and responsibilities between national, provincial, district and local level governments'.¹⁸⁹ Political interference is identified as a further problem:

'Within political parties, positions on the boards of bodies that govern and promote agriculture are used as rewards to supporters, who may not be competent or who may not act in the best interests of rural smallholders. This situation occurs in other sectors that are critical to agriculture: infrastructure, transport, education and health, such that agricultural development is subject to multiple constraints.'¹⁹⁰

However, the 2020 budget speech by Treasurer Ian Ling-Stuckey may be signalling the beginning of a shift. In his budget presentation, Ling-Stuckey emphasised the importance of strengthening the agricultural sector as the basis of the livelihoods of most people in PNG.¹⁹¹ Nevertheless, before considering what could be done to better support the agricultural sector, it is first necessary to return to the role of customary land in PNG.

8.3: Customary Land Under Threat

If a lack of interest in developing and improving PNG's agricultural sector has been an impediment to progress, a much greater danger lurks in the ongoing enthusiasm that governments have shown towards the dismantling of the customary land system.

Around the world, customary land tenure operates on unwritten laws, customs and practices, which organise the use of land by the people. Although customary tenure systems vary in different countries, in general, customary tenure means that kinship groups recognize and enforce a system of land custodianship and usage rights, and ensure that they are passed down from generation to generation. What it means in practice is that in PNG, as in many parts of Melanesia, virtually everyone has some access to land through their kinship in some sort of clan. Estimates of the extent of PNG land under customary title vary between 95 and 97 per cent.

There is no more heated issue in PNG than the question of customary land tenure, and debates about the matter have a long history, both inside and outside the country. Those pushing for changes to the system have long argued for the 'unlocking of customary land' for private enterprise. The argument is that private individuals are able to gain security of tenure over an asset whose value they can then increase via innovation and entrepreneurship. Expressed as the desire for 'land reform', it has been championed for years by influential voices at the World Bank and by the writing of Peruvian economist Hernando de Soto.¹⁹²

However, it would be wrong to suggest that the intellectual or political push for reforms of customary land is only coming from outside PNG. Many of PNG's political elite, even those who may have a reformist bent on other issues, see the continuation of the customary land system as an impediment to development. For example, Lead Magistrate in the Commission of Inquiry into the SABL scheme, speaks for many when he says: 'ninety-five per cent of the land in PNG is tied up under customary ownership, and unless that is unlocked, there will be very little in terms of real progress and development'.¹⁹³

Another frequent justification for 'land reform' is the increasing presence of internal migrants and settlers who have themselves left or are descendants of those who have left their customary lands to settle in new urban areas. This is a well-known problem in Port Moresby and, indeed,

across the Pacific as a whole. Changes to customary land tenure, it is argued, are needed to enable settlers in these urban communities to become landowners which will unlock their entrepreneurial spirit and help lift these groups out of poverty.¹⁹⁴ There are few who would deny that many of PNG's internal migrants do face serious problems including social conflict, housing affordability, and restrictions on development in the nation's urban centres. It is debatable, however, whether changes to customary land tenure are the solution to this problem.¹⁹⁵

However, an even more common justification for land reform is that the customary land system in PNG hinders agricultural productivity. The argument that customary land tenure is also a drag on the rural sector has had strong proponents internationally over the years. Drawing from research work from other countries, including that initially done by the World Bank, outside experts have argued that introducing more formal systems of tenure could help improve rural livelihoods by reducing land conflicts, removing the need to have land occupied at all times, allowing reallocation of land to more productive users and encouraging more rural to urban migration, thus providing a labour force for urban industries.¹⁹⁶

This claim continues to be made, despite the fact that research on the agricultural sector in PNG has shown its remarkable resilience and its consistent importance to the lives of Papua New Guineans. More important still, this effective system of agriculture has its basis in and is deeply connected with the system of customary land tenure. The customary land system works for two reasons: first, the system ensures that every person has land on which to rely for sustenance and subsistence and as a social safety net; second, the customary land system supports and allows the continuation of the deep reservoir of agricultural skills: knowledge that, as already discussed, resides in PNG's culture and history.

Moreover, there is actually no evidence from Papua New Guinea that dismantling this system would improve agricultural production. There is plenty of evidence to suggest that the opposite would happen. Rejecting the arguments that land reform would be a boon to PNG's agriculture, Michael Bourke and Bryant Allen emphasise the importance of customary land tenure to the country's agricultural output:

'Another strength of PNG agriculture is the customary land tenure system. Individuals and companies who wish to access large areas of land for agricultural development can be frustrated by customary tenure, but the system is sufficiently flexible to accommodate increasing population and internal migration. It has been argued that economic development will not occur unless all land is privatised and registered to individuals, but individual titles to land on settlement schemes has often resulted in poor economic outcomes.'¹⁹⁷

productivity, with a senior Bank official recently concluding that: 'in contrast to the then prevailing paradigm of individual titling, research has shown recognition of group rights to be more effective'.¹⁹⁸

Nevertheless, the push for 'land reform' continues to be enthusiastically taken up by the PNG Lands Department and in the government generally. For example, the PNG Development Strategic Plan (PNGDSP) called for a further 20 per cent of the PNG land mass to be moved from customary land tenure system to the formal land tenure system, on the basis that this would lead to 'higher rates of investment and higher productivity in land intensive systems such as agriculture'.¹⁹⁹

Indeed, even the World Bank experts are backing away from the claim that customary land tenure leads to lower



Local produce packed the traditional way © The Oakland Institute

8.4: Strengthening the Agricultural Sector

The rural economy and the agricultural sector have proved remarkably resilient in PNG, but there have been opportunities missed in building on this strength.

For one thing, spending and investment in the agriculture sector could be increased. We estimate government spending on agriculture to be between K100 and K200 million, which is between 0.5 and 1 per cent of total government spending. Given that, as previously noted, the agricultural sector contributes up to 45 per cent of GDP, this is clearly insufficient.²⁰⁰

We have already mentioned that preservation of customary land tenure is a fundamental prerequisite for preserving the strength of the PNG's agricultural economy. Much more needs to be done to strengthen and support the rural economy and agricultural production, and improve the livelihoods of the producers.

A focus on agricultural **infrastructure to improve domestic and international market** access for producers of agricultural goods would be a good start. Transport infrastructure is often cited. Despite preconceptions, the PNG road network is relatively extensive (much of the early road construction was targeted towards the areas of highest population concentration) but poorly maintained. In 2000, 70 per cent of people lived within 15km of a national road. But since 1980, many roads and bridges have not been adequately maintained and have fallen into disrepair. People in the maritime provinces could benefit from an improvement in domestic shipping and port services and inland communities could be assisted with better air freight—this is especially the case for the producers of fresh food—although there are climate change implications of an over-reliance on fossil-fuel heavy transport measures like air freight.²⁰¹

There are other types of **soft infrastructure** beyond roads and bridges. Better food storage and processing infrastructure also helps rural producers, by allowing inventories to be held for longer. Collection systems could also be improved. All of these investments support rural agricultural production and the livelihoods of producers. Indeed, it is vitally important that any spending on infrastructure is skewed towards the needs of rural producers, not the multinational companies running PNG's logging and mining industries, and is focused on maintenance of the existing system.²⁰²

More government investment in agricultural extension services is also needed. These extension services have tended

to be located near research stations and urban centres, and therefore most rural villagers lack access to information and support to improve the production and marketing of their produce. Effective investment in extension services would remedy this and help get the information out to the people who need it.²⁰³

An **improvement of rural health and education services** would not only improve PNG's poor development indicators discussed in Chapter 2, but a healthier and better educated population will naturally be able to better engage in Anderson's hybrid economies discussed in section 8.1. The education curriculum should be revised to make it relevant to the needs of a primarily rural population and an agriculture based economy. The development of a national nutrition policy, as championed by Save the Children, and its implementation, would also be a welcome development when it addressing the problems of malnutrition and stunting outlined in section 2.5.

Finally, PNG should **adopt monetary and trade policies that support the rural economy** and producers and consumers of PNG's agricultural products. The question of bringing in tariffs on certain imports—especially food imports—although unpopular with mainstream economic theory, should at least be explored. This is all the more important given the implications of a reduction in foreign exchange earnings that might follow if some of the recommendations discussed in chapter 9 were implemented.

This should also include investigation of whether the Kina is appropriately valued. A number of analysts have argued that an overvalued Kina is hurting the rural economy. This can happen in two ways: first, an overvalued Kina makes PNG's agricultural exports more expensive, and thus less competitive in the global market. Second, it makes food imports cheaper, which can also hurt rural producers. Historically, PNG had a 'hard Kina' policy from the mid-1970s to the mid-1990s. The Kina fell after the floating of the currency in the mid 1990s, which, it was argued, would benefit both rural cash crop exporters and domestic fresh food marketeers.²⁰⁴ However, from the 2000s, the real effective exchange rate started to increase again, especially against the Australian dollar, which is important because Australia is where PNG gets so many of its imports. This has led some analysts such as Paul Flanagan and Stephen Howes to argue that a depreciation is necessary to boost the rural economy.²⁰⁵

Chapter 9: Sustainable Extraction

Whether or not it is helpful to see what has happened to PNG as a result of the so-called resource curse, the more important, perhaps inescapable, conclusion is that a development strategy based on large-scale resource extraction has failed the people of PNG. So what should be done?

Can governance fix the problem? Certainly, it is true that weaknesses abound in the areas of environmental regulation, revenue transparency, corruption and financial misappropriation and the oversight of spending programs. However, there are features of the problem that have nothing to do with governance.

There are environmental and economic realities at play here, such as: the impossibility of safely and economically mining copper/gold in a country with earthquakes and tropical rainstorms; the economic inefficiency of exporting round logs to overseas markets; and the power disparities that exist between rich multinational mining, oil and gas and logging companies and both state officials and communities in PNG.

Bolder thinking is therefore needed than mere governance reform, however necessary that may be. A moratorium on new mining projects, a ban on round log exports, genuine ownership of local communities in land-use management, and a serious commitment to downstream timber processing are the sort of enterprising solutions that are needed. These are not new ideas: most have been discussed for decades. What has been lacking, so far at least, is the political will to implement them.



Kokopo market, East New Britain © The Oakland Institute

9.1: A Resource Curse?

It is pertinent to recap what this report has established about PNG's experience with natural resource extraction.

First, the exploitation of PNG's mineral, petroleum and forest resources has not produced the expected development gains that have been consistently promised. Despite vast profits going into the hands of the shareholders of foreign companies, PNG has not really been able to develop itself in a way that stands out from its Pacific neighbours. In fact, PNG's development has largely stagnated, although people's livelihoods have been largely preserved thanks to the resilience of PNG's customary land tenure system and the ingenuity of its village agriculture and its people.

Second, the social impacts of PNG's resource extraction at the local level are, at best, mixed. While there may have been some improvement in terms of access to basic services, it has often been undermined mainly by the social problems that are associated with increased migration, a quantum leap to a cash economy and poor governance. Environmental disasters and failures in many of the major mines has increased discontent and, along with poor social outcomes, often contributed to outbreaks of social conflict. The resulting repression has meant that PNG's resource zones have developed a poor record in terms of human rights abuses.

How can we explain this failure?

Since as far back as the 1980s, political economists have noted a correlation between natural resource extraction and poor economic performance, political and institutional instability, and conflict. Many have asked whether natural resource wealth (especially of petroleum and mineral resources) is an inherent disadvantage, especially for developing countries. This has led to some positing the theory that may be there such a thing as a 'resource curse'. For example, there is some evidence that resource booms in countries with weak institutions lowers aggregate incomes. Moreover, there is some evidence that resource wealth increases corruption, undermines democracy and weakens institutions. While internationally the correlation is stronger with petroleum rather than mineral resources, PNG could now be said to be under the influence of both.²⁰⁶

How useful the framing of the resource curse really is remains an open question. What is more important as far as this report is concerned is that this is a development strategy that has failed PNG. The question is, what should be done about it?

9.2: Institutional Changes to the Minerals and Forest Governance Regimes

This report has unearthed myriad weaknesses when it comes to the governance of PNG's mineral and petroleum resources, and to the systems responsible for managing the revenues and turning them into public services. Addressing the weaknesses in these regimes requires a number of reforms.

