

A Social Assessment of the Proposed Purari River Dam Area: A Consolidated Report



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ACRONYMS AND ABBREVIATIONS

AMS – Area Medical Store
BLLG – Baimuru Local Level Government
CEO – Chief Executive Officer
CFO – Chief Financial Officer
CHW – Community Health Worker
CMWMA – Crater Mountain Wildlife Management Area
EALC – Elk and Antelope Landowner Company
EBM – Evangelical Bible Mission
EHP – Eastern Highlands Province
ELCPNG – Evangelical Lutheran Church of Papua New Guinea
FGDs – Focus Group Discussions
IDI – In Depth Interviews
HEO – Health Extension Officer
ILG – Incorporated Land Groups
JDA – John Davidson and Associates
LLG – Local Level Government
LNG – Liquefied Natural Gas
LOC – Land Owner Company
LO – Land Owner
MAF – Mission Aviation Fellowship
MOC – Memorandum of Cooperation
NSA – Nancy Sullivan and Associates
NTM – New Tribe Mission
PLO – Principal Land Owner
PNG – Papua New Guinea
PNG EDL – Papua New Guinea Energy Developments Limited
PNGSDP – Papua New Guinea Sustainable Development Program Limited
PNG IEA – International Education Agency – Papua New Guinea
POM – Port Moresby
PRA – Participatory Rural Appraisal
PTC – Post and Telecommunications
RCF – Research and Conservation Foundation
RH – Rimbunan Hijau

SDA –	Seventh Day Adventist
SHP –	Southern Highlands Province
SIL –	Summer Institute of Linguistics Studies
SMEC –	Snowy Mountains Engineering Corporation
SPG –	Simbu Provincial Government
TFI –	Turama Forest Industry
TOR –	Terms of Reference
TST –	Tan Siew Tin
VHF –	Very High Frequency
WWF –	World Wildlife Fund

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EXECUTIVE SUMMARY

The Purari Hydropower Project is a public-private joint venture. The governments of Queensland and Papua New Guinea (PNG) are supporting Origin Energy of Australia and PNG Sustainable Development Program Limited (PNGSDPL) of PNG in a feasibility study to potentially dam the Purari River at Wabo in the Gulf Province of PNG. PNG Energy Developments Limited (PNG EDL) is a 50:50 joint venture equally owned by Origin Energy and PNGSDPL.

This possible hydro-dam site is located about 2km upstream from Wabo Village in the Gulf Province. The entire area is commonly referred to as the Upper Purari valley in the Kikori District of Gulf Province. These are some of the most remote and developmentally disadvantaged people of Kikori District.

People living in the region are known as Pawaians, of the Pawaia tribe. Pawaians from Poroi to Ururu are Lower Pawaians and Yurumatu to Hai'a are Upper or mountain Pawaians. There are 1,568 people currently living in the study area. From Poroi to Solipero, there are 69 major Pawaian clans and 36 sub-clans. Of these, a total of 49 clans have signed the Land Access Memorandum of Understanding (MOA) with Papua New Guinea Energy Developments Limited (PNG EDL). This agreement gives PNG EDL a secure mandate to conduct their two year feasibility studies. It is now responsible for evaluating the development potential of this large hydro resource in PNG.

Pawaians live in patrilineal societies, so the land rights are exclusively male, and the more important decisions regarding land use are often executed by clan leaders. Those women who are prominent enough to contribute their opinions are generally older and elderly women, yet the final decisions lie in the hands of men.

The Pawaian peoples' lives depend on the Purari River and their environment. Everyone depends on their garden, the rivers and the forest for survival. The forest is their medicine chest, their supermarket for protein (fauna) and their legacy to the next generations.

There is a distinction to be found between Upper and Lower Pawaians. The former depend on mixed gardens to provide most of their food, whilst the latter depend on sago gardens. The former are more settled because of their need to tend to these gardens, while the latter remain semi-nomadic and follow the seasonal demands of harvesting sago in different places. For the Upper Pawaia, it is possible to earn cash nowadays by selling vegetables to InterOil at Punjano, and peanuts to the public at Hai'a and Wabo. This is by far the most important way to earn cash for them. Many men from the Lower Pawaia regions are employed by InterOil (which has been

operating in the area since 2000) and PNG EDL, which represents their main income source. The new employment opportunities have also attracted migrants from north of the region, mainly from Simbu and the Eastern Highlands, seeking opportunities with PNG's second Liquefied Natural Gas (LNG) project. The multi-billion dollar LNG project's explorations and drilling sites (Elk 1 & 4 and Antelope 1& 2) are also located within the Pawaian tribal land area.

Although the investment portfolio of the region is strong, basic services in the area are still appalling. The education and health infrastructures established since Independence have been operating on-and-off, due to government neglect. Generally, the education levels amongst the Pawaia are poor and their literacy is very low. What the region needs before anything else is a school for all children of Pawaia, to capture some of the human resource development that has been lost to them for generations.

A lack of proper health facilities is also a major concern. The Pawaia women, children and men die from preventable diseases. Mothers, for example, die from labour complications commonly averted in antenatal clinics.

There is no modern communication network in the Pawaia area. Access to town is by air service only, and occasionally by boat. In the Upper Pawaia area, however, travel is mainly by foot, and people can be found walking two days to their nearest health service or market.

An established trade relationship between the Pawaia and the Karamui people in Simbu Province still exists. The two groups continue to exchange much needed things like steel tools, pots, clothes with betel-nuts, feathers and possum fur, just as they have for generations.

The law and order situation in the area is hard to determine accurately as there are no police or village court records. The results of our survey, however, reveal an unfortunate prevalence of domestic violence.

Several land disputes are still outstanding. Some of them are between clans, but others are with neighbouring tribes. For example, there is a current dispute between a Pawaia clan from Solipero village, and a Daribi clan from Masi village. Disputes are inevitable, and these claims require advance research in the ethnographic literature and national archives to establish their potential validity. There is also a need to formulate Pawaia tenure rules and establish a land mediation team with the Pawaians.

A familiar game is on for maximizing benefits from the several development projects. Who introduced it is unknown, but it is familiar to resource projects across PNG. New clans have

been created within given phratries to occupy land owned by the major or sub-phratry. Hence more clans mean more leaders and more benefits.

There are a few Incorporated Land Groups (ILGs) established with the help of InterOil and Rimbunan Hijau already. John Aimai of Wabo, with the help of the Gulf Province Governor, Havira Kavo, registered ILGs for some of the Pawaian clans. However, this was described to us as a scam and thus not recognized by people who initially supported John.

There is only one Goroka-based NGO, Research and Conservation Foundation (RCF), working in the area. They manage a long-standing conservation project called the Crater Mountain Wildlife Management Area (CMWMA) which covers part of Eastern Highlands, Simbu and some of the Upper Pawaia communities across the Gulf Province border. As the only form of outside authority, and the only gatekeeper to services and training, RCF exerts a strong influence on the Upper Pawaia people.

Although NGOs presence is low, Christian churches command great respect among the Pawaians. Churches have provided some of the only schools and health services to the locals for decades. The most popular mission is the New Tribe Mission (NTM), which has translated the Holy Bible into Pawaia language. Nevertheless, there are no organized women or youth groups in the area. Clans and family units provide the nucleus of the Pawaian communities.

There is overwhelming excitement amongst the Pawaians for the development of the hydro dam project. They believe this 'mega' development represents a life-changing experience. The trade-off of their land is their best opportunity, they believe, to have a better life and a modern lifestyle. But they also express concern about the environmental impact, and how the project might affect their subsistence lifestyle. It is these concerns that need to be allayed. There is no promise that their dreams of modernity will be realized by the dam, and there is every reason to assume they will require gardens and a subsistence economy for the foreseeable future. Nevertheless, PNG EDL has not been the one to neglect the Wabo communities; this is the government's responsibility. The dam arrives as a beacon of hope now.

INTRODUCTION

This report is a sociological study commissioned by PNG Energy Developments Limited (PNG EDL) for the possible Purari River Hydropower Project. A potential dam site could be located about 2km up river from Wabo Airstrip in the Upper Purari valley in Kokoris District of Gulf Province, Papua New Guinea. This would be a large scale renewable energy project jointly pursued by Origin Energy of Australia and PNG Sustainable Development Program Limited of Papua New Guinea with the backing of the PNG and Queensland governments.

PNG Energy Developments Limited (PNG EDL) is a joint venture by Origin Energy and Papua New Guinea Sustainable Development Program Limited, and is mandated to evaluate the environmental and socio-economic impact of this ambitious hydroelectric project at Wabo in Gulf Province. Nancy Sullivan and Associates Limited (NSA) have been engaged to conduct the initial sociological study, which forms the basis of this report.

This is not the first time for such study to be done in this area. The people who inhabit the area are from the Pawaia tribe and speak the Pawaian language – a language isolate (McDonald 1973, cited in Susan Toft 1980). Previous studies were conducted by Christopher Warrillow (1976) and Susan Toft (1980) and documented virtually all aspects of Pawaia daily life at that time. Because societies are living organisms, they change over time. Recognizing this, a new study was necessary to measure the changes that have occurred since 1980.

The purpose of this study, then, is to obtain as accurate as possible a social assessment of the people within the proposed hydro project area. We have sought to map the project's immediate impact areas and to understand the lifestyle of the communities there: How do they live? What do they eat? Where are their lands? What are their origin stories? Who are their trade partners? What services are available? Who provides those services? And so on. Our focus has been to capture all aspects of Pawaia as enumerated by the Terms of Reference (which can be seen in the Appendix).

The NSA research team made a series of field visits. The first was from the 23rd of September to the 3rd October, 2010, covering the Lower Pawaia villages of Poroi 1 and 2; Subu 1 and 2; Ura, Wabo and Uraru. A report on this first phase was completed in November 2010. A follow-up of that study for these villages was completed in January 2011.

The second phase of the assessment involved the Upper Pawaia villages and was conducted in April (from the 8th to the 15th), 2011. The Upper Pawaia villages include Yabramaru (Yurumatu) and Solipero.

A third round of visits to villages occurred between August 25 and September 7, 2011 covering the villages of Poroi 2; Subu 1 and 2; Ura; Wabo; and Uraru.

Because the first and second phase of the studies inadequately captured the women's issues and stories, we used the third round to focus primarily on women. At this time we collected information for a village database and also began to sketch land boundaries (the latter effort was abandoned, however, when it raised too many complaints).

This report is a combination of four sets of reports that were completed between November 2010 and November 2011. This consolidated report therefore seeks to fully inform PNG Energy Developments Limited of how the Hydro Project will impact the people of Pawaia.

We begin with an Executive Summary and its overview of the report; an Introduction follows, with a description of the methodology employed. The first part of the findings covers the Lower Pawaia region, the second part covers the Upper Pawaia region, and the third part is supplementary to the Lower Pawaia region report. This third report is folded into the first set of findings here, and forms part of the Appendix (see Appendices 1 and 2).

The body of this reports discusses the a number of topics: demography, village profiles, economy, basic services (education, health, communication, transport, law and order), land tenure and usufruct rights, support for hydro dam project, organization(s) working in the area, land disputes, concerns over labour recruitment, and finally, the landowner clan signatories to the MOA. The findings are followed by a Discussion, then a Summary and Conclusion, as well as a series of Recommendations for PNG EDL. Other important pieces of data such as updated clan profiles and clan genealogies are included in the Appendix.

LITERATURE REVIEW

The Purari hydroelectric power project is an initiative of both the PNG and Australian Governments in partnership with PNG Energy Developments Limited (PNG EDL) to dam the Purari River, the third largest river in Papua New Guinea. PNG Energy Developments Limited is a 50:50 Joint Venture Company owned by PNG Sustainable Development Program Limited (PNGSDPL) and the Origin Energy, and is mandated to oversee the development of the dam.

Several energy developers have sought to exploit the renewable energy potential of Papua New Guinea. The Purari Hydropower project has been on the drawing board since the early 1970's, and in 1974, Japan's Nippon Koei and Australia's Snowy Mountain Energy Corporation (SMEC) started constructing a dam in the area. They abandoned this before completion, however. Later, the Russian aluminium giant Rusal expressed interest in damming the Purari River, but this prospect also fell away. On September 15th, 2010¹ the Queensland Australia and PNG Governments signed a Memorandum of Cooperation (MoC) with Origin Energy and PNGSDPL to begin the development of a proposed hydroelectric power project for the Purari. This ambitious project, if completed, will produce 1800 mega watts (MW) of electricity, of which 1200 MW will be exported to Australia through undersea cable transmission. It is planned that this line will be connected to Australia's national power grid at Townsville, providing a renewable base load energy supply to the major industries in Australia's industrial state of Queensland. It is also projected that by 2020 the Purari Hydroelectric project would supply 9% of Queensland's summer energy demand (Queensland Government, 2010); hence reducing Queensland dependence on carbon (CO₂) emission energy sources (such as coal). This would reduce Queensland's and Australia's carbon footprint and allay complaints that Australia has been lagging behind major trading partners in its efforts to reduce carbon emissions (The *National*, October 20th, 2010).

When and if the dam eventuates, Papua New Guinea will benefit from its capital intensive and technologically complex construction in an area which is underdeveloped and long isolated from basic government services. Construction will provide the much needed exposure and development to the Pawaian people, who continue to live a semi nomadic lifestyle in the 21st century. 600 MW of electricity produced by the dam will be distributed to power such regionally-based industries as, for example, a proposed aluminium smelting factory in Daru, Western Province, and a proposed gas stripping plant in Kerema, Gulf Province. The construction

¹ <http://www.ihsglobalinsight.com/SDA/SDADetail19235.htm>

of such multi-billion dollar projects in PNG will create employment for Papua New Guineans and improve infrastructure development for everyone in the wider region.

Not everyone is in support of the dam, however. Many economists, environmentalists, and politicians [especially in Queensland] have expressed grave concerns over it for various reasons. The first is economic. Some have cited failed joint ventures between the Australian and PNG Governments, such as the PNG-Queensland gas pipeline project (now abandoned for being economically nonviable). Financing mega-construction (a 60m high dam wall) in very remote and rugged terrain like the Purari would cost billions of dollars. A second concern is practical. There are virtually no roads in the proposed project site and the main river banks are vegetated with dense tropical forest. To create a renewable base-load power supply, the river needs to be blocked to hold back enough running water. Yet damming the Purari River will flood a huge area of land upstream, where several villages exist scattered along the banks of the river. A 60 meter high dam construction will inundate all these villages, with their traditional farming and hunting grounds. In the process, the unique vegetation will be lost and the people forced to resettle to other locations. People living downstream of the dam are equally concerned about its impact. Dr. Laevai Neuendorf, a self-proclaimed chief of the Hamora Ipi clan on the lower Purari River basin, has publicly expressed fear for the socio-economic impact of the dam and claims that the local people are against the idea as the dam itself would sit on sacred ancestral land (*Brisbane Courier*, 23rd September, 2010). Environmentalists are concerned for the well-being of the Purari River below the dam, and especially for the life of the mangrove system at its mouth (see Shearman 2010). A formidable commercial opponent is the Malaysian logging giant, Rimbulan Hijau (RH), which has based its Purari Basin operation in Evara, about 70km (overland) downstream from the proposed dam site; they claim that construction of the dam will negatively affect their logging operation in the area.

The contrasting views on the project warrant a comprehensive feasibility study to clearly identify the current stakeholder interests. Earlier feasibility studies (Warrillow 1976, Toft 1980) identified the Pawaia as the legitimate customary landowners of the proposed dam site. We confirm this finding now, but also recommend that more research be conducted to understand the current and potential claimants should the project move forward. People downstream will certainly be affected, and RH, Tan Siew Tin (TST) (another Malaysian, but a retail trader), and other entities that have vested interests in the area are likely to work against the PNG EDL at some point. The risk is that they will generate misleading information before PNG EDL has the chance to conduct awareness and secure long-term consensus. Keeping in mind that the project is still in its exploratory stages, these concerns must be factored into its feasibility assessment. Combined with the potential for in-migration from other areas, they are realistic threats to its unilateral support.

Development anthropologists argue that understanding the local people within the project impact area helps reduce the potential harm inflicted on the local communities when such projects are built. These local stakeholders are the people who often pay the real price for national development. Gardener and Lewis (1996:88) remind us that:

Many large-scale projects which are designed to improve national infrastructure, while they are perceived as being solely technical, require the resettlement of large numbers of people....The implications of these projects are often not fully comprehended until after they are underway.

The existing Pawaia consensus for the project cannot be squandered. They are enthusiastic for substantive change, and will forfeit a traditional lifestyle to ensure it. But lessons learned from elsewhere are all about keeping the communication open and continual, and understanding that the primary stakeholders are not the only people impacted.

The Ethnographic Background

The Pawaians are an ethnic group with an estimated 6100 speakers. They exist geographically and ideologically between the coastal tribes of the lower Purari to their south, and the Highlanders to their north. Their homeland is in the middle Purari Delta sharing borders with the Daribi in the north, Kewa in the north-west, the Kamea in the north-east, the Ipiko and Yare in the south, the Kaura in the south-east and east, the Masi to the south-west, and the Polopa to the west. Many of these neighbouring tribes were traditional enemies in the pre-Independence era. There is no oral or written record of social contact between the Pawaia and the Koriki (see the Patrol Reports from Williams 1925, Wiltshire 1955 and Land 1974, 1975, cited in Warrillow, 1978:23-24). These records explicitly state that the only known exchanges between Pawaians and other neighbours were with the Weme (considered to be Pawaian, living at the headwaters of the Subu near the Eastern Highlands border; they speak Pawaia and can also speak Kamea, the language of their neighbours; some are now living at Subu village) and the Ipiko. Toft (1980) records more recent exchanges and sustained relationships with the Karamui.

Importantly, the first written records of exploration on the Purari River make no mention of contact with people around Wabo. Bevan travelled up the Purari in the 1880's, as did Lawes, Chalmers and Wickham during the same decade. In 1894, Sir William MacGregor journeyed up the river, and was followed by Donald Mackay, who in 1907, made the first inland expedition. Nevertheless, none of these voyages record contact with any people. By 1918 and then 1924, patrols inland were able to make contact with Ipiko and Polopa people, both neighbours of the

Pawaia, but still no mention of the latter. By the late 1920's, government patrols started travelling southwest from the Kikori, into Pawaia land (Warrillow 1978:3). It was only the 1930 patrol by Leahy and Dwyer, looking for gold, that brought prospectors down from the Ramu all the way into Pawaia territory and made first human contact. This was followed by a 1936 patrol by Champion and Anderson through the Bamu and Purari areas (see Schieffelin and Crittenden 1991).

The Pawaia of the proposed inundation area (Ura village in the south, and Gurimatu or Yurumatu beyond the Hathor Gorge, in the north) physically resemble the Highlands people north of them. Only recently have men in the area begun marrying women from other areas, which means their genetic make up remains fairly pure. The majority of newly inmarried women are from Karamui, with others from Baimuru (in the Lower Purari).

Marriage rules for the Pawaia have been relatively loose, a reflection of how little interaction they have had with other peoples. There is a generalized system of bride exchange, recorded by Toft (Op cit: 43) as 'woman-exchange' between groups. This simply means that men who marry women from one area return their sisters to the men from that area. Sometimes this means brothers in law exchange sisters (this practice is also called 'sister exchange'). Toft was able at that time to note a prohibition against cousins marrying, but the exact prescriptive relationship between a bride and groom could not be determined.

In 1969, the Pawaia were observed to be semi-nomadic, and difficult to locate let alone subdue (according to Trefery 1969, cited in Warrillow, 1978:3). Egloff and Kaiku (1978) described the Pawaia a decade later as living in several *kombatis* (or bush camps) along the Purari. They would move from camp to camp during the course of the year. As recently as 1980, observers of the Pawaia people describe them as semi-sedentary people moving frequently into territorially defined areas of rainforest for hunting, gathering or processing sago (see Toft 1980:7). Some aspects of the nomadic lifestyle are still evident today. Multiple *kombatis* are still visible when travelling along the Purari River. These camps are places for retreat for the elderly and bases for seasonal food gathering.

But real change for the Pawaia began with the early dam proposals. Toft reports (1980: abstract) that:

During the 1970's, mainly in connection with activities for the hydro-electric scheme feasibility studies which have opened this area far more than previous government and mission contacts, there have been changes both in the physical and social environments of the Pawaia. These contacts have introduced, among other things, a new system of

values, employment opportunities, a cash economy and the opportunity to travel outside local territory.

Since 1975 the Pawaia have mostly moved away from their villages near traditionally owned land to live at the Wabo dam site. The major advantage to the present concentration is that the government can more easily provide services which could help the Pawaia overcome their feeling of being outside the mainstream of social and economic development in PNG.

With arrival of InterOil in 2000, Pawaian engagement with the cash economy has dramatically increased. By now virtually everyone in the project area has used cash and/or earned money.

Gardening remains very simple and many of their gardens are located along the Purari River; it is probable gardening has been this way for the Pawaia for several generations. Warrillow (Op cit) mentions Holmes, for example, who traveled up the Purari in 1908 and wrote that “the only signs we have seen today of natives in the vicinity were on McDowell’s Island [sic]; a few huts and a banana garden.” This suggests that they have been only semi-nomadic in the last century, and that they planted gardens, just as they harvested sago flour, even if they did not reside in permanent camps.

Their knowledge of gardening is still sketchy, and they have recently learned skills from their Karamui neighbours (who are renowned gardeners). In the Lower Pawaia region most plantings are neither well maintained, nor longstanding. Our team reported that most of the gardens for the Pawaia within the potential inundation area and immediately downstream consist largely of sago palms. By contrast, the Upper Pawaia region, closer to Karamui, evinces advanced gardening skills, including a wide range of vegetables.

The major source of social control for traditional Pawaian society has always been sorcery. Fear of sorcery is an effective social mechanism in many PNG societies, and it serves to prevent both anti-social and innovative behavior. One of the more common uses of sorcery is punishment for extramarital or adulterous behavior. This and other forms of sorcery remain pervasive for the Pawaia, despite the presence of churches in the area.

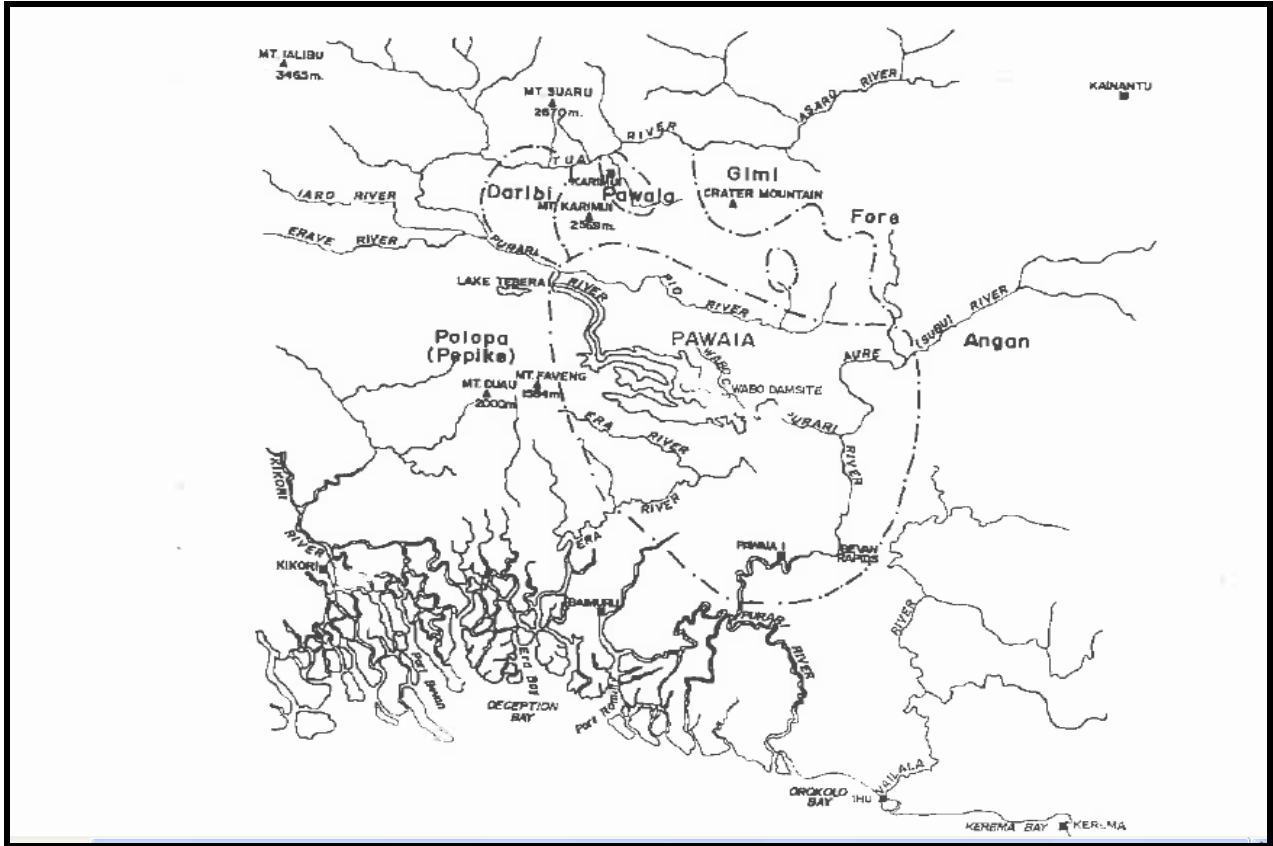
Toft reported in 1978 that beliefs in sorcery, magic, ancestor spirits and other spiritual phenomena still existed but were then somewhat confused with mission teachings and Christianity (Toft, 1978). This remains the case today, and sorcery is said to be the major cause of death. Everywhere in PNG that medical care is lacking, sorcery is a common gloss for everything that cannot be treated, and it can only be assumed that better health care will eradicate some of the more crippling forms of paranoia that sorcery engenders: every death by an undiagnosed illness becomes a byproduct of some social discontent, and the entire community is in constant watch for irregular relationships that they may call the cause.

The first church in the area was built by the London Missionary Society at Uraru in 1961 (Warrillow 1978; Egloff and Kaiku 1978; Toft 1980). Before missionisation, intra-tribal feuds prevailed. Warrillow describes one such massacre in 1931 at Uri, involving the Koni and Pawaian peoples (1978:47). Fortunately these are no longer commonplace.

Traditional Pawaian leadership was gerontocratic, led by the older citizens, and tended to be defensive or bellicose, with men making their names as bigman-warriors, excelling in combat. This is an interesting combination of lowland society, which reveres elders in PNG, and the highlands 'bigman' type, which promote assertive individuals. With a more settled lifestyle and with different groups moving to the same area, the tendency has been to lean toward a 'bigmanship' model. Village leaders – councilors and committees—are now elected, but the decisions over land and resources ownership remain vested in the hands of the clan leaders rather than councils of elders. Whereas in the past, clan leaders would be the oldest of a family line, today they are just as likely to be young men with basic education and or skills.

Pawaian land rights belong to a descent group (a clan) and not the individual (Toft 1978). Hence land access or usufruct is a collective decision of the clan. Interestingly, there is no detectable attachment to the land for mystical or supernatural reasons (ibid). The fear of land spirits is not a dominant part of their belief system, which means there are few sacred sites in the landscape. Origin stories trace back to a human ancestor, and beyond this person there is only a deep history. This leaves history malleable and subject to the dialectical skills of the current generation. The best orator can 'capture' the lion's share of a tribal history and thereby redefine the future of his family. Like most PNG societies, there is no objective truth to the historical record, only a continual debate regarding its details and the material claims attached to them.

The Pawaians have undergone dramatic changes in the past decade. Social change has two faces, both negative and positive. To either understate or overstate them would be an injustice, but our findings shed some light on how Pawaians are coping with them.



Map 1: The Purari Basin

Source: Office of Environment and Conservation, 1978

TIMELINE OF THE STUDY AREA

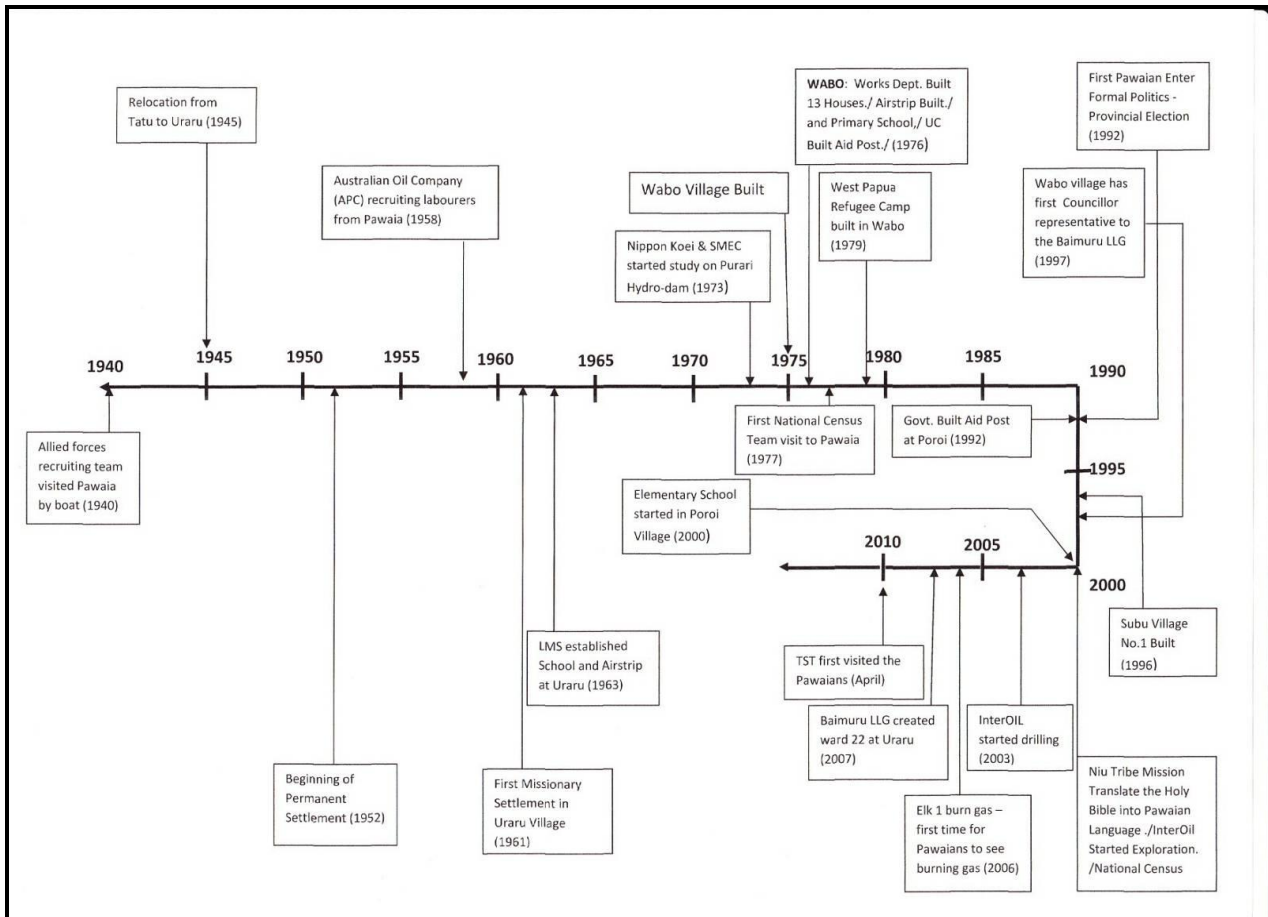


Table 1: Timeline of study area

METHODOLOGY

In this research we used both quantitative and qualitative methods to collect as much information as possible *as per* the ToR. These include techniques from participatory rural appraisals (PRAs) which seek to capture as much accuracy as possible within a short period of time. Quantitative data was collected by survey questionnaires individually administered by a member of the research team. This was necessary for the bulk of respondents, as they do not read or write. Every questionnaire was rechecked for missing and improper inputs and for accuracy. In the Lower Pawaia a total of 373 surveys were completed from 6 study sites. This sample size is roughly 40 percent of the general population (of 1204). For the Upper Pawaia, a total of 97 surveys were completed from two study sites, representing 28 percent of the

general population (of 346). The data collected was entered into a Statistical Program for Social Science (SPSS) and then analyzed by the team.

Ethnographic data collection involved multiple tools. These were key informant interviews, which took the form of in-depth-interviews with individuals, and several kinds of observation. Key informant interviews were conducted with a range of community leaders: village leaders, teachers, community health workers, pastors and Gulf Provincial Government officials. They were recorded, transcribed and analyzed.

In each village, we also conducted male and female focus groups for discussion (FGDs). A total of 14 FGDs were conducted in the Lower Pawaia and 4 in Upper Pawaia villages. In some places where the population was large, as for example Wabo, we formed two FGDs for each gender.

Observations also formed a big part of the data: we took field notes of what we saw and heard in each community. In one location, for example, we witnessed a woman who ran up to her husband and started throwing punches at him. This man (from Wabo) was helping us count heads in his section of the village. Later, we found out that the wife was jealous because our team of researchers included women. This helped confirm everything we had been told about jealousy between Pawaian spouses, and how extreme it can be. New social experiences present constant challenges to the traditional spousal roles and domestic violence is frequently the result of such confusions.

The PRA approach also involved engaging the community in an open session where participants were asked to reflect on community issues and the environment. We used tools like mapping, Venn Diagrams, timelines, informant drawings and other visual methods to gather local perspectives.

Sampling

The process of sampling did not follow any one research protocol. Instead, we chose a flexible approach to accommodate the different kinds of stakeholders in each area. Populations are small enough, moreover, to allow informal samplings to represent population segments. Participants also voluntarily came forward to be interviewed without being randomly selected. They were introduced to the purpose of the research and asked if they understood the questions to be asked. If they did, we asked for their consent to continue. Those who agreed, signed a mark in the questionnaire and verbally assented at the same time.

PART 1: FIRST PHASE OF DATA COLLECTION FOR THE SOCIOLOGICAL STUDY

LOWER PAWAIA REGION (POROI 1&2, SUBU 1&2, URA, WABO, URARU) NOVEMBER-DECEMBER, 2011

This study covers an area of five villages and the Wabo government station in the Baimuru sub-district of the Kikori District of the Gulf Province. 'Wabo' actually refers to two separate locations, one is the government station and the other is a village, both established at about the same time (1975). Wabo Station was built to facilitate the delivery of basic services to the people of the area and simultaneously serve the interest of the first dam project. Opposite the Station is the village of Wabo which is comprised of populations from the villages of Tatu, Kairuku, Uraru, Koni and Gurumatu, all of which were resettled there.

Near the airstrip is Ura village, previously known as Uri. About one and half to two hours upstream by motor is Uraru village²; about an hour downstream is the village of Subu 2³; and the hamlet of Subu 1 recently settled opposite the InterOil Base Camp. Less than 20 minutes from Subu 2 is the main Subu 1 village. And further downstream is Poroi 2, located approximately 2 hours by motor from Subu 2. Poroi 1 sits further down the river at the most downstream point of Pawaian territory.

DEMOGRAPHICS

This study surveyed a total of 373 participants of both genders. Recruitment was done by location, and strived, by did not always succeed, to be balanced by gender. Our aim was to recruit 50 percent of the total population, but this was not always possible, especially due to the nomadic nature of the Wabo people. The final sample size is 31 percent of the total population (of 1204) living in the study area.

Survey recruitment

Most of the participants were recruited from Wabo village, making up 41 percent (153 people) of the sample size. This represents 38 percent of the entire Wabo village population (or 408), with an almost equal percentage of men and women from Wabo participated (see Figure 1).

² This village was created in 1992.

³ Subu 2 is a hamlet of people from Subu 1 and Ura villages.

The second highest recruitment was from Ura village with 27.1 percent of our total. The sampled population there represented 39 percent of the village population (or 207). In Ururu, 59 participants were recruited, which is 32 percent of the village population and only 16 percent of the sample size. Smaller recruitment in percentage of village population came from Poroi and Subu villages with only 21 percent of their total each. One reason for this in Poroi was the general refusal of the community to participate in the study (discussed further on). For Subu, the majority of the people were away from the village at the time of study; some were working for InterOil and the rest were in their bush camps. Finally, the lowest recruitment in number of participants and percentage of total came from Wabo Station.

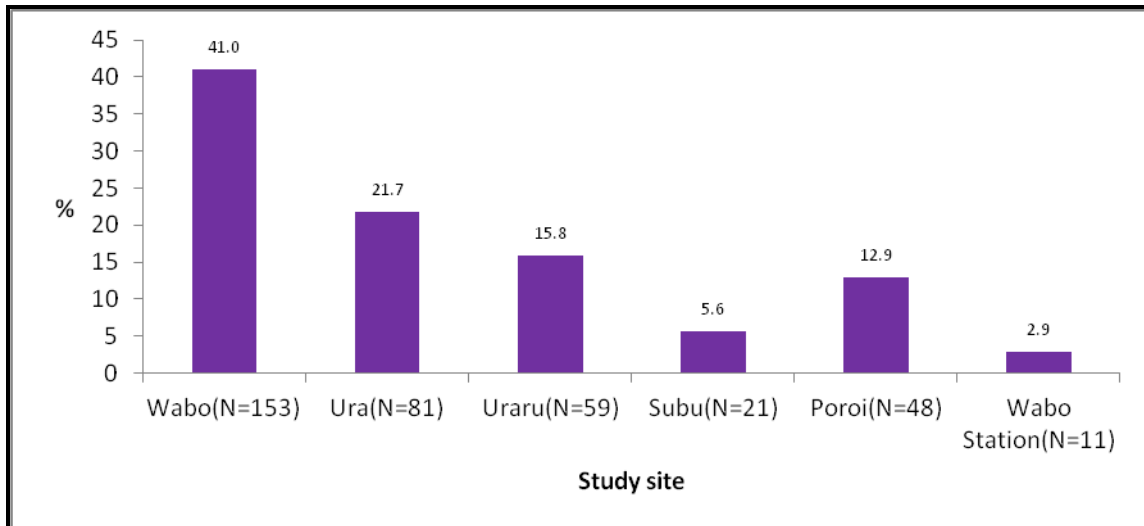


Figure 1: Participants recruited from each village

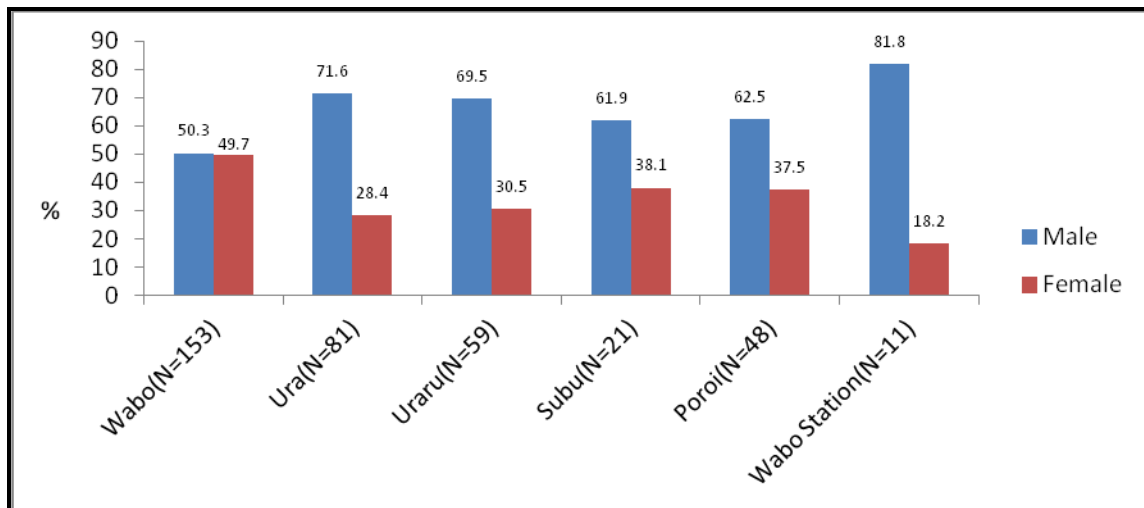


Figure 2: Participant gender disparities in each village

Gender

More males participated in this study than females. Only in Wabo village were the gender numbers roughly at par; everywhere else they were male dominated. According to the Pawaian culture women rarely participate in public activities. They are extremely circumspect in their public conduct and must avoid provoking their husband's jealousy at all times. We therefore did not press the women to participate when they demurred.

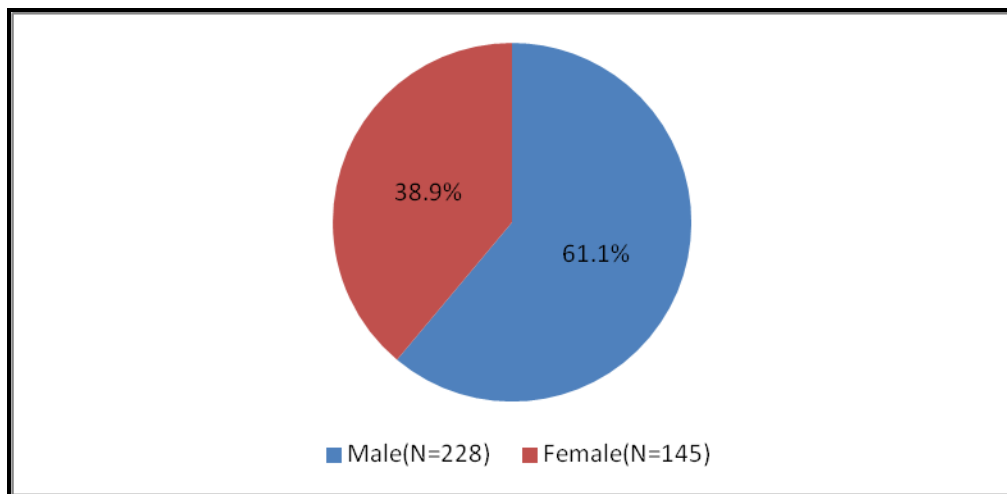


Figure 3: Gender composition of the sample

The majority of our participants were young. The youngest, for example, was an 8 year old male from Ururu village. The youngest females were two 12 year olds from Wabo village. Young people were encouraged to participate and voice their concerns, as a way of compensating for the traditionally gerontocratic leadership in these villages. The oldest man surveyed in this study was a 73 years old, from Poroi 2 village. The oldest woman was 72 years old, from Ururu village.

As noted, the majority of participants were between the ages of 16 and 37, an important age group for the study area because it represents the population most socially and economically active in these communities. If in the past, the older men were the supreme authorities, a cash economy has shifted the weight of authority to those with more education, skills and contact with the wider world. Thus the young to middle age brackets are the most politically and economically significant today. Needless to say, these are also the population sectors expected to be most affected by the dam.

For our study, the average sample age was 29.3 years; the ages ranged 65 years, with a median age of 27 years and a modal age of 16. Such a youthful sample does not merely reflect the long

term objectives of this study, but also (to some extent) the short life expectancy of these communities. We did not reach the remote bush camps where more elderly are likely to reside, but we made the assumption that a fair proportion of older people would be stationed in the villages as well. Their absence in our sample set may therefore say something about life expectancies.

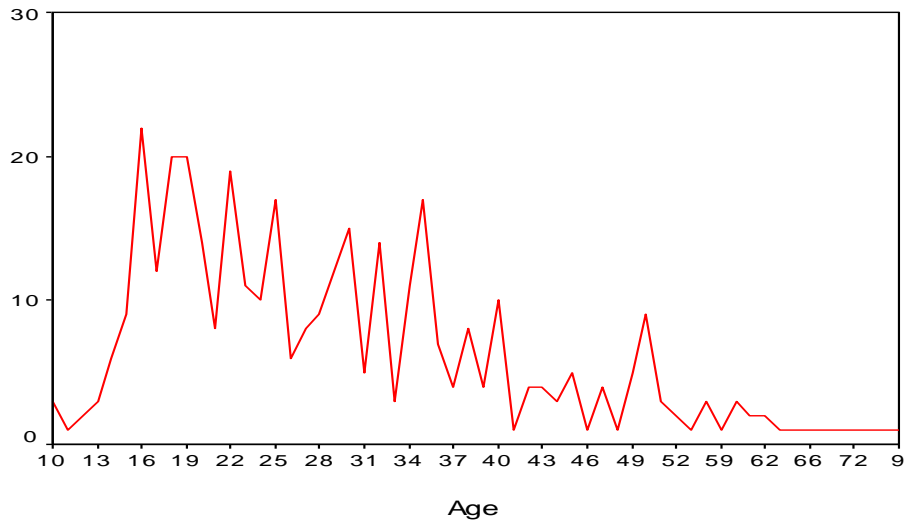


Figure 4: Age composition of the survey sample

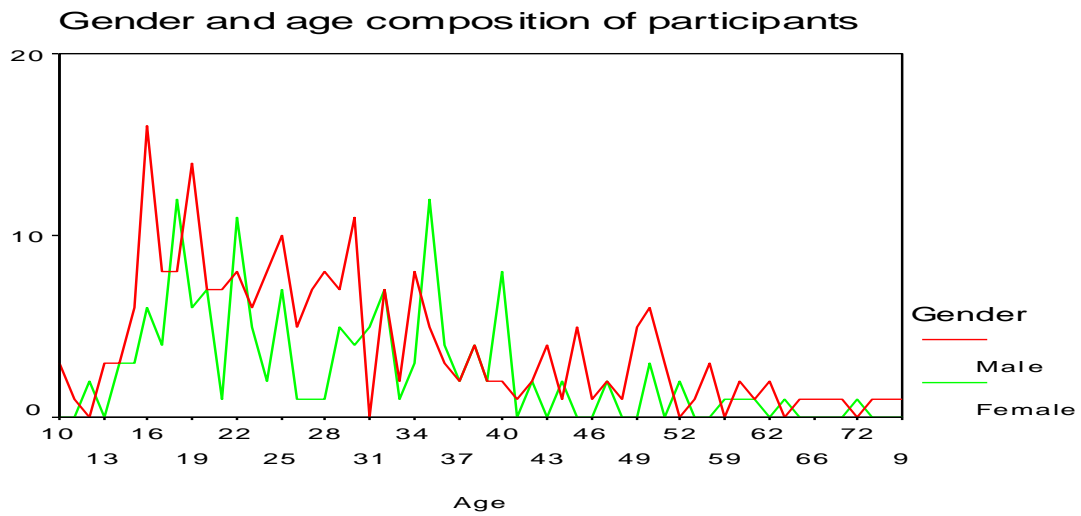


Figure 5: Gender and age composition of the participants

Marital Status

The majority of the participants were married, constituting of close to two thirds (63%) of the total sample population. We believe the high percentage of young married people in the sample set reflects their relative concern for the project and their eagerness to be involved in

the preliminary discussions. The youngest married person was a 15 year old, and the oldest was a 73 year old. This 73 year old man was currently betrothed to a small girl (less than 10 years old) who would become his second wife. Such spusal age disparities are common for traditional Pawaia marriages, and clearly have not fallen away to the self-arranged age-balanced unions we would expect to find as a result of sustained social change.

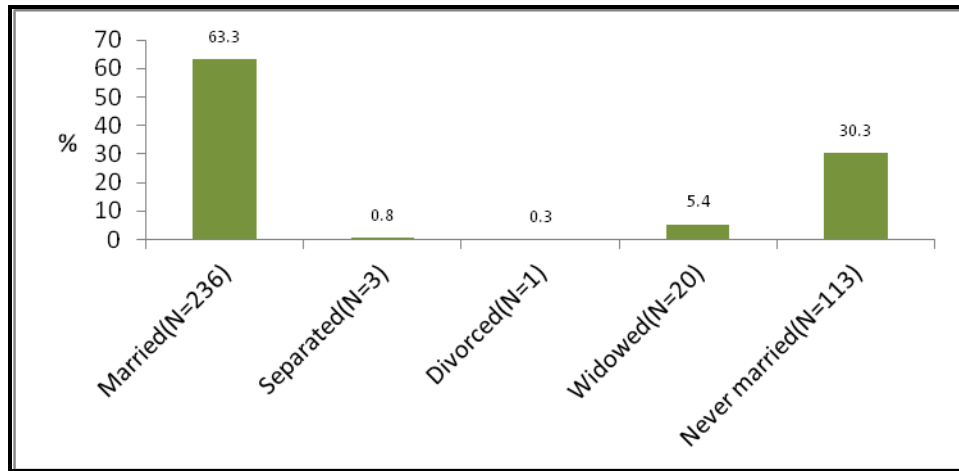


Figure 6: Marital status of participants by gender

Interestingly, the incidence of divorce and separation are very low. Two factors that would prevent divorce are bride price, and the need to return goods in a very materially-poor region, and the immobilizing fear of sorcery. Custom permits the widow of a Pawaia man to remarry one of her husband's brothers. We were told that this really only happens, however, where the first man has arranged the union before his death. In general, most widows do not remarry. If she does, it may be perceived to be a violation of her husband's wishes, and the man she marries is likely to be killed by sorcerers. This is a punishment said to be conveniently arranged by the husband prior his death.

The unmarried (i.e. never married) participants represented 30.3 percent of our study sample. Many were young men (see Figure 6). As noted, girls still marry at very young ages, and are taken away from parents to be cared for their husbands until they reach menses. This system persists, and because polygamy is common, the older men are able to take most of the younger woman as second wives, leaving young men without brides until well into their forties.

The idea that a deceased husband would prevent his widow from remarrying, on threat of sorcery, gets glossed by Pawaians as a form of 'jealousy'---and indeed wives and husbands exhibit covetous behavior toward each other all the time. A wife is more than a lide-companion, of course, and as the vessel of fertility for a very precarious population, she is not to be treated lightly; her sexuality must be strictly guarded by all men of the clan. This reflects what must be an awareness, in Pawaia biomedical belief, that conception is the result of insemination (rather

than, for example, the return of an ancestral spirit), and may even suggest that it requires repeated acts of insemination (rather than, as per Mendelian science, one instantaneous act of conception). In such cultures, a single act of adultery would be unlikely to produce a child, but a husband would also need to remain by his wife's side to have children. The covetousness of women is almost certainly but one side of a larger story, where young women are punished for premarital dalliances and wives fear sorcery for any adulterous misstep.

