

'Papua New Guinean Ways': hybrid livelihoods and human development

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Abstract:

Policy complexity sometimes masks consistent and enduring concerns. What really are the key developmental priorities for a country with tremendous wealth in natural resources, yet a substantial history of resource mismanagement? Similarly, while any country's greatest resource is its people, in PNG there have been failures to invest in human development. We know that some countries with few resources (e.g. Japan, Singapore and Cuba) have successfully upgraded their productive capacities, by investing heavily in their people. What does the fact that PNG has fared relatively poorly in human development terms, despite record levels of exports and economic growth, tell us about necessary priorities? The country's commitment to human development, sustainable resource management and basic livelihoods deserves careful attention.

This paper surveys PNG's major challenges in human development, since independence, and contrasts the 'extractivist' focus with recent evidence on productive rural 'hybrid livelihoods'. Economic returns for those families who intelligently combine informal markets, garden production, small business and flexible export crops, far outstrip most of the formal sector options. Successful hybrid livelihoods based on family land are almost unique to PNG, due to its egalitarian kinship and land traditions. Building on such livelihoods, with their basis in the resilience of customary tenure and law, while using revenue from mineral wealth to extend public health and education, would represent a unique 'Papua New Guinean Way' in development. Such a prosperous, sustainable and participatory path, is precisely what was suggested by the Constitution's National Goals and Directive Principles.

Keywords: Papua New Guinea, human development, development strategy, hybrid livelihoods.

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Traditional cultures survive because they adapt and change. However those that borrow the worst of others and fail to protect their own strengths can face serious problems. We see elements of this in Papua New Guinea's current strategy and practice. Customary land management and sustainable rural livelihoods, great and unique strengths of the PNG economy, are being undermined by extractive and financial pipe-dreams, in parallel with a failure to invest in the real wealth of the nation, the Papua New Guinean people. Despite great success in conventional economic terms, progress in education and health is very poor. The results and lack of perspective are apparent. PNG has gone backwards in human development rankings over the past 20 years.

It was not always this way. The Constitution at independence made commitments to 'Papua New Guinean Ways' and Human Development, a decade before the UNDP's Human Development project. Customary land management was recognised and protected in law, while those who framed the Constitution cautioned of 'the darkness of neon lights ... [while warning of] true social security and man's happiness being diminished in the name of economic progress' (PNGCPCR 1974: Art 116). What remains of that vision, today?

Almost uniquely, Papua New Guinea did not have its land tenure system dismantled by the colonial powers. In a country with rich soil, tremendous natural and cultural resources, with little feudal legacy and no large landowning families, PNG probably has the most equal distribution of land on earth. That provides a basis for very broad access to basic food and shelter, as well as identity and social security. Highly productive garden crops and local markets ensure that rural Papua New Guineans are relatively insulated from the impact of uncertain supply and the global food price volatility which has shaken many other countries. On the other hand, communities have little access to health services and schools, and most have poor roads. Most children have not been able to complete school, nor can they access adequate health care. With billions of dollars in gas and mineral revenues in recent years, the PNG Government does not lack resources. Yet it has not yet committed seriously to investment in its own people.

This paper reviews PNG's major challenges in human development, contrasting the 'extractivist' focus (and its associated neglect of human development) with recent evidence on productive rural 'hybrid livelihoods'. Economic returns for those families who intelligently combine informal markets, garden production, small business and flexible export crops, far outstrip most of the formal sector options. A redirection is possible.

Building on those rural livelihoods, while using revenue from mineral wealth to extend the key neglected sectors of health and education, would represent a unique 'Papua New Guinean Way' in development. Such a prosperous, sustainable and participatory path is precisely what was suggested by the Constitution's National Goals and Directive Principles. The current oil and gas boom will last perhaps one generation, but a powerful combination of rich hybrid livelihoods with strong network of public health and education, across the country, would far better guarantee PNG's capacity and future. Any serious study of PNG's development strategy would have to ask, why is that not happening now?

