



Predatory corporations, failing governance, and the fate of forests in Papua New Guinea

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Keywords

Corruption; deforestation; forest management; logging; multinational corporations; REDD; tropical timber.

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Received

26 September 2010

Accepted

9 November 2010

Editor

Corey Bradshaw

doi: 10.1111/j.1755-263X.2010.00156.x

Abstract

Papua New Guinea (PNG) sustains some of the world's most biologically and culturally rich forests. Like many tropical nations, PNG is changing rapidly as it attempts to develop economically, but corporate misdealing and weak governance are undermining its capacity to do so sustainably. Overexploitation of forests is rampant, with most accessible forests likely to be logged or disappear in 1–2 decades. The timber industry has long been plagued by endemic corruption, with Rimbunan Hijau, a Malaysian corporation controlling much of the country's timber supplies, considered a chronic offender by many. Most timber is exported as raw logs, mainly to China, providing only limited income and employment for local communities. Because of corruption and weak enforcement capacity, proceeds from logging are often concentrated in the hands of political elites or the wealthy and logging operations often violate mandated standards. Moreover, traditional communal groups in PNG have recently been stripped of their legal rights to impede development projects that are deemed environmentally risky. Human welfare in the country has actually worsened, with mean incomes, adult literacy, and the Human Development Index all falling in recent years. We propose a slate of immediate measures to reduce environmental damage and the exhaustion of timber supplies while increasing societal benefits in PNG.

Introduction

The South Pacific nation of Papua New Guinea (PNG) (Figure 1) sustains some of the world's largest and most biologically and culturally unique forests (Wurm & Hattori 1983; Flannery 1995; Heads 2001, 2002). These forests are being rapidly exploited as PNG attempts to develop economically (Shearman *et al.* 2009), but corporate misdealing, limited institutional capacity, and weak governance are undermining the country's capacity to do so sustainably (Laurance *et al.* 2010). The resulting large-scale forest disruption could seriously harm PNG's

endemic biodiversity (Shearman & Bryan 2010) and erode a major terrestrial reservoir of carbon, while diminishing societal benefits and subsistence livelihoods. Yet all is not hopeless. Here we consider the future of PNG's forests while highlighting key challenges ahead for forest sustainability and governance.

One cannot understand PNG without appreciating its intriguing history. New Guinea's distinctive biota (Figure 2) has affinities both to tropical Australia, to which it was linked when sea levels fell during the Ice Ages, and to nearby Southeast Asia (Lidicker 1968; Diamond 1973; Flannery 1995). The product of a violent



Figure 1 Map of Papua New Guinea (PNG). The island of New Guinea, comprised by PNG and the Indonesian Provinces of Papua and West Papua, constitutes the world's third-largest contiguous area of tropical forest, after the Amazon and Congo basins.

collision between the Australian and Sunda Shelf tectonic plates, New Guinea today features towering mountain ranges, plunging valleys, and frequent earthquakes and volcanism. Its sharply dissected topography has helped spawn an extraordinary diversity of human cultures; over 850 languages are spoken in PNG, more than a third of all living languages on Earth (Wurm & Hattori 1983).

Remarkably, the myriad highland clans of New Guinea were unknown to European explorers until the 1930s. Today, the country seems to have one foot in the contemporary world and the other in the Bronze Age (Losche 2004). The last vestiges of headhunting died out just a generation ago (Lindenbaum 1980), and traditional farming and hunting lifestyles predominate in many villages. PNG's clans and communal groups, with long histories of territorial conflict, own or claim approximately 97% of the country's land area (Muroa 1998).

The territorial rights of PNG communal groups are protected by the country's national constitution. This has created a hurdle for logging, mining, and other resource-exploiting corporations operating in PNG, as permission from the traditional owners is required prior to any commercial exploitation (Muroa 1998; Fingleton 2004). Nonetheless, many villagers in PNG have willingly sold their timber rights, as this offered at least some income for school fees or health services (Novotny 2010), although this exchange has often been less than socially equitable. Stories abound of foreigners or cooperating government officials arriving with large quantities of cash to purchase timber rights from landowners, with such decisions often being made by a few village "big men" after being wined and dined in cities (e.g., EIA-Telapak 2005; Greenpeace 2005; ACF 2006; D. Melick, G. Weiblen, D. Warriner, *pers. comm.*).

