

Roads for Energy: Maintenance of Papua New Guinean Oil Palm Roads

Konsta Sirvio Sirway Ltd., konsta.sirvio@sirway.fi

ABSTRACT

Oil palm is an important export cash crop for Papua New Guinea and growers. However, every year tens of millions of US dollars are lost due to poor infrastructure condition. Also, the living conditions of smallholders living at their oil palm blocks are sacrificed due to reduced means of transportation. Some progress is on the way as Road Maintenance Trust Fund should secure funding for oil palm roads. Due to several challenges the future is paved with uncertainties and serious considerations should be made of how to organise road maintenance once the supporting project by the World Bank ends.

INTRODUCTION

Papua New Guinea (PNG) is the world's third biggest producer of oil palm fruits that are processed first to palm oil within the country and then mostly exported especially to Europe for bio-fuel refining. Besides large plantations there are tens of thousands of smallholders of oil palm blocks making the living by growing and harvesting the fresh fruits. However, the actual production quantity does not reach the full potential partly because of poor road condition of so called "oil palm roads". These provincial public access roads are maintained partly by oil palm milling companies and partly by Oil Palm Industry Corporation (OPIC), statutory body providing extension services for smallholders. This article examines the current situation and possible solutions for oil palm road maintenance.

DATA AND METHODOLOGY

Current status is examined using the following sources:

- Existing literature by the World Bank, consultants and Oil Palm Industry Corporation (OPIC) and Department of Works
- Road Database of oil palm roads collected by OPIC
- Socio-economic Baseline study carried out during 2012-2013 as Monitoring and Evaluation Consultancy of the World Bank Smallholder Agriculture Development Project (SADP)

Road database collected by OPIC contains information on road condition as well as basic characteristics. This data is used to analyse the current status of the infrastructure.

The Socio-economic baseline study was carried out in Oro and West New Britain provinces covering oil palm growth area. There were over 700 households interviewed.

The study examines the current status of oil palm roads and their impacts on the socio-economic aspects in the region. The basis is the current condition of the infrastructure and it is evaluated what implications it has to oil palm industry as well as to the living conditions.

CURRENT ROAD MAINTENANCE PRACTICES OF OIL PALM ROADS

Major concerns are addressed by the smallholders as they feel forced to contribute to road maintenance by an additional levy from the oil palm income. This is partly caused by lack of trust due to neglectance of the maintenance in the past. Although that the access roads are public and should be under responsibility of the provincial government, the private sector is the biggest financial contributor.

Road users pay various taxes and levies on vehicles, parts, fuel etc. as well as driver and vehicle licence fees. But currently this all goes into central or (in the case of licence fees) provincial government funds and is spent via the budget on roads or hospitals or whatever according to government priorities. The exception is the levy on diesel that goes to the National Road Authority. General problem of allocation of Papua New Guinean tax revenue is neglectance of development of the provinces. Therefore, the funds do not get correctly allocated on provincial road network.

Oil palm areas is an exception in the normal provincial road funding scheme as smallholders contribute to the Road Maintenance Trust Fund (RMFT) by a levy on oil palm production. However, common resent had been prevailing as oil palm smallholders have not felt having enough exchange in terms of road improvement for the paid levies. RMFT funding comes by 25% from the smallholders, 25% from the milling companies and 50% from the provincial government. Smallholders generally feel that their share of the funding is unfair and that there is not good enough organisational capacity for good road maintenance. OPIC, however states that even if the money was collected into provincial budget there is no guarantee that improved road maintenance would take place and that the shortly established RMFT and recently established Road Engineering Unit within OPIC will tackle the road maintenance issues.

Some preparatory work has already been done concerning oil palm road maintenance besides organisational strengthening. An inventory of the existing roads have been made and road condition assessed. The roads have been prioritised according to the condition and importance for oil palm fruit production and the first road maintenance programme created. Contracting of the road maintenance has already started. Maintenance includes regular contracting for routine maintenance of road sections in annual contracts, and particular contracting arrangements for emergency/non-routine maintenance necessitated by the nature of the environment and the requirement for continued access to blocks by collection trucks. At Oro and Hoskins (in West New Britain Province), the oil palm milling companies will undertake the non-routine maintenance work using their own equipment. Biiala (in West New Britain Province) differs from the other two oil palm schemes in that it is more isolated and the milling company is in a weaker financial position. Therefore heavy equipment plant is provided by the World Bank SADP project. The maintenance plant will be owned by the Government through OPIC.

