



# *Spotlight with NRI*

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### **The Economic Impacts of Land Reform in Papua New Guinea**

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#### **Introduction**

Papua New Guinea (PNG) is well endowed with abundant land, including fertile soils, rare ecosystems and various marine and mineral resources. Despite the rich supply of land resources, there has been slow progress in developing land based industries such as agriculture, tourism and aquaculture in PNG. Past efforts to 'reform' customary land have largely failed. As a result, barely five percent of land is currently contributing to economic development.

Meanwhile, 79 percent of the country's population earn less than K200 a year, relying on subsistence for their livelihood. Furthermore, half of the rural population have little or no access to basic services. In urban areas, there is an abundance of land, but a paucity of secure title. This applies almost as much to state-owned land as to customary land.

The three percent of land that is under State ownership has not been well used because land administration has been under resourced. As a result, real estate prices are extremely high. Excessive rents undermine the living standards of PNG's urban population. Even many public servants are forced to reside in disorganised and unsafe squatter settlements where security of tenure is uncertain and the provision of public infrastructure barely exists.

Better administration and increased availability of land is central to achieving better living standards for all Papua New Guineans, in both rural and

urban areas. Recognising the importance of land for the nation, Prime Minister Sir Michael Somare launched PNG's home grown solution, the land reform program, in 2007. In 2008, the National Research Institute (NRI) engaged the authors of this paper to estimate the economic implications for PNG of freeing up state and customary land for development. The authors applied, for this exercise, a Computable General Equilibrium (PNG CGE) model of the PNG economy, originally developed by Levantis.

#### **The two scenarios**

Two scenarios are required to model land reform with the PNG CGE model. The first is a base case, which is a scenario depicting economic growth without any land reform. This provides the basis for measuring the impacts of the land reform policy. For the purposes of this study, the base case depicts economic development in PNG from 2007 to 2020 taking into account the following three key factors:

- global economic conditions;
- declining capacity of oil wells; and
- current macroeconomic policy.

The base case does not incorporate the LNG project, given that at the time of this study, the LNG project had not yet been confirmed to proceed. The second scenario is the land reform scenario. This scenario depicts a different path of economic development in PNG from the base case, because in this scenario, land reform is implemented between 2010 and 2020.

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Land reform is simulated by assuming that:

- customary land owners market their land;
- the risk premium on investment declines by one percent;
- the productivity of agriculture and other land intensive industries converges toward world best practice; and
- the Government outlays K81.3 million in at least the first five years of the program.

These scenarios and two alternative land reform scenarios, are fully explained in the NRI working paper, Fairhead, Kauzi and Yala (2009), *Land Reform in Papua New Guinea: Quantifying the Economic Impacts*.

### How will PNG benefit from successful land reform?

The economic outcomes in the land reform scenario are compared with the base case to get a picture of how land reform will impact on the PNG economy. Land reform is projected to:

- lead to substantial gains in GDP;
- improve aggregate growth in investment, exports and consumption;
- facilitate broad based economic development;
- promote progress in rural regions and thereby help alleviate poverty in rural PNG;
- generate many additional jobs; and
- alleviate high real estate prices.

### Land reform leads to substantial gains in GDP

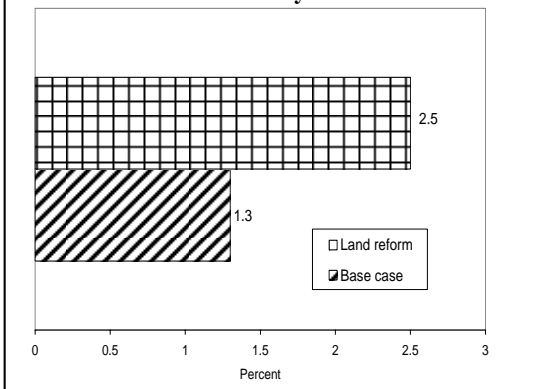
Over the first ten years of reform, it is estimated that land reform will contribute over one percentage point each year to the nation's economic growth rate (see Figure 1). Without land reform, the economy grows by just 1.3 percent a year in 2010-20. With land reform, the country's GDP grows by 2.5 percent a year over that same period. The gain in GDP for each year from 2010 to 2020 can be added together to get a picture of the total present value of implementing the land reform program. This is done by assuming a discount rate of five percent. The total GDP gain from land reform for 2010 to 2020 is valued at K12.3 billion in 2010 values. This is only part of the gains from land reform, as it only counts the first 10 years of reform. To put this value into context, the additional GDP from land reform of K12.3 billion is comparable to PNG's total GDP in