Partly in response to such abuses, changes to forest-rights procedures were implemented in the 1990s. This required clans to form Incorporated Land Groups and transferred approval for large timber projects from the Minister for Forests to a National Forest Board, an independent body chaired by the Secretary of the Department of Environment and Conservation. The PNG Forest Authority, the government forest-management agency, is also heavily engaged in forest-rights procedures: it acts under legislation as an intermediary, obtaining timber rights from landowners, negotiating Forest Management Agreements with timber corporations, and distributing payments to landowners (Power 2008). In approving projects the National Forest Board may require corporations to fund community infrastructure such as roads or schools sought by forest owners. In a number of instances, however, disappointed clans have sued corporations for failing to build promised infrastructure or for causing excessive environmental damage (Hance 2010a).

Forest exploitation and governance

The forests of PNG are being altered at an alarming pace. Industrial selective logging is the biggest driver of forest alteration, followed by subsistence farming, forest fires, plantations, and mining (Filer *et al.* 2009; Shearman *et al.* 2009). Most (~83%) accessible rainforests are projected to be seriously impacted or disappear by the year 2021 (Shearman *et al.* 2009, 2010) or 2035 (Filer *et al.* 2009), depending on the assumptions made. The fate of logged forests varies: a higher proportion of logged forests is regenerating but substantial areas are subsequently cleared, burned, or converted into oil palm plantations (Shearman *et al.* 2009, 2010).

Like many tropical countries, PNG's timber industry is highly globalized: most of the country's forest resources are exploited by Malaysian timber companies, shipped as raw logs to Chinese wood-products manufacturers (Bun *et al.* 2004; PIPSO 2008), and then exported as furniture or other products around the world. The timber industry is dominated by a single multinational firm, Rimbunan Hijau, which is based in Sarawak, Malaysia. Rimbunan Hijau controls approximately 60% of PNG's timber industry (Bun *et al.* 2004) and owns many PNG businesses, including *The National*, one of only two national newspapers in the country.

PNG's forest industry suffers from endemic corruption. In 1989, a major judicial enquiry in PNG concluded that its logging industry was "out of control" (Barnett 1989). In the aftermath of the ensuing controversy, the PNG government invited the World Bank to implement



Figure 2 Examples of the biologically rich New Guinean biota (rainforest gecko, beetle, treefrog, butterfly © Rhett Butler; white cuscus © Darlyne A. Murawski; Raggiana bird of paradise © Ricardo Porven).

reform in the country's timber sector, as part of a large structural adjustment loan. By 1996, however, the World Bank, dissatisfied with the slow pace of reform, began withholding loan payments (Filer 2004). A new World Bank loan was subsequently initiated along with a temporary ban on new logging leases (Filer 2004; ODI 2007), but a far-reaching Forestry and Conservation Project funded by the Bank and Global Environment Facility in 2003 was suspended less than 2 years later by the PNG government. This project was designed to improve forest sustainability, reduce impacts on biodiversity, increase community participation, and strengthen the environmental-impact assessment and monitoring process (www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2006/11/22/000090341_20061122103441/Rendered/PDF/36503.pdf).

In PNG, serious frustrations over poor implementation of forestry reforms continue to this day (e.g., Filer 2004; AAP 2010). Politically connected corporations and individuals often flout or circumvent reforms designed to

improve forest governance, further contributing to rapid forest depletion (ODI 2007). For example, some 4.3 million ha of "special agricultural leases" granted mostly to timber companies are now being used to bypass the timber-rights approval process (AAP 2010). Such chronic abuses are a key reason why PNG is perceived to be among the most corrupt nations in the world today (currently ranked 154th out of 178 nations by Transparency International, www.transparency.org).

Rimbunan Hijau has frequently been singled out for criticism. A 2000 report by the PNG National Intelligence Organisation argued that "All revelations indicate mass bribery and corruption by Rimbunan Hijau" (Anon. 2000). Likewise, an independent government review in 2003, investigating claims against two Rimbunan Hijau subsidiaries, asserted that "The robber barons are now as active as they ever were. . . encouraged by those supposed to control them" (Anon. 2003). Rimbunan Hijau has frequently attacked such allegations via *The National* newspaper and lawsuits against vocal critics.