In the graph below we see that the never-married young men far outnumber those never-married women. It is these young men, no doubt, who have sought out highlands wives and left their villages to work for InterOil. Indeed, the minimal state of development in the area may have helped preserve the custom of older men marrying younger women.⁴

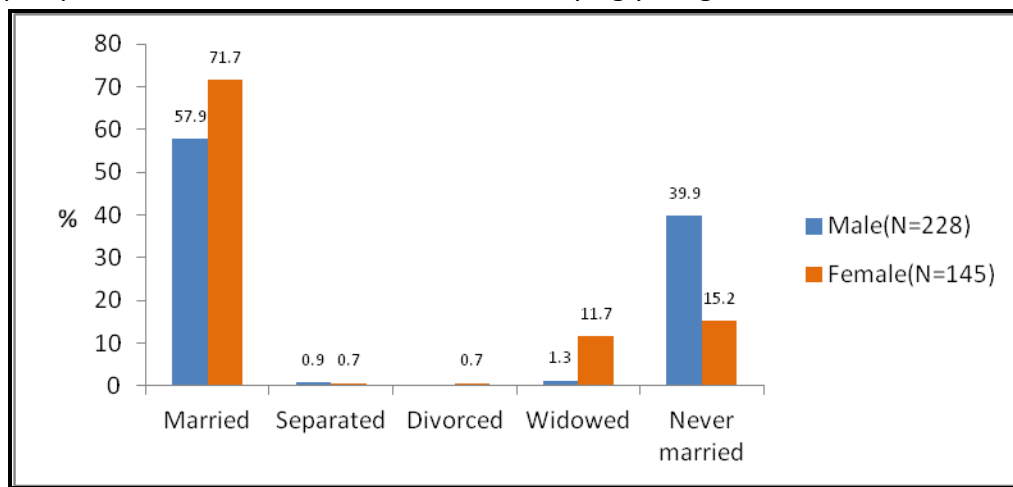


Figure 7: Marital status of the informants

Population

One thousand two hundred and four (1204) people live in the study area⁵. This population includes the Pawaian and the non-Pawaian men, women and children. Wabo village is the biggest community, with a population of 402. In every study site, we conducted a household head count and found the results that follow here. (We have combined the results of Subu 1 and Subu 2 and also Poroi 1 and Poroi 2 in general analysis, but here we treat them as independent cases).

Study site	GPS location	No. of houses	Population
Wabo village	S 06° 58' ; E 145° 04'	69	402
Ura village	S 06° 59' ; E 145° 04'	28	207

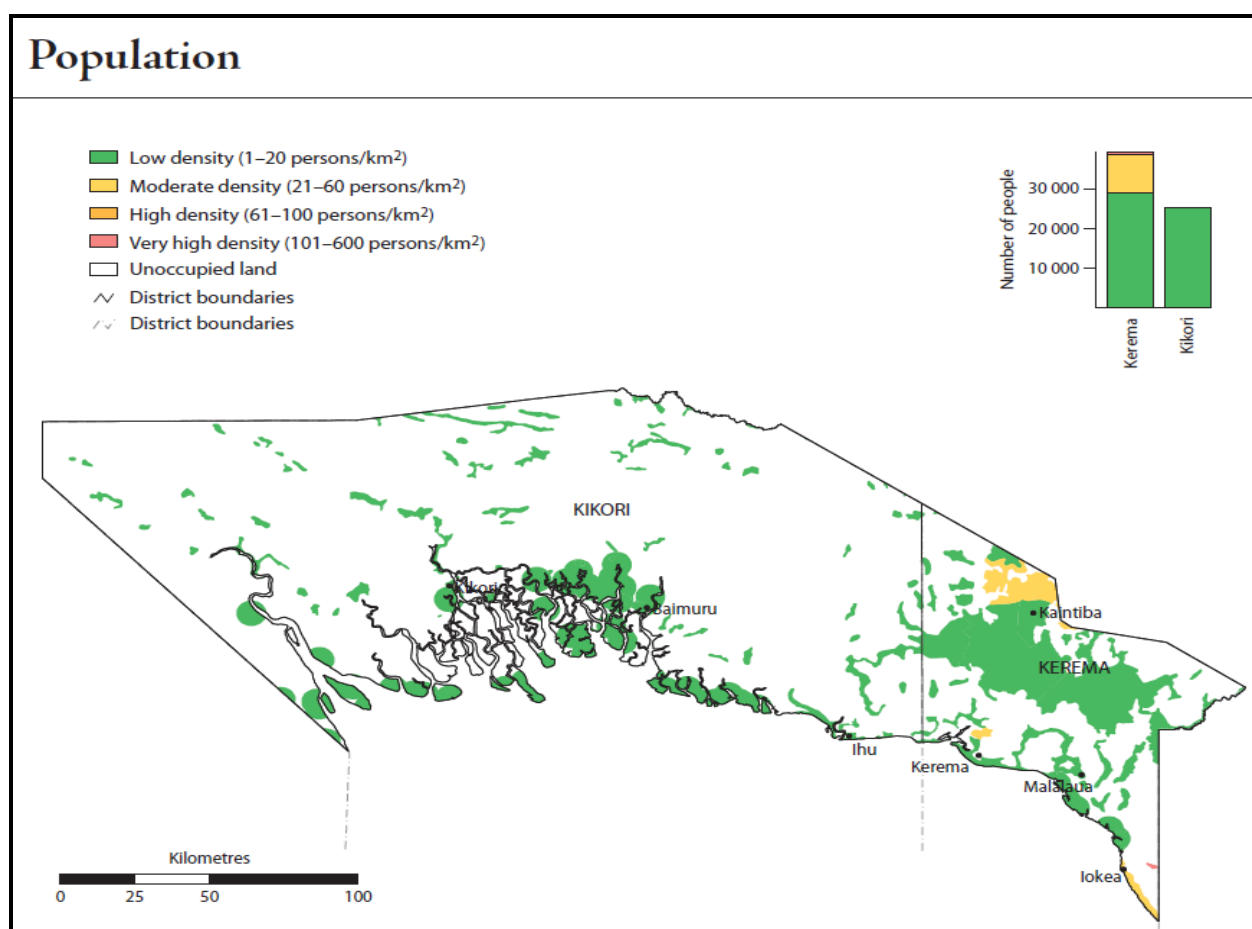
⁴ It is interesting to consider the persistence of the practice in the future. Will young single men become a vector for disease in the community because they have had inordinate exposure to sex workers at resource camps?

⁵ This population was recorded on September 2010. Since then it has increased from in-migration and new babies being born. Migrants are coming from Highlands and other parts of PNG.

Ururu village	S 06° 53' ; E 144° 52'	23	187
*Subu 1 village	S 07° 04' ; E 145° 18'	16	110
*Subu 2 (settlement)	S 07° 03' ; E 145° 15'	5	32
Poroi 2 village	S 07° 20' ; E 145° 18'	36	181
Poroi 1 village	S 07° 23' ; E 145° 11'	4	45
Wabo station	S 06° 59' ; E 145° 04'	8	40
Total		189	1204

Table 2: Houses and population in each village

Although we could not accurately establish the population density, we believe it to be close to 4-5 persons per square kilometer. This calculation is based on estimates of outlying bush camps and centralized settlements.



Map 2: Population density of Gulf Province

Source: National Rural Development Report, 2010

Education

Education levels are very low in the area. Nearly half (48%) of the participants have never been to school. There simply have not been schools available. Nevertheless, of 373 study

participants, two-quarters have received some primary school education. Most received their education outside of the area, either in Baimuru or Karamui. Very few have reached secondary (9.4%) or college (2.4%) level. At least half (4.3%) of those who (9.4%) have received some secondary education are Pawaians. Of the nine (2.4%) participants with college education, however, only three (0.8%) are Pawaians.

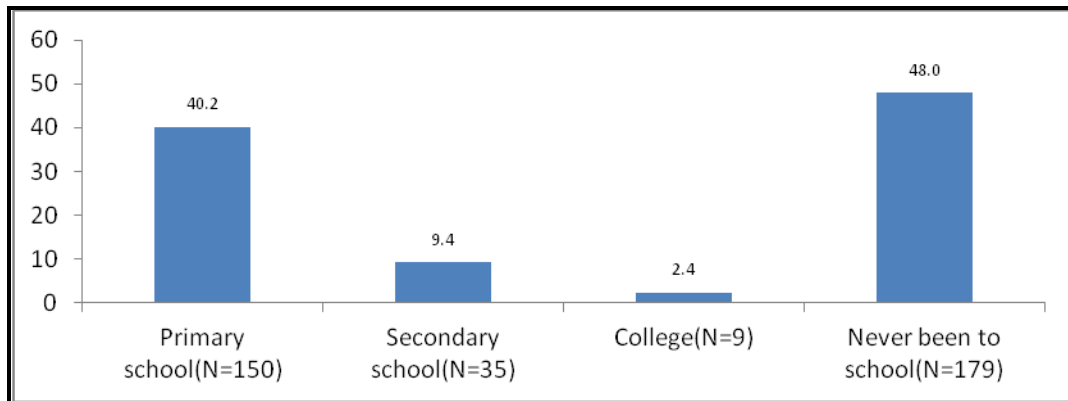


Figure 8: Pawaians' education level

Education levels for women are very low. Amongst the Pawaian women, only one woman from Poroi 1 village had obtained a secondary education. She may be the only woman in the entire area educated to that level. The rest of the women (3.4%) who received secondary education are either from the highlands or Baimuru.

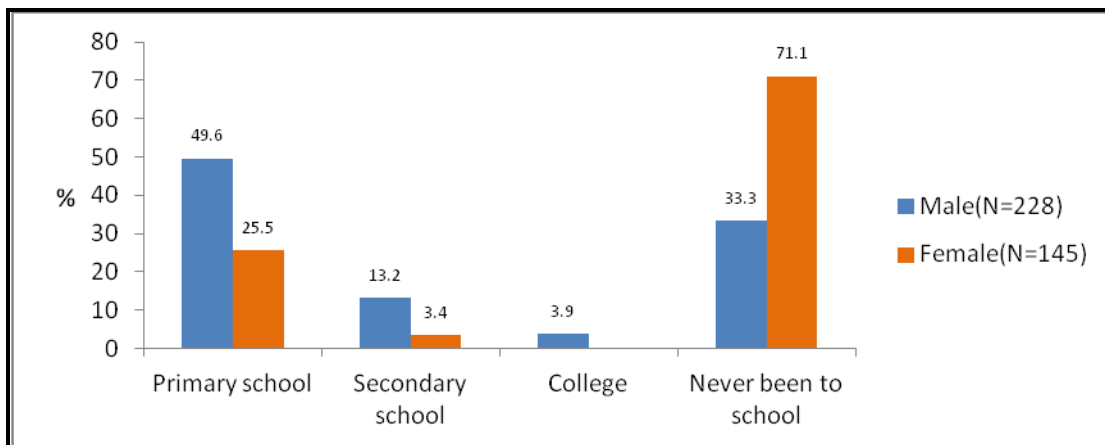


Figure 9: Pawaians education level by gender

Primary education levels for women are slightly better than secondary. Interestingly, a majority of these women are from Karamui, Haia, Baimuru and elsewhere in the highlands, married to Pawaian men. Many Pawaia school age girls are already betrothed to be married, and the option to put them in school remains in the hands of their husband's family. Wabo Primary

School re-opened last year after several years' closure, however, and a few girls have already been enrolled.

The absence of schools in the Pawaia area has greatly affected at least two generations of children. The ripple effect on development is hard to calculate, but it is possible to say that their hopes for self-determination, expressed so eloquently in the Purari Action Group document of 1978 (Pardy et al 1978) were long ago dashed for lack of education. Without basic literacy, even the most ambitious of the Independence generation could neither dominate the local government nor communicate their needs to those who did. Nor could Pawaia farmers and fishermen fully engage in the cash economy. The morale, corporate identity, and even marriage prospects for young Pawaians have all suffered from a lack of education.

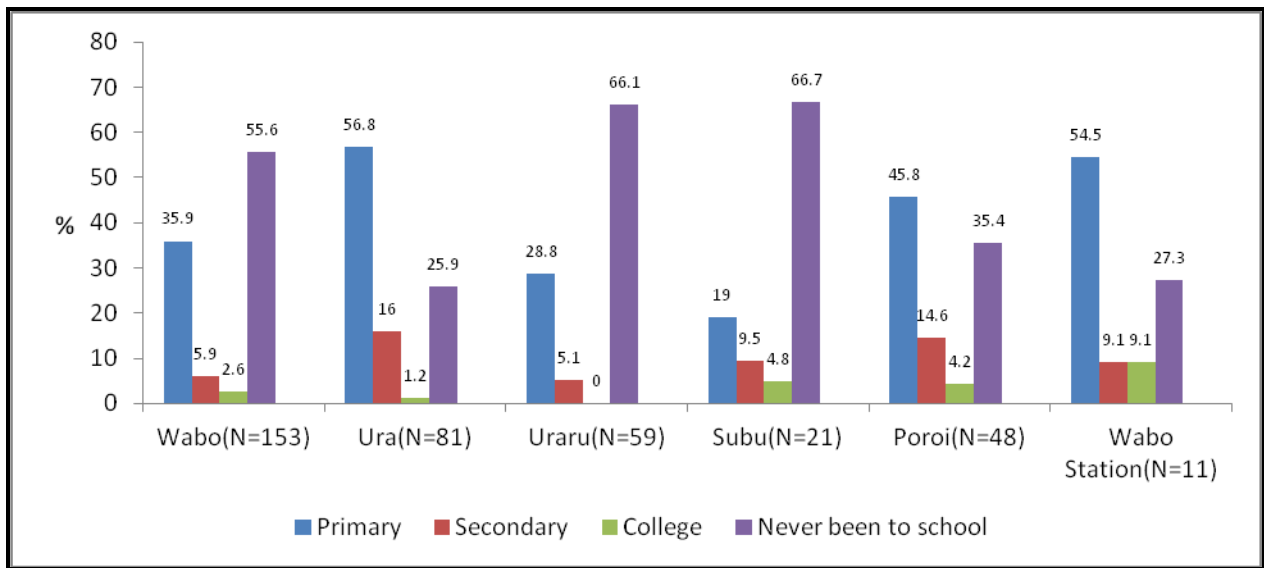


Figure 10: Education level for each Pawaian village

One Karamui woman married to Ururu man shared her own story:

When I was a little girl, my husband went up to my village and marked me to be his wife. Then when I was old enough to get married he came and brought me down to his village and I've never had the chance of going to a school. Now I am married with four children and my elder daughter is also married. One time, my youngest daughter broke one of her bones and we were referred to Goroka Base Hospital and she was admitted. Whilst in the hospital I saw many young health workers and I thought of my children and cried because if only there was a school back at my village, my children should also have knowledge and be working like them. After we were discharged from the hospital, we came home, and I told the story to my husband. My husband and I then enrolled our daughter at a primary school in Pujano and that's where we are currently living and taking care of her. We only walk back to the Ururu on school holidays.

Literacy

Our sample size was 373 participants. Comparing literacy levels by village, we found the levels ranged from 21.1 percent (for Ururu village) to 52.1 percent (Poroi village). The migrant sample at Wabo Station was more literate than the Pawaians, with a literacy rate of 54.5 percent. Overall, Pawaiian men in the study sample were far more literate than their female counterparts --at 87.8 percent and 10.7 percent literacy, respectively.

Some of the survey participants who had been to primary school could still not read (33.3%) or write (22.5%) because they had never completed their studies. They may have had two years of school, for example, before it closed. The inconsistency in primary school education has left the greatest scar on the area, with most adults left unable to read or write and therefore unable to participate in the modern age. In addition, the very long distances required to travel to the nearest school (Wabo Community School) has made it impossible for villagers from Ururu and Poroi, for example, to even attend. Poroi has just started a Gr 3 class this year.

Those who have never been to school and cannot read or write account for 98.9 percent and 99.4 percent of the participants, respectively.

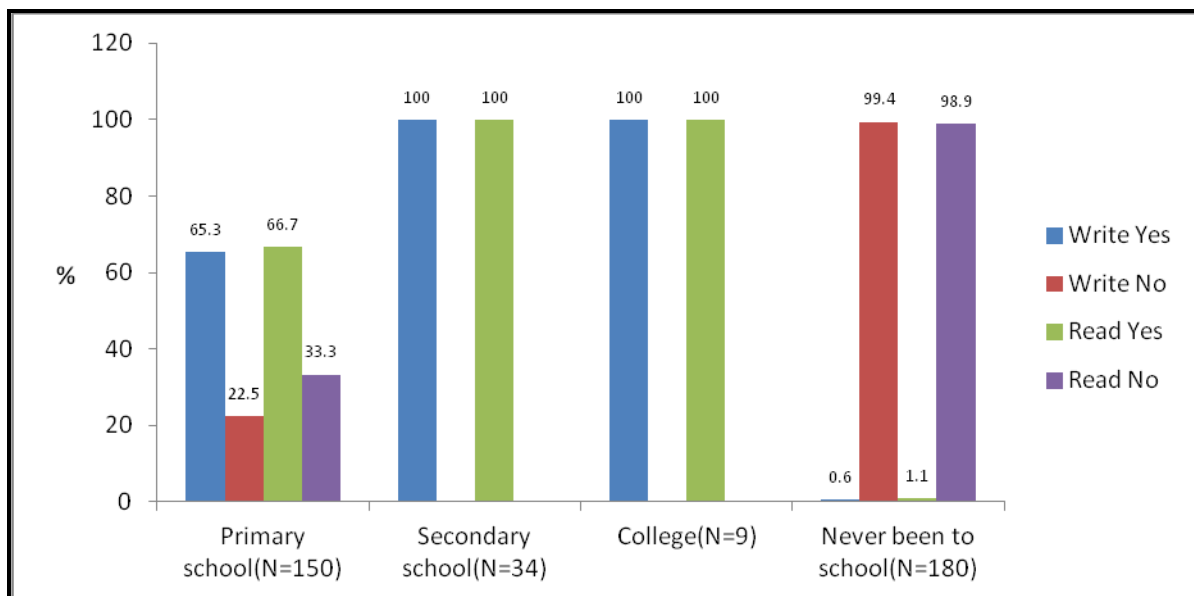


Figure 11: Education and literacy levels

Religion

All Pawaian and other peoples in this study are self-proclaimed Christians. The majority (66.2%) are members of the New Tribes Mission. The others attend Lutheran, Seven Day Adventist (SDA), or Evangelical Bible Mission (EBM) churches. There are migrants of other denominations living in the study area, but their churches have not been established in the area. This group was categorized as 'other' (at 8 percent of the total) in our findings.

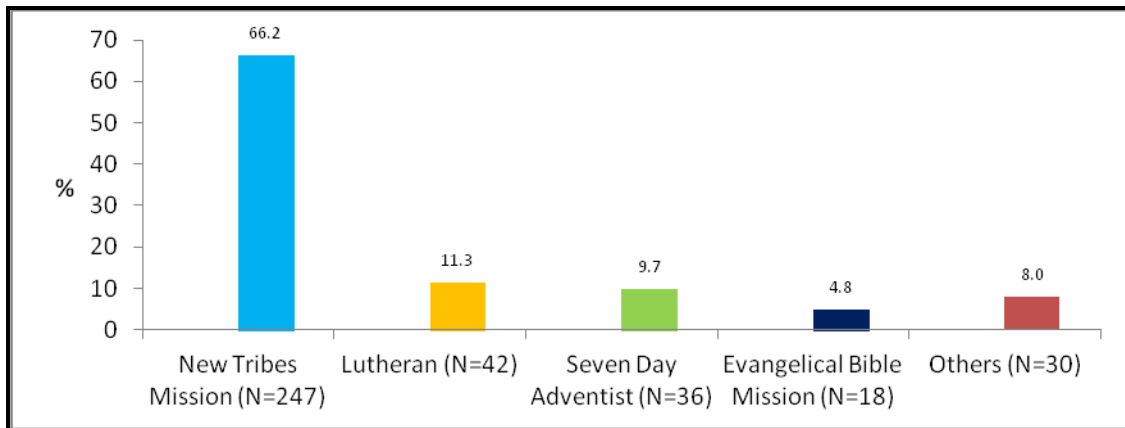


Figure 12: Composition of Christian churches in Pawaia

Although churches are well established in the area, Pawaians are not as ardently religious as are some PNG communities.

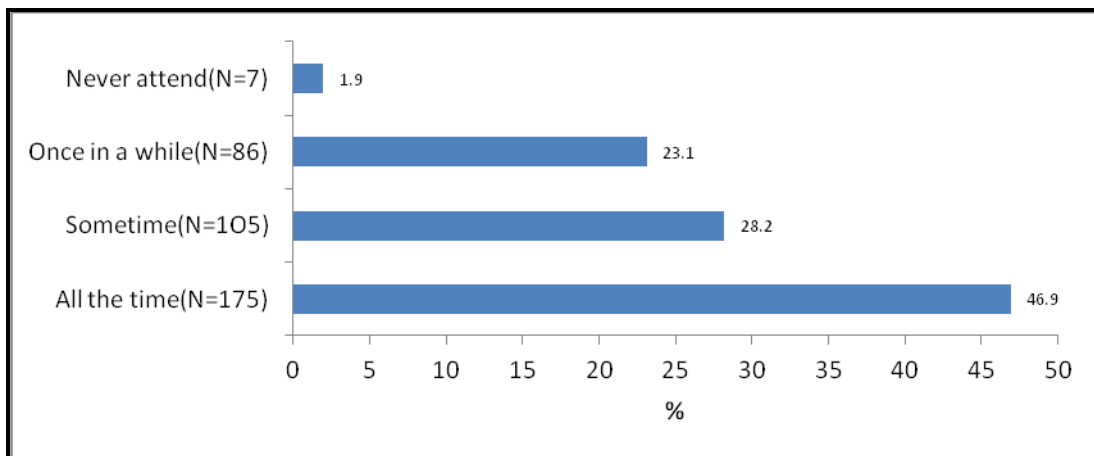


Figure 13: Informants' church Attendance

Less than half (46.9 %) the respondents attend church every Sunday. More than a quarter (28.2 %) said they only attend church 'sometimes'. The proportion of those who occasionally attend exceeded one fifth (23.1%) of the total respondents, and at least two percent (or 7 people) told us they had never attended a church service.

The pastors of New Tribes Mission are Pawaians. The SDA pastor is from Baimuru; EBM's pastor is from Eastern Highlands Province, and the Lutheran missionary is from Simbu Province. According to one non-Pawaian pastor, the Pawaia are gradually converting into the full faith of Christianity. But their semi-nomadic lifestyle seems to be a stumbling block to their commitment. In his words:

Here, the people are not real Christians. They come to church but they also do many evil things. Adultery is the biggest problem here. When people find out, they fight or even arrange sorcery to murder those who wronged them. They get big money from royalties and fortnights but they don't know how to give tithes and offerings. During the weekdays most of them live in the bush camps so it is hard to organize them. But they are changing very slowly.

VILLAGE PROFILES (Villages/ Landowner Groups and Landowner clans)

In this section, we present overviews of each village, starting with basic village indicators and expounding to other aspects of village life.

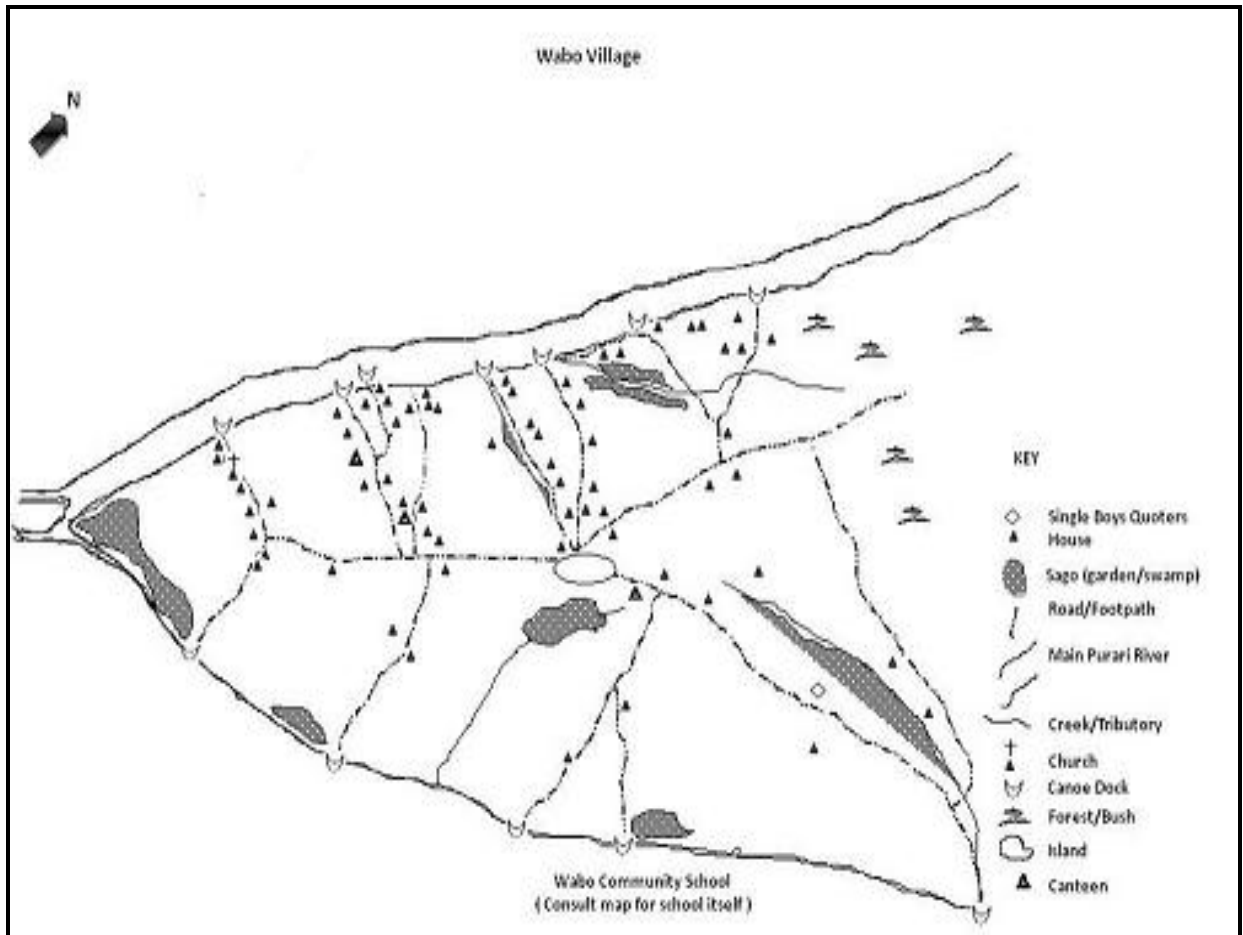
WABO VILLAGE

Wabo village sits on the eastern bank of Purari River, at the intersection of the Wabo and the Purari Rivers. Opposite the village is the renovated airstrip (built by the Works Department in collaboration with Nippon Koei in 1976) currently used by MAF and by Airlines PNG for InterOil's chartered flights.

About a 2 kilometers upstream of Wabo village are Mt. Japeri on the eastern bank and Mt. Peri on the western bank; the two Sister Mountains run down to meet at the Purari River. This is the site where the proposed dam will be built. Villages located either immediately downstream or upstream of this site will be most directly impacted by the hydroelectric project.

Wabo village is a community of dissolved villages—those of Kairuku, Tatu, Uraru, Koni and Gurimatu. Discussing their migration and settlement in 1977, Susan Toft wrote:

Gurimatu people do not feel happy about moving to Wabo at present because they have few rights to sago in the area. However they said they are interested in employment.... Apart from some persistent Gurimatu residents, the people of the five villages have relocated themselves at Wabo. (Op cit: 12)



Map by Jackie Anau

Map 3: Wabo Village

At the time of Toft's research (1977), the village of Wabo was already two years old.

Today people from the five villages already mentioned are living at Wabo with the Pawaians from downstream location. Although people originally from the area downstream of Wabo would not be in the inundation area, they are part of the affected social group and are at present based at Wabo with others. These people belong to Uri (now Ura), Pawaia No.1 (now Poroi), and Pawaia No.2. (Ibid: 13)

Since 1977 this particular settlement of peoples in Wabo has disintegrated. Today, some people from the clans originating in Kairuku, Tatu and Uraru have resettled back at Uraru. The move was spearheaded by Joe Miri, a leader of Use'e clan. The Use'e clan owns the land upon which Uraru village sits. It also owns a strip of land between the Purari and Wabo Rivers that stretches upstream for many kilometers. Their clan boundary extends a few kilometers beyond Uraru village itself. The interior (or eastern) boundary is a mountain range that forms a natural wall and provides a trap for the water of the proposed dam. The western boundary is the Purari

River itself. Joe met with his clan members and consulted the elderly men who collectively agreed to make the land available for relocation. Those who were willing to relocate did so, whilst those who did not, remained at Wabo, where they remain today. According to Joe, the purpose of this relocation was to help the people of Tatu, Uraru, and Kairuku settle at a location closer to their sago stands, hunting grounds and their land. This measure was taken in response to growing concerns of landowning clans (Use'e, Perijupe, Sepia and Eria) over competition and depletion of food and other resources. Essentially, this relocation reduced disputes between the two groups.

Since its first settlement in 1975, Wabo has evolved into an established village. With a population of 402 men, women and children, Wabo village is the biggest in the area.

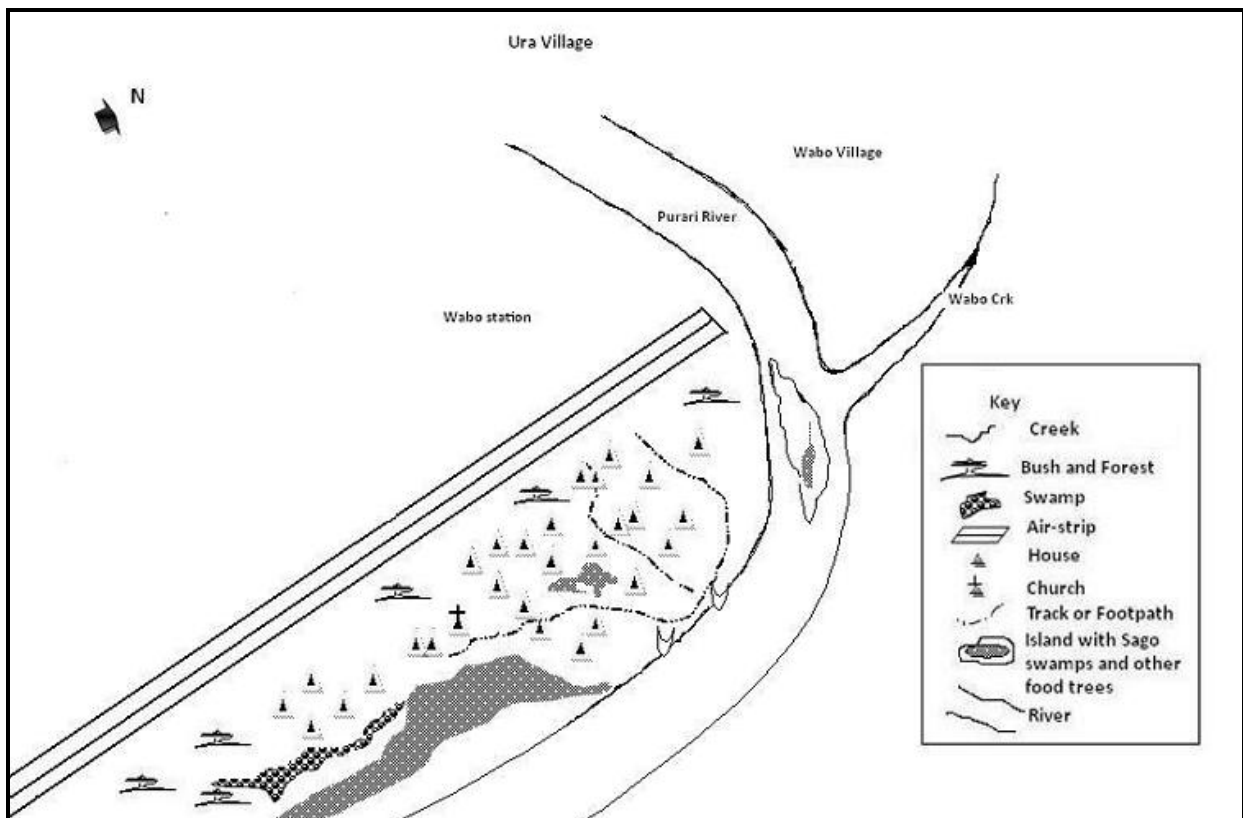
Table 3: Wabo Village Profile (September 2010)

Village name:	Wabo
GPS reading:	S 06° 58' ; E 145° 04'
Council ward:	21
Ward councilor:	Keneai So'onai
Village committee:	Mataio Menai
Population:	402
No. of houses:	69
Tribe:	Pawaia
No. of clans:	11
Main language spoken:	Pawaia, Motu, Tok Pisin and Motu
Literacy rate for sample population (survey result)	
% of Literacy for (survey result):	34.3
% of Male literacy (survey result):	86.7
% of Female literacy (survey result):	13.3
Services Available	
Wabo Community School	School – Operating but 'on-and-off' mode
Wabo Aid-post	Temporary closed (Officer not at work location)
Wabo Airstrip	Operational
Common Energy use:	Wood; Dry Bamboo; Kerosene; Petrol
Main water source:	Purari River, Wabo River, small streams,

	rainwater
Main modes of communication:	Oral, Letter, VHF Radio - National Health
Basic Infrastructure	
%Population accessed airstrip	5.0
%Population accessed road	0.0
Staple food:	Sago
Main greens:	Aibika, Tulip, 'mosong kumu'
Main fruits:	Cucumber, ripe banana, pawpaw
Main protein:	Fish, pig, cassowary, cuscus
Ways of preparing food	Cooking with bamboo, fire, smoked, mumu
Main sources of food supply:	Sago palm, bush, garden, River
Agriculture techniques:	
	Shifting cultivation (primitive)
Common Crimes:	
	Stealing, sexual offense (adultery, pre-marital sex)
Economy:	
Traditional Items of value	Woman, land, shell money, pigs, birds feathers, stone axe
Contemporary items of value	Woman, money, dogs, pigs, steel axe
Main sources of income	Village Market (buai, fish, pig)
Main Sports in the village:	Touch rugby (only men)
Religion:	Christianity
Church:	New Tribes Mission
Church institution in the village:	Adult Literacy school
NGOs working the area:	World Wide Fund (WWF) – Left already
Companies in the area:	InterOil, OilMin, JDA Wokman, RH, TST
Valuable Personal Assets in the village	
Motor Engine:	5
Generator:	3
Solar:	2

URA VILLAGE

Ura lies on the western bank of Purari River, near Wabo airstrip. The village sits at the curve of the bank that borders the strip itself, creating a letter 'D' shape (see Map 4). Houses are made of mostly bush material, and they are scattered toward the convex edges of the 'D', slightly more crowded at the centre. Only five houses in the village have galvanized roofs, one of which belongs to a migrant (Karamui) family. The rest have thatched sago roofs. This village is situated along the route to Wabo village via the Purari River. It ceded land to the State when they started constructing the airfield in the 1970s.



Jackie Anau

Map 4: Ura Village

Although the impact of the hydroelectricity dam may not be the same here as at Wabo, the Jao'o clan of Ura village will be significantly affected; they are the principal landowners of Mt Peri (the western mountain edge of the proposed dam site). The impact on their customary land will be considerable. However, they have another portion of land downstream from the proposed dam site which will not be inundated. (The Use'e clan, by contrast, will have all of its land inundated.)

Toft noted that during the first dam project, Pawaians from downstream had also settled at Wabo. "These people belong to Uri, Pawaia No. 1 (often called Poroi) and Pawaia No.2"

(1980:13). This group of Pawaia that moved up from Poroi settled at the present day Ura village. Located on land owned by Uri people, the new village was called Ura. Toft makes no mention of this village in her study, though, implying that at that time the name Ura had not been coined.

There have been many changes since Toft's study. Nearly all of the Pawaia 1 and Pawaia 2 people have moved back to their lands. Pawai 1 people settled at Poroi 2 village. Now the majority of Ura villagers are Uri people, but some people from Uraru and Poroi also live in Ura village. The other new people in the village are relatives of highlands women married to Pawaian men of Ura village. These men are principal landowners of the LNG projects in the Upper Purari Valley and have had their categorical brothers-in-law (their children's mother's brothers), a very important relationship for Papua New Guineans, come settle amongst them. This is customary for highlands cultures, but exceptional for the Purari and clearly inspired by the prospects of employment in the area.

With a population of 206 people, Ura sits on the verge of prosperity. The village people are fast converting to the cash economy from their subsistence way of life. The highlands migrants have already begun impacting this community with their business savvy, transferring many of these skills, not least the knowledge of Tok Pisin, to the Pawaia.

Table 4: Ura Village Profile (September 2010)

Village name:	Ura
GPS reading:	S 06° 59' ; E 145° 04'
Council ward:	21
Ward councilor:	Keneai So'onai
Village committee:	Benny Peter
Population:	207
No. of houses:	28
Tribe:	Pawaia
No. of clans:	
Main language spoken:	Pawaia, Motu, Tok Pisin and Motu
Literacy rate for sample population (survey result)	
% of Literacy for (survey result):	51.2
% of Male literacy (survey result):	85.6
% of Female literacy (survey result):	14.4
Services Available	

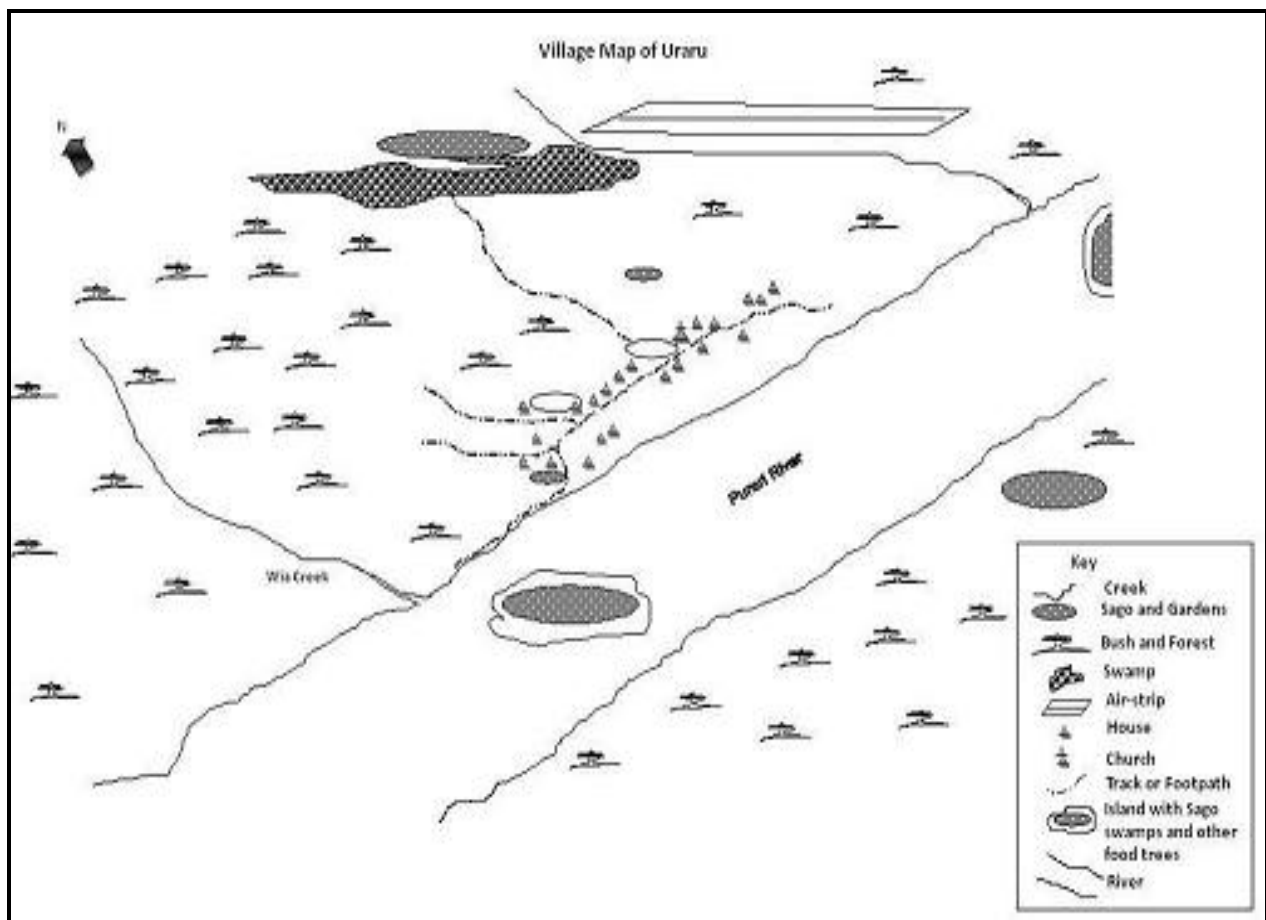
Wabo Community School	School – Operating but inconsistent
Wabo Aid-post	Temporary closed (Officer not at work location)
Wabo Airstrip	Operational
Common Energy use:	Wood; Dry Bamboo; Kerosene; Petrol
Main water source:	Purari River, Wabo River, small streams, rainwater
Main modes of communication:	Oral, Letter, VHF Radio - National Health
Basic Infrastructure	
% Population accessed airstrip	3.3
% Population accessed road	0.0
Staple food:	Sago
Main greens:	Aibika, Tulip, 'mosong kumu'
Main fruits:	Cucumber, ripe banana, pawpaw
Main protein:	Fish, pig, cassowary, cuscus
Ways of preparing food	Cooking with bamboo, fire, smoked, mumu
Main sources of food supply:	Sago palm, bush, garden, River
Agriculture techniques:	
	Shifting cultivation (primitive)
Common Crimes:	
	Stealing, sexual offense (adultery, pre-marital sex), drug consumption (marijuana)
Economy:	
Traditional Items of value	Woman, land, shell money, pigs, birds feathers, stone axe
Contemporary items of value	Woman, money, dogs, pigs, steel axe
Main sources of income	Village Market (buai, fish, pig)
Main Sports in the village:	Basketball (not active)
Religion:	
Church:	Christianity
Church institution in the village:	New Tribes, SDA Pawaia Bible Translation
NGOs working the area:	World Wide Fund (WWF) – Left already
Companies in the area:	InterOil, Oilmin, JDA Wokman, RH, TST

Valuable Personal Assets in the village	
Motor Engine:	5
Generator:	3
Solar:	1

URARU VILLAGE

Uraru village is located upstream from the proposed dam site, on the eastern bank. It took us about 3 hours by outboard motor to reach it from Wabo. There are 23 houses in Uraru. Two families also live in a hamlet about a kilometer upstream from the village. Most of the houses in the village are lined up on the bank of the Purari. Because of its remoteness, they are exclusively made of bush materials: wooden posts, stripped sago stock walls and sago palm roof thatch.

Uraru is a very active community with a positive attitude. The people are spirited and ready to help. We received warmer welcomes here than in any other study site.



Jackie Anau

Map 5: Uraru Village

The first Uraru village describe by Toft (1980:9) was a village on the northern river bank below the Hathor Gorge, 40km from Wabo. In 1961 the London Missionary Society established an aid-post in this village. In 1977 Toft supposed that this mission contact had attracted the people from Tatu and Kairuku who had recently moved there. By 1975, however, all the people of Uraru had migrated to Wabo. Today, however, some of them have moved back to Uraru.

Table 5: Uraru Village Profile (September 2010)

Village name:	Uraru
GPS reading:	E 144° 52' and S 06° 53'
Council ward:	22
Ward councilor:	Lukas Ororo
Village committee:	Jacob Sawape
Population:	187
No. of houses:	23
Tribe:	Pawaia
No. of clans:	6
Main language spoken:	Pawaia, Motu, Tok Pisin and Motu
Literacy rate for sample population (survey result)	
% of Literacy for (survey result):	21.1
% of Male literacy (survey result):	92.0
% of Female literacy (survey result):	8.0
Services Available	
Wabo Community School	Children don't attend school
Wabo Aid-post	Temporary closed (Officer not at work location)
Wabo Airstrip	Operational
Common Energy use:	Wood; Dry Bamboo; Kerosene
Main water source:	Purari River, Wabo River, small streams, rainwater
Main modes of communication:	Oral, Letter
Basic Infrastructure	
%Population accessed airstrip	4.3

%Population accessed road	0.0
Staple food:	Sago
Main greens:	Aibika, Tulip, 'mosong kumu'
Main fruits:	Cucumber, ripe banana, pawpaw
Main protein:	Fish, pig, cassowary, cuscus
Ways of preparing food	Cooking with bamboo, fire, smoked, <i>mumu</i>
Main sources of food supply:	Sago palm, bush, garden, River
Agriculture techniques:	Shifting cultivation (primitive)
Common Crimes:	Stealing, sexual offense (adultery, pre-marital sex), drug consumption (marijuana)
Economy:	
Traditional Items of value	Woman, land, shell money, pigs, birds feathers, stone axe
Contemporary items of value	Woman, money, dogs, pigs, steel axe
Main sources of income	Market – InterOil camp (<i>buai</i> , fish, pig)
Main Sports in the village:	No sports
Religion:	Christianity
Church:	New Tribes, Lutheran
Church institution in the village:	Nil
NGOs working the area:	Nature Conservancy – Based at Haia
Companies in the area:	InterOil
Valuable Personal Assets in the village	
Motor Engine:	3
Generator:	1
Solar:	0

Today, Uraru residents live on land they do not own. The landowners have allowed them to make gardens, and to fish and hunt there. The one restriction is that the migrants are not allowed to plant sago in their gardens which, as a subsistence crop, signifies permanence. Sago palm is important not just for food but also for clan or territorial identity. An area of land planted with sago implies ownership, history and identity.

Because the village is close to their traditional land, the people are not worried about their food sources or the permanence of their gardens. They've got bush camps in their own territory and frequently go bush to gather food.

WABO STATION

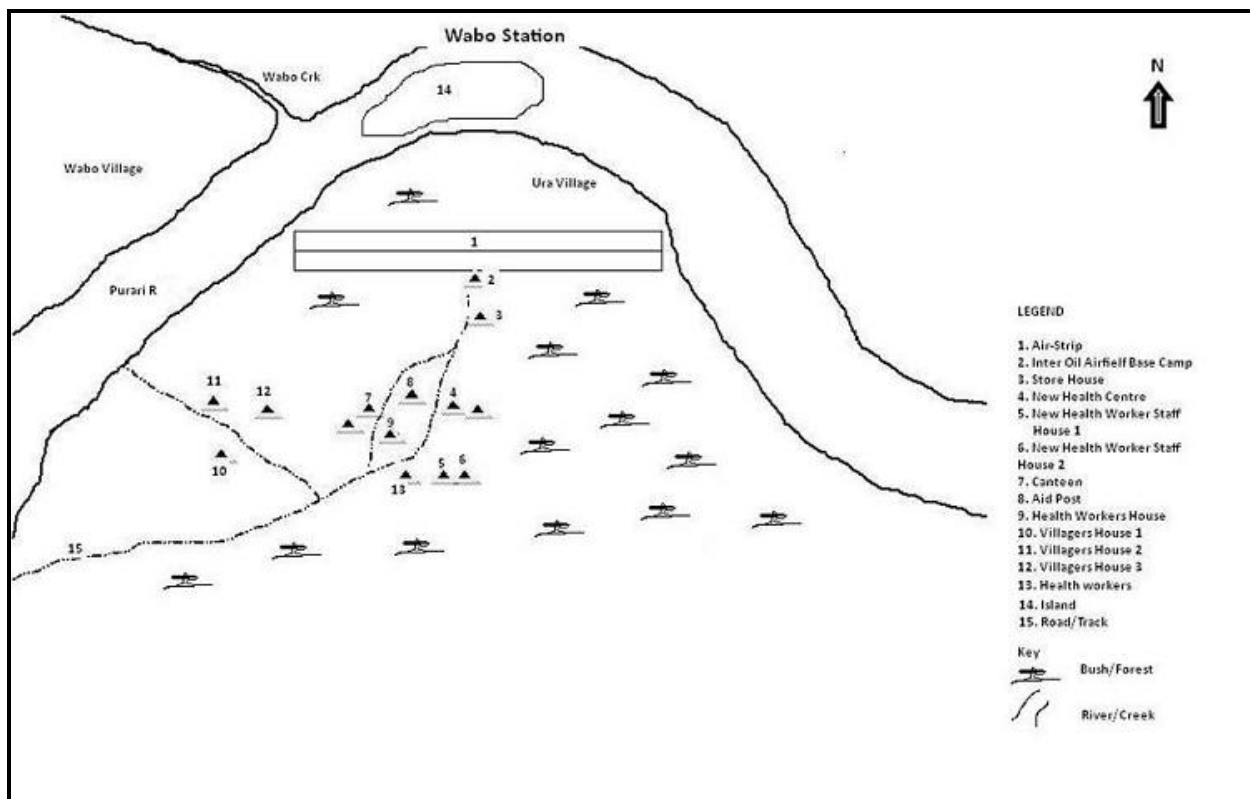
Wabo Station is a very small government outpost. It was established in 1975, about the time work on the first hydro-dam project gained momentum. The Gulf Provincial Government quickly established the outpost to provide basic services to the Pawaians in the area. A school was built, only to founder a few years later. It reopened again only to close a second time, be revived in 2008, and close for a third time. It re-opened in 2009⁶.

