



Social Safeguards Due Diligence Report

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PNG: Multi-tranche Financing Facility for the Sustainable Highlands Highway Tranche 1

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A. Introduction

1. This report comprises the Due Diligence Report (DDR) for land acquisition and resettlement for Tranche 1 works and subproject activities of the Multi-tranche Financing Facility (MFF): Sustainable Highlands Highway Program (SHHIP or 'the Investment Program'). Tranche 1 of SHHIP involves the maintenance and upgrading of the PNG Highlands Highway (HH) from the Kagamuga junction near Mt Hagen to the Nadzab junction near Lae, a distance of 430 km. The categorization for the individual subproject under SHHIP will be assessed in accordance to the Land Acquisition and Resettlement Framework (LARF). The LARF defines the maximum acceptable level of adverse impact and IR selection criterion that the subprojects are expected to meet.

2. The MFF loan modality adopted for the SHHIP project implementation is such that while the broad outlines of all components are clearly identified and known during the program preparatory phase, the detailed designs of works or subprojects are not always known until the implementation phase. Consequently, works, activities, and subprojects identified during implementation are subject to proper due diligence to confirm their respective land acquisition and resettlement categorization. This DDR will determine the actual IR categorization for Tranche 1 activities. The DDR will also inform the project design on the extent of adverse impacts that need to be avoided, or if avoidance is not possible, for which effective mitigation measures are required. The confirmed land acquisition and resettlement categorization will also determine what other IR instruments, including land acquisition and resettlement plans (LARP) need to be prepared. Category B subprojects require a LARP, while Category C subprojects, which have no foreseeable involuntary resettlement effects, do not.

3. As part of the due diligence for possible land acquisition and resettlement impacts, a rapid appraisal, was conducted along the HH between 8–13 December 2016 by the PPTA team.¹ A second field visit to the Markham Valley area was undertaken in the last week of January 2017. These quick assessments concentrated on potential problem sites identified by the experienced Provincial Works Managers, who have had long experience in their areas and are very familiar with both the engineering and social challenges along the route. Where time did not permit investigation and village meetings, DOW provided reports from their files, and briefing on the sites to the PPTA team. The provincial DOW staff accompanying the PPTA team provided existing reports on the problem spots along the highway, as well as skillful assistance and facilitation of meetings with communities. They have much knowledge to contribute to future social assessments.

B. Investment Program Background

4. The proposed SHHIP will be financed with assistance from the Asian Development Bank, with the Department of Works (DOW) as the executing agency (EA). The funding provided through the MFF will comprise discrete subprojects to be implemented sequentially over ten years under an envisaged three tranches. The estimated total cost of the Investment Program is about \$1 billion over ten years. The Investment Program includes

¹ The PPTA team consisted of Social Development specialist consultant, Wendy Lee, accompanied by Lalio Erasi, SHHIP Project Manager, Ako Nalo, Department of Works (DoW) Safeguards Officer, and the respective provincial DoW managers and engineers. In Jiwaka the team were ably assisted by Amos Dakma (PWM Jiwaka); in Simbu, by Amos Dakma (former PWM Simbu), Terry Phillip (PWM Simbu), and Simon Urambo (Engineer, Simbu Provincial DoW); and in Eastern Highlands by Gideon Timothy (Acting OIC Kainantu District and DoW Project Engineer).

physical components (i.e. transport infrastructure repair and development) some of which will involve limited land acquisition and resettlement impacts, as well as non-physical works such as institutional strengthening. This relates to improving the capacity of PNG's transport agencies to manage bridges, roads, and other assets, as well as capacity building in various areas, including to provide greater transparency and accountability in safeguards, particularly land acquisition and resettlement processes.

5. The core 430 km section of the HH covered by the Investment Program connects four landlocked provinces of the Highlands region and branches out to nearly 1,800 km of feeder roads, servicing more than 40% of the population. On its eastern side, the HH connects to the lowlands of Madang and Morobe provinces and extends to PNG's main port and manufacturing centre in Lae. Mineral and petroleum outputs from the Highlands region account for nearly 80% of national exports, especially natural gas, while 85% of the people connected by the HH derive their livelihood from agriculture, mainly coffee, a major income earner for the rural population, but also tea, sweet potato, vegetables, and fruit in the Highlands, and cattle, copra, cocoa, bananas, and sugar cane in Morobe.

6. The overarching objective of the Investment Program is to (i) improve access to health and education, and raise standards of living; (ii) to increase opportunities for equality and prosperity in rural areas; and (iii) to provide a well-integrated, safe, financially and environmentally sustainable transport system. The expected outcome is to make the movement of people, goods, and services between the Highlands region and domestic and international markets safer and more efficient. The ten-year Investment Program has been designed to:

- Restore, upgrade and effectively maintain the entire 430km section of the HH from day one;
- Increase the resilience to climate change and the safety of pedestrians and vehicle occupants;
- Improve transport logistics and services between the provincial capitals; and
- Develop DOW managerial and operational capacity to delivery the program and sustain its benefits

7. The Investment Program concept is based on the observation that the failures of the road pavement are primarily due to a prolonged lack of maintenance, not to an inadequate structural design, except for the flood-prone sections in the Morobe Province. Many sections can be restored without engaging in costly reconstruction if corrective actions are implemented rapidly. The current two-lane design is sufficient to carry the projected traffic over the next 20 years, except in the vicinity of Goroka town. Road traffic safety is very poor and pedestrians are especially at risk, including children who use the highway to walk to school. Twenty-nine one-lane bridge constitute a primary safety hazard and 40 two-lane bridges need repairs, if not reinforcement or full reconstruction. Climate change, is also a threat, although of uncertain nature, and the budget for the program is constrained, given PNG's recent economic downturn.

8. The Investment Program has been sliced into three overlapping tranches: Tranche 1 (T1) from 2017-2021; Tranche 2 (T2) from 2019-2024, and Tranche 3 (T3) from 2023-2027. Maintenance and upgrading works, and road safety improvements will start immediately under two Output and Performance Based Road Contracts (OPRC) of about 200 km in length each. The rehabilitation of the entire crossing of Simbu Province, including road safety improvements, will be executed under a third contract during Tranche 1, since it is in very poor condition. The maintenance and upgrading works and road safety improvements will be pursued gradually over the ten-year Investment Program period particularly works with resettlement impacts and land acquisition to be implemented during T2 and T3, the

bridge improvement program will be executed under T2, and the Goroka road bypass, the truck climbing lanes, the trade and logistics platforms, and the truck weighing stations, will be executed during T3. The field investigations, detailed design, and safeguards due diligence, will be completed before the tranche carrying the related works is triggered, i.e. during T1 for the works to be executed in T2 and T3 and during T2 for other works to be executed in T3. The works to be executed during T1 are unlikely to require land acquisition or trigger involuntary resettlement.

9. This Due Diligence Report (DDR) covers only the works, activities, and possible subprojects to be undertaken in Tranche 1. It is not anticipated that there will be any involuntary resettlement impacts, in Tranche 1, as most of the initial civil works will take place within the existing 40m wide road corridor, and because engineering designs will minimize the amount of land needed, and therefore avoid resettlement impacts. Most work undertaken in Tranche 1 will involve only maintenance and resurfacing works executed within the existing highway cross section, and the alignment and longitudinal profile of the road will be maintained, so this is likely to have minimal impacts on local roadside communities. While the government has stated that all of the 40m highlands highway road corridor is state land, the complex history and a lack of records mean that this cannot be ascertained with absolute certainty for all sections. The occasional cases of a few sections identified during the Investment Program preparation, where state land acquisition cannot be proven, may entail some degree of land and resettlement impact, and these will be adequately treated and confirmed during T1 detailed engineering design in accordance with the LARF provisions (see Section D). Accordingly, a corrective action plan and/or acceptable and fair arrangements with the landowners where applicable will be prepared and implemented prior to any civil works to be undertaken in succeeding tranches.

C. Socio-economic situation along the Highlands Highway

Geography

10. The Investment Program area covers a physically and culturally diverse environment, beginning in the undulating highland valleys of Western Highlands Province (WHP) and Jiwaka, through to rugged mountains in Simbu, to the fertile valleys of Eastern Highlands (EHP), and downwards ending on the grassland plains of the Markham Valley in Morobe. Much of the terrain is rugged with very high mountain ranges, steep valleys and fast flowing rivers, which, together with fragile geological conditions, high rainfall and a highly dispersed population, makes the road network difficult to develop and maintain.

11. **WHP** includes the Hagen Range, Mt Giluwe (second highest in PNG), and the mountains of the Sepik-Wahgi Divide. Altitude varies from 600m to over 4000m. Most people live within an altitude range of 1400-2200m. Average rainfall varies between 2300mm and 4000mm. The province has some of the most productive small holder agriculture and coffee plantations in PNG, and there is also some large scale capital intensive farming and plantations. People in the Wahgi, Baiyer, Lai and Nebilyer Valleys earn high incomes from sale of fresh produce and coffee. English potatoes, onions and garlic are grown at higher altitudes above 2100m, where Arabica coffee cannot be grown. The HH runs through the Wahgi Valley, but only a short distance of about 2.9 km is within the scope of the project – from the Kagamuga airport turn off to the Jiwaka border where the road crosses the large Wahgi River. Population density is high in the Wahgi Valley with 163 person per km.² There is a lot of in-migration with people seeking better access to services, more productive environments, and wage employment.

12. **Jiwaka**, a new province recently carved out of WHP, includes the Kubor Range, the plains and swamps of the Wahgi Valley, the Minj Valley, the Jimi Valley, and the northern side of the Sepik-Wahgi Divide. It shares a long northern border with Madang province and

a southern border with both Simbu and Southern Highlands provinces. The Wahgi and Minj valleys have over 155 persons/km² and people near Minj especially, are constrained by land pressure. Average annual rainfall ranges between 2300mm and 4000 mm, increasing from north to south. Most people live between 1400m and 2000m, though the highest point in the province is over 4000m. (Mt Kabangama and Mt Kegeraga). People in the central area of the province along the HH have relatively high incomes from the sale of coffee and fresh food. Agriculture is dominated by moderate intensity sweet potato production, using peanut rotations, drainage, tillage, mounding and bedding. Small businesses along the HH are an important source of non-agricultural income.

13. **Simbu Province** includes the highest mountain in PNG, Mt Wilhelm, the densely settled Wahgi Valley in the west of the province, and to the south, the lowlands south of Karimui and the Purari Valley. The Chimu and Koronigl rivers flow south from the slopes of Mt Wilhelm into the Wahgi Valley. Altitude varies from 300m in the Purari Valley in the south to over 4,500m on the summit of Mt Wilhelm. Average annual rainfall varies from 2200mm to 4000mm, and increases from north to south. Agricultural incomes are relatively low in the higher mountainous terrain due to steep slopes and weather conditions. Cash income comes from coffee, root crops, fresh vegetables, and firewood. In contrast to WHP and EHP there are no large coffee plantations. The population density overall is 43 per km², but this masks the fact that for occupied areas, the population per square kilometer is 2,575, and there is increasing pressure on agricultural land. Incomes are constrained by the difficult terrain, high altitude frosts, and lack of market access of many areas.

14. **EHP.** EHP includes the Bismark Range (3,500m), and the Upper Ramu Valley in the north of the province, but the HH runs through the valleys of Asaro, Benabena and Dunantina, all of which are in the agriculturally very productive and relatively well-off northern region of the province which supports high intensity gardening. The population density is relatively high averaging of 38.8 per km², while in Goroka district it is very high at 243 per km². There is high potential for agriculture, but this is complicated by the population pressures, and high rates of in-migration. The province divides into two on the basis of the physical environment and level of development. The northern valleys are economically vibrant with intensive smallholder coffee production and good road access to markets in Goroka and Lae. The Asaro Valley is an example of this, with fertile soils, low slope gradients, mild temperatures, optimum rainfall and ample sunlight. The south of the province is mountainous, remote and poor. To the east, the HH drops sharply over the Kassem Pass down to the plains of the Markham Valley in Morobe Province. Average annual rainfall is between 1800mm and 2800 mm with a moderate to long dry season in the eastern half.

15. **Morobe** is one of the largest provinces in PNG (33,525 km²) and stretches from the Owen Stanley Range northeast across two major fault valleys to the coastal Sarawaget Range and offshore islands. Curving around to the northeast is the Huon Peninsula. To the south, the Bulolo and Watut Valleys run north-south, between the lowlands and the Ekuti Range. The altitude in Morobe ranges from sea level to over 4000m on the Sarawaget Range, which rises from the sea blanketed by tangled and impenetrable rainforest. The Markham Valley runs through the centre of the province from the Madang border in the west, to the Huon Gulf south of Lae, the capital of Morobe and second largest city in PNG. There is a good network of roads but not all are passable in mountainous terrain during the rainy season. The HH runs through the most prosperous part of the province through the flat grassy plains of the Markham Valley, where the population density is only 11.5 per km². A long dry season and frequent burning have created large areas of grassland where big cattle ranches and intensive large-scale poultry farming have been established. A palm oil plantation has also recently been planted along the highway. Agriculture here is constrained by the long dry season, low fertility soils and frequent inundation in flood plain areas. The villagers here mostly grow bananas, betel nut, coconuts, peanuts, sugar cane, Chinese taro, mangoes and other sweet fruit, which provide fairly high incomes.

Population

16. PNG has a population of 7.2 million, of whom 88% live in rural areas; 39% of the population lives in the Highlands region, (2,854,874), followed by Momase region with 26%. The annual population growth is high, currently estimated at 3.1%.² The ratio of men to women is 108:100, and the population is very young: 40% under the age of 15 years; 60% under the age of 24 years; and 68% is under the age of 30 years. Administratively the country has 22 provinces and 89 districts. The HH section, which is being upgraded under the SHHIP, traverses five provinces and 14 districts. Table 1 below shows the population within the scope of the Investment Program:

Table 1: Provinces and districts traversed by Highlands Highway

Population by districts and LLGs served by the Highlands Highway: 2011 Census						
Provinces and districts	Households	Persons	Males	Females	% of province	Average household
Western Highlands	85,101	362,850	183,791	179,059	100.0	4.3
Mt Hagen	25,822	123,299	62,787	60,512	34.0	4.8
Jiwaka	65,155	343,987	178,418	165,569	100.0	5.3
Anglimp / South Waghi	35,086	194,109	101,002	93,107	5.4	5.5
North Waghi Rural	15,892	78,499	40,035	38,464	22.8	4.9
Chimbu	76,198	376,473	197,307	179,166	100.0	4.9
Kerowagi	16,616	93,107	48,728	44,379	24.7	5.6
Kundiawa / Gembogl	14,327	78,521	41,394	37,127	20.9	5.5
Sina Sina / Yonggomugl	11,790	56,805	29,539	27,266	15.1	4.8
Chuave	10,461	39,021	20,151	18,870	10.4	3.7
Eastern Highlands	136,992	579,825	301,048	278,777	100.0	4.2
Daulo	14,378	45,783	24,029	21,754	7.9	3.2
Goroka	23,565	103,396	53,292	50,104	17.8	4.4
Unggai / Benna	15,391	67,125	35,050	32,075	11.6	4.4
Henganofi	15,191	62,904	32,503	30,401	10.8	4.1
Kainantu	28,686	126,248	65,723	60,525	21.8	4.4
Obura / Wonenara	8,126	39,919	20,537	19,382	6.9	4.9

² National Statistics Office, 2011, *National Population and Housing Census of Papua New Guinea – Final Figures*

Morobe	130,109	674,810	350,902	323,908	100.0	5.2
Markham	13,352	62,495	32,497	29,998	9.3	4.7
Huon Gulf	16,075	77,564	40,333	37,231	11.5	4.8
Lae	21,901	148,934	77,446	71,488	22.1	6.8

17. All the communities along the HH are indigenous, most living on their own customary land, (apart from those in urban areas or those who married into the local clans), although there is a settlement at Kassam in EHP, established during the building of the Yonki dam and power station, where there are migrants from other places such as Simbu, Western Highlands, and other parts of Eastern Highlands. In the lowland area of Morobe, most settlements are clustered, often around a market, church or school, whereas in the highlands settlements may be more dispersed, with houses scattered along the highway, or located near to gardening land. Some of the settlements were developed as a direct result of the highway, with residents gravitating from more distant hinterland to the roadside so that they have better access to services and can conduct business with those travelling. Government services like health centers, aid posts and schools, as well as churches are also commonly located along the highway.

18. The SHHIP project areas include the following main linguistic and tribal groups (though there are many other smaller groups):

- WHP: Melpa (Mt Hagen), Kuman (Hagen and Wahgi); Nii (Wahgi)
- Jiwaka: Wahgi (Minj and Kerowagi),
- Simbu: Dom (Kundiawa), Gimi (border of EHP), Kuman (Kundiawa, Daulo & Unggai Bena), Kakondo (Kundiawa) Tabari (Gero to Duman), Siane (Magiro, Daulo, Watabung), Sinasina (Sinasina-Yonggamugl)
- EHP: Gahuku-Asaro (Goroka), Dano (Goroka), Yagaria (Goroka), Benabena (Goroka), Kamano (Henganofi and Kainantu), Keyagana (Henganofi), Agarabi (Kainantu),
- Morobe: Gadsup (EHP and Markham), Adzera (Markham Valley)

19. Following the ADB definition of Indigenous People “as those with a social or cultural identity distinct from the dominant or mainstream society which makes them vulnerable to being disadvantaged in the processes of development”, these local tribal and clan groups will not need special provisions for the SHHIP. They are all considered part of the mainstream society living in highland areas. PNG is made up of over 800 language and ethnic groups, all with a similar status. Assessment and field visits confirm that the people in the proposed project sites experience the same social problems and opportunities as other tribes and linguistic groups in PNG. Social divides are more pronounced between those living in urban or rural areas, between those along the main highway and other groups in more remote locations, and in some cases between the two genders, rather than being particularly socially disadvantaged because of their tribal identity or linguistic group.

Economic situation

20. PNG has a small export-oriented economy heavily reliant on commodity products: minerals constitute 75% of total exports, agriculture products 20%, and forestry products 5%. The GDP economic forecast for PNG almost halved for 2016 because of cuts to public spending. The economy also suffered from the effects of El Niño weather in 2015, and the weakness in global prices for export commodities. The dramatic drop in global oil and LNG

prices in 2015 has highlighted the need to buffer the economy against the volatility associated with exports of natural resources. Economic growth has not been inclusive and is skewed towards the urban population, leaving the majority of rural dwellers in poverty.³

21. The HH is the transport backbone of PNG's economy, linking core economic regions that produce much of the country's major exports (minerals, petroleum, coffee, sugar, tea and other commodities), to the country's major port at Lae. It also links major domestic markets along the way, particularly for fresh food produce, which is critical to rural livelihoods. As well as servicing the five provinces within this Investment Program, the HH is the major route to the port of Lae for three others: Enga, Southern Highlands and Hela provinces.

22. Agriculture accounts for approximately a third of GDP: approximately 85 percent of PNG population's lives in rural areas and works in agricultural and other rural industries. However, the distribution of natural resources is very unequal, and much of the land is of low quality. Population density is highest in areas with high quality land, which includes much of the large highlands valleys, such as the Wahgi and Asaro basins.⁴ Many of the highlands areas adjacent to the HH are highly productive farming areas, with better access to markets than those more distant from main roads.

23. Most of the land through which the HH passes is customary land, which, in the Highlands, is inherited through patrilineal descent. Customary land, (also known as un-alienated land), makes up about 97% of the total land area in PNG, and most of it, is managed by male leaders (even in matrilineal societies). Planting annual food crops does not secure long-term use rights over land, unlike the planting of small plantations of perennial crops such as coffee and coconuts. Food gardens are generally transient, whereas plantation of tree crops are semi-permanent markers of property rights and confer status on the men who control them. When customary land is leased for plantations, logging or mining, women seldom take part in negotiations, nor are women usually considered to have the right to claim a direct share of leases, royalties or compensation payments. With high rates of population growth, land is increasingly scarce, exacerbating long-standing patterns of conflict over land. Women's access to land depends on male kin or spouse's kin, which makes women who live without male support, particularly vulnerable to exploitation or abuse of their rights.