1. PNG's Failures in Human Development

There is no doubt that PNG has had great economic success in recent years, in narrow 'old school' terms. But human development progress has been very poor, and looks even worse given the enormous resources of the country. PNG's most recent Human Development Report makes this clear:

'In 2013, Papua New Guinea had a Human Development Index (HDI) of 0.491, placing the country in the low human development category, ranked 157 out of 187 nations ... If ranked by education and health components of the HDI measurements alone ... The country would be ranked 15 places lower ... Papua New Guinea will not meet any of the universal Millennium Development Goals (MDGs) by 2015, and even most of the nationally-adjusted goals are unlikely to be met' (UNDP 2014b: 3).

To give some further perspective, despite substantial food resources, child malnutrition (moderate or severe stunting) was at 43.6% (latest available data, about 2005), the 18th worst rate on earth. The proportion of the population with 'at least some' secondary education was extremely low: female 6.8% and male 14.1%, the 7th worst rate on earth in each category. Only four countries (Chad, Burkina Faso, Mozambique and Tanzania) were lower in both. The pupil teacher ratio was high at 36. There was only half a doctor per 10,000 people, the equal 11th lowest rate on earth (UNDP 2014a: Table 8). This rate is far worse in rural areas, where most people live and where there are virtually no doctors. PNG has gone steadily backwards in human development ranking over the past two decades (Table 1). There is no way to put a good face on this steady fall in relative human development (HD) ranking, despite PNG's tremendous natural resources and the country's extended mining boom.

Year	HDI ranking	Number of countries
1995	126	174
2000	133	174
2005	137	169
2010	137	169
2011	153	187
2014	157	187
Sources: UNDP Human Development Reports 2000-2014		

A large educational deficit accounts for much of the poor showing in HDI terms, as HDI comprises average GDP, life expectancy and two educational elements: adult literacy and school attendance. PNG Government agencies acknowledge the problem:

'PNG's adult literacy rate is regarded as one of the lowest in Asia and Pacific. This is the reason why PNG was identified by UNESCO as one of the 35 countries that required urgent attention to improve its adult literacy' (NLAS 2011)

According to the most recent UNDP report, sixteen countries in the 'low human development' group have better adult literacy than PNG (at 62%), seven of them with a lower HDI ranking than PNG (UNDP 2014a: 194). But the problem may be even worse. A report in 2011 put literacy in five provinces at much higher than the declared rate:

'More than 70% of respondents in all 5 provinces self-declared confidence in their ability to read and write in a national language. However, actual literacy rates in four of

the five provinces were less than 15%, while in New Ireland Province the literacy rate was 25%' (ASPBAE and PEAN 2011: vii).

That is, self-reported literacy was three to four times the actual tested rates. This is a consequence of government failure to invest in public education. When a large part of the population cannot read or write a range of development issues are affected: preventive health and hygiene, children's health and education, skill development and general capacity.

In 2012 the PNG Government did begin a long promised and welcome move to abolish school fees, up to year 10 (Walton and Swan 2014). School fees have been the major barrier to school entry, worldwide, as former UN rapporteur the late Katrina Tomasevski concluded in her landmark report (Tomasevski 2006). The 2011 study in five PNG provinces confirmed this: 'The most commonly cited reason for not attending or completing primary and secondary school was school fees' (ASPBAE and PEAN 2011). However PNG's 'free education' scheme has been commercialised and plagued with problems. First there is a long standing practice of charging 'project fees' as well as or in place of tuition fees. Second, the new Tuition-Fee-Free (TFF) policy system is substantially commercialised, with private operators keen to access the subsidies. Unsurprisingly, substantial amounts of money have gone missing. In mid-2015 Education Minister Nick Kuman admitted that at least K50 million was unaccounted for (Lahoc 2015: 1). Commercialised education schemes, such as in Chile, tend to lead to higher classes sizes and lower standards in education (Carnoy 2007).

The problems in education are mirrored by a crisis in health services. Health Minister Michael Malabag has acknowledged the country has a health crisis, linked to a shortage of health workers, especially doctors. At least three million people were said to have no access to a doctor. Training rates have been regressing. In 2015 there were only 17,000 health workers graduating from PNG's colleges every year, compared to 27,000 back in 2000 (Gerawa 2015: 1; Setepano 2015: 1). There have been Cuban offers of assistance in doctor training since 2006 (Anderson 2010), but no government in the last decade has followed up. Resistance has come from the PNG Doctors Association, citing various pretexts (RNZ 2009), but no doubt motivated (as in the dozens of other countries which have taken advantage of Cuban training) by jealousy at preserving their own status and conditions of work. Meanwhile, between 2003 and 2015 Timor Leste has graduated almost 1,000 doctors from the Cuban program (ECTL 2014), shooting past PNG in doctor to population ratios. So far no PNG Government has shown the political will to overcome the local doctors' resistance to a Cuban-backed public doctor training scheme.