Policy implications

Although its forests face daunting threats, the situation in PNG is not futile. PNG has helped to lead international efforts to implement large-scale carbon trading for forest conservation (Laurance 2007), known as “REDD” (Reducing Emissions from Deforestation and forest Degradation). International donors are promising substantial funding to PNG for REDD projects, which are intended to improve forest protection and could eventually exceed \$500 million annually (Busch *et al.* 2009). In addition, in 2008 the PNG government pledged to phase out its massive exports of raw logs by this year (Anon. 2008). Rather than increasing local employment and skills by producing sawn timber, veneer, wood chips, and plywood, raw-log exports provide only modest economic benefits for the nation and traditional landowners. For example, local communities in New Guinea are typically paid just \$11 m⁻³ of kwila (*Intsia spp.*), a valuable timber that typically fetches \$240 per cubic meter on delivery as raw logs to wood-products manufacturers in China (EIA-Telapak 2005; Bun *et al.* 2006).

Yet despite such positive trends, PNG continues to suffer badly from weak governance and institutions as well as inadequate policies and legislation. For example, PNG’s Department of Environment and Conservation has no legal authority to protect key wildlife management areas, and forestry laws are increasingly being circumvented by the agricultural leases granted to logging corporations (AAP 2010; Shearman & Bryan 2010). Serious allegations of corruption have plagued even PNG’s Office of Climate Change, which was established to administer REDD in the country; this might hinder the country’s capacity to participate in the growing global carbon market (Melick 2010). Further, as of yet there is no sign of the promised ban on raw-log exports, with China still consuming over 80% of these exports (Bun *et al.* 2004; PIPSO 2008; Lawson & MacFaul 2010). Finally, in May 2010, the PNG parliament stripped the country’s many communal groups of key land-rights protections, in an effort to increase certainty for resource developers by minimizing project delays from court injunctions (D. Melick, pers. comm.). As a result, local communities are now unable to impede projects that are considered environmentally risky and are likely to find it more difficult to sue offending corporations for environmental damage (Hance 2010a).

The rapid depletion of PNG’s forests might be justified if it led to substantial economic and social benefits for the country. Unfortunately, at present income from timber operations typically produces only modest, short-term benefits to local landowners, with proceeds often being concentrated in the hands of well-connected individuals and political elites. Moreover, PNG contin-

ues to suffer serious deficiencies in human welfare, with mean incomes, adult literacy, and its Human Development Index (HDI) all declining in recent years (from 1998 to 2007, the HDI declined from 133rd to 148th in the world, per-capita GDP fell from US\$2359 to US\$1638 [using inflation-adjusted figures in 1998 dollars], and adult literacy dropped from 63.2% to 57.8% of the population; UNDP 2000, 2009). Finally, the country is being destabilized by rapid population growth, with 40% of the population currently under 15 years old (Haub 2010). The resulting social dislocation and unemployment, in concert with undercurrents of longstanding intertribal conflicts, has caused PNG to be among the most violent nonwarring countries in the world (for example, see www.smartraveller.gov.au/zw/cgi/view/Advice/papua_new_guinea and www.nationalgeographic.com/adventure/0111/q_n.a.html).

In our view, PNG should move immediately on four fronts. First, it should sharply curtail raw-log exports while reducing timber production to a more sustainable level. We estimate this level at perhaps 25–30% of the present harvest of approximately 2.5 million m³ per year—a figure that could obviously be refined with well-parameterized timber growth-yield models (e.g., Vanclay 1994). A number of tropical nations have curtailed or fully banned round-log exports in order to reduce timber theft and corruption, and to promote their own domestic wood-processing industries (Goodland & Daly 1996; Hance 2010b).