24. The subsistence food production system, with smallholder farming dominated by root crops, small-scale animal husbandry, hunting, gathering and fishing, provides sufficient food supply on a year-round basis for most of the population, but people living in highly marginal environments suffer from periodic food shortages. Malnutrition resulting from inadequate diets is a serious problem in many parts of the country, and is associated with less developed areas, low monetary incomes, and poor delivery of health services. Malnutrition is less common along the HH communities, which have more reliable cash incomes because of their proximity to the road. Vegetables and fruits are grown both for home consumption and sale of the surplus. Many families also keep a few pigs, and a small number of households have two to six goats or sheep.

25. Many women market their produce at the main HH town markets, or at small roadside informal markets, but others sell to 'collectors' who gather up produce from many growers and on-sell to larger companies, including the Goroka Fresh Produce Development Agency (FPDA). FPDA provides extension services to seven Highlands provinces, to try to improve the supply chain through seed multiplication, consistency of supply, quality, and

³ ADB 2015, Country Partnership Strategy, 2016-2020

⁴ Allen, B., R.M. Bourke and J. Gibson, 2005, *Poor Rural Places in Papua New Guinea*. Asia Pacific Viewpoint.

marketing services for farmers. They provide information, seeds, training and do a market survey on a weekly basis to inform growers of current prices, covering 60 different crops.

26. It is estimated that highway improvements could at least double the amount of produce transported from the highlands to Port Moresby.⁵ Currently, the Bismarck Maritime Company sends 15-20 containers of highlands fresh produce from Lae to Port Moresby every week, while Consort Express Line Ltd ships a similar amount twice weekly. There are cool storage sheds at the Mt Hagen airport, and at Kainantu, (run by NKW Holdings Ltd formerly Waufresh), but these are insufficient and there is high wastage and damage to crops during transportation, partly because of poor grading, poor post-harvest processing, a lack of suitable packing materials, and because of the condition of the road. The Mapai Transport Company manager, who has 18-20 trucks travelling up the HH daily, estimates that almost half of all fresh produce goes to waste and that cool storage, packing and logistic facilities and better road conditions are necessary to improve this situation. NKW received aid from the New Zealand government in the form of chiller trucks and storage facilities. They receive produce direct from farmers, quality check the product, pack them in 'green baskets', and transport to a depot in Lae with 100 tonne chiller capacity, from where they supply nearby markets (such as UNITECH, Lae International Hotel, Henderson Foodland Supermarket, and the catering department at Hidden Valley goldmine.) The main produce marketed is potatoes, bulb onions, spring onions, zucchini, English cabbage, purple cabbage, carrots, and broccoli.



NKW cold storage and logistics warehouse, Kainantu

27. Other economic activities dependent on the highway include the mining industry, particularly the Ramu Nickel and Cobalt Mine run by Chinese Metallurgical Construction Group in Madang Province, the LNG Exxon/Mobil and Oil Search gas and petroleum enclave in Hela Province, and Porgera gold and copper mine in Enga, (operated by Barrick Gold company), as well as large scale agricultural enterprises. These include:

- Intensive chicken farming along the Markham Valley
- The Ramu sugar industry on the Madang road
- Trukai rice farms including their research farm near Nadzab at Gabmatzum
- Cattle ranches and estates such as Leron Plains Ranch, Wawin, the government station at Erap, Zifazing, Ramu Beef, and Sulikon

28. Approximately 71% of PNG's cattle are in Morobe and Madang provinces mainly in the Markham and Ramu valleys. The average small holder runs 34 head on 136 hectares (ha). While large farmers raise 2,100 head on 3,645 ha. Workers on estates gain stock expertise and breeding stock to establish their own small herds, and frequently sell store

⁵ Bonney L, M Warinu, and P. Muscat, 2012, *Yu Tokim Mi Long Planim Kaikai Na Maket We? Feasibility Study for a New Wholesale Fresh Produce Market in Port Moresby*, NZAid, MFAT

cattle to estates to finish and market. However, numbers of cattle are dwindling, with currently only an estimated 30,000 head of cattle in PNG, down from 100,000.

29. Businesses activities along the HH include transport companies running passenger services (PMVs or mini-buses), gravel extraction in river beds, liquor retailing, workshops for mechanical repairs, fuel, battery and tire shops, contractors involved in infrastructure projects (such as Kaia in Simbu province), and roadside markets with sugar cane, kaukau, carrots, cabbages, strawberries, mandarins, cooked meat, scones and donuts, soft drinks, and non-food items such as bilums, hats, woven palm or bamboo building materials and matting, petrol, flowers, and coffins.⁶

30. While women expect to be able to increase their production and marketing of fresh produce when the highway improves, the gender division of labor and women's traditional exclusion from the benefits derived from road rehabilitation and maintenance works have been identified as a problem during community discussions. Women want more access to jobs provided by the road improvement Program (not just in traditionally female domain such as catering for construction workers, but also in construction and maintenance tasks). They say that civil works contractors need incentives to increase the percentage of women workers in the labor force, and to ensure they are paid equally to men for equal work. Women's groups were keen to be involved in organizing work groups, in order to increase their income.



Gravel extraction beside the Wahgi River



Tea plantation in Jiwaka Province



⁶ Coffin building has become a small industry since the advent of the HIV/AIDS epidemic, catering with the increase in deaths.

Bulb onions for sale in Kundiawa



Coffin manufacturing



Petrol sales at Daulo Pass



Household income and Poverty

31. PNG is ranked 156th out of 186 countries in the 2013 Human Development Index, making it the lowest-ranked country in the Pacific region.⁷ Despite more than a decade of high average rates of economic growth there was no decline in poverty between 1996 and 2015, and the national poverty rate of people living on less than \$1 per day is now approximately 37% (i.e. people living below the poverty line of \$360 per year).⁸ There are large geographic disparities in the levels of poverty between and within provinces, but the rural areas are poorest. Approximately 37.5% of national poverty exists in the Highlands

⁷ United National Development Programme, 2013 *Human Development Report: The Rise of the South*, Geneva

⁸ National Statistics Office, 2012, *Papua New Guinea Household Income and Expenditure Survey 2009-2010*, Port Moresby

region, where remoteness and lack of roads is a determining factor in village income levels. The average rural resident in the highlands must walk four hours to the nearest road, so those communities living along the highway, although poor, have a distinct advantage in comparison with those in more isolated communities. The highest incidences of poverty are among people with no income generating activities, the self-employed in the semi-subsistence agricultural sector, as well as market vendors and others working in the informal economy.⁹

32. The majority of people's dependence on subsistence rain-fed agriculture raises levels of vulnerability to natural disasters and changing environmental conditions. Insufficient income opportunities and high levels of crime and violence further exacerbate hardship and inequalities. In PNG, people's on-going connections to land and food production mask poverty, and many prefer to talk of 'hardship'. But income poverty, and poverty of opportunity are real challenges with almost 2.5 million people living in hardship. Income and poverty levels along the HH will be investigated through the socio-economic survey during Tranche 1.

Social services

33. Physical isolation and poor transport networks pose major challenges to expanding access to basic social services, a situation compounded by underlying state fragility and weak bureaucracy. Rural health services and basic education facilities are often closed, are cut off from supplies, and lack access to reliable power, while teachers and health workers are forced to spend a lot of their time travelling to and from regional centers for salaries and supplies. Although the social services located on the HH are better off than many more isolated facilities, many are still suffering from the same problems. Of particular concern for the SHHIP are the large number of children walking long distances to school, using the HH who are often at risk from heavy traffic thundering by because of the lack of footpaths or other safety features.

34. Almost half of primary school-aged children are still out of school, with fewer girls going to school than boys. The country's net enrolment rate 63% is the lowest in the Asian Pacific region, and only one in three children complete basic education.¹⁰ Many schools have poor facilities, with some schools having no toilets at all and no piped water system. There is little road safety or health education in the curriculum. A large number of schools are situated along the HH. Below is a preliminary list of educational facilities on the HH within the Investment Program scope:

Educational facilities along the Highlands Highway

Jiwaka Province	Wesley Bible College
	PMF Centre
	Good News Elementary School, Kindang
	Melanesia Nazarene Teachers' College
	Jiwaka Provincial High School
	Kudjip Nursing College
	Kudjip Training Institute
	Tomba CHW Training School
	St Marys Hanepa Primary School

⁹ UNDP, 2014, *National Human Development Report: Papua New Guinea, From Wealth to Wellbeing: Translating Resource Revenue into Sustainable Human Development*,

¹⁰ UNICEF PNG, <https://www.unicef.org/png/activities.html>

	Ahl Primary School
	EBC Timol Wahgi Training Centre
	Urup Primary School
	Mundiu Primary School
	Bonong Lutheran Primary School
	Kumbai Primary School
Simbu Province	Munde Primary School
	Barawagi Community School
	Don Bosco Secondary School
	Kumerau Primary School
	Mingende Nursing School
	Mingende Community School
	Sumgau EBC High School
	Kodom Angaunde High School
	Wandi Community School
	Gon Community School
	Numunma Primary School
	Lutheran Day High School
	Prenorkwa Community School
	Ku Community School
	Duman Community School
	Siri Koke Community School
	Masul Community School
	Tidima Primary School
	Keto Primary School
	Chuave Community School
	Chuave High School
Eastern Highlands Province	Avanmofi Community School
	Yagusa Community School
	Komperi Community School
	Watabung Primary School
	Mando Primary School
	Ganarafo Primary School
	Asaro Primary School
	Kabiufa SDA Secondary School
	Lufalufa Primary School
	Mt Sion Disabled School
	Kamaliki Vocational School
	Agribusiness Training Institute
	Ketarobo Primary School
	New Tribes Mission School
	Kintunu Primary School
	Henganofi Secondary School
	Kafentina Primary School
	Komperi Primary School
	Barola Primary School
	Raibinka Primary School
	Duempinka Primary School
	Agarabi Primary School
	SDA Nuemfindenu School
Morobe Province	Zumin Primary School
	Arifiran Community School
	Mutzing Community School

	Markham High School
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35. There are also many health facilities situated along the HH, with varying levels of service. Provincial Hospitals act as the referral centers for district hospitals and health centers, while the health centers supervise and support smaller aid posts, which provide only preventative services and basic primary health care. While hospitals have the capability of dealing with road traffic accident victims, health centers located where there are many accidents, complain that their staff are not trained to deal with emergencies or trauma victims, and those suffering severe injuries often die before they reach larger hospitals. Many of the health facilities provide HIV/AIDS services, and a list of these can be found in Annex 5. A partial list of health facilities along the HH is below:

Health Facilities along the Highlands Highway within the Investment Program scope

Western Highlands Province	Mt Hagen hospital
Jiwaka Province	Minj Health Centre
	Kudjip Nazarene Hospital
Simbu Province	Kaupena Health Centre
	Mingende District Hospital
	Kundiawa General Hospital
	Ku Aidpost
	Masul Aidpost
	Chuave District Hospital
Eastern Highlands Province	Goroka Base Hospital
	Kainantu District Hospital
	Komperi Health Centre
	Yonki Health Centre
Morobe Province	Atsunas Aidpost
	Mutzing Health Centre
	Angau Hospital, Lae

Health issues

36. PNG is characterized by a generalized HIV epidemic: the estimated prevalence rate of is 0.8% with 40,000 people living with HIV. Data also suggests that the PNG HIV epidemic is mostly concentrated in the Highlands region (with an overall prevalence of 1.07%, and Jiwaka 1.51%, WHP 1.30%, and EHP 1.0%). As of mid-2016, there were 22,548 people living with HIV receiving antiretroviral therapy, which they must remain on for life. Key at-risk groups include truck drivers that work on the HH; female sex workers, particularly at PMV stops along the HH; and men who migrate to towns and development enclaves for work. These are highly mobile groups. Wives and their new-born children are also at risk because the use of condoms is not widespread and there is a high degree of sexual violence within marriages. The Mutzing Health Centre in Markham Valley has 345 registered sex workers receiving regular preventative and treatment services, of whom six are children under 16 years. Twenty-five of the female sex workers are being treated with antiretroviral drugs, but because they are move frequently, it is difficult to ensure regular follow-up. The exposure of roadside communities to higher levels of road traffic means that special attention must be paid to the risk of sexually transmitted infections (STIs). In light of women's greater exposure to the risks and impacts of HIV, culturally sensitive and gender-responsive awareness and behavior change initiatives need to be provided in campsites and corridors of influence as part of broader health education programs, (see Annex 5).

37. Alcohol: There are a huge number of liquor outlets along the HH, and a lack of proper licensing.¹¹ This has contributed to the number of vehicle accidents, as well as to violence (particularly against women), fights between groups, loss of income for family needs, obesity, and ill health. Enga and Southern Highlands have both introduced liquor bans along the HH sections within their provinces, which are strictly policed, but no such bans or policing exist for the Investment Program provinces.

38. Accidents: Road safety is a major issue in PNG, causing significant loss of life, injuries, and economic losses. Staff at Kundiawa Hospital and Mutzing Health Centre in the Markham Valley report that there are very frequent serious accidents (at least one per week), which at Mutzing, they are ill-equipped to deal with. Many of the injured die being transported to the Lae Hospital. The steeper sections and many unmarked corners are also traffic accident black spots. While no accurate figures exist for the number of accidents or fatalities, rates are thought to be some of the highest in the world. There is a danger that improving the HH will allow higher traffic speeds but may also cause an increase in traffic accidents. Therefore, mitigation measures are planned through the road safety component of the Investment Program: road safety surveys, the removal of black spots, improved signage, crash barriers and footpaths will be part of the engineering design; road safety awareness will be raised among road users and roadside communities; and efforts made to ensure traffic laws are enforced.

Gender

39. There are few countries in the world where men outnumber women, but PNG is one of them having 108 men for every 100 women. This phenomenon is only found in countries with profound gender inequalities. The country is ranked 133 out of 149 countries on the Gender Inequality Index. The PNG Country Gender Assessment, conducted in 2011, highlighted significant gender gaps limiting women's economic opportunities and access to health care, as well as educational attainment and literacy. Women in PNG are facing serious health issues: maternal mortality rates are high by world standards at 733 per thousand births. In 2009, there were only 92 girls for every 100 boys in primary school, and just 78 girls per hundred boys attending secondary school. In the Highlands, this disparity was worse, with only 85 girls in primary school to every 100 boys. Around 37% of females, compared with 26% of males have never attended school.¹² In the Momase region, over a quarter of girls between 15 and 17 never attended school, compared to only 5.6% of boys.¹³ Factors influencing enrolment in schools are distance from school, lack of sanitation, sexual harassment and violence towards girls by other students or male teachers, the expenses of education, and cultural factors relating to gender discrimination and exploitation of girls who are kept home to do household chores, look after children, or help plant and harvest food crops.

40. As noted above, the HIV/AIDS prevalence rate is 0.8% nationally, but higher in the Highland provinces. Women and girls are more vulnerable to HIV/AIDS and sexually transmitted infections (STIs), as they are less able to protect themselves, partly because of the widespread gender based violence. Many men feel they have the right to beat and sexually abuse wives, prostitutes, women from enemy groups, and strangers. Alcohol and drug use have accelerated the violence, which includes domestic violence, child abuse, rape, and gang rape. The high level of gender based violence, not only increases vulnerability to HIV/AIDS but also constrains women's and girls' mobility and opportunities. A study in four provinces found that nearly half of the women had experienced physical and/or

¹¹ The PPTA assessment team counted 58 beer shops between Kagamuga and Kundiawa; 54 SP beer outlets between Wara Simbu (outside Kundiawa) and Goroka, and 29 between Akamore market at Yongki and Nadzab.

¹² World Bank, UN, AusAID, ADB, GoPNG, 2012, *Papua New Guinea Country Gender Assessment, 2011-2012*

¹³ National Statistics Office, 2012

sexual violence in their relationships, and women with physically or sexually abusive husbands were much more likely to have HIV/AIDS. Women are twice as likely to report that crime stops them from using public transport, walking to work or shopping, fetching water, walking to the gardens, and allowing children to walk to school.

Stakeholders of the Investment Program

41. The principal stakeholders of this Investment Program are the people who live along the HH. This includes the communities as a whole, and groups within these: people who cultivate and market food cash crops, vendors at informal markets in villages and at PMV stops, as well as at larger formal markets, and those producing and transporting cash crops to the ports or airports for export elsewhere. These stakeholders will benefit directly from the improvements, which will make travel faster and more convenient, improve accessibility to services and markets, and ensure their produce reaches its destination undamaged by rough roads. They will also benefit from the opportunities for employment in road works and maintenance, and because they may be able to pay for increased public transport services.

42. The road transport sector constitutes another category of principal stakeholders. There include the people and companies involved in the movement of passengers and freight along the HH, such as: PMV and mini-bus drivers, their passengers, transport companies, commercial truckers, including independent truckers, and the businesses and development enclaves in the Highlands region that rely on these transport services. The transporters are interested in lowering their vehicle operating costs, as well as increasing the services they can provide. In the case of development enclaves (such as LNG ExxonMobil extraction in Tari, and Porgera mine in Enga), they may contribute to the costs of maintenance through tax credit schemes. Civil works contractors also benefit directly from their involvement in the upgrading, rehabilitation, and maintenance of roads, from profits for their core business.

43. A third category of stakeholder, are the local, provincial and national government agencies that both benefit from and are instrumental in the implementation of the road improvements. Their interests stem, on the one hand, from their mandates to provide services to people, businesses and communities in the Program areas, and from their direct contributions of funds and/or technical expertise for the road maintenance. The DOW in particular will gain from both the funding, and the capacity building provided through the Investment Program. The Investment Program will assist the GoPNG to achieve its objectives for Development Strategic Plan (2010-2030) and National Transport Development Plan (2011-2020), which identifies the HH as the number one priority road for the country.

44. Consultations with stakeholders along the HH confirm that attitudes to the SHHIP plans are very positive, especially from freight and transport companies but also from the general travelling public. Currently costs of wear and tear on machinery, breakdowns, delays from landslides, floods, and loss of cargo from highway robbery are high. People are fed up with bone-shaking dusty journeys and unpredictable services: all were relieved to hear of the upgrading program, and want it started as soon as possible.

D. Subprojects and land issues

Components and activities

45. The main components and core activities to be undertaken during the Investment Program are:

- a) Comprehensive sustained maintenance, including specific repairs, routine and periodic maintenance, and rehabilitation works to keep the road open to traffic at

all times, and to improve ride comfort; salvaging the road sections which are in fair condition; removing vegetation encroachment and unearthing paved shoulders where they exist; restoring drainage efficiency; and setting up a quick-response mechanism to address emergency situations (T1, T2, and T3).

- b) Appropriate upgrading by incrementally resurfacing or strengthening the pavement structures; increasing the drainage capacity, protecting slopes from instability, and raising the road grade on flood prone sections in Morobe Province (T1, T2 and T3).
- c) Improving traffic safety through installation of crash barriers, signage, road markings, and implementation of a community road safety campaign (T1, T2, and T3).
- d) Building a two-lane by-pass to divert heavy and through traffic around Goroka, and construction of about 20 km of truck climbing lanes on the steep slopes of Kassam and Daulo Passes (T3)
- e) Building two truck weighing stations in Jiwaka and Goroka; and building two logistic platforms for the trade of fresh produce in Jiwaka and Goroka T3).
- f) Widening all the 29 single lane bridges to two lanes (with footpaths), which will require a limited number of realignments; and reinforcing and reconstructing as appropriate, all 40 two-lane bridges (T2).
- g) Improving the capacity of the PNG DOW and related departments to manage and sustain bridge, road, and infrastructure assets, and also to provide greater levels of accountability and transparency of safeguards, in particular, land acquisition and resettlement processes (T1, T2, and T3).

46. As can be seen from this list, the only components/subprojects involving physical works to be undertaken in Tranche 1, are those listed under a), b), and c), none of which would require land additional to the 40m, with the possible exception of sophisticated drainage and soil stabilization sub-projects where land is prone to slips or flooding.