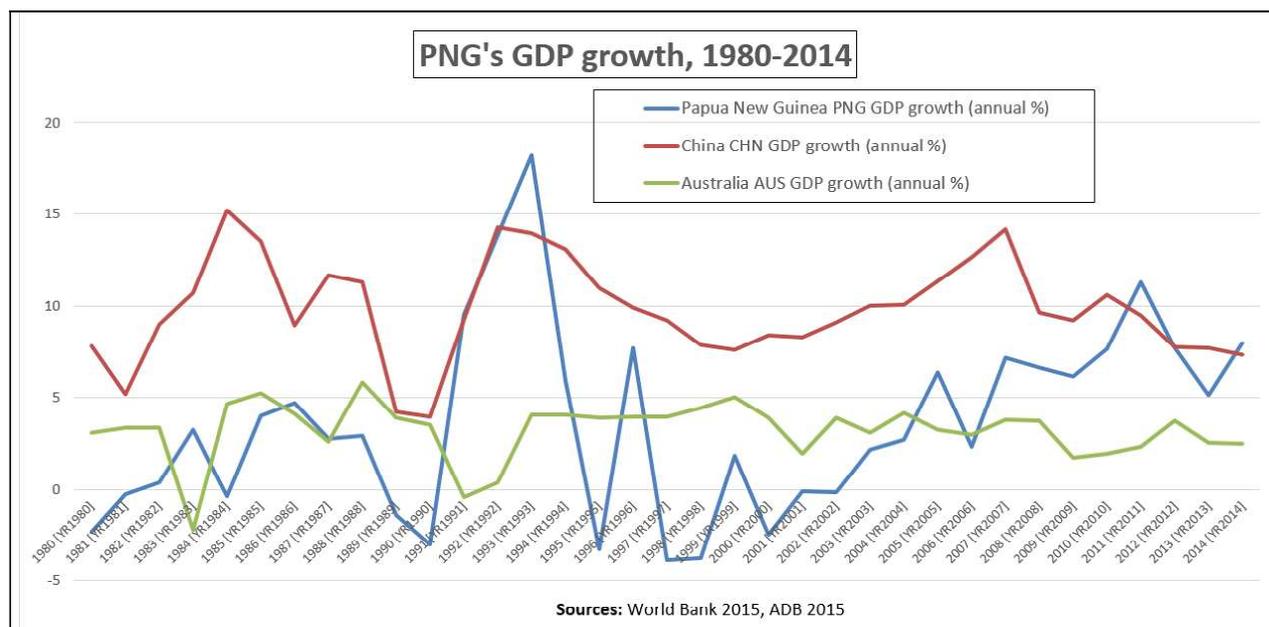
While the 'National Goals and Directive Principles' at independence gave strong priority to human development (PILI 2015), there seems little recognition of the poor human development trend in the 2009 document 'Papua New Guinean Vision 2050'. That document claims to set out the goals that will 'drive development initiatives over the next 40 years' (PNGGO 2009). In practice it describes a rather unfocused collection of 'focus areas' or 'pillars', followed by a series of expected 'key outcomes' and then several 'scenarios' which centre on GDP growth rates. A number of other objectives are mentioned but the main focus is on expanded GDP growth. There does not seem to be a strategic concern to preserve and build on the country's strengths while addressing its key weaknesses. Which strength? To defend and build on community based customary land tenure, the country's great asset for food security, social security and cultural maintenance. Which weaknesses? The failures in public health and education. Without such a focus, without recognition of the existing human development failures, there is really no chance of meeting Vision 2050's aim to lift PNG into 'the top 50 countries' of HDI ranking (PNGGO 2009: xiv-xv). For such an improvement a large and

sustained push in mass public education and health would be needed. That is just not happening.

In place of that the economic growth 'scenarios' rely on some general undefined measures, the natural gas (LNG) boom and a 'land reform' which would take land out of community hands and entrust it to foreign companies, for their monoculture industries. That is what we saw with the recent scandal over Special Agricultural Business Leases (Oakland Institute 2014). Is this this way PNG is said to 'become a smart, fair, wise, healthy and happy nation' (PNGGO 2009: xv)?