First, **reforms are needed to the system of land administration.** As a start, the entire ILG system requires a fundamental reassessment. As long as the ILG system remains in place, urgent reforms must be made that prevent the incorporation of bogus landowner groups and move towards a system that is capable of respecting the principle of Free, Prior and Informed Consent (FPIC). There should be a detailed, open and transparent process for incorporation in order to ensure the actual FPIC of local communities before any extractive industry is given a green light, as suggested in the National Court's *Kawira v Bone* [2017] PGNC 164 ruling. A public register of documents relating to land use decision-making would be a useful start to allow the public in general, and landowners in particular, to see exactly how the process of ILG status is conferred, so as to better expose when there is corruption at play. Finally, strengthening the systemic capacity of land oversight at both a local and provincial level would improve the ability of the government to advise and monitor the process of ILG incorporation.²⁰⁷ The *Mining Act* must also be amended to remove the ability of individuals to act as agents for landowner groups, and return the right of FPIC to customary landowner communities.

Second, **improvements must be made to the various regulatory bodies.** PNG does not have adequate systems for assessing environmental and social impacts, and it has not created an accountable and capable system for managing any revenues that do come and preventing them from being stolen or frittered away. As Mudd et al. observe in their scientific analysis of the PNG mining industry: 'the EIS process has not delivered a robust view of likely projects and scale risks'; the process, they conclude, is 'proving to be flawed'.²⁰⁸ The Minerals Resources Authority should be abandoned and replaced with an agency that is less under the influence of the mining industry. Likewise, the resources and the capacities of the Conservation and Environment Protection Authority (CEPA), PNG's environmental protection agency, should be strengthened. Similar changes to the Forest Authority, PNG's regulatory body for forestry management, would also be necessary, although these are discussed in more detail in 9.5.

Third, essential changes are needed to **guarantee fiscal transparency**, such as a commitment to publish the currently secret agreements between the mining, oil and gas companies and the government. This would, in theory, help shine a light on tax arrangements that see companies making a bonanza despite disappointing state revenue returns.

Fourth, there must be **improved oversight and changed process in the collection and spending of public revenues**. What would be most helpful in seeking to ensure that the resource revenues, once collected, are not funnelled into private hands, are more powerful legislative mechanisms to allow investigation and prosecution of public officials and politicians who are involved in these sorts of activities. Laws are needed that will strengthen the suite of asset recovery tools and empower the Department of Justice to interrogate officials who have amassed unexplained sources of wealth.²⁰⁹ The Electoral Development Fund (EDF) and other electoral slush funds must be abolished, as the only way to see that this problem is stopped at the source. In terms of service-delivery, the importance of a bottom-up approach from local communities cannot be

overemphasised. Part of this bottom-up approach would be the adoption of a general policy of devolution of power and revenue collection from the national government to the provinces, and accountability of local level spending should be greatly improved.

Fifth, **general reforms are needed to improve governance and address corruption**. For example, reforms to improve access to government information for civil society, the media, community groups and individual citizens, would allow them to understand what their government is doing and call out abuses of power. Reforms that would improve access to information include a freedom of information law so that requests for government held information can be provided freely; public access to official governance reports and online access to the national gazette.²¹⁰ These could be partnered with reforms that would improve government integrity. These include the establishment of a fully funded and autonomous Independent Commission Against Corruption, increased resourcing and capacity for the institutions that make up the already-established national integrity system and permanent appointments for senior public servants.²¹¹



Kokopo market, East New Britain © The Oakland Institute

9.3: The Limits of Reform: Minerals

But as important as the reforms outlined in section 9.2 may be, we must be realistic about how long they will take and whether they alone can solve certain endemic problems in the minerals and petroleum sectors.

First, large-scale mineral resource exploitation is incompatible with PNG's system of customary land tenure. If PNG were to continue large scale resource extraction, it would either have to do away with customary land tenure completely—a solution that would undermine the social fabric of the entire nation—or it will have to continue its current practice in which customary land is alienated in cynical and non-transparent ways in order to deliver power and wealth to very small numbers of landowners.

Second, the extraction of the most preponderant mineral deposits found in PNG, the large copper and gold reserves in the inland regions, pose almost insurmountable environmental and engineering challenges. Copper/gold mining in remote rainforest areas is already an extremely difficult proposition, because of the difficulties of tailings storage or removal. Solving the problem of acid rock drainage from these tailings and the leaching of these heavy metals into river systems make the safe storage of the tailings very difficult. When one considers the high rainfall (which will probably worsen in coming decades with climate change) and frequent earthquakes, safe storage becomes almost impossible. That therefore leaves transportation of the tailings via road or pipeline to be disposed elsewhere — which is expensive and invites other environmental risks, especially to marine ecosystems.

Third, the history of PNG reveals, and this report has shown, that there is an unbalanced bargaining position between the international mining and petroleum companies and both the PNG state and the communities on whose land the minerals and petroleum are found. This imbalance has led to perverse outcomes, most starkly illustrated by the overly generous tax concessions given to mining oil and gas companies, which have impaired the state's ability to collect adequate rents from its minerals and petroleum. But even with changes in the approach of governments, this structural imbalance will remain. Until the bargaining position changes, it is likely that nothing else will.²¹²

Fourth, even if institutional and regulatory capacities were beefed up, these are generational changes. None of these problems are going to be solved in the short-term. Moreover, history of PNG shows that legislative changes

on their own do not accomplish much if they are not accompanied by changes in the political culture. Better laws about consultation and consent can still be manipulated by local 'big men' or be handed over to foreign corporations. Likewise, affordable techniques for safely managing and disposing of tailings in mountainous, seismologically active and high-rainfall areas may one day exist, but these technologies too are a long, long way off. The PNG state might be able to change the power dynamic with the mining and petroleum companies if it were to wean its way off dependence on these resources, but this too will take time. As would the development of a political culture strong enough to support and maintain a tougher minerals and petroleum regulatory regime.

9.4: A Moratorium on New Mining and Petroleum Projects

It is precisely because the reforms discussed in 9.2 have serious limits that this report suggests that more drastic measures are necessary to both minerals and petroleum and forest policy.

The only genuine solution in the short-term is **a moratorium on new large-scale mining and petroleum projects**. This would be a serious change in policy direction, so some discussion of the implications are warranted.

The consequences for government revenues would not be as drastic as we have been led to believe, given that mining and petroleum revenues only averaging 14 per cent of such revenues. These revenues are probably the easiest targets for theft and corruption, and thus the effective amount that would need to be replaced should the revenues stop will be even less.

In normal circumstances, the gradual loss of export values that would result from the gradual decommissioning of mining, oil and gas projects (were it not replaced by new projects) could be a threat to the country's balance of payments situation. However, there are reasons to think that this concern is relatively minor. First, as we saw in section 4.4, many so-called export 'revenues' from mining, oil and gas are something of a miasma: earnings and profits are often banked offshore and thus never reach PNG at all. Thus, money is categorised as PNG export 'earnings' without ever coming into the country. In technical terms, the growing current account surpluses have, since 2014, been balanced out by the growing capital account deficits, which are themselves connected to mining, oil and gas projects.

Moreover, as with government revenues, PNG has two or three decades to gradually plan for and accommodate itself to the loss of mining and petroleum export revenues. There are a number of measures that could be taken to improve PNG's balance of payments in the meantime—we will outline just two.

First, investments in PNG's agricultural economy discussed in section 8.5 would not only help agricultural production for the domestic market, it could also help PNG develop and market both PNG's traditional and emerging food crops for export, such as coffee, cocoa, dairy and vanilla. This option has already been flagged by Prime Minister James Marape.²¹³

Second, a gradual depreciation in PNG's foreign exchange rate would help PNG manage its imports, and potentially help its exports, and grow its domestic credit system. Not only would this help minimise deficits on its balance of payments, it would also help spur the development of small business in PNG.²¹⁴

9.5: Principles of Sustainable Forest Management

There are four principles that PNG needs to commit to in order to move to a system of sustainable forest management.

The first principle is **respect for community customary land rights**. This would include an overhaul of the ILG system as mentioned in section 9.2. Exercising customary land rights also means strengthening customary knowledge and practices and using that as the basis for local development.

Any commitment to this principle would naturally also include an adequate response to the 2011 Commission of Inquiry into SABLs. To that end, it would see that all SABL leases are revoked unless the free, prior and informed consent of landowners can be established.

The second principle is one of **community-led forest management**. Communities have an interdependent and deep spiritual relationship with nature and a profound understanding of the wise and sustainable management of the natural environment and its resources. Forest management should be given back to the rural communities who have the biggest interest in its protection and wise use.

Forest industries should be dominated by locally owned small and medium scale enterprises that provide maximum value for the country and communities, through producing a wide range of local and export products and services. Community driven sustainable land use can contribute to climate change mitigation and biodiversity conservation.

The third principle is one of **ground up empowerment processes**. Customary communities have strong traditional governance systems aimed at creating harmonious and equal societies. Communities should be empowered to use and translate their historical knowledge, wisdom and practice to produce wise plans and management systems that suit the challenging future that lies ahead of us.

Communities themselves can produce plans that hold their aspirations for development and the sustainable use of their land. Plans can include sustainable land use, resource management, biodiversity conservation and livelihoods. Plans should be made by the communities themselves, with free, prior and informed consent of all their members, including women, youth and disadvantaged groups. These ground up, locally developed plans should be amalgamated into local level government plans that then inform the higher-level district, provincial and national plans.

The fourth principle is a commitment to **ecological sustainability**. Sections 6.2 and 6.3 discussed the unsustainable nature of selective logging and its impact on PNG's primary rainforests and the populations that they support. Essentially, too much of PNG's forest is being harvested and the harvesting is done in unsustainable ways, without management that allows for forest regeneration. When one includes the land clearing that has recently been occurring under SABL leases and FCAs that does not merely degrade but clear-fells rainforest, the picture is even worse.

An example of what this could look like in practice is for medium-small scale logging companies to follow the Forest Stewardship Council (FSC) National Forest Stewardship Standard for PNG, a national adaptation of the global forest management standard, which ensures the harvesting of trees is done sustainably and without wanton destruction of smaller species.



Logging site in Sebutuia, Milne Bay Province © Paul Hilton, Greenpeace

9.6: A Ban on Round Log Exports

While adopting the four principles discussed in 9.5 is essential in addressing the problems of forest management outlined in this report, there are two more policy steps that are so important that they warrant more detailed discussion.

The first of these steps is the **adoption and successful implementation of a permanent ban on round log exports**. More than any other single measure, an export ban on round logs, if effectively implemented and monitored, would stop the destruction and exploitation of PNG's forests that has been outlined in this report. This is because the business model of the logging companies that currently dominate the sector (existing, as we have seen, without due regard for either the rainforests that are being destroyed, the communities whose livelihoods are tied to these forests, or the development needs of PNG as a whole) is based on the harvesting of round logs for export.

It is important to note that this is not an unprecedented step. In 2010, Gabon implemented a ban on its round log exports after losing 0.7 per cent of its forest cover between 1990 and 2005.²¹⁵ Several other developing countries, including Thailand and Peru, have similar type bans, according to the Forest Legality Initiative.²¹⁶

Moreover, there has been a long discussion about taking this step in PNG. PNG flirted with the idea of putting a moratorium on round log exports after advice from the World Bank in the early 2000s, but powerful interests intervened and the idea was thrown out (along with World Bank officials).²¹⁷ The idea of reducing export of raw logs has

also been evidenced in many statements by officials over the years²¹⁸ and in policy documents such as the government's *Medium Term Development Plan (MTDP) 2011-2015*, which includes the stated policy goal of reducing the share of round logs and increasing the importance of in-country processing.²¹⁹ A round log export ban would not mean an end to wood product exports: locally-produced semi-finished and finished timber products could generate significant export revenues and jobs so long as the government focused on creating a genuine downstream processing sector. Nor would the ban mean that the domestic market for PNG timber products is neglected (these issues are discussed in more details in the next section). It would also create many more jobs in the sector and increase the financial benefits of forest resources for Papua New Guineans. Calculations from 2006 reveal that if all of the timber currently being exported as round logs were processed in PNG and exported as sawn logs, the result would be a six-fold increase in revenues for the forest sector.²²⁰

9.7: Downstream Processing of Timber Products

Hand in hand with the ban on log exports discussed in the previous section, an unflinching commitment to **developing downstream processing of timber products** is required in order to create better incomes and add value to the products. Essentially what this means is that, whereas until now, raw logs have mainly been exported to overseas markets for manufacturing into wood products, now some or indeed all of the manufacturing will happen in PNG.