RESULTS

Road inventory and condition

Oil palm road inventory, condition assessment and prioritisation for maintenance programmes was done within SADP project in 2011 showing in Figure 1 that in total there are about 1 500 km of local access roads in West New Britain province and almost 500 km in Oro province. Approximately 200 km (almost 10%) were selected for maintenance programme of 2011 being mostly in bad condition. Thus it was estimated that about 40% of the roads were in good, 30% in fair and 30% in poor condition. The share of the roads in poor condition is higher in reality as some of the roads could not be assessed as they were inaccessible.

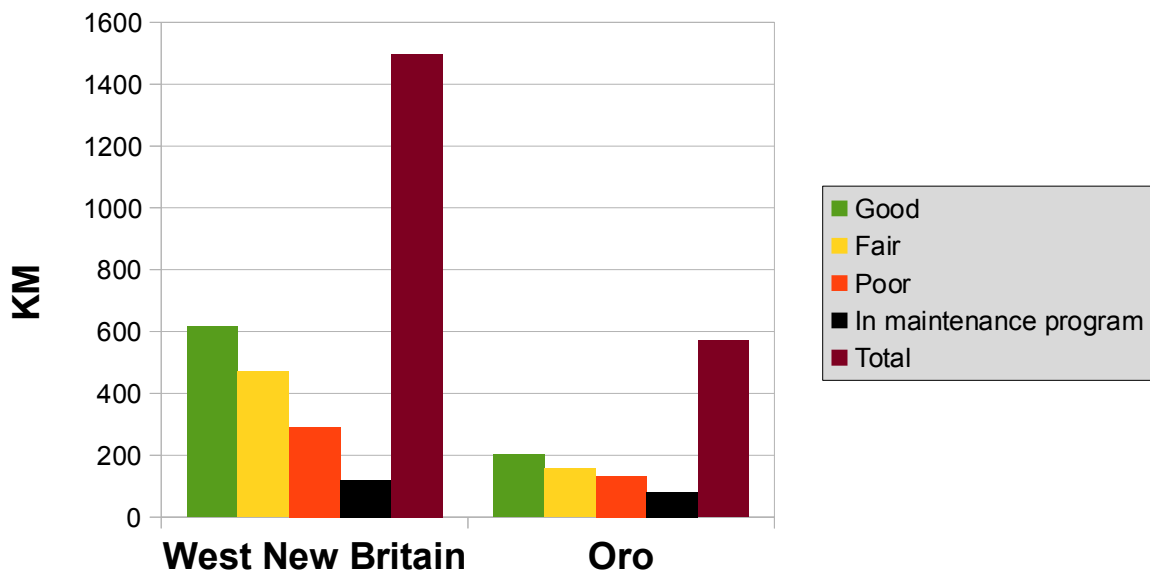


Figure 1. Oil palm road condition in 2011.

During the same condition assessment road roughness was also estimated by 5 categories: 1-smooth, 2-reasonably smooth, 3-medium rough, 4-rough, 5-very rough. Figure 2 shows how visual condition category (good, fair, poor) correlated with the average roughness category. Estimated average roughness remains between 2.5 and 3.5 even though the road condition is regarded as poor or good. This is partly explained by potholes and other defects not necessarily directly affecting the surface roughness of the pathway, but there might also be problems with calibration of the visual survey process. Automatic IRI survey would not be reliable either as most of the roads are unpaved.

