

# Framework for assessing compensation for the wrongful loss of customary land in Papua New Guinea

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## Abstract

*This is an economic evaluation of the compensation to which Papua New Guinea's customary landholders - wrongly dispossessed through Special Agricultural Business Leases (SABL) - might be entitled if they successfully sued the government. The evaluation involves the calculation of commercial loss but also, and probably more importantly, economic equivalent value loss. The framework identifies the relevant heads of value (not just priced transactions) and demonstrates appropriate methods for valuation. It does not pretend to be a price calculator but rather a tool for advocacy.*

## 1. INTRODUCTION

I have been asked by ACT NOW!<sup>1</sup> to prepare an economic evaluation of the compensation to which PNG customary landholders wrongly dispossessed through Special Agricultural Business Leases (SABL) could be entitled if they successfully sued the government. Such an evaluation necessarily involves the calculation of both direct commercial loss but also, and probably more importantly, an economic equivalent loss by wrongful appropriation of valuable assets.

The background to dispossession through SABLs is briefly as follows. About five million hectares of customary land in 77 leases (5,155,742 hectares of which 2,286 hectares is urban land) was leased to corporations through SABLs. In some cases the leases were used to obtain Forest Clearance Authorities from the PNG Forest Authority to permit logging in the SABL areas. The government has been made aware through a Commission of Inquiry (COI 2013) that these leases are unlawful, for a failure to follow proper process under the Land Act and in particular for their failure to ensure the free prior and informed consent of customary landowners. However, it seems that the government has not yet cancelled or declared void any of these leases, allowing logging and other operations to continue.

The key compensation related question arising is: how might we best assess the compensation to which affected customary landowners would be entitled for their losses, including the damage from logging operations? A range of matters must be considered, including for example:

- Direct commercial losses from disrupted activities on urban and rural land;
- Loss of subsistence production, including in garden and wild food, and housing and building materials;
- Loss of opportunities for formal and informal sector cash generation;
- Loss of access to clean water;
- Loss of social facilities, such as support structures for employment, social security, cultural reproduction and food security;
- Loss of spiritual and cultural connections and of aesthetic values;
- Loss of timber through logging (losses in exported timber and in collateral damage and wastage caused by harvesting);
- Environmental loss and damage including damage to eco-system services.

This report will consider those matters through a framework which synthesises recent valuations of rural land and production, the social value of small farming communities and valuations of environmental goods and services. It will begin with a general consideration of valuation and compensation, in the PNG context, then place key themes of value assessment into a framework for calculating compensation. Although the immediate context involves the SABLs, principles of customary landowner compensation should be more widely applicable.

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## 2. VALUATION AND COMPENSATION

Some years ago I saw an Asian Development Bank valuation of certain state land assets in Timor Leste. It was carried out by some Australian trained economists who, consistent with their training, carried out a survey of rural land markets. On finding no land transactions in the relevant areas they concluded that the value of the state land assets was zero. A few years later I saw a Bank of the South Pacific (BSP) booklet which claimed 'agriculture (coffee, cocoa and copra) provides a subsistence livelihood for the bulk of the [PNG] population' (BSP 2010: 21); as if 'coffee, cocoa and copra' were the staple diet of PNG.

The three bodies of innovative research drawn on by this report demonstrate that such conclusions have little general credibility, especially in the more traditional and informal systems of Timor Leste and Papua New Guinea (PNG). Economic value has to do with real assets, real production, opportunity costs and social and community benefits, not just the corporate and export economies.

In PNG the rural context is dominated by customary land, small farming livelihoods and tremendously rich natural resources. Much of this natural and human wealth is difficult to quantify; but there are some ways. We can examine rural production of real goods and service and identify cash equivalents; we can even impute values to wider social and environmental services. In urban areas where assets are more commercialised and competitive, we can have recourse to value through commercial transactions.

Valuation does not automatically translate into compensation, but it is a necessary precursor. Not all value is destroyed when there is a 'wrongful loss' which, as I understand it, lies at the heart of compensation law. However, if we can estimate certain sources or 'heads' of value in assets which are not normally commercialised, we have a useful starting point for estimating wrongful losses. The first step in the process should therefore be, I suggest, to identify real value and then to assign some weighted or equivalent measure. Pricing comes later and will often vary in the particular circumstances. Price must also be adjusted to time and monetary inflation.