The PNG government has been talking about downstream processing of its forest products for a long time: at least as far back as 1993 when the Forest Authority established downstream processing as an aim in its National Forestry Guidelines. A number of companies have been set up to do some level of domestic processing of timber products, such as Stettin Bay Lumber in East New Britain, Jant Limited in Madang and the partly government-owned PNG Forest Products, which exports sawn wood products directly to Australia and New Zealand. However, in 2007, only 10 of the 50 logging companies were involved in domestic processing.

The current government has stated its commitment to increasing the relatively small amount of domestic processing of timber products, which has for some time hovered around 10 to 20 per cent of timber use. PNG's 2010 *Development Strategic Plan* set a target of 80 per cent of domestic processing by 2030. Certainly, a lack of technical information on some of the less-sought after timber species has been a challenge to overcome, so that more of PNG's native wood species can be utilised for different applications.

Nevertheless, research suggests that PNG's tropic species have qualities similar to African tropical hardwoods that have all manner of applications. Downstream processing

could produce wood products for both the domestic and international markets. Some PNG timbers have applications for building materials and sustainable housing in PNG, such as for the production of weatherboard for domestic housing; other species have qualities suitable for the production of floor parquetry, which could be sold to the domestic or to international markets.

Opportunities abound for the use of PNG timber for the domestic manufacturing of furniture for export, especially if wood-bending techniques that transform raw timber into products suitable for shaping are applied. Even now, furniture manufacturing has established a foothold in PNG, with the Lae-based company Furniture Exports (PNG) Ltd selling about 3,000 pieces of furniture from domestically-sourced wood overseas every year.

But developing a furniture industry on the model of Vietnam's, or a wood products industry for construction and housing products, requires political will. Firstly, as already mentioned, the government must curtail the exporting of round logs. Secondly, it must do more to research the commercial applications of PNG's different timber species. Thirdly, it could establish tax and business incentives to encourage the expansion of the downstream processing sector.



Fishing on Lake Kutubu © Damian Baker

Conclusion

This report is an attempt to tell the story of the path that PNG has hitherto taken in its development: to outline its origins, describe the forces that have driven it, catalogue the major events and identify the impacts and their consequences for the people of PNG. It is necessary to understand the past in order to make a better future.

The *Papua New Guinea Development Strategic Plan 2010-2030* (PNGDSP) appeared to double-down on the approach that had led to the questionable results over the previous three and a half decades. It was particularly bullish about the extent of the PNG LNG project revenues' ability to increase the government's budget and the overall knock-on effects to the larger economy.²²¹ Moreover, much of the GDP growth was premised on an ambitious agenda of changes to customary land tenure, changes which, as we have seen, are both unnecessary and much more likely to hurt PNG's rural economy, on which the majority of people overwhelmingly depend, than benefit it.²²² The PNGDSP, in other words, was premised on the same recipe for development that has failed PNG time and time again.

However, in 2014, the Department of National Planning and Monitoring put out *The National Strategy for Responsible Sustainable Development* (StaRS), which challenged PNGDSP's extractive-based approach in several ways. First, it embraced the notion of an 'inclusive growth strategy' that focused on equal access for all on health, education, employment and increased social knowledge; it questioned an unabashed emphasis on economic growth, acknowledging the downsides of growth, such as the irreversible effects on ecology and social structures; it talked about the reduc-

tion of inequality and the importance of creating new green jobs. StaRS also questioned a resource-based development strategy at an even more profound level, that of planetary survival, pointing out that the relentless demands for finite resources puts the entire planet in danger. StaRS was a welcome plea for the integration of environmental concerns into development planning. In many ways, Patrick Kaiku has argued, it signalled a return to the long-abandoned National Goals and Development Principles (NGDPs) and the eight aims outlined during the independence period.²²³

In 2019, the World Bank made one of its clearest statements yet about the flaws in PNG's development strategy:

'First, the country's economic structure and growth performance have not been conducive to economic and social inclusion. PNG's heavy dependence on capital-intensive, enclave-based natural resource extraction has not generated sufficient jobs to absorb PNG's growing population, while simultaneously opening the economy to macroeconomic volatility and fiscal uncertainty. In this context—and exacerbated by the country's challenging topography and highly dispersed population—shortfalls in the delivery of key public services such as education, health care, and basic infrastructure have had a disproportionate impact on the country's rural and poor residents, further limiting the inclusiveness of PNG's development.'²²⁴

With the change of government in 2019, there are signs that this analysis is falling on sympathetic ears at the very highest levels of government. New Prime Minister James Marape, in a speech to the Lowy Institute in Sydney, said that farming, not mining, was the future for PNG.²²⁵

Both inside and outside the PNG Government, therefore, there are voices calling for a change of direction, to abandon so many of the approaches and policies of the past forty years and return to a more people-centred development strategy.

There are reasons for hope. Not only are more and more voices questioning the path and revisiting the choices made, but the ongoing resilience of the PNG people is an inspiration. Culture remains strong. People tend their gardens, build their dwellings. They also seek a better standard of living, more economic opportunities, better physical infrastructure and decent government services, just as other people do around the world.

Gary Juffa, Governor of Oro Province, and one of the most articulate voices in the country pushing for another way, describes it thus:

'We should not subscribe to the notion that extractive industries are the only way to develop an economy. There are alternatives. I don't think we are thinking hard enough about these alternatives. [...] You know, we've been doing very well for thousands of years. What we would need to do is think more strategically, think more innovatively, about what we can do that does not end up destroying our forests and our way of life and our waterways and so forth.'²²⁶

For a long time, such voices had been quietened, almost to a whisper. They are becoming louder now. Will they be heeded?



Bibliography

Books and Academic Articles

- Anderson, T., *Land and Livelihoods in Papua New Guinea* (North Melbourne: Australian Scholarly Publishing, 2015).
- Ballard, J.A., *Policy-Making in a New State 1972 - 77* (St. Lucia, University of Queensland Press, 1981).
- Banks, G., Kuir-Ayuis, D., Kombako, D., and Sagir, B., 'Conceptualising Mining Impacts, 'Livelihoods and Corporate Community Development in Melanesia,' *Community Development Journal* 48(3), July 2013: 484-500.
- Bourke, R.M and Harwood, T.A. (eds), *Food and Agriculture in Papua New Guinea* (Canberra: ANU Press, 2009).
- Chand, S., 'Papua New Guinea: From Stabilisation to Growth?' *Pacific Economic Bulletin* 11(2), 1996: 1-13.
- Chand, S. and Stewart, R. 'Economic Reforms and Structural Change in Papua New Guinea: Progress, Performance and Prospects,' *Pacific Economic Bulletin* 12(1), 1997: 53-69.
- Chand, S. and Yala, C., 'Institutions for Improving Access to Land for Settler Housing: Evidence from Papua New Guinea,' *Land Use Policy* 29, 2012: 143-153.
- Denoon, D., *A Trial Separation: Australia and the Decolonisation of Papua New Guinea* (Canberra: Australian National University E Press, 2012).
- Duncan, R., 'Land Reform in Papua New Guinea: Securing Individual Property Rights to Customary-owned Land,' *Policy*, 34(1), Autumn 2018: 15-21.
- Filer, C., 'Two Steps Forward, Two Steps Back: the mobilisation of customary land in Papua New Guinea,' *ANU Development Policy Centre Discussion Paper* 86, 2019.
- Filer, C., Allen, B.J. and McAlpine, J.R., 'Deforestation and Forest Degradation in Papua New Guinea,' *Annals of Forest Science* 66, 2009: 813.
- Filer, C. & Imbun, B., 'A Short History of Mineral Development Policies In Papua New Guinea,' (Canberra, Resource Management in the Asia-Pacific Program, ANU, 2004).
- Filer, C., and John Numapo, J., 'The Political Ramifications of Papua New Guinea's Commission of Inquiry,' in S. McDonnell, M.G. Allen and C. Filer (eds), *Kastom, Property and Ideology: Land Transformations in Melanesia* (Canberra: ANU Press, 2017): 251-281.
- Fingleton, J., 'Rethinking the Need for Land Reform,' *Pacific Economic Bulletin* 22(1), March 2007: 115-121.
- Fingleton, J., 'Is Papua New Guinea Viable Without Customary Land Groups,' *Pacific Economic Bulletin* 19(2), 2004: 96-103.
- Gabriel, J. and Wood, M., 'The Rimbunan Hijau Group in the Forests of Papua New Guinea,' *The Journal of Pacific History* 50(3) 2015: 322-343.
- Gilbert, P.R., 'The Development of Difference: Social change around the Ok Tedi Copper and Gold Mine, Papua New Guinea,' *Durham Anthropology Journal* 18(1), 2012: 61-114.
- Gilberthorpe, E., 'Community Development in Ok Tedi, Papua New Guinea: the Role of Anthropology in the Extractive Industries,' *Community Development Journal* 48(3), July 2013: 466-483.
- Howes, S., Fox, R., Laveil, M., Nguyen, B.H. and Sum, D.J., '2019 Papua New Guinea Economic Survey,' *Asia Pacific Policy Studies* 6(3), 2019: 271-289.
- Hughes P. and Sullivan M., 'Environmental impact assessment in Papua New Guinea: lessons for the wider Pacific region,' *Pacific Viewpoint* 30(1), 1989: 34-55.
- Kennan, R.J., Brack, C.L., Martin Golman, M., and Vanclay, J.K., 'A Simple Planning System for Sustainable Timber Harvesting in Papua New Guinea,' in J.C. Fox, R.J. Keenan, S. Saulei (eds), *Native forest management in Papua New Guinea: Advances in Assessment, Modelling and Decision-making*, ACIAR Proceedings 135, 8 November 2011: 176-184.
- Ketan, J., 'Governance in Papua New Guinea,' *CDI Policy Papers on Political Governance* (ANU, Centre for Democratic Institutions, 2007).
- Ketan, J., *Political Governance and Service Delivery in Western Highlands Province, Papua New Guinea*, State Society & Governance in Melanesia Discussion Paper 9 (Australian National University, 2013).
- Lattas, A., 'Logging, Violence and Pleasure: Neoliberalism, Civil Society and Corporate Governance in West New Britain,' *Oceania* 81(1), 2011: 88-108.
- Kristian Lasslett, *State Crime on the Margins of Empire: Rio Tinto, The War on Bougainville and Resistance to Mining* (London: Pluto Press, 2014).
- Levantis, T. and Livernois, J., 'Taking a Piece of the Pie: Papua New Guinea's log exports and optimal taxation,' *Pacific Economic Bulletin* 13(2) 1998: 99-116.
- Mudd, G.M., Roche, C., Norhtey, S.A., Jowitt, S.M., Gamato, G., 'Mining in Papua New Guinea: A Complex Story of Trends, Impacts and Governance,' *Science of the Total Environment* 741, 2020: 1-19.
- Ross, M.L., 'What Have We Learned About the Resource Curse?' *Annual Review of Political Science* 18, 2015: 239-59.
- Tammasito, T., 'Strengthening the State: Logging and Neoliberal Politics in East New Britain, Papua New Guinea,' *Suomen Antropologi* 35(1), 2010: 43-59.
- Wesley-Smith, T., and Ogan, E., 'Copper, Class and Crisis: Changing Relations of Production in Bougainville,' *The Contemporary Pacific* 4(2), Fall 1992: 245-267.
- Reports and Policy Documents*
- 2019 National Budget, Volume 1: Economic and Development Policies (Government of PNG, Port Moresby, 2019).
- ACT NOW, *A Critique of Incorporated Land Groups in Papua New Guinea*, (Port Moresby, 2019).
- ACT NOW, *Policy Proposals for Open and Accountable Government: A Comprehensive Plan to Improve Governance and Public Oversight*, (Port Moresby, 2019).
- Australian Centre for International Agricultural Research (ACIAR) and The University of Melbourne, *Increasing Downstream Value Adding in PNG's Forest and Wood Products Industry* (University of Melbourne, 2006).
- Banks, G., *Papua New Guinea Baseline Study*, International Institute for Environmental Developers and World Business Council for Sustainable Development, 2002.
- Bryan J.E. and Sherman, P.L., *The State of the Forests of Papua New Guinea 2014: Measuring change over the period 2002-2014* (Port Moresby: University of Papua New Guinea, 2015).
- Columbia Law School Human Rights Clinic & AC4, Earth Institute, *Red Water: Mining and the Right to Water in Porgera, Papua New Guinea*, Papua New Guinea,

(New York, Columbia University, 2019).