An aid-post was also established also. Fortunately, it has survived, serving a wider population of over 600 people today. A Community Health Worker (CHW) is in charge of the facility and he receives supplies every two months. Villagers tell us it is common for the CHW to be absent from duty, however, even for months at a time.

Wabo airstrip was built in 1976 by the PNG National Works Department. It is the only public infrastructure in the area. Until the introduction of the InterOil operation in the area, only Missionary Aviation Fellowship (MAF) had used this facility, and then only on an irregular basis. This changed when InterOil arrived, and the airstrip is now maintained by InterOil. MAF makes two flights a week to Wabo from Goroka. InterOil charter flights by Airlines PNG land every day, sometimes as often as three times a day. They bring in people, equipment and food for InterOil. Sometimes Airlines PNG transports InterOil's field employees out of Wabo to Port Moresby. And when there are serious medical emergencies, the charters from Port Moresby return with medical patients from the area.

Highlands migrants also live at Wabo Station. These people came to Wabo as *wantoks*, inlaws and individuals looking for employment or simply wanting to settle on new land. They have had a significant influence on the lives of the Pawaians already, ideologically, culturally, and linguistically. It is these migrants who have taught Pawaians Tok Pisin.

⁶ The Wabo Community School has now achieved Primary School status which implies that it can take in Gr 7 and 8 classes in 2012. This was announced by the head teacher Mr Ibuna Daniel during the school closing on the 2nd of December, 2011.



Jackie Anau

Map 6: Wabo Station

Table 6: Wabo Station Settlement Profile (September 2010)

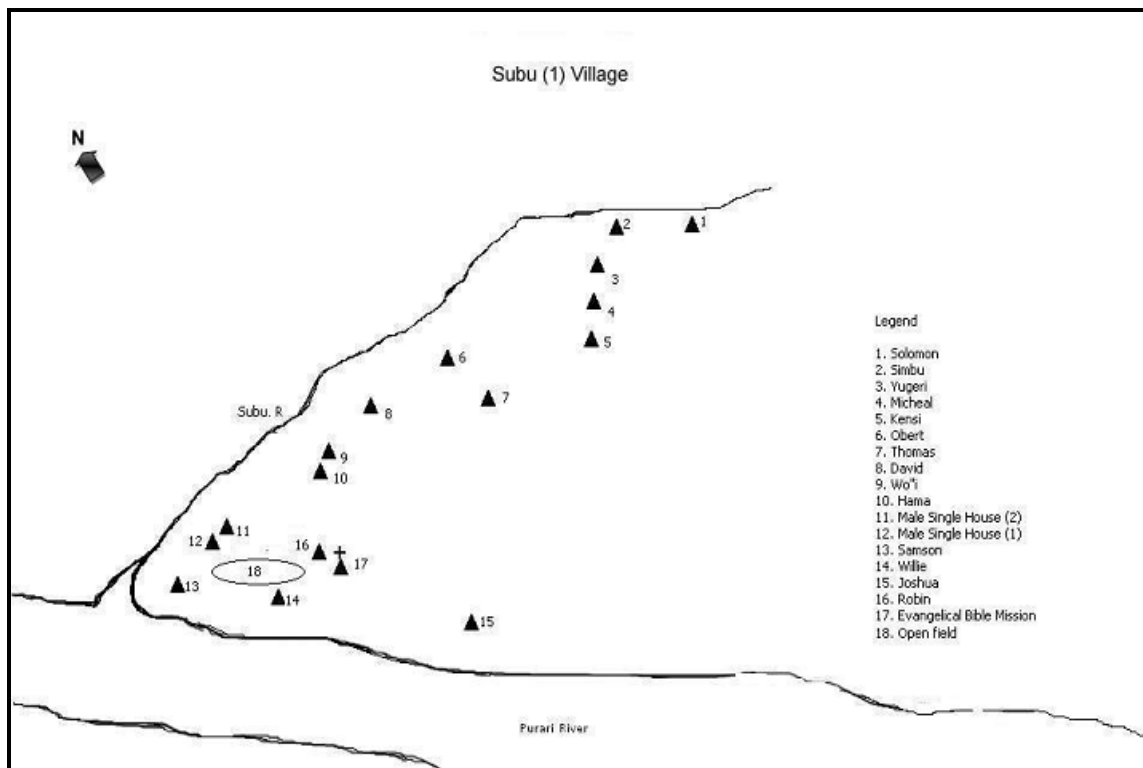
Village name:	Wabo station
GPS reading:	S 06° 59' ; E 145° 04'
Council ward:	21
Ward councilor:	Keneai So'onai
Village committee:	Papa Siwi
Population:	40
No. of houses:	8
Tribe:	Migrants settlers
No. of clans:	NA
Main language spoken:	Tok Pisin and own vernacular
Literacy rate for sample population (survey result)	
% of Literacy for (survey result):	54.5
% of Male literacy (survey result):	66.7
% of Female literacy (survey result):	33.3

Services Available	
Wabo Community School	Children attend elementary school
Wabo Aid-post	Temporary closed (Officer not at work location)
Wabo Airstrip	Operational
Common Energy use:	
	Wood; Dry Bamboo; Kerosene
Main water source:	
	Purari River, small streams, tank (rainwater)
Main modes of communication:	
	Oral, Letter, VHF Radio
Basic Infrastructure	
%Population accessed airstrip	100
%Population accessed road	0.0
Staple food:	
	Vegetables, Sago
Main greens:	
	Aibika, bean leaves, other greens
Main fruits:	
	Ripe banana, pawpaw
Main protein:	
	Fish, tinned fish/meat
Ways of preparing food	
	Cooking with pot, fire, <i>mumu</i>
Main sources of food supply:	
	Garden, Market
Agriculture techniques:	
	Shifting cultivation (primitive)
Common Crimes:	
	Stealing, sexual offense (adultery, pre-marital sex), drug consumption (marijuana)
Economy:	
Traditional Items of value	Land, pigs, birds feathers, stone axe, woman
Contemporary items of value	Money, pigs
Main sources of income	Informal business (clothes, buai, smoke)
Main Sports in the village:	
	No sports
Religion:	
	Christianity
Church:	New Tribes, Lutheran
Church institution in the station:	No
NGOs working the area:	
	Nature Conservancy – Based at Haia
Companies in the area:	
	InterOil

Valuable Personal Assets in the village	
Motor Engine:	0
Generator:	1
Solar:	1

SUBU 1 AND SUBU 2 VILLAGES

Subu 1 and Subu 2 villages are located downstream from Wabo. Subu 1 was first established in 1996 at the mouth of the Aure (Subu) River on the eastern bank of the Purari River, and is comprised of 16 houses. Two of these houses are for unmarried young men. Indeed, the majority of Subu 1 residents are teenagers. In 2003, some of its members left the village to settle upstream, opposite the InterOil Base Camp on the western bank. By motor, it takes approximately 20 minutes to reach Subu 2 from Subu 1. These were mainly families of men who were employed by the company. They call the new settlement Subu 2. It sits on land owned by the Piuia clan of Poroi village. Although it is considered a village by the local people, it is in fact only a hamlet of 5 houses. It is now a settlement made of some families from Ura as well as these people from Subu 1.



Jackie Anau

Map 7: Subu 1 Village

No village with the name Subu was recorded in the 1980 Toft study (the research for which was conducted in 1977). Toft only makes mention of Pawaia 1 and Pawaia 2 groups settled at Wabo (referring to the people of Poroi). At that time the people of Subu were still living at the headwater of the Aure (Subu) River.

The Subu people originally migrated from a settlement further upstream of the Subu River called Weme. A brief description of the people who dwelled in the upper Subu River was reproduced in the Warrillow report of 1978 which drew from the work of J. Baker (1957) who led patrol team in the area during the *kuru* outbreak. The 1957 report stated:

These people (mere'Sasi' l) are closely related to, and have the same language as the Yar people living at Weme village on Weme Creek, a small tributary of the Subu (Lamari) river, a little below its junction with the Iana (Vi'Ir). We reached this area after four days cutting south along the east bank of the Subu through very sparse Kukukuku population (Warrillow 1978: 26).

These records do not clearly state who the Subu people are. Our enquiry into their origin revealed that some of them are from Keremari and Weme but they consider themselves Pawaia. They share border with the Fore (seat of the *kuru* outbreak in the 'fifties), Kimi and Yarafeido of Okapa District in the Eastern Highlands Province, and the Kamea of Kaintiba District in Gulf Province. There are eight clans in Subu 1 village. Other clans of the same community are still living at Weme, upstream of the Subu River. The land on which they have built the village belongs to the Piua clan of Poroi (or Pawaia 2 in Toft [1980] and Warrillow [1978]). However, these clans have land along the Subu River and they call themselves the Subura Pawaia---meaning Pawaia from the Subu River region.

Table 7: Subu 1 and 2 Villages Profile (September 2010)

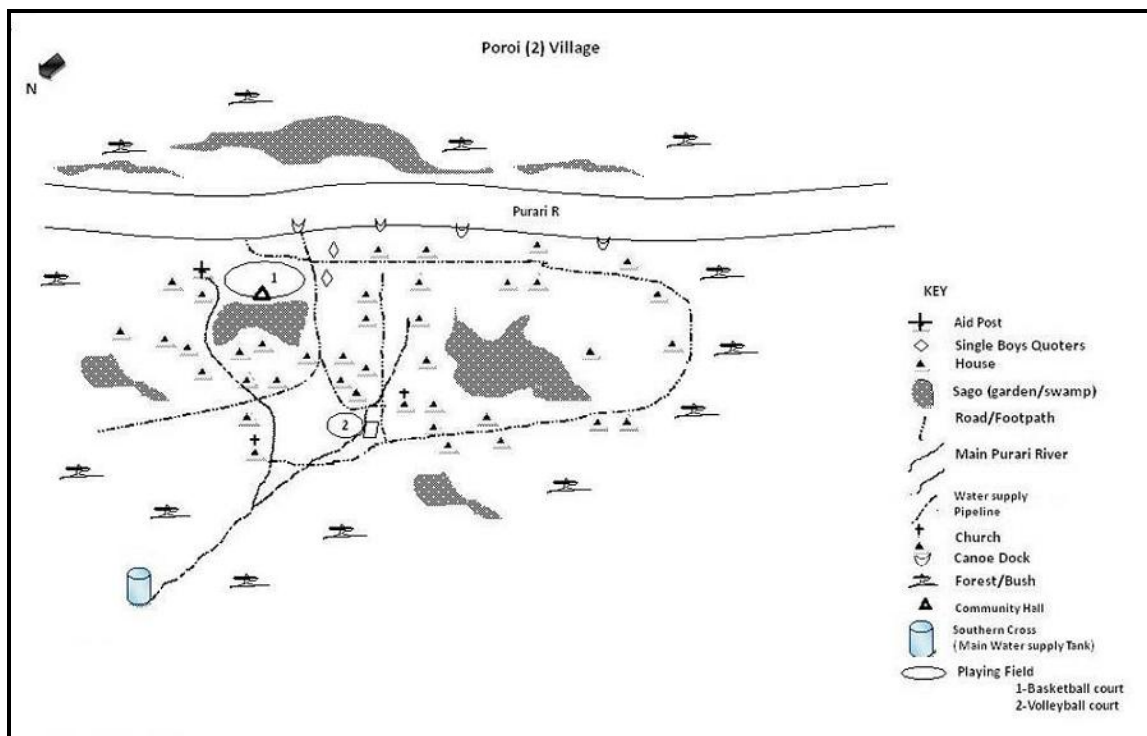
Village name:	Subu 1 and Subu 2
GPS reading:	S 07° 04' ; E 145° 18' / S 07° 03'; E 145° 15'
Council ward:	20
Ward councilor:	Tom Hovoi
Village committee:	Joshua Plai
Population:	142
No. of houses:	20
Tribe:	Keremari (migrated in 1996 from Lufa and Okapa (EHP)

No. of clans:	9
Main language spoken:	Keremari, Pawaia and Tok Pisin
Literacy rate for sample population (survey result)	
% of Literacy for (survey result):	28.6
% of Male literacy (survey result):	100
% of Female literacy (survey result):	0.0
Services Available	
Poroi 2 Community school; Subu Elementary	Children attend elementary school in the village
Kapuna Health Centre	Very sick cases only; Traditional Medicine
Wabo Airstrip	Operational - Very far
Common Energy use:	Wood; Dry Bamboo; Kerosene
Main water source:	Purari River, Wabo River, small streams, rainwater
Main modes of communication:	Oral, Letter
Basic Infrastructure	
% Population accessed airstrip	1.0
% Population accessed road	0.0
Staple food:	Sago
Main greens:	Aibika, Tulip, 'mosong kumu'
Main fruits:	Cucumber, ripe banana, pawpaw
Main protein:	Fish, prawns, pig, cassowary, cuscus
Ways of preparing food	Cooking with bamboo, fire, smoked, <i>mumu</i>
Main sources of food supply:	Sago palm, bush, garden, River
Agriculture techniques:	Shifting cultivation (primitive)
Common Crimes:	Sexual offense (adultery, pre-marital sex), drug consumption (marijuana)
Economy:	
Traditional Items of value:	Woman, pigs, birds feathers, stone axe
Contemporary items of value:	Woman, money, dogs, pigs, steel axe
Main sources of income:	Employment with InterOil
Main Sports in the village:	Touch rugby (men only)

Religion:	Christianity
Church:	Evangelical Bible Mission
Church institution in the village:	Elementary
NGOs working the area:	Nothing
Companies in the area:	InterOil
Valuable Personal Assets in the village	
Motor Engine:	2
Generator:	0
Solar:	1

POROI 1 AND 2 VILLAGES

Poroi 1 village is the old Pawaia village that was deserted when the inhabitants migrated to Wabo in 1975. When the people of Pawaia 1 and 2 (now Poroi) returned from Wabo, the people created a new village a few kilometers upstream of the old Pawaia (Poroi 1). They called this village Poroi 2, after their original village. The reason they settled in the new location was to remain close enough to Wabo to access basic services. One man from Tejope clan settled back in Poroi 1 with his family and brother's in-law's family from Maipenairu (from the Yare tribe).



Map 8: Poroi 2 Village

Table 8: Poroi 1 and 2 Village Profile (September 2010)

Village name:	Poroi 1 and Poroi 2
GPS reading:	S 07° 23' ; E 145° 11' / S 07° 20' ; E 145° 18'
Council ward:	21
Ward councilor:	Tom Hovoi
Village committee:	Peniai Mamani
Population:	226
No. of houses:	40
Tribe:	Pawaia
No. of clans:	10
Main language spoken:	Pawaia, Motu, Tok Pisin and English
Literacy rate for sample population (survey result)	
% of Literacy for (survey result):	52.1
% of Male literacy (survey result):	84.0
% of Female literacy (survey result):	16.0
Services Available	
Poroi 2 Community school	Children attend Elementary One to Grade Three
Poroi Aid Post	Operational
Wabo Airstrip	Operational - Very far
Common Energy use:	Wood; Dry Bamboo; Kerosene
Main water source:	Purari River, Wabo River, small streams, watertank
Main modes of communication:	Oral, Letter, VHF Radio (Aid-post radio)
Basic Infrastructure	
% Population accessed airstrip	4.4
% Population accessed road	0.0
Staple food:	Sago
Main greens:	Aibika, Tulip, 'mosong kumu'
Main fruits:	Cucumber, ripe banana, pawpaw

Main protein:	Fish, prawns, pig, cassowary, cuscus
Ways of preparing food	Cooking with bamboo, fire, smoked, <i>mumu</i>
Main sources of food supply:	Sago palm, bush, garden, River
Agriculture techniques:	Shifting cultivation (primitive)
Common Crimes:	Sexual offense (adultery, pre-marital sex), drug consumption (marijuana), stealing
Economy:	
Traditional Items of value:	Woman, pigs, birds feathers, stone axe
Contemporary items of value:	Woman, money, dogs, pigs, logs for timber
Main sources of income:	Employment with InterOil and RH, Logging Royalty payment
Main Sports in the village:	Basketball, Volleyball
Religion:	Christianity
Church:	Lutheran, New Tribe
Church institution in the village:	Community school, Lutheran Agency School
NGOs working the area:	Nothing
Companies in the area:	InterOil, RH
Valuable Personal Assets in the village	
Motor Engine:	5
Generator:	7
Solar:	1

Individuals and groups in the study area

There two groups of people in the area who will be affected by the proposed dam: Pawaians and Non-Pawaians. The Pawaians are further subdivided into the landowner Pawaians and non-landowning Pawaians. The landowner Pawaians are those whose land that will be directly affected by the project, either by the dam itself or development related to the dam. These include clans that originated from the villages of Koni, Uraru and [G]Yurumatu. People of Tatu and Kairuku villages now also live in Wabo village, but their customary land may not be directly affected by the project.

Another clan whose land will be affected is the Jao'o clan of Uri origin (now living in Ura village).

As landowners of Mt Peri (western bank) and Mt Japeri (eastern bank) both Jao'ó and Use'e clans' will be directly impacted. Their support is critical to the project. Apart from these two clans, others with land in the inundation area require recognition. Some are supportive but concerned about their life after a dam is built. For example, one clan leader of Use'e told us:

I support the project but I think the way I live now is fine. I don't know the life after the dam is built. You people are killing me. That's my only concern.... My sago and food garden will be covered.... Will the government think of me or not? (Kerowa Eaia, Wabo village)

Support is growing, and is more secure amongst the next immediate landowner clans to be affected. These are the Eria, Sepia and Perijupe. The other clans upstream of Wabo have also expressed their support. In a focus group discussion, Keneai So'onai, Ward Councilor and Vice President of the Baimuru Local Level Government (LLG) of Gulf Province, told us:

My grandfather was a leader, my father was one, and I'm currently the Chief of this place. I support the project because generation after generation, there was no education for us, no proper health services, and also when this project starts, it will bring in services. It will also bring in government bodies....Our life will be changed. My land and my clan's land [Eria clan] will go underwater but there are ways to negotiate for such issues. But if I keep on opposing the project, my life will be the same. Therefore, I as a Chief, a councilor [of Ward 21] and Vice President of Baimuru LLG, I give full support to this project (Wabo village).

Similar sentiments were expressed by other community members. Women have a very interesting perspective. Their support was immediate because, they said, they need a rest from making sago. They believe that because their sago gardens will be inundated, they will be supplied with rice to eat by the company (PNG EDL). As one 43 year old woman from Uraru village told us:

We women make sago all our lives since we were small. We are tired of making sago and want to relax. Because sago will be underwater, the company will provide us rice and other food. We will no longer have to break our backbones making sago. That is why I support the dam.

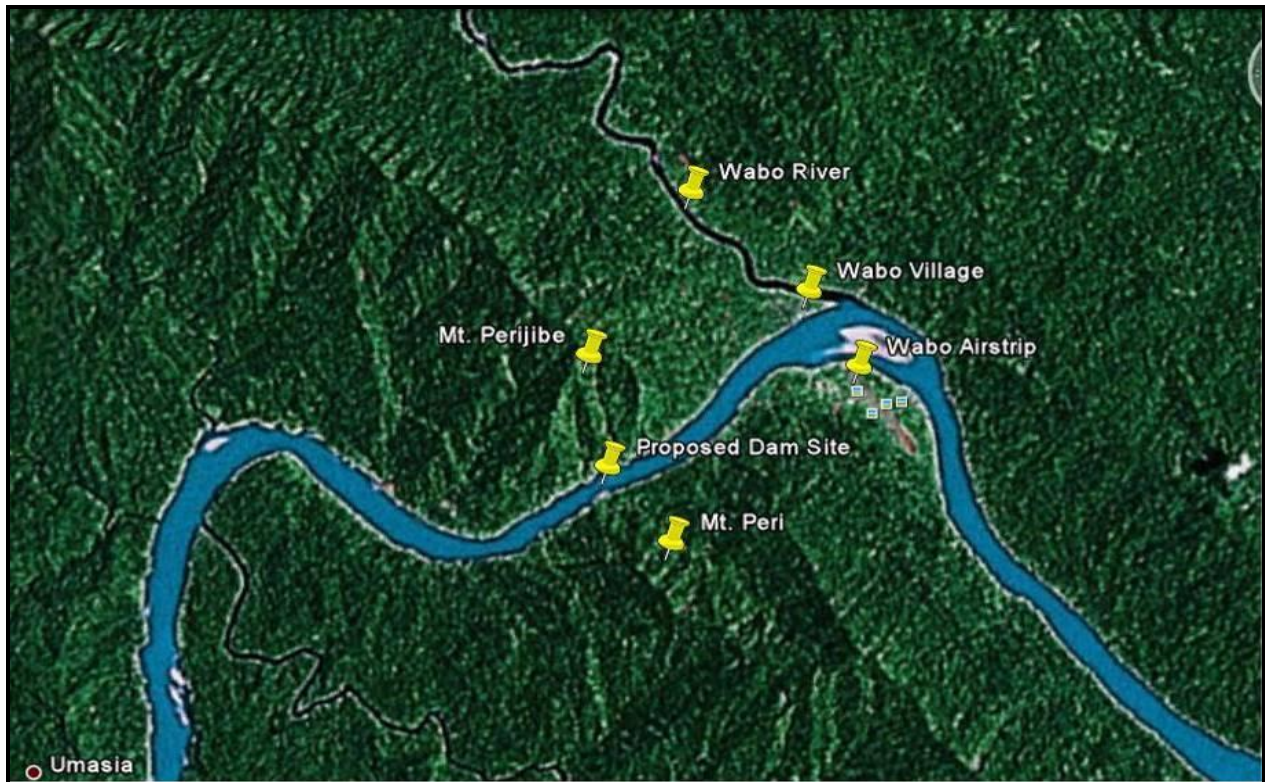
A young woman from Wabo also described her idea of life after the dam:

I don't want to live the rest of my life making sago. When the company come to our land and builds the dam, we will eat good food. We'll eat rice, tin fish and other store goods. We'll also have new clothes. The company will build a good school and *hausik* for us. Our children will go to school. We'll have medicine when we are sick. We'll live a good life. (Age 15, Wabo village)

Other Pawaians in the area, a total of 169, are migrants from the Upper Pawaia area. Additionally, more than a quarter (26%) of those who participated in this study are from Karamui, having migrated from Simbu Province for employment, exchange and market sales. Those seeking employment live with locals or with other Karamui people who came before them. They perform community service and also work for landowners, building their houses and making gardens as they wait to be picked as labor at the LNG project. Sometimes they wait up to six months before being selected, representing no small burden on the host community.

In Wabo and Uraru where their numbers are big, migrants have houses of their own. For example, in Wabo, 23 men from Karamui lived in one house across the Wabo River near the Wabo Community School. Our team met a young Karamui man who had walked to Wabo that same week. In Uraru, we met a Daribi man from Tua village in Karamui, and he had walked for three days to get to Uraru. The influx of migrants from Karamui continues. Others arrive from Enga and Eastern Highlands Provinces.

Our understanding is that the some Pawaians clans will be more affected than others in the direct impact area. Some of the most affected live in Poro 2, Ura and Uraru villages. Other Pawaian clans living between Poro 1 and Yurumatu may also be affected, as, for example, the Use'e and Jao'o clans who own the two mountains where the proposed dam site is to be located.



Source: Google Earth

Map 9: Proposed Hydropower Dam site at Wabo

A visual aid presented below explains the potential impact of the proposed project on each clan and group living in the area. Each concentric circle represents the degree of potential influence on the project's success. Those at the core have more power and influence on the fate of the project than the clans at the periphery. The group right next to the core is the second most influential group. Clans and groups in this ring have high potential to either undermine or promote the project. The third ring is also important but less influential than the two inner rings. All of these clan groups are important stakeholders and share a collective interest in the dam project going ahead. They are not formally self-identified as stakeholders, but because of the thirty five year history of the project, they have lived an entire generation with this collective identity.

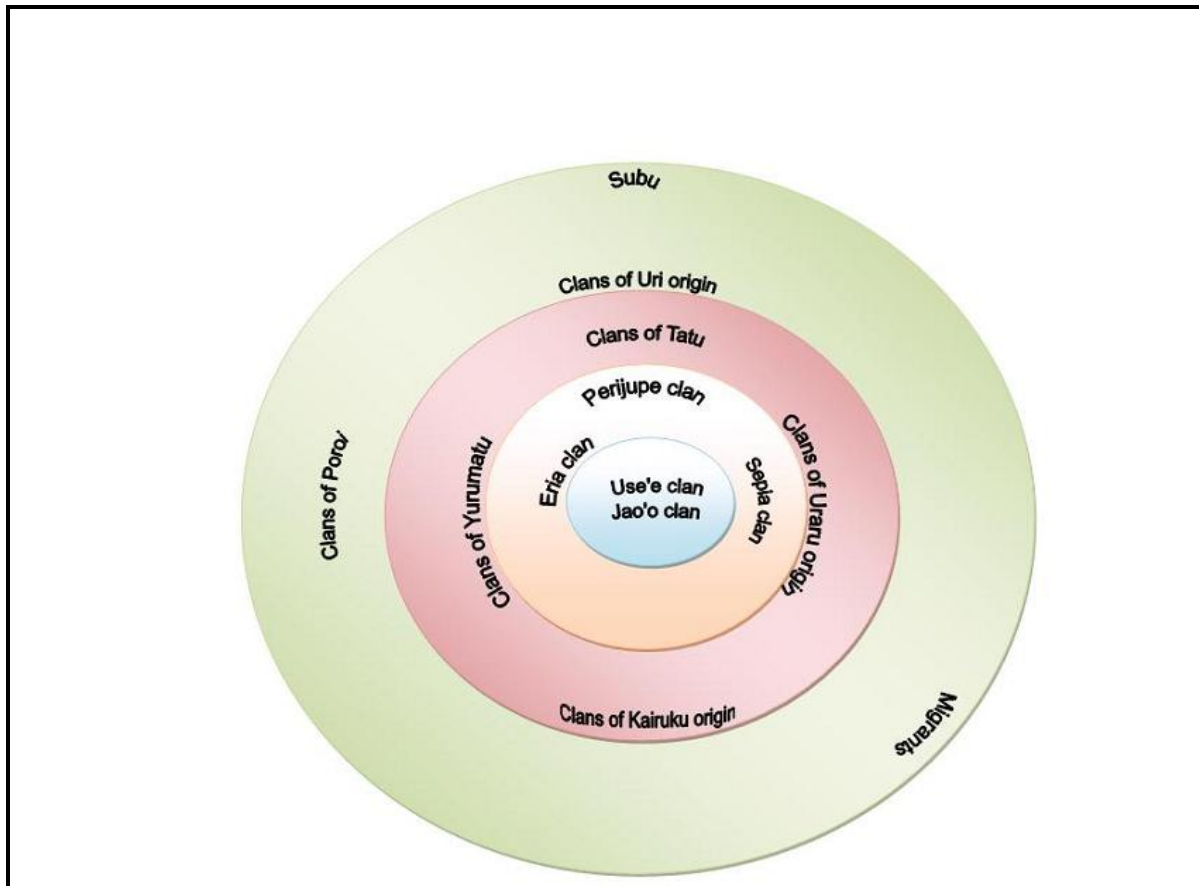


Figure 14: Impact of the Proposed Hydro-dam Project on the Different Clans and Groups of People Living in the Project Area

CULTURE

Culture is a way of life: it is an outlook, an approach to living, a view of the past, present and future. What we present here is what the participants told us about their way of life. The Pawaian culture is similar in many ways to other PNG cultures. It is divided into two worlds – the male and the female. These worlds are socially constructed and inherited at birth. Boys grow up to be men learning their side of world and girls grow up to be women, learning their own. What is expected of a male child is different from what is expected of female child. Daily chores define the genders.

A typical Pawaian woman’s daily activity begins in her home very early in the morning and ends when she goes to sleep. As explained by one female informant:

We wake up very early in the morning. We go down to the river and wash plates. Those with babies wash their babies’ napkins, and clothes. After that we come back to the house and cook breakfast. We put sago in the bamboos and cook them on the fire. We

feed our children and husbands. We also eat our share and we go to the garden or to make sago. Most of the time we use canoe to reach our destination. When it is getting late, we collect bush greens and firewood and return home. We cook dinner and feed our children and husband. [Do you also eat?]. Yeah, we also eat and go to sleep (Age 36, Wabo village).

Girls learn their roles at a very early age. By age 5 they are already active in their basic chores like looking after their siblings. They also fetch water, collect firewood, make sago and wash plates, all skills learned by watching and doing after their mothers. One morning while we were taking a bath in the Wabo River, two small girls paddled upstream. They were about 7 and 9 years old and they were catching up on the previous day's work of sago making, roughly a kilometer upstream, as they told us. Without an adult's supervision they already knew the arduous process of making sago and could paddle long distances to conduct this chore.

A Pawaian women's life revolves around her household, gardens, sago gardens, the river and the bush. All these places are her food sources. In them, women make or gather food for their families. Overall, women contribute far more to the household subsistence than do men. In addition, looking after babies and children is considered women's work. A man can only look after the children when the wife is very sick. Males are actually forbidden to touch newborn babies because they are still unclean, and doing so would make men grow weak and old quickly.



Figure 15: Girls at the bank of Purari River, Poroi 2

The world of the male is superior to that of female in the Pawaian society. It begins from the time a child is born and continues throughout the individual's life. At a very early age (4 or 5), boys start to learn male behaviors. By age seven, they start to follow their father and big brothers to give a helping hand where needed. In this way they learn the skills of making

houses, canoes, and gardens, and of fishing and hunting. When they reach adolescence, young men build their own houses, make their own canoes, clear and plant their own gardens and go fishing and hunting on their own. They begin to live independent lives.

Unmarried young men and boys live in the *bois haus* (boy's house). The *boi haus* is not strictly traditional. In the past families lived in one *bouhapo*-- a three storey house. Men and boys slept on the top floor and women and girls slept on the bottom floor. The middle space was a shallow layer that merely collected dust from the top floor (Toft 1980:9). It was fear of attack by enemies that kept them together in one residence. When missions came and the tribal fights ceased, this fear dissolved and opened up the landscape to separate living quarters. One innovation has been the *boi haus*.

Men fear that if women come close or enter the *boi haus*, they may pollute the place and cause sickness in the boys. One young man told us that:

Women can't come near our territory because it is against our custom. If they come they might give us sick. [How come you will get sick?] Well the women have bad blood you know, *sick mun* [menstruation]. So when young men breathe in the air that is polluted, they will get sick. [How about when women have no *sick mun*?] That one too, still women can't come near boys' territory.

The fear of menstrual blood is universally held in all Melanesian cultures. This fear has long acted as a form of birth control and given rise to cleansing rituals that allow marital coitus only during certain times of the month, or (in strict cases) year.

By the same token, young boys are not allowed to visit their family's home with any frequency. They are forbidden from accepting food from their biological mothers because that is said to make their fathers jealous. They can only get food from their father's hand, because a woman's hand (whatever the relationship) offering food to an unmarried man is understood to be that of a sexual partner. A highlands woman married to a Wabo man told us:

Here boys can't come to their family's house without the presence of their father. They can't come near their real mothers and even sisters. Their fathers will be jealous and suspect them of having sexual affairs with them. So the boys grow up on their own when they are old enough. (Female 23, Simbu origin)

Youthful alienation makes young boys grow strong and self-reliant. They live on their own; feed themselves and experience maturity without adult supervision. Unmarried men and young boys

are not allowed to work alongside their mothers or sisters. Unmarried men even prepare their own sago (a largely female task). When a young man gets married he moves out of the *boi haus* and builds a new house for his family. In this new union, some activities are shared by both husband and wife. For example, the wife helps her husband in building their house, especially with thatching the roof. She assists by lifting the thatched sago leaves for her husband to lay them on the roof. Other activities often performed together include hunting, fishing and making gardens---but these are only performed together by married couples.

Married men plant sago, clear bush for gardens, hunt and fish. A man’s major contribution to household food is finding protein. Fish is the primary source of protein, but bush meat is also commonly consumed. Hunting techniques vary; men will bring along dogs with their spears and let the dogs explore the bush ahead. A dog’s keen olfactory sense combined with a good spearing skill, can combine to a perfect hunting team. Men also set traps for different bush animals. Some women go hunting with dogs, too. They hunt bandicoots, rats, snakes, frogs, lizards and wild pigs, just as men do. Hunting dogs are highly valued amongst the Pawaia. Pawaia exchange valuables for puppies from the Karamui people. In Poroi, people may spend as much as K700 for a puppy from the people of Koriki on the Lower Purari.⁷

Fishing is another important activity. Different methods for fishing are used in certain seasons. During dry season, for example, poison roots are used to stun the fish which then float to the surface for collection. During wet season, nets and fishing lines are used. Fishing is also performed by women. According to both men and women, the most popular fish are catfish, prawn and eel fish. Crayfish is not a common catch, but people did indicate they had caught it. Women identified their main catch as catfish.

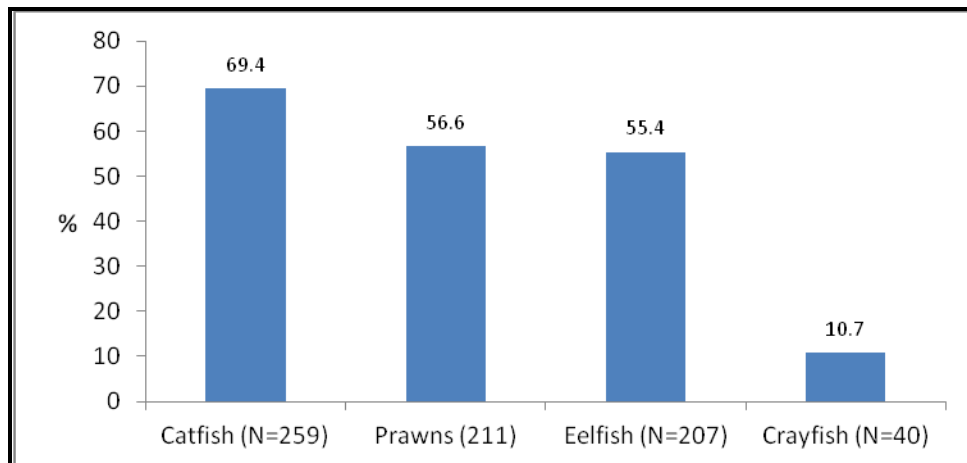


Figure 16: Common fish caught on Purari River

⁷ Note that this trade represents a recent connection with the Kikori to the south. In Warrillow’s 1978 study (1978:23 *ad passam*) there are repeated assertions that no trade or social interaction existed between the Pawaia and the Kikori peoples to the south.

Vegetable gardens are not the main source of food for Pawaiians. For the Pawaia, a garden is first and foremost a patch of sago palms. Some of their sago palms have been planted by themselves, and others were planted by their fathers or ancestors. Sago can be planted by both men and women, and they are an important family asset. Along the Purari River, there are endless sago gardens, and they run up to the edge of most villages as well. Sago is their staple starch, as well as the main housing material, their basketry and roofing material. It is the essence of their livelihood.

An overwhelming 92 percent (or 343) said they had made vegetable garden(s) within the last year. Of those, 7.8% (or 30) said they had made one garden. The majority (84.2 %) had made more than two gardens in this period. Asked if they had gardens along the Purari River, the majority – 82.3 percent (or 307)--stated that they did, while 17.7 (or 66) did not have gardens along the Purari River. In preparing gardens, shrubs and undergrowth are cleared. Then bigger trees are cut down. After this, branches are cleared and burned. When the ground cools off, planting is done, and this is basically a form of shifting cultivation. New gardening techniques are also being introduced by women of highlands origin who have married into the area. A digging stick is the main planting tool. This is a stick sharpened on one end with a knife for driving holes in the ground, and planting suckers and seedlings. Spades and other modern gardening tools are becoming common (see Figure 17).

A few respondents (7.2%) did not tell us their gardening methods. Most of these were recent migrants who had come looking for employment with InterOil, mainly young men from Karamui.

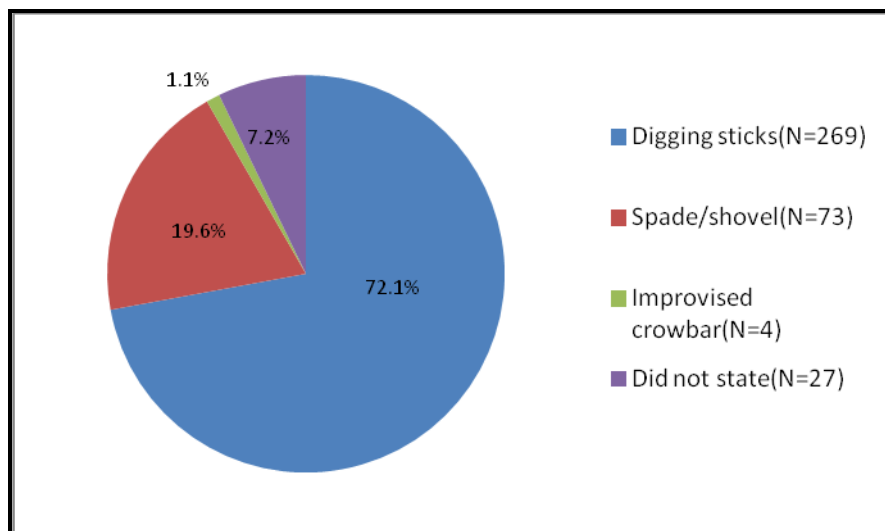


Figure 17: Main methods of cultivation and tools used

These vegetable gardens have (primarily) cooking banana, taro, *kaukau* and yam (see Figure 18). All these food crops have been introduced. Some of the species have been growing in the area for a long time, whilst others are recent arrivals.

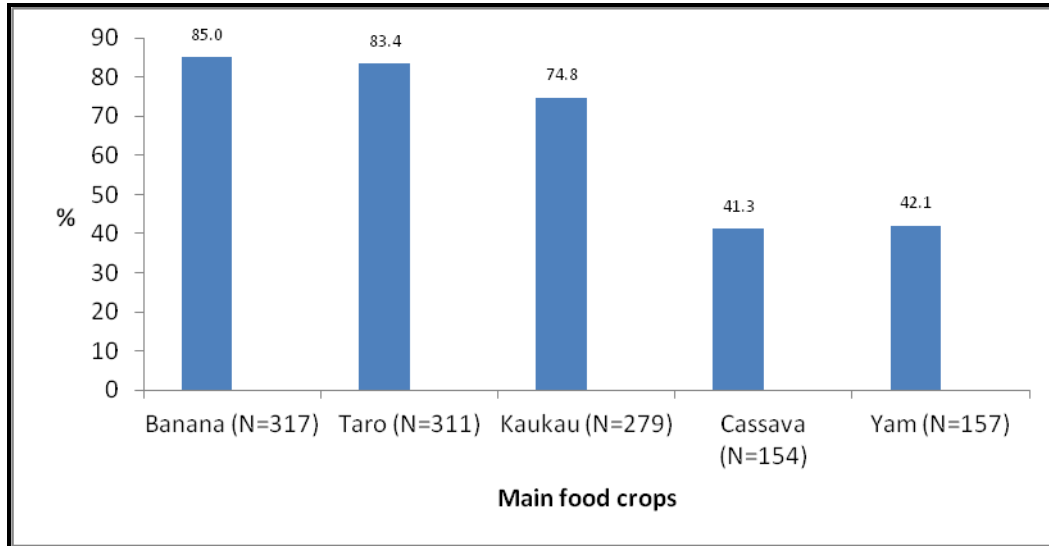


Figure 18: Common food crops grown in Pawaia area

Edible greens are very hard to find and are always in short supply. The greens grown in Pawaia gardens include *aibika*, *tulip*, pumpkin tips, bean leaves (recently introduced from the highlands) and ground greens (a plant that grows like cabbage).

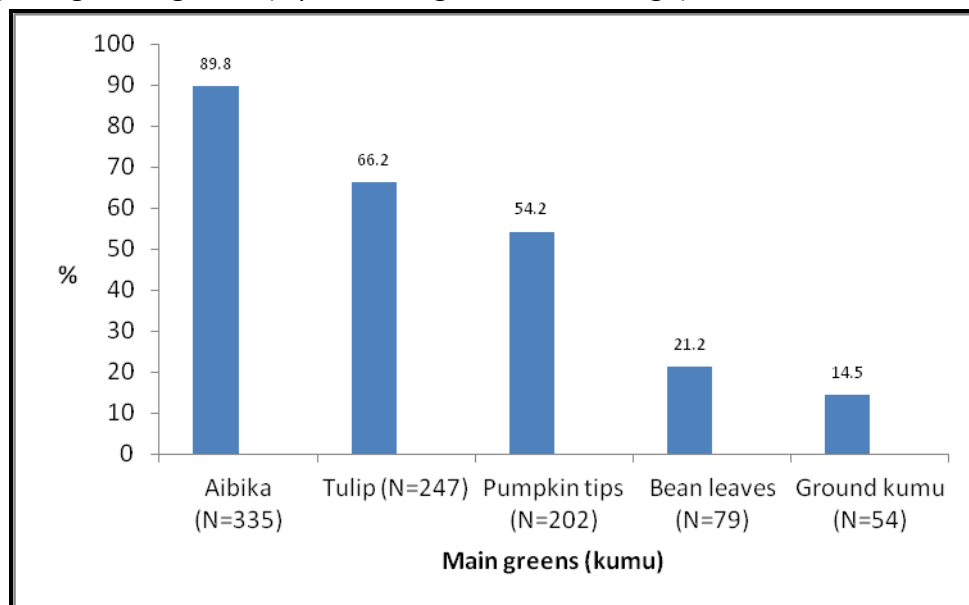


Figure 19: Common greens cultivated in Pawaia area

Apart from bananas, fruits are scarce. According to the participants, cucumber, pawpaw and pineapples are commonly grown. Only a few ripe eating bananas are cultivated.

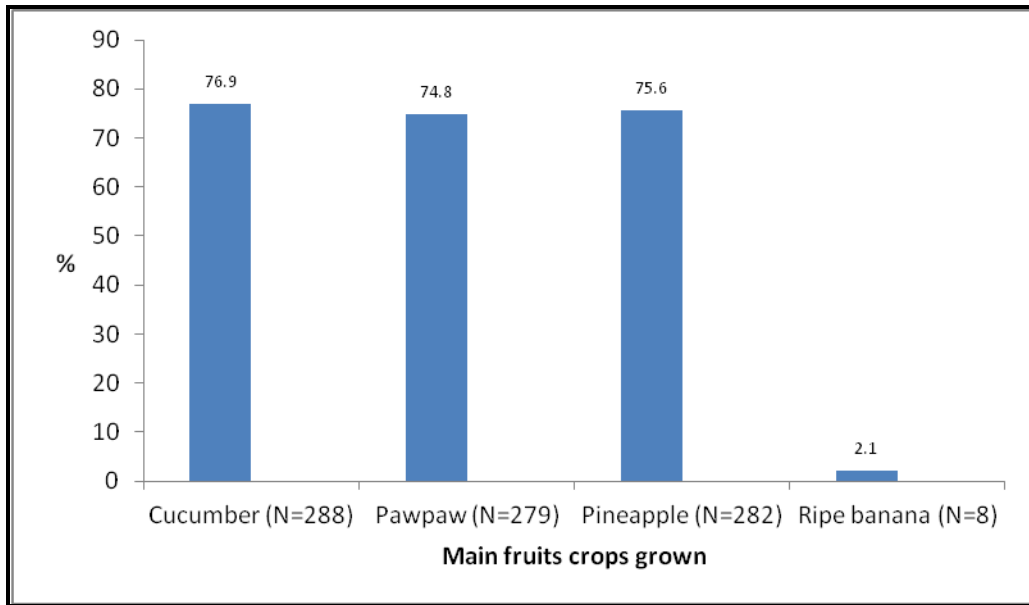


Figure 20: Common fruits grown in Pawaia area

Along the Purari River we saw very small gardens, often no more than two acres in size. Only three new sites were cleared for gardening between Wabo and Uraru, and each was no bigger than a helipad. The biggest garden along the Purari we saw was a corn garden located few kilometers upstream from the proposed dam site—an unusual site for the region (see Figure 21). When we flew over Wabo on our way in and out, we saw very few areas cleared for cultivation. What we did see from above were endless stands of sago palm along the river bank.



Figure 21: A month-old corn garden near Purari River a few km upstream from Wabo Village

It confused us that so many people claimed to make gardens by the river’s edge but we rarely saw them. We travelled the river from one end to the other of the study area but we never saw that many gardens. Perennial crops such as breadfruit, tulip, okari nut trees, betel nut, and coconuts, amongst others, were planted along with vegetables in the gardens we did see, and

they were also planted around people's houses. For migrants, by contrast, gardens are the main source of food. These highlands people are some of the world's best gardeners, and where they build their homes they often plant food crops in small patches nearby.



Figure 22: Women preparing sago along the Purari River

Marriage

Marriage arrangements are made by parents for young girls, some so young as to be unborn. In most cases, the husband-to-be 'ties the knot' with an unborn child. He brings an advance payment, often a hunting catch or other items of value, to indicate his interest to the pregnant woman and husband. If the child is born a male then he then forfeits the gift; but if it is female, she is then pledged to be his future wife. When the girl reaches the age of seven or eight, she may be taken away by the man to live with his family. As soon as she reaches puberty, he makes her his wife. In general, this creates an age differential between husbands and wives as wide as forty years. In Poroï village, we met a man about 70 years old had 'marked' a small girl to be his (second) wife. An older woman in Wabo village told us her own experience:

When I was not yet born, my husband brought gifts to my mother. He already had a beard but was not yet married. When I was born, he continued to bring gifts to my parents. The things he brought were wild pig, yams and fish. When I started to develop breasts, he took me away to stay with him. I became his wife. After he died, I didn't get married again even though I was still young. (Age 57, Wabo village)

When a husband dies, he often leaves a relatively youthful widow, and yet fear of sorcery prevents her from remarrying. If the husband has made prior arrangements for her to marry a

brother or other kinsman, she may do so, but to chose her own husband would be to put this man at risk of revenge sorcery by the first husband's spirit.

Sexuality

A woman's eyes are a sacred part of her body for the Pawaia, and so they are a forbidden territory for men. Men and women are not allowed to make direct eye contact with each other. Direct eye contact by a woman into a man's eye signals an unequivocal invitation, and men are easily tempted, we were told. With increasing exposure to the wider PNG society, men have begun to fear women's sexuality even more. In general they forbid wives to be 'fancy' by combing their hair, wearing earrings or other adornments. It is an increasingly important aspect of Pawaia women's lives now, and a growing problem, especially as men bring in women from other provinces. We can only hope that the Karamui women and their strong work ethic has an increasingly beneficial effect on gender relations, as Pawaia men begin to view their spouses as something more than a vessel of fertility.

Tenure and usufruct

Women do not take part in any decision making concerning land. Some older landowning women may offer advice to their husbands or sons. We were told by some women that although they didn't have the power to make decisions they could still speak for their rights concerning development projects (the dam, for example). But because they are illiterate they cannot voice concerns very effectively.

We women don't have any power over land. It is the men who make all the decisions over the land and the resources on the land. We follow our husbands or sons only. They are the boss and we just sit and see what is happening. (Female, age 34, Ura Village)

Unmarried girls and widows who live with their clans have traditional rights to use their father's land. However, they don't have the right to own it or to claim land on their own. If a sister wants a piece of land, the brother(s) give her land to use. This is a usufruct but not an ownership right, i.e. her children do not inherit it.

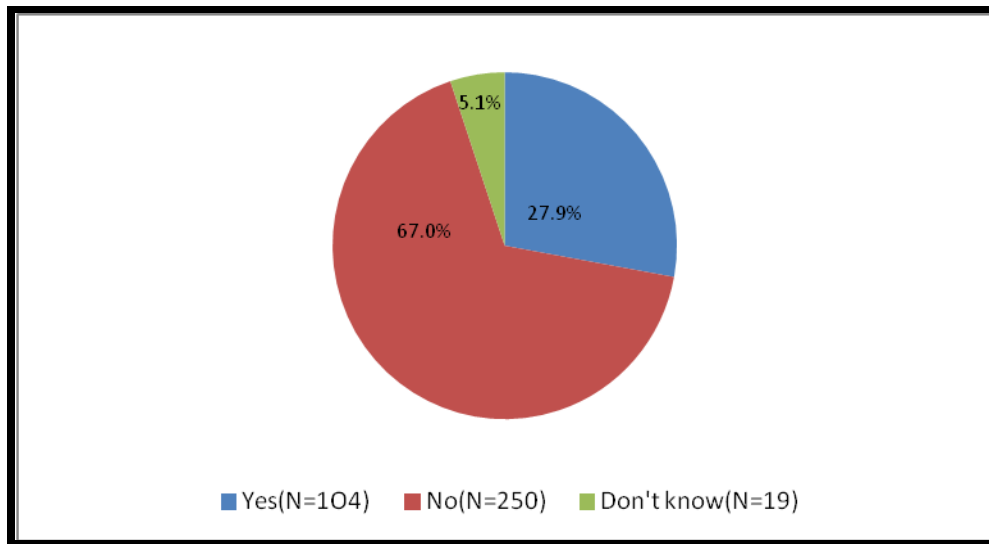


Figure 23: Traditional Land Use rights of women

Figure 23 reveals that a majority (67%) of our respondents say that women do not have traditional land use (usufruct) rights to the land owned by their fathers or brothers. However, more than a quarter (27.9%) said that they do. A small minority had no knowledge of the traditional land use rights of women. Similarly, the graph below shows that nearly two thirds (63.5%) of the respondents said that women today have no land use rights; over a third (34.3%) of the respondents said that women do have land use rights; whilst very few (2.1%) had no knowledge of whether women did or did not have land use rights. Both in the past and in the present, it is clearly an exception to the rule that a sister returns to work her father's land. Women may be accepted back into the family by the male members of their kin, as one female respondent explained:

When a husband dies, the wife can come back to her family. Her father and brothers give her land to use. But this happens only if the husband stops his wife not to get married to another man. She will come with her children. She can make gardens and fish in the river. She can go the bush and find wild yam, *tulip* and *abus* in the bush. She can cut the sago from the sago garden of her father and make sago. She can build her own house and live or she can stay with her father. But she can't own the land or make any decision regarding the land. (Age 37, Wabo village)

In the present day, Pawaian women still have very little power over the use of the land owned by their natal kin group. Nor are they allowed to be involved in making decision related to land use or development by their husband's family.