The approach to valuation here draws from my own work on valuing PNG's rural livelihoods (Anderson 2006 & 2015), on the internationalist 'multifunctionality' view of small farming (FAO 1999, Rosset 2000, OECD 2001), and on a revised version of the 'ecosystem goods and services'

approach developed in Australia and applied to PNG (Curtis 2004 & 2011). The main aim of this section is to outline and then bring together those non-commercial but economic analyses into a form which can lay the basis for a framework for compensation. Some underlying principles of this approach are an attempt to identify key elements of value, to isolate the major elements (rather include all intangibles) and then move to a practical method of linking value to potential loss.

Such approaches will be opposed by most economic liberals, including those in PNG, who are trained in neoclassical economics to revere markets and to not distinguish value from price. Most also oppose traditional land tenure systems, which form the basis of most PNG rural livelihoods and are clearly recognised in PNG law. Charles Yala, for example, has argued that 'traditional land tenure systems [are] unsuitable for a modern society'. He joins the European 'land modernisers' (see Anderson 2015: 27-41) in claiming that customary title could not deal with overpopulation and other pressures, that it would contribute to 'large scale ethnic conflicts' (Yala 2006: 132-135). Yala and two others developed a model which purports to show great improvements to PNG's GDP by dismantling customary tenure. They also present an argument, quite unsympathetic to Melanesian culture, suggesting that only those who individually invest in land, and engage in projects separate from the needs of the clan or family, are to be considered 'productive', or 'superior' economic agents (Fairhead, Kauzi and Yala 2010: 29). I present a critique of their economic reasoning and behavioural assumptions in my book, *Land and Livelihoods in Papua New Guinea* (Anderson 2015: 35-41). In its place I suggest that land economics must move from its 'old school' reliance on growth, corporate, export and financial economies into a 'new school' focus on livelihoods, diverse economies, small farming, ecological sustainability and human development (Anderson 2015: 34).

The valuation method I apply in rural PNG does not attempt to give any final value to customary land, but rather to estimate and calculate the value of annual production from rural activities based on that land. That approach to land valuation in PNG began with a 2006 paper (Anderson 2006), later cited in the British Government's 2008 report on climate change (Greig-Gran 2008). The key arguments are in my 2015 book. In the case of subsistence production I provided some provisional calculations of domestic food production and housing, based on the regional costs of purchasing those goods and services, were the land to be lost (Anderson 2015: 49-56). In the case of informal

domestic markets, a group of us carried out representative surveys (2006-2011) on rural roadside sellers in four provinces (Anderson 2015: 64-81).

Our findings confirmed an earlier study by the NRI (Sowei et al 2003) that rural informal sector incomes are two to three times those of rural wages in the formal sector (Anderson 2015: 41-42). We also found that, while export crops (coffee, cocoa, coconut, vanilla) were popular, in most cases they were supplementary, attracting less income than domestic markets (Anderson 2015: 43-44). Overall, when this fuller accounting was carried out, the best opportunities for rural landowners was seen in well thought out 'hybrid livelihoods', which often combined (at the family level) subsistence production with domestic garden produce sales, some export crop sales, small business and some employment (Anderson 2015: 56-62).

Drawing from that research, Table 1 shows estimated family subsistence value of food and

housing production, for regional and capital (NCD) areas, updated to 2016. That is, what it would cost a land-owner family to rent basic housing and purchase the food that they typically consume, if they were completely dispossessed. The regional difference is due to the higher price of fresh produce in Port Moresby markets. Next comes the average cash income from domestic produce markets, then estimates of common annual returns on export and small business income, also updated to 2016. Most combinations of these figures are superior to average small holder oil palm incomes per hectare of 2,800 (often on 2 or 4 ha blocks), or 3,600 per ha in 2016 (Anderson 2015: 131). Oil palm production had the greatest opportunity costs, as the intensive labour involved often precluded other income activities, the oil palm trees are voracious and do not allow effective companion planting and the land clearing and chemicals used in oil palm cultivation lead to river siltation and soil and water contamination (Anderson 2015: 82-113).

**Table 1: Rural median production value estimates (per annum, family of 6)**

	<b>Estimates 2011 (K)</b>	<b>Updated to 2016 (K)</b>
Subsistence (food and housing) Regional	10,760 equiv.	13,234
Capital (NCD)	18,980 equiv.	23,345
Garden produce sales (average roadside sale income)	11,500	14,100
Export crop sales (*est)	3,000 *	3,690
Other small business (e.g. chicken, store) (*est)	3,000 *	3,690
Totals (Kina and Kina equivalent)	28,260 – 36,640	34,714 - 44,800
Updated from Anderson 2015: 49-56		