Department of National Planning and Monitoring, *PNG Medium Term Development Plan 2011-2015, Building the Foundations for Prosperity*, (Port Moresby: Government of Papua New Guinea, 2010).

Department of Treasury, *National Budget 2019: Volume 2A* (Port Moresby, Government of Papua New Guinea, 2019).

Flanagan, P., 'The Distorting Effects of the Resources Sector on National Economies: A Case Study from Papua New Guinea,' in Christina Hill and Luke Fletcher (eds), *Growing Bougainville's Future: Choices for an Island and its Peoples* (Sydney: Jubilee Australia Research Centre, 2018).

Flanagan, P. & Fletcher, L., *Double or Nothing: The Broken Economic Promises of PNG LNG* (Sydney: Jubilee Australia Research Centre, 2018).

Fletcher, L. and Peni, E., *The River Is Not Ours: The Frieda River Mine and the Threat to the Sepik* (Sydney: Jubilee Australia Research Centre and Project Sepik, 2019).

Fletcher L., and Webb, A., *Pipe Dreams: The PNG LNG Project and the Future Hopes of a Nation* (Sydney: Jubilee Australia Research Centre, 2012).

Forest Trends, *Logging, Legality and Livelihoods in Papua New Guinea: Synthesis of Official Assessments of the Large-Scale Logging Industry, Volume 1* (Jakarta, 2006).

Greenpeace, *The Untouchables: Rimbunan Hijau's World of Forest Crime and Political Patronage* (Amsterdam, Greenpeace International, 2004).

Greenpeace, *Preserving Paradise: The Value of Protecting Papua New Guinea's Forests for Climate*, (Amsterdam, Greenpeace International, 2008).

Hall, R., *The SABL Land Grab: Papua New Guinea's Ongoing Human Rights Scandal*, (ACT NOW and War on Want, 2018).

Hou, X., *Stagnant Stunting Rate Despite Rapid Economic Growth in Papua New Guinea: Factors Correlated with Malnutrition among Children Under Five*, Policy Research Working Paper 7301 (Washington, D.C.: World Bank Group, 2015).

Human Rights Law Centre, *December Nowhere To Turn: Addressing Australian Corporate Abuses Overseas*, 2018.

Human Rights Law Centre, *After The Mine: Dealing with Rio Tinto's Deadly Legacy*, March 2020.

Human Rights Watch, *Gold's Costly Dividend: Human Rights Impacts of Papua New Guinea's Porgera Gold Mine*, 2011.

Hurney, M., *Short Changed: The Human and Economic Cost of Child Undernutrition in Papua New Guinea*, (Save the Children, 2017).

International Bank for Reconstruction and Development (IBRD), *The Economic Development of the Territory of Papua and New Guinea*, (Washington, D.C.: World Bank Group, 1965).

International Bank for Reconstruction and Development (IBRD), *Papua New Guinea: Its Economic Situation and Prospects for Development* (Washington, D.C.: World Bank Group, 1976).

International Bank for Reconstruction and Development, *Papua New Guinea - Policies and prospects for sustained and broad-based growth: Main report* (Washington, D.C.: World Bank Group, 1988).

International Bank for Reconstruction and Development, *Papua New Guinea – Country Assistance Strategy* (Washington, D.C.: World Bank Group, 1995).

International Maritime Organization (IMO), *International Assessment of Marine and Riverine Tailings Disposal of Mine Tailings*, May 2013.

Jones, L.T. & McGavin, P.A., *Grappling Afresh with Labour Resource Challenges in Papua New Guinea: A Framework for Moving Forward* Guinea (Port Moresby: Institute of National Affairs, June 2015).

Jubilee Australia Research Centre, Submission to the Australian Parliamentary Inquiry on Corporate Tax Avoidance, April 2018.

Main, M. and Fletcher, L., *On Shaky Ground: PNG LNG and the Consequences of Development Failure* (Sydney: Jubilee Australia Research Centre, 2018).

McLeod, S., 'Plugging in PNG: Electricity, Partners and Politics,' *The Lowy Interpreter*, 10 April 2019.

Mousseau, F., *On Our Land: Modern Land Grabs Reversing Independence in Papua New Guinea* (Oakland, CA: The Oakland Institute, 2013).

Mousseau, F. and Lau, P., *The Great Timber Heist: The Logging Industry in Papua New Guinea* (Oakland, CA: The Oakland Institute, 2015).

Mousseau, F., (ed), *Taking on the Logging Pirates: Land Defenders in Papua New Guinea Speak Out!* (Oakland, CA: The Oakland Institute, 2017).

Mousseau, F., *The Highest Bidder Takes it All: The World Bank's Scheme to Privatize the Commons*, (Oakland, CA, Oakland Institute, 2019).

Miranda, M., Burriss, P., Binging, J.F., Shearman, P., Briones, J.O., La Vina, A., Menard, S., *Mining in Critical Ecosystems: Mapping the Risks*, World Resources Institute, 2003.

Oxfam Australia, *Banking on Shaky Ground: Australia's Big Four Banks and Land Grabs*, 2014.

National Statistical Office Papua New Guinea, *2009-2010 Papua New Guinea Household Income and Expenditure Survey: Summary Tables* (Port Moresby, National Statistical Office, 2011).

Papua New Guinea Extractive Industries Transparency Initiative, *2017 Final Report* (PNG EITI, 2018).

Papua New Guinea Extractive Industries Transparency Initiative: *2018 Final Report* (PNG EITI, 2019).

Papua New Guinea's REDD+ Forest Reference Level: Modified Submission for UNFCCC Technical Assessment, Government of Papua New Guinea, 2017.

Scheyvens, Henry and Lopez-Casero, Federico, *Managing Forests as a Renewable Asset for Present and Future Generation: Verifying Legal Compliance in Forestry in Papua New Guinea*, Institute for Global Environmental Studies, 2013.

United Nations Development Program, *Human Development Report Human Development Indices and Indicators: 2018 Statistical Update for Small Island Developing States*.

United Nations Development Program, *Human Development Report 2019: Inequalities in Human Development*, Briefing Note for Countries on the 2019 Human Development Report, Papua New Guinea.

Winn, P., *Up For Grabs: Millions of Hectares of Customary Land in PNG Stolen for Logging* (Greenpeace Australia Pacific, August 2018).

World Bank Group, *Papua New Guinea Country Assistance Strategy* (Washington, DC: World Bank Group, 2007).

World Bank Group, *Papua New Guinea – Country Partnership Framework for the Period FY2019 – 2023* (Washington, D.C.: World Bank Group, 2019).

World Health Organisation and The World Bank Group, *Tracking Universal Health Coverage: 2017 Global Monitoring Report: Annex 1*.

News Sources and Websites

Asian Development Bank, 'Papua New Guinea: Poverty in Papua New Guinea', <https://www.adb.org/countries/papua-new-guinea/poverty> (accessed 15 January 2020).

'The Australian Resources Sector—Significance and Opportunities,' *The Australian Government Department of Industry, Science, Energy and Resources Website*: <https://www.industry.gov.au/data-and-publications/australias-national-resources-statement/the-australian-resources-sector-significance-and-opportunities> (accessed 7 July 2020).

'Biennial Review and Assessment of the World Timber Situation 2013-2014,' *International Tropical Timber Organization Website* http://www.itto.int/annual_review/ (accessed 2 May 2018).

Bonji, P., 'PNG Loses Billions to Government Corruption,' *ABC News Online*, 29 August 2013: <https://www.abc.net.au/news/2013-08-27/an-png-billions-lost/4916656> (accessed 24 February 2020).

'Can Papua New Guinea Maintain Food Security During the COVID-19 Pandemic?' *Oxford Business Group*, 3 April 2020: <https://oxfordbusinessgroup.com/news/can-papua-new-guinea-maintain-food-security-during-covid-19-pandemic> (accessed 7 July 2020).

Cannon, J.C., 'Deforestation for Potential Rubber Plantation Raises Concerns in Papua New Guinea,' *Mongabay*, 19 December 2019: <https://news.mongabay.com/2019/12/deforestation-for-potential-rubber-plantation-raises-concerns-in-png/> (accessed 4 August 2020).

Deninger, K., 'The World Bank's Land and Poverty conference: 20 Years On,' *World Bank Blogs*, 21 March 2019: <https://blogs.worldbank.org/developmenttalk/world-bank-s-land-and-poverty-conference-20-years> (accessed 26 May 2020).

'Enhancing Value Added Wood Processing in Papua New Guinea,' *Pacific Island Projects*: <http://www.pip.com.pg/projects/current-projects/31-enhancing-value-added-wood-processing-in-papua-new-guinea.html> (accessed 8 July 2020).

'Forest Authority Abusing the Law to Defeat the 1991 Reforms,' *PNGi*, 11 February 2020: <http://pngicentral.org/reports/forest-authority-abusing-the-law-to-defeat-1991-reforms#png-the-golden-goose-for-malaysian-interests> (accessed 2 February 2020).

Fox, R., Howes, S., Nema, N.A., M., Nguyen, B.H. and Sum, D.J., '2018 PNG Economic Survey (draft), 29 June 2018,' 17: http://devpolicy.org/2018_economic_survey_final_draft_29june.pdf (accessed 5 May 2020).

Furniture Exports (PNG) Ltd: <http://globalwood.org/company/mgodetail.asp?id=3895> (accessed 8 July 2020).

Grigg, A., 'PNG Staring at \$3 Billion Bailout from Australia, IMF, World Bank,' *The Australian Financial Review*, 2 April 2020: <https://www.afr.com/policy/foreign-affairs/png-staring-at-3b-bailout-from-australia-imf-world-bank-20200401-p54fy0> (accessed 7 July 2020).

'Governor Undialu Fires Parting Broadside,' *Post Courier*, 14 May 2019: <https://postcourier.com.pg/governor-undialu-fires-parting-broadside/> (accessed on 20 January 2020).

Jeremy Hance, 'Gabon Bans Log Exports,' *Mongabay*, 7 June 2010: <https://news.mongabay.com/2010/06/gabon-bans-log-exports/> (accessed 8 July 2020).

'Invest More in Agriculture,' *The National*, 21 April 2020: <https://www.thenational.com.pg/invest-more-in-agriculture-2/> (accessed 7 July 2020).

James, D., 'One Country, Two Economies: Papua New Guinea's Economic Paradox,' *Business Advantage PNG*, 6 November 2019: <https://www.businessadvantagepng.com/papua-new-guinea-economic-paradox/> (accessed 7

July 2020).

Jubilee Australia Research Centre *Bougainville: Long Han Blong Yumi (Bougainville: It's In Our Hands)*, *Jubilee Australia Research Centre Website*: <https://www.jubileeaustralia.org/helpful-resources/films> (accessed on 15 February 2020).

Kenneth, G., 'Global Audit Reveals Informal Economy Worth K12 Billion,' *PNG Post Courier*, 12 February 2019: <https://postcourier.com.pg/global-audit-reveals-informal-economy-worth-k12-billion/> (accessed 7 July 2020).