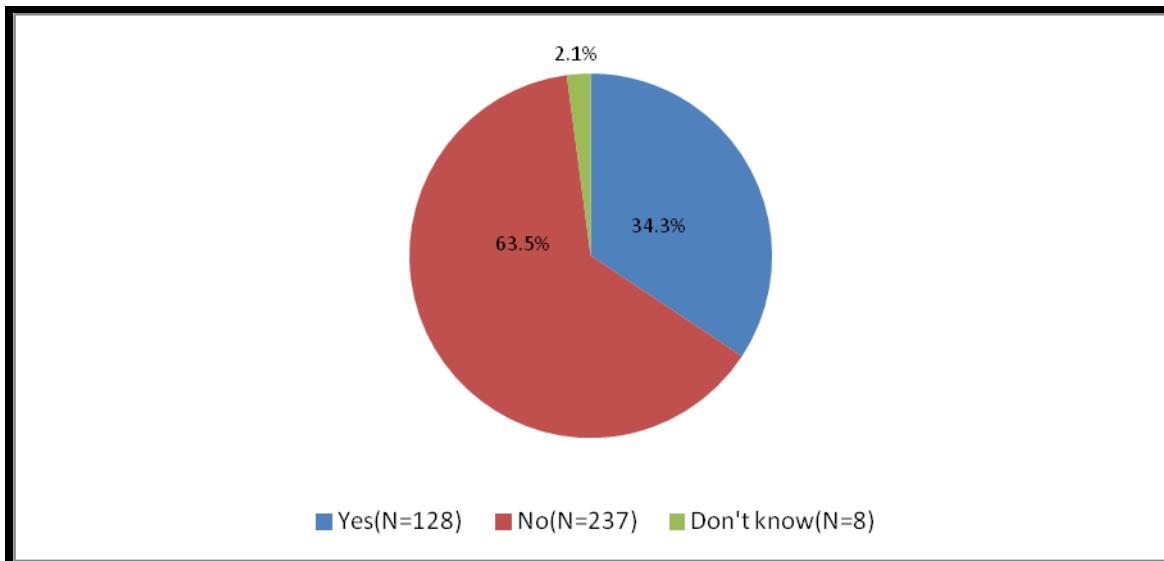


Figure 24: Present day land use rights of women

Male clansmen inherit the land, land use rights, and ownership of all resources. Men make all the decisions over land including resource development, and in this case, the proposed dam project. As one elder man said:

Men are the owners of the land. Women are like birds. They get married and run away. We, men, this is our home. We own the land so we live on our land. When we die, our children will bury us on our land. (Age, 54, Wabo village)

In other parts of the country with strict primogeniture or male inheritance customs, pressures on the land posed by resource projects or overpopulation have relaxed some of these tenure rules. In the Western Highlands, for example, virilocality of married couples (who may chose to settle in either the husband or wife’s family ground), and the acceptance of returning daughters (increasingly an issue where divorce is on the rise) has slowly converted the exceptions into rules. It should be expected that, over time, some tenure rules will be relaxed in the Pawaia case as well, as migrants move in and claims are contested.

ENVIRONMENT

Purari River use

Everyone living in the study area relies on the Purari River. Quantifying its uses would not make sense because everyone washes in it, drinks from it, travels on it daily. If we were to ask how significant the Purari River is for their livelihood, on a scale of, for example, (i) very important,

(ii) fairly important, and (iii) not important, everyone would choose (i), very important. One teenager summarized this as follows:

The river is so helpful and useful in so many ways. It is our life. Our entire life depends on this river. We use the river to go to other villages, to the gardens, hunting or bush camps, go to aid-post and school. This river also gives good nutrients to our food crops. We also float logs which we used for making house. We also catch fish, prawns and turtles. We make sago along this river because most our sago are growing along the river. And we also use this river for washing clothes, plate-cups, pots. We also wash in the river.

Perceptions of the environment

Our respondents helped us draft Venn diagrams (figures 41-43) of the relationships between the Pawaians and their rainforest, the Purari River and its creeks. In general, these diagrams reveal how close these relationships are and have always been. Pawaians depend on the environment in their daily lives, and when they describe their relationship to it, it takes almost poetic form. Mariki of Uraru, for example, told us that the Purari was crucial because on it, he said, “we floated sago for mothers to beat and posts for building houses.”



Figure 25: Purari River bank blanketed by dense rainforest

During discussions, participants told us that government at all levels has had little or no influence on their lives. They have no aid posts, schools or other basic services, we were told. In their absence, the environment has been the only source of the Pawaians’ well-being. They have relied on it for everything.

The rainforest serves as the major source of food for the Pawaia people. It holds wild pigs, cassowaries, bandicoots, cuscuses, and edible plants. Since they are semi-nomadic, they still cultivate very few food gardens, and mainly along the banks of the Purari. Most of their foods are obtained from the bush. When we were at Poroï village, a young man went hunting at about 7 am and returned to the village barely three hours later with two wild pigs. In some parts of Papua New Guinea, it can take hunters days or even weeks to hunt down two wild pigs, but here it took one man only 3 hours. Their forest, we realized, is an excellent provider.

Since Independence, and before InterOil and Rimbunan Hijau (RH) came into the area, the Pawaians depended on the rainforest and the Purari River to earn cash for basic store-bought goods and school fees. They hunted crocodiles and sold the dried skins at Baimuru. They also cut logs, floated them down to Baimuru and sold them whole.

According to Philip Taulopen of Ura village, the people consider the river [Purari] their mother, for they've always depend on it for drinking, washing and cooking food. It also features in travel and sago production. They collect everything from the forest beside their river and its creeks. "We are concerned that we may lose our mother" was a fear expressed to us by Philip Taulopen. One old man in Subu 1 village added:

We collect and eat *abus* from the Purari and Subu rivers. We use these rivers for washing, cooking, drinking, and it is our main means of transport. Sago and banana are the staple food here. The men build houses, make canoes [and clear land for] gardens while the women beat sago most of the time. We collect all this things from the *bus* [forest], *graun* [land] and *wara* [river].

The men also use the bush to obtain building materials. The forest has hardwoods like kwila, which makes excellent house timber. It provides them an apothecary and hardware store as well. They collect traditional medicine and herbal remedies from the bush, and all the medically 'valued' leaves, barks, saps, roots, flowers, fruits and nuts that alleviate, heal, cure or prevent certain illnesses come from their bush. Vines to build and repair their homes, tres that cut and shape their tools, all come from the bush.

The reviver is no less important. They wash and drink from the rivers when they are sick. They use the rivers for:

- Drinking
- Cooking
- Washing

- Fishing
- Movement between villages and gardens
- Traditional birthing sites
- Washing sago
- Transporting building materials
- Access to distant communities

SOCIAL ACTIVITIES

Sports

Sports are not that popular in the area. There are no organized sports in the villages. Leisure sports like volleyball, touch rugby and basketball are played in certain villages, but only on an occasional basis. Most villagers do not know the rules of these games. They don't even know the range of games played elsewhere in PNG. Hence introducing sports leagues and training opportunities would be a great boon to these communities, and certainly aid in consensus building amongst the younger men.

Discos

The modern disco culture is slowly, tentatively, making inroads in the Pawaian communities. Sometime this year one young man from Ura got married to a young woman from Wabo. The plans were that in the night a disco was to be held to celebrate the marriage. Unfortunately that night rain poured till dawn and the disco never eventuated. When we inquired whether this was usual for a marriage celebration, they told us it definitely was not; this was something new that they wanted to try.

Gambling

In one village (Uraru), migrants from the highlands have introduced gambling. All day long people gamble. Pawaians are easily lured into card games. Many of them, particularly those who work for as casuals with InterOil, have their meager cash incomes ripped off by card sharks and professional conmen from outside the area, often in-laws of the highlands women they have married. The councilor of Uraru expressed serious concern about the social and economic implication of gambling and its attendant behaviors.

ECONOMY

Living in one of the most remote parts of Papua New Guinea, isolated from the mainstream cash economy, Pawaians have long enjoyed a modest subsistence lifestyle. People here are farmers, fishermen and hunters, exchanging goods rather than cash with their neighbours. Prior to the arrival of missionaries and explorers, they were nomads whose livelihoods depended largely on hunting and gathering. Indeed, some of them remain semi-nomadic today. Traditionally, they had little trade with either the people upriver or down at the coast, although it is reported they would trade pigs and birds' plumes for betel nuts, obsidian rocks and shells from coastal communities. The Pawaia were more middlemen than traders, as hypothesized by Warrillow (1978:32 *ad passam*); he reports that they were a link in the long chain that brought coastal shells to the highlands. At the same time, shells from the north and east were brought into the Purari from the Simbu region (*Ibid*).

Today, cash has entered these trade networks, although it has not entirely replaced the exchange of goods. Pawaians still exchange cassowaries for steel pots, and smoked fish for steel knives. 40% of the people we asked confirmed that they continued to make traditional exchanges.

Table 9: Number of informants practicing trade/barter

Answers	Number of people surveyed	Percentage
Yes	149	39.9%
No	224	60.1%
Total	373	100.0%

Some of the items which the Pawaians currently trade include peanuts, bilums, kaukau, steel tools, utensils and kina shells. Most of these come from the Karamui people in Simbu Province, one of their traditional trading partners. Some of these are still of considerable value, although now used mainly in ceremonial activities such as bride price, compensation and funeral ceremonies.

The influx of outsiders into the area has been slowly eroding the barter system. Cash transactions are gaining prominence in the daily life of Pawaia people, if not in their ceremonial life. Cash seems to have replaced certain material goods (from clay to steel pots, for example), but not yet become an exchange item in its own right. (In the highlands, for example, brideprice

cash is now give to the bride’s family and partly returned in a complementary gesture; in the past one set of goods would have been exchanges for a different set).

Activities such as the early feasibility studies of the proposed Wabo hydro-dam by the Japanese Nippon Koei and the Australian Snowy Mountains Engineering Corporation (SMEC) in 1973 introduced the use of cash in these isolated communities. Even before the arrival of InterOil, a few Pawaian men were engaged in the crocodile skin trade for cash and some were selling whole logs to the logging companies at Baimuru. But these were their only means of earning cash income. The establishment of the LNG project in the Upper Purari basin by InterOil and the logging giant Rimbunan Hijau (RH) have both radically expanded the cash flow in the area. Today able-bodied Pawaian men are employed as labourers at the LNG project sites with InterOil. On average one can earn one thousand kina/month, which represents more than an entire family would have seen in a lifetime just prior to Independence.

What is your main source of income?

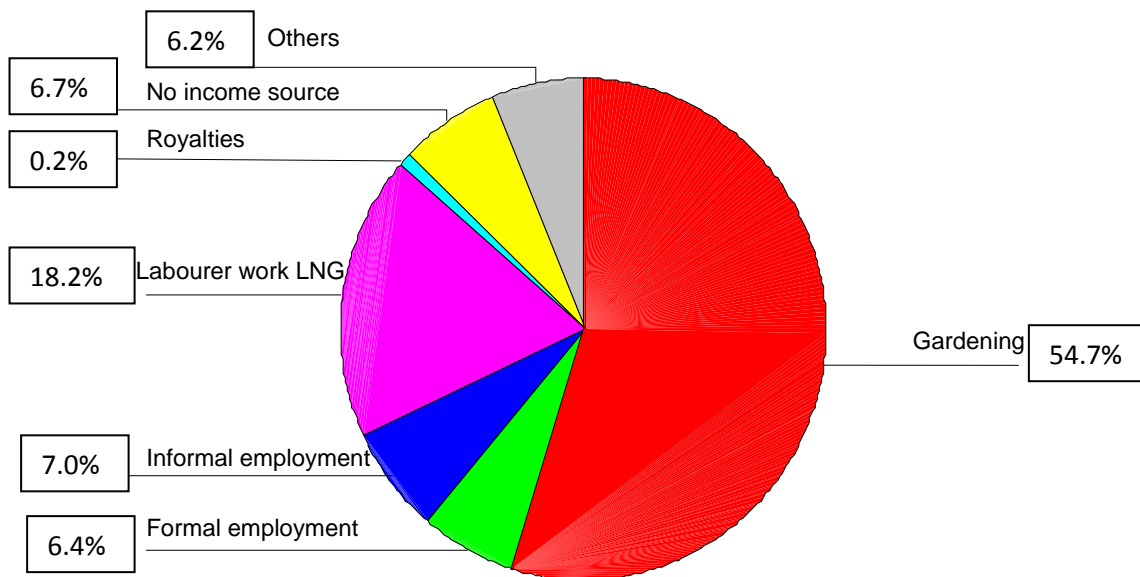


Figure 26: Pie Chart of main sources of individual incomes

There are hardly any cash crops (e.g. cocoa, rubber, coffee, vanilla, or oil palm) in this area. The villages are surrounded by sago palms and dense forest. Even if there were cash crops, it is highly unlikely that they could be brought to market economically. Access to market is by airplane or motor canoe, at costs far too high for the average Pawaian to meet. Even market

cooperatives would have trouble raising the cost of a charter to Kerema or Karamui. Entrepreneurial opportunities are thus very limited.

The LNG project has offered unprecedented opportunities for the locals to earn cash and gain work skills. Unlike the past, where Pawaians would seldom garden for income, today more than 50% of the Pawaians now make gardens to sell their produce to outsiders, namely to InterOil. According to the men, it was the women of Wabo who started to engage in sales of locally grown vegetables to the company mess. This has had some social implications. Traditionally Pawaian women were accustomed to preparing sago only; vegetables were rarely cultivated. Bush was cleared for planting and left alone until harvest. The only time Pawaians weed their gardens is to harvest a crop. The introduction of vegetable markets divided women’s daily tasks between harvesting sago and vegetable gardening, and thanks to the in-married highlands women, they are learning to weed their gardens in order to increase their yields.

Labour at the LNG project offers huge cash incentives for Pawaians. But much of the cash earned is concentrated in the hands of men, which is why women have so readily turned to market in their produce. 30% of the males surveyed in this study have earned income working at the LNG project sites, and 41.7% have earned income through gardening; whereas, less than 2% of the females surveyed are engaged as labourers with InterOil, whilst 75.2% of the females surveyed earn income through garden marketing.

Table 10: Income sources by gender

Gender	Sources								
		Gardening	Formal Employment	Informal Employment	LNG Labor	Royalties	No Income	Others	Total
Male	#	95	23	24	66	1	9	10	228
	%	41.7%	10.1%	10.5%	28.9%	0.4%	3.9%	4.4%	100%
Female	#	109	1	2	2	2	16	13	145
	%	75.2%	0.7%	1.4%	1.4%	1.4%	11.0%	9.0%	100%
Total	#	204	24	26	68	3	25	23	373
	%	54.7%	6.4%	7.0%	18.2%	0.8%	6.7%	6.2%	100%

According to our findings, more women (1.4%) earn income through compensation or royalty payments than do men (0.4%). This would seem anomalous, but that the respondent numbers are very low for the question and cannot be said to be representative.

The LNG project in the Pawaia area has improved the household income base. However there are few avenues to spend cash earned from the LNG work, meaning that much of the money earned is saved, i.e. reserved for later use (when it is not gambled away). This has inspired the establishment of trade stores in villages like Wabo, Ura and Poroi. Most of these trade stores have been opened by migrant settlers, except the one at Wabo, which is owned by a Wabo man married to a Simbu woman. RH has also set up a trade store near Poroi village.

The Pawaia are at an interesting place in time, where a market economy has yet to divest them of all their ready cash, but they can already earn a regular income from the LNG. What they desperately need at this moment is a means to bank their money, to preserve it against carpet bagging retailers from Kerema or Karamui, and enable investment in more functional long-term projects. A microcredit scheme, small business training, and bookkeeping courses are the natural first steps to building viable Pawaian enterprise in the future. Without these skills, they are poised to lose as much money to migrants as they earn from these new projects. Indeed, the vanilla boom and bust of East Sepik province during the early 2000's is a classic case of people getting rich too quickly, and losing their money to consumables before they had time to establish their own businesses.

There are people from Karamui District in Simbu who bring store goods from either Kundiawa or Goroka to sell to the Pawaian people (see pictures below). But the prices of these goods are extremely high. Transport costs require a mark-up, and yet these retailers are also aware of the vulnerability of their customers. They know that there is cash to be had from the Pawaians, and they have no competition to bring down the prices. Even garden crops are sold at higher prices to the public. As one migrant from Karamui said, "The increase in prices of goods is influenced by the presence of LNG project. Before the establishment of the LNG project, some of these garden crops were never sold but given freely to individuals who needed them."



Figure 27: Karamui men selling goods at Ura Village



Figure 28: An Engan woman (centre) selling biscuits and betel nuts at Ura Village

The LNG project in the Pawaia area has boosted cash flows in the villages and attracted migrants from other provinces in search of business opportunities. In each of the five villages covered in this study, there were at least five resident migrants. For example in Ura, there were more than ten strong young men from Simbu Province who made up a focus group discussion for this study. The majority of them were from Karamui District. All admitted without hesitation that they were there seeking employment at the LNG project sites. There are 40 permanent migrant settlers mainly from highlands regions⁸ residing in Wabo station. Some are working with the Lutheran church, while the rest live on and till state land. Two of the settler families each own a trade store in the area, catering to Wabo Station, Wabo village and Ura village.

⁸ Southern Highland Province, Enga Province, Western Highlands Province, Simbu Province and Eastern Highlands Province

Cash earned from the LNG project has transformed the Pawaians' lives. And yet the benefits have been sparsely distributed and favour the men over the women. The women continue with their daily chores of preparing sago, and men still fish and hunt for their daily sustenance, so the unequal distribution of cash has not been socially significant as yet. It is the few more educated Pawaians who have seized the small business and employment opportunities thus far. Migrants maintain good relationships with the landowning Pawaians, on whose continued goodwill their own futures depend. Some migrants have given away daughters and sisters to Pawaiian men as wives, to gain access to the benefits of the LNG project. But the course of future events is unknown, and should migrants come to dominate the employment rolls for these projects, those grassroots Pawaians may grow less tolerant of their presence.

Employment opportunities

In all the villages, the people expressed dissatisfaction regarding the pay they received from OilMin. Those who worked as labourers explained that they were not happy for the following reasons:

- OilMin pays its labourers low wages. They believe OilMin deducts too much of the money paid by InterOil, per labourer, per fortnight, which they describe as 'cheating.'
- Some have been employed for many years but have no savings arrangement for when they finish work; they will only get finish pay. The people want an arrangement which would help them save some of their fortnightly pay.

We asked the communities of Subu 1, Subu 2, Ura and Wabo how they would prefer recruitment of labour for the hydro dam project during the two years of feasibility studies. This inquiry was prompted by complaints that some villages were being overlooked when part-time motor operators were picked from Ura and Wabo villages. We soon learned that this was just the tip of the iceberg. The people have over the years developed a strong dislike for OilMin and InterOil and the way they engage the local people. All the people agreed that recruiting of labour must be done by PNG EDL directly and not through InterOil, OilMin or the recently formed Elk and Antelope Landowner Company. Their main argument is that the two projects are different; hence the landowner company formed for the oil and gas project will not apply to the hydro project.

In a letter to the CEO of PNG EDL, Joe Miri explicitly states that the company must not involve any company working with InterOil in the hydro project. He warns that such an arrangement would destroy the local people's trust in PNG EDL.

JOE MIRI
 WABO VILLAGE,
 P.O. BOX 43,
 BAINURU GULF PROVINCE
 19TH APRIL 2011

PNG EDL / WESTER POWER.
 LEVEL 2, PACIFIC PLACE.
 P.O. BOX 503,
 PORT MORESBY NCD TIT,
 DAPUA NEW GUINEA.

SUB: DAM SITE PLO DISAGREE ELK/ANTELOPE LANDOWNER
 COMPANY TO BE ENGAGE BY EDL.

I JOE MIRI OF USEE CLAN, WABO HYDROW POWER DAM SITE
 PLO I HAVE DISAGREE THAT (YOU) EDL TO ENGAGE THE
 ELK/ANTELOPE LANDOWNER COMPANY.
 I WANT IN THIS TWO (2) YEARS PERIOD OF FEASIBILITY
 STUDIES, (YOU) EDL HAS TO ENGAGE YOUR OWN
 CONTRACTOR TO SET UP CAMP SITE BUT THIS CONTRACT
 COMPANY WILL HAVE NO RESPONSIBILITY IN THE FOLLOWING
 BASES:

- 1: NO RECRUITMENT WILL DONE BY THIS CONTRACTOR.
- 2: LABOUR PAYMENT WILL BE NOT UNDER THE
 CONTRACTOR'S PAY ROLL.

EDL MUST HAVE TO MAKE EVERY COST LIKE LABOUR PAY,
 PROVIDE PPE AND LANDOWNERS WILL RECRUIT MAN POWER.

YOUR COOPERATION AND UNDERSTANDING IS VERY
 MUCH APPRICIATED BY ME.


CHEERS


Figure 29. Joe Miri's letter

Interestingly, some women (ten in total) of the villages from Poroi to Wabo expressed a desire to work as labourers. Not surprisingly, the majority of them are women married into the Pawaia, although two of them are actually Pawaian. This is a curious prospect. Pawaian women or women married into Pawaia have never before been involved in casual paid labour. So if women are employed in the hydro project, it would be a singular achievement. In the case of single women, their parents will have to give permission for them to work, and for married women, their husbands will need to agree.

GOVERNMENT SERVICES

Government services are almost non-existent in the Pawaia area. Schools, hospitals, road networks, communication technologies, electricity, and water supply systems are hardly seen. There is no conventional road network linking the Pawaian community to the neighbouring

Baimuru LLG. The only access to the outside world is by canoe on the Purari River or by plane from Wabo airstrip. The Pawaian communities covered in this study include three council wards, nos 20, 21, and 22, all three of which share this dearth of services.

Education

There are only two primary schools in the entire study area. These are at Wabo and Poroi. Wabo has grades 1, 2, 3 and 5. Grade 4 lacks enough students to justify a class, so those students are jumped to grade 5. Poroi has grades 1, 2, and 3 only. But in 2011 the school was closed due to a lack of teachers.

Wabo Primary School was established in 1975 as a government school. It has a history of sending students to higher learning institutions in Kikori and Baimuru in Gulf Province and Karamui in Simbu Province. At one time the school had six grades ranging from 1 – 6. The school was shut down immediately after its establishment, however, for some unknown reason, and reopened in the mid 1980's only to be shut down again in 1997 by the Gulf Provincial Education Board, after the teachers left. It was re-opened again in 2001 with assistance from the Lutheran Education Agency in Simbu Province. At that time, the Simbu Provincial Government graciously provided funds and teachers for the school. Unfortunately, since then, the Gulf Provincial Government has hardly taken responsibility for its operation. At the time of our visit, there was only one teacher present. The Headmaster had left the school a few months earlier and never returned. In fact, the teacher working at the school was only a teacher's aide, but she felt obligated to step in and continue the work of teaching.

Due to the remoteness of the school, teachers find it very hard to live there. There are no proper food markets for them to buy food, and it is unreasonable to expect semi-nomadic parents to provide for teachers from their own gardens. Access to the urban centres via dinghies and airplanes is too expensive for a teacher who may earn only K300/fortnight. A 20-minute flight from Wabo to Goroka costs about K280 one way. Without a decentralised Provincial Treasury, a teacher is unable to receive his or her pay in the village every month, so they often get stranded without cash and little food. Pawaians tend to treat teachers as one of their own, thinking they can fend for themselves from the Purari River and the surrounding bushes. They are little able or aware of how to look after a civil servant from another region.



Figure 30: Grade 5 classroom at Wabo Primary School (built by InterOil in 2001)

Prior to the introduction of the LNG project into Pawaia area, there were few means by which locals could raise the cash for school fees, and the one teacher's aide suggested that some teachers who might have stayed on simply could not run the school due to budget shortfalls. It remains to be seen whether this will improve with the new free education policy planned by the National Government.

Table 11: Total sample reading skills

Read	Pawaia	Pisin	English	Motu
Yes	123 (33.0%)	135 (36.2%)	113 (30.3%)	78 (20.9%)
No	21 (5.6%)	9 (2.4%)	31 (8.1%)	66 (17.7%)
Not Applicable	229 (61.4%)	229 (61.4%)	229 (61.4%)	229 (61.4%)

Table 12: Ability to write

Write	Pawaia	Pisin	English	Motu
Yes	108 (29.0%)	128 (34.3%)	113 (18.8%)	70 (18.6%)
No	36 (9.7%)	16 (4.3%)	31 (8.3%)	74 (19.8%)
Not Applicable	229 (61.4%)	229 (61.4%)	229 (61.4%)	229 (61.4%)

Poroi Primary School was established in 2000 by John Tamape Kilauman, a Lutheran missionary from Simbu. Pastor Kilauman was a Grade Ten graduate from Muaina Provincial High School in Simbu Province, who was engaged by the Lutheran Church in Simbu as a lay pastor. He and his family arrived in Poroi village in 2000, and immediately saw the need for education. He decided to start a Tok Pisin school. Instead of starting a church, he began with his school, which paved

the way for literate converts when he did establish a church. Today there are two teachers at Poroi Primary School. This school used to be an Elementary School but in 2010 they started Grade Three classes, thereby elevating its status to Primary School.

The Poroi Primary School is fully funded by the Simbu Provincial Education Department. Its teachers are paid under the Simbu Teachers payroll and the school subsidies and materials are also obtained from Simbu Provincial Government. According to John Kilauman (now the Headmaster), he approached Gulf Provincial Government for support but was repeatedly refused by provincial authorities. The Gulf Administration's stand, he told us, was that because Pawaians are nomads, any physical infrastructure would be a wasted investment.

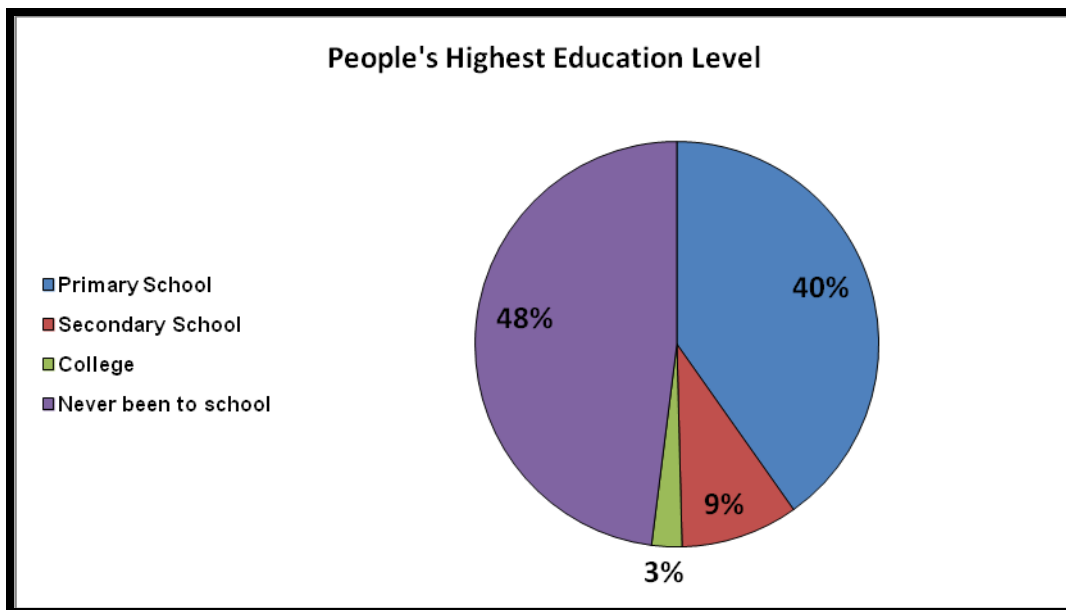


Figure 261: Highest Education Level Attained



Figure 32: Poroi Primary School buildings with volleyball court in foreground (funded by SPG)

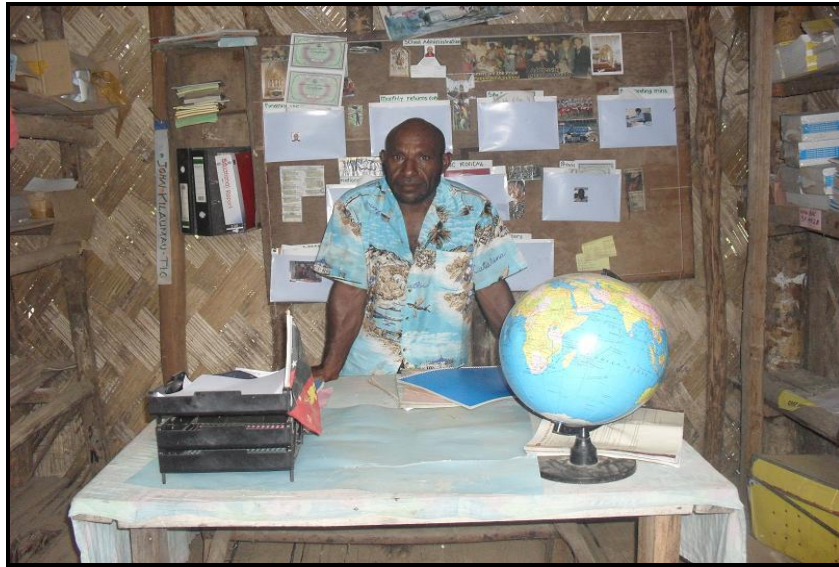


Figure 27: Poroi Primary School Headmaster, Mr. John Kilauman

Given the poor government support for the schools in Pawaia area, many of their facilities have deteriorated. Often there are no study materials for the students and teachers rely on outdated or inappropriate materials to prepare their lessons. Schools are and have always been closed frequently for a lack of teachers, or school subsidies, preventing more than two generations of Pawaians from reaching any higher level of education. As seen in the pie chart above (Figure 31), approximately 90% of the people surveyed have never passed the primary education level. More than half (48%) of this group has never been to school. The Pawaian people themselves have expressed great dissatisfaction with the government over this negligence.

Health

There were only two Aid Posts identified in this study. One is located at Wabo station, and was built by the government when Wabo station was first established. Much like the schools, however, it lay dormant most of the time until InterOil arrived in 2000. InterOil started subsidizing the operation of this aid post by providing medical supplies, the transportation of sick patients, and most importantly, Community Health Workers. Wabo Aid Post formally re-opened in 2008 and has been in operation since. However the current Health Worker is often away most of the time for family commitment and other personal reasons.

According to Seio Siwi (longest resident migrant at Wabo), the Lutheran Church was running the Aid Post before InterOil took over. At that time, all medical supplies were obtained from the Goroka Base Hospital and airlifted to Wabo by MAF planes. But the medical professional sent to Wabo from the Lutheran Mission in Goroka did not remain there. He left after barely a few

weeks of operation and never returned. InterOil's medical staff now works on Mondays, Wednesdays and Fridays and attends to patients that show up at the Aid Post on those days. The company airlifts its supplies from Port Moresby on their own charters.



Figure 284: The new Poroi Aid Post built in 1995 by TFI

The other Aid Post is located at Poroi and was built by the government in 1992. In 1995, Turama Forestry Industry (TFI) rebuilt the Poroi Aid Post with modern materials, including an aluminium water tank, and donated a VHF radio. The Community Health Worker (CHW) located in Poroi is from Poroi and has been running this Aid Post since its establishment. His radio is still working--but the water tank eventually and was removed. The three radio channels they receive include: (1) the health channel –for contacting the Area Medical Service (AMS) in Badili, Port Moresby, to obtain medical supplies, or Kerema Hospital, Kapuna Health Centre, and/or InterOil's Medical Department; (2) the phone channel –for contacting anyone with Digicel and B Mobile phones; and (3) the logging channel–for contacting the RH Purari Base at Evara, some kilometres downstream.

Government input to maintain this strategically important service has, until recently, been almost non-existent. Just this year, the local Member of Parliament, Mark Mapaikai, initiated a Sub-Health Centre project which is now under construction at Wabo Station. It is believed that this Health Centre will be in operation by the end of 2012⁹. The MP also donated corrugated

⁹ According to the Kikori District Health Services, this health centre was not initiated by the district but was political project begun by the sitting MP, Mark Mapaika.

iron sheets and a tuffer-tank to Poroi Aid Post in 2010. According to Jomu Poari (the CHW), the MP further promised to build two staff houses for the Poroi Aid Post. And yet the two aid posts are not enough to address all the health needs of the Pawaia people. In fact most of the Pawaians’ basic health needs are rarely met by these two posts. Poroi Aid Post, for example, is some hour’s canoe ride from the nearest village, Subu 1; and Wabo Aid Post is about a day’s canoe ride from Uraru village.

It should be noted that almost all the villages covered in this study are located by the banks of the Purari River banks and use it for drinking, washing, cooking, and fishing. Drinking from this river may have significant effects on their health and hygiene, as the river flows from the heavily populated highlands into this lowland region. Being close to the river also makes these people vulnerable to water-borne diseases such as malaria, typhoid, and diarrhoea. Many homes do not own mosquito nets, which add to their vulnerability.

According to the CHW at Poroi Aid Post, medicines such as paracetamol and aspirin, both analgesics (pain killers), are the two drugs that deplete most quickly. These are closely followed by the anti-malarial drugs like chloroquine, artimether, and fansidar. Anti-diarrheal, albendazole and tinidazole also run low. Tablets and capsules for the adults and suspensions for the children less than five years old are also in short supply.

The line graph below affirms that water-borne illnesses such as diarrhoea, upset-stomach and malaria are popular among the Pawaians surveyed. It is highly unlikely that the sick patients are able to access the appropriate medical treatment because of their distance from the aid posts.

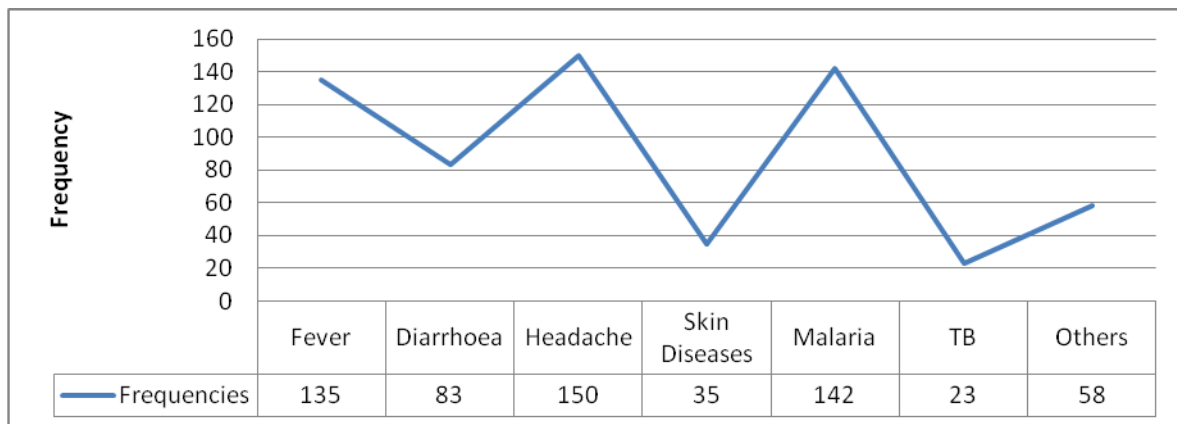


Figure 295: Common sicknesses among Pawaians

The bar graph below clearly shows that more than 70% of the people surveyed in this study seek medical attention from the nearest aid post when sick. However the aid posts’ capacity to cater to the growing community is very precarious and most medical supplies are exhausted before anticipated.

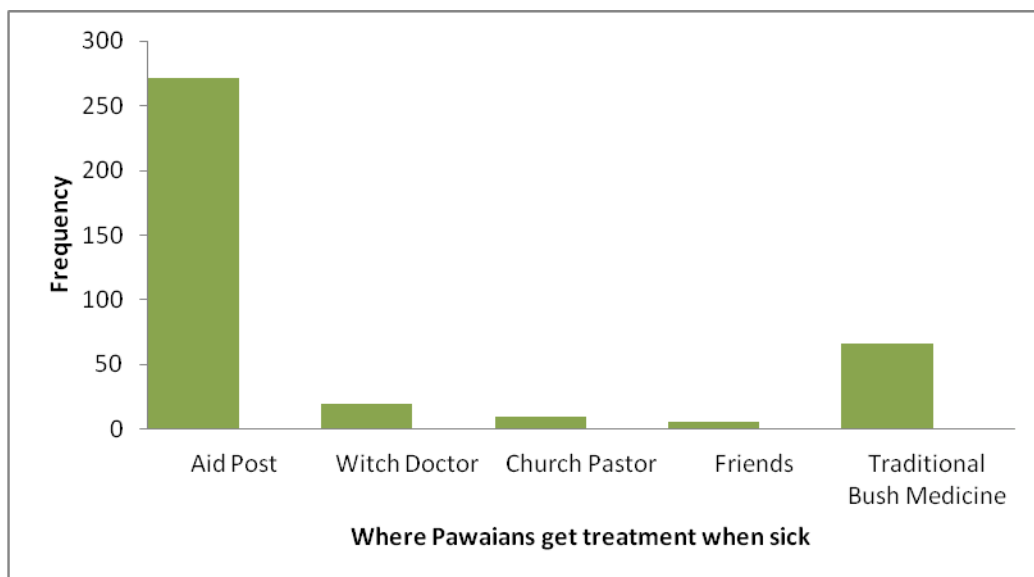


Figure 36: Where Pawaians get treatment

Apart from common illness, the major health concerns involve women giving birth in the bush and without proper supervision. Many Pawaian mothers die from complications during childbirth. The causes may be excessive bleeding, breech delivery and/or retained placenta. One informant, Koia Ikoai, told us: “I can remember two mothers who died during delivery this year, in January and July respectively.” The one who died in January died alongside her newborn.

Below is the testimony of Simon Poari, younger brother of the Community Health Worker (CHW) at Poroi aid post:

Bipo sik pulap lo hia, nogat haus sik, nogat marasin lo kisim long taim blo sik. Ol mangi na meri save sik klostu klostu. Mi no save wai. Meri blo mipela save karim ol pikinini lo bus na sampela taim sampela pikini na mama tu save dai. Ol save mekim olsem yet na dai yet. Gavaman em blo ol lain to taon na sampela lain lo sampela hap. Mipela, ol Pawaia, nogat gavaman bilong mipela. Hau mipela bin stap, em mipela stap.

[Before, there were a lot of sicknesses here, no hospitals, no medicines to get when people were sick. Boys and girls got sick often. I don't know why. Our wives often delivered babies in the bush and sometimes some mothers died with their babies during delivery. They are still doing this today and are still dying. The government is for the ones in town and for those people who live in another place. We, the Pawaians, have no government for us. How we lived, is how we are living today.] ----Simon Poari, male: 45, Poroi Village

Transport and communication

The primary means of transportation between the different villages is canoe on the Purari River. Canoeing on the Purari River requires substantial knowledge of the river system. There are parts of the river which are shallow and rocky, and where the flow is too fast and rough for a canoe to pass easily. On our way to Uraru from Wabo, we passed several such rapids. At one, which was quite dangerous, we were assisted by InterOil Community Affairs' dinghy, which kindly offered to share our weight through these rough waters. Even though we'd hired an extra motor canoe, it still appeared that we were overweight. Needless to say, it requires an experienced skipper to navigate many parts of the Purari. Early in 2010, seven people drowned after their motor canoe was split open by the fast flowing river. They were travelling to Wabo from Uraru, after attending a New Tribe Mission's conference.

Despite the risks, Pawaians depend almost entirely on the river system for transporting building materials, as for gardening, hunting, going to school, travelling to aid posts and visiting relatives. The river is the central communication and transport artery through the area. Even InterOil and RH depend on the river system for their operations. RH uses the river to transport all its harvested logs to Vailala for processing and exporting. InterOil uses the river to bring in fuel drums and equipment to its operation sites. The RH company representatives at Evara pointed out that any drop in water level would severely affect their operations.



Figure 30: Students from Ura Village paddling across the Purari, back from Wabo Primary School

The Wabo airstrip has been the one link to the world beyond the Pawaians' local borders. Since its establishment, Pawaians have hosted people from other parts of Papua New Guinea, and occasionally travelled out to other provinces themselves. Currently InterOil's Airlines PNG charters land almost daily and MAF makes two flights per week – Mondays and Thursdays. Travel by speedboat to the provincial capital of Gulf Province, Kerema, takes 2-3 days and is prohibitively expensive, at more than K1000. According to the migrant settlers at Wabo station, it was the Lutheran mission, through MAF, that originally managed the airstrip and kept it functioning until the arrival of InterOil, which currently maintains it.

Courts

Rural PNG societies depend upon customary legal systems, and these may involve councils of elders or individual clan leaders passing judgment on antisocial behaviour and administering punishments and/or compensation payments. Customary jural systems are based on the principle of restorative rather than retributive justice, which depends upon making settlements rather than meting out punishments and/or rewards. The Village Court system of Papua New Guinea was designed to apply this kind of justice to the parliamentary system by creating regular mediation scales and introducing Village Court Magistrates, Councillors and Village Committees. In the Pawaian villages studied, however, we found only one appointed Village Court Magistrate, in Poro 2 village. In all the other villages there are local Ward Councillors and Village Committees, appointed by the Councillor, who mediate disputes.

More than 65% of the Pawaians interviewed in this study have never stood before any court. This doesn't mean that they haven't committed any crime or any serious offence, only that they have never had their actions brought before a court. We were told of serious offences committed by Pawaians in each village which have never been mediated. Self-confessed offenders have never been prosecuted, either. The most common offences are stealing (24.9% of respondents), fighting (35.9%) and wife-bashing (35.7%).

Like the tribal fights in the highlands region, Pawaians fight over perceived injustices, inequities and indignities to other persons or clans. Most often these disputes are about land, women and stolen property. Wife bashing is not necessarily considered a serious offence in the Pawaia communities. As their husband's possessions, wives are not considered separate entities with their own rights. In the words of a 45 year old male from Wabo, "*Mi baim em pinis olsem na mi laik paitim em, mi ken paitim em,*" (I paid for her already, therefore if I want to bash her, I can bash her).

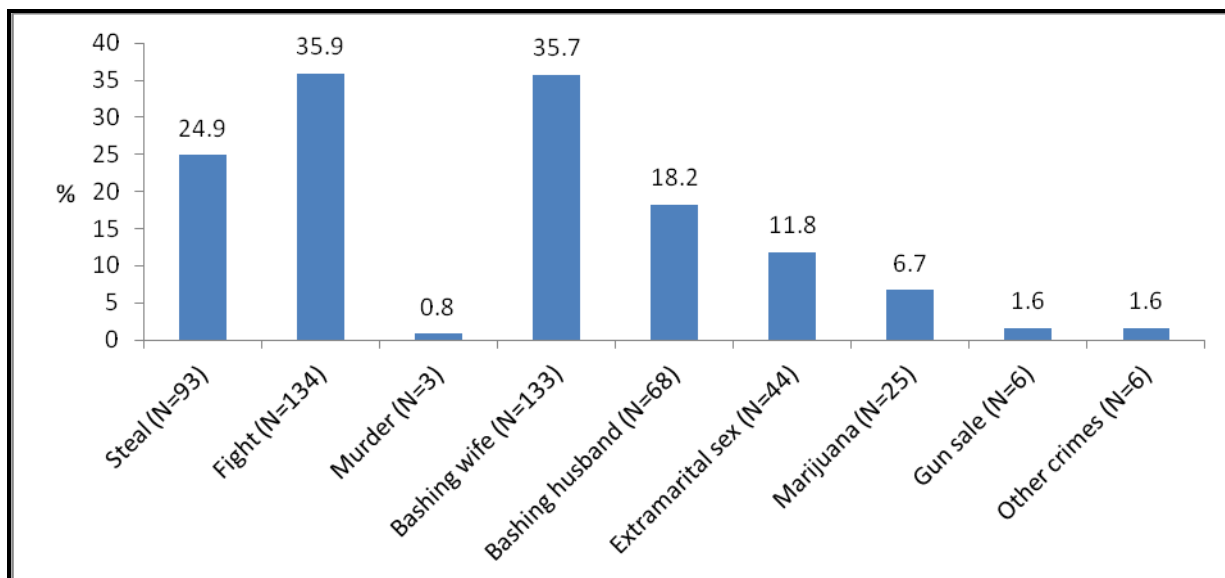


Figure 3831: Common crimes

Respective government agencies responsible for overseeing village courts in the Pawaia area have failed grossly in their tasks here. The Councillors and Village Committees have certainly tried to administer their own perceptions of modern law, but their resources and authority are limited. They apply idiosyncratic customary laws on a case by case basis, which means that judgements change at different places and times.

It is also important to note that observers of the Village Court system in PNG (see Goddard 1992, 1996, 2000, 2004, 2005) have long lamented its gender bias. Restorative justice never serves an in-married female. If a woman has been raped in her husband's community, for example, a village court will find restoration in the rapist compensating her husband, but she will not only miss out on any compensation but may even be accused of inviting the act to foment social friction. In the case of extreme gender disparities, as in the Pawaia communities, there is likely to be little or no 'justice' accorded women.

OTHER SERVICE PROVIDERS (CHURCHES, NGOS, COMPANIES)

The absence of government's physical presence in the Pawaia area has left a real vacuum for third party service providers like churches, commercial enterprises, and other NGOs, to establish themselves. The dominant Christian denominations in the Pawaia area are the New Tribe Missions and the Evangelical Lutheran Church of PNG (ELCPNG). Both have church buildings in almost all the villages included in this study. These churches played a significant role in establishing basic social services, both educational and health-related. For example the elementary schools in Wabo Station and Poroi Village were established by the Evangelical

Lutheran Church of PNG (ELCPNG). Through the Lutheran Church the Missionary Aviation Fellowship (MAF) provides two flights every week (Monday’s and Thursdays) to Wabo Airstrip. The New Tribe Mission, through the Summer Institute of Linguistics (SIL) based in Ukarumpa, Eastern Highlands Province (EHP), has translated the Bible into the Pawaian language, which is an important stepping stone for literacy.

When we engaged each community in drawing their own Venn diagram of services and their influence, each community identified the churches as having the greatest influence on their lives. Pawaians see churches as having far more positive impact on their social welfare than the government. Multinational corporations and companies that have entered the Pawaia area recently have had more immediate impacts on community life. The Malaysian logging giant Rimbunan Hijau (RH) started logging on Pawaia land and has its Purari Camp base at Evara. This base has been a beacon of modernity in the midst of the Purari jungle. Recently RH moved to the east bank of the Purari River just opposite Poroi Village. According to David Khan, the RH Purari Camp Manager, RH has more than 40 years’ logging concessions and will be harvesting trees in these jungles all the way upstream. RH pays royalties and provides employment to the local Pawaia people; it also operates trade stores at their sites and thus introduces manufactured goods to increasingly more remote Pawaians as their operations move upstream.

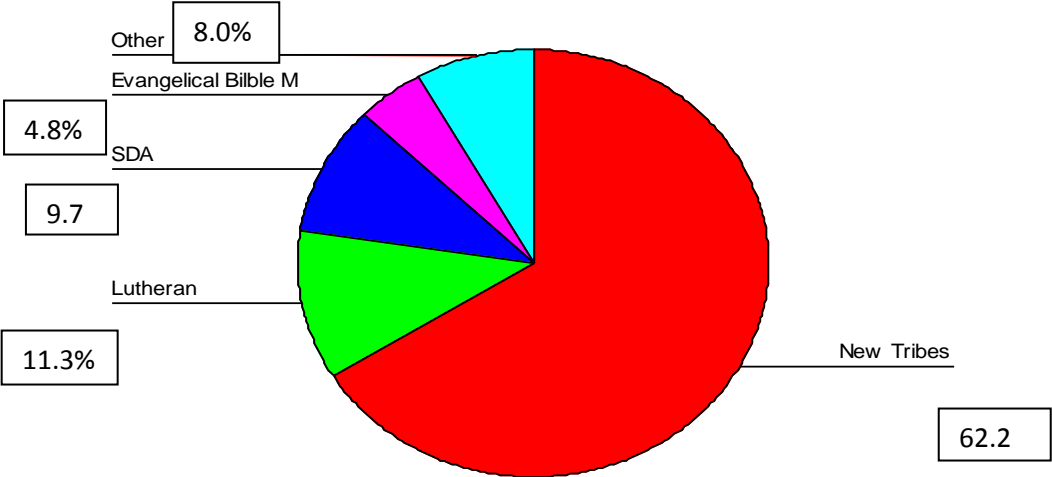
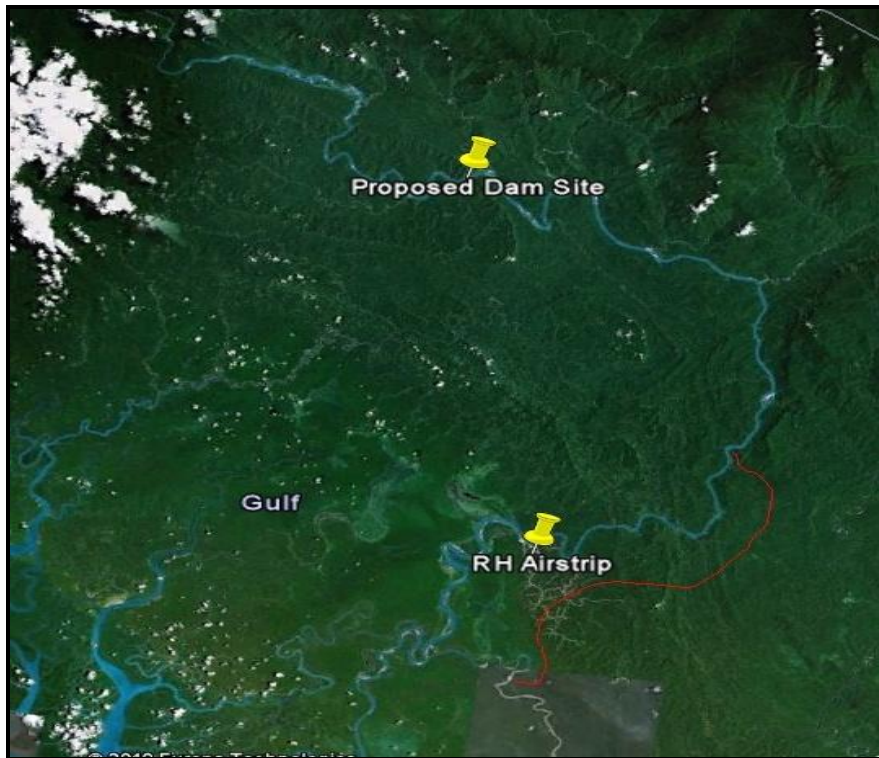


Figure 39: Informants' church memberships

RH built an airstrip few kilometres downstream from Poroi No. 1, which is used only by RH-chartered Tropic Air planes. They built a road network linking its operational base at Poroi (on the eastern bank) to its sites. Pawaians themselves hardly use these transport routes as they have no vehicles and no cash for airplane flights.