Roads for Energy: Maintenance of Papua New Guinean Oil Palm Roads
SIRVIO, Konsta

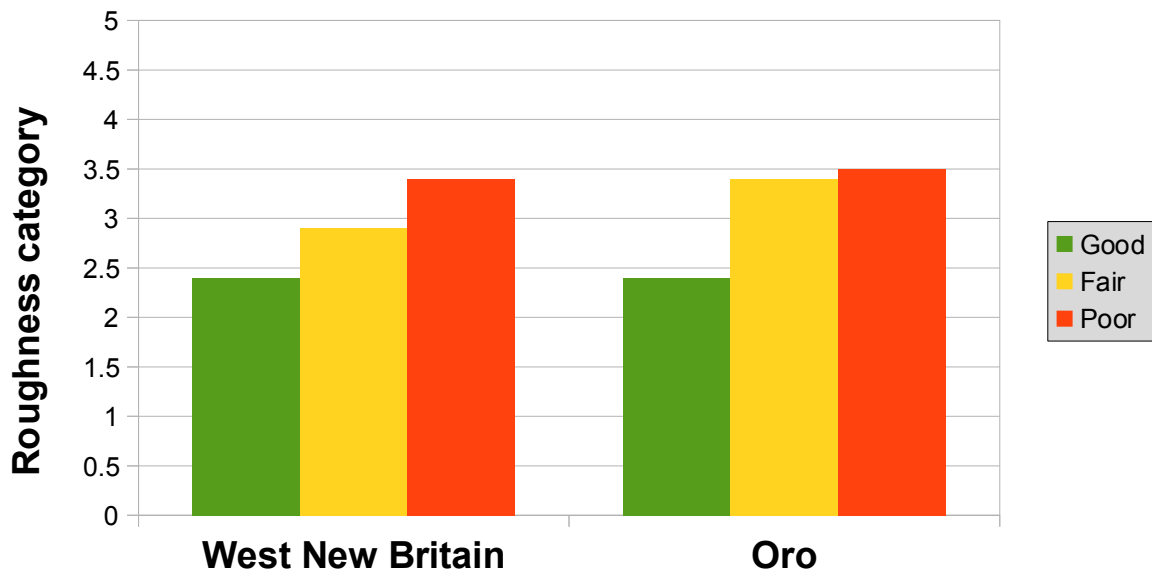


Figure 2. Estimated average road roughness in different condition categories.

When the surveyed roads are compared with oil palm growers' view on road condition leading to their own blocks there is a clear discrepancy as the 23% of the respondents regarded the roads as good, 35% as fair, 27% as poor and 15% as bad depicted in Figure 3.

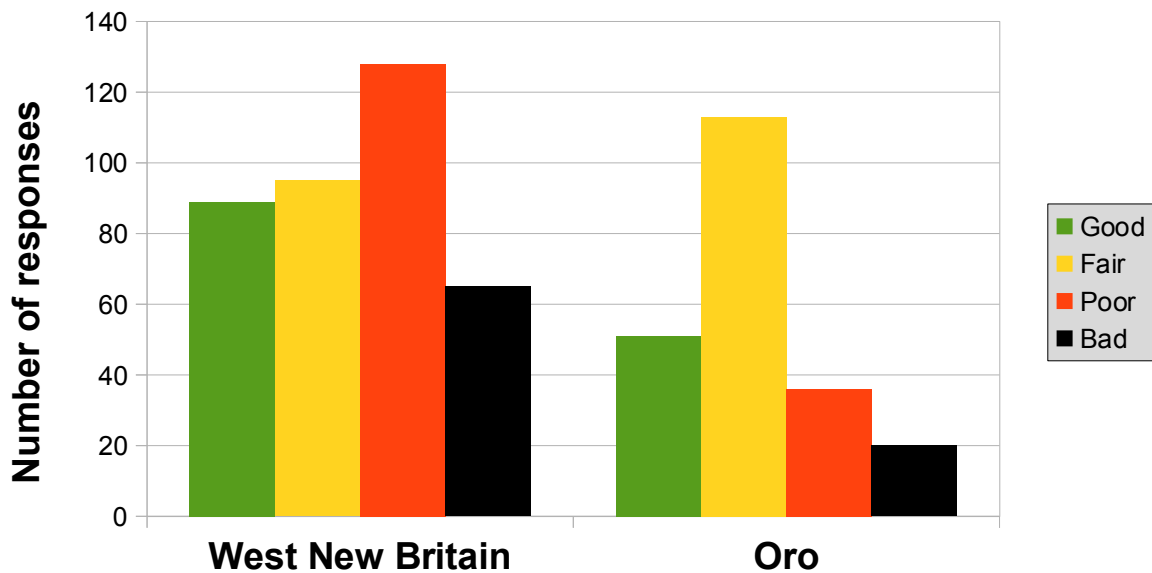


Figure 3. Oil palm road condition according to the respondents.

Roads for Energy: Maintenance of Papua New Guinean Oil Palm Roads
SIRVIO, Konsta

Especially during the rainy seasons some roads are unusable. It was asked how many months in average is the road leading to the oil palm block unusable and as shown in Figure 4 the average time is 0.7 months while in Oro is surprisingly high, 2.3 months. The figures include those roads that are unusable at least for some time according to oil palm blockholders.