For the purpose of valuation and compensation we must pursue processes which impute value to non-commercial production and poorly recognised local economies. There is very little 'market' development in PNG that can give anything like realistic values. Where rural 'markets' for land have developed in PNG (e.g. in some leases for oil palm estates) they were obvious failures, from the customary landowner perspective. Rents (like K100 per hectare per year for rent and royalties, for 'mini-estate' oil palm development) were nowhere near the value of even any minimal production on rural land, before we consider its social and contingency value. I suggest this 'market failure' is best understood through the social relations of land. A better

appreciation of these relations can help explain why communities might be vulnerable to the poor logic of substituting viable, emerging hybrid livelihoods, based on customary land, for low paid formal sector options. In brief, rural land 'markets' in PNG are highly limited, the customary land owners are asset-rich, cash poor and have very little information on (and are often culturally disinclined to consider) the real opportunity cost value of their land and the range of cash economy options open to them. That has led to a 'massive undervaluing' of customary land, and to consequent dispossession of the custodians of that land (Anderson 2015: 138-140).

A second source of relevant analysis comes from the international discussions of the 'multifunctionality'

of small farming. These studies demonstrate that the productive contributions of small farms (which are often not mainly export oriented), in family, community, social and environmental terms, have been seriously underestimated. The OECD (2000: 13, 108) identified multifunctionality as referring to:

- commodity and non-commodity' outputs from small agriculture, some of which appear as 'public goods', ensuring that 'markets for these goods do not exist or function poorly';
- implicit guarantees of social security and food security; and
- small farms' more efficient use of inputs, and lesser dependence on chemicals.

Peter Rosset argued that small farming's multiple functions include: diversity of production, stewardship of natural resources and biodiversity, the sustainability of production, a 'place for families', and community empowerment and food security (Rosset 1999; Rosset 2000: 77-79). As with the OECD, Rosset argues the greater productivity of small farming.

The FAO in a background paper identified the 'agricultural biodiversity' associated with small farming as contributing to 'food and livelihood security ... a basis for eco-tourism and the regeneration of localised food systems and rural economies'. Further, losses in agricultural biodiversity can lead to 'the neglect of indigenous knowledge, local institutions and management systems ... inequitable tenure ... an 'undervaluation of agricultural biodiversity' ... 'increasing ineffective use of agricultural biodiversity in food and fibre', less efficient use of bioenergy, desertification and degradation of clean and sustainable water systems (FAO 1999). Small farming was a key buffer against many of these problems.

These 'multifunctionality' discussions speak of value but generally do not calculate particular value, for example in small farms preserving agricultural diversity and remaining a sink for employment and social security. To some extent the values spoken of are wider social values. However if customary landowner communities retain the integrity of their land systems, they can provide specific employment and subsistence services to communities and families. A degree of such value can be estimated as equivalent basic wages and value in subsistence production. Until better estimates are available these values can draw on rural livelihood research from 2006-2011 (Anderson 2015: 41-52, 55), updated to 2016. The price update factors are 65% (from

2006 to 2016) and 23% (from 2011 to 2016), based on PNG's Consumer Price Indices (FRED 2016). Such updates give us 2016 basic wage figures of about K120 per week and subsistence value (food and housing) equivalents of 23,345 (NCD) and 13,468 (regional town) per year. Actual basic wages in 2016 (or whatever future period) might be substituted, as might any updated and improved subsistence (food and housing) equivalence values.

The third source of analysis and sphere of valuation are those ecological goods and services provided by relatively intact natural habitats. A few years back the United Nations Environment Program (UNEP) created a program called The Economics of Ecosystems and Biodiversity (TEEB), designed to draw attention to the economic value and practical benefits of biodiversity. This approach emphasises the human benefits of nature conservation, with team leader Pavan Sukhdev saying 'biodiversity is not just a luxury for the rich, it is a necessity for the poor' (UNEP 2012). Several analysts have developed money estimates of these values. The initial step is to recognise that such value exists, and may be degraded.

Environmental value is degraded, at least partially, when there is wholesale logging or other forms of land clearing. Several analysts have attempted valuations of the natural environment, Ian Curtis is one who did this in Australia and has applied it in PNG. At the conservative end of such analyses, Curtis set about developing a mode for the valuation of 'ecosystem goods and services' in Australian wet tropics areas, using expert opinion from a panel to weight estimated value on a range of factors. The elements were grouped in four categories: (1) stabilisation services (gas, climate, water, erosion, biological control, wildlife refuges), (2) regeneration services (soil, nutrients, waste processing, purification, pollination, biodiversity), (3) production of environmental goods (water supply, food production, raw materials, genetic services) and (4) life fulfilling services (recreation opportunities, aesthetics, cultural spiritual, other non-use values) (Curtis 2004). He later turned this into a 'proprietary method' of environmental valuation, based on the assumption that land in conservation areas 'is worth at least as much as the median value of all other land' in the region 'for the ecosystem goods and services it provides (Curtis 2011). His 2004 calculations provided valuations of between AUD \$240 and AUD \$340 per hectare per year, across several habitats (Curtis 2004: 179-180). These figures were consistent with some other estimates but considerably less than one prominent estimate, which placed much higher ecological value

(for example) on wetlands (Costanza et al 1997). All analysts recognised that some habitats may have greater ecological values than others while having perhaps less commodity production value. So value must vary across a range of land types.