Second, PNG should foster the development of its domestic wood-processing industries—which are tiny by international standards (Katsigris *et al.* 2004)—by establishing a more favorable investment climate for downstream processing. This will require a change of forest-governance culture. The PNG Forest Authority was established using a colonial-style command-and-control model, with the primary goal of securing timber rights from landowners and signing-off that companies followed regulations and paid royalties and taxes. However, the Authority was never sufficiently well-led, politically supported, or resourced to administer timber operations on their current scale. While there have been some encouraging recent changes in leadership, the Authority needs to focus on helping communities exercise greater control over their forest resources and build sustainable community-based enterprises in forest products, conservation, or ecosystem-services markets (Power 2008). If effectively managed, REDD funds could bolster these efforts while promoting new protected areas, facilitating community-based forest management, improving forest restoration, and slowing the overharvesting of timber. We believe that REDD funding should maintain a significant focus on forest conservation *per se* (Melick 2010),

in addition to the broader goals of promoting sustainable timber management.

Third, PNG should reinstate the rights of traditional communities legally to challenge foreign corporations for past or expected environmental damage. The amendment that stripped communities of these rights essentially places all environmental safeguards solely with the PNG Environment and Conservation Minister (Hance 2010a), an action we regard as fundamentally unacceptable.

Finally, PNG should improve family-planning services for women, to help slow socially destabilizing population growth. Notably, this issue is not even mentioned in PNG's strategic national development plan (www.publicsectorreform.gov.pg/about_pngv50.html), despite low rates of contraceptive use in the country (Haub 2010). Over time, such efforts could gradually begin to alleviate some of PNG's most urgent societal and environmental pressures.

Like many other developing nations, PNG today is both blessed by rich natural resources and cursed by the challenges of modern economic globalization. Unlike many others, it has the benefit of constitutionally protected, community-based land ownership. However, it faces a dire need to implement effective checks and balances in the face of rapid international exploitation of its raw resources, but far too often it is being failed by its government and the many foreign corporations now operating in the country. Corruption and greed plague all human societies, but the challenges of modern globalization are forcing developing nations like PNG to grapple with daunting governance, institutional, and policy demands for which they are direly struggling to handle.

Acknowledgments

We thank P. Shearman, D. Melick, C. Yosi, M. Murphy, and an anonymous referee for helpful discussion and comments on the manuscript.

References

- AAP (2010) PNG villagers outraged over land leases. *Herald Sun*, 28 October (www.heraldsun.com.au/news/breaking-news/png-villagers-outraged-over-land-leases/story-e6frf7k6-1225944831492).
- ACF (2006). *Bulldozing progress: human rights abuses and corruption in Papua New Guinea's large-scale logging industry*. Australian Conservation Foundation, Carlton, Australia.
- Anon. (2000) *Office of Counter Intelligence Baimaru Field Report*. PNG National Intelligence Organisation, Port Moresby.
- Anon. (2003) *Review of disputed allocations*. PNG Department of Planning and Monitoring, Port Moresby.
- Anon. (2008) *Papua New Guinea to Ban Log Exports by 2010* (news.mongabay.com/2008/0318-png.html).
- Barnett, T.E. (1989) *Report of the Commission of Inquiry into Aspects of Forest Industry*. Govt. of Papua New Guinea, Waigani.
- Bun, Y., King T., Shearman P.L. (2004) *China's Impact on Papua New Guinea's Forest Industry*. *Forest Trends* (www.forest-trends.org).
- Busch, J., Strassburg B., Cattaneo A. *et al.* (2009) Collaborative modeling initiative on REDD economics. *Earth Environ Sci* **6**, 252019. DOI: 10.1088/1755-1307/6/25/252019.
- Diamond, J.M. (1973) Distributional ecology of New Guinea birds. *Science* **179**, 759–769.
- EIA-Telapak (2005) *The Last Frontier: illegal Logging in Papua and China's Massive Timber Theft*. Environmental Investigation Agency (www.eia-international.org/files/reports93-1.pdf).
- Filer, C. (2004) A serious case of conditionality: the World Bank gets stuck in Papua New Guinea. *Devel Bull* **65**, 95–99.
- Filer, C., Keenan R.J., Allen B., McAlpine J. (2009) Deforestation and forest degradation in Papua New Guinea. *Ann For Sci* **66**, 813. DOI:10.1051/forest/2009067.
- Fingleton, J. (2004) Is Papua New Guinea viable without customary groups? *Pacific Econ Bull* **19**, 96–103.
- Flannery, T.F. (1995) *Mammals of New Guinea*. Reed Books, Sydney, Australia.
- Goodland, R., Daly H. (1996) If tropical log bans are so perverse, why are there so many? *Ecol Econ* **18**, 189–196.
- Greenpeace (2005) *Partners in Crime: the UK Timber Trade, Chinese Sweatshops and Malaysian Robber Barons in Papua New Guinea's Rainforests*. Greenpeace-UK, London.
- Hance, J. (2010a) *Papua New Guinea Strips Communal Land Rights Protections, Opening Door to Big Business* (news.mongabay.com/2010/0630-hance_png_amendment.html).
- Hance, J. (2010b) *Gabon Bans Log Exports* (http://news.mongabay.com/2010/0607-hance_gabon.html).
- Haub, C. (2010) *World population data sheet*. Population Reference Bureau, Washington, DC.
- Heads, M. (2001) Regional patterns of biodiversity in New Guinea plants. *Biol J Linn Soc* **136**, 63–73.
- Heads, M. (2002) Regional patterns of biodiversity in New Guinea animals. *J Biogeogr* **29**, 285–294.
- Katsigris, E., Bull G.Q., White A. *et al.* (2004) The China forest products trade: Overview of Asia-Pacific supplying countries, impacts and implications. *Internat For Rev* **6**, 237–253.
- Laurance, W.F. (2007) A new initiative to use carbon trading for tropical forest conservation. *Biotropica* **39**, 20–24.
- Laurance, W.F., Kakul T., Keenan R., Sayer J., Passigan S., Sodhi N. (2010) Failing governance, fading forests. *Nature* **467**, 789.