Source: Google Earth

Map 10: RH logging operations road (red line an estimation) in the Purari Basin

RH's sister company Turama Forestry Industry (TFI) assisted the Poroi Aid Post by replacing the bush material building with modern building materials. TFI also installed the VHF radio and water tank at the Aid Post. Though the building is a great help to the Pawaians in Poroi, it falls short of meeting standard Health Department building requirements. The Aid Post has no shelves to keep drugs, or cool store room for the all-important vaccines. There is no ventilation for keeping drugs 'cool and dry' either, and the medicines are kept in boxes piled on top of one another. As a result, many have decayed and lost potency in the humidity. The Community Health Worker (CHW), Mr. Jomu Poari, tries his best to look after this facility but he requires more material support¹⁰.

¹⁰ The CHW no longer works at the aid post. He is now on the Board of the Elk and Antelope Landowner Company and lives in Port Moresby with his family.



Figure 40: Boxes of medical supplies inside the Aid Post at Poroi.

InterOil is also increasingly making its presence felt among the Pawaian communities. Hundreds of Pawaian men are currently working on InterOil exploration sites. Within the Pawaian land boundaries, InterOil has four drilling sites, several explorations and two operational bases. The base located some kilometres downstream from Poroi 1 is a proposed gas stripper plant. Gas will be transported to Kerema via pipeline from the plant. On our visit to Ura village, we witnessed InterOil recruiting 54 able-bodied men to work at one of their exploration sites. These men earn about a thousand kina per month, enabling them to buy basic goods like rice and clothes, and even luxury items like radios.

InterOil provides medical orderlies and supplies for the Aid Post at Wabo Station. Medical supplies are ordered and collected from the Kerema General Hospital, and are usually airlifted from Port Moresby (POM) by InterOil by their chartered flights. According to the CHW, Mr. Poari, orders for new medical supplies are usually placed every two months. Sometimes Telikom helps the Aid Post to obtain new medical supplies from the Area Medical Store (AMS) in Badili, Port Moresby. InterOil also provides transportation for the public servants in Wabo (CHW and teachers) on their chartered flights. According to Councillor Keneai So'onai, every Monday and Friday InterOil's medical staff now makes rounds to the villages, a very important development.

Recently, representatives from TST Trading in Port Moresby have been visiting the Pawaian communities. In some instances they have distributed cash to the local leaders and elites. At one group meeting with the men at Wabo village, the locals were asked about TST's interests in the area, but no one seemed to know anything. The Wabo men all appeared dumb-founded. Someone then shouted, "*Oi lain husait yu sapatim TST, yupla toktok nau*" (Those TST supporters should speak up now). According to Councillor Keneai, "TST is helping the local

community to register their land, get a land title and form an Incorporated Land Group (ILG) for the Pawaia people.”

It was the local elites (Albert Kerut, Andrew Joubé and Peter Kironi) who introduced TST to this area. However it appears that the villagers remain divided in their allegiance for and against TST. It was reported to us that TST bought a 75 horse power motorboat and that was kept at the home of Max Pero, a Ura village man. We were also told that TST handed out about K4000 to the villagers at Wabo in 2010. TST involvement seems to be at its infancy, and it appears that its presence in the Upper Purari is primarily to help the Principal Land Owners (PLO) register their land and establish an Incorporated Landowners Group (ILG), in return for which they would receive some percentage or royalties from resource projects. Details of these arrangements were unforthcoming during our visit, but worth exploring in the future¹¹.

These companies (RH, TFI, and InterOil) have contributed immensely to local service provision. The Pawaians value these companies and hold them in high regard. None of these operations are charities, however, and they’ve had a collective investment of billions of kina in the area--- investment for which, it should be remembered, the Purari people will never be able to repay in kind without losing valuable resources or customary land rights. RH has about 20 more years of logging concessions to harvest, and InterOil has four LNG drilling sites within the Pawaian land boundaries. Clearly, their role in subsidising basic social services is part of their voluntary corporate responsibilities, but such responsibilities have their limits, and it remains to be seen what the government will do to pick up the slack.

Influence of different institutions and organizations in the study communities

Venn Diagrams are used in this study to describe and explain the influence and relationship of different stakeholders in the project’s impact areas. Members of each Pawaian village covered in this study were engaged to participate in drawing these Venn Diagrams. The study team only facilitated the discussion to extract the relevant information. We are there to ensure that the final output of the diagram was a fair portrayal of the villagers’ perceptions.

The biggest circle in each diagram represents the village. Other circles represent other stakeholders that exert certain level of influence on the society. The size of the circles represents the scale of its influence on the village. If the circle representing a stakeholder (e.g. church) is bigger, then it depicts the fact that the institution has a bigger influence over the studied community than a smaller circle. The distance between the circle representing the village and the circles representing other stakeholders reflects the proximity of that

¹¹ No representatives from TST have come again to the area since their last visit in December 2010.

stakeholder's location to the village. The final diagram represents vividly how the respective Pawaian villages perceive their relationships with various stakeholders who have some association with their village. We discovered that Pawaians' perceptions of certain institutions are equal in some places and widely variant in others, such as the National Government and the local Church. Below is the Venn diagram for Uraru village, which is located about 23.5 kilometres upstream from the proposed hydropower dam site.

Venn Diagram for Uraru Village

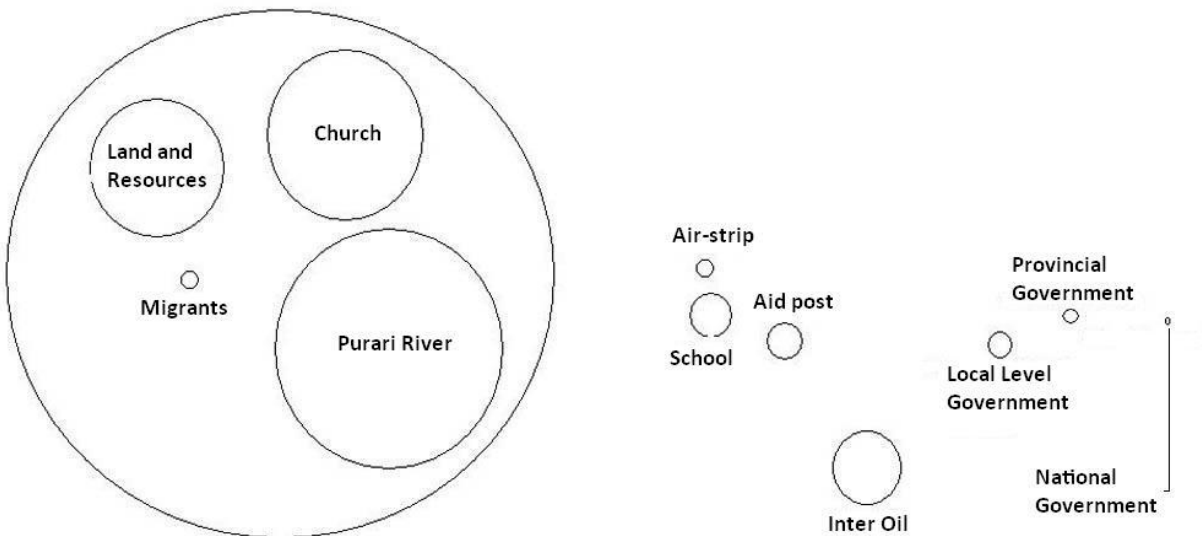


Figure 41: Uraru Village institutional relationships [village represented by largest circle here]

The things that Uraru villagers' perceived to be very closely associated with their community were the surrounding environment, the Purari River, their Church and the migrants. According to the villagers, their daily livelihood depends on the surrounding environment. That includes sago palms, trees, forest, mountains, creeks and land. It is their supermarket, security, pharmacy and piggery. Absence of basic health services in Uraru has also made the people especially dependent upon traditional bush medicines. Hunting is an important aspect of their livelihood; the nearby bush provides the main protein sources such as pigs and cassowaries. Therefore, the circle representing the environment (land and resources) is placed inside the big circle representing Uraru village. This reflects how closely they relate to their environment. However the size of that circle is a bit smaller than the one that represents the church and Purari River. This suggests that the influence of the Church and Purari River are paramount, or that they like to believe these are paramount.

The Church's influence in Uraru is significant. The New Tribe Mission has been in Uraru since 1963 and is a key player to this village's exposures and development. They built an airstrip (now abandoned) there in 1963 which was probably the first and only time some of these villagers saw an aeroplane. The Church translated the Holy Bible into the Pawaia language and taught the villagers basic literacy skills to read it.

The river forms another major influence. As someone in Uraru told us, "*Wara Purari em laip ya,*" – meaning, the Purari River is our life. Daily survival depends on the Purari River, which is only metres away from the village. This is the main highway to gardens, hunting sites, school, aid posts, airstrip, and the InterOil station. All the nearest basic public services are located downstream at Wabo station, and the river is the only way to access these or others services.

The Purari River is also a major food source. The Uraru villagers they obtain fish, prawns, eels and other protein from it for their daily sustenance. It is used daily for washing, cooking and drinking. Hence the circle representing Purari River is bigger than that of environment in general and the church.

The circle representing migrants is located inside the big circle for Uraru Village. However it appears that the scale of migrants' influences on the Pawaians in Uraru is insignificant. A few migrants have brought manufactured goods to Uraru to be sold to the Pawaians. Some migrants live there and assist the Pawaians to construct houses, make gardens, fish and hunt, and frequent interaction between these groups has imparted new skills to the Pawaians. A new house design in Uraru includes timber walls, a feature introduced from Haia and Karamui. However, most migrants living with the Pawaians benefit more from them than *vice versa*. That is because, with endorsement of the Pawaians, many male migrants have gained employment from InterOil at the LNG project sites. Pawaians themselves see the migrants as having benefitted more from them than they have from the migrants.

The Aid Post and school are located at Wabo, which is about 25 km (over land) downstream from Uraru. It takes almost a day by canoe to reach Wabo and two days or more to return upstream. Because of the distance, the circles representing both school and Aid Post are placed outside the bigger circle. Only a few people in Uraru use these services at Wabo. For example, only one Uraru child goes to school at Wabo, and he lives with his relatives at Wabo to do so. The other school-age children at Uraru just remain in the village. The same can be said for the Aid Post. Uraru only sends a patient to the Aid Post if the illness is very serious. While this study team was at Uraru, we were approached by several sick villagers asking us for antimalarial drugs. It makes sense, then, that these villagers decided to place the two important social

services in the Pawaiian area away from their village (the bigger circle) and represent them as tiny circles.

InterOil has a significant influence on the villagers at Uraru., providing employment to the menfolk. These men earn about a thousand kina every month. Some women also sell vegetables to InterOil's mess. This money increases individual and household incomes across the village. With more cash in hand, Pawaiians are able to afford goods otherwise unavailable to them. Thus the circle representing InterOil is much bigger than that of either the Primary School or Aid Post at Wabo.

Uraru villagers have a very negative opinion of the government. As elsewhere, people in Uraru feel that the government has abandoned them for too long. Despite the fact that several government officers have travelled up the Purari River since Independence, the government has no permanent presence in the village. It established a school and Aid Post at Wabo, which is too distant to be accessible. As depicted in the Venn diagram, all three levels of government have very little influence in Uraru.

In summary, the livelihood and welfare of Uraru is primarily sustained by the natural environment, and especially the Purari River. The NTM church was built right at the center of the village in 1963 and has had significant influence on the lives of the Uraru people. The multi-billion kina LNG project has offered much-needed socio-economic benefits to the local people, and has the potential to transform their lives even more. However poor health and literacy levels, caused by government negligence, may still prevent some Pawaiians from obtaining new development opportunities.

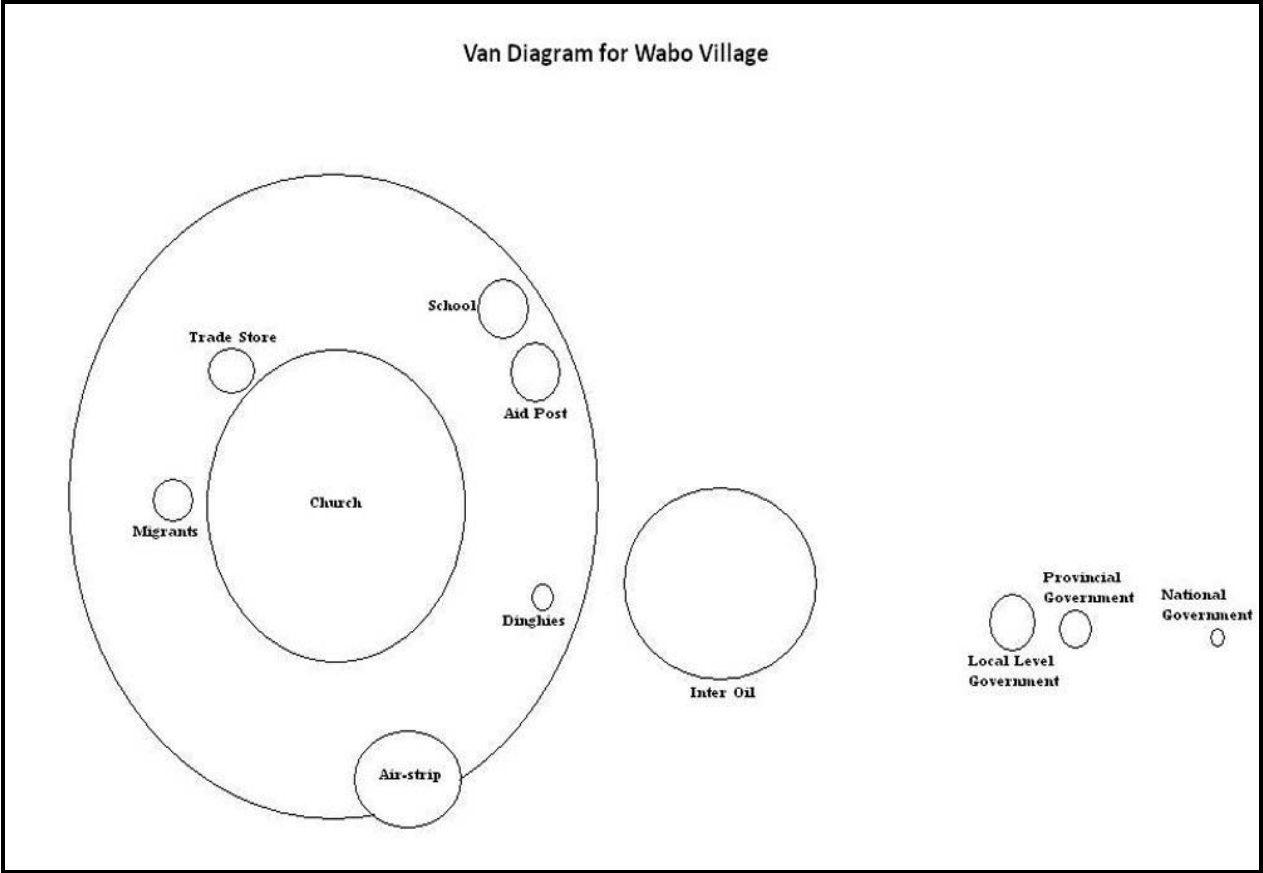


Figure 42: Wabo Village institutional relationships

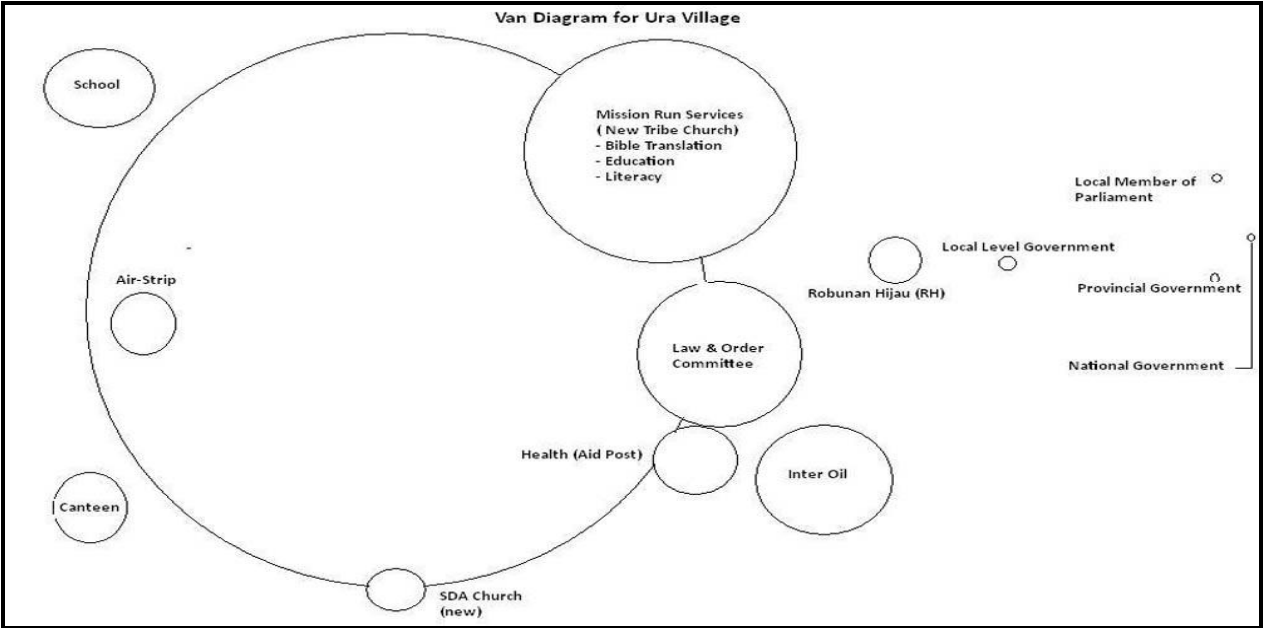


Figure 43: Ura Village institutional relationships

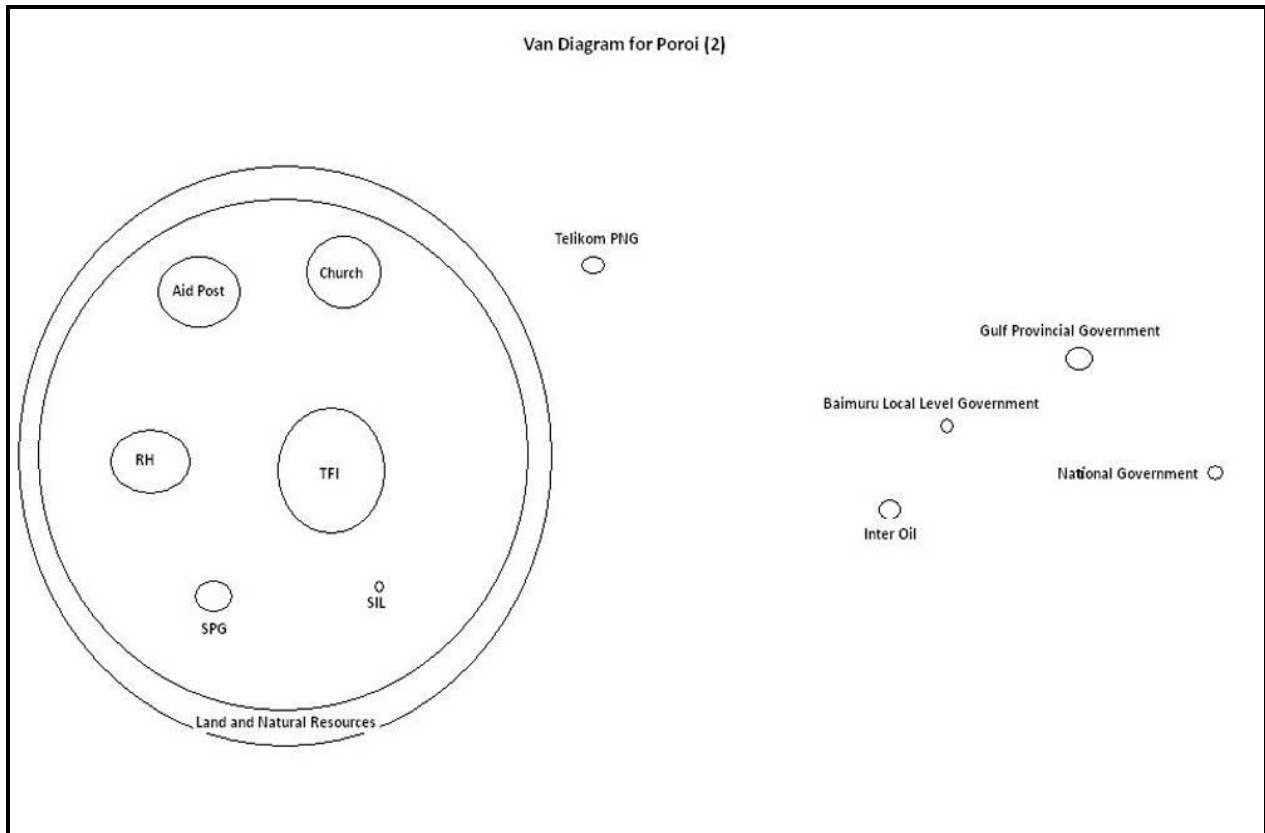


Figure 44: Poroi 2 Village institutional relationships

Generally the Pawaians feel neglected by the Government of Papua New Guinea. Recently, Prime Minister Grand Chief Sir Michael Somare travelled several times through the area on his field trips to the LNG project sites. But on no occasion did he stop in one of these villages.

Ward 21 Councillor, Kenaye So'onai of Wabo village, is also the Vice President of the Baimuru Local Level Government. However the significance of his position has not translated into a physical presence of a Local Level Government among the Pawaiian communities. The people express discontentment with the LLG, the Provincial and the National Governments. This is best summed in the words of Kanape Korobe of Uraru village:

Government officers under the Australian Administration have travelled up the Purari River. Even after PNG got its independence [1975], government representatives have travelled up the Purari River, but we haven't seen any major developments.

VIEWS ON PROPOSED HYDROPOWER DAM PROJECT

Aspirations, issues, disputes

Almost all the people in all the six villages covered in this study have agreed to have the hydroelectric-dam project built at Wabo. Their perspectives on having the dam built, however, vary from pessimistic to optimistic. An overwhelming 90% of the study's informants support the proposed hydropower project. Only 3% of the informants do not. Those who do not, expressed concern primarily over about the environmental impact of the project. The Purari River system and its surrounding environment is their life line. As with many other developments in the country where resource owners have raised their concerns, Pawaians fear that their subsistence base will be lost forever.

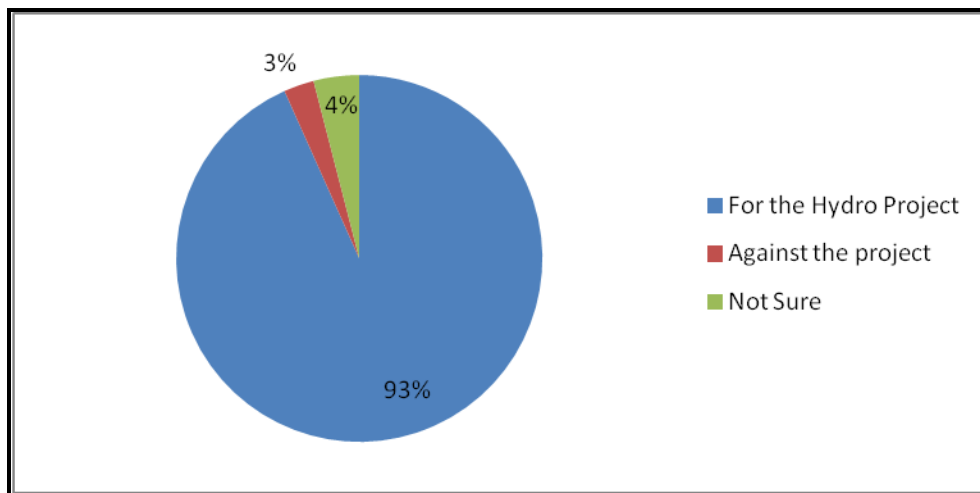


Figure 45: Support for/opposition to the Hydro-dam Project

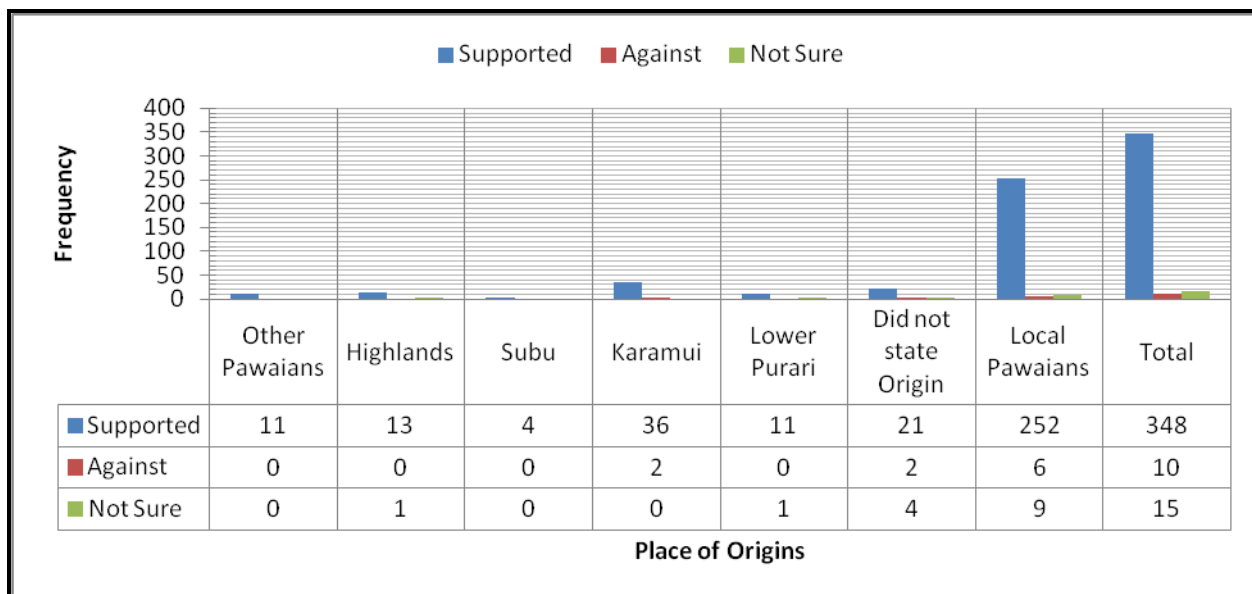


Figure 46: Support for/opposition to Hydro-dam Project by village

Most of the informants in this study were optimistic and told us they saw this project as an opportunity for them to develop. They want basic government services like schools, better health care and roads. There is bitterness and frustration on the part of Pawaiians regarding the continuous negligence of the government, and they see the proposed hydro-dam project as an opportunity to bring services that the government has failed to do for the last 35 years. Companies such as RH, InterOil and TFI who have been in the area have failed to fill that vacuum sufficiently and the Pawaiians now look the hydroelectric dam project as a last chance. Max Kindua, male age 33, told us: “We haven’t seen any modern development since Independence, so we support it. It is a long lasting project.”

One male participant from Poroi village emphasized that the people in the Pawaia area have never received any help from the government so they need the company to help them develop. Anua Mataio, male, age 30, said: “For so long, we have been neglected from the services, we want development and services in our villages and area.”

Below are select quotes from our survey respondents:

“I agree with the project because I will surely have a better future in terms of services; roads, schools, and aid posts”--- Amos Henn, male, 19.

“We have inefficient services in this area, I want the dam so the company can provide them instead of the government”-- unnamed male, 34.

“Because, I saw it [the dam project] as a means of earning income to serve my children”—Unnamed male, 66.

“I want a change in my way of living”--- Mary Aima, female, 34, Subu village

“It is good because it [the dam project] is bringing new services to the younger generations”--Yowai Turai, male, 68.

“Life here is very poor, we see the dam project as an opportunity to develop”--- Mataio Kawai, male, 65, Wabo village.

“We have been suffering for so long without development therefore see this dam as an opportunity to develop”--- Saka John, male, 38.

“Because my village is so isolated and I want to see change happening to my village”-- Ben Monai, male, 14.

“The project will change this place”--Silas Turai, male, 21.

“I want services like health and education. Improving living standards by providing tanks to collect fresh and clean water”-- Unnamed male, 50.

“Mipla tait lo paitim saksak lo hot san na rain, mi laik malolo na kaikai rais na tin pis liklik”, (we are tired of beating sago in hot sun and rain, I wanted to rest and eat rice and tinned fish)--Sarah Michael, female, age unknown, Subu 1 village

“Ha karou’ye po’o seuro narime ali naisi hairoi’e” ---Mi laik kaikai rice, mi les long paitim saksak, mi laik stap nating na kaikai rais tasol – I wanted to eat rice, I don’t want to beat sago, I just wanted to relax and eat rice only—Unnamed female, 18, Wabo Village

The dam will inundate a huge portion of their customary land which for generations has been the basis of their survival. Traditional hunting grounds will be lost. Sago palms planted by their ancestors will be lost forever. The project poses a threat to the very existence of the communities in question. Traditional graveyards will be covered by water. As O’oidai of Uraru told us, “We didn’t live on money but our daily livelihood is purely dependent on our surrounding environment and the river system.”

Those living downstream of the dam site expressed their fear of flooding if the dam were to break. Seeing the speed and size of the river and the daily human interactions that it hosts, we appreciate their fears. Many doubt whether the construction itself could contain the force of their river. What will happen to water transportation below the dam if the levels were to drop?

They've also expressed concern that a drop in water levels will affect the aquatic resources such as fish, prawns, and eels. One male participant, age 49, from Poroï village, said: "There will be destruction of the river systems, the fish and everything in Purari River and those that depend on it."

Rimbunan Hijau (RH) representatives stated unconditionally that blocking the river upstream would affect their daily operations. These individuals were not reluctant to point out that the company may have to cease operating, as a drop in water levels will make transportation of logs to the coast more difficult. Closure will affect the local people's employment base and landowners' royalty benefits. InterOil's representative also told us that anything that happens to the local landowners will also affect their operation. Should the Pawaians be relocated or displaced by the hydro-dam, it will affect the company's operations. They are currently building a gas stripping plant downstream which will pipe gas to the coast, and they expressed concern that this operation might also be affected by a drop in water levels.

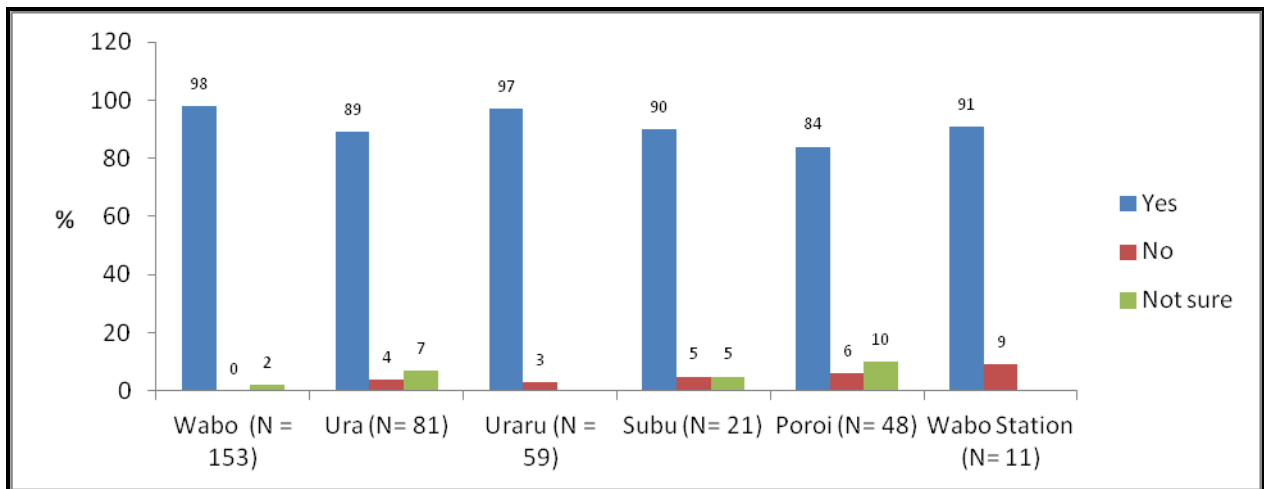


Figure 47: Number of Informants in support of Project by village

According to figure 51 (above), of the 153 participants from Wabo, 151 (99% of the village sample and 41% of the general sample) support the dam project. In all the villages, the support is overwhelming. One man for Wabo said: "Because I am a landowner, I will claim royalties," (Manai Sowori, male, age 50)

Those who have gardens close to the Purari River and sago palms that will be inundated are expected to be compensated. Compensation payments are attractive enough to these landowners to ensure their consent. Others, for example migrants from the Upper Pawaia, observed that this dam will ease the problem of transportation as well. Instead of walking for days across mountains and jungles to reach Wabo, they will be able to ride a boat from distant locations like Haia.

Most Pawaians who participated in this study stressed that they wanted a new way of living. They want development. They want an easier, modern way of life: to eat processed food and travel by motor canoe; to fly on an airplane; visit Port Moresby; educate their children; and wear western clothes. An eighteen year old young woman from Wabo village told us in Pawaia: *“Ha karou’ye po’o seuro narime ali naisi hairoi’e”* (--*Mi laik kaikai rice. Mi les long paitim saksak, mi laik stap na kaikai rice tasol* – I want to eat rice. I am tired of beating sago, I just want to stay and eat rice only.)

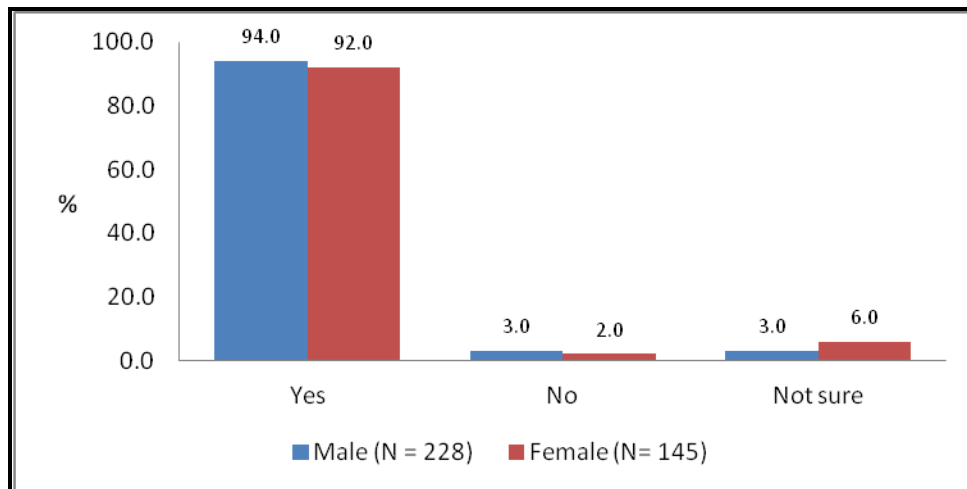


Figure 48: Informants by gender who support Project

Jope Pikepe, a 50 year old woman, told us: *“Mipela laik kisim moni na stap gut lo ples”* (We want to get money and have a good life in the village).

Male participants have similar reasons to support the proposed hydro-dam. Basically, they want the dam to be built so that they can benefit from royalty payments and other spin-offs. One of the young men stated that the project will create a lot of jobs and that he was happy to participate in the development of the project. “I am very excited about the project as it will create employment and I will participate in the project”, said Alex Yomane (age 24). He explained that he wanted to work for a fixed income and be able to travel outside Pawaia territory.

Nearly all the women participants (n = 134) want the proposed dam to be built. As the primary food providers for their families, they hope for an easier way of life. Sarah Michael from Subu 1 village, when asked about her opinion on the proposed hydro-dam project, said, *“Mi les pinis lo kaikai saksak, na tu rain i save wasim mi lo taim bilong wasim saksak* (I’m tired of eating sago and I also prepare sago during rainy days).

Most women beat and wash sago even in all weather conditions including heavy rains and searing sun. Sometimes they fall sick from the strain which suppresses their immune systems. Their complaints include back and headaches, and fever, none of which are healthy for women of childbearing age. Their major recourse is traditional bush medicines. When we spoke to them, they expressed a desire for better health services, and assumed that the project would transform their lives in this way. One female from Wabo village said:

We want to live a better life. We want to get medicine from the hospitals and not bushes all the time. And also it might bring changes in the lives of the Pawaia people, especially the mothers and the young girls.

The women who have married land owners of the proposed dam site are behind their husbands in support of the hydro project. They believe they will receive more benefits than other women in the village. Heia Jomba, who is married to a land owner from Wabo village, happily reported, "Because I am married to a landowner, I can live a better life later."

Only 10 (2.7%) participants were against this idea of the constructing the dam. Only 2% [n =3] of the women who participated in this study told us they do not want the project to be built in their area. These women's concerns were related to the possible environmental impact of the hydro dam. They don't want to lose the forest and the rivers. There were also seven male participants who were against the project. Wehua Soena from Subu 1 village told us:

I won't support this project because I think the benefits would not be shared equally. More benefits will go to the people in Ura, Wabo and Uraru.

Wehua believes that benefits of the project will not be distributed equally and not all the villages will be participating in the spin-off business activities. This kind of inequity may certainly ignite social problems. He was concerned that the villages downstream will be negatively affected but the possibility of bias representation in decision making is more than likely. Such concerns are legitimate and well-considered.

Some of those who do not support the project say they do not understand the environmental laws and regulations of hydro projects in PNG. They were not given the necessary information to decide, they told us. As one 29 years old male participant said:

I am not sure, because the Government officers should conduct meetings with the LO's and inform us of the environmental laws and regulation of hydro projects in PNG. Government to tell us (landowners) what benefits and what services to be provided to impact villages.

Another participant (male, 32) stated that he wasn't really sure about the company's (PNG EDL) terms and conditions. Still another claimed that it was just a waste of time doing research when nothing might be done; she said the real construction of the dam might take 5 – 10 years.

Fifteen participants remained neutral. They did not take a stand on whether to support the project or not. Of these 15, one claimed that she wasn't sure because there was a lack of awareness and information on the proposed project. She had no idea of what was going on between the government, the company [PNG PNG EDL] and this study team. Therefore, she recommended that adequate awareness and information should be provided to the Pawaians before other feasibility studies began and before the final agreement is signed. Then the people would then be in a better position to make decisions. In addition, she said, the government and the company wouldn't be blamed as much for negative repercussions during the preparation or construction of the project.

There are many migrants living in the Pawaia villages of the study area. They constitute stakeholders of another order, and as such their views on the proposed hydro-dam project are also, if less so, important. Migrants have arrived in the Pawaia villages through several ways. Some arrived to visit their Pawaiian in-laws (married to their sisters or daughters); others to visit their cousins. Some arrived as missionaries or public servants and decided to settle permanently. There is also a new wave of migrants who are just there to seek employment and business opportunities created by the LNG project. In total, 54 migrants, both male and female, were interviewed for this study. Generally, they support the proposed hydro-dam project. They hope that construction of the dam will improve the overall living standards of the Pawaians and themselves. As Seio Siwi, the son of the Lutheran missionary from Kerowagi said:

My parents and I arrived here [Wabo Station] 16 years ago. At that time, I was a teen but now I am grown up already and still there are no changes to the basic public services here. I think the presence of the dam might bring some changes.

Elizabeth John, a Southern Highlander living in Poro 2 village, believes that the hydro-project will bring opportunities for employment and other spin-off ventures. Several migrants from Karamui in Simbu Province said that the construction of the dam would create possibilities for ferry boats on the dam to transport people and cargo from Karamui to Wabo, and vice versa. According to an Eastern Highlander who has been in Wabo village for only three months, the Pawaians have been left behind while the rest of the country has advanced. The hydro-dam is a big project and will open up doors for more and better services to the Pawaians, he told us. It is to be expected that migrants support the project. Not only have they traveled to the area for economic reasons, but they have no vested interest in the customary land or the environment.

Yet not all migrants we spoke to support the proposed hydro dam. Ten migrants interviewed told us they did not. Their main concern was the environmental damage this project may cause. A sixteen year old migrant at Wabo said, “I don’t support the project because a huge land area and its environment will be inundated and lost forever. This will have significant impact on the lives of the Pawaian because many depend on the surrounding environment for survival. “

Such consideration reflects this young person’s education, and no doubt his exposure to wider development issues. The same ethic was present in Purari when the dam was first proposed in the seventies, and environmental specialists rallied around the Purari Action Group (Pardy et al 1978). Sadly, when the prospects for other forms of development did not evolve, these environmental concerns were forced to take a back place. On the other hand, some migrants maintain that it is up to the Pawaians to decide whether to accept or refuse the proposed hydro-dam project. One female informant at Subu 1 village explained that she would not support nor go against this proposed project, as she was just a visitor.

CLANS THAT SIGNED THE MOA- LOWER PAWAIA

A total of 42 clans have signed the Land Access Memorandum of Understanding (MOA) with PNG EDL for the hydro project’s two feasibility studies. Not all the clans that have signed the MOA lands will be directly affected by the feasibility studies or the hydro dam, however. A few of clans who signed do not own land along or near the Purari: e.g. the Hatu clan of Poroi village, the No’ouwa clan of Subu 1 village, and the Pirijana clan of Wabo, are not riverside clans. Because these clans have been included, concerns have been raised whether other clans living in Wabo and Uraru, particularly those from Kariku and Tatu, who were not now listed, should also be included. Solomon Semeai, leader of Si’i clan from Subu 1 village (which owns land along the Subu River), first raised this issue. (All the Pawaian clans living in the project area listed by Albert Kerut and are included in the appendix of this report.)

PART 2: SECOND PHASE OF DATA COLLECTION FOR THE SOCIOLOGICAL STUDY

UPPER PAWAIA REGION (SOLIPERO, YABRAMARU [YURUMATU])

APRIL, 2011

Located in the mountain spurs of the Papua New Guinea Highlands, the Upper Pawaia shares borders with three highlands provinces. To the northwest, the people of Yurumatu share border with Kewa and other tribes of Southern Highlands; to the north, the people of Solipero share a border with the Daribi tribe from Karamui, Simbu; and to the east, the people of Soma village share a border with Okapa people of Eastern Highlands. Previous studies have classified these people as the 'Mountain' or 'Upper' Pawaia, and those from Poro to Uraru are considered the 'Lowland' or 'Lower' Pawaia. The initial scope of work was to study the people of Yurumatu village living in Yabramaru village. We found that three clans of Solipero own land on the western bank north of the intersection of Wahgi River and Pio River, so they have also been included in the study. On the eastern bank, the Yurumatu clan boundary extends beyond the confluence.

Yurumatu village was dissolved in the 1976. They moved to a new location after an earthquake killed many people in their original location, and they now call their new village Yabramaru, which is two day's walk upriver from the original Yurumatu. There are four clans in Yurumatu: Hi'o, Hei'njupe, Neila and Wenjupe. Wenjupe clan originally came from the Southern Highlands. Their ancestor migrated five generations ago and lived with the Neila clan of Yurumatu on the western bank of the Purari River. After some time, a conflict arose between Wenjupe and Neila people over a woman. Neila clansmen drove the Wenjupe out of their land. The Hi'o clan sympathised with the Wenjupe and took them in. The Hi'o clan's land is on the eastern bank, so the ancestors of the Wenjupe crossed over to the other side of the Purari River and lived with the Hi'o. Until 2008, the Wenjupe clan was only a 'renter' on the land. Their status changed, however, when Hi'o clan gave the Wenjupe an area of land to own in 2008.

Yabramaru village sits on the edge of a plateau. The land on which the village sits is owned by the Solipeno clan from Solipero village. It is Pawaia land. Solipero people refuse to use the name 'Yabramaru', insisting that 'Yabramaru' is a Daribi name and therefore not a legitimate name. Instead they continue to call it 'Yurumatu.' (What we do know is that 'Yabramaru' is the popular name. In Hai'a we were told that we would pass through 'Taiswara' village before reaching 'Yabramaru' village. 'Taiswara' is another name for Solipero village, again the popularly preferred name for it.)

DEMOGRAPHICS

Demographic details cover sex, age, marital status, literacy levels and religion.

Gender

Of the 92 participants who were interviewed, 55.4 percent (N=51) were male and 44.6 percent (N=41) were female.

Age

The majority of the people were from the age group 21-30 years. The second highest number came from the age group 31-40 years, followed by age group 10-20 years. Generally, there were more young than old people in the villages, and this is reflected in our sample. About 45 percent of the participants were between the ages of 10 and 30. Another 30 percent were between the ages of 31 and 40. The remaining 14 percent were over the age of 40. This sampling may just reflect a relatively low life expectancy for the area.

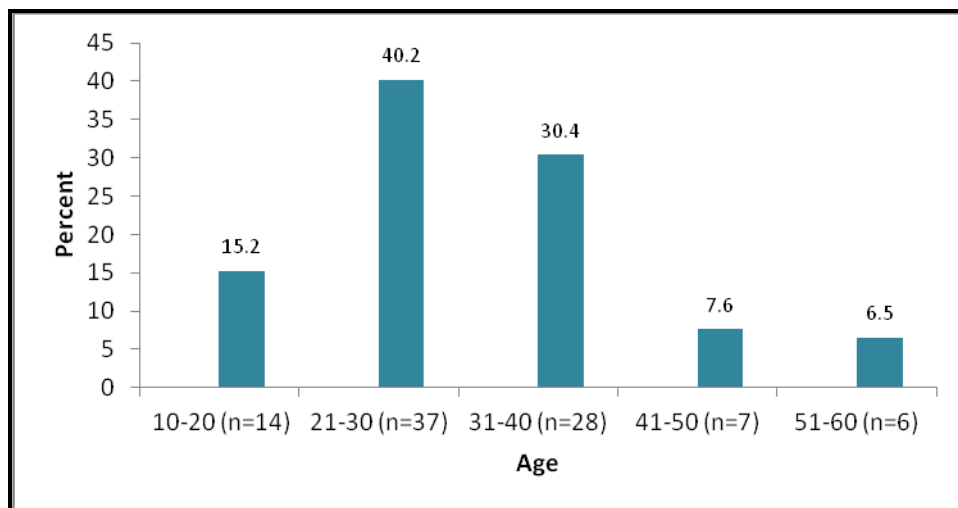


Figure 49. Age of participants

Marital status

The majority of the participants in the study, constituting more than three quarters of the sample, were married. A very few (6.5%) were widowed, whilst more than a tenth of the participants had never been married.

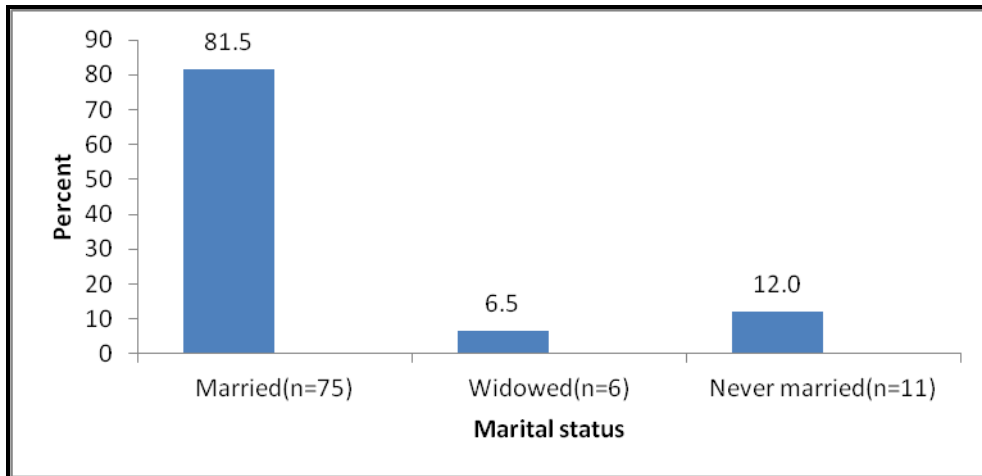


Figure 50. Marital status

Marriages are arranged by a girl’s parents with the prospective groom. The arrangement starts with the man bringing gifts to the girl’s family when the girl is born. Many Pawaia men are now married to women from Karamui, however, mostly from the Daribi tribe. Interestingly, we came across a couple where the girl from Karamui was about 12 years old and the husband from Yurumatu was about 47 years old. This girl had been brought by her parents to the man 3 years ago, at age 9, following Pawaia and not Karamui custom.