The focus on GDP as a panacea is a basic misunderstanding of economies in general, and of the core PNG economy in particular. The country's economy is not the sum of LNG projects, mining operations and oil palm exports. Rather, it is principally the means by which nearly eight million people gain their daily livelihoods, and in particular the 85% who engage in rural livelihoods. Due to the scale of subsistence and informal exchange, most of this economy is not counted in GDP measures. However we can independently measure important elements.

Graph 1: PNG's economic growth



PNG's GDP performance, one fraction of the country's economy, comprising the formal economies including export industries, is quite strong. Graph 1 shows that, after some GDP growth spikes in the 1980s and 1990s, PNG's GDP growth rates have climbed upwards, exceeding that of Australia for the last ten years and rivalling China in the last four years (World Bank 2015; ADB 2015). That should have provided the basis for strong investment in public health, education and infrastructure, taking the pressure off community land. It has not, due to financialised views that lie behind the country's human development failures.

Those in finance have a particularly narrow and distorted perspective on the real economy. A recent booklet by the Bank of the South Pacific (BSP) shows this, wrongly asserting:

‘agriculture (coffee, cocoa and copra) provides a subsistence livelihood for the bulk of the population ... the driving force behind commercial agriculture in Papua New Guinea has always been the export crops’ (BSP c.2010: 21).

Wrong on both counts. Most agricultural production in PNG is focused on vegetables, fruit and other fresh produce. Coffee, cocoa and copra have almost nothing to do with ‘subsistence’; very few people eat them, nor are they traded much locally. In commercial agriculture, for most PNG families, export crops come a distant second to domestic crops. In surveys of hundreds of sellers in domestic produce markets across four of PNG’s provinces I have only found a handful (less than 5%) who say their income from export crops is greater than that from the local markets. For most rural families the most lucrative cash crops are such things as peanut, betel nut, melons, taro and other fruits and vegetables.

Yet what matters most to banks is the formal economy and financialised agriculture. Those pushing to dismantle customary land systems in favour of logging and monocultures are mostly financial agencies, those with a strong interest in acquiring customary land and some groups of managers and consultants. For example ITS Global, a company contracted by PNG’s largest logging group, calls for an expansion of PNG’s wholesale log exports, on the basis that logging generates a substantial amount of export income. Landowners are said to receive ‘substantial’ royalties and there are said to be ‘significant benefits’ to local people from infrastructure spending (airstrips, roads, health centres), even though such works are admittedly ‘constructed primarily for the purposes of the project’ (ITS Global 2006: 39, 41). This report lacks any real comparison between incomes from community managed land and logged land.

Of the monocultures that are supposed to follow in the wake of wholesale logging the World Bank claimed (based on 2010 figures) that incomes for landowners who give over part of their land to oil palm are equivalent to 2,793 Kina per hectare per year, a figure greater than an estimated K1,136 for cocoa cultivation. On this basis the Bank wrongly claims that ‘oil palm currently provides small holders with higher returns on their land and labour than most other agricultural commodities’ (World Bank 2011: 2). Notice the assumptions: it is only export crops that matter, and multiple income (hybrid) livelihoods are not considered. The World Bank (effectively a foreign and private investors’ lobby, by Article One of its constitution) does no proper accounting of the range of rural domestic incomes. ITS Global seizes on the World Bank claim, calling for a removal of the ‘restraints’ on land availability for logging and oil palm (ITS Global 2010; ITS Global 2011).

In much the same vein three academics (two Papua New Guineans and an Australian) present a modelling exercise (using Australian techniques and Fijian land sale values) which purports to show a several billion dollar addition to PNG’s GDP by extending formal tenure over just another 2.5% of land, over a decade (Fairhead, Kauzi and Yala 2010: 13, 29). They suggest that only individuals who make exclusive business for themselves through clan or family land - specifically excluding the family and community - are the country’s ‘superior’ economic agents and ‘productive’ people. That claim is backed by reference to ‘the bankability of land’ (Fairhead, Kauzi and Yala 2010: 3), an idea that land is productive only when it becomes a financial and commercial asset.