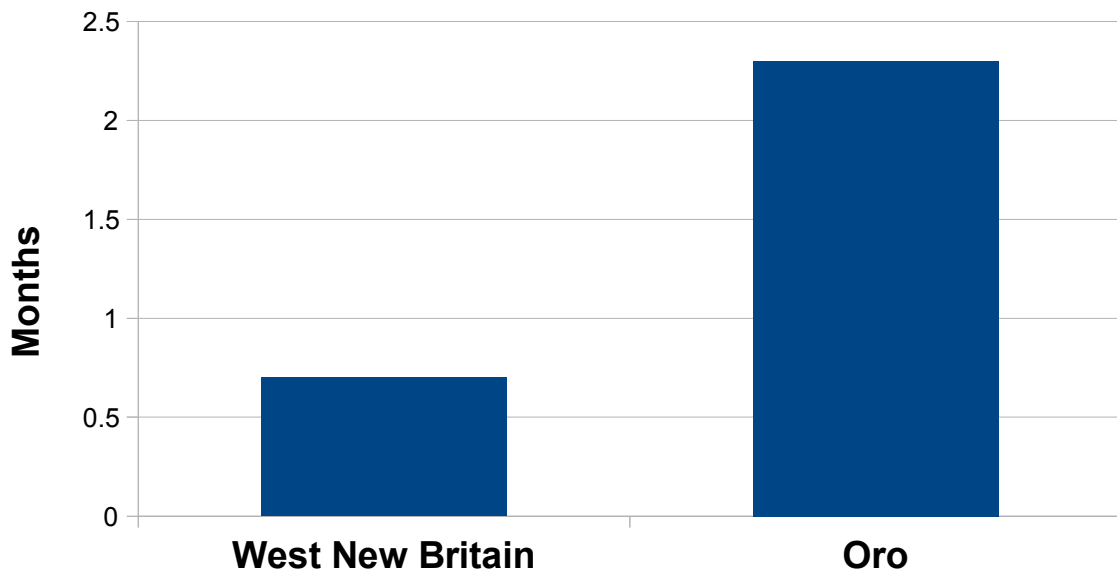


Figure 4. Average time when an oil palm road is unusable.

Socio-economic impacts

Poor road condition affects socio-economic living conditions of the habitants of the oil palm region. Negative impacts include decreased mobility and access to markets, schools, hospitals etc. thus preventing economic development and social growth. In concrete terms, oil palms growers' income remain lower than the full potential as the trucks of the milling companies cannot always arrive at the palm blocks. Especially this is case in West New Britain as seen in Figure 5 when asked if road conditions prevent pickup truck arrival. When compared to the road condition it is surprising that trucks are frequently unable to do the pickup. One explanation may be that even though the trucks could travel the roads the logistical planning is not done accurately as lower road condition slows down transportation and transport capacity does thus not meet the demands.

Roads for Energy: Maintenance of Papua New Guinean Oil Palm Roads
SIRVIO, Konsta

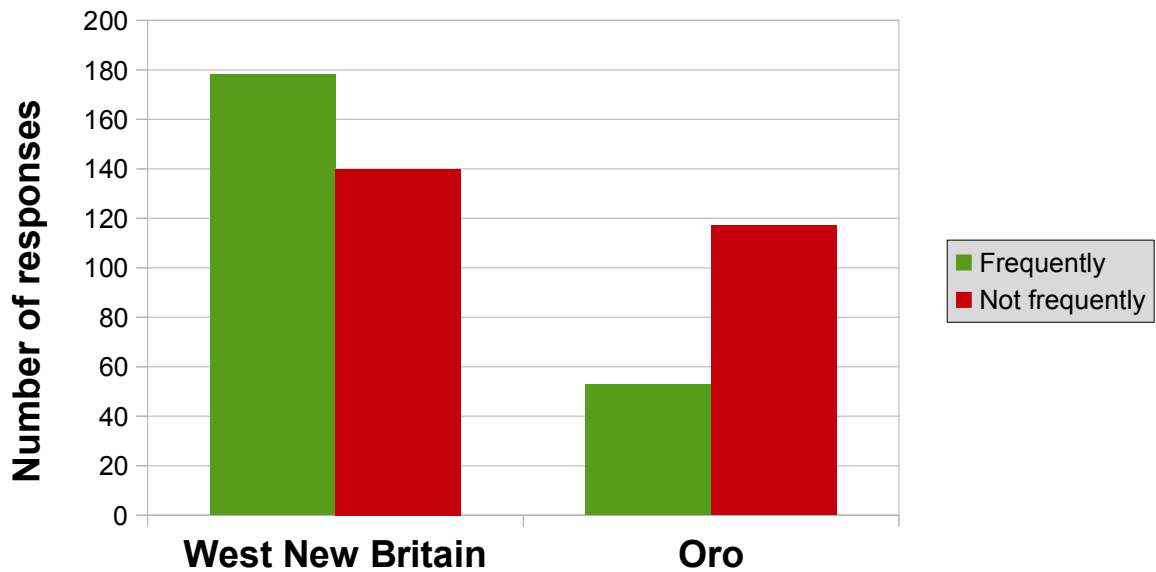


Figure 5. Poor road condition preventing pickup truck arrival.

When the interviewees were asked the main issues with palm fruit pickup they claimed bogging on road to be the main issue in West New Britain and river crossing in Oro. Inaccessible roads were not the main issue, but still 20-30% of the respondents regarded it as a major issue as depicted in Figure 6.