A history of land acquisition for road building¹⁴

47. PNG has a long and complex history of dealing with the land needed for provincial and national roads and related social problems. Difficulties in acquiring land from customary owners for public purposes arise for many reasons: old or missing records, disputes over ownership or rights, excessive compensation demands, long delays, failure of government agencies to communicate adequately or to understand the attitudes of villagers, local shortages of land for gardening, and corruption in the payment of compensation. Negotiations to acquire land usually involve government officials from several agencies (DOW, DLPP, and Provincial Governments), customary owners from several different groups, and often too, people from the private sector, such as contractors. Even with the best laws and processes in place, such negotiations would be complex.

48. Many groups in PNG are willing to give up, or share rights over parts of their land if it is used for the public good. Even so, when customary owners have been made to feel

¹⁴ This section draws on a chapter by Michael Manning and Philip Hughes, 2008 'Acquiring land for public purposes in Papua New Guinea and Vanuatu', in *Making Land Work*, Vol Two Case Studies, Australian Agency for International Development (AusAID), Canberra, ACT.

http://dfat.gov.au/about-us/publications/Documents/MLW_VolumeTwo_CaseStudy_12.pdf.

powerless or exploited they have been known to damage infrastructure being built on their land, or threaten violence that has led to roads being blocked or maintenance activities being stopped. While there is much concern in PNG about those who threaten violence or closure of roads to demand excessive or repeated compensation,¹⁵ it is also possible that in some cases, they are correct when asserting that the land was never purchased, or they were not compensated for its loss. It is common to find that land acquisition records are poorly kept, damaged, lost, or even stolen.



Information sign in Mt Hagen to increase awareness of the Infrastructure Protection Act

49. It is also possible that on occasion, individuals have pretended to represent landowners in a dispute to receive the payment supposed to be distributed among the owners. Such tactics can mean that landowners who rightly argue they have not been paid, are not believed. In other cases, the landowners often think the state has unlimited resources that it is unwilling to share fairly. Or they compare their situation to other landowning groups who have received huge compensation payments and royalties from international resource extraction companies, who will be making a profit from the land, which is not the case for roads constructed for the public good.

50. In the colonial past, the Australian administration required customary landowners to give their land and labor freely for road building, on the grounds that they would benefit from its construction. Some provincial governments still apply this policy of landowners donating land,¹⁶ (especially for provincial roads), although they are now paid for their labor. The fact that many roads have been built on land that remains in customary ownership, is not always understood by public servants, trying to upgrade roads, who believe the land was properly acquired and that landowners are simply being obstructive and 'greedy' in demanding compensation. The fact that land records are frequently lost or destroyed, exacerbates the situation.

¹⁵ As a result of this concern, and partly as a response to massive compensation demands, in 2010, the government passed the Protection of Transport Infrastructure Act (2010) which aims to protect government assets such as road reserves, with penalties of up to K500,000 or/and a jail term of five years for people who breach it. The Act also deals with encroachment of road reserves, the erecting of speed bumps, or excavation and destruction of any part of a public road.

¹⁶ East New Britain, for example, has a 'no compensation' policy for some forms of land acquisition for state purposes. Local and provincial compensation tribunals deal with compensation for removal of trees, soil, or assets in order to build or maintain roads, but not for the land itself, if it is acquired for public purposes.

51. From the mid-1950s the administration adopted a policy of purchasing in full, the rights of way of national roads, such as the HH. But the process often involved only a cursory investigation of landowning groups, and it is unlikely that it ensured all landowners were recognized and received due compensation. The Land Acts of 1962 and 1996 revised and improved the way the state acquired land, and surveying and marking boundaries became more rigorous. But as a result, the process of acquiring land for roads is now difficult and time consuming, taking several years to complete.

52. In recent years many road rehabilitation programs have been funded by international donor agencies such as ADB and before road works are carried out, the GoPNG is supposed to ensure all the land is acquired and compensation paid in accordance with the Land Act. However, in a few cases, it is difficult to determine with complete certainty, which existing road rights of way have been acquired by the government, and which are still in customary ownership. The land registration records in both the Department of Lands, and in the Lands and Survey Branch (Operations Division) of DOW are in a poor state.¹⁷ There is no centralized computer-based record of land registration, and often the DLPP has a big back-log of registrations that are not yet entered into their maps or records.

53. Even where past road improvement projects were confined largely to road easements previously acquired by the government, increasing numbers of demands are being made by landowners, for further payment for land in the rights of way. The claims are usually based on arguments that 'the original price was too low', 'the money was paid to the wrong families', 'the purchase was not made in accordance with customary law', or 'the elders who agreed to the sale had no right to dispose of the birthright of future generations'. This situation is especially common with land acquired before the Land Act of 1962 came into force, as was the case for much of the HH.

54. The government finds itself in a difficult situation, where they state that all land within the HH road corridor belongs to the state, but it cannot always provide documentary evidence of purchase for all sections. There have been large exercises in the last decade to remedy the situation. Many of the on-going issues can be resolved by good research and face-to-face negotiations with landowners, though it is very time consuming. The government departments involved in land acquisition are understaffed and poorly resourced, making it difficult for them to do their jobs. To expedite the process, road projects routinely fund some or all travel, vehicle hire and accommodation costs of DLPP staff, as well as paying fees to non-government mediators, from their budgets. Where projects have employed good resettlement staff, lands officers, and mediators, delays do not become critical because landowners can see that progress is being made and there is someone to whom they can talk. The HRRIP has adopted the strategy of signing Memoranda of Agreement with landowners, without compensation, in recognition of the benefits the provincial feeder roads bring to the communities along it. This approach works in more isolated areas where people are desperate for an all-weather road so they can access services and markets.

Types of problem sites

55. ADB's guidance on planning for present and future land acquisition and resettlement impacts recognizes that there may also be past impacts from involuntary resettlement activities undertaken by the borrower/client, which may not have been in conformity with the

¹⁷ The Survey and Lands Branch of DOW is responsible for commissioning land and compensation investigations from relevant staff of the DLPP, and in overseeing disbursement of funds, together with the Provincial Government. Valuations are based on the Valuer-General's *Economic Trees and Plant Price Schedule*, but subject to negotiation, as is compensation for structures. Land negotiations with landowners are undertaken by Provincial and District Land Officers.

ADB's involuntary resettlement safeguard requirements under the SPS 2009. In this case a due diligence exercise is recommended to be carried out and appropriate mitigation measures proposed. Any outstanding compensation has to be paid from the borrower's internal resources.¹⁸

56. While new land purchases are not expected during Tranche 1, the due diligence assessment has considered the outstanding land problems along the highway from the past, which can be classified into the following types:

a) Historical claims for un-purchased land: the problems with records

57. As noted above, before the introduction of the Land Acts, roads built on customary land may not have been paid for (or all landowners may not have received payment), nor properly gazetted as property of the state. Currently, there are two known spots along the highway, with historical claims: at Bena Bridge near Kainantu, and for the Daulo Pass section of the road by the Daulo Landowners Association. (See Section F: Consultations and Site Visits below). The DLPP in Port Moresby has shifted office several times over the years, and in the process, records have been wrongly filed, mislaid, or lost. Some have decayed in damp conditions or been eaten by insects such as silverfish. Often there is no way of finding the historical records.

b) Consequences of natural disasters

58. There is a widespread lack of awareness among communities regarding the causes of natural disasters near the highway. It seems that all landslides, flooding and other natural disasters are always blamed on the road, whether it contributed to the problems or not. There have been recent calls for a campaign to raise awareness of the differences between a natural event "beyond the control of the Government or anyone else" and a man-made one.¹⁹ PNG's National Disaster Centre, together with its network of 22 Provincial Disaster Centres, is responsible for providing advice to Provincial Councils, making assessment of hazards, preparing plans and preparedness for emergencies, fostering public awareness of natural hazards, and organizing the training of relief workers. It is not clear how much they contribute to emergency works, funding of relief supplies, or identification of areas unfit for building houses.

59. There are a number of steep, unstable areas of land adjacent to the HH where people continue to garden, and build houses and other structures, which generally contributes to further instability, and which may cause some of the disasters. The DOW at present, has no means to prevent people building on this land, but is often expected to pay compensation for the damages when the land collapses. With good engineering design and drainage, some places can be made safe, but there remains a need to deal with the unregulated occupation and building on unsuitable, unstable or dangerously flood prone land, to prevent death, injuries and claims on the state. Examples of these areas are at Guo, near Kongo Coffee, in parts of Daulo Pass, and between Clear Water and Ramu bridges, and Zumin and Little Maniang bridges in the Markham Valley (See Section F: Consultations and Site Visits below).

c) Maintenance issues

¹⁸ ADB, 2012, *Involuntary Resettlement Safeguards: Planning and Implementation Good Practice Sourcebook – Draft Working Document*, November 2012, p.10-12 Manila.

¹⁹ Chief Executive Officer, Surgent Gand Mond, of Kudinawa-Gembogl District, quoted in National Newspaper, 25 January 2017, p.8

60. As engineering assessments of the HH by SHHIP engineers have revealed, many of the problems along the highway are due to lack of regular maintenance, or in some places, to negligence of contractors related to maintenance work. At Ba Creek in Simbu Province, a large culvert has been blocked for a long time, so that during heavy rains the water builds up and floods the adjacent garden land, damaging crops. This has resulted in communities asking for compensation. At Keranga, in Kerowagi district, land instability caused a slip in the past when 20 houses were lost, but community leaders say that the contractor who came to repair the road took gravel from near the Wahgii River leaving huge craters which caused environmental damage and led to further land creep over a 1km stretch near the road. The result of this has been compensation claims presented to DOW, although if the land was not properly restored following gravel excavation as informants claim, the contractor may have been responsible.

d) Non-payment of compensation claims

61. Long delays in completing the process of acquiring land, or in responding to claims for damages, results in much dissatisfaction, anxiety and frustration on the part of landowners, who in some cases have been waiting generations to settle historical claims, or whose crops are being repeatedly and regularly wiped out through some neglected maintenance task. This can lead to conflict between the state and landowners. Delays beyond three or four months often result in further compensation demands, as in the case of Duman in Simbu where the relations with DOW deteriorated badly following the flawed Simbu land acquisition process in 2008 (see Section F below). The longer the delay in settling these issues, the greater the number of extra demands. Currently, DOW has many outstanding claims for land or damages, but limited resources to pay these, even if they are legitimate.

e) Road diversions

62. Even where the road has been legally acquired and is undisputed, further problems arise if there is a landslide or flood, and the road has to be diverted to bypass the disaster area. There are several spots, where the road has been shifted slightly from its original alignment, in order to circumvent the damaged or unstable area. Clan landowners argue that they have lost some customary land, which should have been paid for, but that they only received compensation for damages to their assets. Often the amounts they were paid are very high, and well above standard government valuation, but this does not prevent people from claiming more, if they believe the land has not been purchased properly, and there is no evidence of transfer of title for the deviation. Two examples of this are at Gera and Waingar (see Section F below). It appears that, after a disaster, in its effort to get the road quickly repaired and functional again, DOW have taken short-cuts so the road can be opened, and have paid clans for damages (or not to obstruct the repair work), without initiating the long and cumbersome legal process of acquiring it.

f) Encroachment on the road corridor

63. It is quite common that gardens and buildings such as trade stores, kiosks, stalls, and tire repair shops have gradually encroached onto previously acquired rights of way – to the edge of the road itself and well within the legal 40m limit. If the state has acquired the land through the proper process and compensation has been paid, then people that encroach on the ROW are squatters. However, there does not appear to be a well-established procedure for addressing this problem along PNG roads, apart from calling in the police to forcibly destroy the offending structures, which is very bad for community relations. The 40m Right of Way is neither respected nor properly enforced, and a better method of encouraging compliance needs to be found.

64. But it should also be noted that if the boundaries of the acquired land are not clearly marked, after some time, people may assume that the state land is represented by the road itself, and not by the wider right of way. (Although it is undoubtedly true that some people deliberately try to extract the maximum possible amount of money from what they view as a wealthy state that does not distribute fairly). In practice, often another round of compensation payments is usually negotiated, which sets a dangerous precedent, fuelling further demands in future. The biggest problems with encroachment on the HH appear to be in near Chuave (through a deep gorge) and along the high and steep Daulo Pass section of the highway where the road is particularly narrow and there is little space for roadside businesses or truck stops (see Section F).

65. A further problem relating to encroachment may be the graveyards located within the right of way. A common practice along the Markham Valley is to mark all road accident deaths by erecting monuments next to the scene of the accident (although corpses are actually buried elsewhere). In Simbu, bodies of political and community leaders are sometimes buried on roadsides, where the burial sites are more visible to the public. In the past, people have usually agreed to relocate graveyards if the road rehabilitation requires this, but compensation has to be paid for the removal, and in some cases, an expert archaeologist is required, because it would violate customary restrictions for local people to do this.

g) Land disputes

66. Land boundary disputes between clans or tribal enemies are a common feature in PNG, and disputes occur for many reasons, mostly unrelated to roads. Most disputes are about who are the real customary owners, but they can be triggered by something as small as a pig destroying someone's garden. However, when the possibility of compensation arises, disputes tend to multiply as every clan tries to get a piece of the action, frequently by taking disputes to the courts. Even where the land appears to be empty and unused, people will have rights over it. For example, recently there was a large landslide on Kassam Pass, and two groups disputed ownership of the land, though it was heavily forested with no habitation. The courts eventually decided that both groups had rights in the land, as it was used as common hunting ground by two different clans, one from the Eastern Highlands and one from the Markham Valley.

67. When compensation has been paid more than once on a single piece of land, whether for purchase, or for loss of assets, this leads to more groups making repeat demands and subsequently, more suspicions of corruption (although the 'mistake' may simply be the result of a loss of records or corporate memory). Lack of records relates not only to historical claims, but also contemporary ones: the disappearance of records for the large compensation exercise that was carried out in Simbu in 2007-2008 is a disturbing case in point. The problem for any road program is how to ensure that negotiations for land have been with the correct landowners, that they are finalized and recorded, so that customary landowners do not dispute the outcomes, or repeatedly seek additional compensation from the government for the same piece of land, or in extreme cases, start a tribal fight over it. Disputes and tribal fights can arise not only around land purchases for the road corridor, but also around sites of gravel extraction, which can be a lucrative form of income for landowners.

h) Summary of issues

68. The large number of sites with outstanding issues in Simbu reflect both the rugged topography of that province, but also the pressure on land from a growing population with little stable, fertile land for farming. Any impacts from natural disasters or roading are severely felt because of land shortages. Simbu communities have suffered from more

natural disasters along the highway than most other areas. They have the perhaps undeserved reputation for being “difficult” to deal with. Some of this stems from their perception of the past failings of DOW and donors in dealing with natural disasters, land acquisition for roads and compensation payments, which are often seen as unfair: the result of either incompetence or corruption. Past records of land and compensation transactions are often not easily available from DLPP or the Survey and Lands Branch (SLB) of DOW headquarters, so it has been difficult to understand the current situation or verify what has been done in the past. SLB say that because the land acquisition work under the World Bank HH Rehabilitation Project was outsourced, this has meant reports are not accessible. They estimate that overall DOW is facing K70 million outstanding claims dating from as far back as 2005.²⁰

69. In PNG generally, provided the land acquisition process is transparent and seen to be fair to all involved, and the officials involved in negotiations are competent, honest, and do not have vested interests, land can be acquired for public purposes in a fairly straightforward way (although it does take time). Many of the disputes and grievances are not about **whether** the land should be acquired or even about compensation, but about **how** it was done, or about disputes between local people about **who** are the real customary owners. However, there is a growing trend where the process of acquiring land as set out under the law has not been properly followed: both officials and landowners are exploiting weaknesses in the system, resulting in more public allegations of corruption and a loss of confidence in the process.

70. Section F identifies some of the outstanding grievances or resettlement actions and which require assessment of potential risks, and appropriate mitigation measures. Although these existing sites have not been prepared in anticipation of ADB assistance, ADB will need to work with the GoPNG to ensure appropriate measures are implemented within an agreed timeline. These do not necessarily have to be about cash compensation, but may include other solutions, such as development projects, employment or contracting of services for the new Investment Program. “Good practice is to assess any outstanding involuntary settlement issues that could generate disadvantages for the displaced persons or reputational risks for ADB and assist the borrower to prepare a time-bound corrective action plan to resolve outstanding grievances”.²¹

E. Involuntary resettlement and scope of land acquisition for T1

71. Since the engineering design for Tranche 1 activities will ensure that all maintenance and repair activities remain within the road corridor, there will be no land acquisition necessary. If there will be land acquisition following detailed design then it will be dealt with in accordance with LARF.

F. Consultation and site visits. Some of the sites appear to have outstanding issues. These will be investigated and dealt with under Tranche 1 with civil works to be done under Tranches 2 and 3 following satisfactory resolution of all outstanding issues.

Jiwaka Province

Site 1: Fruit market, Alta Village, “Troublesome Creek”, Jiwaka (22.4 - 22.7 km from Mt Hagen)

²⁰ Personal communication 8th Nov 2016, Wally Wigbert, Asst. Secretary, and Mogia Miamil, Principal Land Management Officer, LSB, DOW, Port Moresby

²¹ ADB, 2012, *Involuntary Resettlement Safeguards: Planning and Implementation Good Practice Sourcebook – Draft Working Document*, November 2012, p.10 Manila

72. This flat area of around 300m near two roadside markets (known as the Orange Market), is subject to heavy flooding at least twice a year, when the road is often closed for 2-7 days. This long-standing problem has arisen because when the highway was first built not many people were farming here. Since then, the population has grown and intensive gardening and coffee growing has developed up to the foothills, causing a lot of silt to be carried down the small Alta Creek (also known as 'Troublesome Creek') from the nearby mountains. The creek splits just close to one side of the road (the southern side). During heavy rains, the road is flooded depositing up to half meter of mud which has to be cleared after the flood subsides. The PWM says that they have to clear the silt at least twice a year, but this does nothing to stop future flooding. There are two very large culverts (1500 size with five pipes/channels at each site) at either end of this section, but the small creek fills up in the middle of the section, where another large culvert is needed. However, in order to control the flood waters on the other side of the road, (the discharge side near the market stalls) there needs to be a large baret (drain or canal) to carry the waters away to the Wahgi River, which is approximately one kilometer away.

73. The two individual landowners of two large coffee plantations, want the government to survey an easement for the canal, and pay them for land access and loss of coffee trees. The landowners are Michael Timbi (who is a local clan and community leader, but who has individual title on the northern side of the road), and Bob Hargreaves (an elderly European landowner). Michael works as Cabinet Secretary to the Jiwaka Provincial Assembly, and is an ex-magistrate. Michael's title was obtained in 1984 when the land was surveyed, registered and formally alienated from customary land. He owns approximately 30 ha, while Bob Hargreaves owns more than 50 ha. Their lands and coffee trees are regularly damaged by the discharge of uncontrolled food waters.

74. There are two clans which own land on the upper southern side of the road which are separated by the creek. They are the Mambulka (which has around 7000 members, of whom around 200 live close to the affected area) and Menjipi clans (which has approximately 2000 members, of whom around 200 people are directly affected by the flooding). The PPTA team spoke with Michael and his brother Paul Yasim who are leaders of the Menjipi clan, and Mek Kombo (who works casually for DoW) and is a landowner and leader of the Mambulka clan. Local people speak the Eak Nii language, and have been Catholics, since the missionaries arrived in the 1930s. The Gachimeni Elementary School beside the creek (with 100+ children) is also regularly flooded. Another primary school (Aviamp Primary) 3 km away towards Kudjip, is not subject to flooding, but some children cannot reach it during flood events.

75. There are approximately 37 stall holders in the fruit market, who regularly lose business when the road is closed. Also, when the flooding occurs, many trucks are held up on the road, and they are often looted and their goods stolen. On one memorable occasion, a truck load of beer was pillaged so the community was drunk for weeks.

76. The PWM, Amos Dakma, says that the DOW Mt Hagen has spent a great deal of money trying to fix the problem, by trying to train the creek, control upstream erosion through a debris dam 2 km away, and to clear the drains. However, on the upper southern side of the road, which is customary land, there have been issues around land ownership when they tried to improve the drainage situation outside the 40m road corridor. Local people are happy for work to be done as long as they are compensated for their customary land. There is correspondence on record between the clan leaders and DOW.