#### Box 1: The PNG CGE Model

The PNG CGE model is a dynamic, computable general equilibrium model of the economy of PNG developed by Dr. Theo Levantis. It represents every sector of the PNG economy, including the informal sector, subsistence agriculture and all the key agricultural industries.

The PNG model is able to measure the impacts of land reform policy on many aspects of the economy, including investment, production, prices, employment and trade. A more detailed description of the model is provided in the NRI working paper, Fairhead, Kauzi and Yala (2009), *Land Reform in Papua New Guinea: Quantifying the Economic Impacts*.

**Figure 1: Average annual growth in GDP under alternative scenarios in the years 2010-20**



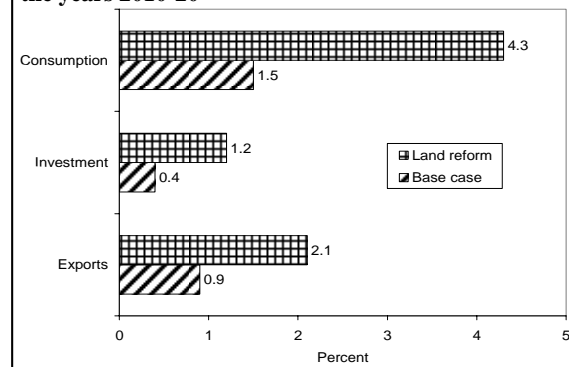
2006 of K17 billion.

### Land reform improves investment, exports and consumption

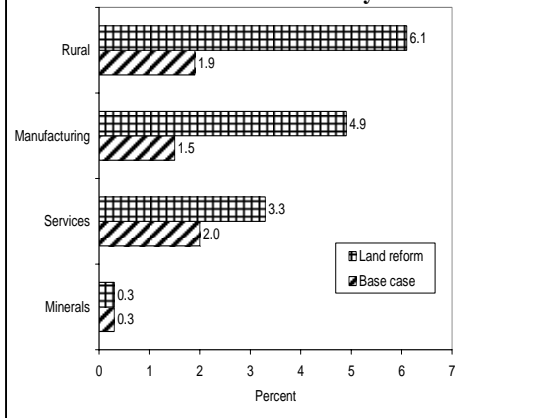
Behind the improvement in GDP is stronger private sector investment, leading to higher exports and greater consumption spending (see Figure 2). By providing secure land title, land reform reduces the risks associated with investment and thereby stimulates higher levels of investment. The average annual growth in investment over 2010-20 is 1.2 percent under land reform, three times faster than in the base case. Through higher investment and greater access to secure land, exporters expand their scale of operations, supplying a larger volume of goods and services to the world market than in the base case. Export growth is therefore considerably higher under land reform than under the base case, at 2.1 percent compared with 0.9 percent. Further, productivity improvements are generated by investment in better technologies. These more productive technologies reduce the costs of business in PNG compared with the base case, leading to higher profits. The expanding private sector generates greater incomes for Papua New Guineans.

Much of this additional income is generated in rural regions where most new jobs are concentrated. As incomes rise, so does consumption spending. Aggregate consumption in PNG grows by 4.3 percent a year on average between 2010 and 2020, almost three times faster than the average annual growth in the base case.