Literacy

The majority of the participants in this study were illiterate. They can neither read nor write in their own vernacular (Pawaia), English or Tok Pisin. This group makes up 87 percent (n=80) of the sample. Only 13 percent (n=12) said they could read and write in one or more of the languages noted above.

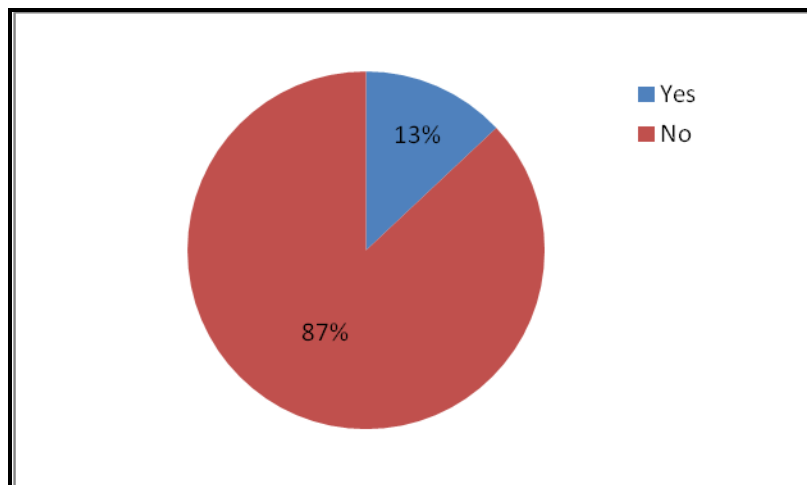


Figure 51. Can you read and write?

The closest school, at Hai'a, is a full day's walk for adults. For small children it takes at least two days. Even if they could physically attend, school fees are a persistent problem for parents in the area.

Religion

The majority the participants identified themselves as Christians. Over three quarters (80.4%) of the participants were members of the New Tribes Mission (NTM), an American based Church.

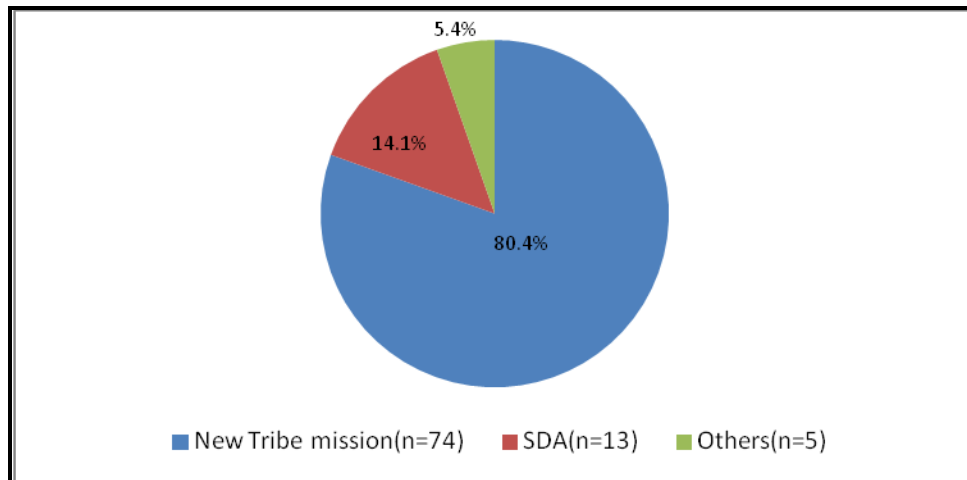


Figure 52. Church affiliation

Seventh Day Adventists make up 14 percent of the sample. But not everyone professed to be of a Christian faith. About 5 percent claimed to either to follow a traditional religion or to have no religious affiliation whatsoever.

CULTURE

Culturally there is no difference between the 'Mountain' and 'Lowland' Pawaia. They have the same language and occupy a continuous geographical area along the Purari and its tributaries. They are, in fact, a riverine people. That is to say virtually all of their settlements from the lowland to the mountains are by the rivers and creeks. Daily activities performed by men and women are similar everywhere in the Pawaia area. Women hunt, fish and gather wild foods whilst men build houses, hunt bigger animals, fish and provide security for the family. Both men and women perform the basic household chores of collecting water, chopping firewood and cleaning the house. Cooking for the family, however, is a task the women perform except at certain times: when they are sick; when they are menstruating; and for a period of one month after giving birth.

In Pawaia, young boys are segregated from their mothers and sisters. They leave their family homes and live in a boys' house. Boys are separated because, it is said, their fathers fear that the boys might see the bodies of female relatives and develop bad thoughts (*kirapim tingting nogut*). It is a taboo reflecting the most basic fears of incest. Robert of Yurumatu village told us: "The male child will see the body of a woman and have bad thoughts. So when they reach teenage, they go and stay in the boys' house." (Male, 46). Separated from their families, the boys grow up accepting their independence. Meanwhile, their sisters stay at home with the family and learn the women's responsibilities.

It was customary for the Pawaia in the past to consume human corpses on certain occasions. If clan K were indebted to clan A, the corpse of a deceased clan K person would be given to clan A in repayment. If a child died, however, his or her corpse would only be consumed within the clan. For example, an elder brother would give his son's corpse to the younger brother of his choice. The corpse would have to have died from natural causes, such as an illness, an accident, or a tribal fight. It would be consumed in a form of gustatory cannibalism, as protein rather than the symbolic transference of power.

Important changes have come as a result of outside cultural influences. The influence of the highlands cultures, particularly those bordering the Pawaia, are continual. In the villages of Hai'a, Solipero and Yabramaru, we saw gardens resembling those found in nearby Simbu Province. The way drainages were dug, how the sugarcanes were tied, how the pineapples were lined up, and how the beans were wrapped around sticks--all of these were typical of highlands gardening. We also saw *bilums* from the highlands on the backs of women returning from gardens in the afternoon. Some of the women have learned to make highlands *bilums*, whilst others have exchanged items for them.

Because of intermarriage between the Daribi and the Pawaia, many Pawaian women have adopted ways of their new sister-in-law, the Daribi women. For example, the women of 'Mountain' Pawaia can now greet and shake hands with men and strangers, which remains wholly unacceptable amongst the Lowland Pawaia, where women still turn their faces away when men or strangers approach. Nevertheless, from Poroi to Uraru and from Hai'a to Yurumatu, people told us the Pawaia are one people. Soho Ope, a former policeman and former councillor of Ward 27, Karamui Local Level Government (LLG), Simbu Province, told us that the terms 'Mountain Pawaia' and 'Lowland Pawaia' are very recent. He stressed that Pawaia was one and will always be one people. Not everyone shares this opinion. Robert of Yurumatu told us about inter-clan feuds of the 'Mountain' Pawaia past, between the Yurumatu and the Hai'a, and how this history has shaped their relationships today.

Our ancestors and their ancestors used to fight with each other. That is why we fear living with them. Every village is a different *lain* [people] so we if we go to their place they will kill us and if they come here we will do the same.

Ann elderly Hi'o clansman of Yurumatu village, Maiyape Kemeai, explained how their ancestors used to live:

My clan lived on their land. Other clans also lived on their own land. We never mixed around. But if we wanted to fight with Daribi we called our neighbouring clans, Neila and Hei'njupe, and they helped us to go and fight. We always lived on our own land.

Despite these comments on the internal warfare amongst the Pawaia, it is not certain whether they saw themselves in the past as having different Highland and Lowland identities. Like all Melanesians, they live and move within their own defined territory and do not easily venture into their neighbours' areas.



Figure 53. Solipero villagers pose after consultation

We know that with the nomadic nature of their past, the Pawaia never lived together in a village setting. Every clan had and still has its own territory, and each its own history. They descend from separate known ancestors. Territorial integrity can be traced through the clan histories and legends of the clans. For example, in the clan history of Hi'o, it is said that their ancestor Sope lived on Sope Mountain in Yurumatu. He had supernatural powers and would allow him to travel great distances in a very short time, and return with a catch of game. But

when he saw an animal beyond his territory he never killed it. Going outside one's boundary into the land of another clan was an intrusion and invited conflict. In many ways, each clan conducted itself as a sovereign entity, and this feature may be what allows them to assume Lowland and Highland identities when necessary.

Tenure and usufruct

Land is inherited by the male members of a clan. Men make all the decision over its use. Female clan members marry out to another clan and leave their birthplace, hence they have no say regarding land use. In the past, if important decisions regarding customary land were exclusively the privilege of elderly male members, changing times have brought the educated men to the fore, and it is now these individuals who more often represent their clan's interests in decisions over land.

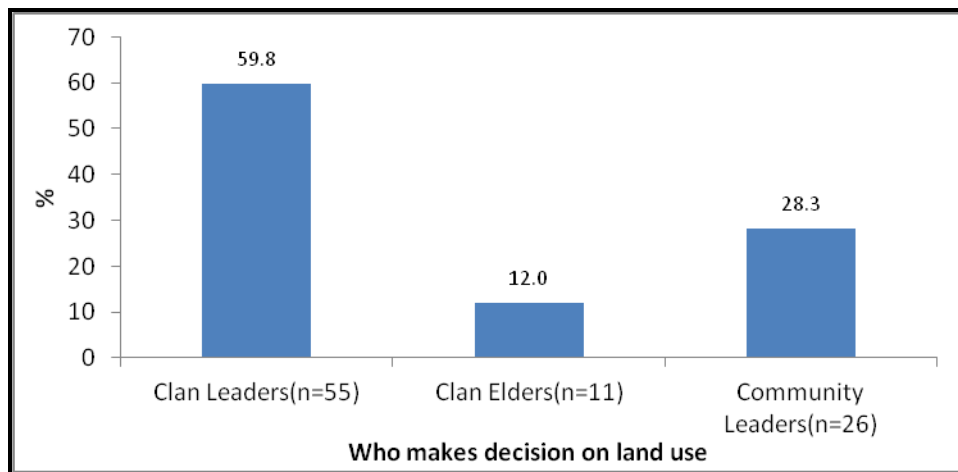


Figure 54. In your clan who makes decisions over land?

Sixty percent of the participants told us their clan leaders make all decisions on customary land. Twelve percent identified clan elders as those making the important decisions, whereas twenty-eight percent told us it was community leaders who made these decisions. Others say all male members of the clan are consulted by leaders before land decisions are made. Women married into the clan also can give their opinions but it is up to the men whether they tolerate their advice or not.

GOVERNMENT SERVICES

There are no services in the study area. The nearest school is a full day walk away, as is the health facility. Telecommunications do not exist, and neither do roads. The only way to get around is by foot.

Education

Educational services in the area are completely inadequate. There is only one Primary School, at Hai'a, operated by the Simbu Provincial Government. The school is well maintained; it has grades 3 to 8 but only three teachers, so some teachers double their classes, possibly compromising the quality of education¹².

Currently, four teenage boys from Yurumatu and Solipero attend Hai'a Primary School. Girls simply don't have the same opportunities, especially if the school is far away. Wabo Primary School, for example, has many girls attending from Ura and Wabo villages because proximity has encouraged parents to enrol their daughters. This is a strong argument for establishing schools at Yurumatu and Solipero.



Figure 55. Mothers and babies at Solipero village

According to the survey, the majority of the respondents, or 84 % of the sample, have never been to school. Less than a quarter (15%), have attended Primary School, and barely 1 percent have been to a Secondary School.

¹² Hai'a Primary School closed a few months after our visit in February 2011.

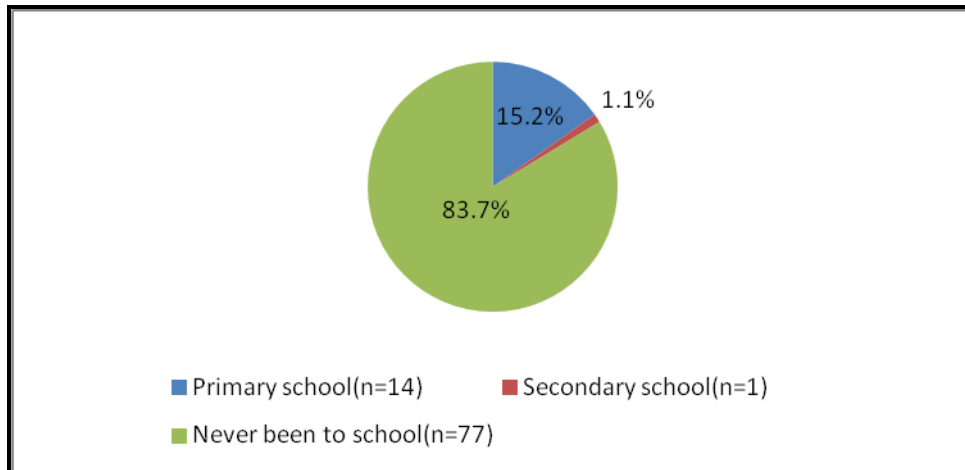


Figure 56. Level of education attained

Health

Health services in the area struggle to meet demands. The clinic at Hai'a is too small to support the entire Upper Pawaia population. Logistical constraints and the harsh terrain make it practically impossible for Community Health Workers (CHWs) to visit the communities routinely. In the past, mobile health patrols were conducted monthly, but limited resources and lack of manpower have made this impossible. Traditional medicine help relieve some of the illnesses in the region. Pawaians wash in special waterfalls, for example, they have reserved for medicinal purposes. They believe the falling water will remove sickness from their bodies, and for many, we are told, this is effective.

A quarter of the respondents stated they were healthy most of the time. The majority (74%) mentioned they were sometimes sick and sometimes healthy, but only 1 percent said they were sick most of time. The isolation of these communities may have something to do with their general state of good health. They are far from medical assistance, but also far from interacting with other peoples and contracting new diseases.

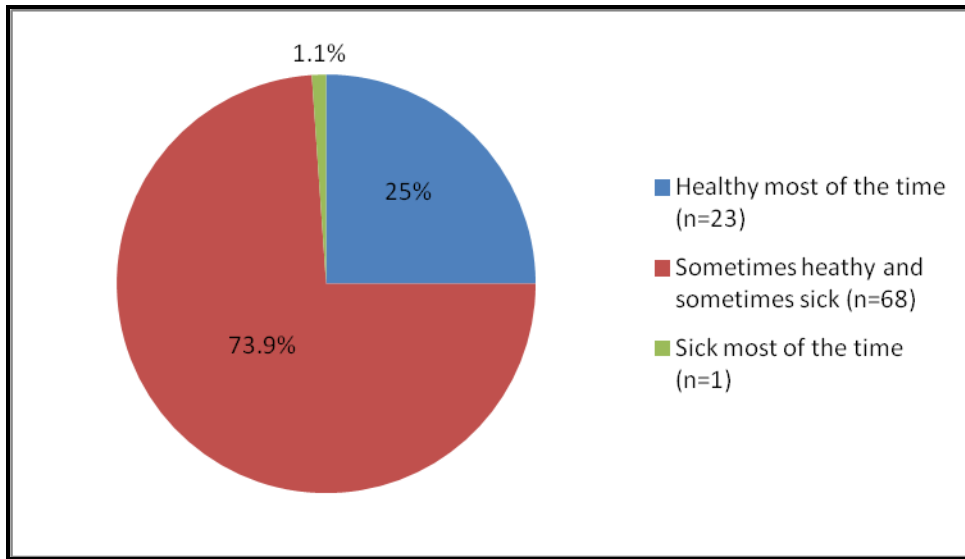


Figure 57. Health status of respondents

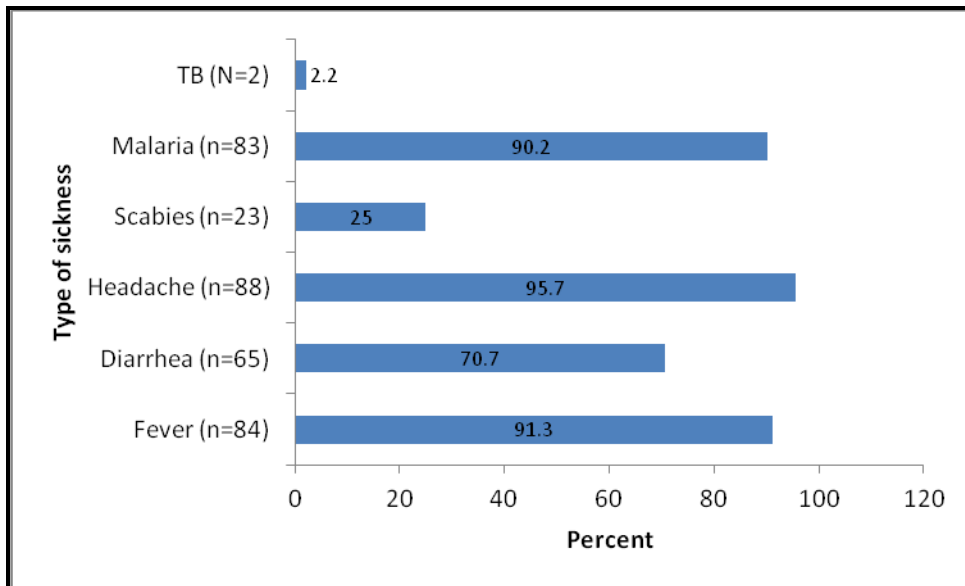


Figure 58. Common sicknesses

A majority (92%) of the participants claimed that they have suffered from malaria, although many of them had no clinic records to confirm their diagnoses. Some of the participants said they had been ill with more than one type of sickness. Only 2 of the respondents reported to have had (diagnosed) tuberculosis. Participants confirmed that they sought different kinds of treatment. Traditional medicine is the most common, not surprisingly, with 84 percent of the respondents saying they used this means most often. Healing through prayer was important for 39 percent; and only a third (33%) of the participants said they took modern medicines when sick.

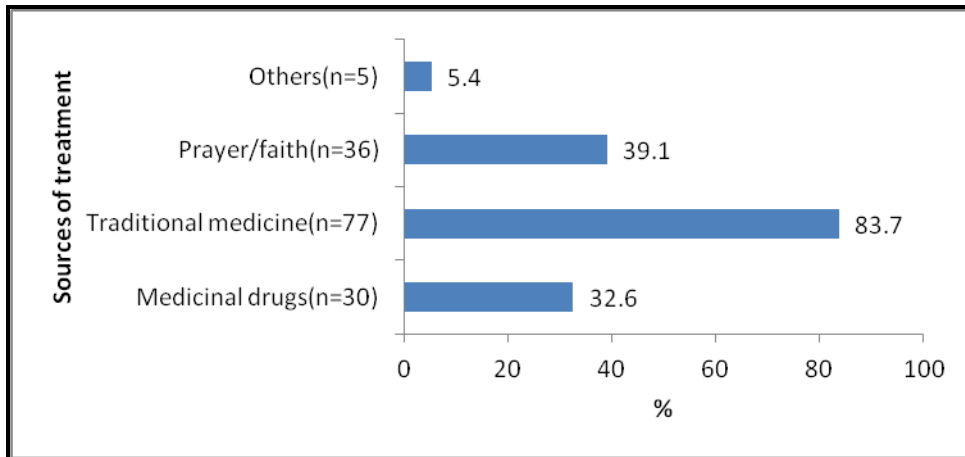


Figure 59. Sources of treatment and healing

Nevertheless, the majority (67%) of participants report that they seek treatment first from an Air Post of Health Centre. Ironically, this figure is twice the percentage of people who claimed they took modern medicine before anything else. Such a discrepancy may reflect the gap between what treatment people desire and what they avail. 84 percent of the participants say that their main treatment is traditional medicine, and yet only 2 respondents indicated that when they were sick the *first place* when they went for treatment was the bush. Evidently the participants who sought out an established health facility either did not receive medicines, or they were unable to find treatment at these facilities. In the end, traditional medicine picks up all the slack.

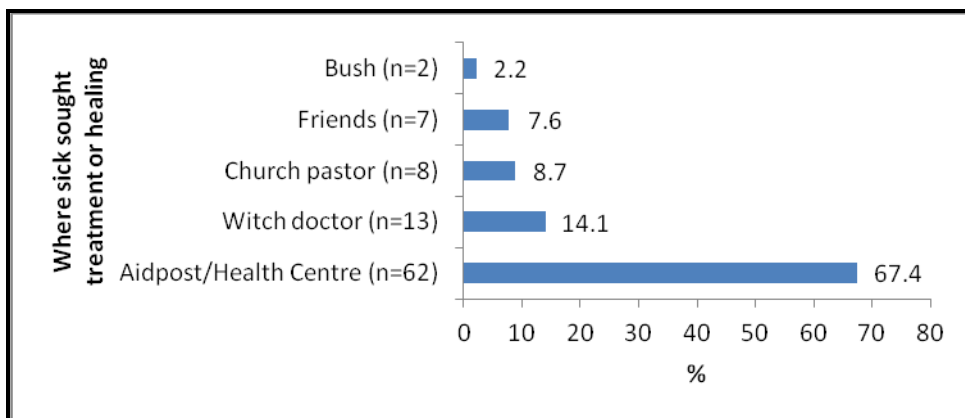


Figure 60. When you are sick, where do you go first?

But the health of the Upper Pawaians is remarkably good. Asked if they had been sick within the last 12 months, 49 percent said that they had, while the majority (51%) said they had not.

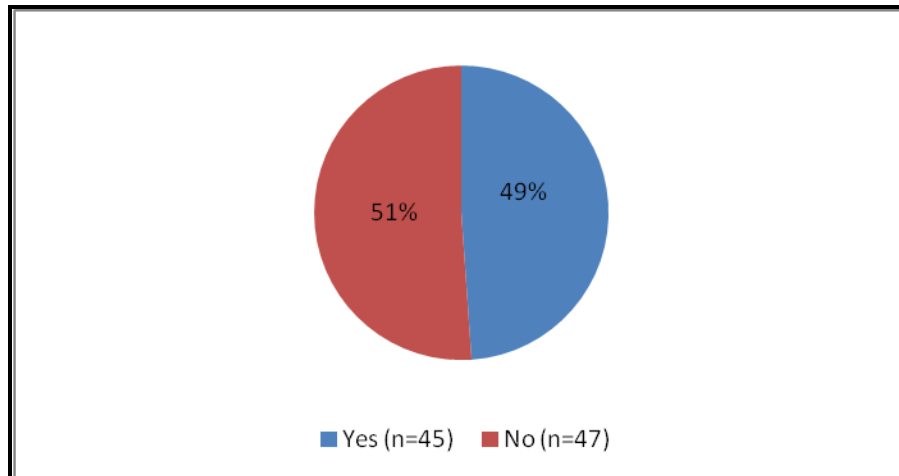


Figure 61. Have you been sick in the last 12 months?

Maternal Health

Quality maternal health care is a challenge in many remote communities of PNG. Institutional failures of the health service delivery mechanism, dependent upon an appalling health infrastructure, continue to undermine rural health across the country. Many remote communities have missed out altogether, and the result is high maternal mortality. It is women who routinely face the life and death dangers of childbirth in neglect communities. In the Upper Pawaia area ante-partum and post-partum complications are both common. Still today, virtually all babies are born in the bush. Mother and newborn stay in a bush hut built for this purpose for a two week post-partum period. They then come home and live *under* their own house until the baby is one month old, when mother and baby rejoin their family within the family house. The mother will not cook food for the family until the baby is able to 'see' people, however. The babies themselves are more fortunate than their mothers however. A mobile immunization team from Kapuna Rural Hospital is able to visit the villages of the Upper Pawaia and immunize the children. This program started in the late 1990s and is ongoing still. The health team pays a visit to every village at the end of each calendar month. Sometimes it is postponed when there are no medical supplies or manpower available. A male health worker at Hai'a told us that he walks the entire area. Describing his experience, he said:

It is hard work but I do it for my people. If I don't do it then I'm responsible for the lives of many children who will die because of my ignorance. God will also hold me responsible.

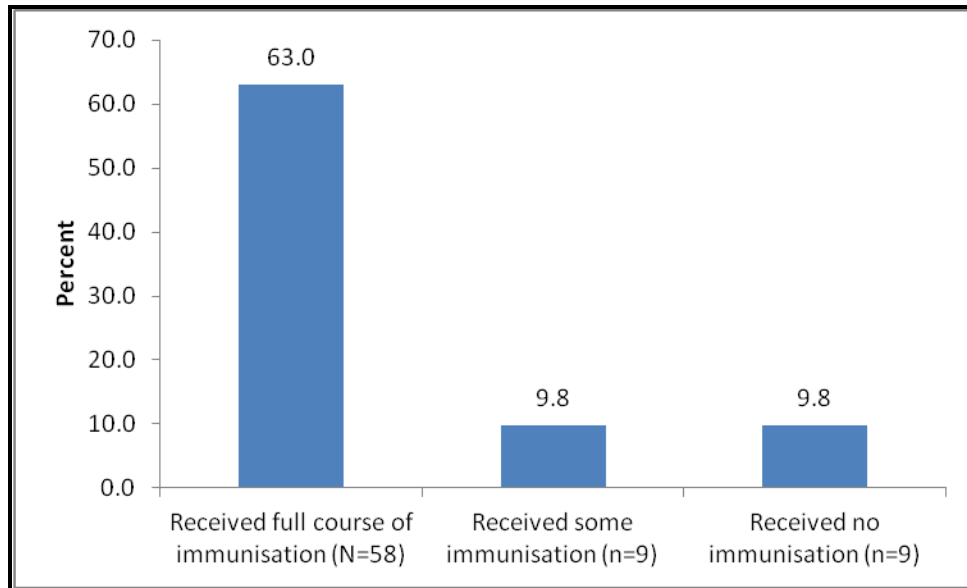


Figure 62. Immunizations

Evidence of his work is reflected in the Figure 62 graph. Here we see that a majority of the participants reported that their children had received a full course of immunization. Another 10 percent said that their children had received some immunization, and 10 percent again told us their children had never been immunized. (The remaining 17.4 percent (n=16) of the participants didn't respond because they had no children). Overall, the maternal health situation is poor in the area. The children fare better. Immediate intervention is needed improve the status quo, and ensure these mothers the same survival rates as their children.

Communication

Modern communication in the area is nonexistent. At Hai'a there are two very high frequency (VHF) radios, one at the Research Conservation Foundation field base office, and another at the Mission Aviation Fellowship (MAF) agent's office. Sending messages by word of mouth remains the primary mode of communication, however. Letters and notes are also ways to convey messages, although restricted to literate people only.

Transport

Transport is very difficult due to lack of infrastructure in the area. To get to major towns like Goroka and Kundiawa the only way is by air service, which is very expensive. Many people have never been to Goroka or Kundiawa. Some people walk regularly to Karamui and Hai'a instead for services or goods.

Law and Order

Law and order in the Upper Pawaia area is hard to gauge. There are no records of crimes committed. In Solipero and Yabramaru villages, Village Court Magistrates hear all the minor cases. If a case is serious, the Magistrate of Solipero invites his colleague from Yabramaru to attend the case, and vice versa. Often, serious felonies such as rape are brought to Village Court which is thus forced to operate outside its purview. Sometimes, for fear of their life, the victim and their family accede to the decision locally, and never pursue a higher court. They pay compensation and consider the problem resolved.

There is a high prevalence of domestic violence (both husband bashing and wife bashing) in both communities. Fights in the village are also frequent, and more than a quarter of the respondents (27%), particularly men, have engaged in public brawling. Stealing was also identified by 27 percent of the participants as a crime they had committed themselves. Eleven percent of the participants told us they have had extra-marital sex. This is regarded a serious (and very secretive) crime by the Pawaia people, and those who commit it are at risk of their life.

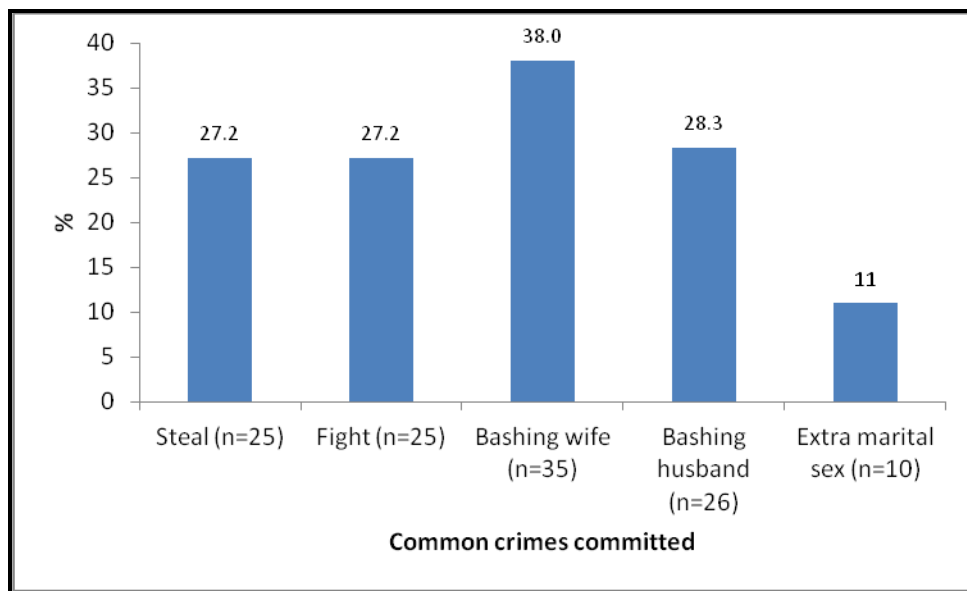


Figure 63. Common crimes

There are two ways criminal offenses are solved. First, the Village Court hears all the cases, both minor and grave. Through the Court, it is determined whether a compensation payment should remedy the crime. If not, the case is referred to the police at Karamui.

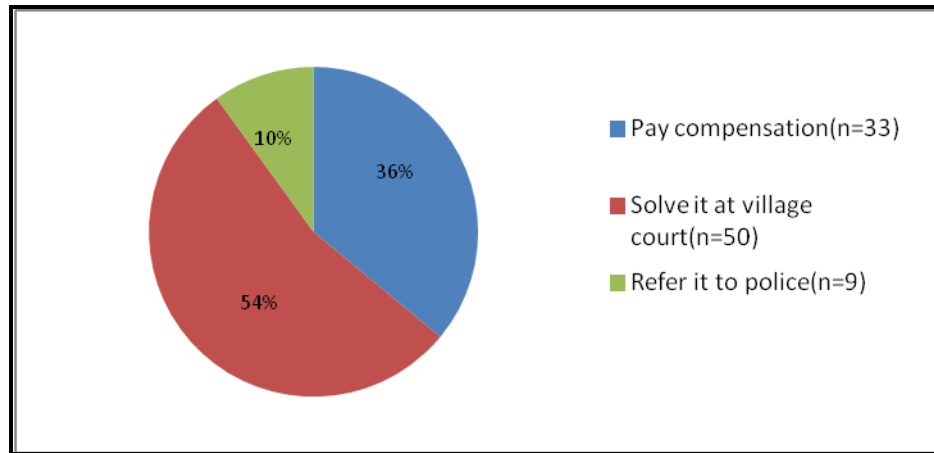


Figure 64. Ways of resolving crimes

Most of the crimes are solved at the village level, as 54 percent of the participants reported. Another 36 percent admitted compensation payments had settled charges. And only 10 percent indicated that crimes were referred to police. Issues of law and order are also managed by local leaders. Not everyone gets fair treatment, however, especially in patrilineal communities where the women have married in from other locations. And until policing is improved at the village level, the victims of rape, for example, will continue to be denied real justice. It should be noted that this is one reason women in remote communities are often more eager than their male counterparts to see development and social change.

ECONOMY

Pawaia is now the hub of major developments, including the Liquefied Natural Gas (LNG) project, logging ventures, and now the proposed hydro-power project. All these developments are happening in the Lower Pawaia area. The people of the area are consumed by the excitement of benefits and at same time frustrated by perceived and real missed opportunities. The people have also been quick to assimilate cash into their traditional barter economy.

As these 'mega' projects are concentrated in the Lower Pawaia, the Upper Pawaia area has felt relatively little of their impact. The economy of Upper Pawaia remains primarily subsistence: they depend on their gardens, forest and rivers for their food. Every year they make new gardens to maintain a constant food supply. Not surprisingly, all the participants of our survey had made gardens in the last year. Two fifths of them (40 %) had made three gardens; slightly more a quarter (26%) had made two gardens; 13 percent had made one garden; whilst the rest, (21%), had made four or more gardens. Unlike the lower Pawaia, sago is not the staple food here; they have diversified their gardens to a much greater extent than their lowland relatives.

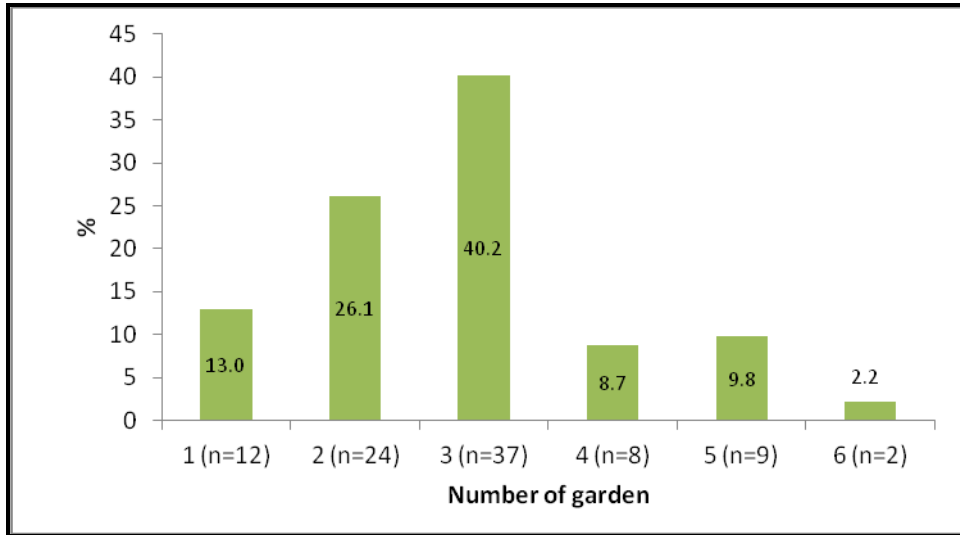


Figure 65. Number of gardens made since last year



Figure 66. An eggplant in a garden at Solipero village

Barter practices between the Pawaia and the Karamui people are very strong. Pawaians exchange *buai*, cassowary fur, cuscus fur, and baby cassowaries for *billums*, steel tools, pots, clothes and now even cash from Karamui.

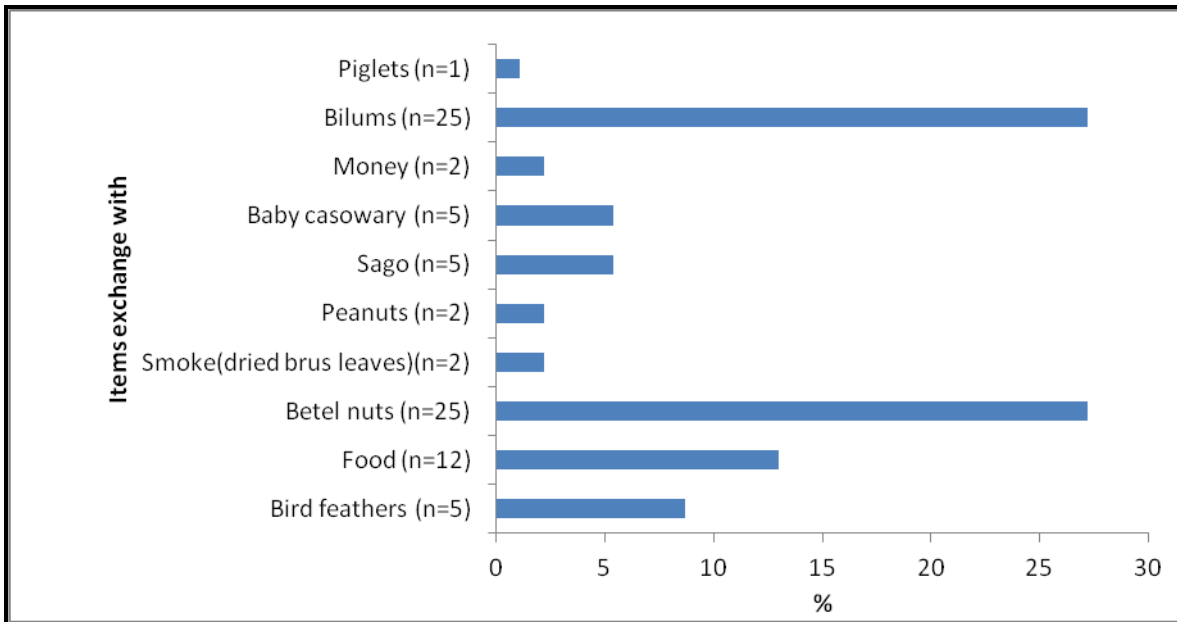


Figure 67. Items participants exchange

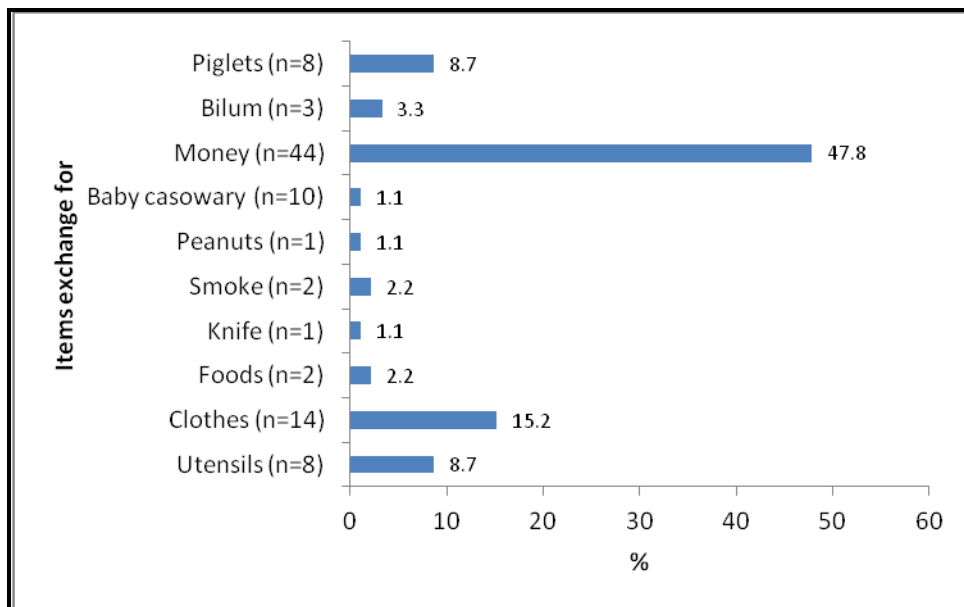


Figure 68. Items received in exchange

Betel nuts and *bilums* are the top items Pawaians exchange with the Karamui. Money, clothes, utensil and piglets are also commonly traded, although almost half (48%) of the participants have received money in exchanges for items. Bartering is still a significant way in which the people of Upper Pawaia obtain necessary items, including clothes, tools, and utensils which would be hard for them to purchase otherwise. Consistent ways of making money simply so not exist in the Upper Pawaia, where gardening is the primary economic activity. Of the 92 people who participated in the survey an overwhelming majority (96% or n=88) stated gardening (i.e.

marketing surplus produce) was their main source of cash income. Even then, this income stream is constrained by the fact that their neighbours are also good gardeners.

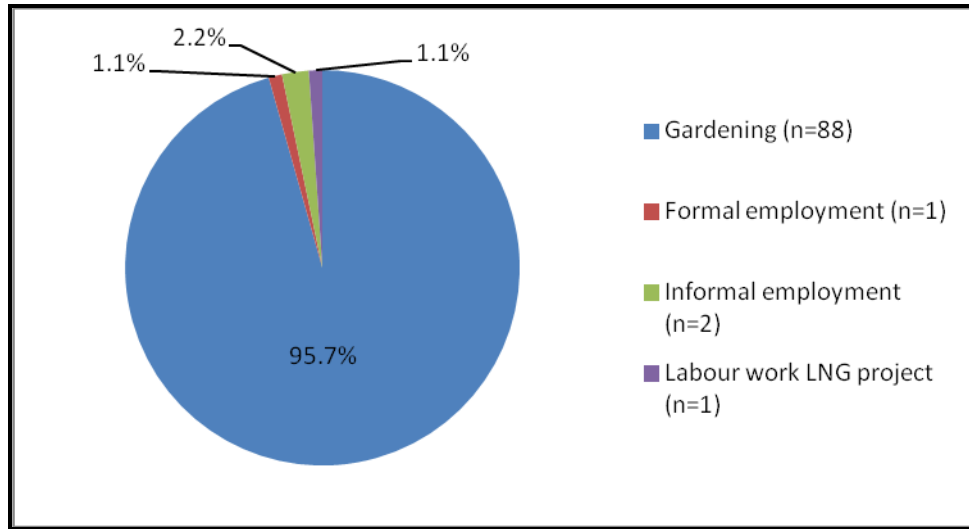


Figure 69. Types of work to earn cash

Other ways of earning money are labour at the LNG project and various informal activities. Four percent of the total participants claimed to have earned money this way. The monthly income for the majority of the respondents was less than K100.00, however. In fact, most do not make any money in a month, and some make no money for the entire year.

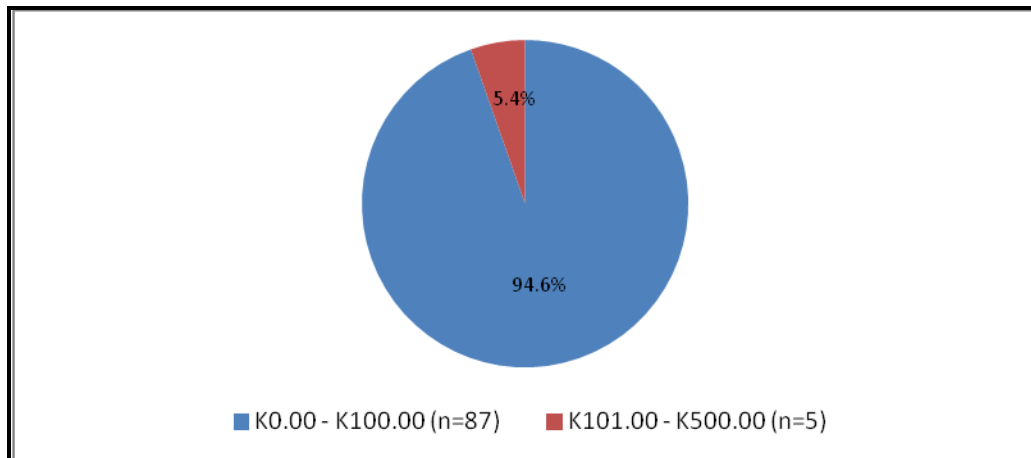


Figure 70. How much money do you make in a month?

Very few (5.4% or n=5) admitted earning more than K100 per month. Sixty two percent (n=57) of the respondents associated wealth with having more pigs rather than owning material goods, an area of land, or being rich with money. Typically, pigs add value to a highlands man and can confer 'bigman' status. Being close to the highlanders, Pawaians in this area have adopted this traditional measure of success. Only seventeen percent of the participants associated wealth with material goods, and only 3 percent of the participants associated it with money.

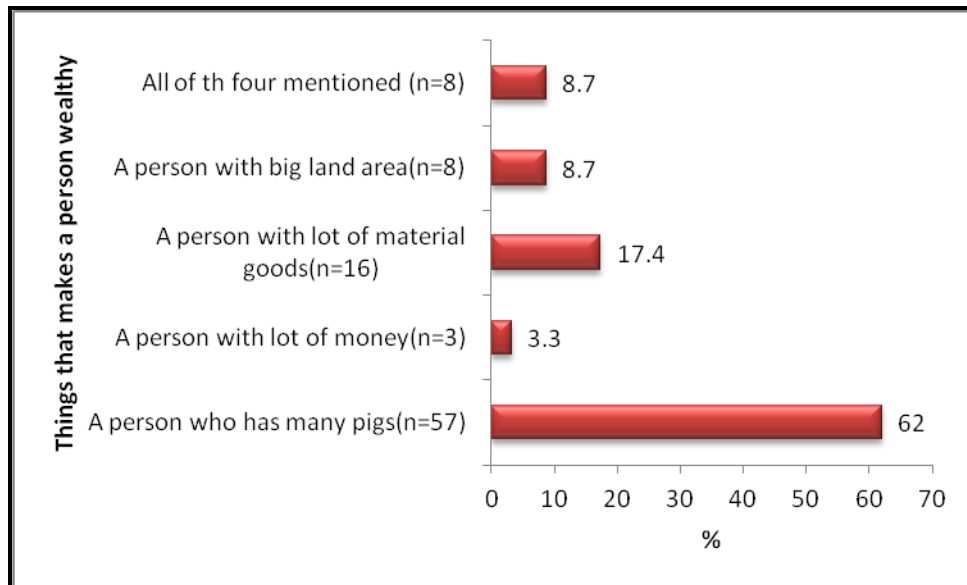


Figure 71. Things that make a person wealthy

OTHER SERVICE PROVIDERS (CHURCHES, NGOS, COMPANIES)

Crater Mountain Wildlife Management Area (CMWMA) covers Hai'a village and land at its southernmost end. This project is an initiative of the Research and Conservation Foundation, a registered not-for-profit organization based in Goroka. RCF, in collaboration with the landowners of the Crater Mountain area, which covers most of the Upper Pawaia region, established the Crater Mountain Wildlife Management Area (CMWMA) 16 years ago. The CMWMA covers a total of 2,700 square kilometres of mostly pristine rainforest spanning three provinces (EHP, Simbu and Gulf). In the words of RCF, from its website (we excerpt):

The project provides information, raises awareness, and works with local communities to sustainably use natural resources without depleting them irreversibly. It also provides assistance to resource owners in developing their own environmentally friendly enterprises as an alternative option to selling their natural resources to exploitive outside interests.

The RCF Crater Mountain Project is involved in these activities in order to preserve PNG's biodiversity and natural resources for the future livelihood security of PNG's people.

The RCF Crater Mountain Project has changed its approach in working with the local people of the CMWMA from an ICAD – ‘Integrated Conservation and Development’ approach to a ‘Facilitation Approach’.

Through the facilitation approach, the RCF Crater Mountain Project is working with the local people by facilitating activities under two main areas of:

- Natural Resource Management
- Rural Livelihoods

With this facilitation approach, experts with technical skills and knowledge are engaged to work with the local people in various activities.

Apart from RCF and the churches, there are no other non-governmental organizations working in the area.

VIEWS ON THE PROPOSED HYDRO DAM PROJECT

The proposed hydro dam project is fully supported by the Upper Pawaia people. In Solipero and Yurumatu the people believe this development will improve the quality of life for the Pawaia people. In the words of one Village Magistrate:

Since independence no development has come to the people of Pawaia. The government has totally neglected us. So we are supporting the hydro project because it will bring services to our communities.

An overwhelming majority of the respondents - 99 percent- are supportive of the project, whilst one percent does not support it. Two people who do not support it told us they fear that their environment will be destroyed when the dam water inundates the land upstream. As one woman from Yurumatu (age 30) put it:

Our sago trees, the gardens and forest (*bik bus*) will be taken by water (*wara bai kisim*). We will be short of sago. I’m not happy so I won’t support it.

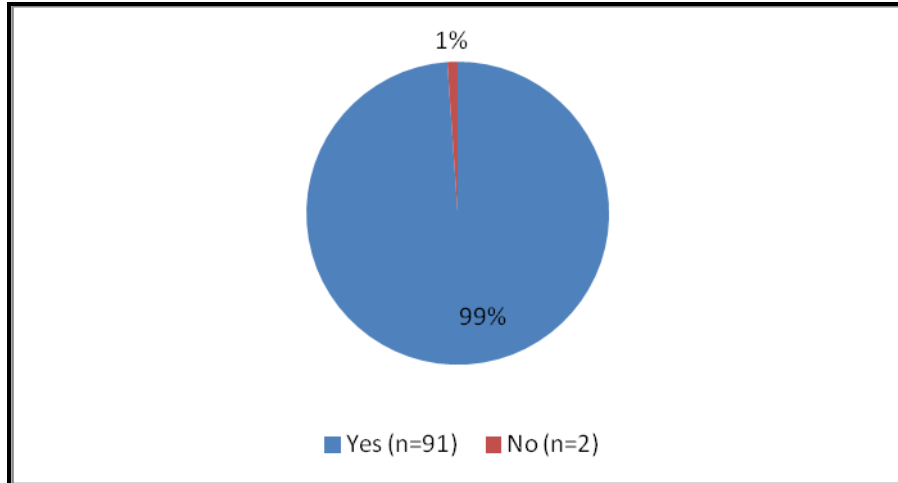


Figure 72. Do you support the Hydro Project?



Figure 73. CEO of PNG EDL poses with Yurumatu women dancers

Land Disputes

In the two villages (Solipero and Yurumatu) there are no land disputes within the Pawaia tribe itself. There is, however, an on-going land dispute between a Pawaia clan (Popu clan of Solipero village) and a Daribi clan (Sawale clan of Masi village). Daribi is a tribe in the Karamui District of Simbu Province. The Sawale clan shares a boundary with the Pawaia people of Solipero village. Recently, the Sawale clan laid claim to a parcel land said to belong to the Popu clan along the Pio River. Giving the story of the conflict, Paul explained:

It is like this. [For] one ...grandmother (*bubu*), when her husband from Popu clan died, she went and married again to a man from Sawale clan in Masi village, and she had descendants (*bubu*). So the grandson is claiming the land [belonging to Popu Clan] because he says that that where his grandmother first married to. But the real landowner is here.