Orange market, Alta Creek, Jiwaka

Lalio, Michael, Mek, Wendy & Amos during consultations



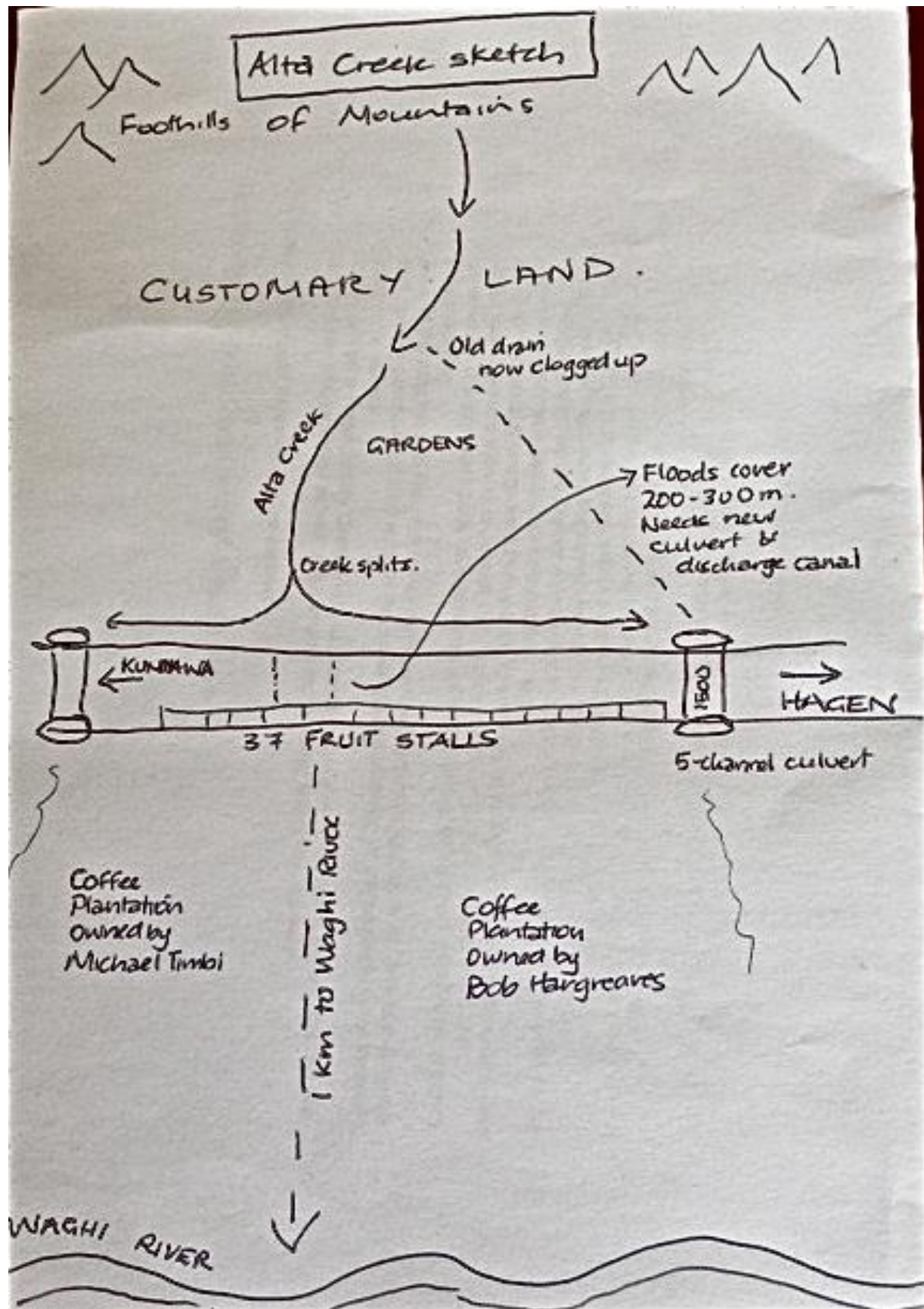
Alta creek overflowing along roadside during a dry period



One of the large five-channel culverts at each end of the damaged road section

77. This is clearly an area that needs good engineering design to look at the whole water catchment area, and what can be done to manage and control the run-off. However, before construction can begin the two individual landowners will need to be paid for a land easement for the discharge canal. Depending on the engineering design, there might also need to be negotiations with the two customary land owning clans on the southern side, as drainage works may be necessary well outside the 40m road corridor. The detailed engineering design work for this section of the work will be done during Tranche 1, and should be accompanied by a thorough study of the social and land impacts on both the individual owners and the two clans owning the customary land to the north.

78. The following sketch map, shows the alleged affected section of road, and the areas under customary and individual ownership:



Sketch of Alta Creek area subject to flooding

Simbu Province

Site 2: Wahgi Bruk, North Wahgi, Jiwaka (approximately 57-60 km from Mt Hagen, near the Jiwaka-Simbu border)

79. This is a community beside the wide, fast flowing Wahgi River. The village lands are situated both sides of the river, where there is a sharp bend, causing one bank to be steadily eroded away and undercut. Some roadside food stalls are situated right on the banks of the river squeezed between it and the highway. The DOW have made several attempts to control the erosion, and are proposing to build a retaining wall or levy to stop the Wahgi River encroaching on the road corridor. Large amounts of stones and rocks have been dumped along the riverside for this purpose.

80. In 2014, thirteen shipping containers full of rocks were placed along the side of the river to protect the bank where it is being eaten away, but now only around seven remain, with six having been washed away in floods. For around 3-4 months of the year, the river water level reaches up to the road and covers all the gardens on the other side of the river on the flood plain, affecting people livelihoods in nine wards. In 2014 there was a large flood, when seven people were drowned, and which blocked the road for one to two weeks. A diversion was put in to get traffic around the flooded area, but it is difficult as there is a low swampy area on the other side of the road from the river.

81. The land here belongs to the Kalika tribe. They would like to see the river diverted, to cut across the bend and straighten the river. This would be a huge and expensive engineering job. Apparently a tender was put out to do this, but not awarded because of a lack of money to do the work. Failing that the local community would like a large wall or stop-bank/levy to be built as a flood defence. An alternative engineering solution may be to permanently move this 500m section of the road further away from the existing road along the base of the nearby hills.

82. While the PPTA team spoke to several community members, there were no official community or clan leaders present. There was no talk about compensation when we spoke to roadside dwellers, but much concern about the future of their livelihoods given the repeated flooding.



Remaining stone-filled containers put in to protect river bank



Discussions with Wahgi Bruk residents, showing stockpiled rocks meant for building a levy



Power pylon being undermined on river Urambo, DoW



Wahgi Bruk community with Simon



DoW / ADB discussions with riverside canteen owners at Wahgi Bruk

83. This site will need further assessment during Tranche 1 following detailed engineering design, and there will possibly be land and resettlement impacts should the road alignment be shifted, and/or the roadside canteens need to be relocated.

Site 3: Keranga, Kerowagi District, Simbu (approximately 63-65 km from Mt Hagen, after the Miunde Bridge)

84. Keranga is an unstable section of road in Ward 5, Luapa-Korinige LLG, Kerowagi district, near the Jiwaka border. The land is gradually creeping down an upper slope towards the road, and has affected the downward side of the road also. Lots of gardens and around 20 houses have been lost to land slips in the past. The land affected is between the school and health center, approximately 1 km.

85. Two main clans live here: the Daga tribe, and the Mugwaku (which has two subclans, the Kiwakane and the Ganduakane). They speak the Kuman language. The landowners say that in 1979-82, the government gave a contract to the Kumbor Company to fix some eroded areas. The contractor took a lot of gravel from the Wahgi River, but didn't finish the job properly or restore the land in any way, and villagers claim huge open craters were left unfilled, which caused environmental damage and further land creep. Although the community members have written to DOW, they have been told that there are no funds to solve their complaints. They say that before the quarrying, the land creep was not significant.

86. There have been no surveys of customary land, but in 2006-7 the landowners were given compensation payments for structures, assets and crops lost. This, the villagers say, was poorly executed and some people were paid, while others were not. They claim that the person who was in charge of DOW payments at that time, has information on who was paid and who was not. The affected 1 km section of road runs from the Simbu/Jiwaka border to the school. The land movement has been happening over many years. Proper mitigation of the outstanding grievance should be addressed in the government's action plan to resolve land issues. Detailed engineering designs during T1 will determine whether there is need for further land acquisition during the SHHIP.



Discussions with Keranga community



DOW staff speaking to Keranga community



Keranga clan leaders: Benjamin Gende, John Siune, Wei Konbukun, and Samuel Gende

Site 4: Ba Creek, Simbu (approximately 68-70 km from Mt Hagen)

87. The edge of the road has collapsed, and a large culvert is blocked, causing regular floods. This destroys local gardens, leading to compensation claims by the landowners. According to the provincial engineers, the area requires a bigger culvert together with river dredging and training, to flush out all the debris that has accumulated, as currently there is no gradient because of sediment build up.

88. It appears that there are no land acquisition impacts here, but since the inadequate culvert is causing impacts on gardens within customary land, (i.e. beyond the 40m road corridor), there will be a need to address this issue when detailed engineering design and social assessment is being done during Tranche 1 of the Investment Program. The community members claim that the blockages of the culvert are the cause of their land being repeatedly flooded, destroying crops.



Ba Creek, showing collapsed road edge and blocked culvert

Site 5: Waingar (approximately 72-74 km from Mt Hagen)

89. In 2013 a large slip buried a lot of houses and food gardens belonging to the Kombuku clan and Tawiaku subclan alongside the road. (Local people speak the Kuman language.) The road was closed for a month, but eventually a detour was built for light vehicles. This diverted road was reconstructed to become the new road – which is a section of about 400m. According to informants, the government paid K500,000 to the community to allow them to cut the new road, but no proper survey was done, and the land was not officially valued by the DLPP nor paid for. No Certificate of Alienability or title was acquired for the new road corridor. Currently, there is a pending claim with the Disaster Management Office, for payment of damages to improvements (crops, trees, and structures) lost during the landslide.

90. The PPTA team spoke with two leaders, Taia Das and Joe Waeung, who say the clan still expect to be paid for the new road corridor. Given that they have already received a substantial amount, the best way forward would be for DOW to arrange for a survey by Survey and Lands Branch, to register with the Valuer-General, and then to proceed with the alienation of the land, so that the 40m x 400m road corridor can be properly acquired. Depending on what valuation is currently put on this land, the clan may be owed more money, or it may not. The road now appears fairly stable.



Waingar showing old road to the right and new section Roadside discussions at Waingar

Site 6: Mindima (approximately 78-82 km from Mt Hagen and about 10 km before Kudiawa)

91. Mindima is in Ward 9, Waiye LLG, Kundiawa District of Simbu, not far from Mingende. This area has suffered repeated landslides, notably in 1987, 1992, and in 2012/13. As a result of more recent slips, the community has lost 15 houses and lots of gardens. The land is owned by the Narku tribe and Kamun Yombuglo sub-clan. A 100m section of the road was re-built on customary land in 2013, but local people say there was no formal survey, no government valuation, no Certificate of Alienability or title transfer, and no payment for the road corridor. The clan members say they were paid K300,000 for the improvements (trees, crops, and structures) which were lost, but not for the land, which has yet to be formally acquired.

92. Informants told us that they had received more than 10 assessment visits from various government bodies, including the District Management Office, but had not seen any action to prevent the slips or to pay for land being used for the road. This is another outstanding grievance that should be assessed and incorporated into a government action plan to resolve past issues.

Site 7: Dugma-Bendema-Guo area, Simbu (approximately 86.4 km from Mt Hagen and 1.4 km before Kundiawa)

93. The whole mass of land north of the road at this Bendema section of the highlands highway has been creeping southwards towards the road since the 1990s, after landslides occurred damaging the old highway. The ground below Guo Suna, the local ceremonial ground, leaks ground water, which has accumulated to form natural ponds during the 1980s and 1990s. Most of these natural ponds have been removed the DoW but four still remain today due to the continuing seepage of ground water. These are the origin of water flowing through the ground above the highway, causing earth to creep southwards affecting the highway. This earth movement has also resulted in erosion of topsoil, causing damage to culverts installed downstream of the Bendema Nigle and the main culvert on the Dugma Nigle river. Patches of coffee and food gardens have also been impacted on by the instability of the earth.

94. After a large landslide in 2002, two small lakes formed (approximately 20m x 10m) and DOW carried out some protection work, but the land is still moving. People then stopped DOW from working because they wanted payment for crop destruction. Provincial engineers

say there is a need to do subsoil drainage around 200m uphill from the road, and there is also a need for a new culvert.

95. The area belongs to the Endugla clan, whose leaders are Otto Francis and Baundo Kir. Nine main families ('lain') live within the impacted area, which includes their gardens. They include the Apa, Poka, Wenambo, Onguglo, Gaglesungua, Gugl, Baundo, Pumai and Umba families. One family, the Umba have lived in the area for years, but have since moved due to the landslide, but they still have trees and cash crops in the impacted area.

96. An environmental impact assessment was carried out in 2015, to document and evaluate the improvements within the 40m road corridor and the landslide impacted area (north and south of the road). A valuation of losses was done using the Valuer-General's Compensation Schedule for Trees and Plants (January 2008). Casuarina trees accounted for about 70% of all the trees counted. Forest trees including pine and gum trees, which made up approximately 20% of trees counted, and the main cash crop was coffee. Cabbages were the dominant vegetable. Two of the four ponds have fish in them, introduced in 2001 by Kai Philip, a local landowner. Most of the houses in the area are semi-permanent, and there is a permanent Nazarene church. Grave sites, sacred sites, houses, fences and water supply structures were also valued. The clan cemetery is located at Guo Suna, and is the primary burial ground for the Mondoku and Bruglku people of the Endugla tribe.

97. The impact zone has been a sacred site since the ancestors of the Mondoku people settled the land. Due to the constant movement, natural lakes, and erosion, the landowners believe spirits (masalai) live in the lakes and are the cause of this earth movement. During the Bugla Ingu (pig killing ceremonies) at Guo Suna, the women used to bring down the pig's intestines to wash in the lakes to appease the spirits before their celebrations. Excess fat, and left-over pieces of meat and bones were thrown into the lakes as offerings to the spirits, and chants uttered to ask the masalai to look after their pigs until the next Bugla Ingu. This ritual was repeated every year until the late 1990s when these traditional ceremonies became obsolete and were no longer practiced. However, at the time of the environmental assessment, a working committee was appointed by the landowners, and at their first meeting in March 2015, they agreed to recommence the traditional ritual to appease the spirits before the contractor did any work to remove the unstable land mass and fish ponds.

98. The EIA report includes detailed measurements and counting of every individual in 54 nuclear families, and their assets in the impacted area. The total value of the improvements described, is estimated at K264,787.20 though it is recognized that this valuation would be subject to change, if DOW carried out its own assessment.

99. Clearly, this is an area where thorough social assessment will be required alongside the detailed engineering design during Tranche 1. Since the PPTA team visited, another large landslide occurred in this area in January 2017, blocking the highway. Newspaper reports predicted shortages of onions, pineapples and other produce, because farmers were unable to get produce to markets. The media also reported that the owner of the Mapai transport company, Jacob Luke, paid K100,000 to landowners at Guo who had refused to allow the clearing of the landslide blocking the highway unless they were paid K1 million.²² This action has been condemned by local leaders, who feel it is fueling unwarranted compensation claims and lawless behavior.

²² The National Newspaper, 25th January p.8



Guo: Severe regressive erosion, surface water, deep holes and drainage problems on slopes



Traffic at the unstable Guo section



Landowners at Guo



Newspaper photograph of the damaged road, before the landslide in January 2017

Leader slams compo

By ZACHERY PER

FORMER Kundiawa-Gembogl MP Wagi Merimba agrees with Prime Minister Peter O'Neill that private companies should be discouraged from paying landowners money to lift roadblocks on national highways.

Mapai Transport owner Jacob Luke recently paid K100,000 to landowners at Guo in Chimbu who had refused to allow the clearing of a landslide blocking the Highlands Highway unless they were paid K1 million.

"The precedent set by Mapai Transport is dangerous. In future, landowners will not allow work to start until someone pays them," he said.

"Even companies will be expected to pay them money and the Government will take a free ride. A dangerous precedence has been set."

National Newspaper article 25th January 2017

Site 8: Gera, Sinasina-Yonggomugl District, Simbu

(approximately 97-98 km from Mt Hagen and 10km past Kundiawa)

100. A huge landslide occurred in April 2008, (at the time of the Oro cyclone) where the old road was washed out and shifted downhill. The road was completely closed to traffic for three months, though eventually a by-pass for light vehicles was constructed from 3 mile to the Duman junction. Almost 200 houses were buried, as well as the aid post, a school, three churches, power lines, and food gardens, coffee trees, and other timber trees. Local people say there were no slips in the area before 2008. People are still traumatized by the events as their community was devastated. They used to have powerlines servicing them from Yonki hydro-dam but they lost the power lines and have never had the service re-instated.

101. After three months, it was decided to reconstruct and reopen the road, with a new section of around 200m-300m. People say that no new land was acquired for this section. According to community members, the Simbu Provincial Government paid around K1 million of disaster relief money, and more relief funds were received from the NDMO for tents and food rations, with DOW providing funds for the temporary bypass. The new road reputedly cost K16 million and the contractor undertaking the reconstruction was Shonkl. Local people say the National Executive Council (NEC) approved K35 million for compensation and re-building which did not reach them, although they concede that some of this probably went to DOW to reconstruct the road. Although there have been no more landslides, land is still unstable and there is some movement because of all the small creeks and drains on the upper slopes of the road.

102. Land in the area is owned by four clans: Kerekagawo, Yopau Gawo, Kamarakane, and Mingadinipe, which have a population of over 2000 people (excluding children). The local language is Kakondo, and the community has one elementary school, one primary school, and a high school. There was an assessment of the roadside communities done by EMR, who plotted the 20m road corridor either side of the road, in order for those owning or using the land to be compensated. The local community is deeply unhappy about the way the survey was done, as apparently there was a big reliance of using GIS readings, and many of the houses were wrongly plotted, so that some inside the 40m corridor were not paid, and some outside did receive money. They say the problem was that there was no oversight and no 'ground truthing' of the data so there were many mistakes. Public funds were misused they say, and leaders claim that many affected people were unfairly treated. There was no planned resettlement, no provision of water or power supplies, and no replacement of the aid post. Landowners were also dissatisfied with the amount paid for limestone rock from their quarry (K3-5 per truckload), which was used to re-build the road.

103. The community are dissatisfied and have little faith in DOW and other government agencies. The clan leaders say they would like an investigation into the misuse of compensation money which they claim has been syphoned off by people who were then in charge of making payments. They also want to ensure that the new road corridor has been properly acquired and paid for. But it is clear that in order to ensure good relations and permission to work on reconstruction, there will need to be a re-assessment of the entitlements and sound safeguards work to ensure the necessary reconstruction and maintenance work can take place. Most importantly, as part of the action plan to deal with past issues, the Survey and Lands Branch of DOW need to locate the compensation records showing what payments have been made and to whom in the past. Community leaders and the Simbu Highlands Highway Rehabilitation Programme Landowner Committee (HHRP LOC) say that reports showing the verification and valuation of the road corridor remain with the owner of Mori Resources Ltd (now MP for Chuave), who has not released them. The HHRP LOC who assisted the road surveys by MRL (in a letter to ADB dated 13 December

2016),²³ claim that the Prime Minister has made a formal commitment of K17,632,200 compensation for those living in all landslide impacted areas in Simbu where livelihoods have been affected, but that the missing records are necessary to enable payments to be made.