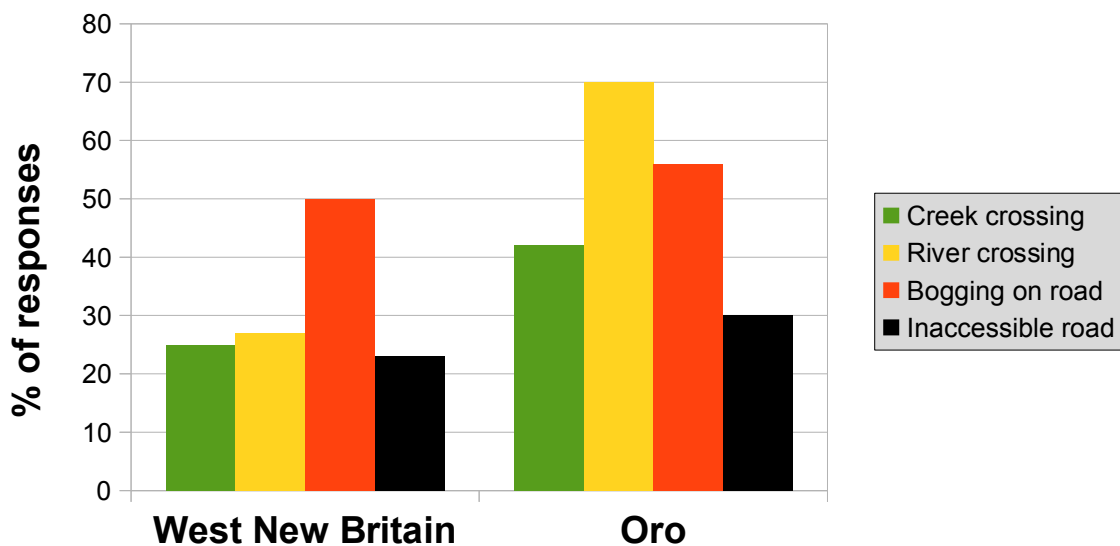


Figure 6. Pickup truck access issues.

Roads for Energy: Maintenance of Papua New Guinean Oil Palm Roads
SIRVIO, Konsta

Poor road condition is also reflected in low car ownership (as well as other motorised vehicles) among smallholders of oil palms as can be seen in Figure 7. Out of the all respondents only 2-3% own a car or other motorised vehicle.

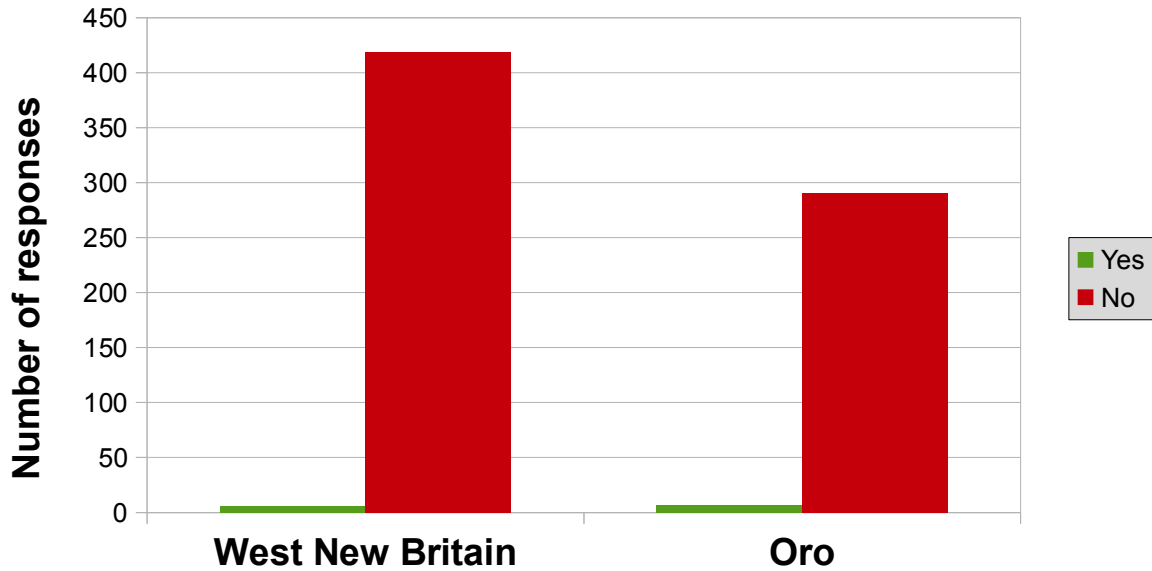


Figure 7. Car ownership.

However, there is interest in improving mobility by motorised means as one third of the respondents would purchase a car if the roads were in better condition – more likely in West New Britain than in Oro as shown in Figure 8.