Knoema, Human Development Index: Rankings, World Rankings, Human Development Index, Knoema World Data Atlas, <https://knoema.com/atlas/ranks/Human-development-index?baseRegion=PG&action=export&gadget=tranking-container>

Kramer, B., 'K3 Billion a Year Lost in White Collar Fraud,' *PNG Attitude*, 13 November 2019: <https://www.pngattitude.com/2019/11/k3-billion-a-year-lost-in-white-collar-fraud.html> (accessed 24 February 2020).

'Lae Timber Processing Facility to Fill a Niche Says ACIAR Manager,' *Business Advantage PNG*, 8 May 2018: <https://www.businessadvantagepng.com/lae-timber-processing-facility-to-fill-a-niche-says-aci-ar-manager/> (accessed 8 July 2020).

'Madang Sues Ramu Nico For K18b,' *Post-Courier*, 6 February 2020.

McIlroy, T., 'Australia to Loan PNG \$US300m to Counter Rising China,' *The Australian Financial Review*, 23 November 2019: <https://www.afr.com/policy/foreign-affairs/australia-to-loan-png-us300m-to-counter-rising-china-20191122-p53d7d>, (accessed 7 July 2020).

National Goals and Directive Principles, Chapter 2 of Constitutional Planning Committee, *PNG Constitutional Planning Committee Report 1974*, Pacific Islands Legal Information Institute website: <http://www.pacii.org.pg/CPCReport/Cap2.htm> (accessed 30 June 2020).

Nicholas, I., 'Round Log Ban to Cost K400m: MP,' *Papua New Guinea Post-Courier*, 13 June 2019: <https://postcourier.com.pg/round-log-ban-cost-k400m-mp/> (accessed 8 July 2020).

Packham, B., 'PNG Prime Minister James Marape Says Farming, Not Mining, the Future,' *The Australian*, 25 July 2019.

Papua New Guinea Mineral Sector, *Papua New Guinea Chamber of Mines and Petroleum Website*, 2017 <http://pngchamberminpet.com.pg> (accessed on 10 January 2020).

'Papua New Guinea Population 2020,' *World Population Review*: <https://worldpopulationreview.com/countries/papua-new-guinea-population> (accessed on 18 August 2020).

Piet, E., 'Informal Sector Biggest Income Generator: Dept,' *The National*, 13 February 2019: <https://www.thenational.com.pg/informal-sector-biggest-income-generator-dept/> (accessed 7 July 2020).

PNG Budget Information Database—2020 Budget (released Nov 2019): GDP (Tb12), Development Policy Centre PNG budget papers database: <https://devpolicy.crawford.anu.edu.au/png-project/png-budget-database> (accessed on 7 July 2020).

'PNG's Basamuk Bay Facing Environmental Contamination From Mine Waste,' *Pacific Mining Watch*: https://mine.onepng.com/2019/08/pngs-basamuk-bay-facing-environmental.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+PacificMiningWatch+%28Pacific+Mining+Watch%29 (accessed 7 July 2020).

'PNG Mining Department to Discuss Tolukuma Tailings System with Emperor,' *Radio New Zealand*, 16 March 2007: <https://www.rnz.co.nz/international/pacific-news/168519/png-mining-department-to-discuss-tolukuma-tailings-system-with>

emperor (accessed 2 February 2020).

'Table 9.7: Employment Classified by Industry, Employment Classified by Region,' QEB Statistical Tables, *Bank of PNG Website*: <https://www.bankpng.gov.pg/statistics/quarterly-economic-bulletin-statistical-tables/> (accessed on 19 August 2020).

Regan, J., 'Mine Closure Threatens Papua Economy Rescue Plans,' *Reuters*, 13 August 1999, <http://www.rainforestinfo.org.au/wrr42/ok%20tedi.htm> (accessed 2 February 2020).

'Sarawak's Logging Tycoons in Papua New Guinea,' 7 January 2020, *Sarawak Report Website*, <https://www.sarawakreport.org/2020/01/new-malaysia-should-clean-up-its-present-day-colonial-shame/> (accessed on 20 January 2020).

'Supreme Court Condemns PNG LNG As One of Many "Large Scale Frauds",' *PNG Mine Watch*, 29 November 2017: <https://ramumine.wordpress.com/2017/11/29/supreme-court-condemns-png-lng-as-one-of-many-large-scale-frauds/> (accessed 2 March 2020).

'The Economic Hurdles Facing the PNG Government,' *Radio New Zealand*, 31 January 2020, <https://www.rnz.co.nz/international/programmes/datelinepacific/>

[audio/2018732078/the-economic-hurdles-confronting-the-png-government](https://www.rnz.co.nz/international/programmes/datelinepacific/audio/2018732078/the-economic-hurdles-confronting-the-png-government) (accessed 14 February 2020).

'The "sleeping giant" at the heart of PNG's economy,' *Oxford Business Group*, 2 October 2019: <https://oxfordbusinessgroup.com/news/'sleeping-giant'-heart-png's-economy> (accessed on 18 August 2020).

Tlozek, E., 'PNG Sells Oil Search Stake After Deal Leaves Government Massively Out of Pocket,' *ABC News*, 22 September 2017: <https://www.abc.net.au/news/2017-09-22/png-government-sells-stake-in-oil-search/8976648> (accessed 7 July 2020).

The World Bank Group, 'Gini Index - World Bank Estimates': <https://data.worldbank.org/indicator/SI.POV.GINI?locations=FJ> (accessed on 15 January 2020).

The World Bank Group, 'Papua New Guinea,' *World Bank Data website*: <https://data.worldbank.org/country/papua-new-guinea> (accessed 15 January 2020).

UNICEF Press Release: 'No mother should die while giving life', 14 May 2019, *UNICEF website*: <https://www.unicef.org/png/press-releases/no-mother-should-die-while-giving-life> (accessed 15 January 2020).

Endnotes

- 1 The anomaly here is palm oil, which, being a cash crop imported from West Africa, is not 'a natural resource' in any common sense use of the phrase. However, because of the intertwined nature of the palm oil sector with the logging industry in PNG, we include palm oil as part of the complex that makes up large-scale resource extraction in PNG.
- 2 R. Michael Bourke, 'History of Agriculture in Papua New Guinea,' in R. Michael Bourke and Tracy Ann Harwood (eds), *Food and Agriculture in Papua New Guinea* (ANU Press: Canberra, 2009): 10-26.
- 3 The International Bank for Reconstruction and Development, *The Economic Development of the Territory of Papua and New Guinea*, (Washington, D.C. : World Bank Group, 1965): 19; Ross Garnaut, 'The Framework of Economic Policymaking,' in J.A. Ballard, *Policy-Making in a New State 1972 - 77* (St. Lucia: University of Queensland Press, 1981): 159-160.
- 4 The International Bank for Reconstruction and Development, *The Economic Development of the Territory of Papua and New Guinea*, 1965, 27.
- 5 The International Bank for Reconstruction and Development, *Papua New Guinea: Its Economic Situation and Prospects for Development* (Washington, D.C.: World Bank Group, 1976): 84.
- 6 This self-reliance strategy was most typified by what Denoon has called the 'Tanzanian model' and, according to Denoon, by the E. F. Schumaker work *Small is Beautiful*. See Donald Denoon, *A Trial Separation: Australia and the Decolonisation of Papua New Guinea* (Australian National University E Press, 2012): 128-131.
- 7 Patrick Kaiku, *National Development Plans in PNG—How They Measure Up Against the National Goals and Directive Principles*, ANU Department of Pacific Affairs, Working Paper 2020/1, 2020: 1-4.
- 8 National Goals and Directive Principles, chapter 2 of Constitutional Planning Committee, *PNG Constitutional Planning Committee Report 1974*, Pacific Islands Legal Information Institute website: <http://www.paclii.org/pg/CPCReport/Cap2.htm> (accessed 30 June 2020).
- 9 National Goals and Directive Principles.
- 10 Denoon, *A Trial Separation* 133-136; Garnaut, 'The Framework of Economic Policymaking,' 193-197.
- 11 Denoon, *A Trial Separation*, 133-136.
- 12 The material for the above paragraphs is largely drawn from two sources: Colin Filer & Benedict Imbun, 'A Short History of Mineral Development Policies In Papua New Guinea,' (Canberra, Resource Management in the Asi-Pacific Program, ANU, 2004); Papua New Guinea Mineral Sector, *Papua New Guinea Chamber of Mines and Petroleum Website*, 2017 <http://pngchamberminpet.com.pg> (accessed on 10 January 2020).
- 13 Kaiku, *National Development Plans in PNG*, 9-13.
- 14 Treasurer Peter O'Neill 2011 Budget Speech, 16 November 2010, 22 cited in Paul Flanagan & Luke Fletcher, *Double or Nothing: The Broken Economic Promises of PNG LNG*, Jubilee Australia Research Centre, May 2018: 10.
- 15 Government of PNG, 'Framework for Industrial Development,' reproduced in IBRD, *Papua New Guinea: Its Economic Situation and Prospects for Development*, 167.
- 16¹⁶ Henry Scheyvens and Federico Lopez-Casero, *Managing Forests as a Renewable Asset for Present and Future Generation: Verifying Legal Compliance in Forestry in Papua New Guinea*, Institute for Global Environmental Studies, 2013, 17-20; P. Hughes and M. Sullivan, 'Environmental impact assessment in Papua New Guinea: lessons for the wider Pacific region,' *Pacific Viewpoint* 30(1), 1989: 47-48.
- 17 Jennifer Gabriel and Michael Wood, 'The Rimbunan Hijau Group in the Forests of Papua New Guinea,' *The Journal of Pacific History* 50(3) 2015: 324-325.
- 18 Scheyvens and Lopez-Casero, *Managing Forests as a Renewable Asset*, Figure 10, 37.
- 19 Colin Filer and Nikhil Sekhran, *Loggers, Donors and Resource Owners*, cited in Theodore Levantis and John Livernois, 'Taking a Piece of the Pie: Papua New Guinea's log exports and optimal taxation,' *Pacific Economic Bulletin* 13(2) 1998: 101.
- 20 Jane E. Bryan and Phi L. Sherman, *The State of the Forests of Papua New Guinea 2014: Measuring change over the period 2002-2014* (Port Moresby, University of Papua New Guinea, 2015): 20.
- 21 Theodore Levantis and John Livernois, 'Taking a Piece of the Pie', 100-102.
- 22 Gabriel and Wood, 'The Rimbunan Hijau Group in the Forests of Papua New Guinea,' 329-331.
- 23 Scheyvens and Lopez-Casero, *Managing Forests as a Renewable Asset*, 22; Gabriel and Wood, 'The Rimbunan Hijau Group in the Forests of Papua New Guinea,' 329-330.
- 24 Frederic Mousseau, *On Our Land: Modern Land Grabs Reversing Independence in Papua New Guinea* (Oakland, CA, The Oakland Institute, 2013): 19.
- 25 'Forest Authority Abusing the Law to Defeat the 1991 Reforms,' *PNGi*, 11 February 2020: <http://pngicentral.org/reports/forest-authority-abusing-the-law-to-defeat-1991-reforms#png-the-golden-goose-for-malaysian-interests> (accessed 2 February 2020).
- 26 Colin Filer and Benedict Imbun, 'A Short History of Mineral Development Policies In Papua New Guinea, 1972 - 2002,' in Ron May (ed), *Policy-Making and Implementation, Studies from Papua New Guinea* (Australian National University E Press, Canberra, 2009): 8-9.
- 27 Government of PNG, 'Framework for Industrial Development,' 167.
- 28 Gabriel and Wood, 'The Rimbunan Hijau Group in the Forests of Papua New Guinea,' 325.
- 29 Gabriel and Wood, 'The Rimbunan Hijau Group in the Forests of Papua New Guinea,' 329-330.
- 30 'Gabriel and Wood, 'The Rimbunan Hijau Group in the Forests of Papua New Guinea,' 332.
- 31 World Bank, *Papua New Guinea: Its Economic Situation and Prospects for Development*, 7.
- 32 'Sarawak's Logging Tycoons in Papua New Guinea,' 7 January 2020, *Sarawak Report Website*, <https://www.sarawakreport.org/2020/01/new-malaysia-should-clean-up-its-present-day-colonial-shame/> (accessed on 20 January 2020).
- 33 Sarawak Report, 'Sarawak's Logging Tycoons in Papua New Guinea'; Gabriel and Wood, 'The Rimbunan Hijau Group in the Forests of Papua New Guinea,' 322-343; Greenpeace, *The Untouchables: Rimbunan Hijau's World of Forest Crime and Political Patronage*, (Amsterdam, Greenpeace International, 2004).
- 34 Stephen Howes, Rohan Fox, Maholopa Laveil, Bao H. Nguyen, Dek Joe Sum, '2019 Papua New Guinea Economic Survey,' *Asia Pacific Policy Studies* 6(3), 2019, 276.
- 35 The two previous studies were conducted in 1976 and 1996 – see National Statistical Office Papua New Guinea, 2009-2010 *Papua New Guinea Household Income and Expenditure Survey: Summary Tables* (Port Moresby, National Statistical Office, 2011).
- 36 Mousseau, *On Our Land*: 7; World Bank Group, *Papua New Guinea – Country Partnership Framework for the Period FY2019 –2023* (Washington, D.C.: World Bank Group, 2019): 8.
- 37 Asian Development Bank, 'Papua New Guinea: Poverty in Papua New Guinea', <https://www.adb.org/countries/papua-new-guinea/poverty> (accessed 15 January 2020).
- 38 Source: ADB Data Library.
- 39 World Bank Group, *Papua New Guinea Country Assistance Strategy* (Washington, DC, World Bank Group, 2007): 8.
- 40 The World Bank Group, 'Gini Index - World Bank Estimates': <https://data.worldbank.org/indicator/SI.POV.GINI?locations=FJ> (accessed on 15 January 2020).