Forced by shortage of land in the Daribi area, the children of the woman (from Sawale Clan, Daribi) have laid claims to the land of their grandmother's first husband (Popu Clan, a Pawaian). This is a breach of customary tenure rules, but it is also unprecedented. Sawale clan has also extended its claims further downstream past the confluence of Wahgi River and the Pio River into Kewa territory. According to the clan leaders of Yurumatu, the Sawale clan is a mountain clan which has no traditional land near or along the Purari River. Popu clan is survived by two male members who are still very young and vulnerable. The Sawale clan, on the other hand, has many people. They now live in Yabramaru village with the people from Yurumatu. Their population represents half of the entire village population. They are exerting a force of numbers to usurp the Popu clan's land.

The Yurumatu people acknowledge that the Kewa tribe occupies the territory on the western bank of the Purari from the intersection of Pio River and Wahgi River and extending downstream to the mouth of Moripare Creek, where they share a border with the Neila Clan of Yurumatu village.

Signatory clans to the MOA—Upper Pawaia

Seven clans from the Upper Pawaia signed the MOA for the feasibility studies to begin. Four of them are from Yurumatu, and three are from Solipero. Solipero village has 8 clans and one is adopted (the Tobira clan). Tobira is a Daribi clan from Masi village in Karamui, Simbu Province. According to Paul Yuguri, Tobira's clan leader, his mother is from the Ope clan of Solipero. Many years ago he fled Masi village when his brother murdered a man in their own village. His uncles took him in. Now he has taken over the land. No one in Solipero village, to our knowledge, objects to his claim. (See the clan list in the Appendix.)



Figure 74. Men and boys during the signing of MOA at Yabramaru village

SUMMARY

The Upper Pawaia region is isolated from the development projects of the Lower Pawaia region. However there is general excitement amongst the people about these projects. They want to participate in development and see change come to their lives. Hence the majority of the participants expressed support for the hydro dam project. Benefits from the hydro dam project were the main subject of discussion during consultations with the villages. Who would benefit? Were the Upper Pawaians to be included? These were questions raised by many. After so much government neglect, their eagerness for development is palpable.

Education levels amongst these people are very poor, as is their literacy rate. What is needed now is a new school so that all children of Upper Pawaia can attend. This will prevent yet another generation coming of age without an education. A lack of proper health facilities is also a major concern. People die from preventable diseases in the area. Helpless mothers die from labour-related complications which could be avoided were there antenatal clinics or even an accessible health centre in the area. Many people depend solely on traditional medicines.

All the people depend on their gardens, rivers and forest for survival. Gardens provide most of the food supply and the major source of income (from produce sales). People sell vegetables to InterOil at Pujano, and they sell peanuts at Hai'a and Wabo. This is one of the very few means of making money for the Upper Pawaia. There remains an established trade relationship

between the Pawaia and the Karamui people, however, which facilitates the exchange of much need things like steel tools, pots, clothes for betel-nuts, bird feathers and possum fur, etc.

There are no communication networks in the area. Access to town is by air only. People get around within the area by foot, sometimes even walking two days to reach the nearest service. Law and order in the area hard is to accurately determine, as there are no criminal records in the village. The results from the survey, however, show a prevalence of domestic violence. And most of the crimes are solved by Village Court Magistrates.

Land use rights are an exclusively male privilege. Important decisions regarding land are executed by clan leaders. However some participants stated that clan elders and village leaders together made decisions on their clan's behalf. Currently there is a land dispute between a Pawaia clan from Solipero village and Daribi clan from Masi village. The piece of land which is dispute sits along the Pio River, and the dispute is likely to affect the feasibility studies.

RCF is the only organization working in the area, on a conservation project called the Crater Mountain Wildlife Management Area (CMWMA). It has reached most of the communities in the Upper Pawaia region and definitely has strong and positive influence on the local people.

PART 3: SUPPLEMENTARY DATA

DATA COMPILED FROM VILLAGE VISIT MEETINGS, OBSERVATIONS AND CASUAL INTERVIEWS (POROI 1, SUBU 1 & 2, WABO, URA & URARU) AUGUST-SEPTEMBER, 2011

This report is a supplementary to the first report carried out by the NSA team in 2010. Here we highlight women's issues for each village visited between 25th August and 2nd September 2011. The information was collected from women's meetings and individual interviews. There were also concerns raised by men in separate meetings and these are presented here. Apart from the meetings and individual interviews, we culled information from observations and casual conversations over the period of our stay in each location, following the classic ethnographic method of participant-observation.

Poroi 1 Village women's meeting

The women's meeting was held on the 26th of August at 11 am, at the Councillor's house, when the men held a separate meeting at the village meeting house. There were a total of 31 women in attendance. These included married, young single women and widows. Fewer young single girls than married women attended. It was explained to us that the girls marry at a very young age, in their early teens (14-16 years of age) to older men. As a result, there are not as many young girls in the village as there are young boys. The mothers in the meeting also said that young girls don't show an interest in community activities or meetings. However, from our individual interviews, it appears to us that young single girls are shy to talk in big meetings because they cannot speak Tok Pisin well.

Table 13: Number of women at Poroi 2 village attending the meeting

Marital Status	No. of women present at the meeting
1.Young single women(unmarried women)	5
2.Married women	17
3.Married and in polygamy	4
4.Widowed	5
5.Separated/Divorced	0
Estimated Total	31

Places of origin

Most of the women who came to the meeting were Pawaian; there were a total of twenty one in attendance. Some left early during the meeting because their babies and children were crying. Those who did not attend, had gone to the bush to make sago and catch fish. Some young single girls did not come, either, as they needed to help their mothers in the gardens. Nine women present were not of Pawaian origin, married to men in Poroi. They were from Baimuru, Evara, Kikori, Simbu, and East Kerema.

Languages

We wanted to know which languages most women are able to understand and feel comfortable using, in order to communicate with them well. Apart from speaking Pawaia as the mother tongue (or husband's language), many of the women understand and can speak Tok Pisin and Motu. Because so many of the women felt that their Tok Pisin was not fluent, a woman was appointed to translate to and from Pawaia for the meeting.

Education

More than half of the women at Poroi 2 have never been to a school. This was indicated through a show of hands, wherein fifteen of the thirty one women present raised their hands when asked if they had attended school. Of the fifteen, six of them were local Pawaian and nine of them were not of Pawaian origin. The table below illustrates the level of education attained by those who have been to school.

Table 14. Levels of education for women at Poroi 2 village who have been to school

Level of Education	No. of women from Poroi 2 (Pawaia Origin)	No. of women from Poroi 2 (Not of Pawaian Origin)	Total
Prep School	1	0	1
Grade 1	0	0	0
Grade 2	0	0	0
Grade 3	4	0	4
Grade 4	0	1	1
Grade 5	1	0	1
Grade 6	0	2	2
Grade 7	0	1	1
Grade 8	0	2	2
Grade 9	0	1	1

Grade 10	0	2	2
Total	6	9	15

Because so many of the women in Poroi 2 have never been to school, they see education as an important acquisition for their children. At the moment the school at Poroi 2 has no teachers. It is comprised of prep and elementary classes. (At the time of the visit the school had been shut down since mid-2010.) Most of the children who had attended the school were still unable to read and write, according to their mothers. Some have sent their children to Wabo Primary school instead, but they are concerned that their children are not being looked after by relatives in Wabo. Some also reported that children not attending school were needed to help their mothers make sago, garden and fish. Other children don't go to school when their mothers need them to babysit younger siblings. On the other hand, the women are very supportive of work related to the school; they have helped the men build the classrooms by collecting sago leaves for the walls and roof. As they have had no opportunity to attend school, these women are eager to receive basic life skills training in cooking and sewing, for examples.

Health

A lack of proper health services is one of the women's biggest concerns. They face serious transportation problems as the nearest health facility is in Kapuna. Prior to 2000, when InterOil was not operating, people paddled down the river for two to three days to Kapuna Health Centre, but only when they were very sick, suffered a serious accident, or were in breach birth. Today they can access the InterOil clinic at the Herd Base. Nevertheless still also seek assistance from InterOil for fuel to go to Kapuna Hospital, especially for emergencies (and they are discontent that InterOil has not heard their requests). Some women have had complications during delivery which make this a real concern. The other issue with regard to accessing health services is a communication barrier. This is particularly so for the Pawaian women who can only hear but not speak Motu and Tok Pisin. They say they are shy to talk to health workers. Only nine women at the meeting said they had gone to Kapuna to deliver their babies; the rest had delivered in the bush. There were two women who said they lost three of their babies while delivering in the bush and another said she had lost one. There were also others who had gone to the hospital, however, and still lost their babies. One said she went to the hospital on three occasions to deliver but lost all three of her babies there. We were told that three women in Poroi 2 had recently died in bush childbirths.

There is also the traditional belief and that husbands are not allowed to go near or help their wives during childbirth. It is assumed that men get sick and have enlarged stomachs, swollen arms and legs, if they do so. This makes women even more vulnerable while giving birth in the

bush, where they may have no assistance at all and are prohibited from giving birth inside their home or garden hut. They must deliver in the forest or a clearing. Only after the baby is born and cleaned can the mother and child move into a small specially-made birth hut called “*mo’ahabu*”, away from the residential home. They live there for one week or so, until the umbilical cord falls off. Those women who had given birth in the bush told us they were scared to be alone during the childbirth, and scared of sorcerers and snakes in the birthing hut.

Income earning opportunities

The majority of the women who attended the meeting said they don’t have a lot of income earning options. There is no village market to sell their produce or other things. Most said they wait for the fortnightly pays of their husbands who work for InterOil. A few sell betel nut, smokes, or stick tobacco from their homes. Sometimes, infrequently, they sell fruits and greens to InterOil.

Land and resource issues

When asked whether they take part with men in discussing land and resource issues, there were several responses. Some women said their husbands discuss such issues with them, while others said their husbands never discuss these things with them. When asked if they knew any of their husbands’ clan stories, land boundaries and/or resources, the women said only the older women knew about these stories. As for the younger women, most of them said they did not know. They knew only bits of their husband’s clan stories and sites where they could make sago, fish and so forth.

The women’s understanding of the hydroelectricity and the InterOil Projects

Women had various responses to the question of what they knew about the hydro project and/or InterOil’s work. They said they don’t really know about what the two companies were doing, have limited knowledge of the detail operations of the two projects. Some of things they know are that InterOil came before PNG EDL and that InterOil is drilling for oil and gas in the area. They said that in the very beginning when the company was conducting exploration, the women were not aware of what was really going on. And today they still don’t know what the two projects are really doing. They say that their men are the ones who know about the details of these things. Some of the Pawaian women say their husbands don’t talk to them about these things at all. One widow whose son works with InterOil has never talked to him about what is happening.

Information from individual interviews

After the big meeting with the women, interviews with smaller groups and individuals were conducted. These discussions were with young single women, married women, and one woman in a polygamous marriage. A planned interview with three widows did not take place as arranged because they had left early in the morning to make sago.

Young single women

Tehembia Topai does not know her age and but she looks to be between 15 and 16 years old. She completed grade three at Wabo Primary School, but her parents stopped her from going further so that she could help them with gardening and making sago. Tehembia is the eighth child of nine, from her father's first wife. He married three women but the third and fourth wives have both died. Today, her mother is still alive but her father has died. Tehembia, her mother, and her other siblings are looked after by her big brother who is currently working with InterOil. None of her other siblings have been to school. When she was attending Wabo Primary School, she lived with some of her relatives in Wabo. Now that she is in the village, Tehembia says that she wants to get married to a man in the Pawaia area. She has a boyfriend and hopes to marry him someday.

Lucy John, on the other hand, has completed grade 10 at Don Bosco Mission and is 24 years old. She is not pure Pawaia, as her mother comes from Evara. Lucy has lived most of her life in Evara, and last year she was teaching Prep at the elementary school in Poroi 2 but when the other teacher left, she could not continue. Lucy has relationships with boys but she says that she doesn't want to get married to someone from Poroi village or Pawaia in general. Her ambition is to marry a man from outside the Province.

The two girls told us how young girls in the village are forced by parents to work in the gardens, make sago, fish and do household chores. They don't have the freedom to leave their village to see other places, nor do things that they would like to do. They believe that parents should let young girls have more time to do other things, like playing sports, or taking part in community activities. Only the boys in the village play basketball, they said, and the pure Pawaian girls never play sports. They keep to themselves and feel ashamed to talk to others.

For these girls, daily life revolves around making sago, gardening, fishing, collecting firewood, fetching water, and cooking. When asked where they get their water, they told us they collect it from creeks in the nearby bush, inland from the Purari River. In the past, before InterOil

arrived, they would fetch water from the Purari to drink, but now they are cautious about drinking Purari water because of chemicals that have been dispensed to the river.

In terms of earning income, Lucy is fortunate as her mother's brothers are landowners of the forest where RH is logging. Her mother's brothers share some of their royalty money with her and her family. Tembehia, on the other hand, has five brothers who are currently working with OilMin at InterOil. They provide her with K20-K50 periodically for her needs, with which she buys clothes, biscuits and rice.

Lucy talked about children's education. She is concerned that many of the children currently living in the village are not going to school. She also mentioned the lack of proper health services accessible to villagers along the river. At the moment it's very hard to get help when there are emergency cases or serious illnesses. They also mentioned the urgent need for more and cleaner water sources.

Married women

Dorcas and Molly are two of the women married into Poroi 2, not of Pawaian origin. Dorcas is 21 years old and comes from Sinesine in Simbu Province. She completed grade eight in Simbu but has not continued further. Molly is from East Kerema, is 22 years old and has three children. She completed grade 8 and went to Limana Vocational in Port Moresby, where she received a Certificate in Office Procedures. As married women, both said that most of the work they do is mainly household chores and making sago. Processing sago, collecting water and firewood, taking care of children, washing laundry, fishing, and making gardens fills their day. (Men are responsible mainly for making canoes, building houses, and hunting.) When making sago, these women don't live in bush camps for weeks or months (as some Pawaian women do) because they are not used to that way of life.

Like most other married women in Poroi 2, they have no opportunities to earn income. Although there are occasional markets, there is little opportunity to sell enough of anything to pay for kerosene, batteries, salt, soap, rice, tin fish or clothes. At the time of interview, both Dorcas and Molly's husbands had no job and were living in the village. Molly had moved from Kerema to live in Poroi 2 recently. In order to get money, her husband helps leaders in the village do their paper work. His pay is used to buy basic things the family needs. Dorcas' husband had been working with InterOil but left his job and is now just living in the village. They have been married 6 years and have one child. When asked if their husbands would allow them to work with either of these big companies, Dorcas said her husband would, but Molly feels that her husband would not.

For these two women, life is very tough compared to their home villages. Apart from limited access to basic services, there are new customary expectations that they need to fulfil. Both mentioned the tendency of husbands and wives to be jealous of each other. Jealousy is common here and prevents both genders from speaking openly to each other. No one jokes or speaks playfully to anyone outside their marriage.

Most of the Village Court cases are related to adultery, although stealing is also a common offense. Both Dorcas and Molly have some skills in sewing and cooking, and they see the entry of new companies to the area as opportunities for positive change. Their hopes are to live in good houses, have access goods and services, and sell things at market to earn money. They were happy that PNG EDL brought them food after the floods destroyed their food gardens. InterOil had been operating in the area for 11 years, they said, and had not contributed anything like that. The women also said that they would like to see their school rebuilt, to have a new water supply, and an Aid Post. Personally, they would like training in new cooking methods, because they are tired of eating sago in bamboo tubes, the most common Pawaia meal. Introducing sports, they say, would be a good way of socializing, especially for women who otherwise keep to themselves. Family planning is another concern of theirs. The Aid Post could offer well-needed advice on family planning to young people.

Polygamy

Momu is from Baimuru and is married to a man in Poroi 2 who also has a second wife. He met Momu when he came to Baimuru; but he did not pay her bride price. When she had her third child, her husband told her that he wanted to get a new wife. She didn't like the idea and took the children and went back to Baimuru, staying there for 9 months, when her husband sent word for her to bring his children back up. When she did, her husband had already taken the second wife and she was living in their house. Momu was angry but could not do anything. Today her husband works with InterOil as the dinghy operator. He goes out to work for three months, while Momu and the other wife fend for the children and themselves by making sago, gardening, and fishing. When her husband comes home for his break, he shares the pay equally among his two wives. Momu describes her husband as a 'good husband'. He never hits them. But there are times when Momu is not happy about how the second wife treats Momu's children. This happens when she goes out fishing, gardening or making sago on her own. The second wife does not look after Momu's children well, so she gets angry with her, and as a result their husband beats her up. She also told us that she feels left out when her husband pays more attention to the second wife.

Before InterOil came into the area, the only way that people in Poroi 2 village made money was by selling crocodile skins and timber at Baimuru. Life was very tough in those days, she says. Men would go out together to the bush to hunt for crocodiles. According to her, a 20 inch crocodile skin could be sold for between K600-K700. There was not much cash flow back then and the little money they had was not enough to pay for basic essentials like soap, salt, clothes, pots and pans, kerosene, rice and/or tin fish. But today, companies like RH and InterOil have offered employment to their husbands so they earn a little bit of income. Momu’s husband gets K780 per fortnight. The family is big: she has seven children and the second wife has three. Buying things is expensive and at the moment, the only shop is across the river from the RH camp where the price of goods is three times as high as in town. A bar of laundry soap costs K1; a 500 litre kerosene container costs K5; a one kilogram rice packet is K5; and a small tin of fish is K3.

Subu 1 Village Women’s Meeting

August 29th the team visited Subu 1 village where six women attended the group meeting. Among them, two were young girls, aged thirteen or fourteen years old. The other four women were married and ranged from sixteen to twenty four years old. Unlike Poroi 2, both the married and the two young girls freely expressed themselves here. The number of young girls is lower than that of married women because, as elsewhere, they marry very young. Thus the two thirteen and fourteen year olds are actually regarded as young single women.

Marriage arrangements

In the past, women were sometimes chosen as wives when they were as young as 13 years old. But today, we were told, the practice of choosing child brides is dying out and more young people are marrying whomever they like, with parental approval. Polygamy is also common across Pawaia villages; men can marry more than one wife.

Table 15: Number of women at Subu 1 village attending the meeting

Marital Status	No. of women present at the meeting
1.Young single women(unmarried women)	2
2.Married women	4
3.Married and in polygamy	2
4.Widowed	0
Estimated Total	6

Education

According to the six women at the meeting, none of the women in Subu 1 has ever been to school. When we asked the four mothers present if they had sent their children to school at Wabo or Poroï 2, they said no, their children just live in the village. Currently PNG Bible Church is establishing a school. It started in 2011, with a Prep intake, with the pastor as teacher. However, at the time of the visit the Prep classes were suspended because the flood had destroyed the classroom; the pastor was in Goroka.

Language

The women present at the meeting were able to understand Tok Pisin and speak it well, along with Pawaia language. But they said they don't understand Motu.

Health

As in Poroï 2, health is a major concern in Subu 1. When InterOil came into the area, the people had high expectations. These have turned into resentment, though, because they say the company has not helped them with transport to the Aid Post. They have to paddle all the way up to Wabo or down to Kapuna for medical treatment. Before the company came, however, they depended solely on the forest for bush medicine.

The women also talked about their childbirth customs, which require them to go to the other side of Subu River to deliver. The women build their own shelters with bush materials (of breadfruit leaves) and live in the bush until the baby's umbilical cord falls off. It is believed that if men come close to them during this period they will get sick and develop asthma which the Pawaians describe as *meãpo söãri* (*sot win*—acute shortness of breath). Women (i.e. the woman's family, often her brother) are paid childbirth payments from the husband's family, according to the number of children they bear.

The women also talked about food during confinement. There is not enough food for them during labour and after delivery, they say. The women take with them sago, firewood, and bamboo to cook during the post-partum period. But they say they go hungry and feel weak. As a result, they often lack sufficient breast milk. [It is common amongst semi-nomadic people in PNG to enforce food restrictions during pregnancy that lead to low birth-weight babies, which are delivered more safely than large babies. The development challenge for health officers is in providing better prenatal diets where they can also guarantee village birth attendants]. Even

when it's raining women still need to deliver outside and only afterwards can move into the birth huts.

The women use the Subu River water for washing clothes, cooking, drinking and bathing. They all report that they need a better water supply. InterOil once promised to help them set up a water supply from a creek near the village, but the company has never installed the pipes.

Gender

As in Poroi, the women in Subu 1 say they are the ones who do most of the daily chores while men concentrate on making canoes, building houses, hunting and sometimes fishing. Gardening, sago making, looking after children, cooking, collecting firewood and water, are all women's responsibilities. Some men help their wives or sisters to cut the big trees to make gardens, before the women clear the shrubs for planting. And some men help cut down their sago palms or help in cutting firewood and fishing. The women stay in the village if they have enough sago to eat for the week, but it takes three to four days to complete washing a tree and processing the starch, depending upon the number of women who help. With only one women working, it can take seven days to complete the arduous processing of sago.

Income earning opportunities

For the women in Subu, there are no marketing opportunities. A very few sell little things like Maggi noodles, batteries, and tin fish from their houses. Most women get money from their husbands' and sons' fortnight pays. Two of the women interviewed are in polygamous marriages and yet their husbands do not give them enough to look after their children. They may get K50-K100 from a pay packet but this is not enough to pay for basic needs. The women say there is a shortage of food and they must sometimes buy sago from the people on the coast who come up the river to sell it. They buy clothes from Simbu people residing in Wabo who occasionally bring bales of secondhand clothes to sell for very steep prices: a shirt may cost from K20-K50, for example. The sellers think that there is a lot of money in these villages because they are landowners, but most of the people living in the area don't have money, they told us. Only the primary landowners get paid, including James Wahura, Kensy, Jomu, Simon and Max Pero; that that income is not shared with the community.

Land use rights

When women are married into a family or a clan, they have the right to work on the land, and to process the sago planted by their husband's family. The women are told precisely which parcels

of land, and which rivers they can use. But if their husband dies, she may prefer, and is permitted, to go back to her family, but only if she leaves her children behind.

The women’s understanding of the hydroelectricity and the InterOil projects

Women say they have limited knowledge of what is happening. They have heard that InterOil is going to put the pipeline in to get oil. The only thing they know about PNG EDL is that the company is going to build a dam and block the river, although they don’t know why. The women have high hopes for the PNG EDL project in the area nevertheless. On the other hand, they have some doubts that PNG EDL will assist them with basic needs, based on their experience with InterOil. Most notably, InterOil promised to provide a water supply, for which the community cleared bushes to connect the water pipes from the creek nearby; but the the pipes never arrived.

Ura Village Women’s Meeting

On September 2nd we conducted a Women’s Meeting at Ura village. Before this, however we held a general community meeting and were requested by the Camp Manger of PNG EDL to address certain outstanding issues with regard to the company. These included clarifying employment opportunities, fuel assistance, and medication/health services support. There had been complaints from Subu village that PNG EDL had sponsored transport for two people with a sick baby to go to Mt Hagen, and yet one of them was not supposed to go.

Thirteen women attended the meeting. Among those, only three were Pawaian. The Pawaian women at Ura did not show an interest in coming to the meeting; they may have been shy because they do not speak Tok Pisin. The three women who did attend were encouraged to speak in Pawaia language which was translated into and from Tok Pisin for us. As in other villages, the number of young single girls was low: three of them present at the meeting were around thirteen or fourteen years of age. The others were even younger, between nine and twelve years of age. The other ten women at the meeting were not from Pawaia but were married to Pawaian men.

Table 16: Number of women at Poroi 1 village attending the meeting

Marital Status	No. of women present at the meeting
1.Young single women (unmarried women)	3
2.Married women	6
3.Married and in polygamy	2

4.Widowed	2
Estimated Total	13

Language

Tok Pisin is not fluently spoken here, but the women say they can understand it. Only a few older women speak Motu. The young women can understand it only. It seems that the non-Pawaian women married into Ura speak Tok Pisin and have positively influenced the Pawaian women's understanding of Tok Pisin, but this is a slow process.

Education

The women at Ura, like those in Poroi and Subu, tell us that education is important to them. However, most of the young girls and women at Ura have never been to school. At the time of our visit there were only two girls from Ur attending Prep and Elementary One at Wabo Primary School. Boys have more privileges and most of them do go to school. Those who have completed primary school, are furthermore able to go on to high school in Karamui, Simbu, Kerema, Kikori or Malalaua.

Women also said that most children do not consistently attend classes at Wabo Primary school. They told us that the disciplinary approach imposed on the students who misbehave is not good; that the teacher is very abusive. They also believe the school is not situated in the right place, it should be moved to the Station is, next to the Aid Post, on government land, because there is a land dispute on the current school land. They are also concerned about school fees. Not all people in the village are landowners or benefit from royalties, they say. At Ura only one person is a landowner and he alone benefits (Amos Neripe).

Health

There were several health issues raised by women at Ura village. These were similar to those raised in Poroi 2 and Subu villages, including the variety of food and its shortages; access to clean water; transport to Aid Posts; common illness and diseases; complications during childbirth; and the customs that inhibit safe childbirth. The women talked about food as a health issue because there is no variety to their food and it is nutritionally poor. Sago is the staple they eat every day and yet cooking in bamboo is the only way they make it, which is adry form without 'soup.'

Water was another health issue. The women say that before the company came into the area, people used the Purari River for drinking, cooking, and washing. They raised concerns that the river is not clean now, as some people use it to dump rubbish; to excrete; and even to dispose of dead bodies (they have seen bodies floating from upstream). Today, they continue to use the river for drinking, cooking, and washing, and most people don't think about the contamination; they don't even boil it before drinking. There are other sources of water, such as creeks near the village, but the women are scared to walk far because of snakes and sorcery.

In Pawaia tradition, women are seen as polluters during menstruation and childbirth. At these times, they must keep away from men and live by themselves in the bush. This custom is still practiced today. Women who are menstruating have to stay in makeshift bush huts until the blood flow ceases. It is believed that the blood is poisonous and men can become sick if they go near or live with a menstruating woman in the same house. When women want to give birth they have to cross the river to the bushes until after the blood flow stops following delivery. At the same time, married women are not allowed to help deliver the baby, or to even clean and assist another woman giving birth. If a married woman helps, she may pollute her husbands or sons by cooking and serving them food afterwards. Young and inexperienced girls are the ones left to look after their mothers and sister during delivery.

Although there is an Aid Post at Wabo Station, most of the women don't go there to deliver. This is because there is male health worker and customarily women are not allowed to go near men who are not their husband.

Transportation is another issue in accessing health services. For women who have difficulties giving birth, and have complications like a retained placenta, it is hard to get to the Aid Post in Kapuna. One woman recently lost her life during delivery from blood loss. The most common diseases for women and their families are malaria, and skin fungus (grille). A lot of women experience body aches because of hard work, too.

Income earning opportunities

Women here have few opportunities to earn money. But there are some who manage to sell betel nuts and sago. A betel nut is sold for K0.50 or K1.00 and A 10kg of sago bag for K30. In the past, men would hunt and sell crocodile skins and also take logs to Baimuru to sell. But today, most of the husbands, brothers and fathers are working with the companies, and they give the women money from their fortnightly pay instead, in amounts that may fluctuate according to the domestic good will.

Gender

In Pawaian custom women are the ones who take control of everything in the house. They own everything in the household, including pots and pans, canoes, the house itself, fishing nets and lines, and so on. There is a lot of jealousy amongst married women and men. This ongoing suspicion is the reason why women turn their faces away from men, and are not allowed to talk to them. Women in the past covered their faces with bark cloth made from *tapa* (mulberry tree), almost like a Muslim burkha. A husband would kill a man who glimpsed his wife's face, we were told. Jealousy and the sorcery incurred by it has killed man men and left plenty of widows and children. These gender restrictions impact the young girls' educations. Parents still believe that young boys or men at school will lure their daughters into sexual relations. This fear is only enhanced by the fact that bride price payments still depend on the virginity of a bride. If the man finds out that his wife is not a virgin, he won't pay the bride price. The wife who is suspected of being lax will have all the work lumbered on her; she may even be beaten. A husband may also marry another wife with social impunity if he is not convinced of his wife's virtue.

The women's understanding of the Hydroelectricity and InterOil Projects

Much like the women in Poro'i and Subu, the women at Ura are not allowed to participate in the development issues taking place in their area. Most of them described themselves as '*longlongs*' saying they don't know anything about what is going on, especially not the details. This is a pejorative term that we may assume comes from the men, not the women themselves. But the women are happy to see companies come into their area because they feel they have been neglected for so many years. They believe that with these companies will come access to modern clothes, modern materials and modern lifestyles.

Individual interviews: widows

Widows are the most marginalized people in Pawaia society. The three widows we interviewed described their lives as especially tough because they have both men's and women's duties to perform in raising a family. They do the daily chores of cooking, washing laundry, fishing, and gardening. If they don't have grown up children, they must also build canoes and houses for themselves. They process aell sago to pay for salt, kerosene and clothes, however. One of the widows is well looked after because, she explained, her daughter has grown up and married a man, and this son in law has taken her in to stay with them. The other widow has a grown up son who has also married, but because her daughter in law does not like her, she cannot live with them. She has no house, however, and sleeps from house to house with relatives. The third

widow talked about how her husband did not want her to marry again. He had died, but not before paying sorcerers to kill her or the children if she married again. He feared that a second husband would never treat his own children fairly.

Wabo Village Women’s Meeting

Wabo village is the biggest Pawaian village. It was established in colonial times when Australian patrol officers found they could not walk farther inland to the villages, and it now consists of people from Uraru, Haia, and outsiders from Karamui in Simbu Province. On the 5th of September, we held a Women’s Meeting.

Place of origin

There were nineteen women in attendance, five of which were Pawaian. The others were women from Karamui, Simbu, and from other Districts of Gulf who had married into Wabo. Most Pawaian women had left to fish and tend to their sago gardens despite receiving our meeting request. The women who were present explained that the Pawaian women in Wabo do not speak Tok Pisin well and so feel unable to contribute. Others are simply not interested in village meetings and activities. For young single girls at Wabo, the situation is much the same as elsewhere: there are never many in the village, as most marry very young to older men. Because of this, young men are left out and find themselves forced to marry women from other places.

Table 17: Number of women at Poroi 2 village attending the meeting

Marital Status	No. of women present at the meeting
1.Young single women(unmarried women)	6
2.Married women	9
3.Married and in polygamy	1
4.Widowed	3
5.Separted	0
Estimated Total	19

Language

Women were asked during the meeting to identify which language they feel that they were most comfortable using. In Wabo, women seem to be able to understand Tok Pisin and Motu, in addition to their own Pawaian language.

Education

Only six of the women in the meeting said they had attended school. These were women married into Wabo from other places.

Health

In Wabo, the health concerns that the women raised included a need for better access to health care at Wabo Aid Post and in Kapuna Health Centre; more medical awareness, especially of diseases; help with child birth and delivery complications; family planning assistance; and more education in sexuality issues. Availability of health services is a primary concern. Prior to the companies coming into the area, there was no access to services whatsoever. Wabo Clinic was shut down and there was no health worker to run the Aid Post. Many did not get medication or treatment. Most of the babies born anytime prior to the InterOil and PNG EDL presence have not been immunized for tuberculosis, polio, tetanus or hepatitis. Because of the distance to and from Kapuna Health Centre, workers there do not visit the village regularly. We were told they only come once or twice a year, and in some years not at all. It depends on whether they have the money, the supply of medicines and/or the transport. Villagers therefore resort to traditional bush medicine when they fall sick. If they have high fever they go to the creeks and wash in the creeks until they feel cooler. And if they have body aches they use *salat* (stinging nettle) leaf to rub on their body.

The other serious barriers to health care for them are a lack of transport and their inability to pay fees. The women explained that the closest Health Centre is at Kapuna and it can take days to reach it. Even today at Wabo, where there is now a Community Health Worker (CHW), people have no money to pay the fees. In return for treatment, they often clean the aid post. The CHW is always away attending to other things, they say, and so absent from the community for long periods.

Most of the women in the village still go to the bush to give birth. It may depend on the husband, too, whether or not they go to the clinic, because the health worker there is male, and men feel uncomfortable sending their wives to him. However, there is also a Village Birth Attendant who has helped out women giving birth. In Wabo the VBA has been very helpful. She is from Baimuru and is married to a local man who is educated and has worked as a Health Extension Officer in the past. Because of her background, she has not been restricted by the taboo to help other women in the village. Whereas in Poroi and Ura, the VBAs could not attend to the women because they were married local women and were restrained by taboo. There is

no proper health awareness for these women on sexually transmitted infections (STIs), HIV, malaria, tuberculosis, or general health and hygiene. They raised concerns about their husbands going on breaks to Hagen and Port Moresby as they fear that they will get infected with HIV and bring it back to their families. One woman from Karamui who is married into Wabo, talked about what she heard about villagers in Kutubu dying of HIV because the men were going to towns and contracting the disease. Many mothers expressed fears of using family planning methods (birth control injections, the loop, etc) because of their side effects. They feel that women in the village do a lot of work, and may experience a lot of side effects. However, some explained that their husbands had shown interest in family planning, too, but they still could not communicate easily with the health worker about such sensitive issues. Forced sex in marriage was also noted. The women complained that today their husbands are working away with the companies (InterOil, OilMin and PNG EDL) for weeks at a time and when they come for breaks they force themselves on their wives who maybe tired and unwilling. They told us they have no knowledge of sexually transmitted infections and they would not be able to tell the signs and symptoms if they did have an STI.

At the same time, with no effective health services in the area, it's hard for the people to look after those who do fall sick. They say they would leave HIV-positive people to die, just like they do with people have TB, because they fear contracting the disease themselves. They have noticed in their community that TB is a common disease and many people have died from it. Apart from TB, women talked about having chronic lower abdominal pain and back aches, and they believe that it is because of the work that they do. Every day they feel their body ache all over from working in the garden, making sago, collecting firewood and water, and looking after the children.

Income earning opportunities

In order to buy clothes and other basic necessities, the women sell sago (at K20-K50 a bundle), the edible green *tulip* (at K0.50t-K1.00 for a bunch), betel nuts (at K0.50-K1.00 per nut), cucumbers (at K0.50t-K1.00 each), *aibika* (at K0.50), coconuts (at K0.50t-K1.00 each) and cooking bananas (at K1.00 for a bunch). They save this money to buy salt, rice, biscuits, soap, Maggi noodles, tin fish and clothes. The prices for store goods range from Maggie Noodles at K2; salt in small packets at K4; Rice K10 per 500 mg; Tin fish K9 per tin; Clothes at K50 for one pair of jean shorts, or a shirt for between K18-K25, and a meri blouse for K30. These are wildly inflated prices compared to shops in major town centres of PNG. Some women also get money from their husbands' wages (from InterOil, Oil Min and PNG EDL). However, not all get money from their husbands, we were told; some say their husbands spare them nothing from their fortnightly pay.

Gender

As in other villages, the women of Wabo say they do all the hard work while men sit around and do nothing. But some women say it depends on the personality of a man, and that there are some men who help their wives to cook fish and make sago. One of the women in the meeting talked about her husband's response when she asked him to help her. He told her: "Your ancestor Eve has done wrong, that's why you have to feel pain." She thinks that her husband is correct, because according to the Bible women are meant to submit to their husbands. Today most of the husbands work for the companies, however, and it is a struggle for the women to look after and feed the children while the men are away. Rather than making life easier for women, these male employment opportunities have made some of their lives much harder.

Land and resources issues

In Wabo, most of the settlers came from as far as Tatu, Kairuku, Punjano and Uraru during first hydro feasibility studies in the 1970s. They still move around a lot to reach their traditional land to make sago, hunt and fish. Most of them don't own land locally, but they can still use the land for gardening and are allowed to fish in the river. Resources on the land are owned by a family or a clan and are shared by the male members of the family. Thus, if a father plants sago for his sons, all the wives of his sons will share this sago amongst themselves and their children.

The women's understanding of the Hydroelectricity and InterOil Projects

Women in Wabo told us they are happy with PNG EDL operating in the area. They commend the support the PNG EDL has given them, especially the distribution of food after the flood. They see this project as an opportunity for them to have access to services and other material goods. Their only concerns involve the impacts of the dam on the environment. They are especially worried about their sago gardens, vegetable gardens and other food sources along the river. In general, their knowledge of the hydro project remains sketchy. They also know very little about the InterOil LNG activity in the area apart from the fact that the company is extracting gas.

Uraru Village Women's Meeting

Uraru village is the smallest village further up the river, and it is the last village before Hathor Gorge. Our women's meeting there was held on the 06th of September, and 25 women attended, four of whom were young single girls.

Table 18. Number of women attending the meeting at Uraru Village

Marital Status	No. of women present at the meeting
1.Young single women(unmarried women)	4
2.Married women	15
3.Married and in polygamy	2
4.Widowed	4
5.Separted	-
Estimated Total	25

Place of origin

Most of the new babies in Uraru are 'mixed' now, from cultural intermarriage, because a lot of men are marrying women from Karamui. At the time of our visit, there were ten women from outside Pawaia, the majority of them from Karamui area, married into Uraru. The rest were Pawaian women, including young single girls and children. As in Wabo, there are not a lot of young women single women for young Pawaian men to marry, which compels them to marry women from outside. These in-married women are also more exposed to outside influences and can speak Tok Pisin, which explains why they attended and spoke during our meetings. The young Pawaian single girls are more reserved. Many of them do not stay single beyond their teenage years.

Language

As most of the women are unable to speak Tok Pisin, a woman from Masi in the Okapa District of Eastern Highlands Province (married to Uraru) translated the questions and the responses into Tok Pisin and Pawaia. During the meeting, only four Karamui women could speak Tok Pisin, while most of the Pawaians could understand but not speak Tok Pisin. Most could neither speak nor understand Motu.

Education

None of those present at the meeting had ever been to school. They saw the importance of education but they said that because of their geographical remoteness they could not attend schools. They also said that living far away in the bush, it's hard for them to send their children to Wabo Primary School. Their concern is that Wabo is a different village and there may not be food for their children who board there.

Health

Like education, access to health services is difficult in Uraru village due to their remoteness from Wabo. Women talked about using alternative bush medicines when they are sick. The *salat* leaf is a common treatment for all pain. It is also used to relieve contraction pains during labour. In the event of a woman experiencing problems with childbirth, as for example retaining the placenta, the *aibika* leaf is used as a remedy. The leaf and the steam of the *aibika* are steamed and the woman drinks it as a diuretic. The majority of the women have never been to a Health Centre or Aid Post to deliver their babies. They deliver in the bush. Only two women in our meeting said they had gone to a health facility, one to Haia Aid Post and the other to Kapuna. Most have never had an antenatal health check up, or even taken their children for immunizations. Women talked about back aches and lower abdominal pains as well as skin disease (*grille* or fungus). Some mothers talked about lengthy pains after delivery. Their awareness and understanding of disease in general is very limited. For instance, when asked about HIV, one woman said it's a disease that belongs to the towns and cities, that they are safe in the village and won't contract it.

Income earning opportunities

Income earning opportunities for women living in Uraru village are very limited. The only way they get money is through their husband's, sons and brother's fortnightly wages from InterOil or Oilmin. Those most disadvantaged are the widows with their children. There were three widows at the meeting, whose husbands had died and left them dependent upon their brothers and fathers for small and irregular gifts of money.

Gender

The women here were very specific in their complaints, saying that sago processing is laborious work. They must cut down the tree, beat the inner part and wash the pulp. It takes two weeks for one woman to complete the processing the sago in one garden. If women go together and beat it and wash it, it may take one week. Their other chores are collecting firewood, water and bamboo, looking after children, and making vegetable gardens. The girls help their mothers with daily chores, and they help out in gardening and making sago. They do this from a young age; women therefore say those couples whose have a girl child first are very lucky.

As for the men, they mainly work making canoes, building houses, and hunting. The young men don't take part in any work for their family. They don't help their mothers or sisters or fathers.

Some mothers talked about their sons just 'sleeping and waking up' and the family feeding them. They get angry with them and tell them to work, but then they feel sorry for them and they feed them again. As in Wabo, the women in Uraru say that their husbands and sons and brothers do not help them in their chores, even if they fall sick. It is a system that only perpetuates the subordination of women.

The women's understanding of the Hydroelectricity and InterOil Projects

The women at Uraru have heard about the hydroelectricity project but do not really understand the stages of its development. They said that the men who attend meetings do not inform them about what has been discussed. In general, they doubt whether the dam will really be built. Two elderly women said they had heard about this project when they were young girls, but now they have grown old and their teeth have come out and still nothing has happened. They hope they will be still alive to see some changes. However, they also say that they do not know what will happen to their children and their lives if they close the river to make a dam. The women are aware that their village, Uraru, their land and forest will be covered by the water, and they wonder where they will get food (sago), how they will hunt or make gardens. Nevertheless, despite these worries, they still want the project to continue. For many years their lives have been very tough and they desperately want schools, health services, roads and so on. At the same time, as women and the primary source of food for their families, their optimism must overcome the worry that their gardens and sago palms will be destroyed in this process.

Common community concerns

There were common issues raised across the five villages (Poroi 2, Subu 2, Ura, Wabo and Uraru) by both men and women. These are first and foremost access to clean water, basic education and health services.

Access to clean water

Everyone expressed a need for access to clean water. From village to village we were reminded of this. Many of the people use the Purari River to bath and drink from, and as a result they sometimes get sick. In Uraru village, the Councillor told us that some children had died of water borne diseases after drinking from the Purari. Cleaner drinking sources are located two to three kilometres away from the villages but it is difficult to get enough. Many people decide to use the Purari River out of convenience. Today, extensive gas and oil exploration in the area, compounded by intensive agricultural and human activities in the highlands catchment area, affects the water quality and may now make it unfit for human consumption. The people of the

villages we have visited have requested assistance from PNG EDL to set up clean water supplies, or provide tanks.

Access to education

Education is needed across the area. During our visit to Poroi, the inspector for Primary Schools from the Gulf Provincial Education Division was also visiting with the assistance of InterOil's Community Affairs Department. The village leaders openly expressed their dissatisfaction with the Gulf Provincial Administration and InterOil for failing them. As the meeting unfolded, we learned that some years back InterOil had 'promised' the Poroi 2 community that it would sponsor some students for elementary teacher training-- but it had yet to happen. Similar concerns were raised in all the other villages we visited. Nevertheless, and remarkably, people are optimistic that PNG EDL, having demonstrated acts of goodwill thus far (following the flood), will continue to assist them in meeting vital needs. The Pawaian people in the impact area believe that education is their only chance to participate equally (in employment and business) in the development projects happening in their area. The communities have requested that two of their elementary teacher candidates for training be sponsored by PNG EDL. They are Philip David (of Wabo) and Hancy Emanuel Ivia (also of Wabo). It is anticipated that Mr David Philip will attend Gaulim Teachers College for a Diploma in Primary Education (a 2 year program) commencing in 2012. If however, this does not eventuate, then he would attend the International Education Agency, Papua New Guinea (PNG IEA), for a Diploma in Elementary Education (also a 2 year program)¹³. The total cost to educate these teachers is substantial, and needless to say, impossible for the villagers to meet on their own.

Access to health services

People have repeatedly expressed their need for medical help. Subu and Uraru villages requested PNG EDL supply them with medicines. However, there are no qualified persons to dispense these medicines in either village. The people of Subu believe they have the right to be treated at the Staging Camp as it is on their land. We sought an expert opinion from the Health Extension Officer (HEO), Ms Kovea Tinty, at the Staging Camp and she advised that it is dangerous to distribute or supply drugs to villages if no trained health professionals are there to facilitate. People either need training themselves or professionals to come work in the communities.

¹³ Philip David and Hancy Ivia are amongst six student candidates for Diplomas in Elementary Education in the Pawaia area who have already been approved by the Gulf Province Division of Education for 2012.

Issues raised by men: land disputes

Land disputes in the area are a new phenomenon, according to James Wahura, the Chairman of Elk and Antelope Landowner Association. There are inter-clan land boundary disputes (amongst the Pawaians) and inter-tribal disputes with neighbouring tribes. He believes this is a result of the resources development projects in the area. In recent months, the Pawaians have become more paranoid about their neighbours, the Kaura tribe, which has made claims over land located on the opposite bank of the InterOil Herd Base. The Kilomero clan of Kaura tribe, from Vailala River, is laying claims to the land using an old court order of 1995. The Pawaians say it actually belongs to the Su'u clan of Pawaia tribe from Poroi 2 village. Interestingly, the Kilomero clan has further extended its claim over to the other bank where the Herd Base sits, and to the strip of land between Era River (to the west) and the Purari River, where the entire gas resources are located. This may stretch the credibility of their claims.

Within the study area, there is an outstanding land dispute between the Eria and Use'e clans of Wabo village. The piece of land in dispute is called Soturo, near Uraru village. The area is from whence the Use'e clan is believed to have originated. Both clans have requested a land mediation team come to Wabo and help them settle the issue before the study starts. This dispute has the potential to disrupt the study if anything occurs on the dispute area. Another dispute is between the Use'e and the Eri-Su'u clans, although this has only a remote chance of affecting the feasibility studies.

One of the land disputes was solved on the 7th of August, 2011 at Uraru village. It was between the Ope and Taira clans. Ben Turi, a PNG EDL officer, and Kritoe Keleba, both went up to Uraru village at the request of the two clans' leaders and members, to witness them settle the dispute. After hours of talking, they resolved the dispute concerning a boulder almost completely submerged in the Purari River a few kilometres upstream of Uraru village and below the Hathor Gorge. Descendants of Ope clan believe their first ancestor came from within this boulder so they argue that the boulder is theirs. But the site on which it sits was given to Taira clan many generations ago by the ancestors of Ope clan and therefore the land itself no longer belongs to them. The Ope clan members disputed, so both clans agreed that they would share monetary compensation in the future should this historic boulder be inundated by dam water.



Figure 75: Clan Leader of Taira, Jacob Manai Sowori (left) and Clan Leader of Ope, Lucas Ororo (right) shake hands after the meeting at Ururu village.

Employment

There is general feeling that all the clan leaders who are signatory to the Land Access Agreement have the power to influence company's operations – particularly concerning employment. They also demand more from the company in terms of services like health and education. Clan leaders have all expressed dissatisfaction that PNG EDL is not keeping its promise to give first preference in employment of casuals (or labourers) to the local Pawaians. They say that the recruitment of casuals has been done without consulting them and so must involve favouritism by the recruiters. But according to Ben Tuli, who conducted the recruitment, all Pawaians were recruited through their leaders. The people of Ura and Wabo have stressed that all the labourers, foremen and supervisors, must be local Pawaians.

Some of the clan leaders want extra money from the company for their personal use. These include Woi, who persistently says he is landowner of the PNG EDL Staging Camp and therefore should be made a boat operator with the company. Joe Miri has made a request to work with PNG EDL as the company's Community Relations Officer or a similar role by assisting the consultants.

Clan leadership

Clan leadership is tricky. Entirely new leadership stratagems have emerged. Traditionally leadership was reserved for the elderly, the first born, or those descending from first born male ancestor in the clan. Now it is driven by the resource projects, and almost anyone can assume the responsibility. Those who speak good Tok Pisin, those who have a basic education, those who are outspoken, even those who merely believe they are capable, all want to be leaders. The young men see the old as enfeebled, unable to communicate well in Tok Pisin or English-- therefore too vulnerable to the company's 'sweet talk.' Modern times, it seems, require modern men. So, for different projects different people have become leaders. They say this is a fair form of participation – which, we must note, is itself a non-traditional ideal.

Landowners' Associations, ILGs and Landowner Companies

Two individuals (Mr Tony Aimai from Wabo, and Nicholas Moriko from Subu) have separately registered ILGs, Landowner Associations and Landowner Companies. Not all the principal landowning clans of the impact area have given their support. Some have labelled this a 'scam' and say they were not consulted. Some landowners who once supported John Amai's work told us that they did not have a clear understanding of what he was doing. John Amai is from the Sein'jupe clan, originally a clan from Tatu village, located midway between the Hathor Gorge old Yurumatu village. With the help of the Governor, Mr Havira Kavo, and Mr Timon Puposian from Erave, Southern Highlands, as well as Iso Ope from Hai'a, he has completed all the necessary documentation. With support from some of the clan leaders, including John Tura, Daniel Epeai, Solomon Koivi, James Sei and Amos Neripe, he collected list of clans and had their ILG registration completed on 22nd February 2010. He then formed both a Landowner Association and a Landowner Company.

One thing fishy about the ILG registration John Amai undertook is that none of the clan leaders actually signed as landowners. When we asked if they were signatory to their ILG certificate, the response was everywhere: 'We were never part of it.' This implies that someone else signed the ILG certificates as landowners. John Amai was reluctant to disclose any of this any information to us, perhaps for fear that the villagers who are against him might see the documents in the process. When we asked if he had worked with Albert Kerut, he responded, "In the beginning I asked Albert Kerut and Andrew Joupe to help me with this work, but they refused. Albert told me, 'You do it and get it in black and white, and then show us'."

Albert and Andrew are two educated elites of Pawaia and have a lot of the people's respect. Their refusal to participate has made the work of John Aimai appear questionable, if nothing

else. Joe Miri revealed the strained relationship between John Aimai's group and the landowner clans of the hydro impact area when he explained,

We are against them because we Pawaians are not part of their group. They are using the name of Pawaia. We are not in the Landowner Company. It will affect us the real landowners. John approached me many times to be part of his group but I don't entertain him. I won't entertain such person.

One of Aimai's early supporters, John Tura, also told us, "We don't know, we just followed".

Another Landowner Association and Company were registered by Nicholas Moriko from Subu village. Some people from Subu 1 village acknowledge that he is indeed from Subu. But other people from Wabo believe he is from Keremari and a Kamea speaker (of a neighbouring tribe). The Landowner Association is registered under KIDMAS Resources Development Association and the Company was registered as KIDMAS Resources Development Holdings on the 3rd of October, 2006. The company was formed when InterOil was conducting exploration work in the Subu catchment area. When the exploration moved onto other areas Nicholas shelved the company documentation and went on to study at UPNG. He has since completed a Diploma of Business Studies in Accounting at the University of Papua New Guinea.