Roads for Energy: Maintenance of Papua New Guinean Oil Palm Roads
SIRVIO, Konsta

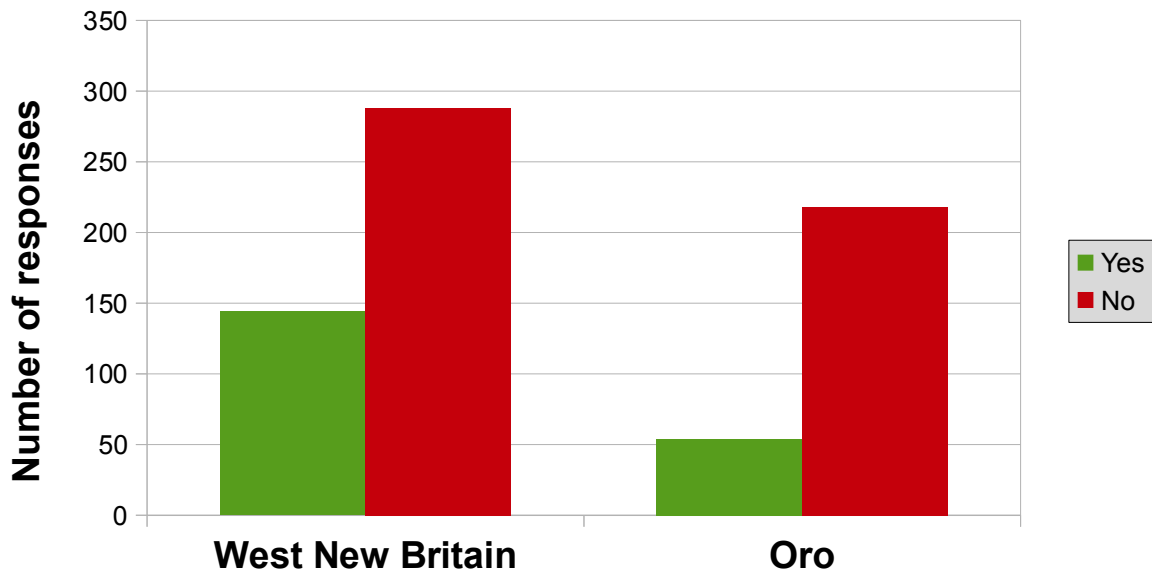


Figure 8. Vehicle purchase if roads in better condition

Another issue affecting car ownership is availability of other means of transport. Average distance to the public transport was asked and Figure 9 shows that especially in WNB public transport is relatively close as walking takes around 13 minutes in average.

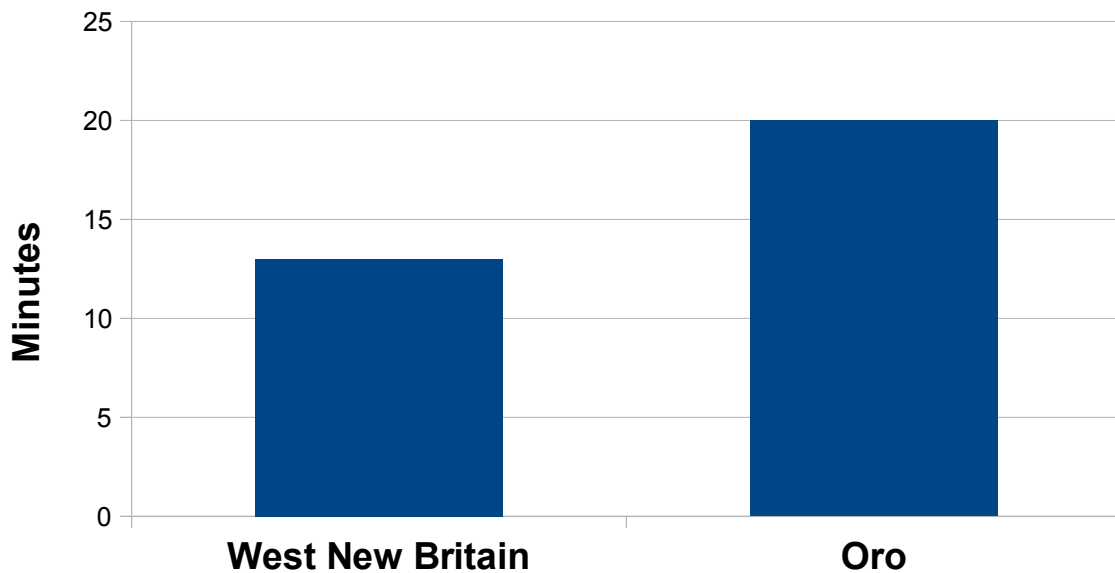


Figure 9. Average distance to public transport in minutes.