There are a number of serious problems in the calculation methods of ITS, the World Bank and Fairhead, Kauzi and Yala, which I document in my book *Land and Livelihoods in Papua New Guinea* (Anderson 2015: 35-41). Most importantly, they ignore a series of studies which show the high value of Melanesian staple food production and the relatively high incomes in PNG’s informal sector, including domestic fresh produce markets (Sowei et al 2003; Bourke et al

2006; Anderson 2006; Anderson 2008). Better evidence comes from a more complete accounting of the value in rural livelihoods, which are the core of PNG's real economy.

2. Hybrid rural livelihoods, the core of PNG's economy

One of the most persistent myths in development is that people linked to traditional lifestyles must be in a process of 'moving from subsistence to the cash economy'. This expression comes from finance agencies (World Bank 1962), aid administrators (Downer 2006) and analysts with greater sensitivity to livelihoods (Falconer and Arnold 1988: 3). In fact, most Papua New Guinean families have engaged in cash economies for many decades, so as to purchase fuel, supplementary foods, clothing, and school and college fees. Yet this has not reduced their general reliance on family gardens for basic food, housing, natural medicines and many other needs. Subsistence production and cash economies in reality combine to form part of PNG's more complex 'hybrid livelihoods'. In the more successful versions we see families growing food in their own gardens, selling crops in local markets, growing some export crops for sale, running small businesses (like chicken raising, transport and small stores) and occasionally having some family members in formal employment. The breadth and richness of this multi-component hybrid livelihood is underwritten by family-owned customary land.

Rural families engage in several forms of income earning activities, but some activities have greater 'opportunity costs' (i.e. excluding more valuable alternative options) than others. Table 2 shows a range of cash income options (or income equivalent, in the case of subsistence consumption), based on fairly recent PNG experience. The data has been compiled from a range of sources which are documented in my book (Anderson 2015).

Table 2: Formal and informal sector incomes in Rural PNG	
	AWE (Kina)
Formal sector incomes –	
Ramu Sugar basic wage, 2006 (Madang Pr, 2007)	42
RD Tuna factory wage, 2006 (Madang Pr., 2007)	34
Ramu Nickel construction wage, 2006 (Madang Pr, 2007)	50
VOP/LSS (oil palm) growers (Oro Pr., 2002 / 2009)	60 / 107
Mama Lus Frut (oil palm) income (WNB, 2000 / 2006)	29 / 49
Chicken factory workers (Morobe Pr.,2011)	102
Private store workers, Kokopo (ENB, 2011)	45
Papindo store workers, Kokopo (ENB, 2011)	100
National minimum wage, (2006 / 2011)	37.20 / 91.60
Leasing family land to OP company (per ha, K20-100/year)	2
Informal sector incomes –	
Family subsistence production (7 people, <i>Kina equivalent</i>)	[258]
Informal sector business (Central Pr.)	158
Informal sector business 2003 (ENB Pr.)	124
Informal sector business 2003 (Morobe Pr.)	130
Informal sector business 2003 (Western Highlands Pr.)	138
Roadside sellers (mainly women), 2006 (Madang Pr) [weighted]	286 [138]
Roadside sellers (mainly women), 2011 (Morobe Pr) [wtd]	285 [144]
Roadside sellers (mainly women), 2011 (Eastern Highlands) [wtd]	230 [230]
Roadside sellers (mainly women), 2011 (East New Britain) [wtd]	198 [144]
Sources: see Anderson 2015: 42; Note: AWE = average weekly earnings in Kina	

			employed				
Morobe	24 (48%)	18 (36%)	9 (18%)	37 (74%)	7 (14%)	4 (8%)	2 (4%)
EHP	34 (62%)	9 (16%)	8 (15%)	40 (73%)	9 (16%)	1 (2%)	1 (2%)
ENB	41 (73%)	7 (13%)	27 (48%)	41 (73%)	6 (11%)	7 (13%)	0 (0%)
[Madang]	36 (82%)	27 (61%)	5 (11%)	33 (75%)	10 (23%)	0 (0%)	1 (2%)
Sources: rural surveys by this writer in 2004, 2007 and 2011, see Anderson 2015							

Overall, the evidence makes it plain that neither rural rents nor engagement with formal economies in rural PNG provide either the range of options or the income earning potential of the various components of hybrid livelihoods. In these hybrids, families retain their customary land and subsistence production while engaging in various supplementary informal and formal sector activities.