**Figure 2: Average annual growth in exports, investment and consumption under alternative scenarios in the years 2010-20**



**Figure 3: Average annual growth in key sectors under alternative scenarios in the years 2010-20**



**Land reform facilitates broad based economic development**

Historically, economic development in PNG has been concentrated in the mining sector. However, the gains from mining accrue to a relatively small proportion of the population. In contrast, agriculture provides the livelihood of 85 percent of the nation’s population. The simulated results of the modelling show that under successful land reform, economic growth in PNG will become more broadly based. The sectors of the economy that rely most on the use of land are agriculture, forestry, and to a lesser extent, manufacturing, tourism and commerce. It is therefore these sectors that benefit most from freeing up access to land through reform (see Figure 3).

In the rural sector for example, which includes agriculture, forestry and fisheries, growth in production over the projection period is, on average, four percentage points higher each year under land reform than under the base case scenario. The mining sector does not benefit from land reform in the scenario presented here because land is an insignificant share of the total costs of a mining project. However, in reality, the mining sector faces considerable transaction costs associated with the lack of information about landowner identification and what their rights are. By addressing this information asymmetry, land reform can be expected to reduce the transaction costs incurred by both mining companies and landowners, benefiting all parties.

**Land reform promotes progress in rural regions**

The rural sector is the source of income and livelihood for close to 85 per cent of PNG’s population. The substantial gains from land reform accruing to the rural sector are therefore worth closer scrutiny. Subsistence remains a critical source of living for most rural residents, 93 percent of whom earned less than K200 a year from the cash economy in 2000, and 50 percent of whom earned less than K40 a year. In the base case, subsistence agriculture declines over time, but only marginally by 0.8 percent a year (see Figure 4).

In contrast, land reform opens up alternative income earning opportunities for rural residents, leading to a

strong shift away from subsistence to market based agriculture, employment and income generation. Under the land reform scenario, production in subsistence agriculture declines by an average six percent a year in the years 2010 to 2020 as employment opportunities increase in market based agriculture. At the same time, land reform leads to a shift away from smallholder agriculture to larger scale operations such as block holders. In the base case, smallholder agriculture expands marginally faster than the large-holder sector, growing by 2.2 percent a year as compared with two percent a year for the large scale operators. However, the converse is true under land reform, where the large scale sector expands by 7.8 percent each year and the smallholder sector by 4.6 percent a year. Smallholders certainly benefit from secure land title, but the empirical evidence indicates it is unlikely that they will obtain access to credit to finance investment because of their small scale. In contrast, by obtaining credit, larger scale operators are able to expand investment and improve productivity by more than smallholders in response to secure land title.

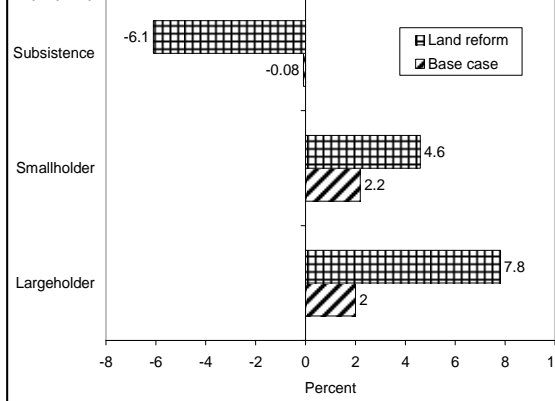
**Land reform generates additional jobs**

The growth in economic activity that results from land reform is projected to generate 138,000 new jobs by 2020. These are in addition to the jobs that would be available in 2020 without land reform. Of these additional jobs, 130,000, or 94 percent, are created in agriculture, forestry and fisheries, including the downstream processing of these commodities (see Figure 5 ). Further, 74 percent of new jobs are generated in the formal agriculture sector, demonstrating the importance of land reform for agricultural development.