Drawing on the Curtis categories and values, partial or complete damage to ecosystem goods and services (EGS) – stabilisation, regeneration and other environmental goods and services - in specified areas can be estimated, during a particular claim. For the purpose of this framework study I would remove his final category (life fulfilling services) as this partly overlaps with my ‘social’ category, which I have based mainly on the multifunctionality concept. In its place, for the purposes of a compensation framework, I would add a remediation costs category, for damaged land, based on outlays and labour over a period of time. The value for EGS could draw on a somewhat discounted (for removal of category four) but updated (per CPI) version of the conservative estimates of Curtis (2004). That could provide a notional average EGS value of K600 per hectare per year. If this were thought inadequate, or if particularly unique ecosystems were sought to be valued more highly, recourse might be made to the higher valuation sets of Costanza et al (1997), or to newer calculations. As with the other notional values, the earlier calculations can be considered to have sufficiently valid practical basis until better estimates are available.

### 3. FRAMEWORK FOR SYSTEMATIC CONSIDERATION OF A CLAIM

In building a framework for a compensation claim we need to bring together and identify key heads of value, along with a relatively simple method to assess, combine and where necessary discount the values. There can be no automatic formula, given the complexity of the different claims. A Tribunal must make a series of determinations on a claim that is systematically and clearly laid out. This framework suggests a way forward.

Bringing together direct commercial loss (e.g. timber) with loss in each of the three categories discussed above (rural production and urban rent; lost social value; and loss or damage to ecological goods and services) we can form a table which recognises the main important affected values. Those values can be aggregated as goods and services, per year, according to certain heads of value. We cannot suggest definitive, general prices,

for reasons discussed above, so this framework becomes essentially a claim form to be argued in the specific circumstances. It does include reference points in value from recent experience and estimates. So the categories and subsets in Table 2 below draw on the discussion above.

Category one adds commercial loss, such as timber lost in the case of illegal logging. Value here can be taken from either average or specific FOB values. Notionally we can begin with an average FOB value of K270 per cubic metre, as at December 2015 (SGS 2015). That value might be contested, as better data becomes available. Another sub-category is left open in case of other direct damage or loss, such as removal of minerals, crops and building materials.

Category two, in the case of urban land, includes urban rent forgone. This should draw on local rents, which will vary from town to town or city to city.

Category three brings together value from loss of rural production, in the areas of:

- (a) subsistence production, based only on the local equivalent value of garden food and local housing costs for an average family of 6; I update data from my studies mentioned above to suggest K23,345 for land near the capital (NCD) and K13,234 in regional areas.
- (b) this adds lost income from garden production for local informal or formal markets, based on average incomes; values between 7,000 and 14,000 per year are taken from the average rural roadside incomes from four provinces;
- (c) average export crop sales, for most families this is much less than sales of garden produce in local markets; these are simply estimated at an average 3,000 per year (better data might be had from the CCI and coffee agencies);
- (d) other lost income, for example through loss or damage to typical small rural businesses such as chicken rearing and small stores; this income is also roughly estimated at an average 3,000 per year.

In each case there is the need for the claimant to justify each element of the claim, including what extent of loss or damage is involved, expressed as a percentage. In the case of subsistence production, damage to production would typically apply to one

hectare or less of garden lands, per family; whereas export crops such as cocoa, coconut or coffee trees could extend over many hectares.

Category four adds social costs, in particular the loss of future employment and social security facilities, provided by 'reserve' land. For example, if four related families sought assistance within a related community at a time of hardship, that could translate into subsistence food and housing values and a certain number of employment positions or equivalents, for example in the form of garden produce sellers. 'Unused' land can rapidly add value. From calculations in the section above, provisional data for section 3 can come from updated (2016) basic wage figures of about K120 per week and

subsistence value (food and housing) equivalents of 23,345 (NCD) and 13,234 (regional towns). Loss of cultural, recreational and aesthetic value is more difficult but nonetheless real. However some estimate must be made.