- 41 For more on the size of informal economy, see section 3.2.
- 42 United Nations Development Program, *Human Development Report Human Development Indices and Indicators: 2018 Statistical Update for Small Island Developing States*, 3, http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/PNG.pdf (accessed on 20 July 2020).
- 43 International Bank for Reconstruction and Development, Country Assistance Strategy for Papua New Guinea, (Washington D.C., World Bank Group, 1995): Annex A4; World Bank, Papua New Guinea, *World Bank Data website*: <https://data.worldbank.org/country/papua-new-guinea> (accessed 15 January 2020).
- 44 World Bank Group, 'Papua New Guinea', *World Bank Data website*.
- 45 Even allowing for the fact that approximately 30 new countries were established in this period, PNG has moved backwards in that it is closer to the bottom of the list. Papua New Guinea – Human Development Index – HDI <https://countryeconomy.com/hdi/papua-new-guinea> (accessed 24 July 2020).
- 46 United Nations Development Program, *Human Development Report 2019: Inequalities in Human Development*, Briefing Note for Countries on the 2019 Human Development Report, Papua New Guinea: http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/PNG.pdf (accessed on 20 July 2020).
- 47 Knoema, Human Development Index: Rankings, World Rankings, Human Development Index, Knoema World Data Atlas, <https://knoema.com/atlas/ranks/Human-development-index?baseRegion=PG&action=export&gadget=ranking-container>
- 48 NSO, 2009-2010 Papua New Guinea Household Income and Expenditure Survey Summary Tables, 59-60.
- 49 Asian Development Bank, *Papua New Guinea: Poverty in Papua New Guinea*; Shane McLeod, 'Plugging in PNG: Electricity, Partners and Politics,' *The Lowy Interpreter*, 10 April 2019: <https://www.loywinstitute.org/the-interpreter/plugging-png-electricity-partners-and-politics>.
- 50 World Bank Group, *Country Assistance Strategy for Papua New Guinea 2007*, 8.
- 51 World Bank Group, *Country Assistance Strategy for Papua New Guinea 2007*, 10.
- 52 World Health Organisation and The World Bank, *Tracking Universal Health Coverage: 2017 Global Monitoring Report: Annex 1*.
- 53 UNICEF Press Release: 'No mother should die while giving life', 14 May 2019, *UNICEF website*: <https://www.unicef.org/png/press-releases/no-mother-should-die-while-giving-life> (accessed 15 January 2020).
- 54 World Bank Group, *Papua New Guinea: Country Partnership Framework FY 2019-2023*, (Washington, DC, World Bank Group, 2019): 3; World Bank Group, *Country Assistance Strategy for Papua New Guinea*, (Washington, DC, World Bank Group, 2007): 10.
- 55 Asian Development Bank, Key Indicators for Asia and the Pacific, 50th Edition, (ADB, September 2019), Table 1.3.3, 39: <https://www.adb.org/publications/series/key-indicators-for-asia-and-the-pacific#accordion-o-o>
- 56 Xiaohui Hou, *Stagnant Stunting Rate Despite Rapid Economic Growth in Papua New Guinea: Factors Correlated with Malnutrition among Children Under Five*, Policy Research Working Paper 7301 (Washington, D.C., World Bank Group, 2015).
- 57 Majella Hurney, *Short Changed: The Human and Economic Cost of Child Undernutrition in Papua New Guinea*, (Save the Children, 2017): 1-3.
- 58 Hou, *Stagnant Stunting Rate Despite Rapid Economic Growth in Papua New Guinea*.
- 59 Hurney, *Short Changed*, 11.
- 60 The paradox itself has been noted for decades by academics who have observed a connection between natural resource exploitation and lack of economic improvement and development in countries from the Global South. This phenomenon has been one aspect of the so-called 'resource curse'—although these analyses have mainly been on oil and gas and, sometimes minerals, and has rarely included timber extraction. For more on the resource curse, see section 9.1. Moreover, most studies on the resources curse are trying to explain the so-called 'curse' through complex studies across many countries. What we are seeking to do here is different—to describe how the paradox plays out in one country, in all its complexity.
- 61 This data has been taken from Paul Flanagan, 'The Distorting Effects of the Resources Sector on National Economies: A Case Study from Papua New Guinea,' in Christina Hill and Luke Fletcher (eds), *Growing Bougainville's Future: Choices for an Island and its Peoples* (Sydney, Jubilee Australia Research Centre, 2018): 44. Flanagan's data is drawn from Bank of Papua New Guinea and PNG's Quarterly Economic Bulletins.
- 62 Flanagan, 'The Distorting Effects of the Resources Sector on National Economies,' 45. Flanagan's figures are from 1976 to 2016.
- 63 2013 PNG National Budget figures, cited in Mousseau, *On Our Land*, 22.
- 64 Appendix 2, Table 5 in 2019 *National Budget, Volume 1: Economic and Development Policies* (Government of PNG, Port Moresby, 2019): 170.
- 65 Flanagan, 'The Distorting Effects of the Resources Sector on National Economies,' 45.
- 66 PNG Budget Information Database—2020 Budget (released Nov 2019): GDP (Tb12), Development Policy Centre PNG budget papers database: <https://devpolicy.crawford.anu.edu.au/png-project/png-budget-database> (accessed on 7 July 2020).
- 67 PNG Budget Information Database—2020 Budget.
- 68 Eric Piet, 'Informal Sector Biggest Income Generator: Dept,' *The National*, 13 February 2019: <https://www.thenational.com.pg/informal-sector-biggest-income-generator-dept/> (accessed 7 July 2020).
- 69 Goretz Kenneth, 'Global Audit Reveals Informal Economy Worth K12 Billion,' *PNG Post Courier*, 12 February 2019: <https://postcourier.com.pg/global-audit-reveals-informal-economy-worth-k12-billion/> (accessed 7 July 2020).
- 70 'Invest More in Agriculture,' *The National*, 21 April 2020: <https://www.thenational.com.pg/invest-more-in-agriculture-2/> (accessed 7 July 2020).
- 71 See L.T. Jones & P.A. McGavin, *Grappling Afresh with Labour Resource Challenges in Papua New Guinea: A Framework for Moving Forward* (Port Moresby: Institute of National Affairs, June 2015): 139.
- 72 Jones & McGavin, *Grappling Afresh with Labour Resource Challenges in Papua New Guinea*, 139.
- 73 'The "sleeping giant" at the heart of PNG's economy,' *Oxford Business Group*, 2 October 2019: <https://oxfordbusinessgroup.com/news/'sleeping-giant'-heart-png's-economy> (accessed on 18 August 2020).
- 74 In 2020, the adult population of PNG was approximately 5.1 million people, suggesting an adult population in 2018 of around 4.9 million people. 'Papua New Guinea Population 2020,' *World Population Review*: <https://worldpopulationreview.com/countries/papua-new-guinea-population> (accessed on 18 August 2020).
- 75 'Table 9.7: Employment Classified by Industry, Employment Classified by Region,' QEB Statistical Tables, *Bank of PNG Website*: <https://www.bankpng.gov.pg/statistics/quarterly-economic-bulletin-statistical-tables/> (accessed on 19 August 2020).
- 76 Australia's resources boom has seen the sector's contribution to GDP, growing from 5.0 per cent in 2005 to 8.2 per cent in 2017. The Australian Reserve Bank estimates that the boom saw Australian household incomes rise by an average of 13 per cent. See 'The Australian Resources Sector—Significance and Opportunities,' *The Australian Government Department of Industry, Science, Energy and Resources Website*: <https://www.industry.gov.au/data-and-publications/australias-national-resources-statement/the-australian-resources-sector-significance-and-opportunities> (accessed 7 July 2020).
- 77 IBRD, *Papua New Guinea: Policies and Prospects for Sustained and Broad-based Growth*, 15-17.
- 78 Satish Chand, 'Papua New Guinea: From Stabilisation to Growth?' *Pacific Economic Bulletin*, 11(2), 1996: 7.
- 79 'Biennial Review and Assessment of the World Timber Situation 2013-2014,' *International Tropical Timber Organization Website* http://www.itto.int/annual_review/ (accessed 2 May 2018).