We can conceptualise hybrid livelihoods as including three elements: production for non-monetised family consumption and cultural exchange; production for cash crop marketing, in both domestic and export markets; and other (often non-farm) informal and formal sector activity. Each element makes a valuable contribution and each also has its own vulnerabilities, in particular to displacement or erosion by shifts in land tenure and patterns of agriculture. If traditional lands are eroded, leased or otherwise taken away, garden production will be restricted.

Production for family consumption can produce a value equivalent of between 10,000 and 19,000 Kina per family per year in regional PNG (2007-2011 data) and thus forms the foundation of rural hybrid livelihoods, across all manner of family engagement in other activities. Those monetary figures are the amount the family would have to spend in local markets to purchase equivalent garden food and build basic housing if they lost their land. The richness of PNG's subsistence sector will certainly be undermined by displacement of traditional land tenure.

Second, there is the marketing of produce from family gardens, which can range from a simple surplus in production (e.g. staple foods such as sweet potato) to market specific produce (e.g. peanut, cucumber, melons); in other words, items grown specifically for market sale. The latter seem to generate most income. Cash income from fruit and vegetable marketing can be as low as a few hundred Kina per year to many thousands of Kina per year. Cash crop production is also vulnerable to land loss and competition with encroaching monocultures. Of course, fresh produce sales could be enhanced by the improvement of rural roads and access to markets.

Third, there is family engagement in various informal and formal sector activities, often not related to family gardens. This can include small stores, transport services and other full or part time work in the formal sector. Informal sector surveys across four provinces found incomes at between 120-150 Kina per week (Sowei et al 2003), or 6,000 to 7,500 Kina per year – three times the nation's minimum wage, at that time. Incomes in the formal sector vary considerably, but much basic unskilled work in regional areas is paid at, or only slightly higher than, the minimum wage; in 2011 this was 92 Kina per week, or 4,800 per year (Anderson 2011). While professional and skilled employment pays more, some of these people also remain engaged in subsistence and cash crop work. For example, after work hours some of the office workers in Kokopo (East New Britain) go to the town market to sell produce. Despite some better options in highly skilled work, customary land owners seem to face generally poor options in the rural formal sector.

In my book I have described an 'education effect' and 'adaptive responses', factors which have significantly improved family and community livelihood options. Those interested might like to read about this, along with some examples of village cooperation leading to better rural livelihoods (Anderson 2015: 59-61, 114-128). But there is no real evidence to suggest that leasing customary land or engaging in small holder oil palm operations presents any superior economic future, even in cash terms. Oil palm, while lucrative for the monopoly companies, does not pay small holders well and is an inflexible crop with significant environmental problems. I reiterate my earlier point: the various components of rural livelihoods form the backbone of the PNG economy, because they provides the means of survival, reproduction and cultural life for the majority of the country's people. However these components are not well reflected in PNG's GDP, because subsistence production, informal exchange and the social security provided by customary systems is either not counted well or not counted at all. That is why PNG's GDP growth cannot be a useful measure of social welfare.

3. Rural livelihoods, public health and education

PNG needs a new strategic focus on rural livelihoods, public health and education, restoring the priorities given to human development and 'Papua New Guinean Ways' in the Constitution's 'National Goals and Directive Principles'. The more recent document 'Vision 2050' does not do it, failing to identify the country's strengths and weaknesses and lacking a strategy to address the critical failures in human development.

Those failures are linked to financial arguments which obscure the real PNG economy. The country's huge informal sector, including subsistence production and domestic exchange, have not been properly counted. Many official accounts maintain a distorted obsession with exports and mask the damage done by these privileged sectors to rural livelihoods.

This paper has noted the country's human development failures but has also stressed the great potential in hybrid rural livelihoods. Those livelihoods, based on the almost unique national asset of customary land management, are a great strength which could be built upon, especially if combined with substantial and sustained investment in public health and education.

PNG has fallen into the trap of borrowing the worst of some other countries, like Australia, while ignoring its own strengths. Political emphases on 'private sector development' take place without the strong public sector development (in public schools, public hospitals, universal and free health access regimes and social security systems) countries like Australia. The damage is and will be worse. In PNG's case customary land has been the country's social security system, but that is being undermined by the financial agents and 'land grabbing'.