In the fifth and final category we have a combined value for loss or damage to ecological goods and services, and a space of actual value in costs and labour for remediation of ecological damage. In the first case (a) we can draw on estimates from Curtis (2004), at about nK400/ha/year; but in the second (b) we can refer to quite specific estimates for remediation on the land involved. In both cases there is the likelihood that damage and remediation may involve future as well as past loss.

**Table 2: Framework for customary landowner compensation (community)**

Element of value	1. Units (ha, etc)	2. Notional unit value	3. % loss	4. units	5. for x years	6. Kina sum
<b>1. Commercial loss</b>						
a. Timber loss (m3)	m3	270				
b. Other loss	K					
<b>2. Urban rent forgone</b>	K					
<b>3. Rural production loss</b>						
a. Subsistence production (NCD/regional)	families	23,345 / 13,234				
b. Informal market production	sellers	7,000 - 14,000				
c. Export crop production	traders	3,000				
d. Other small business	traders	3,000				
<b>4. Social value lost</b>						
a. Employment sink (wages)	workers	6,000				
b. Food security sink (subsistence)	families	23,345 / 13,234				
c. Cultural, recreational value	families	2,000				
<b>5. Ecological goods and services</b>						
a. Loss of EGS (per ha)	EGS/ha/yr	K 400				
b. Remediation costs	K/ha					
<b>TOTAL</b>						

The columns for this table cite (1) the units in which calculations are made, such as cubic metres of timber, families fed by garden production, etc. Column (2) gives a notional value for each sub-category, a value which can be revised in light of better or updated research and information. Column (3) refers to the percentage loss or damage. It may be the case that there is only partial, say 25% or 50% damage. Column (4) lists the units affected by loss or damage, column (5) lists the years for which the damage occurs and (6) the final monetary sum in Kina.

To illustrate how this calculation might work, here is the example of a small community of 5

families which has had 200 hectares wrongly taken, and alienated for 5 years. Logging on 12 ha was carried out, producing 60 m<sup>3</sup> of exported timber, and remediation of affected areas over 10 years is needed. Their subsistence production and gardens were only 30% affected, but that in reserve land for others was 50% damaged. Potential employment for 8 clan members was denied. The group argued relevant values for their export crop, small business and cultural-recreational losses. There were also remediation costs for 10 years. The total compensation for this (hypothetical) small community was estimated K871,600. That represented damages and costs for wrongful loss of customary land over 5 years.

**Table 3: Customary landowner compensation EXAMPLE (small community)**

Element of value	1. Units (ha, etc)	2. Notional unit value	3. % loss	4. units	5. for x years	6. Kina sum
<b>1. Commercial loss</b>						
a. Timber loss (m3)	m3	270	100	60	-	16,200
b. Other loss	K					0
<b>2. Urban rent forgone</b>	K					0
<b>3. Rural production loss</b>						
a. Subsistence production (NCD/regional)	families	23,345 / 13,234	30	5	5	99,235
b. Informal market production	sellers	7,000 - 14,000	50	10	5	225,000
c. Export crop production	traders	3,000	50	5	5	37,500
d. Other small business	traders	3,000	50	3	5	22,500
<b>4. Social value lost</b>						
a. Employment sink (wages)	workers	6,000	100	8	5	240,000
b. Food security sink (subsistence)	families	23,345 / 13,234	50	4	5	165,425
c. Cultural, recreational value	families	2,000	50	5	5	25,000
<b>5. Ecological goods and services</b>						
a. Loss of EGS (per ha)	EGS/ha/yr	K 400	70	12	5	16,800
b. Remediation costs	K/ha		100	12	10	24,000
<b>TOTAL</b>						<b>871,600</b>

Notice that the Table 2 might serve a guideline, beginning with 'nominal unit values' (column 2 of table 2) which are then argued and decided by the tribunal. In column 2 of table 3 'actual unit value' represents values argued, debated and decided by the tribunal.

#### 4. FINAL REMARKS

I stress that this is a framework approach, not a pricing formula. There will necessarily be significant variation in damages and lost production values, and past valuations of averages or notional value serve only as a beginning point. Further, any particular values might be updated with better and more up to date research or specific evidence.

This report combined three categories of non-commercialised or poorly recognised economic value with actual cash losses, to form a framework of customary land value, based on annual production of goods and services. There was a necessary rationalisation and simplification of heads of value, under five broad categories. It identified key heads of value, then outlined some relevant considerations to covert such values into a compensation framework. Each claim must be adjusted to particular circumstances and updated to current prices.

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