- 80 These statistics are from calculations done by Paul Flanagan from 2018 on the basis of PNG Budget Papers data, shared privately with the author.
- 81 Papua New Guinea Extractive Industries Transparency Initiative: 2018 *Final Report*, November 2019: 26-27.
- 82 PNG EITI, 2017 *Final Report*, 121-122; PNG EITI, 2018 *Final Report*, 147.
- 83 Flanagan and Fletcher, *Double or Nothing*, 23-25.
- 84 Flanagan and Fletcher, *Double or Nothing*, 19-21.
- 85 PNG EITI, 2018 *Final Report*, 27.
- 86 Flanagan, 'The Distorting Effects of the Resources Sector on National Economies,' 47.
- 87 Jubilee Australia Research Centre, Submission to the Australian Parliamentary Inquiry on Corporate Tax Avoidance, April 2018: <https://www.jubileeaustralia.org/helpful-resources/submissions> (accessed on 9 August 2020).
- 88 Frederic Mousseau and Peiley Lau, *The Great Timber Heist: The Logging Industry in Papua New Guinea* (Oakland, CA, The Oakland Institute, 2015): 9.
- 89 Mousseau & Lau, *The Great Timber Heist*, 11-13.
- 90 Mousseau & Lau, *The Great Timber Heist*, 19.
- 91 Mousseau & Lau, *The Great Timber Heist*, 9-10.
- 92 Mousseau & Lau, *The Great Timber Heist*, 7-9, 15-18.
- 93 Satish Chand and Robert Stewart, 'Economic Reforms and Structural Change in Papua New Guinea: Progress, Performance and Prospects,' *Pacific Economic Bulletin* 12(1), 1997: 53-69.
- 94 Flanagan and Fletcher, *Double or Nothing*, 33-35.
- 95 Eric Tlozek, 'PNG Sells Oil Search Stake After Deal Leaves Government Massively Out of Pocket,' *ABC News*, 22 September 2017: <https://www.abc.net.au/news/2017-09-22/png-government-sells-stake-in-oil-search/8976648> (accessed 7 July 2020).
- 96 Rohan Fox, Stephen Howes, Nelson Atip Nema, Hoai Bao Ngeyen and Dek Joe Sum, '2018 PNG Economic Survey (draft),' 29 June 2018: 17. http://devpolicy.org/2018_economic_survey_final_draft_29June.pdf (accessed 5 May 2020).
- 97 Fox et al., '2018 Papua New Guinea Economic Survey (draft),' 17.
- 98 Fox et al., '2018 Papua New Guinea Economic Survey (draft),' 16.
- 99 Tom McIlroy, 'Australia to Loan PNG \$US300m to Counter Rising China,' *The Australian Financial Review*, 23 November 2019: <https://www.afr.com/policy/foreign-affairs/australia-to-loan-png-us300m-to-counter-rising-china-20191122-p53d7d>, (accessed 7 July 2020); Angus Grigg, 'PNG Staring at \$3 Billion Bailout from Australia, IMF, World Bank,' *The Australian Financial Review*, 2 April 2020: <https://www.afr.com/policy/foreign-affairs/png-staring-at-3b-bailout-from-australia-imf-world-bank-20200401-p54fy0> (accessed 7 July 2020).
- 100 Stephen Howes et al, '2019 Papua New Guinea Economic Survey,' *Asia Pacific Policy Studies* 6(3), 2019: 278.
- 101 David James, 'One Country, Two Economies: Papua New Guinea's Economic Paradox,' *Business Advantage PNG*, 6 November 2019: <https://www.businessadvantagepng.com/papua-new-guinea-economic-paradox/> (accessed 7 July 2020).
- 102 Joseph Ketan, *Political Governance and Service Delivery in Western Highlands Province, Papua New Guinea*, State Society & Governance in Melanesia Discussion Paper 9 (2013), Australian National University: 5.
- 103 Ketan, *Political Governance and Service Delivery in Western Highlands Province*, 3.
- 104 Bryan Kramer, 'K3 Billion a Year Lost in White Collar Fraud,' *PNG Attitude*, 13 November 2019: <https://www.pngattitude.com/2019/11/k3-billion-a-year-lost-in-white-collar-fraud.html> (accessed 24 February 2020).
- 105 Pius Bonji, 'PNG Loses Billions to Government Corruption,' *ABC News Online*, 29 August 2013: <https://www.abc.net.au/news/2013-08-27/an-png-billions-lost/4916656> (accessed 24 February 2020).
- 106 Joseph Ketan, 'The Use and Abuse of Electoral Development Funds and Their Impact on Electoral Politics and Governance in Papua New Guinea,' *CDI Policy Papers on Political Governance* (ANU, Centre for Democratic Institutions, 2007).
- 107 Glenn Banks, *Papua New Guinea Baseline Study*, International Institute for Environmental Developers and World Business Council for Sustainable Development, 2002: 44-45. Filer and Imbun, 'A Short History of Mineral Development Policies In Papua New Guinea,' 9-12, 17-18.
- 108 Glenn Banks, *Papua New Guinea Baseline Study*, 43-46.
- 109 Michael Main and Luke Fletcher, *On Shaky Ground: PNG LNG and the Consequences of Development Failure* (Sydney, Jubilee Australia Research Centre, 2018): 11-15.
- 110 Emma Gilberthorpe, 'Community Development in Ok Tedi, Papua New Guinea: the Role of Anthropology in the Extractive Industries,' *Community Development Journal* 48(3), July 2013: 477-478.
- 111 Paul R. Gilbert, 'The Development of Difference: Social change around the Ok Tedi Copper and Gold Mine, Papua New Guinea,' *Durham Anthropology Journal* 18(1), 2012: 61-114.
- 112 Forest Trends, *Logging, Legality and Livelihoods in Papua New Guinea: Synthesis of Official Assessments of the Large-Scale Logging Industry, Volume I* (Jakarta, 2006): 3-4, 44-48.
- 113 Forest Trends, *Logging, Legality and Livelihoods*, 47-48.
- 114 Oxfam Australia, *Banking on Shaky Ground: Australia's Big Four Banks and Land Grabs*, 2014: 20.
- 115 Greenpeace, *Preserving Paradise: The Value of Protecting Papua New Guinea's Forests for Climate*, (Amsterdam, Greenpeace International, 2008): 21.
- 116 Andrew Lattas, 'Logging, Violence and Pleasure: Neoliberalism, Civil Society and Corporate Governance in West New Britain,' *Oceania* 81(1), 2011, 90.
- 117 Greenpeace, *Preserving Paradise*, 21.
- 118 Mousseau, *On Our Land*, 21.
- 119 Frederic Mousseau (ed), *Taking on the Logging Pirates: Land Defenders in Papua New Guinea Speak Out!* (Oakland, CA, The Oakland Institute, 2017): 11-12, 15-16.
- 120 Banks, *Papua New Guinea Baseline Study*, 43-46. Filer and Imbun, 'A Short History of Mineral Development Policies In Papua New Guinea,' 9-12, 17-18.
- 121 Human Rights Watch, *Gold's Costly Dividend: Human Rights Impacts of Papua New Guinea's Porgera Gold Mine*, 2011: 5.
- 122 Mann and Fletcher, *On Shaky Ground*, 16-19.
- 123 'Governor Undialu Fires Parting Broadside,' *Post Courier*, 14 May 2019: <https://postcourier.com.pg/governor-undialu-fires-parting-broadside/> (accessed on 20 January 2020). Other observers have been more positive, arguing that health and education facilities improve dramatically for communities close to large mines—although we would question whether such improvement extends for beyond the particular communities where the mines are located. See Glenn Banks, *Baseline Report*, 47-48.
- 124 Forest Trends, *Logging, Legality and Livelihoods in Papua New Guinea*, 48-49.
- 125 Tuomas Tammasito, 'Strengthening the State: Logging and Neoliberal Politics in East New Britain, Papua New Guinea,' *Suomen Antropologi* 35(1), 2010: 50; Ana Sipona, Pomio, East New Britain cited in Mousseau (ed), *Taking on the Logging Pirates*, 11-14.
- 126 Gabriel Molok, Turubu Eco-Forestry Development Program Inc, East Sepik cited in Mousseau (ed), *Taking on the Logging Pirates*, 11-14; Lattas, 'Logging Violence and Pleasure,' 89; Mousseau, *On Our Land*, 19-20.
- 127 Greenpeace, *Preserving Paradise*, 20.
- 128 See Banks, *Papua New Guinea Baseline Study*, 46-47; Glenn Banks, Dora Kuir-Ayuis, David Kombako and Bill Sagir, Conceptualising Mining Impacts, 'Livelihoods and Corporate Community Development in Melanesia,' *Community Development Journal* 48(3), July 2013: 489-490.
- 129 Forest Trends, *Logging, Legality and Livelihoods*, 53; Lattas, 'Logging, Violence and Pleasure,' 94.

- 130 Lattas, 'Logging, Violence and Pleasure,' 94.
- 131 Mousseau (ed), *Taking on the Logging Pirates*, 8-9.
- 132 Greenpeace, *Preserving Paradise*, 20.
- 133 Marta Miranda, Philip Burris, Jessie Froy Binging, Phil Shearman, Jose Olivier Briones, Antonia La Vina, Stephen Menard, *Mining in Critical Ecosystems: Mapping the Risks*, World Resources Institute, 2003.
- 134 Philip Hughes and Majorie Sullivan, 'Environmental Impact Assessment in Papua New Guinea: Lessons for the Wider Pacific Region,' *Pacific Viewpoint* 30(1), June 1989: 45.
- 135 Riverine or marine tailings disposal has been allowed for some small mines in Norway, England, Finland, France, Greece and Chile. See Gavin M. Mudd et al., 'Mining in Papua New Guinea: A Complex Story of Trends, Impacts and Governance,' *Science of the Total Environment* 741, 2020: 16.
- 136 Hughes and Sullivan, 'Environmental Impact Assessment in Papua New Guinea,' 38.
- 137 Human Rights Law Centre, *After The Mine: Dealing with Rio Tinto's Deadly Legacy*, March 2020.
- 138 Filer & Imbun, 'A Short History of Mineral Development Policies in PNG,' 13, 18-19; Hughes and Sullivan, 'Environmental Impact Assessment in Papua New Guinea,' 38-39.
- 139 James Regan, 'Mine Closure Threatens Papua Economy Rescue Plans,' *Reuters*, 13 August 1999, <http://www.rainforestinfo.org.au/wrr42/ok%20tedi.htm> (accessed 2 February 2020).
- 140 International Maritime Organization (IMO), *International Assessment of Marine and Riverine Tailings Disposal of Mine Tailings*, May 2013: 97.
- 141 Banks, 'Mining and the Environment in Melanesia,' 47-51.
- 142 International Maritime Organization (IMO), *International Assessment of Marine and Riverine Tailings*, 92-96.
- 143 Columbia Law School Human Rights Clinic & AC4, Earth Institute, *Red Water: Mining and the Right to Water in Porgera, Papua New Guinea*, Papua New Guinea, (New York, Columbia University, 2019): 3-5; Human Rights Law Centre, *After the Mine*,: 2-3.
- 144 'PNG Mining Department to Discuss Tolukum Tailings System with Emperor', *Radio New Zealand*, 16 March 2007: <https://www.rnz.co.nz/international/pacific-news/168519/png-mining-department-to-discuss-tolukuma-tailings-system-with-emperor> (accessed 2 February 2020).
- 145 Mudd et al., 'Mining in Papua New Guinea,' 7.
- 146 'PNG's Basamuk Bay Facing Environmental Contamination From Mine Waste,' *Pacific Mining Watch*: https://mine.onepng.com/2019/08/pngs-basamuk-bay-facing-environmental.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+PacificMiningWatch+%28Pacific+Mining+Watch%29 (accessed 7 July 2020).
- 147 'Madang Sues Ramu Nico For K18b,' *Post-Courier*, 6 February 2020. For more on marine tailings disposal at Ramu-Nico and Lihir mines see Mudd et al., 'Mining in Papua New Guinea,' 8-10.
- 148 These figures are drawn from the data in the tables in Bryan and Sherman, *The State of Forests of Papua New Guinea* 2002, 13; Sherman et.al., *The State of Forests of Papua New Guinea* 2014, 16. Some experts have claimed that the UPNG report overestimated the extent to which land clearing for shifting cultivation will lead to permanent deforestation. See Colin Filer et. al., 'Deforestation and Forest Degradation in Papua New Guinea,' *Annals of Forest Science* 66, 2009: 813.
- 149 *Papua New Guinea's REDD+ Forest Reference Level: Modified Submission for UNFCCC Technical Assessment*, Government of Papua New Guinea, 2017: 24-26
- 150 'Forest Authority Abusing the Law to Defeat the 1991 Reforms,' *PNGi*, 11 February 2020: <https://pngicentral.org/reports/forest-authority-abusing-the-law-to-defeat-1991-reforms> (accessed 4 August 2020).
- 151 Greenpeace, *Preserving Paradise*, 10-11, 18-19.
- 152 Rodney J. Kennan, Cris L. Brack, Martin Golman and Jerome K. Vanclay, 'A Simple Planning System for Sustainable Timber Harvesting in Papua New Guinea,' in *Native forest management in Papua New Guinea: Advances in Assessment, Modelling and Decision-making*, J.C. Fox, R.J. Keenan, S. Saulei (eds), ACIAR Proceedings 135, 8 November 2011: 176-184.
- 153 Bryan and Sherman, *The State of Forests of PNG* 2014, 30.
- 154 Greenpeace, *Preserving Paradise*, 19-20.
- 155 Mousseau (ed), *Taking on the Logging Pirates*, 15-17.
- 156 John C. Cannon, 'Deforestation for Potential Rubber Plantation Raises Concerns in Papua New Guinea,' *Mongabay*, 19 December 2019: <https://news.mongabay.com/2019/12/deforestation-for-potential-rubber-plantation-raises-concerns-in-png/> (accessed 4 August 2020).
- 157 Sherman et. al., *The State of Forests of Papua New Guinea* 2002, 16.
- 158 On the carbon value of PNG's forests, see Greenpeace, *Preserving Paradise*, 7-13.
- 159 ACT NOW, *A Critique of Incorporated Land Groups in Papua New Guinea*, (Port Moresby, 2019): 5-8; Colin Filer, *Two Steps Forward, Two Steps Back: The Mobilisation of Customary Land in Papua New Guinea*, Discussion Paper 86, Development Policy Centre, Crawford School of Public Policy, 2019: 2-10.
- 160 ACT NOW, *A Critique of Incorporated Land*, 5-8; Colin Filer, 'Two Steps Forward, Two Steps Back: the mobilisation of customary land in Papua New Guinea,' *ANU Development Policy Centre Discussion Paper* 86, 2019: 75-84.
- 161 ACT NOW, *A Critique of Incorporated Land Groups*, 11.
- 162 Glenn Banks, *Papua New Guinea Baseline Study*, 44-45; Filer and Imbun, 'A Short History of Mineral Development Policies In Papua New Guinea,' 12.
- 163 Luke Fletcher and Adele Webb, *Pipe Dreams: The PNG LNG Project and the Future Hopes of a Nation* (Sydney, Jubilee Australia Research Centre, 2012): 30-32.
- 164 Main and Fletcher, *On Shaky Ground*, 11-15; 'Supreme Court Condemns PNG LNG As One of Many "Large Scale Frauds",' *PNG Mine Watch*, 29 November 2017: <https://ramumine.wordpress.com/2017/11/29/supreme-court-condemns-png-lng-as-one-of-many-large-scale-frauds/> (accessed 2 March 2020).
- 165 Forest Trends, *Logging, Legality and Livelihoods in Papua New Guinea*, 17-18.
- 166 Lattas, 'Logging, Violence and Pleasure,' 89-92.
- 167 Paul Winn, *Up For Grabs: Millions of Hectares of Customary Land in PNG Stolen for Logging* (Greenpeace Australia Pacific, August 2018): 26-27.
- 168 Ronnie Hall, *The SABL Land Grab: Papua New Guinea's Ongoing Human Rights Scandal*, (ACT NOW and War on Want, 2018): 10-11.
- 169 See Winn, *Up For Grabs*; Mousseau (ed), *Taking on the Logging Pirates*; Oxfam Australia, *Banking on Shaky Ground*, 18-19.
- 170 Cannon, 'Deforestation for Potential Rubber Plantation.'
- 171 Human Rights Watch, *Gold's Costly Dividend*, 9.
- 172 Terence Wesley-Smith and Eugene Ogan, 'Copper, Class and Crisis: Changing Relations of Production in Bougainville,' *The Contemporary Pacific* 4(2), Fall 1992: 259-61.
- 173 Lasslett's work is so compelling because it builds on interviews with former BCL employees. See Kristian Lasslett, *State Crime on the Margins of Empire: Rio Tinto, The War on Bougainville and Resistance to Mining* (Pluto Press, London, 2014): 73-103; See also Human Rights Law Centre, *December Nowhere To Turn: Addressing Australian Corporate Abuses Overseas*, 2018: 23-25.
- 174 Luke Fletcher and Emmanuel Peni, *The River Is Not Ours: The Frieda River Mine and the Threat to the Sepik* (Sydney, Jubilee Australia Research Centre and Project Sepik, 2019): 18-19.
- 175 Forest Trends, *Logging, Legality and Livelihoods*, 54-57.
- 176 Mousseau, *On Our Land*, 16.
- 177 Eco-Forestry Forum, *Investigation of Police Brutality—West Pomio, ENBP*, 19 February 2013.
- 178 Lattas, 'Logging, Violence and Pleasure,' 92-97.