There is simply no substitute for substantial and sustained investment in public education (including teacher training and public schools) and public health (including rural health systems, doctor training and rural doctors). How on earth can PNG expect to reach the top 50 in human development ranking, with adult literacy rates lower than much of sub-Saharan Africa? A redirection is necessary.

Bibliography

- ADB (2015) Asian Development Outlook 2015, online: <http://www.adb.org/publications/asian-development-outlook-2015-financing-asias-future-growth>
- Anderson, Tim (2006) 'On the economic value of customary land in Papua New Guinea', *Pacific Economic Bulletin*, Volume 21 Number 1 (2006), pp. 138-152, online at: <http://peb.anu.edu.au/pdf/PEB21-1Anderson-focus.pdf>
- Anderson, Tim (2008) 'Women roadside sellers in Madang', *Pacific Economic Bulletin*, Vol 23, No 1, online: <http://peb.anu.edu.au/pdf/PEB23-1-Anderson.pdf>
- Anderson, T. (2010) 'Cuban Health Cooperation in Timor Leste and the South West Pacific. South-South Development Cooperation: A challenge to the aid system?', (pp. 77-86). Philippines: The Reality of Aid.
- Anderson, Tim (2011) 'Melanesian Land: The Impact of Markets and Modernisation', *Journal of Australian Political Economy*, No 68, pp.86-107
- Anderson, Tim (2015) *Land and Livelihoods in Papua New Guinea*, Australian Scholarly Publishing, Melbourne
- ASPBAE and PEAN (2011) 'PNG: Education Experience Survey and Literacy Assessment', A Report on 5 Provinces (New Ireland, NCD, Chimbu, Sandaun & Gulf Provinces), Asia South Pacific Association for basic and Adult Education and the PNG Education Advocacy Network, online: <http://www.aspbae.org/sites/default/files/pdf/PNG%20Education%20Experience%20Survey%20and%20Literacy%20Assessment.pdf>
- Bourke, RM; A. McGregor; MG Allen; BR Evans; BF Mullen; AA Pollard; M Wairu and S. Zotalis (2006) *Solomon Islands Smallholder Agriculture Study*, Volume 1: Main Findings and Recommendations, AusAID, Australian Government, Canberra, January
- BSP (c.2010) *Business: Welcome to Port Moresby*, Bank of the South Pacific, Port Moresby
- Carnoy, Martin (2007) *Cuba's Academic Advantage*, Stanford University Press, Palo Alto
- Danielsen F, Beukema H, Burgess ND, Parish F, Bruhl CA, Donald PF, Murdiyarso D, Phalan B, Reijnders L, Struebig M, Fitzherbert EB (2009) 'Biofuel plantations on forested lands: double jeopardy for biodiversity and climate', *Conservation Biology*, 23, pp.348–358
- Downer, Alexander (2006) 'from the Minister', Focus Magazine, Sept-Nov, Vol 21, No 3, online at: www.ausaid.gov.au/publications/focus/sep06/focus_sep06.doc
- ECTL (2014) 'Timor Leste to Boast 817 Doctors With Cuban Collaboration', Embajada de Cuba en Timor Leste, 16 April, online: <http://www.cubadiplomatica.cu/timorleste/EN/BilateralRelations/tabid/22836/ctl/Details/mid/34778/ItemID/27362/Default.aspx>
- Fairhead, Lindsay; Gae Kauzi and Charles Yala (2010) 'Land Reform in Papua New Guinea: quantifying the economic impacts', National Research Institute, Discussion Paper No 108, Port Moresby
- Falconer, Julia and J.E. Mike Arnold (1988) 'Social Forestry network: forests, trees and household food security', Network paper 7a, Winter, online at: <http://www.odi.org.uk/resources/download/5001.pdf>
- Gerawa, Maureen (2015) 'Doctors short: three million go without doctors', *Post Courier*, 25 May
- ITS Global (2006) 'The Economic Importance of the Forestry Industry to Papua New Guinea', International Trade Strategies Ltd, Report for the Rimbunan Hijau (PNG) Group, July, Melbourne, online at: <http://www.forestryanddevelopment.com/documents/pdf/fd-ITSGlobalEconomicreport.pdf>
- ITS Global (2010) 'A 'REDD+iness' Program for Papua New Guinea: a strategy to promote sustainability and growth', A Report for the PNG Forest Industries Association, November, online at: <http://www.itsglobal.net/sites/default/files/itsglobal/A%20REDDiness%20program%20for%20PNG%20%282010%29.pdf>
- ITS Global (2011) 'The Economic Benefits of Palm Oil in Papua New Guinea', International Trade Strategies Ltd, March, Melbourne, online at: <http://www.itsglobal.net/sites/default/files/itsglobal/The%20Economic%20Benefits%20of%20Palm%20Oil%20in%20PNG%20%282011%29.pdf>
- Lahoc, Gabriel (2015) 'Ghosts paid K50m', *The National*, 16 June