Roads for Energy: Maintenance of Papua New Guinean Oil Palm Roads
SIRVIO, Konsta

Current average transport costs are also lower in WNB with about 25 Papua New Guinean Kina (less than 12 dollars) per month as seen in Figure 10.

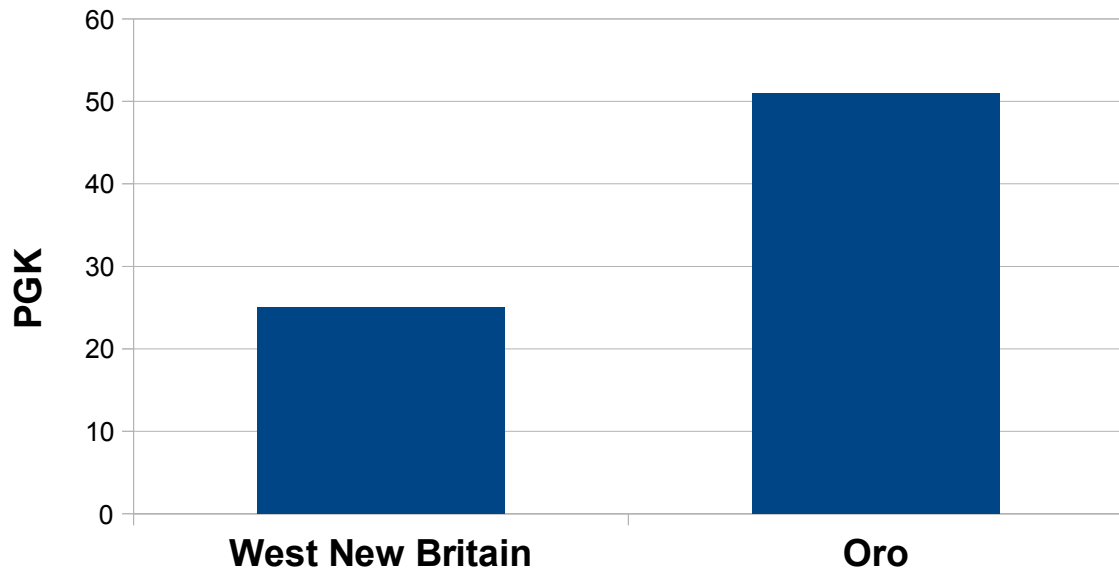


Figure 10. Monthly transport costs.

Missed potential

Current oil palm roads are serving production area that is around 36 000 hectares in West New Britain and 15 000 hectares in Oro. Production of the fresh fruit of oil palm was over 600 000 tons in WNB and almost 150 000 tons in Oro as shown in Figure 11. However the potential would be higher given that the roads were in better condition and cultivation practices were optimised. It is estimated that in WNB the potential with the currently dedicated land was 1 000 000 tons.

Roads for Energy: Maintenance of Papua New Guinean Oil Palm Roads
SIRVIO, Konsta

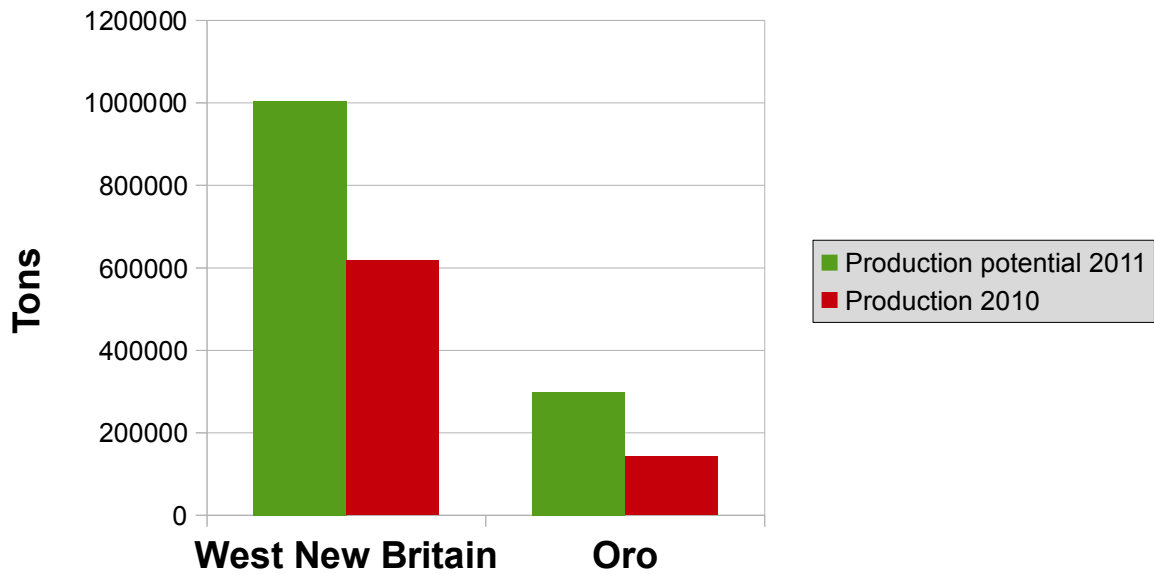


Figure 11. Fresh fruit production.