Clan and community leaders being consulted at Gera

Site 9: Duman (approximately 99-103 km from Mt Hagen, and 12 km from Kundiawa)

104. This is an area of potential landslides and poor drainage near Wara Tambu. The road is extremely rough and there has been no recent maintenance due to landowner objections, although DOW has tried several times. Now the contractors just skip this section of the road. The road section causing problems is approximately 3.5 km long, and local communities claim the road corridor was never acquired when the rest of the Simbu highway received land compensation in the 1970s and 1980s. The land in question covers Ward 9 (Yalemesi), Ward 10 (Yalkomno) and Ward 11 (Kapmagaten). The five clans in the area have a population of around 3000, and consist of Ateku, Kuiawa, Kapma, Kilkapa, and Droku. They speak the Tabari language, which they say has around 6000 speakers.

105. In 1997, during a road rehabilitation program, there were assessments and surveys of the road corridor, when roadside landowners and people were paid for the improvements on the land (crops, trees, structures). However, the land itself was not paid for because the Duman clans believed it had been undervalued and they rejected the K83,000 that was offered to acquire the land. They say that the Provincial Administration has kept this money in a trust account for them, but they are asking for an up-to-date re-valuation before accepting any payment or agreeing to alienate the land for the government. LSB of DOW headquarters in Port Moresby has confirmed that this land has not been paid for, and will probably need a new LIR produced.²⁴

²³ Letter to ADB Country Director, 13 Dec 2017, Re Highway rehabilitation program: Simbu Section, from Paul Niriongo Kuange (Secretary) and John Kamb (Chairman), HHRP Landowner Committee

²⁴ Personal communication 8 Nov 2016, Wally Wigbert, Acting Secretary, Survey and Lands Branch, DOW

106. The community at Duman have little faith in the DOW or other government agencies. A large number of people (80+) came to the PPTA consultation, and DOW staff were surprised at the amicable and productive meeting that ensued, although the team had little time for a detailed assessment. The community were extremely pleased to hear of the proposed SHHIP project, and willing to cooperate, as long as their appeals to review the former valuation of land were accommodated. They explained that land pressure in this area is extreme, and that individuals have less and less land as families grow and have to accommodate the younger generation. It was explained to them that any land compensation is worked out according to set government schedules and its value does not take account of need or scarcity, but only on its 'market' value, which in rural areas is not high. There is a need for extensive community consultation in this area, in order to restore good relations, and to investigate the real situation of ownership of the road corridor. Again, records of past dealings with DOW are sorely needed. The PWM has some reports on this section of the road.



Duman landowners at community consultation

10. Kongo Coffee, Chuave District

(approximately 107-9 km from Mt Hagen, or around 60 km from Goroka)

107. About half a kilometer past the Kongo Coffee processing factory, there is a steep hill, which has water running down and across the road, with a huge hole in the middle, big enough to swallow a car, where a culvert has collapsed in the middle of the road. According to the PWM, this hole has been regularly repaired but keeps appearing as there are upslope drainage problems, regressive erosion and lots of water running down and under the road. A local informant, Jennifer Emere, said that the high slope on the northern side of the road is populated by 50-60 families who have been affected by land slips for many years. They

realize there is a potential for a large landslide but have no other land to garden so have not moved, despite the obvious dangers. This is a natural disaster waiting to happen.²⁵



Road near Kongo Coffee



Large hole in middle of the road



Eastern Highlands Province

²⁵ It is one of the areas, which raises the question of whether the GoPNG should consider creating red zones on areas close to the highway, with identified serious hazards, on which customary owners would not be permitted to build or garden. The impacts of such a regulation would need to be mitigated, possibly by the state acquiring the land and compensating for assets. This may be less expensive than paying repeating compensation claims for natural disasters.

Site 11: Daulo Pass (The summit is 137 km from Mt Hagen, and 31.1 km from Goroka)

108. There is a 17.5 km section of steep mountainous road, which crosses Daulo Pass, from Watabung just before Feonoku Bridge, (around 131 km from Mt Hagen and 37 km from Goroka) to Rumunguko near Mando (around 148 km from Mt Hagen, or 20 km from Goroka). Seven major clans along this stretch of the road (including 4883 customary land groups) have formed the Daulo Landowners Association (DLA), an incorporated land group registered under the Land Groups Incorporation Act, which claims that the state did not acquire their customary land, and that they were never paid for the road corridor, when the road was constructed by hand in 1953. They say that the building of roads and bridges was carried on despite objections by the landowners. They further claim that during major construction work from 1985 until now, there has been major environmental damage affecting more than 15,000 people living along the highway, for which they have received no compensation.



John Kindinive (Manager of DLA) and James Gandi (Deputy Chairman) with members

109. The DLA have taken action in the national court to try to get compensation for damages along the 17.5 km of road, affecting some 60 hectares of land from Mando to Watabung.²⁶ Two detailed expert reports have been prepared by Enrowater Consultants Ltd assessing the environmental impacts of the road from 1988 to 1994 and the costs of this damage which includes: soil erosion and landslides on steep terrain; destruction of flora and fauna leading to loss of species as animals and birds were forced out (including cassowaries, tree kangaroos, cuscus, bandicoot and others); destruction and pollution of creeks and springs from oil spillages, fuel, lubricant leachates from metals, and other litter; air pollution from fumes, vehicle exhaust and dust; increased water borne diseases, including cholera, typhoid and dysentery as a result of the huge amount of human waste

²⁶ The actual amount of land affected is uncertain, as various documents relating to the court case, contain different figures, ranging from 50 to 700 hectares

discharged onto the land and water of the Daulo Pass from the estimated 3,500 travelers using the road; destruction of land to build terraces in efforts to prevent erosion and soil creep; abandoned infrastructure left scattered around, such as rusted bridge components, wrecked vehicles and machinery, oil and fuel lubricant, and scrap metals, all of which are deposited on the side of the road or in the bush, becoming unstable and later washed down into waterways contaminating springs and creeks used for drinking, with chemicals.

110. The DLA documents presented to the Goroka National Court, (WS644 of 1994) also criticize the DOW for lack of environmental monitoring and management, and for failing to keep proper records of any land improvements or purchase payments for the Daulo Pass road section. The original valuation submitted to the court was for K118,517,240, but the judge ruled that the plaintiff did not plead the matter properly, and there was insufficient detail of who caused the damage and who was affected, and so award of damages could not be made; but the judge did not dismiss the claim in its entirety. Rather than going back to their lawyers and investing more money improving their claim, the DLA are now seeking a negotiated settlement with the state for K15 million. Negotiations around this have been going on for several years and have not yet been resolved, although the DLA has high level political supporters advocating their case (e.g. John Giregire, former army colonel and Advisor in the Prime Minister's Office) There is extensive documentation on this case, held in the DOW office in Port Moresby.

111. The clans represented in the DLA are:

- Mando
- Yamiyufa
- Ongarufa
- Foe
- Komongaroka Foe (including Oiefanegefa, Kofufa, Loru, and Kindaemorofa sub-clans)
- Komongaraka Kowefa (including Gafo, Laundi, Kono Kongifa, and Ombanorifani sub-clans)

112. The area covers six wards: Ward 1 Korepa, Ward 2 Yamayo, Ward 6 Komongorka, Wards 1 and 2 Lower Asaro, and Ward 6 Watabung. The main language spoken here is Siane. The DLA have received some compensation for specific issues over the years, which they pass on to the clan, which is affected. They are also involved in mediation of land disputes among their member clans, and have a committee set up to assist in resolving disputes. Currently there are two areas of dispute.

113. There have been many accidents on this particularly steep and dangerous stretch of the highway. Local informants who could recall from memory, at least nine serious accidents in the last 15 years, with approximately 40 deaths. Recently in August 2016, seven young men from Watabung died when their vehicle plunged off the road after they had been supposedly drinking at the all-night markets on Daulo Pass; four people died when a Toyota Landcruiser ran off the road in 2011 (all were supposedly drunk); in 2010 an East-West truck passing a landslide drove into a cliff killing one person; in 2005 a large truck rolled killing five people; two adults and a child died when a large container truck hit a bank after the driver had been supposedly drinking; and around 2000 a PMV crashed on an accident black spot corner near Asaro near the end of this stretch of road, killing eight people.

114. As shown in the following photo, many of the PMVs and trucks are overloaded and there are no speed restrictions or safety signs on the road, nor adequate crash barriers. Added to this is the problem of the hundreds of beer outlets selling alcohol, which is a cause of many of the accidents.



Overloaded PMV on the Daulo Pass section of the Highlands Highway

115. There are six elementary schools in the area: (Mando, Yamiufa, Korepa, Daulo, Watabung and Kamabau) and four primary schools (Mando, Yamiufa, Korepa and Watabung). Older children go to Asaro or Daulo High School, with between 20-40 children walking down the mountain everyday along a busy, narrow road used by large trucks.



Narrow shoulder for walking & crash barrier for washing Roadside store selling beer

116. Along this stretch of the road there are many canteens, kiosks and small markets. All are run by local members of the clans. No land has yet been sold to outsiders to operate here. Many of the canteens encroach on the 40m road corridor, as the land is very steep and there are few places to build their businesses. As well as causing problems with traffic and parked vehicles, the stalls along the road are often built on the top of drains, which quickly become blocked and unusable causing drainage problems. As well as more permanent structures, there are 'table vendors' who sell a variety of small goods and local vegetables, such as kaukau, banana, yam, potato, karuka (pandanus), tapiok, mareta (red pandanus), sugar cane, tree tomatoes, sugar fruit, pawpaw, pineapple, watermelon, and strawberries – all grown away from the road in nearby high altitude villages. The canteens sell cooked food, as well as store goods, coffee, soft drinks and beer. Some operate dart boards where people pay for the darts for the games, paying K4 for five darts. The operators say that they earn between K150-K160 a week. Several of the markets operate mainly at night, especially the largest, Tulait tulait, which operates as a beer drinking and

entertainment stopover for the large trucks and drivers operating along the highway. Many sex workers operate from these night markets.



117. The main roadside stall areas (starting from the Goroka side) are:

- **Rumunguko:** a small settlement on the Goroka side, consisting of about five houses and stalls, selling food, coffee, and petrol



Petrol being sold at Rumunguko for K30 a liter

- **Lonely Corner:** Nine permanent stalls selling beer, foodstuffs, cooked lamb flaps, hot coffee, drinks etc. and 10-20 table vendors selling mainly buai, cigarette, sausages and kaukau



Roadside market at Lonely Corner, selling vegetables and beer

- **Minaro:** Near the Kondom Memorial and car wash; two markets either side of the road Market A consists of five stalls, and Market B of three buildings
- **Gohero:** A fairly large market with 17 main stall holders selling a variety of foodstuffs, trade store goods, drink and beer; six men operating dart board games; 6-10 table vendors; and around 11 women selling local vegetables.



Roadside shops, card players, dog and pig

- **Stone market:** Approximately 15 stalls selling a big variety of goods.

This roadside market is situated at the foot of a rock landslide, which is inherently unstable and liable to slip again during heavy rains. The market is set slightly off the road and has between 15-20 stall holders.



Stone market on Daulo Pass road section



Kiosk selling beer and darts for dart games

- **Daulo Pass:** At the summit there are two permanent buildings, a house and garden, and about six stalls built of local materials selling mainly flowers and wreaths, trade goods, *buai* and cigarettes. Children also sometimes sell rocks with fossils they have found in the vicinity.



Fresh flower headbands sold by children for K2.00

- **Tulait tulait 24 hour market:** The largest market on the Simbu side, which does most business at night, with stalls selling a great variety of store food, biscuits, cigarettes, *buai*, cooked food, soft drinks, coffee, beer and vegetables. There are 49 stalls/canteens, and close by a permanent house belonging to the LLG President of Watabung, and two others built for his sons.



Stalls, canteens, and beer shops at Tulait tulait, which mostly operates at night



Trade store built of permanent materials

- **Muruwaia:** A fairly large market with 17 stalls/canteens selling similar commodities: trade store goods, food, beer vegetables, and locally grown strawberries sold in large bunches for K5-K10.



Women selling betel nut and strawberries at Baunoro



Baunoro market showing some shops encroaching on 40m road corridor

- **Baunoro:** Located on the Simbu side half way down the pass, Baunoro market has around 30 canteen/stalls, several houses, shipping container, and toilets. There is a piped water supply opposite the market on the side of the road.
- **Leveriro market:** 11 stalls and three houses all belonging to the Goru family. The market is not very busy.
- **Feonuku bridge:** Located at the bottom of the pass, there is a small vegetable market.
- **Ruimbaka:** A few stalls beside the river on the way to Watabung



Women roadside vendors whose livelihoods depend on the highway

Site 12: Alipolinoku landslide, Daulo Pass

118. On 16th October 2016 there was a large landslide on Daulo Pass at Alipolinoku. A report on the environmental and social impact assessment of this large landslide at Alipolinoku site, and some four other minor landslide sites, was prepared for the Daulo Landowners Association (by Ignatus Mujizuw, of Serac Services Ltd, 31/10/2016). The main landslide occurred twice within two days, during a heavy downpour of rain, which moved tonnes of mud, soil, gravel and vegetation down on to the highway, blocking off a section covering about 45mx14m (w) x 6m (h) equal to approximately 3,780m³ in volume. This debris accumulated on the sealed road, but soil and rocks continued to slide down the slope for several hours during the heavy rain.

119. Normally, Alipohinoku is a small stream used for drinking, on the right hand side of the road (going towards Simbu). This section is thickly vegetated with soft and hard wood trees: kapiak and yar trees, pitpit clumps, passion fruit vines, fern trees, shrubs, and other plants. These were all buried under the landslide which moved further downstream in the rain water and accumulated in a silty stream of water going into the gully, polluting and destroying the edible plants (watercress), pandanus nut trees, and other plants, as well as washing away bathing and clothes washing sites. Two houses were almost covered and partly destroyed: one semi-permanent house, and one thatched house and surrounding fences. The total value of the damages was calculated at K80,000.



Landslide on Daulo Pass



Minibus stuck in deep corrugations on Daulo Pass

Site 13: Avani culvert

(60.5 km from Goroka, Bridge 34 or Avani Bridge)

120. The culvert here has been washed out repeatedly. A contractor was engaged to repair it, who used casual local labor. These people say they have not yet been paid for their work and are owed K9,000. The community also claim K40-50,000 for lost crops and trees. According to the DOW Kainantu District Engineer, Gideon Timothy, the contractor is owed K1.2 million.

Site 14: Raibinka, Kainantu district (approximately 78 – 81 km from Goroka)

121. At Raibinka a large culvert has broken, affecting vegetables and crops grown downstream on steep slopes. The community are most concerned about the many coffee trees and banana palms which have been damaged, affecting their livelihoods. There are only four families severely affected, all from the Upanofi clan, which numbers approximately

500 people. The local name for this land is Fontianka. This problem has persisted for nearly 15 years and three different contractors have worked on trying to repair the culvert and road. DOW offered K10,000 compensation at the government valuation rate for crop losses, but an independent valuer for the community, claimed they were owed K100,000. Negotiations took place in November 2015 between the Lands and Survey Branch, DOW and the community, but the unhappy families say that no payment has been received as yet. This can be confirmed by the PWM and a report is available with DOW. There will need to be effective and on-going consultation with families affected during the Tranche 1 assessments to resolve these potential issues.



Site 15: Bane Bridge, Kainantu (87.1 km from Goroka, approximately 1 km from Kainantu)

122. In 1964 surveyors came to survey the first road in this area. The road was built between 1965 and 1966 on the land owned by the Baneantu clan and Kiari subclan. There are approximately 250 in the main clan. About 15 years ago, a large flood on the Aruntipa stream washed out the main bridge into Kainantu (the eastern hilly approach from the Lae side). A decision was made not to replace that bridge but to bypass the old bridge and move its location 500m downstream to a lower swampy area. This has proved problematic, as it floods every 5-8 years, cutting off the town, the last time in 2016. The one-lane bridge is also unsafe with no footpath and no signage. Many children walk to school in Kainantu from surrounding villages, and parents are worried they will be run over on the bridge.

123. The history of the road corridor, as told by Bena informants, is that when the road was built in 1966, all the communities from Kassam to 4-mile (outside of Kainantu) were paid by the colonial government for the land and improvements. However, the government stopped this some 4 km distance from Kainantu where there was a tribal fight in the 1960s-70s. The leader of Bane village, Ben Isare, informed us that his grandfather appealed to the kiaps for payment of the land but was ignored. However, he did obtain a report saying the full payment had not been made for the land. Ben's father continued to press the government for payment of around 4-5 km of road which passed through their customary land, displacing people, and Ben has now taken over the struggle – the third generation trying to get paid for the land.

124. Last year a Finnish company did a socio-economic study in the area, and suggested that a bicycle track was needed for children to get to school. (At the moment most of them walk, though a few catch PMVs). The government have told the clan leader that they will pay

for the land, but reportedly payment has been held up by a lack of valuers, and he has been requested to organize his own valuation, which he does not have money to finance. Ben Isare asked whether the SHHIP could pay for the survey and valuation of the land, to enable his family to get their long-overdue compensation for the road built on their customary land, which displaced many people from Bena village. This will need to be investigated during Tranche 1, to ascertain if the road corridor, including Bena bridge, is still on customary land.



Bena village near Kainantu



Consultations with Ben Isare and landowners of Bena



Ben Isare, clan leader at Bana



Bana landowners

Site 16: Kolwara, Obura Wonenaro District, EHP (103 km from Goroka near Kolwara fish market)

125. There is a huge landslide cutting off half of the road at Kolwara near Yonki Dam. Here the steep land above the road is mostly grasslands, and is very unstable, with little to prevent slips. The land issues are complicated by a serious dispute between two clans, both of whom claim ownership of the area, and this has stopped negotiations. A contractor was employed and started work, but had to stop while a court process (in Kainantu District Court) determines the real owners of the land. Bari Sakia, one of the claimants to the land, has cooperated with DOW, and has allowed temporary work, such as installing a 900 diameter culvert. However, DOW cannot proceed further work for fear of re-igniting the tribal fight, which involves four or five clans. Although no one has been killed yet, there are fears that this could happen. Apparently the Infrastructure Development Authority (IDA) has prepared a design for repair of this seriously damaged section of road. The narrow section of road, which is currently passable, is extremely unsafe and likely to collapse if there are heavy rains.



Landslide near Kolwara where repairs are being held up by land disputes



Kolwara erosion and landslide

Site 17: Kassam Pass (121 km from Goroka)

126. There were previously problems on Kassam Pass where there is a huge landslide and where there were no 'legitimate owners' readily identifiable, as it is a densely forested area with steep mountain ravines and ridges, and therefore no farming is possible. However, two groups claimed rights to their common hunting grounds, where they caught tree kangaroos, cuscus, cassowary, bandicoots, birds, and other forest animals. The two groups, one from the Markham Valley and one from Gasub were eventually awarded K295,000 each by the courts, and the dispute has now been resolved, allowing the section with the landslide to be repaired by DOW.

G. Summary of impacts and mitigation measures

127. The impacts of the highway upgrading during Tranche 1 may be both positive and negative. There are some project-related impacts that are not directly related to involuntary land acquisition or resettlement and, therefore, do not fall under the purview of involuntary resettlement safeguards. Most of such impacts are indirect such as disruption of downstream washing sites, social conflict over employment practices, or violations of local *kastom* by contractors. The following section discusses some of the benefits of the Investment Program, as well as the potential adverse impacts, and mitigation measures proposed to avoid, minimize, mitigate or compensate for these potential impacts.

Positive impacts

a) Employment opportunities

128. During construction, the Investment Program will generate employment opportunities for the affected communities and clans. The employment of affected people in the Investment Program can have beneficial effects in raising incomes and providing much needed cash for school expenses, store food, household equipment and other goods. While the employment may be short term or temporary, it can allow households to acquire equipment, improve standards of living, or start small enterprises, which otherwise would not have been possible without the money. Small household items such as solar lights, chilly bins, water tanks, mattresses, or saucepans can make a huge difference to women's lives, and household living standards.

b) Generation of business and livelihood opportunities

129. Like any large infrastructure project, this Investment Program will generate substantial business and livelihood opportunities. Contractors will establish construction camps, quarry sites, motor pools, living quarters, and other construction related facilities. Necessarily these will be staffed by the personnel and workers of the contractor, who will require food, shelter, and personal services. Local farmers will have a ready market for their agricultural products, because of their proximity to the buyers. Clans owning trees, will have a market for timber used in construction, and those clans whose land has been identified as a source of aggregate, will receive payment from the contractor in exchange for extracting quarry materials.