- Lawson, S., MacFaul L. (2010) *Illegal logging and related trade: indicators of the Global Response*. Chatham House, London, UK.
- Lidicker, W.Z. (1968) A phylogeny of New Guinea rodent genera based on phallic morphology. *J Mamm* **49**, 609–643.
- Lindenbaum, S. (1980) Kuru sorcery: disease and danger in the New Guinea Highlands. *Amer Anthropol* **82**, 692–694.
- Losche, D. (2004) A slice in time: the state of New Guinea ethnology. *Rev Anthropol* **33**, 61–72.
- Melick, D. (2010) Credibility of REDD and experiences from Papua New Guinea. *Conserv Biol* **24**, 359–361.
- Muroa, G.M.S. (1998) The extent of constitutional protection of land rights in Papua New Guinea. *Melanesian Law J* (www.paclii.org/journals/MLJ/1998/4.html).
- Novotny, V. (2010) Rainforest conservation in a tribal world: why forest dwellers prefer loggers to conservationists. *Biotropica* **42**, 546–549.
- ODI (2007) *What can be learnt from the past? A history of the forestry sector in Papua New Guinea*. Overseas Development Inst., London, UK.
- PIPSO (2008) *China Accounts for 89 Percent of PNG Log Exports*. Pacific Islands Private Sector Organisation (<http://www.pipso.org/pipso-news-press-releases-details.php?show=286>).
- Power, T. (2008) *Reconciling customary ownership and development: incorporated land groups in PNG*. Australian Government, Canberra.
- Shearman, P.L., Ash J., Mackey B., Bryan J.E., Lokes B. (2009) Forest conversion and degradation in Papua New Guinea 1972–2002. *Biotropica* **41**, 379–390.
- Shearman, P.L., Bryan J. (2010) A bioregional analysis of the distribution of rainforest cover, deforestation and degradation in Papua New Guinea. *Austral Ecol*, DOI:10.1111/j.1442-9993.2010.02111.x (in press).
- Shearman, P.L., Bryan J., Ash J., Mackey B., Lokes B. (2010) Deforestation and degradation in Papua New Guinea: a response to Filer and colleagues, 2009. *Ann For Sci* **67**, 300. DOI:10.1051/forest/2010001.
- UNDP (2000) *Human Development Report 2000*. United Nations Development Programme, New York.
- UNDP (2009) *Human Development Report 2009*. United Nations Development Programme, New York.
- Vanclay, J.K. (1994) *Modelling forest growth and yield: applications to mixed tropical forests*. CAB International, Wallingford, UK.
- Wurm, S.A., Hattori S., editors. (1983) *Language atlas of the Pacific Area. Part I. New Guinea Area, Oceania, Australia*. Australian Academy of Humanities, Canberra.