The farmers are paid 200 or 250 Papua New Guinean kinas per ton depending on the area, which gives a loss of potential of around 130 millions of kina (62 MUSD) when subtracted from the actual production value of Figure 12. In addition to that the value is added once the actual palm oil is produced by the local milling companies and exported overseas. In 2009 the total value of oil palm related exports reached over 900 million kina.

Roads for Energy: Maintenance of Papua New Guinean Oil Palm Roads
SIRVIO, Konsta

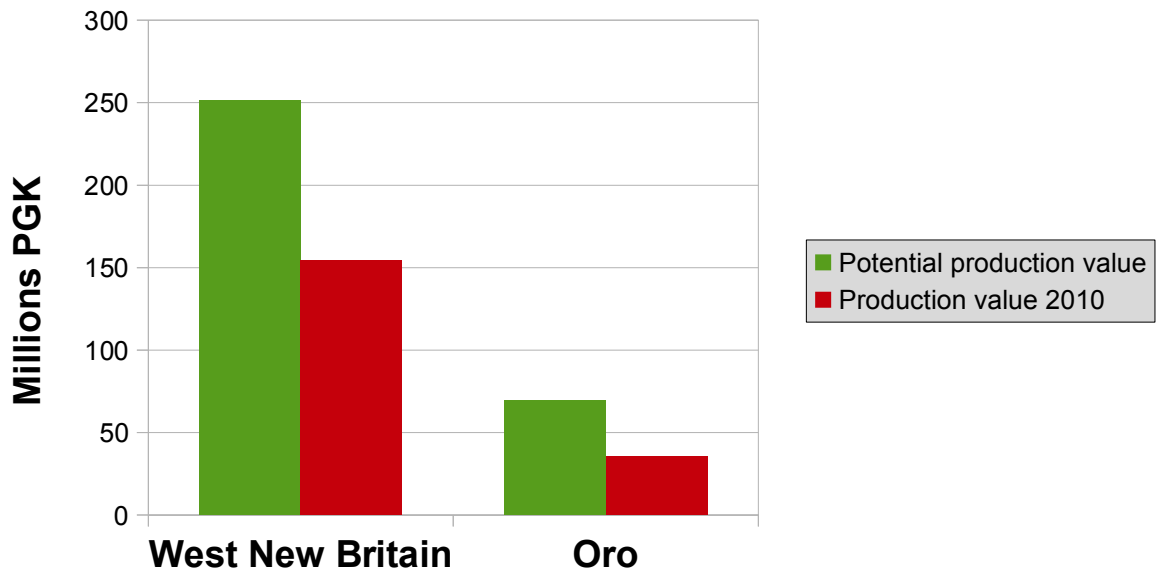


Figure 12. Production value.

Although not all the lost production potential is due to poor road condition it still is a major factor and improvement of local access roads would have an economic impact of tens of millions of US dollars.

CONCLUSIONS

It is clear that oil palm -related revenue is lost due to poor road condition and even without allocation of more land for oil palm plants efficiency could be improved by better infrastructure. The development is on the way despite slow progress. There are some risks associated with the future sustainability of infrastructure maintenance. Once the SADP funding ends OPIC may have financial constraints to maintain strengthened organisation, where road maintenance unit is an integral part. Growers' resistance to pay road levies can grow if maintenance works do not progress fast enough, which can lead to social unrest, sabotage and general unwillingness to pay. Private markets on road maintenance do not necessarily develop well enough possible resulting in higher prices and poorer quality. Coordination needs are also increased since the provincial government should carry out road maintenance that is now transferred to responsibility of another body.

In a longer term parallel organisations for provincial road maintenance should not be made in separate provinces. Management of provincial roads should be improved in the whole country. However, as it seems that provincial governments do not deliver road maintenance services effectively and efficiently the oil palm roads could be privatised completely. In that case either ownership of individual roads or sub-networks should be defined. Due to under-

Roads for Energy: Maintenance of Papua New Guinean Oil Palm Roads
SIRVIO, Konsta

developed road maintenance contractor markets and low contracting know-how of oil palm growers the latter would come into question. If private companies are established to own and manage sub-network with board presence by various funding parties would the general suspicion decrease from the behalf of the growers.