130. Improved road conditions may also lead to an increase in transport services and travelers, and thus, increase commercial activities along the way. Consultations with transport companies during Investment Program preparation, revealed that many trucking firms are reluctant to carry fresh produce because of delays and damage to loads because of rough conditions, but one of the larger firms is planning to invest in more trucks with coolers for vegetables once the road is in a better state. This, and the planned establishment of two trade and freight logistics platforms in Goroka and Jiwaka, are likely to stimulate a growth in production and marketing of fresh produce, raising incomes in farming households.

c) Poverty alleviation and improved household income

131. A World Bank Study of poverty in PNG found that access to transport infrastructure is a major determinant of economic welfare in PNG. For those able to exploit new business opportunities along the highway, as a result of increased traffic, incomes are likely to improve. Roadside vending, eateries, buai sales, repair and vulcanizing shops, petrol stalls, and entertainment service provision (such as darts, bingo, and sexual services), may increase income for those operating small enterprises along the highway. Apart from the business opportunities afforded by increased traffic on the road, the compensation payments for lost assets, opportunities to find wage employment, and income restoration measures will also contribute to poverty alleviation in the poorest households.

d) Improved facilities at roadside stops and markets

132. The Investment Program will build 106 bus stop shelters, and upgrade 24 roadside market areas with hygienic, sex segregated public toilets, and access to piped water. Where women are currently using small creeks and roadside drainage channels for washing and bathing, new steps down to the river level or washing facilities safely away from the road, will be installed. Efforts will also be made to establish better waste disposal and recycling systems to remove rubbish heaps from encroaching on the road. These improvements will particularly benefit women, who make up the majority of market vendors, and who are responsible for household washing. They are also expected to cut down on the incidence of diarrheal diseases, cholera and typhoid.

e) Faster travel times and more comfortable rides

133. Faster travel times and increased comfort will benefit all travelers, and it is anticipated that more mini-buses and PMVs will begin to serve highland communities since costs will be lower. Improved road surfaces will lower high vehicle costs, and result in fewer breakdowns and delays on the road. There will be less wastage of fresh produce because of the wear and tear from bumpy roads.

f) Safer conditions for pedestrians and vehicle occupants

134. The Road Safety Component of the Investment Program will deliver important improvements in safety to both pedestrians and vehicle occupants. There will be safety

improvements at 24 identified hazardous locations or 'black spots'. Other improvements include: road markings and signage, crash barriers, 15 pedestrian crossings, traffic calming devices in urban centers and built up areas, and 1 km of roadside footpaths built beside 30 schools along the highway.

g) Fewer road closures and less dust and mud

135. The entire 57 km cross of Simbu Province will be upgraded to good condition, and about 117 km of road elsewhere will be restored to good condition and adapted to climate change through strengthening, resurfacing, drainage, and slope protection improvements. Currently, residents living near the damaged road surfaces suffer from mud during rains, and dust pollution during dry periods. The steep, unstable and eroded sections of the road frequently slip, causing road closures while clearance and repairs are done. There will be fewer closures and delays once drainage is improved, and the road is properly maintained.

Negative impacts and mitigation measures

a) Loss of land

136. Land use along the highway varies greatly depending on topography, altitude, rainfall, geology and soil type, and population pressure. As such the effects of any loss of customary land will be felt differently at different locations. As has been explained above, there will be no resettlement impacts under Tranche 1 and all efforts will be made to avoid any land acquisition during detailed engineering design.

137. **Mitigating measures for loss of land:** In the event that detailed engineering design requires repair or upgrading work outside of the 40m road corridor, provisions in the LARF, detail fully the rights and eligibility of landowners and land users to compensation. A Resettlement Plan will be prepared which would confirm the scope of land to be acquired, entitlement and compensation to affected persons and other measures to be adopted to minimize any adverse impacts. The aim is to pay for land and improvements at replacement value, and the Resettlement Plan provisions will ensure that people's livelihoods are maintained at the same or better levels as existed before the Investment Program. Where possible, clan leaders will be asked to allocate alternative land for that which has been lost by any household.

b) Renewal of complaints around outstanding unresolved issues

138. In sites where grievances around land issues are unresolved, customary land has not been legally purchased for the road, or landslide recovery measures have been inadequate, the new SHHIP has the potential to inflame these existing complaints, as communities seize the opportunity to press for extra compensation or for legitimate unpaid entitlements.

126. **Mitigating measures to resolve outstanding land issues:** As the Investment Program commences, technical assistance will support DOW to develop an action plan to deal with any potential unresolved issues as they may develop. The first step in such a plan would be to research land records in DOW's SLB and the DLPP archives, to accurately determine the ownership status of the whole highway corridor, and produce a social compliance audit report. The next step would be to begin the process of legally acquiring title to any land which is not state land, and to remedy outstanding disputes pertaining to payments owed for customary land. Any funding required should be the responsibility of the borrower, since the problems do not relate to the current Investment Program. Sites with unresolved or legacy issues will be excluded from Tranche 1. All existing legacy issues need to be resolved prior to any civil works under Tranches 2 or 3.

139. As part of the action plan, the technical assistance will support DOW in suggesting to GoPNG, ways to designate certain places along the highway as unfit for habitation. These “red zones” or “hot spots” should be identified as hazardous disaster-prone zones, with no building permitted on such sites.²⁷ This would involve the development of a long-term strategy in cooperation with local communities, as well as funding to ensure the safety of communities living in such areas, and their continued access to viable livelihoods options. This kind of zoning is not usually done in PNG, but is common in other countries where people are prevented by law from constructing houses on active earthquake fault lines, geothermal areas, eroding coastal areas, or flood plains subject to repeated inundation.

c) Physical and/or Economic Displacement

140. While Tranche 1 activities will not physically displace anyone (i.e. necessitate the relocation of occupied houses), the longer term activities under the Investment Program such as under Tranches 2 and 3 may affect some structures, trees, crops, graves and other assets of affected persons, mainly where there has been encroachment of the 40m highway corridor.

- **Loss of houses and other structures:** Many of the potential affected structures are kiosks, canteens and stalls made of bush materials (pitpit, pandanus, bamboo, and other types of organic materials), which are abundant in the Investment Program areas. Some use semi-permanent materials such as sawed timber or corrugated iron for roofs and walls. The major cost of constructing the structures is the cost of harvesting, hauling, cutting and installing materials for these small buildings. Owners seldom undertake major repairs, because in the cultural traditions of the area, they will just wait for the structure to deteriorate before constructing a new one, which is less onerous than trying to repair the old one. Traditionally the structures are seen as temporary, to be replaced periodically depending on the durability of the bush material used.

The encroachment of structures, particularly those in roadside markets cause a variety of problems: traffic congestion, lack of parking space, obstruction of roadside drainage channels, contamination of water sources, and waste and pollution problems from packaging, glass, plastic, and human excrement, since there is little proper sanitation or waste disposal. The problems are severe where the road narrows in valleys or in mountainous areas. During consultations, people asked for proper rest areas and sanitation facilities.

Despite the temporary nature of many of the structures, they are the mainstay of many family livelihoods, and their loss, or any disruption to their weekly income, would cause hardship.

²⁷ The identification of zones would need to be carried out by suitably qualified experts, such as geo-tech engineers, hydrologists, and/or staff of the National Disaster Centre.



Roadside stalls and structures encroaching on the Highlands Highway

- Loss of perennial trees and plants:** These may be either fruit, timber or shade trees. The effects of the loss of fruit trees are felt when annual crops are lost, as they are either important for household diets or a source of income. Timber trees are also important instruments of household savings, similar to having money in the bank. They are allowed to grow for many years until attaining commercial value when they are ready to be cut down and sold to cover recurring household, education, and medical expenses or emergencies.

- **Loss of annual crops:** These are defined as plants and shrubs whose economic products can be harvested within a year. This includes almost all the crops cultivated in traditional food gardens of the affected areas. Should crops need to be removed for road upgrading, the policy is that the owners are permitted to harvest crops before clearance for construction. Most families have three to five gardens to allow for fallow periods, and as a survival strategy in the event that there is crop failure in one garden. Any loss of crops for the road Investment Program will be paid for by the project in order to maintain livelihoods at pre-project or better levels.
- **Loss of fences:** In the PNG Highlands, fences do not just delineate ownership of property, but prevent farm animals or wild animals from destroying food gardens, which are the primary source of food and income for affected households. Fences are usually made of shrubs, bush materials or wire, but in urban areas may also be made of more permanent materials such as corrugated iron or concrete blocks. Any fencing removed for road construction can have detrimental affects on gardens.



Wooden stake fence protecting gardens, within 40m road corridor

141. **Mitigating measures for physical and economic displacement:** The Investment Program LARF outlines the provisions for compensation to cover the full replacement costs of lost assets, damaged structures, or business disruption. Those affected may be eligible for a relocation allowance in order to re-establish commercial activities elsewhere, and to cover income lost during the transition period.

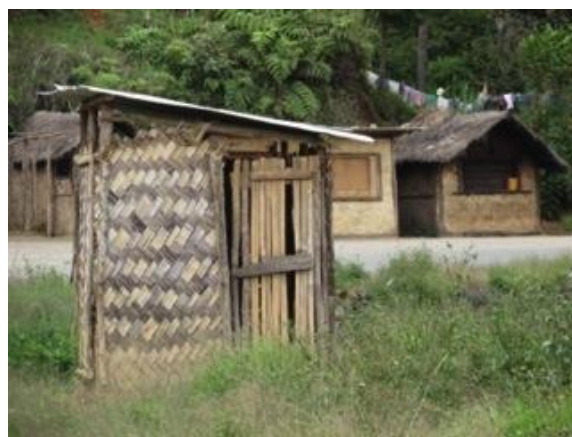
142. Compensation for the loss of trees depends of the species, age and height or diameter of trees, and is governed by the Valuer-General's Schedule of Compensation (2013) but may be supplemented to cover the replacement costs at current prices. Compensation entitlements outlined in the LARF also cover the lost income that would have been derived from these trees, for the period until a replacement can be grown to maturity. The Schedule deals with both fruit and timber trees, but does not put a value on shade or shelter trees, which may also have value. Loss of annual crops, where harvesting is not possible, should also be compensated.

143. Involuntary resettlement should be conceived of and undertaken as part of a development program, to provide displaced persons with opportunities to share project benefits, and to prevent impoverishment among affected persons. Safeguards staff will engage with affected persons as project beneficiaries, to discuss how to spread opportunities as widely as possible. Because roads are used by vehicles and passengers

who are merely strangers passing through an area, it is sometimes difficult to establish local ownership or to ensure that local communities feel direct benefits from its improvement. The Investment Program will encourage community participation in forming vendor groups to break down clan divisions and to help in the organization and management of market areas.²⁸ As described earlier, the Investment Program will upgrade 24 market areas by constructing sex segregated toilets²⁹ and systems for waste disposal and recycling (such as incinerators and composting areas). The following photos show the current poor state of public facilities at these markets:



Rubbish dumped from Umi market encroaching on the highway



Privately built pit latrines which are unhygienic and poorly managed

²⁸ The Safe Cities program in NCD (funded by UN Women) provides excellent lessons in how to ensure safer, more hygienic and better organized markets operated by the vendors who use them.

²⁹ A local NGO, ATPProjects, in Goroka, specializes in making appropriate low cost toilets which can be constructed by owners themselves, and they also provide health and hygiene education for those using and managing them.



Structures built on top of road drainage channels, which can cause blockages

d) Cultural impacts: Loss of grave sites

144. In the Highlands the custom is to bury the dead within their customary land, usually near the residence of the deceased, where spirits of the dead can watch and protect their living relatives, rather than in a separate cemetery as in western or middle eastern traditions. There are some locations where members of a clan bury relatives close to each other in larger grave sites. These serve as monuments to their tribal history, and in some cases, markers providing evidence of their clan boundaries.

145. **Mitigating measures for cultural impacts:** There may be a small number of these grave sites or memorials to accident victims which encroach on the road corridor, and relocation of graves may be culturally sensitive. The Investment Program will pay the costs of any relocation, including respecting the rituals, which must be observed during reburial, such as sacrificing pigs to appease dead ancestors.

e) Health and social impacts

146. There is considerable evidence from both PNG that road construction frequently increases problems of health, law and order, gambling, alcohol consumption, and accidents although roads are almost universally viewed as positive developments. While some social problems are beyond the scope of the project, efforts to mitigate negative health impacts will be made in three areas: (i) assistance with roadside washing sites; (ii) prevention of STIs including HIV; and (iii) reduction in accident injuries and fatalities.

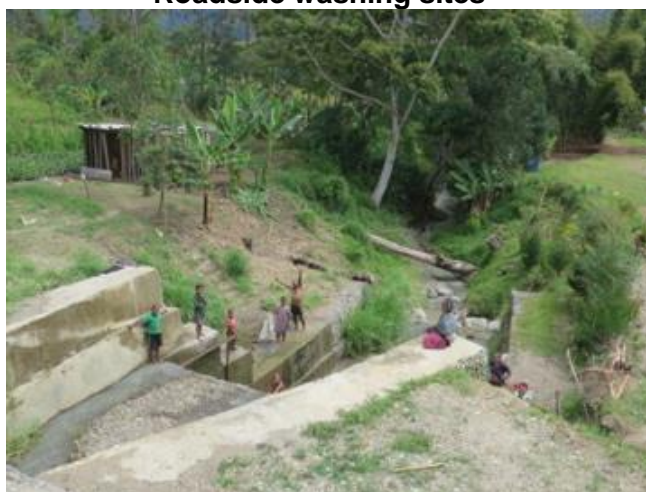
147. **Mitigating health and social impacts:** Many people, particularly women and children, use the creeks near road bridges, and the drainage channels for bathing and washing. Where such sites exist, engineering designs will incorporate measures to retain or improve these washing sites. For example, where women are washing near road bridges, the bridge designs will incorporate steps down to the water level to enable easy access. Where concrete drainage channels are being constructed, bathing and washing sites will be incorporated, safely away from the roadside.

148. As described in Section C, HIV/AIDS in PNG is largely a Highlands epidemic, as the highway has provided the conduit for spreading the disease as well as other sexually transmitted infections. Health services have identified multiple geographical 'hot spots'

where prevalence is high due to at-risk populations of mobile men with money, truck drivers and sex workers.³⁰



Roadside washing sites



149. The Investment Program will involve HIV/AIDS specialists from government and non-government health services to provide awareness raising, education and information, as well as distributing condoms, and referring people to voluntary counseling and testing in health centres and hospital VCT centres. A list of service providers is presented in Annex 5.

150. The usual practice in ADB road programs is for the Contractor to be required to provide HIV/AIDS prevention workshops/training to construction workers and communities. It is impossible to effect behavioral change with one-off events, and so the Investment Program will provide an on-going campaign to increase levels of awareness and link people to existing appropriate HIV/AIDS services. Some health centers and NGOs are already registering and providing regular check-ups to sex workers to keep them safe and to limit the spread of the epidemic, while others are providing coffee and lunch to truck drivers, while at the same time distributing information and condoms. The Gender and Development Safeguards Specialist will assist in designing and implementing an on-going prevention

³⁰ Prevalence among male transgender sex workers is 23%, among female sex workers, 19%, and among mining populations, such as Porgera, it is 1.79%, well above the national prevalence rate of 0.8%.

program, which will incorporate these innovative approaches and also address gender based violence.

151. The Road Safety component will mitigate the currently high rates of traffic accidents, which could rise if road speeds increase following upgrading of the road. This will include both physical improvements to the architecture of the road (crash barriers, signage, pedestrian crossings, footpaths near schools etc.), as well as a community and schools road safety education program.

152. A further contributing factor to the high rate of accidents along the HH, is the presence of dozens of alcohol outlets mainly selling beer to travelers and drivers. Meetings with hospital and health center staff confirm that alcohol is very frequently a cause of the accident. This problem can only be addressed by national and government legislation and enforcement of the liquor licensing laws. Consultations with Provincial Government authorities provided a range of views on the issue: most were strongly supportive of the idea of introducing a ban on sales of liquor along the highway (following the example of Enga and Southern Highlands), but others argued that banning beer sales would only increase the manufacture and sale of home brew ('stim), and other more dangerous drugs. The Road Safety component will incorporate messages about the dangers of drink driving as a mitigating measure.



Traffic accidents and poor driving on the Highlands Highway



Road sign about the dangers of illegal drink driving – next to a store selling SP beer



Transport company tackling the problem of drink driving with truck signs

f) Employment impacts

153. Employment of affected people in the Investment Program can have beneficial effects in raising incomes, as described above. However, the effects of providing more paid employment may be mixed, and in fact fuel great gender disparities. If it is mainly men who are employed, there is evidence that they increasingly fail to fulfill their traditional roles and the temporary loss of male labor for farming, places increased burdens on women, whose heavy workloads and responsibility to feed the family can make their lives even more onerous. The resulting inequalities may also fuel domestic violence, as men with additional cash frequently spend it on personal consumption: beer, prostitution, and consumer goods such as mobile phones, rather than family needs.

154. Because Papua New Guineans have a strong identification with their tribe, clan and territory, employment along the highway will necessarily be clan-based. It is often not possible for people to work outside their clan boundaries in another's clan's territory. Contractors will be encouraged to recruit from the local clan at each location particularly for unskilled construction work, or where the necessary skills are locally available. If contractors were to ignore the affected persons wanting to work on the project, by hiring outsiders, this would create a serious social backlash, and would sour relations, making cooperation with communities impossible. DOW will ensure that the winning contractors hire local laborers based on the distribution of clans along the road sections, in order to minimize any social conflicts. If the affected clans have permitted the use of their customary, it is appropriate and fair that their expectations that local people are hired are met. Most of the labor for construction work will be short term.

155. The three main road contractors (OPBC 1, OPBC 2 and RIC) will be responsible for maintenance along the whole 430 km of the HH from Nadzab to Kagamuga. This will require the establishment of long-term maintenance teams distributed along the three road sections, composed of members who live along the road. To avoid increasing gender disparities and contributing to labor shortages for livelihoods maintenance, such teams should include women's groups. Experience from previous road projects confirms that women are frequently the most reliable, responsible and dedicated employees.

Mitigating measures for employment impacts

156. One of the problems with roads is that other people use and get the benefits of them. Through employment opportunities and maintenance contracts, the Investment Program will ensure that local people get benefits as well. Community-based labor and maintenance groups will promote a greater sense of ownership and stewardship of the road, so that people become proud of the condition of 'their' stretch of road, and will ensure that any major issues are immediately reported to DOW.



An unreported collapse of the road near Yonki

157. Contractors will be encouraged to hire women as well as men, and to pay them equally for equal work. Care must be taken by managers and safeguard staff to ensure that occupational segregation does not disadvantage women, for example, by paying those involved in catering or cleaning (usually women), much less than men receive for similarly skilled work. Safeguards staff will ensure that ILO core labor standards are met and that workers are being paid at least the minimum wage. Women must also be given equal opportunities to engage in work traditionally reserved for men, such as building drainage channels or patching road surfaces. Stipulations that an established percentage of the workforce must be female, and obligations to hire local labor will be included in bidding documents for contractors. The safeguards staff in the PMO will include one post with specific responsibilities for community participation. This expert will help to mobilize women's groups who wish to engage in longer-term contracts for road maintenance work (such as vegetation clearance and drainage maintenance), and ensure they are included in any training provided.

158. Addressing other behavioral aspects of gender disparities which may be exacerbated by the Investment Program is more difficult, and not something that a road project is designed to do. However, some behavioral change can be effected through on-going community awareness and training programs. All the HIV/AIDS awareness training will also include gender issues, looking at the roles and responsibilities of men and women in the family, gender discrimination more widely, and the endemic problem of sexual and gender based violence. Safeguards staff will ensure that service providers and NGOs have the requisite experience, and effective trainers with high level expertise are used.