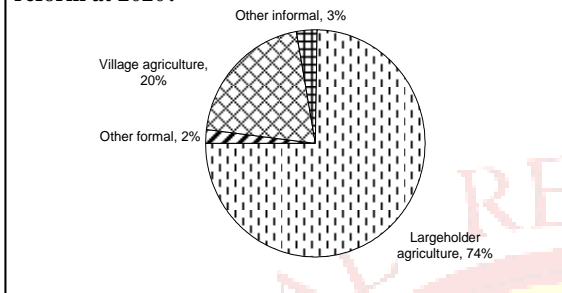
**Land reform alleviates high real estate prices in areas of high population growth**

In urban regions, secure land is in short supply despite the general abundance of alienated land and customary land. Public servants and other city residents are therefore struggling to find affordable and reasonable accommodation. Without land reform, these problems will greatly increase. In the base case, the average price of land is projected to rise to 41 percent above current prices by 2020, and this is after removing the effect of general price increases as measured by the consumer price index (CPI). Of course, price rises experienced by

**Figure 4 Average annual growth in agricultural sub-sectors under alternative scenarios in the years 2010-20**



**Figure 5: Where are the new jobs generated by land reform at 2020?**



Papua New Guineans will vary between regions. In some areas, prices will rise by much more than the average 41 percent. In particular, much sharper rises in real estate prices can be expected in regions of strong population growth, including urban locations. Therefore, if land reform is not undertaken, the cost of living would greatly increase in towns and cities where real estate is already barely affordable, compounding the social unrest surrounding customary landowners in such areas.

#### ***Land reform improves the incomes of landowners***

Somewhat ironically, the extremely high demand for secure land would greatly benefit customary landowners if they were given the right opportunities to market their land. Land reform would provide income earning opportunities to customary landowners, including the nation's poorest, and at the same time avert the growing crisis in the affordability of land. FAO data reports that just over one percent of PNG's land is used to grow the country's key export agricultural commodities. Yet seven percent of the nation's land has high to very high potential for agriculture and an additional 23 percent has moderate agricultural potential. Under the land reform scenario, growing demand for land is met by customary landowners bringing their land into the cash economy. In the model, this additional land is allocated to the highest bidder. It is estimated that by 2020, seven percent of PNG's land is brought under formal administration and is contributing to the formal economy. Land reform thereby increases the income opportunities of customary land owners and relieves the pressure on the cost of living in urban areas.

#### ***Policy implications***

A number of key implications for land policy arise from the economic modelling:

- Land reform is required as a matter of priority for the

development of PNG's economy. On its own, without any other policy reform, land reform is expected to generate K12.3 billion in additional GDP over the first 10 years of reform. Conversely, failure to reform will impede economic development, undermining private sector confidence and investment.

- Land reform is required as a matter of urgency to relieve the acute housing shortage and the extremely high accommodation costs in urban areas. The modelling indicates that the average price of land can be expected to rise by 41 percent between 2010 and 2020 under the no land reform (base case) scenario, and this is after allowing for consumer price inflation. In contrast, land reform will alleviate land price inflation by resourcing land administration to make land titles secure and by facilitating the use of customary land.
- Land reform benefits customary land owners, providing them the opportunity to market their land and thereby improve their income.
- More broadly, land reform will help to alleviate poverty in PNG. The majority of Papua New Guineans live in rural areas and depend on subsistence for their livelihood. These people are vulnerable in times of drought or disaster, or under local social stresses. Land reform is projected to deliver substantial benefits to rural regions of PNG, including 130,000 new jobs in agriculture by 2020.
- Successful land reform will sustain broad based economic growth and support the Government's export-driven growth strategy to grow the economy. Most of the gains will be concentrated in the non mining sectors of the economy, particularly agriculture and tourism, substantially benefiting all Papua New Guineans.

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***The authors undertook this analysis independently of their institutions. The views expressed in this paper are those of the authors alone.***

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