- 179 For data cited in the above paragraph see Bourke and Harwood, *Food and Agriculture in Papua New Guinea*, 1, 6, & 130-131. See also Jim Fingleton, 'Is Papua New Guinea Viable Without Customary Land Groups,' *Pacific Economic Bulletin* 19(2), 2004: 100.
- 180 Tim Anderson, *Land and Livelihoods in Papua New Guinea* (North Melbourne, Australian Scholarly Publishing, 2015): 56-58.
- 181 Anderson, *Land and Livelihoods in Papua New Guinea*, 49-56.
- 182 Matthew Allen, R. Michael Bourke and Andre McGregor, 'Part 5: Cash Income from Agriculture,' in Bourke and Harwood, *Food and Agriculture in Papua New Guinea*, 297, 303.
- 183 Anderson, *Land and Livelihoods in Papua New Guinea*, 43.
- 184 Bourke and Harwood, *Food and Agriculture in Papua New Guinea*, 3.
- 185 Anderson, *Land and Livelihoods in Papua New Guinea*, 114-128.
- 186 Anderson, *Land and Livelihoods in Papua New Guinea*, 8-9.
- 187 Anderson, *Land and Livelihoods in Papua New Guinea*, 43, 82-113. Bourke and Harwood, *Food and Agriculture in Papua New Guinea*, (at 331-339) is more sanguine about the growth and harvesting of oil palm, which is unfortunate given the problems raised in this report.
- 188 Bryant Allen, 'Agricultural Development, Policies and Governance,' in Bourke and Harwood, *Food and Agriculture in Papua New Guinea*, 439-440, 445.
- 189 Allen, 'Agricultural Development, Policies and Governance,' 453.
- 190 Allen, 'Agricultural Development, Policies and Governance,' 453.
- 191 Stephen Howes interview in 'The Economic Hurdles Facing the PNG Government,' *Radio New Zealand*, 31 January 2020, <https://www.rnz.co.nz/international/programmes/datalinepacific/audio/2018732078/the-economic-hurdles-confronting-the-png-government> (accessed 14 February 2020).
- 192 Ron Duncan, 'Land Reform in Papua New Guinea: Securing Individual Property Rights to Customary-owned Land,' *Policy*, 34(1), Autumn 2018: 19
- 193 Colin Filer with John Numapo, 'The Political Ramifications of Papua New Guinea's Commission of Inquiry,' in S. McDonnell, M.G. Allen and C. Filer (eds), *Kastom, Property and Ideology: Land Transformations in Melanesia* (ANU Press, Canberra, 2017): 255.
- 194 Satish Chand and Charles Yala, 'Institutions for Improving Access to Land for Settler Housing: Evidence from Papua New Guinea,' *Land Use Policy* 29, 2012: 143-153.
- 195 Jim Fingleton, for example, has written that an orderly adjustment of customary rights in urban areas (rather than wholesale reform) would be adequate to address the problem of squatter settlements: Jim Fingleton, 'Rethinking the Need for Land Reform,' *Pacific Economic Bulletin* 22(1), March 2007: 119. Others argue simply that there is adequate provision in the *Lands Act* for the State to issue fixed terms leases for businesses or housing developments; these can then be used for collateral for bank loans and all this can be done without disturbing the customary land regime.
- 196 Frederic Mousseau, *The Highest Bidder Takes it All: The World Bank's Scheme to Privatize the Commons*, (Oakland, CA, Oakland Institute, 2019): 1-18.
- 197 R. Michael Bourke and Bryant Allan, 'Introduction' in Bourke and Harwood, *Food and Agriculture in Papua New Guinea*, 6.
- 198 Klaus Deninger, 'The World Bank's Land and Poverty conference: 20 Years On,' *World Bank Blogs*, 21 March 2019: <https://blogs.worldbank.org/developmenttalk/world-bank-s-land-and-poverty-conference-20-years> (accessed 26 May 2020). For a response from Frederic Mousseau on The Oakland Institute Website, see <https://www.oaklandinstitute.org/blog/response-klaus-deininger-world-bank-land-poverty-conference>.
- 199 Kaiku, *National Development Plans in PNG*, 12.
- 200 An article in *The National* estimated government investment in agriculture at K200 million: 'Invest More in Agriculture,' *The National*, 21 April 2020, <https://www.thenational.com.pg/invest-more-in-agriculture-2/> (accessed 4 August 2020). We are not sure how they arrived at this figure. Our calculations from the 2019 budget papers suggest that it might have been be as low as K103 million in 2017 (by totalling contributions to the various agriculture-related government departments). This is less than half a per cent of total spending (K24.27 billion). However, our estimate could be low, as it does not include spending on agriculture by provincial governments. See Department of Treasury, *National Budget 2019: Volume 2A* (Port Moresby, Government of Papua New Guinea, 2019), 2-3.
- 201 Bryant Allen, 'Agricultural Development, Policies and Governance,' in Bourke and Harwood, *Food and Agriculture in Papua New Guinea*, 477-483.
- 202 Mousseau, *On Our Land*, 18.
- 203 Allen, 'Agricultural Development, Policies and Governance,' 445, 443.
- 204 Bryant Allen, 'Agricultural Development, Policies and Governance,' in Bourke and Harwood, *Food and Agriculture in Papua New Guinea*, 438-39;
- 205 Flanagan, 'The Distorting Effect of the Resource Sector in National Economies,' 48-50; Stephen Howes interview in 'The Economic Hurdles Facing the PNG Government,' 31.
- 206 Michael L. Ross, 'What Have We Learned About the Resource Curse?' *Annual Review of Political Science* 18, 2015: 239-59.
- 207 ACT NOW, *A Critique of Incorporated Land Groups in Papua New Guinea*, 16.
- 208 Mudd et al., 'Mining in Papua New Guinea,' 13-14.
- 209 ACT NOW, *Policy Proposals for Open and Accountable Government: A Comprehensive Plan to Improve Governance and Public Oversight*, (Port Moresby, 2017): 14-15.
- 210 ACT NOW, *Policy Proposals for Open and Accountable Government*, 11-12.
- 211 ACT NOW, *Policy Proposals for Open and Accountable Government*, 13-14.
- 212 This imbalanced bargaining position is not manifest everywhere: for example, the government of Norway in the 1970s was able to extract valuable concessions from oil companies, which has been to the general benefit of the people of Norway for generations afterwards. The successful outcome came because the country was strong and confident enough to continue its path without the oilfields. The government had the know-how to maintain an upper hand in negotiations and was psychologically prepared to walk away: it was thus only prepared to exploit these resources on its own terms. This scenario does not currently describe the situation in PNG.
- 213 'Can Papua New Guinea Maintain Food Security During the COVID-19 Pandemic?' *Oxford Business Group*, 3 April 2020: <https://oxfordbusinessgroup.com/news/can-papua-new-guinea-maintain-food-security-during-covid-19-pandemic> (accessed 7 July 2020).
- 214 For a discussion of the Kina's overvaluation, see Howes, et al., '2019 Papua New Guinea Economic Survey,' 276.
- 215 Jeremy Hance, 'Gabon Bans Log Exports,' *Mongabay*, 7 June 2010: <https://news.mongabay.com/2010/06/gabon-bans-log-exports/> (accessed 8 July 2020).
- 216 Forest Legality Initiative, 'Logging and Export Bans,' <https://forestlegality.org/content/logging-and-export-bans> (accessed 8 July 2020).
- 217 Peter Edwin, 'Properties of PNG Timbers: Investigation of Processing Characteristics of Hardwood Timbers from Secondary Forest in Papua New Guinea,' in Australian Centre for International Agricultural Research (ACIAR) and The University of Melbourne, *Increasing Downstream Value Adding in PNG's Forest and Wood Products Industry* (Melbourne, 2006): 37.
- 218 Just to cite one example, former Forest Minister Douglas Tomuriesa publicly discussed in June 2019 the practicalities and challenges of implementing the round log exports ban: Isaac Nicholas, 'Round Log Ban to Cost K400m: MP', *Papua New Guinea Post-Courier*, 13 June 2019: <https://postcourier.com.pg/round-log-ban-cost-k400m-mp/> (accessed 8 July 2020).
- 219 Department of National Planning and Monitoring, *PNG Medium Term Development Plan 2011-2015, Building the Foundations for Prosperity*, (Port Moresby, Government of Papua New Guinea, 2010).
- 220 Edwin, 'Properties of PNG Timbers,' 40.
- 221 Kaiku, *National Development Plans in PNG*, 9-13.
- 222 Kaiku, *National Development Plans in PNG*, 9-13.

223 Kaiku, *National Development Plans in PNG*, 13-15.

224 World Bank Group, *Country Partnership Framework 2019-2023*, 10

225 Ben Packham, 'PNG Prime Minister James Marape Says Farming, Not

Mining, the Future', *The Australian*, 25 July 2019.

226 Gary Juffa, quoted in *Bougainville: Long Han Blong Yumi (Bougainville: It's In Our Hands)*, short film by Jubilee Australia Research Centre, September 2018: <https://www.jubileeaustralia.org/helpful-resources/films>