H. Grievance Redress Mechanism

159. The Grievance Redress Mechanism under SHHIP will be established prior to civil works under Tranche 1 with processes and procedures as prescribed by the LARF. The GRM will operate on the principle of trying to solve problems locally at the lowest project level, as far as possible, using trained community relations officers of the DSC and social safeguards staff, and taking into account, customary problem solving methods. A grievance redress committee (GRC) in each province for hearing and resolving any complaints that cannot be resolved at the local level or by the PMO will be established.

160. All project issues related to environment, land, resettlement, compensation and other social related grievances during project implementation will be handled by GRC. The committee shall be composed of: the District Administrator, the LLG Council President, DOW (represented by the safeguards staff at the PMO, and the Community Relations Officer at the relevant site, and a representative from civil society. Provincial officials may also be invited to attend where relevant.

161. If the AP is not satisfied with the GRC's decision, s/he may then take the grievance to the PNG judicial system. The Land Disputes Settlement Act establishes judicial procedures for resolution of landownership disputes on customary land. It has a mediation process whereby a designated mediator meets with the disputing parties to resolve grievances. This process is closely allied with the village court system and traditional mediation procedures that draw on the skills of recognized local leaders and elders.

I. Overall Involuntary Resettlement assessment and categorization

162. There is no permanent land acquisition required for the Tranche 1 activities. Very small pieces of vacant land, less than 0.5 hectares, required temporarily for construction camps and storage facilities will be addressed as part of the EMP. If there will be assets (trees, plants, and structures) to be lost within the existing government declared state-owned 40m wide corridor following detailed engineering design then a Resettlement Plan will be prepared which would commensurate to this and other **unanticipated** impacts to ensure that compensation and other provisions as stated in the LARF will be implemented. No design will be accepted causing significant adverse impact on the economic livelihoods of the landowners and users.

163. All factors considered, this due diligence assessment found the WHP, Jiwaka, EHP, and Morobe sections of the highway under Tranche 1 to be Category C

164. Consistent with the provisions in LARF, the safeguards monitoring of Tranche 1 will be undertaken by the DOW through the safeguards staff in PMO. This includes all activities related to ensuring compliance with the objectives and provisions of LARF such as the preparation of Resettlement Plan where it will be required following the detailed engineering design work or conducting another due diligence where there will be unanticipated resettlement impacts and ascertain actions to comply with LARF.

J. Conclusions and Recommendations

165. The most important resettlement planning and implementation will need to be done as part of detailed design activities that will take place later during project implementation of Tranche 1. Diligent supervision by safeguard specialists, establishment of an effective and fully functional grievance redress mechanism, and use of external monitors are crucially important, as is the inclusion of safeguard requirements in bidding documents and civil works contracts.

166. An institutional assessment undertaken during project preparation has identified significant weaknesses in the institutional capacity of DOW and other government agencies involved in land acquisition. For this reason, the Investment Program will employ three international safeguards specialists, and six national safeguards consultants in the PMO to build capacity of DOW, strengthen safeguard systems, and ensure thorough monitoring and supervision of subprojects under each contract, to avoid the risk of noncompliance with safeguard policies.

167. The biggest challenge for safeguards measures in the SHHIP relate not to the impacts of the current Investment Program, but to the history of road building and existing grievances or expectations related to past land acquisition (or the lack of it), and/or compensation claims for lost assets. Following ADB SPS 2009 recommendations, initial activities of the technical assistance under the Investment Program should assist DOW to develop an action plan for dealing with the sites where past land acquisition has outstanding issue to ensure that all past issues are satisfactorily resolved. If the acquisition of these sites was not in anticipation of ADB assistance then applicable government laws should be followed or any resolution fair and acceptable to the landowners. Investigation of the sites with potential legacy issues will be undertaken during Tranche 1 and no civil works will commence under Tranche 2 or 3 without the satisfactory completion of corrective actions where applicable.

168. Works under tranche 1 are confined to repairs, routine and periodic maintenance and road rehabilitation; upgrading work by resurfacing or strengthening the pavement structures, increasing the drainage capacity, protecting slopes from instability and raising the road grade on flood prone sections; and improving traffic safety. All these works will be done within the existing highways with government state-owned 40m wide corridor and will not acquire additional land or affect any assets beyond the said corridor. Any other impacts to be identified during detailed engineering design will be dealt with according to the LARF including preparation of a Resettlement Plan where there will be unanticipated assets to be affected and additional lands required. The Resettlement Plan will commensurate with the identified safeguards impacts. The sites with potential legacy issues will be further assessed and confirmed during Tranche 1 and government action plan or corrective measures in line with the requirements of ADB and GoPNG where required will implemented prior to any civil works under Tranches 2 and 3.

Annex 1: Minutes of provincial consultations 31 October – 4 November 2016

Western Highlands

1. Participants raised the issue of needing good quality control and supervision of contractors in order to achieve the outcomes. The fact that foreign exchange reserves are going down, will limit the amount of foreign exchange available for overseas companies who might bid for contracts. However, there will be a consulting firm hired to regularly monitor progress and ensure compliance with safeguards and contract requirements.
2. There was a long discussion about drunk driving, liquor licensing and the number of beer outlets operating along the highway. Both SHP and Enga Provincial Governments have banned beer outlets along the highway to the west, and have set up checkpoints on the provincial borders to police the ban (at Tomba for Enga, and Kagul for SHP). The Enga one is working well: a mini police station with cell block, and permanent police housing have been built, and the police are well trained. They are strict and check everyone. This has had a very positive effect on the behaviour and driving along the highway in those provinces. WHP has no such legislation to control beer outlets.
3. The need for road safety education in schools and footpaths for pupils near schools was raised by a school principal.
4. Road safety is a particular issue at Minj where the market is on both sides of the road, there is a junction to Banz, and people are crossing the road all the time.
5. Drains along the highway get blocked near markets because people are encroaching on them with stalls, and throwing rubbish in them. Truck-stops and markets are always surrounded by potholes because of this. The 20m clear ROW road corridor should be enforced by police, but there is rarely any police presence. Markers could be installed to show the 20m limit. There is a need to clearly delineate boundaries.
6. Drains are also being used for washing, so it would be good if people could be given laundry facilities where there is a water source, or near bridges, to keep them out of the drains.
7. All those present also appealed for help in repairing the road between Kagamuga and Mt Hagen (which is not part of the current scope of the Investment Program), as it is in a terrible condition and holds up all the traffic coming into Hagen. It was explained by the ADB consultants that this is to be done under a separate government contract, and is not part of the current program. Financing is currently being sought from a Chinese bank to fund the construction.

Jiwaka

1. Jiwaka provincial staff asked that the weighing station for vehicles be situated in Jiwaka Province, rather than in Mt Hagen, as there is more land available to build the station. In fact land owned by the provincial government has already been set aside for a weighing station, and planning has begun to establish one. The TL said that this idea had merit and would be further investigated. He promised to send the PWM information about truck weigh bridges, which could help inform where to build it, and includes best practice from around the world. Jiwaka staff wanted to know if the construction could be brought forward into Tranche 1 activities.
2. Jiwaka also proposed that a fresh produce logistics depot with cold storage be built near the market, as it is the center of a large vegetable and fruit growing area.

3. A suggested re-routing of the Chimbu section of the highway from Kundiawa-Mingende to Jiwaka (where there is a lot of land instability) was not thought to be viable in this ADB project as the costs would be prohibitive to move it to the other side of the Waghi River.
4. Jiwaka DoW asked if the provincial branch offices would benefit from training by the PMO under the SHHIP project. ADB staff assured them that capacity building would include the provincial works departments.
5. The Provincial Police Commander, Joseph Tondop, suggested that Mobile Units to check maintenance should be instituted, so that repairs can be done quickly rather than waiting weeks or months. It was noted that if labor-based maintenance teams were employed to maintain local sections of the road, they should each be assigned to their own clan land, in order to prevent conflict with surrounding groups, and women as well as men should be employed so that the income is distributed fairly.
6. The PPC also said that small roadside alcohol distributors should be restricted as they are not registered with the Liquor Licensing Board. Jiwaka province is currently working on a master plan to clamp down on alcohol distributors. This was strongly supported by the women's group representative, '*Voice for Change*', who said the beer outlets contributed to the breakdown of the social fabric, to traffic accidents, and to domestic violence.
7. The Jiwaka PWM suggested that a truck overtaking lane was needed on the steep section between Simbu Wara and Kundiawa town.
8. People were concerned about how the procurement of contracts is handled under ADB processes, and were anxious to avoid political interference or wantokism. They want to make sure ADB will ensure transparency and fairness.
9. Jiwaka provincial authorities were keen to assist the project wherever possible, such as with the community road safety pilot project, and in mitigating problems with roadside dwellers.

Simbu

1. Simbu participants also expressed a need for a fresh produce storage and logistics facility in Kundiawa, as it is the marketing center for surrounding districts of Gembogl, Kup, Gumine, Sina Sina and Elimbari. ADB consultants were not confident that the project could afford to build more than two fresh produce facilities, but agreed to consider priorities within the overall budget.
2. There was an appeal to involve local authorities in district and provincial administrations when planning and implementing the project within the road corridor, so that local disputes could be sorted out. In the Duman area between Tambar creek and Nintel, a three km strip of land was apparently not acquired by the state, and landowners are refusing to allow DoW to maintain that section of the road. The District Administrator for Sine Sine/Yoggomugl, Bal Numapo, said that local people no longer trusted the DOW because they feel their grievances have not been properly addressed and that the project would need to deal with this issue, as well as establishing an effective Grievance Redress Mechanism.
3. The PA, Joe Kunda Naur, suggested that there was an urgent need for toilets and parking places or rest areas along the road, so that drivers could rest. There have been numerous accidents where drivers fell asleep.
4. Contracts for regular maintenance should be awarded to local people rather than companies or outsiders, so that residents living close to the road feel responsible for its condition.
5. More bus stops with seats, bus shelters, pedestrian crossings at schools and in town areas, stop signs, footpaths, and other facilities are needed at appropriate places along the highway.

6. The steep section of road from Wara Simbu up the hill to Kundiawa town is dangerous, as large trucks get stuck there, it is busy, with lots of traffic and pedestrians. The Simbu officials would like to see a passing lane for trucks built on this short section, as well as crash barriers, footpaths, guardrails, school signs, and other safety features. The participants were pleased to hear about the planned safety improvements where the highway crosses Kundiawa town.

7. The PA suggested that recipient communities should be part of the monitoring of the project, and on completion, they should be asked if they are satisfied with the work as part of the formal approval sign off process and completion report.

Eastern Highlands

1. The meeting participants were very pleased to hear of the plans for a Goroka by-pass, as well as the proposed fresh produce logistical platform, the replacement of one-lane bridges, the weigh stations, and the proposed location of the PMO in Goroka. However, they asked whether the by-pass could be constructed during Tranche 1 of the Investment Program. ADB representatives thought this unrealistic and not likely to happen, as it will take a lot of planning and design work, and it will also be very expensive, so time is needed for preparation. The old highway on the other side of the Asaro River (between Kamaliki (6 km south from Goroka) and the Kafamo/Ufeto turnoff from the highway, has been investigated, but this would involve construction of 24 km of road, much longer than the usual by-pass. More work needs to be done to find and plan a viable route.

2. Drunk driving and alcohol outlets were discussed, and the PA, Solomon Taato, pointed out that there is already a steering committee working on issues to do with the control of alcohol sale and distribution. It was noted that the police, DOW, Lands, Agriculture and other provincial bodies all need to play a role, and there is a need to carry out awareness raising activities.

3. Jackson Appo (Deputy Director, Technical Health Program, Provincial Health Authority) noted that Environmental Health Officers could be employed to assist with control of alcohol outlets. He also appealed to the project to use the existing public health authorities and NGOs to assist with HIV/AIDS prevention training and traffic safety campaigns. He recommended that local NGOs be involved, as some such as Save the Children have long-term programs to assist sex workers and keep them safe. Short-term one-off training events are unlikely to affect behavior change, and are not sufficient to mitigate against the risks of HIV/AIDS.

4. The DOW said they had plenty of land on which to locate a project management office for the SHHIP, and hoped it would be built in their grounds.

5. Mr. Solomon Tata the Provincial Administrator reminded the ADB / DOW that if they required contributions from the provincial government or needed them to do anything, then they would need to be told in good time to allow items to be budgeted for. DOW pointed out that all PAs and governors were members of the high-level steering committee, and they needed to attend the meetings to ensure that provincial perspectives and local knowledge were incorporated into the plans and design.

Morobe

1. There was a discussion about the new weighbridge in Lae, and all agreed that the current design is problematic, as there is not enough space to park waiting trucks, nor room for them to turn around, should they fail the inspection. It needs to be re-designed, and preferably moved to a better location. Jacob Luke, chairman of the PNG Road Transport Association and owner of Mapai Transport suggested that the weigh station would be better sited at Nadzab where the government (Civil Aviation) has plenty of flat space for parking. He also suggested that newer

digital technology was needed, and that some mobile weighbridges should be introduced. It was felt that fees and fines are not the answer to overloading as this easily leads to 'bribery', and it would be better to turn trucks back to re-load if they breached the regulations. It was also suggested that the weighbridges should be built as early as possible (in Tranche 1), so that newly restored and upgraded roads are not being damaged by overloaded trucks. Trucking companies face a lot of pressure from suppliers to overload trucks (or lose the contracts). There is a need to educate communities and companies about the risks this entails.

2. The freight companies are also concerned that almost half the fresh produce goes to waste because of the poor packaging, lack of cool storage, and other problems. The Mapai Transport company often refuses to carry produce because the containers are not cooled, and if the road is blocked or impassable, the farmers then complain about produce being kept too long in the truck and spoiled. The PNG Road Transport Association would like to be involved in the planning and design of the logistics platforms for the SHHIP, as it is an important issue for them. Planning for these needs to be done in cooperation with FPDA, DAL, NARI, and provincial administrations.

3. Lae participants also raised concerns about the lack of toilets and rest facilities along the highway, pointing out that there are thousands of people using the road daily, but there are no public facilities.

4. There is also a need for designated truck parking areas especially in towns, as trucks are used as lodging places, and also used for sex work. At the moment, they park along the seafront at Lae, which is unsatisfactory. There needs to be good on-going HIV/AIDS prevention programmes associated with the project, (run by established local organizations with appropriate expertise), as many of the drivers are becoming HIV positive, and three or four men working for Mapai Transport have already died of HIV/AIDS related illness.

5. When the issue of drunk driving was discussed, some participants rejected the idea of restricting the sale of beer along the highway, saying that banning alcohol outlets would just increase the use of home brew and drugs such as marijuana.

6. The Morobe participants acknowledged the importance of the AusAID Transport Sector Support Program to them, saying that much of the rehabilitation work is still visible. However more resources are needed to continue the maintenance and rehabilitation work, and they look forward to working with the SHHIP.

Annex 2: Record of People Consulted

Table 2: Participants at Provincial Consultations

Name	Title	Organisation	Purpose/content
David Hill	ADB Unit Head, Portfolio Management	Asian Development Bank	Overview briefing
Anura Widad	Safeguards Specialist	HRMG Mt Hagen	Experience of HRRIP safeguards work
John Duguman	Snr Lecturer & Director	PNG Centre for Climate Change & Sustainable Devt, UPNG	Training of Community Liaison Officers
Alphonse Niggins	Snr Field Coordinator	HRMG Mt Hagen	Briefing on the PMO for HRRIP
Patty Pepe	Programme Officer	Family Health International 360	FHI HIV/AIDS programmes in the highlands
Miriam Dogimab	Project Director	Family Health International 360	
Simon Marme	Director	Community Devt Agency	Community work in Simbu
Kaupa Thomas	Project Officer	Community Devt Agency	Community work in Simbu
Yanny Guman	Technical Advisor	Community Devt Agency	LLG planning & livelihoods projects in Simbu
Lucy Be'Soer	Director	Voice for Change	Women's programmes in Jiwaka - EVAW
Brenda Samson	Project Manager	Voice for Change	Women's training in Jiwaka
Noel Kuman	Program Manager, Value Chain Innovation	Fresh Produce Development Agency	Logistics depots; FPDA progs
Rebecca None	Program Manager, Policy & Planning	Fresh Produce Development Agency	Gender – women farmers
Wayne Powae	Program Manager, National Bulb Onion Program	Fresh Produce Development Agency	Volumes of agric production
Steve Layton	Co-Director	AT Projects	WASH program for markets, toilet design
Miriam Layton	Co- Director	AT Projects	Women's needs along highway, GBV & safety, toilets for markets
Rodha Eliab	Manager	Salvation Army Health Services, Kainantu	SA health & HIV/AIDS programs
Sylvia Kavare	Community Health Worker	Salvation Army Voluntary Counseling & Testing Centre	HIV/AIDS situation in Kainantu and along highway
Veronica Waffi	Director	Mutzing Health	HIV/AIDS prevention work

		Centre, Markham Valley	with sex workers; road accidents
Anna Kumura	Health worker	Markham HIV/AIDS Prevention Prog	Mutzing program with highway sex workers
Keisy Kirry	Officer in Charge, PRAPA Clinic	Kundiawa Hospital	HIV/AIDS prevalence & treatment in Simbu
Agatha Thomas	Nurse, HIV/AIDS clinic	Kundiawa Hospital	HIV/AIDS along the highway
Lisa Ika	Director of Nursing Services	Kundiawa Hospital	Accidents along the highway
Helen Mark	Project Officer	Oxfam PNG	NGOs working in EHP & Simbu; GBV programs
Jackson Appo	Provincial Disease Control Officer & Dep. Director, Technical Services	Goroka Hospital	HIV/AIDS services in EHP
Sergie Bang	Director	National Agricultural Research Institute	Fresh produce depots; sector plan; agricultural production
Chris Matmillo	Business Devt Officer	NKW Group (Kaifresh)	7194 2140 kaifresh@nkwgroup.com.pg
Iso Kose	Project Extension Officer	NKW Group (Kaifresh)	
Wally Wigbert	Assistant Secretary, DoW	Survey & Lands Branch, DoW	Status of land acquisition along highway; DoW records
Mogia Miamil	Principal Land Management Officer	Survey & Lands Branch, DoW	Status of land acquisition along highway;
Stuart Watson	Country Director	UNAIDS	HIV/AIDS current situation; service providers, statistics
Christina Cheong	Project Manager	UN Women	Safe Cities Market Program; market safety, sanitation
Darren Yorio	Planning Director	ADRA, Lae	Livelihood restoration & HIV/AIDS programs in Markham Valley
Nitin Pappachen	Country Director	ADRA, Lae	ADB contracts for resettlement – Lae Port
Kelwyn Browne	Gender & HIV/AIDS consultant	Rural Primary Health Services Delivery Project	Models for social safeguard training in GBV and HIV/AIDS in ADB projects
Western Highlands Province Consultation Meeting, Mt Hagen, 31 st October			
Allen Akili	Pastor	SDA Mission	SHHIP briefing & stakeholder discussion
Bill Dokta	Manager	OSL (SME Association)	“
Richard Sommer	Principal	Highlands Christian Grammar School	“
Wak Kewa	Provincial & City	Dept Lands &	