- NLAS (2011) 'Literacy in Papua New Guinea', National Literacy and Awareness Secretariat, online: http://www.education.gov.pg/NLAS/Literacy_in_PNG-NLAS.html
- Oakland Institute (2014) 'On Our Land', 30 June, online: <http://www.oaklandinstitute.org/papua-new-guinea-must-act-now-cancel-sabl-land-leases>
- PILI (2015) 'Constitution of the Independent State of Papua New Guinea', Pacific Islands Legal Information Institute, online: http://www.paclii.org/pg/legis/consol_act/cotisopng534/
- PNGCPCR (1974) 'Constitutional Planning Committee Report 1974', PNG Constitutional Planning Committee Report, PACLII, online: <http://www.paclii.org/pg/CPCReport/Cap2.htm>
- PNGGO (2009) 'PAPUA NEW GUINEA VISION 2050, National Strategic Plan Taskforce', Papua New Guinea Government, Independent State of Papua New Guinea, Port Moresby NCD
- RNZ (2009) 'PNG doctors say Cubans not answer to health care problems', Radio New Zealand, 29 April, online: <http://www.radionz.co.nz/international/pacific-news/183386/png-doctors-say-cubans-not-answer-to-health-care-problems>
- Setepano, Nellie (2015) 'Health crisis: Malabag: we are truly short of workers', *Post Courier*, 3 June
- Sowei, J.W., Lahari, W. and Vatnabar, M. (2003) 'Rural Informal Sector Survey Report', January, National Research Institute (Social and Environmental Studies Division), Port Moresby
- Tomasevski, Katarina (2006) 'The State of the Right to Education Worldwide, Free or Fee: 2006 Global Report', Copenhagen, online: www.katarinatomasevski.com/images/Global_Report.pdf
- UNDP (2014a) Human Development Report 2014, United Nations Development Programme, New York
- UNDP (2014b) From Wealth to Wellbeing: translating resource revenue into sustainable development, 2014 National Human Development Report: Papua New Guinea, United Nations Development Programme, Port Moresby
- Walton, Grant and Anthony Swan (2014) 'Fourth time's the charm: a brief history of 'free education' policies in PNG', DevPolicy Blog, 9 December, online: <http://devpolicy.org/fourth-times-the-charm-a-brief-history-of-free-education-policies-in-png-20141209/>
- Wilcove, David S. and Lian Pin Koh (2010) 'Addressing the threats to biodiversity from oil-palm agriculture', *Biodiversity and Conservation*, Vol 19 No 4, pp.999-1007, online at: <http://www.springerlink.com/content/x2ku107711p6u777/fulltext.pdf>
- World Bank (1962) 'Current Economic Position and Prospects of Swaziland', March 6, Report No. EA 132a, online at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2002/07/12/000178830_98101902071173/Rendered/PDF/multi0page.pdf
- World Bank (2010) 'Papua New Guinea Smallholder Agriculture Development Project', online at: <http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/0,,contentMDK:22608600~menuPK:64282138~pagePK:64614770~piPK:64614834~theSitePK:40941,00.html>
- World Bank (2011) 'Papua New Guinea: smallholder agriculture development project: frequently asked questions', online at: http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/PAPUA_NEWGUINEAEXTN/0,,contentMDK:22140271~menuPK:333773~pagePK:1497618~piPK:217854~theSitePK:333767,00.html
- World Bank (2015) Economic Data, Papua New Guinea, online: <http://data.worldbank.org/country/papua-new-guinea>