	Physical Planner	Physical Planning	“
James Papa	Deputy Provincial Administrator	Western Highlands Provincial Administration	“
Ganiga Ganiga	Snr Project Officer (Infrastructure)	ADB	“
Mathew Windi	Regional Works Manager, Highlands	DOW	“
Maling Ambranga	Provincial Works Manager	DOW	“
Lalio Erasi	Project Manager, SHHIP	DOW	“
Alain Labeau	Consultant TL, PPTA	ADB	“
Joselito Losaria	Consultant PPTA	ADB	“
Dennia Fenton	Consultant PPTA	ADB	“
Wendy Lee	Consultant PPTA	ADB	“
Jiwaka Province Consultation Meeting, Kurumul, 1 st November 2016			
John Kumie	District Administrator	Jiwaka Provincial Government	“
Umar Nuka	Program Manager	DAL, Jiwaka Provincial Govt	“
Mike Sapan	Provincial Lands Manager	Jiwaka Provincial Government	“
John Ngants	Snr Lands Officer	Jiwaka Provincial Government	“
John Tubus	Infrastructure Manager	Jiwaka Provincial Government	“
Joe Karap	Deputy Provincial Administrator	Jiwaka Provincial Government	“
Stefan Wosik	Deputy Provincial Administrator	Jiwaka Provincial Government	“
Steven Kamga	Community Development Advisor	Jiwaka Provincial Government	“
Lilly BeSoer	Director	Voice for Change-NGO	“
John Kolip	General Director, Districts & LLGs	Jiwaka Provincial Government	“
Nalan Kawa	District Administrator	Jiwaka Provincial Government	“
Andrew Walep	Law & Order Officer	Jiwaka Provincial Government	“
Matthew Kuraiwae	Jimi District Administrator/CEO	Jiwaka Provincial Government	“
Joseph Tondop	Provincial Police Commander	RPNGC	“
Lalio Erasi	Project Manager, SHHIP (Highlands Highway)	DOW	“

Oko Nola	Snr Safeguards Manager	ESSU – DOW HQ	“
Matthew Windi	Regional Works Manager	DOW – Highlands Region	“
Amos Dakma	Provincial Works Manager	DOW	“
Jessman Tengdui	Provincial Civil Engineer	DOW	“
Leo Simme	Provincial Surveyor	DOW	“
Wendy Lee	Social safeguards Consultant PPTA	ADB	“
Alain Labeau	Team Leader, Consultant PPTA	ADB	“
Dennis Fenton	Climate Change Consultant PPTA	ADB	“
Ganiga Ganiga	Snr Projects Officer (Infrastructure)	ADB	“
Simbu Province Consultation Meeting, Kundiawa, 2 nd Dec 2016			
Sam Goia	Second Secretary	Hon Kerenga Kug's Office, SSY District	“
Bal Numapo	District Administrator, Sinasina Yonggumul District	SSY District, Simbu Government	“
John Nime	Project Coordinator	Simbu Provincial Administration	“
Emmanuel Kenwai	Provincial Civil Engineer	DOW, Simbu	“
Joe Kunda Naur	Provincial Administrator	Simbu Provincial Administration	“
Jacob Koile Isaac	Support staff	Simbu Provincial Administration	“
Oko Nola	Snr Safeguards Manager	ESSU DoW - HQ	“
Mathew Windi	Regional Works Manager	DoW	“
Ganiga Ganiga	Snr Project Officer (infrastructure)	ADB	“
Wendy Lee	Social Safeguards Consultant PPTA	ADB	“
Eastern Highlands Province Consultation Meeting, Goroka, 3 rd Nov 2016			
Cliffson Isaiah	LLG Manager	Mimanalo LLG, Goroka District	“
Utoro Ekesae	A/Deputy CEO & District Project Coordinator	Goroka District Administration	“
Jackson Appo	Deputy Director Technical Health Program	Provincial Health Authority EHP	“
Andreas Lulve	A/CEO Goroka District	Goroka District Administration	“

Solomon Tato	Provincial Administrator	East Highlands Provincial Administration	“
John Posagu	Provincial Works Manager	DOW – EHP	“
Mathew Windi	Regional Works Manager	DOW Highlands region	“
Oko Nola	Snr Safeguards Manager	ESSU – DOW HQ	“
Wendy Lee	Social Safeguards Consultant PPTA	ADB	“
Ganiga Ganiga	Snr Project Officer (Infrastructure)	ADB	“
Morobe Province Consultation Meeting, Lae, 4 th Nov 2016			
Kingsford Kassen	Provincial Works Manager	DOW – Morobe	“
Charlie Sindang	Principal Program Advisor – Works	Morobe Administration	“
Jacob Luke	PNG Road Transport Association	President	“
Jeffrey Yallen	Transport Inspector	Traffic Registry, Morobe Prov Govt Government	“
Mathew Windi	Regional Works Manager	DOW – Highlands	“
Oko Nola	Snr Safeguards Manager	ESSU – DOW HQ	“

Table 3: Community Consultations During Site Visits

Community / site	Name of key contact	Status	Contact details
Fruit market, Alta village, Jiwaka	Michael Timbi,	Clan leader; Cabinet Secretary, (Jiwaka P Govt)	7276 8234
	Mek Kombo	Landowner; clan leader Mambulka	7253 0081
	Bob Hargreaves	Landowner & coffee grower	7307 5212
	Amos Dakma	PWM, Jiwaka	7273 3155
Wahgi Bruk	Mas Irai	Trade store owner	
	Amos Dakma	PWM Jiwaka	7273 3155
	Simon Urambo	Graduate Engineer	
Keranga, Ward 5, Kerowagi District	John Siune (Ganduakane clan)	Ganduakane clan leader	7282 9503
	Wei Konbukun	Kiwakare clan leader	7391 0986
	Benjamin Gende		7001 7478

Community / site	Name of key contact	Status	Contact details
	Simon Gende		
Waingar	Taia Das	Clan leader	
	Joe Waeung	Local leader	
	Amos Dakma	PWM Jiwaka	7273 3155
Mindima	Mondo Umba	Landowner	7997 4800
	Peter Tatba	Village Magistrate	
	Amos Dagma	Ex-PWM Simbu	7273 3155
Guo (Bandama)	Baundo Kir	Clan leader	
	Otto Francis	Clan leaders	
Gera (Sinasina-Yonggomugl)	John Kamene	Pastor and community spokesperson	7275 8484
	Apa Dam	Ward Councillor	7356 3336
	Dr Wamli Yopa	Kerekagawo clan leader	
	Tokia Minga	Yopau Gawo clan leader	
	Barima Kapgol	Kamarakane clan leader	
	Mark Gabma	Mingadinipe clan leader	
	Amos Gugma	Ex-Simbu PWM and Gera community member	7273 3155
Duman	John Kuoro	School teacher and community spokesman	7242 7000
	Robert Ate	Ateku clan leader	7920 2331
	Kakma Kaka	Kuiawa clan leader	
	Gene Kila	Kapma tribal leader	
	Bruce Mogia	Kilkapa clan leader	
	Israel Joe	Droku clan leader	
	Mark Gunwa	Former PWM DoW	
	Balbo Takai	Ward 9 Councillor, Yalemesi	
	Benson Mabel	Ward 10 Councillor Yalkomro	
	Lala Japan	Ward 11 Councillor Kapmagaten	

Community / site	Name of key contact	Status	Contact details
	Bai Numapo	District Administrator, Sinasina-Yonggomugl	7035 5766 bnumapo@gmail.com
Kongo Coffee, Chuave District	Simon Urambo	Graduate Engineer, Simbu Province	
	John Kamp	Chairman of Simbu Landowner Committee	
Daulo Pass	John Kindinive	Manager, Daulo Pass Landowners Association	
	James Gandi	Dep. Chairman, Daulo Pass Landowners Assn.	
	Raiaro Baro	Daulo Landowners Assn. member	
	John Giregire	Adviser to Prime Minister, advocate for DLA	7393 4162
Raibinka, Kainantu District	Ualu Sira'o	Landowner	
	Sime Kasuwe	Landowner	
	Muani Waro	Landowner	
	Gideon Timothy	DOW Engineer, Acting OIC Kainantu	
Bena Bridge, Kainantu	Ben Isare	Clan leader	7209 9677
Kolwara, Obura- Wonenaro District	Bari Sakias	Landowner	
	Gideon Timothy	DOW Engineer, Acting OIC Kanantu	

Annex 3: Other identified problem sites (not assessed during fieldwork)³¹

1. Ouna Village, (200m after Mindima) near Mindima & Kaia Works

This section of road was rehabilitated in 2014-15 by the contractor, Kaia Works. Some crops and trees were destroyed beyond the 40m road corridor, and some land rendered unusable, which claimants say leaves them with very little stable, prime land for agriculture. Claimants say that they received 42% of their claim for K120,000, and are still asking for the remaining amount of K70,000. A report on the damages written by Peter Kiak, is with the Simbu DOW, with 70 claimants amounting to a total of K167,089.00.

If the damages were the fault of the contractor not complying with the environmental management plan, it is not clear why this claim is still with DOW. However, the impact on the new SHIIP is likely to be a lack of trust in future construction by contractors. During Tranche 1, it is important that past issues are taken account of through careful community consultation and participation.

2. Tem Nike Creek, Barrawagi (200m from Don Bosco Technical Institute, about 68 km from Mt Hagen) Kerowagi district

In 2015 a claim for damages was made to DOW Kundiawa by Atte Bopa, from Kerowagi District Services, following construction work by the Orwa Works Construction Company on Tem Nike Creek. The work was undertaken to improve the major culvert on the creek, which runs downstream towards the Koronigle River. Claimants say the work done went beyond the boundary marked for construction and well outside the 40m road corridor. Deep holes and trenches were dug out along and within the river bed, in order to source gravel and stone for construction. This has increased the river flows, and caused land slips along the banks damaging food gardens and coffee production. Oil spillage from trucks and heavy equipment has flowed into the main river system and along the side of the river beds, so that people now find it difficult to get fresh water for drinking, washing, and cooking. It has also affected the aquatic plants and fish with some 1,200 people living in the area are affected, and six families have lost crops and trees because of the construction impacts. They are:

• Peter Author	K11,00.00
• John Tommy	K8,060.00
• Samuel Kiak	K6,000.00
• Philip Senglap	K9,060.00
• Nina Waine	K11,000.00
• Pastor Albert Waine	K2,000.00
TOTAL:	K55,000.00

While the local community recognize the benefits of the road system to the people of Simbu, they are worried about the environmental impacts of the construction on their farms, and feel that the destruction could have been avoided with more care taken.

Clearly, the contractor should have been held responsible for the damages to agriculture and local livelihoods, but this does not appear to have happened, and this has destroyed trust in DOW and the government agencies who should monitor such works.

³¹ Information is based on reports available in DOW, from Project Manager Lallo Erasi.

3. **Magi**, before Koronigle River at the Kerowagi turn off. (69.5 km from Mt Hagen)

Here there is an outstanding claim for garden damage dating from December 2013, resulting from a blockage to a culvert, five minutes drive west from Koronigle bridge, which the landowners claim is due to poor engineering work by DOW and contractors. A detailed assessment of the damages caused to land improvements was done by officers from the district Division of Agriculture, Livestock and Fisheries, and the report is with DOW. Three people were affected and the damages assessed were:

• Kumo Danga	K12,012.00
• Mathias Andekumo	K 1,276.50
• Gandai Magluwa	K 2,445.00
TOTAL:	K15,733.50

This total was not paid. DOW has done some work to clear the culvert, but further engineering and drainage work is needed to prevent storm water flowing into gardens and commercial crop plantations. This needs to be looked at during detailed design, and the social impacts regarding unpaid compensation addressed by DOW as part of Tranche 1 social activities.

4. **Kuglame** landslip, (400m before Mindima slip) Waye LLG, Kundiawa-Gambogl district)

Kaia Works Ltd undertook improvements to the highway near Kuglame village, but locals claim that they mistakenly blocked Kuglame Creek and the culvert, which was covered causing water to flow in another direction before sinking into the land resulting in large cracks in the customary land outside of the road corridor.

Pastor Peter Keruane has written an appeal on behalf of the village and the Kuglame Christian Life Church, for compensation for damages to improvements on customary land. The total claimed is K95,441. Eight owners of structural improvements are listed as:

- Alex Apa
- Peter Keruane
- Naur John
- Siune Labian
- Bobby
- Bono Joe
- Apa Joseph

There are 23 claimants listed as losing crops and trees (see Wandi Report 19 6 205.) Crops and trees include coffee trees, marita (edible pandanus), gum trees, yar trees, guava, banana, kaukau, sugar cane, taro, bamboo, avocado, and one fish pond.

5. **Wandi** landslide, Numnama area (360m before Bendema slip, Kundiawa-Gembogl district)

In early 2014, the National Roads Authority and Cardno Engineering Consultancy engaged Kaia Works to effect road repairs near Wandi village. The local community claims that these road works caused “massive environmental damages within our customary land”. They believe this was a result of man-made causes, rather than a natural disaster (as in the case of Waigar and Gera, with whom they make comparisons). The amount claimed is K754,709 and 294 named

claimants are listed. The documents relating to the assessment are with DOW, and a summary of the claim has been prepared by Simon Urambo, Simbu Engineer.

It is difficult to know how the assessment was done from the current available report, but this is obviously another sensitive area, where historical claims will require careful analysis and further social assessment with the community, in Tranche 1.

Key contacts:

Joe Kura	Landowner
John Kawage	Landowner
John Gigmai	Landowners
Simon Urambo	Engineer, DoW Simbu

Annex 4: Screening and categorization form

Project Title: Multi-partner Financing Facility for the Sustainable Highlands Highway Investment Program (the Program)

Tranche/Project

No:

Subproject Title:

Short Subproject Description:

Possible Land Acquisition Impacts	Yes	No	Not Known	Possible	Remarks
Will the project include any physical construction work?					
Does the project include upgrading or rehabilitation of existing physical					
Is land acquisition likely to be					
Is the site for land acquisition known?					
Is the ownership status and current usage of the land known?					
Will easements be utilized within an existing right-of-way?					
Are there any non-titled people who live or earn their livelihood at the site or within the right-of-way?					
Will there be loss of housing?					
Will there be loss of agricultural plots?					
Will there be losses of crops, trees and fixed assets?					
Will there be loss of businesses or enterprises?					
Will there be loss of incomes and livelihood?					
Will people lose access to facilities, services or natural					
Will any social or economic activities be affected by land use-					
If involuntary resettlement impacts are expected:					
Are local laws and regulations compatible with the ADB Safeguard					
Will coordination between government agencies be required					

acquisition?					
Are there sufficient skilled staff in the Executing Agency for resettlement planning and					
Are training and capacity-building interventions required prior to resettlement planning and					
<i>Whenever possible, consider also any future subprojects or investments.</i>					
<p>Information on Affected Persons (APs):</p> <p>Any estimate of the likely number of households that will be affected by the subproject? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, approximately how many?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Are any of them poor, female heads of households or vulnerable to poverty risks? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, briefly describe their situation</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Are any APs from indigenous or ethnic minority groups? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, please explain: _____</p> <p>_____</p> <p>_____</p>					

Annex 5: NGOs and service providers (HIV/AIDS and gender training)

Organisation	Areas serviced	Services / programs
Rural Primary Health Services Delivery Project	WHP, EHP, and Morobe	The RPHSDP is a five-year ADB funded health services reform project, operating in 8 provinces. Through the Provincial Health Authorities, they are providing training in a wide variety of fields, including HIV/AIDS, reproductive health and prevention of gender and family violence. They can provide high level expertise in HIV/AIDS and GBV prevention training.
Mt Hagen hospital	WHP	Well Women Clinic and Family Support Centre; emergency medical and psychosocial care for women and children victims of sexual abuse and violence; prevention/treatment of family violence and HIV/AIDS
Save the Children PNG	EHP & Morobe	Outreach and referral to at risk populations (sex workers, men who have sex with men and transgender people). GBV counseling and referral; SRH services including HIV/AIDS testing, FP, sexual assault intervention (PEP+); training service providers
Voice for Change	Jiwaka	Based near Minj, dynamic provincial women's organization involved in combatting GBV, peace and security work, and gender justice training. Works with police and local hospitals to provide refuge and support to victims of GBV. Also involved in livelihoods & economic empowerment work with women.
Salvation Army Health Services	Kainantu, EHP	VCT centre and support to 8 aid posts, providing HIV/AIDS prevention, care & treatment; condom distribution along HH; CHW training centre in Kainantu. 35 people receiving ART. Ran prevention program for 'truckies'.
Kainantu Hospital	Eastern Highlands	HIV/AIDS program with counselling and testing; ART provision; awareness raising and training
St Joseph's Mingende Rural Hospital VCT centre	Simbu	VCT centre provides prevention, counseling, testing, ART, and training. Part of the Catholic Health Services.
Kundiawa Hospital VCT centre	Simbu	VCT centre (Prapa Clinic and 6 subcentres), and Family Support Centre; Provide counseling, ART treatment, prevention awareness raising
Oxfam PNG	EHP and Simbu Partners of HRDN, KWP,	GBV program supporting volunteer human rights defenders providing services and referrals to survivors of family and sexual violence and sorcery victims; counseling

	KWA.	and paralegal support; training and prevention
AT Projects	EHP and other provinces as funding permits	Community home based care program with 50 volunteers providing prevention services, ART, and technologies to assist in care of AIDS patients (e.g personal hygiene kits, rain water catchments, body bags, well liners, solar water disinfectant systems, AT loos). Excellent training centre available near Goroka.
Mutzing Health Centre	Markham District, Morobe	Manages 29 aid posts; hospital + HIV/AIDS clinic supported by ADRA; have registered 345 sex workers and provide regular check-ups to FSW for STIs; provide mobile clinics and awareness raising to 21 'hotspots' along HH between Nadzab and Akamore market
ADRA (Adventist Development and Relief Agency)	Lae & Markham Valley	Provides HIV/AIDS education and awareness; home based care and SRH interventions, and HIV/AIDS counseling and testing. Supports Lae FSC and Morobe health centres, including Mutzing.
CMC (Family and Sexual Violence Case Management Centre) Lae	Lae and Morobe	Improving access to services for survivors of domestic violence
Angau Hospital FCS	Lae	Medical and psychosocial care for survivors of family and sexual violence
Médecins Sans Frontière (MSF)	Lae and	Used to operate the FSC in Lae; then provided training to 28 provincial and district hospitals and health centres; advocates for 5 essential services to be provided in one location: medical first aid, psychological aid; prevention of HIV & STIs (PEP); vaccination against hepatitis B8 and tetanus; and emergency contraception to prevent pregnancies as a result of rape. Training expertise in GBV and HIV/AIDS
Clinton Health Access Initiative	EHP, WHP, Jiwaka, National	National HIV commodity supply chain, ART rollout, paediatric ART support, training & mentoring service providers
Marie Stopes	Morobe, Mt Hagen, Goroka	Clinics in Lae, Mt Hagen and Goroka providing high quality SRH, family planning services, HIV testing; 12 outreach teams; in-service training in FP and other SRH issues
Anglicare	Mt Hagen, Morobe	StopAIDS program; key population outreach prevention program to hotspots; counselling, testing, home based care and ART treatment, as well as training
Baptist Union	Mt Hagen & Jiwaka	Outreach and referral service – for men who have sex with men, transgender women and sex workers
FHI360	Jiwaka, Mt	TA to 10 clinics in 3 provinces, support for

	Hagen,	HIV programs; training health workers and VCT counselors; GBV program including men's forums, village leaders, and school teachers/counsellors
Friends Frangipani	National	Works with male, female and transgender sex workers
CHASI	20 provinces	Catholic Health Service operating 22 testing centres, 30 health facilities offering ART and training
Susu Mama	Mt Hagen and Port Moresby	Primary health care services: information on infant feeding, FP, mother and child health care, and VCT services; prevention of mother to child HIV transmission

ART = Anti retroviral treatment; FP = family planning; FSC = Family Support Centres; FSW = female sex workers; GBV = gender based violence; HRDN = Human Rights Defenders Network; KWP = Kup Women for Peace; KWA = Kafe Women's Association; PEP = Post exposure prophylaxis; SRH = sexual and reproductive health; STI = sexually transmitted infections; VCT = voluntary counseling and testing;

It should be noted that on 7 September 2016, the Australian High Commission in PNG announced its intention to discontinue funding for recipients of HIV and reproductive health grants across PNG. Nineteen NGO and civil society organizations are thought to be affected. Organizations were given 6-12 weeks notice to end their grants and return assets. It is not yet clear how many of the service providers above, will be able to find alternative funding sources to maintain their services without this important source. It is also feared that the ART supply-chain will collapse, and the testing kits, lab reagents, condoms and other commodities may be unavailable. In addition, withdrawal of this funding is likely to impact on capacity building for health care workers, and public awareness raising efforts.³²

³² UNAIDS, 7 October 2016, *Briefing Note: Australian Government Funding for HIV in Papua New Guinea*