Issues raised by women: work, jealousy

The gender-specific issues that we refer to in this report have to do with the roles and responsibilities of men and women, particularly the type of work they do. This also includes how the men and women treat each other in public and private. According to women throughout the five villages, men are lazy and fail to support women in the hard labour of looking after the family. The Pawaiian women see their traditions as biased against women, leaving them with all the work. They say they do all the daily household chores, look after the children, cut and beat sago, make and look after the gardens, and they believe this is too much to do every day of their lives. Although a few women reported that their husbands help them to cut sago palms, or clear gardens, most of them still believe they do a lot more work than the men. Men are responsible for building houses, hunting and making canoes which are heavy but occasional jobs only. Most of the time they hang around doing nothing, sleeping and waiting for their wives to do everything for them, the women say.

Another issue raised in almost every village is level of jealousy husbands have regarding their wives, and to some extent, vice versa. This behaviour is very strong in Pawaia culture and men and women, even young girls and boys, are not allowed to speak to each other openly. If they do

this it will cause suspicion that they might be having an affair. Unfortunately, the real sufferer is always the woman, whose reputation may be destroyed and who is more likely to be bashed by her husband, brother or father. Thus employing women to work with the companies is not practical unless the woman's male relatives all consent. This cultural suspicion has affected girls' education, too, and they are often withdrawn from school by their parents. Many parents fear their daughter will have an affair and jeopardize their chance of fetching a good bride price payment. One mother told us that she took her thirteen year old girl out of school because she was scared that the boys might lure her into sex. This sort of fear has aborted many young women's education, and compelled them into marrying young.

Income earning opportunities

Throughout the study area there are only limited opportunities to make and sell things to earn income. The geographical isolation of the villages limits people's ability both to pay reasonable, much less inflated, prices for goods. Although Pawaians have a big forest and the Purari River is their main resource, access to markets to sell fish, prawns, timber and other forest products is not easy. The closest market is at Baimuru, downstream at the delta. And with transport and fuel prices so high, many Pawaians do not have any hope of marketing there. Baimuru was originally the only venue to sell crocodile skin and timber in the past, before InterOil and PNG EDL came into the area.

Today with companies operating in the area, most of the Pawaian families earn their income through their husbands, sons or other male relatives' wages. Those who do not have anyone working for a wage struggle to earn an income. At the same time, some Pawaian mothers and wives have expressed dissatisfaction with the small amounts of money their husbands give them when they return from work, saying little gifts of money cannot cover all the basic family needs today. These include children's clothes, kerosene, soap, salt, rice tin fish, batteries and so on. Because of their remoteness, the costs of these basic goods are now very inflated. Women would like to sell things but they don't have the market. Most of the markets in the village are informal house markets, where people sell betel nuts, sago, and tobacco in small quantities just to buy whatever they need for the day. The most disadvantaged village is Uraru, farthest upstream with the fewest economic opportunities. By contrast, Wabo, Ura, Subu and Poroi are located in places where economic opportunities can and do occasionally occur.

Customs

Pawaian traditional customs are major influences in the people's daily lives. From the women's discussions, we have isolated two customs that have adverse impacts on them today, and these

are the strict marriage arrangements and the prohibitions against care and sanitation surrounding childbirth. In marriage arrangements, women do not have much choice if they have been selected as brides by older men. In most Pawaian villages, girls as young as fourteen can marry older aged men (of forty or even fifty years of age) who may have two to three wives already. Young girls marrying at such age are at high risk for complications during childbirth and other health issues (not least STIs if their groom has had several partners). Pawaian women report that there have been deaths from blood loss during childbirth, and from a young woman's inability to expel the placenta properly when she gives birth alone in the bush. Women in each of the villages we visited have died from such complications.

The custom of seclusion during childbirth is another problematic Pawaian practice, and probably the most dangerous one for women. Many say that it's part of their way of life and accept it as such, but too many women and babies have died as a result. It is also a subject of great fear for women of childbearing age. Women need help to deliver, especially their first child. Should complications arise, there are no health facilities within easy reach. Women at Ura and Wabo do not want to go to Wabo Clinic because there is no female health worker to attend to them. Their custom does not allow the women to be near men during delivery, even if he is a health professional. Woi Tohoi of Subu 1 created history, in fact, by being the first Pawaian man to allow a male HEO from PNG EDL staging to assist his wife who was dying from childbirth complications. He should be commended.

Fortunately, InterOil has helped arrange for some women in the village to assist mothers with deliveries in the bush. InterOil provided logistics and financial support to nursing officers at Kapuna, and the company has also trained two women in each village as Village Birth Attendants (in March 2011). After the training, they received certificates and births kits containing gloves and other materials to assist them to attend to women. During our visit women reported that these trained women have already been a great help to mothers during deliveries in Wabo and Ura villages. In Poroi 1, there were some issues amongst the trained women themselves, and this has prevented them from being fully of use.

In many villages, there were also women complaining about lower abdominal pain, which is a common STI symptom. At Ura, for example, a husband brought his wife to us to have her checked because he thought Frances Akuani was a nurse. She was experiencing STI symptoms, including lower abdominal pain, pain when urinating and pain during sex. Sometimes she had blood spots. Her husband is working with Oil Min at one of the InterOil seismic sites, and would be all too easy to put two and two together and find the cause of her problems. But unfortunately she remains without proper diagnosis or care.

The widows are another subset of women greatly constrained by traditional customs. They are marginalized in Pawaia society, and struggle to fend for themselves and their children, making sago, gardening, fishing, building their own house and buying clothes and other necessary items without assistance. Although they may have relatives (inlaws) in the village, most of the time they are left to struggle on their own. Sometimes an adult son or daughter takes them in. But according to Pawaian custom, widows will not marry if their husbands have asked them not to before they die. The risk for those who do is that their new partner may be the victim of revenge sorcery.

DISCUSSION

The Lower Pawaia people lived a semi-nomadic lifestyle until recently; their daily lives still depend on the surrounding environment and the Purari River. They live within their clan boundaries or on land made available by the owners as places to hunt, fish or make gardens. The Upper Pawaia people live a more settled lifestyle, one that they adopted from their highlands neighbours. Gardening is the main activity to sustain their livelihood but occasionally they return to the bush for sago and fauna.

However, there is no difference between the two areas in the role of the women. Women perform all the domestic chores and daughters assist their mothers throughout Pawaia area. Fathers work separately on their own, but sometimes accompany the mothers to complete some task together, particularly hunting, fishing or clearing gardens. Although women have significant status at the household level, they are still considered second class in Pawaia society. Men have the upper hand in all the affairs including land rights, decisionmaking and clan representation. Women's status is further degraded by beliefs that their menstrual and post-partum blood is harmful to male Pawaians. More injustice is done to women when their husbands prevent them from accessing what little medical aid exists because the health worker happens to be male. The result is that many women have needlessly died in childbirth. Pawaian men are very sensitive about sexuality – particularly that of their women. But with education and exposure to more medical knowledge, this fear will eventually fade. In general, health care in the area is appalling. People die from common, easily treated diseases, and if it requires educating the men in biomedical fact, then so be it.

Communication with the outside world is not now possible, but there is a commitment by PNG EDL to have a communication tower built at Wabo. This would certainly change the lives of the Wabo people for the better. Because there is no road the easiest transport outside of the area is by plane, which is very expensive. Very few people have even gone to Kerema, and they would have done so by motor canoe which is even more costly than air travel.

Since the first the hydro dam project in the 1970s, the people of Tatu, Kairuku, Weijana and Uraru and Poroi have come to live in Wabo and Ura. Most people from Uraru have resettled back at Uraru. All the people from Poroi have also moved back, but the other people are still in Wabo today. As elsewhere in Papua New Guinea, land is communally owned by clans or family groups. So these migrants depend on the land allocated for their use by the landowners of Wabo and Ura. There have been issues of land disputes in recent times between rival clans. Obviously the resource development projects are drivers of these conflicts. Land issues are widespread in PNG and can lead to violence, especially in the highlands, or death by sorcery elsewhere. One individual in the study area has already threatened to use poison or sorcery on another in regard to a dispute related to the hydro project. This dispute involves jealousy, not surprisingly. Land mediation can help relieve some of these land ownership issues, but jealousy can only be mitigated by requires real changes in gender relations.

The greater challenge ahead is when (and if) the dam inundates a huge land area upstream of the dam itself. Vast tracts of ancestral land, including hunting grounds, sago gardens, and plant resources that have sustained Pawaia for generations, will be lost forever. Many people will be resettled to completely new areas, probably to the periphery of the Upper Purari Basin or sites downstream. This will inevitably generate more land disputes between resettled groups and the landowners of the resettlement areas.

In the meantime, the Pawaia people need education to help them participate equally in the development projects in their area. As it is, they are employed as cleaners, mess cooks, grass cutters, re-fillers, loadmasters, and so on, all of which require no formal educational qualifications. Educated Papua New Guineans from outside are working as engineers, managers, supervisors and technical staff, at better wages and in more supervisory roles. This disparity between the rest of PNG and Pawaia could last for many years without urgent educational intervention.

Some stakeholders have had some influence on the Pawaian people---and they include the churches, Rimbunan Hijau, Research and Conservation Foundation (RCF), highlands migrants and, for the Poroi villagers, the Simbu Provincial Government. All of these have played crucial and beneficial roles in the people's lives in the absence of any governmental assistance.

People repeatedly say they don't know the 'faces' of outside peoples, including government representatives. All they know is how helpful and peaceful the environment has been to them. Pawaia generally feel neglected by their government and have lived a semi-nomadic lifestyle up to the twenty first century. Mothers are still giving birth near the banks of the Purari River without trained midwives or medical practitioners. Many school age children are deprived of basic education. Few if any people feel a part of the wider PNG society. With no real help from the government, and only a few NGOs and Churches in the area, these new development

projects represent their hope for the future. This includes the InterOil LNG project and PNG EDL hydro project. Hence, the support for the hydro project amongst the male population is tremendous. Women are not quite sure of what is going to happen, and yet, despite having more at stake with social and economic change, they believe that these developments will give them a better life. There is an overwhelming desire for improved living standards, and general understanding that this involves a change in life-style and subsistence base.

When a dam was first proposed, on the eve of Independence, various objections were raised based on environmental and social damage caused by damming similar rivers elsewhere in the world. The Purari Action Group produced a comprehensive report based on these objections at the time (Pardy et al 1978). The argument was that if the project were to go ahead, despite the concerns of the Wabo people, it signaled an anti-democratic path for PNG development. In a country where customary land is the linchpin to quality of life, and where there simply are not enough jobs for those people displaced to the market economy, the question of whether landowner rights can be pitted against the 'national good.' Whether this is constitutional, or even ethical, will never be fully resolved. But the sad irony of this project is that the thirty five years since Independence have radically changed the Wabo people's relationship to their government. Not only do they feel powerless to effect their own change, but they have lost hope in the government's ability to provide services. Were it not for the InterOil and the hydroelectric projects, they would have no prospects for education, health services and/or cash income. PNG EDL has not been the one to neglect the Wabo communities for thirty five years; it arrives as a beacon of hope now.

CONCLUSION

In many large scale development projects, the social, cultural and economic effects of the projects are never fully known until after the project is completed. This study was intended to provide baseline data on the people who live in the Purari dam impact area, what their political and social organizations consist of, what they know about the proposed project, and how they might perceive its benefits or drawbacks. There are both positive and negative reactions to the proposed hydroelectricity project. The environmental impacts are real, and even if overruled by the desperate need for services, cannot be suppressed. Without full environmental assessment and disclosure, there will come a time when the educated Pawaian landowners will report that they were misled into acceptance and need to redress this wrong. Hopefully, yhis will not be too late.

The size of the river and its location demands an in-depth feasibility studies into the environmental and socio-economic impact, before this capital intensive and technologically complex construction begins. The dam poses real opportunity to transform the lifestyle and economy of the Pawaian people whilst the environmental and socio-economic impact may be

devastating. When people have their gardens inundated, they will rely entirely on cash payments, and to date, we have no assurance these will be equably distributed. The project will bring basic services to the area, and attract further investment; it will change the social welfare of women and children and no doubt improve the health of the entire region. The hectic and cosmopolitan construction period will radically impact attitudes and social mores of the Pawaia people, and this is unavoidable. People should know all of this.

Pawaian women might face the prospect of having no more sago to beat, filter and wash. Maybe rice will replace sago as their staple food—if they're lucky. Young men will marry outsiders, and those who don't will inevitably contract diseases from visiting sex workers. These are the 'givens' of resource projects in PNG. The local economy will wither and appear to fail: traditional transactions may give way to cash exchanges, and the cost of bride price, compensation and even a head of cabbage will rise outrageously. For the most part, however, such disruptions are temporary. Indeed, to some extent they have already begun.

As with so many development projects, the Pawaian people will make priceless sacrifices for the general good. They may not intend to do so, nor will they be able to predict the outcome of their trade-off. But there will be damages to the values and the ideals of these semi-nomadic Pawaian people. This does not make the project costs insufferable or unethical. It does not undermine its greater worth to the PNG public. But it does mandate a comprehensive awareness project, and a serious communications strategy with the Pawaian people, to keep them informed and prepared for the stages in the project and their potential impacts. Landowners must be fully versed in the consequences of their support, to their families, their environment, their future. There cannot be a situation ten years down the track when a class action against the PNG EDL may claim landowners never provided their fully informed consent.

RECOMMENDATIONS

Our recommendations are derived from concerns raised by the study communities. They range from broad investment aspirations such as Incorporated Land Groups and Landowner Companies, to basic human needs like schools. Some are more serious than others, and they may be considered listed here in descending order of importance:

1. PNG EDL must help the landowners to register Incorporated Land Groups (ILGs) for every clan that will be affected, and form an overall Landowner Association.
2. When ILGs are completed, PNG EDL should help the Landowner Association form a Landowner Company. This Company must be involved in the development of the Hydro

Project from the start. It should be managed by PNG EDL and over time transfer these functions to the landowners.

3. Before the actual project starts, PNG EDL must carry out positive and negative impact awareness campaigns --covering economic, environmental and social issues. Engage company (PNG EDL) and Gulf Provincial Government officials to carry out this awareness. Reliable video films or photographs of comparable other dams should be included in the campaign.
4. Food security will be a concern as the principal food source (sago) of Wabo, Uraru and Ura villages will be flooded. PNG EDL must put in place a realistic food security program to prevent malnutrition.
5. The need for basic education is huge in the area. There must be a tremendous up-scaling in education to compensate for the poor literacy levels at present. On-the-job training will also be crucial for willing and able bodied people to contribute to project construction and/or preparation.
6. Train women volunteers as health professionals to administer to the Pawaia women.
7. Resettlement decisions must be made in collaboration with the villagers being resettled. The terms of their settlement cannot be left to the host communities alone. The company should select potential locations and assist in the temporary quarters of initial resettlement—providing shelter, food, water and other basic needs.
8. PNG EDL and partner employees should be given basic cultural awareness training in Pawaia culture, to ameliorate the kind of bigotry that comes from elite Papua New Guineans commanding authority over remote ones.
9. A control mechanism should be in place to monitor the movement of migrants and visitors in general. This should reduce law and order problems that may arise.
10. Establish better water supplies in each village, beginning with tanks.
11. Distribute treated bed nets to every household to curb malaria.
12. Provide basic adult literacy programs.

13. Distribute solar panels to every village to power public facilities like schools, aid post and churches.

We also wish to add the following:

Clean water

Clean water supply for can be achieved in two ways. For the Delta villages, locate and drill for wells. Choose the biggest well and set up a water supply system from it. There are two ways to do this, the easiest being to dig a hole. However exposed well water can be easily contaminated, so the second and safer option would be to insert a pipe into the well head. On the top, a hand pressure pump handle can be welded on to enable people to pump water. For the villages from Poroi 2 to Uraru, running streams can be piped the village using a gravity feed. According to one experienced OilMin Supervisor, they have the expertise to construct the wells and set up a gravity feed water supply.

Education

The endorsement given to these candidates for study in 2012 for a Diploma in Elementary Education by the Gulf Province Division of Education will not be reserved for them if they fail to secure sponsorship to study in 2012. Therefore it is our recommendation that PNG EDL sponsor the two students in 2012.

Medicine/Health

One way to address this problem would be to identify volunteers with basic education from every village to be trained as village medical aides. They can be sent to Kapuna Community Health Work Training under special arrangement. When they have acquired the basic knowledge of practice, they can then return to their village and serve their people. It is very important that women volunteers be recruited and available at all health centres so that, even if they do not dispense medical aid, they can mitigate the shame of women visiting male health workers.

Land Disputes

In our opinion, the hydro feasibility study phase may be affected by inter-clan and inter-tribal disputes. To avoid interruptions to the study, we suggest that PNG EDL provide transport for a land mediation team from Kikori or Kerema to visit Wabo and solve these matters promptly, before they escalate. The legitimate owner of the disputed area will be decided and declared by

the land mediation team after examining all the evidence presented to them. Neither PNG EDL nor NSA can be party to the land dispute settlement process. This is to ensure that both the company and consultants maintain impartiality.

Employment

Meet with the leaders and explain to them the company's position on employment. Give statistics of the labourers recruited by village, type of work, who is recruiting. Explain the recruitment process to them.

Life Skills Training

The Pawaian people lack basic life skills which are essential to improving their lifestyle. They need training on money management, health and hygiene, water and sanitation, food preparation and cooking and gender equality. PNG EDL can perform a great service to Pawaians by bringing in experts to give training and provide continual support to ensure the training do materials.

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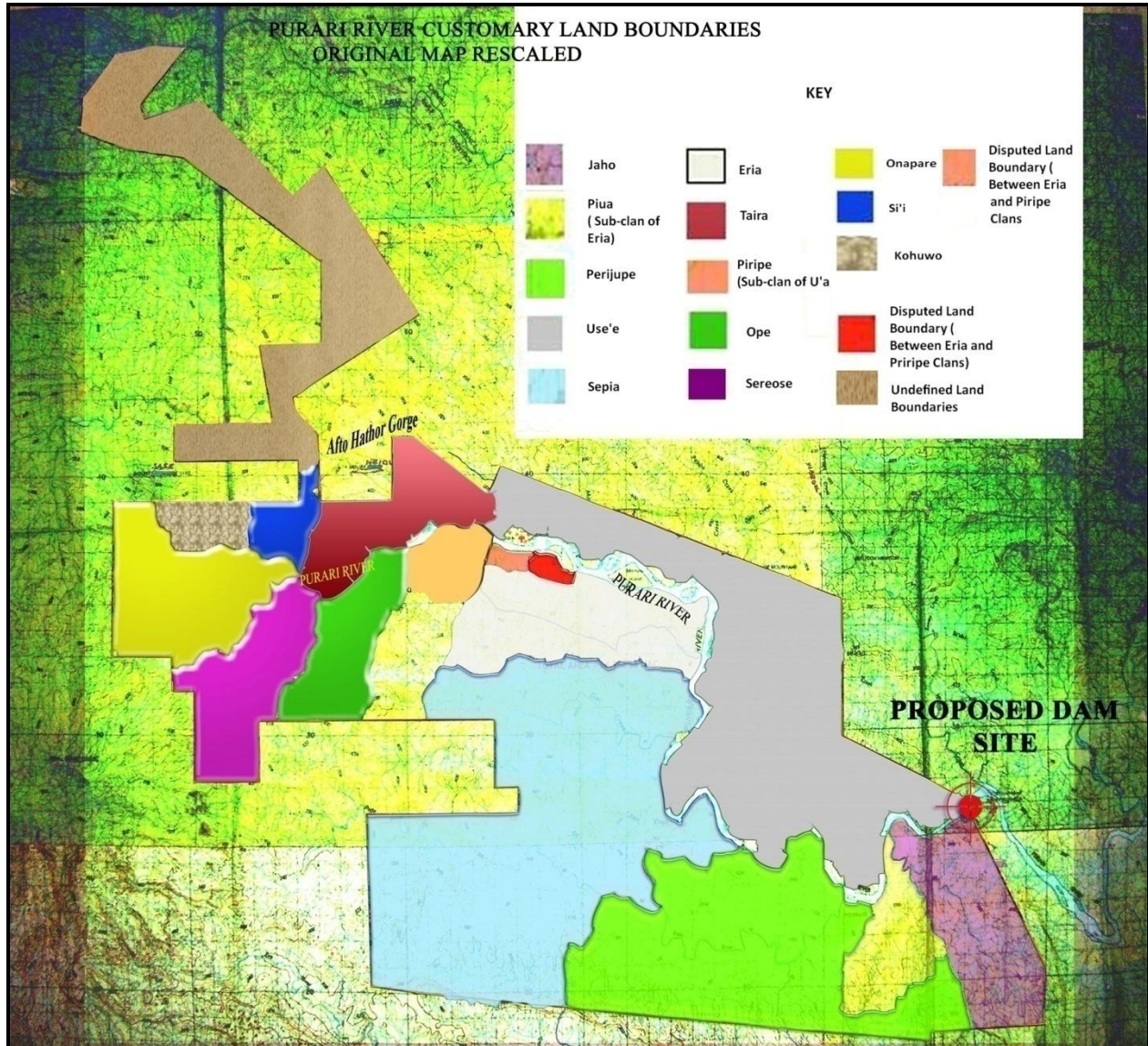
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APPENDICES

Appendix 1: Map, Land Boundaries, Land Disputes, and Clan Histories and Genealogies

I. The Map

Map of the inundation area projected by Purari Hydro Power Limited. Land boundaries were inserted by Nancy Sullivan and Associates



Source: Purari Hydro Power Limited and Nancy Sullivan & Associates

II. Land Boundaries (Description)

The land from the proposed dam site to the Hathor Gorge stretches for about fifty kilometres. From Uraru to the gorge is about sixteen kilometres. Land boundary identification was conducted to establish which clans owned what portions of land within the impact area, especially from the proposed dam site to the Hathor Gorge. Boundaries are signified by natural elements such as creek, huge boulders along the river, patches of special bamboos, palm trees etc, often easy to identify. Details of boundaries beyond the gorge were given by the clan leaders of the clans who own land there.

Clan owns land along Purari from Propose Dam Site to Uraru Village

North – Western Bank	North – Eastern Bank
Jao	Use'e
Piua sub clan of Eria	
Perijupe	
Sepia	
Eria	
Use'e (Dispute area with Eria clan)	

Clans own land along Purari from Uraru village to Hathor Gorge

North – Western Bank	North – Eastern Bank
U'a	Use'e
Ope	Ope
Sereose	Taira
Si'i	

Clans own land along Purari from Hathor Gorge to last Yurumatu

North – Western Bank	North – Eastern Bank
Taira	Taira
Eripe	Eripe
Sena subclan of Pirijana	Pirijana
Senjupe	Sesetoua
	Suajupe
	Senjupe
	Wanjupe
	Zenjupe

Yurumatu clans who own land along the Purari

North – Western Bank	North – Eastern Bank
He'ijupe clan	Hi'oo
Niella	We'jupe

Solipero clans who own land along the Purari (might affected by feasibility study)

North – Western Bank	North – Eastern Bank
Ope (Tobira)	
Popu	
Jaro	

From the proposed dam site to the Hathor Gorge the land on the North East bank is owned by two clans (Use'e and Taira), although Ope clan has a claim on a small piece of land by the river where they believe their ancestor originated.

The land on the North West bank is shared by 8 main clans (Jaho, Perijupe, Sepia, Eria, U'a, Ope, Sereose, Si'i) and 3 sub-clans (Piua sub-clan of Eria, Piripe sub-clan of U'a and Onapare sub-clan of Si'i).

Jaho clan shares border with Piua sub-clan of Eria at the Nomu Creek. According to one informant this piece of land was given by Ho and Perijupe clans a few generations back. Ho clan gave the southern part along Nomu creek and the Purari River while Perijupe clan gave the North West part along the Purari and U'usa Creek. From the mouth of Nomu we travelled upstream for about 2.3km (or six corners) to the intersection of the Imi creek and the border. The border extends all the way to the head of Imi creek. If you face upstream, it is on your right.

From the mouth of Nomu creek to the mouth of Usa creek the distance is about 1 kilometer. Usa Creek is the boundary of Piua and Perijupe. We followed Usa Creek to the intersection of Suai Creek. Facing upstream of Usa, Suai Creek on the right side, and extends the boundary of the two clans.

Several clans share boundaries along Pike Creek. Perijupe owns most of the lower basin but the headwater is owned by Sepia. Near the mouth there are bush camps of Piua people. Piua members claim that the block of land where they camp was give them by Perijupe. However, the leader of Perijupe did not clarify this.

On northern bank of U'usa and continuing upstream on the Purari River, the Perijupe landmass extends all the way to Ju'u creek, with Sepia at the mouth of Ju'u creek. The western bank

belongs to Perijupe while the land on the eastern bank is owned by Sepia. The boundary follows upstream of Ju'u creek to Mt. Upau and follows the range to meet the Pike River.

From the Ju'u, Sepia land extends upstream of Purari to Suri Creek. The land on the other side of Suri Creek belongs to Eria clan. The Mountain Sinau divides Sepia and Eria land. From Sinau, the boundary of Sepia cuts down to the Tipi Creek and over the range to the Pike River. Eria's boundary stops at the foothills of Mt. Sinau Range.

Eria's border upstream is under dispute. The disputed land lies between Jamapou and Wiru Creek. The Eria strongly believe that they own this land because their sago palm trees grow on it. The Use'e claim that it is their because their origin story begins at Jumapou (or Soturo). Interestingly, two islands near this dispute area belong to the Use'e clan. These islands are Jamatu to the west and Sumatu to the east.

Keneai So'onai of Eria clan argues strongly that his clan shares a boundary with Piripe sub-clan of U'a at the Kae'a Creek, which is opposite Uraru village. The people of Uraru village use this Creek for drinking and cooking. The disputed area from Jumapou to Kae'a Creek is about 5.27 kilometres.

From Kae'a Creek to the border of Ope is about 4 kilometres. Patches of bamboo marks the boundary separating Piripe and Ope clans. Ope clan's land expands for about 5km and stops at Siaroweu Creek. From there onwards, Sereose owns the land stretching for another 6km upstream to the mouth of Wai Creek. At this point, the Hathor Gorge is only a kilometer away. The land of Si'i takes over and meets with Taira (Suro) somewhere in the middle of the Gorge (this was what we were told).

Locations

Place	GPS readings	Distances
Wabo at bamboo	Elev 25m S 06° 59.166' E 145° 04.166'	
Nomu creek	Elev (inconsistent reading) S 06° 59.845' E 145° 01. 709'	4.8km from Gauging Station (GS) to the mouth of Nomu creek.
Imi creek Border of Puai and Jaho	Elev 37m S 07° 00.592' E 145° 02.280'	From mouth of Nomu to mouth of Imi creek is 2.3km. from GS is 7.1 km.
Usa creek	Elev ? (inconsistent	0.9km from mouth of Usa to

	reading) S 07° 01.289' E 145° 01. 019'	Pike creeks.
Suai creek Border of Piua and Perijupe	Elev 39m S 07° 01. 562' E 145° 01. 165'	
Pike River	Elev 34m S 07° 01. 229' E 145° 00. 568'	Mouth of Pike creek to Mareko's camp, 2.4km. From mouth of Pike to Mapo creek, 10.6km
Tipi River	Elev 47m S 06° 57.778' E 144° 56.340'	
Suri creek	Elev 53m S 06° 55.776' E 144° 57. 038'	Border of Sepia clan and Eria clan
Heiyetu and Sigirimatu islands	Elev 43m S 06° 55.016' E 144° 57. 105'	
Passage of Heiyetu island (short cut)	Elev 45m S 06° 54. 961' E 144° 56. 623'	
Mareko Wai's camp	Elev 47m S 06° 54.666' E 144° 55. 071'	
Ju'u creek Border of Perijupe clan and Sepia clan	Elev 37m; S 07° 00. 071' E 144° 57. 933'	From the GS is 18.1km from proposed dam site.
Eriamatu island No 2	Elev 50m S 06° 54. 402' E 144° 54. 439'	
Jamapou: disputed boundary between Eria clan and Use'e clan	Elev 51m S 06° 54.305' E 144° 54.071'	This land is the called Jamapou. It also known as Soturo – the place Use'e clan believed to have come out from.
U'yatu island passage	Elev 54m S 06° 53. 875'	

	E 144° 53. 077'	
Wiru creek	Elev 52m	
Dispute northern border between Use'e and Eria.	S 06° 53.883' E 144° 52.361'	
Kae'a creek	Elev 53m	Piripe owns northern part and downstream is whilst southern part is under dispute with Eria and Use'e clans.
Border of Piripe sub-clan of U'a clan.	S 06° 53. 640' E 144° 51. 860'	
Uraru village	Elev 54m S 06° 53. 643' E 144° 52. 284'	From Uraru village to the Gorge is 16km and from the GS to the village is 34km
Bamboo patch along Purari	Elev 54m S 06° 53. 743' E 144° 49. 702'	Border of Piripe sub-clan and Ope clan
Siaroweu creek	GPS not taken	Border of Ope clan and Sereose clan
Mouth of Wai creek	Elev 65m S 06° 54. 278' E 144° 46. 780'	Border of Sereose and Si'i
Hathor Gorge	Elev 68m S 06° 54. 467' E 144° 46. 287'	GPS reading is taken about 30 from the entrance of the gorge. The distance from GS is approximately 50km

The land boundary details of those clans who own land past (upriver from) the Hathor Gorge is not stated here because we have not physically visited them. Also the land boundaries down river from the proposed hydro dam site are not detailed as it might raise false expectations amongst the clans who own these lands.

III. Land Disputes

Land disputes in any development projects are almost inevitable. The ownership of land varies from one place to place. The meaning of ownership also varies from one place to another. In the highlands, land is often acquired through tribal fighting, and this differs from lowland people who inherit land from their ancestors. Where people have lived nomadic lives, it may be hard to define boundaries of land ownership – and such is the case with the land dispute between Use'e clan and Eria clan. Many clans have long lived together and moved from one place to another in search of food. They planted sago everywhere, even on the land that didn't belong to them. From one generation to the next, sago was harvested by the descendants of the person who planted it and not necessarily by the landowners. Over time, the younger generations have come to claim the land as well. Thus land disputes arise. Some claims are not

genuine – for example, those who jump over many clans to claim land that is many kilometers away from their own land. They trace history far back to justify their case – often many characters in their stories may be recent inventions. Some borrow the history of others and claim it as their own. They borrow stories and recreate their own versions. This appears to be the case with Danile Epiat of Saesu clan.

Eria versus Use'e

This dispute is over a strip of land which runs from Jumapou to Kae'a Creek. Eria's claim over this land rests on the fact that they have many sago palm trees on this land. Keneai So'onai also stressed on relatively recent history of living in this area as supporting evidence of their claim. Mr. Keneai So'onai explained that his father lived on this piece of land and showed him where to hunt, where to find materials to build house and what river to poison for fish. Growing up there, Keneai identified with the land and now argues that this land belongs to Eria. Use'e clan lived further downstream, he claims, on the opposite (north eastern) bank only. The Use'e clan strongly opposes this claim and maintain that Eria's boundary is at Jumapou. Gumapou is also called Soturo – from whence Use'e clan is believed to have originated. Twice this case was addressed in village mediation, and still the dispute survives. From an ethnographic perspective Use'e has rich and detail history thus may be the genuine owner; but this call would not go down well with Eria clan. Hence a mediation team from outside, (Kikori or Kerema) must be brought in to listen to the dispute and make the right judgment. We note that it would set a dangerous precedent to say that occupation constitutes ownership.

Su'u clan against Use'e

The dispute between Use'e and Su'u clans has endured a long time. Mr Norman Hare was described by members of Use'e clan as very ignorant man. According to chief Korowai, his claims are baseless because his (Norman's) land is many kilometres away. Four mediations were held on this issue but it remains unresolved. A fight erupted during the fourth mediation session, but luckily no one was hurt. All these mediations took place in the village was without the presence of mediation team or the police.

Use'e versus Saesu

The dispute between Use'e and Saesu started when Daniel Epiat claimed a piece of land at the head waters of Pio Creek. His interest in this land was purely driven by gas exploration. This triggered violent disputes that have gone on for many years. Mediation for this dispute occurred six times in the village, with one in the presence of the police, but all failed to reach

productive conclusions. Fortunately, Daniel Epiiai, the clan leader, later came back and apologized, prompting a settlement of the dispute in August of 2010.

Wanjupe and Zenjupe versus Heijupe [clan from Yurumatu]

Both Wa'ajupe and Zenjupe are cousin clans and the two last clans of Tatu village. Because the members of these two clans now live in Wabo and Uraru villages, Heijupe, their neighbouring clan, has claimed some of their land.

IV. Clan Histories and Genealogies

a. Histories

Clan stories are told by male members of the clan. Many of the stories lack details; some have no logical sequence of events. Many stories begin with a primal ancestor, yet how this person came into existence is not known. Some clans descend from a female figure, as for example, Eria, and Use'e. Wa'anjupe and Zenjupe descend from a woman named Ea'a. Some clans were born of fruits, as for example, the Kuhuwo clan. Every story is different, but they all point to a distinct origin. Due to continual disputes, these stories are not included in this document; they will be archived for PNG EDL use only.

b. Genealogies

Genealogies were collected from the clan members we could canvas. For our purposes, the terms of incorporation rise from family, to subclan, to clan and tribe here. Unfortunately, some do not remember their genealogies. The longest genealogy was that of Use'e clan with a total of 12 generations. Interestingly, the Use'e primal ancestral figure was a woman who lived alone. She mysteriously collected a young baby boy who fell from a tree which Pawaians call *û*. She raised him and when he became a man she betrothed him, and thus the Use'e ancestry began.

With resource projects in the area, new major clans and sub clans are bound to be created. This fission is not unusual, and in the shadow of resource extraction prospects, is a good way to maximize material benefits. It should be understood that while recent, they are not necessarily non-traditional.

Some examples include:

The Jao clan is a principal landowning clan of the western bank of the Purari. The members of this clan live in Ura village. Apparently, Peiho clan was created from a Jao'o clan subclan of the

Wahura family to benefit from InterOil's ILG scheme. It seems to be a subclan converted into a freestanding clan now called Peiho. Peiho clan is now considered one of the major clans of Ura village.

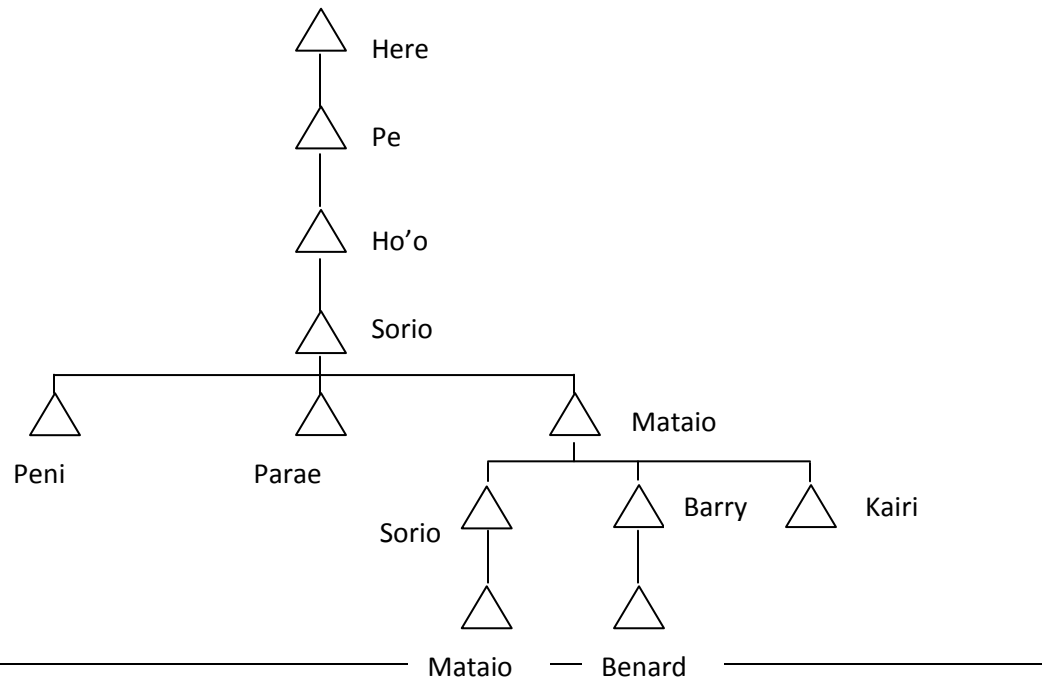
The Use'e clan lives in Wabo village. It has four sub-clans. Recently, a fifth sub-clan was created to benefit from the proposed dam project.

Genealogies presented here are from Poroi 1, Poroi 2, Subu 1, Subu 2, Ura, Wabo and Ururu villages. Not all the clans in Wabo and Ururu (particularly those migrant clans) were covered.

Poroi 1 Village

Name of Clan: **Tejope**
at Wabo

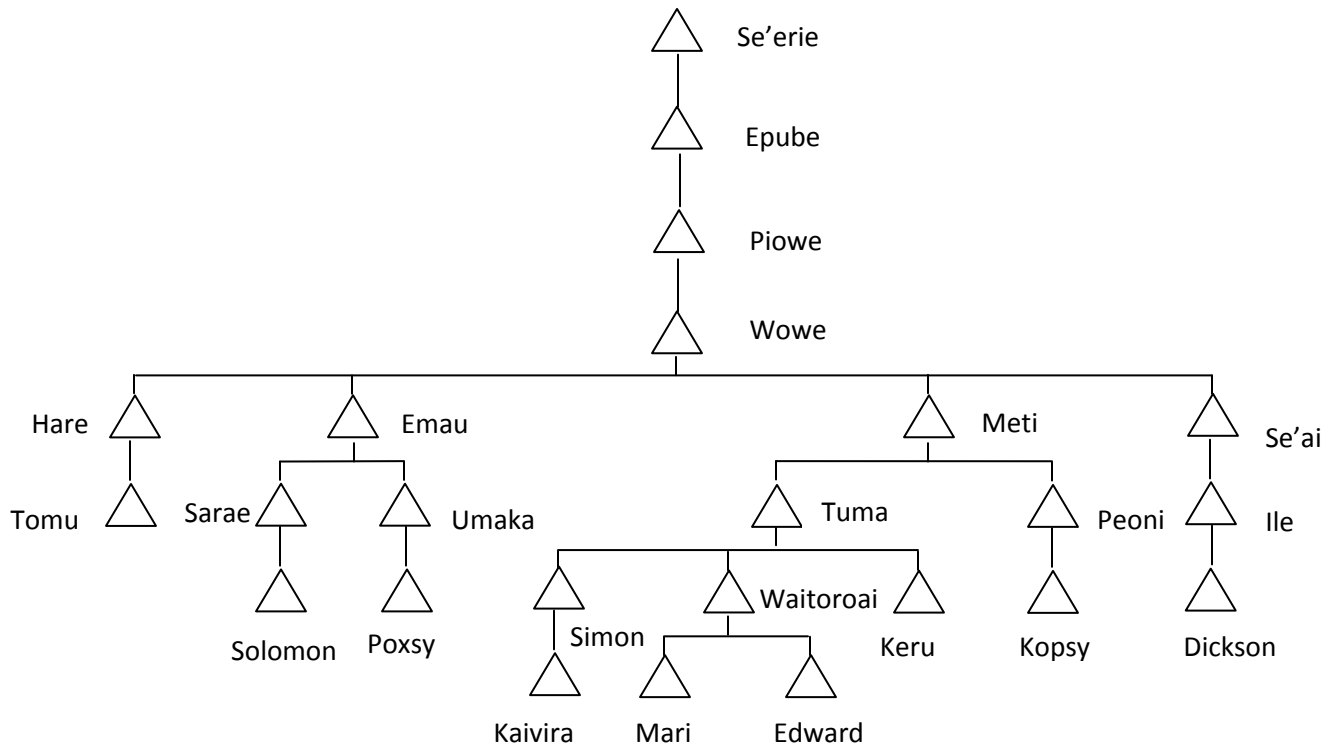
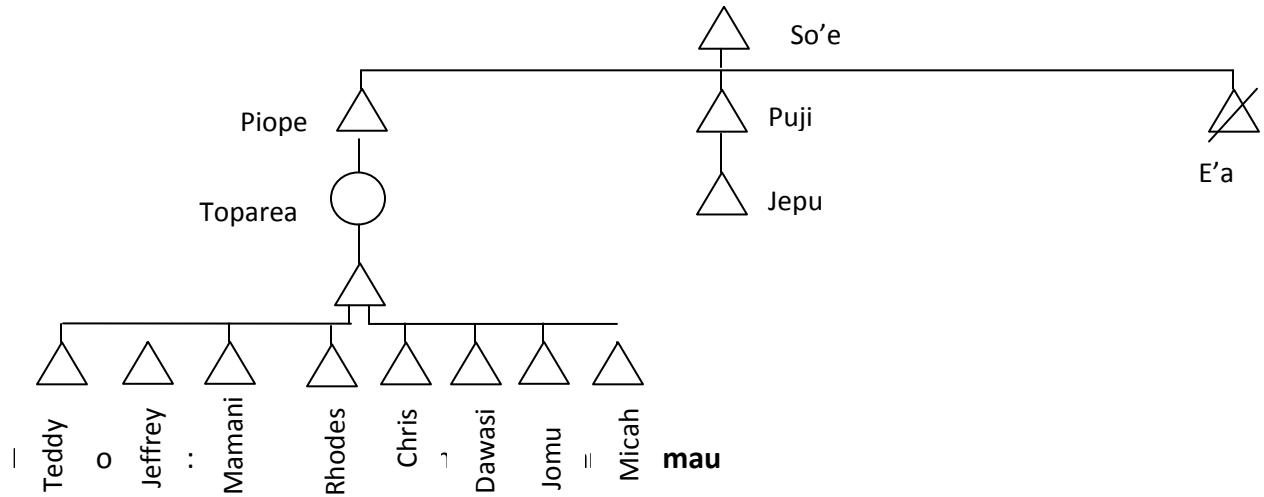
Clan Leader: **Barry Mataio**, also community health worker



Poroi 2 Village:

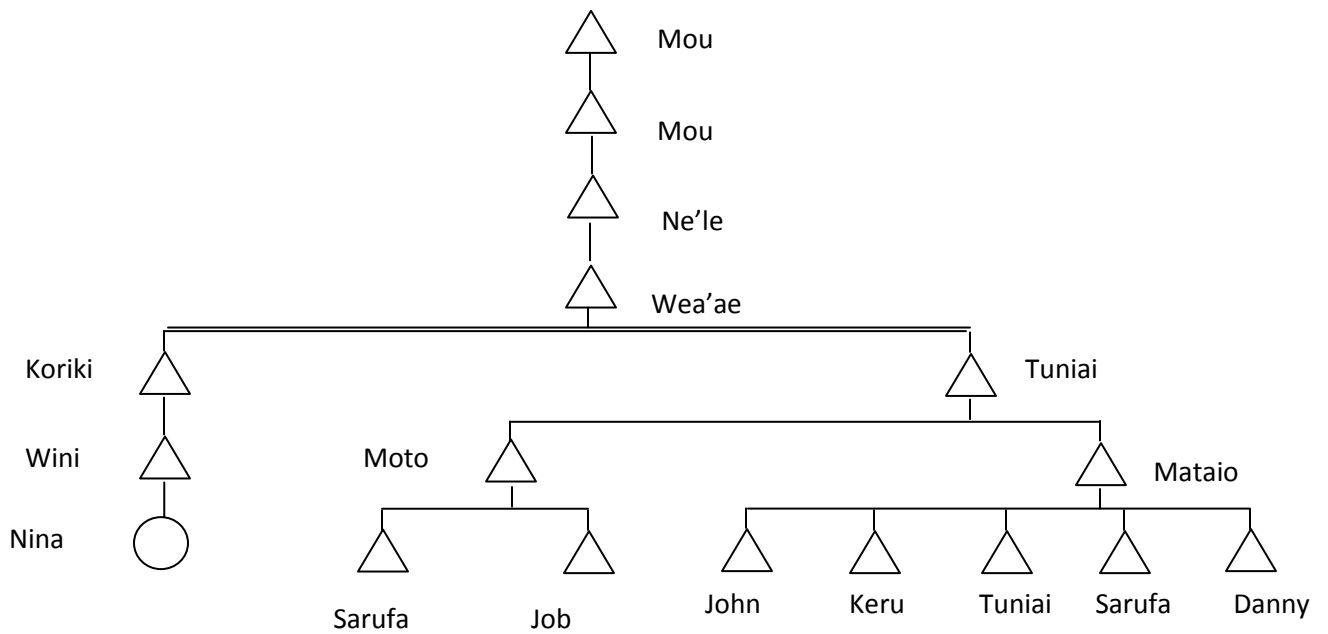
Name of Clan: **Sobusa**

Clan leader: **Peneai Mamani** son Toparea



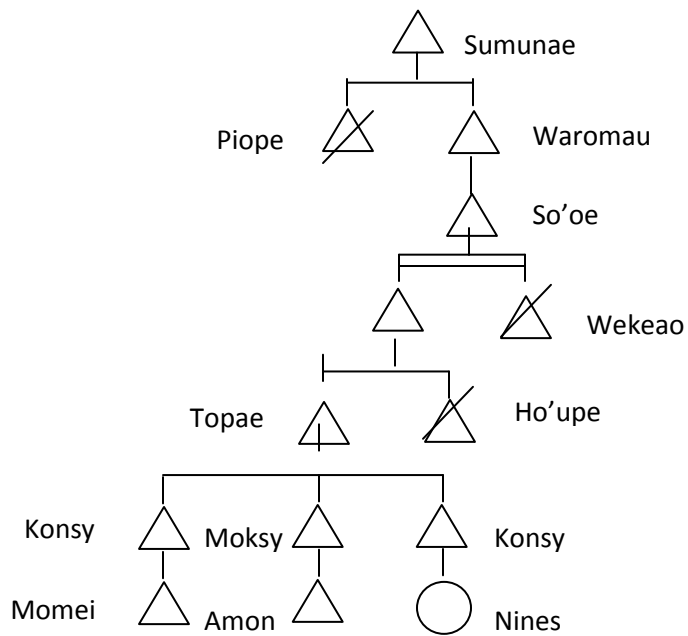
Name of Clan: **Soru**

Clan leader: **Mataio Tuniai**



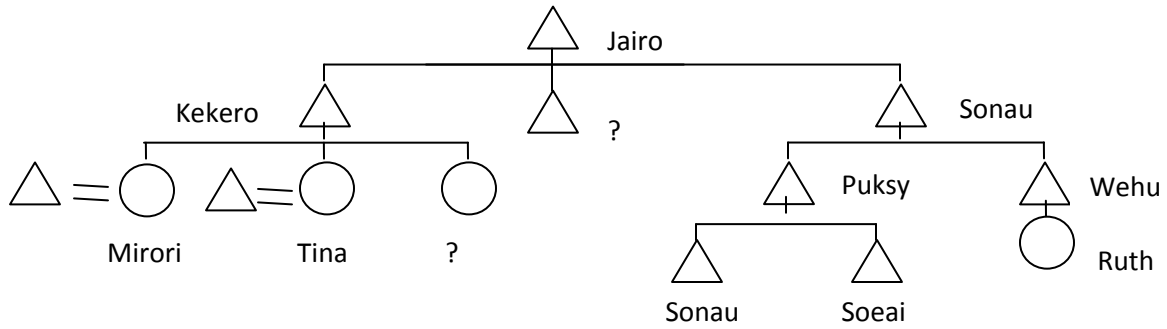
Name of Clan: **Waboa**

Clan leader: **Kevin Topae**



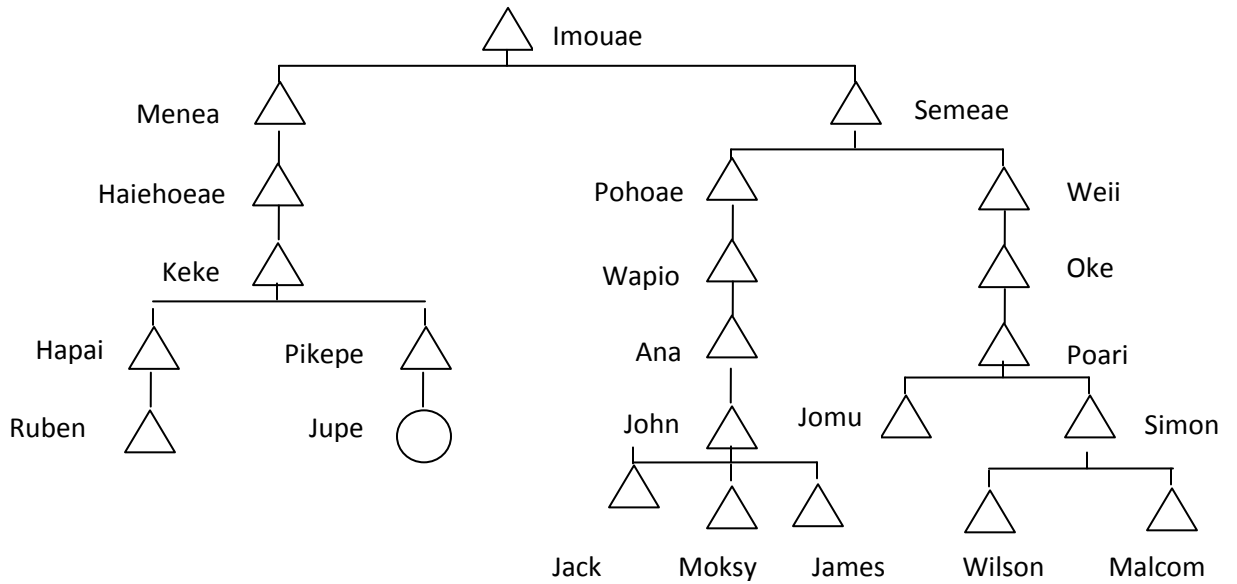
Name of Clan: **Wehu**

Clan leader: **Puksy So'ena**



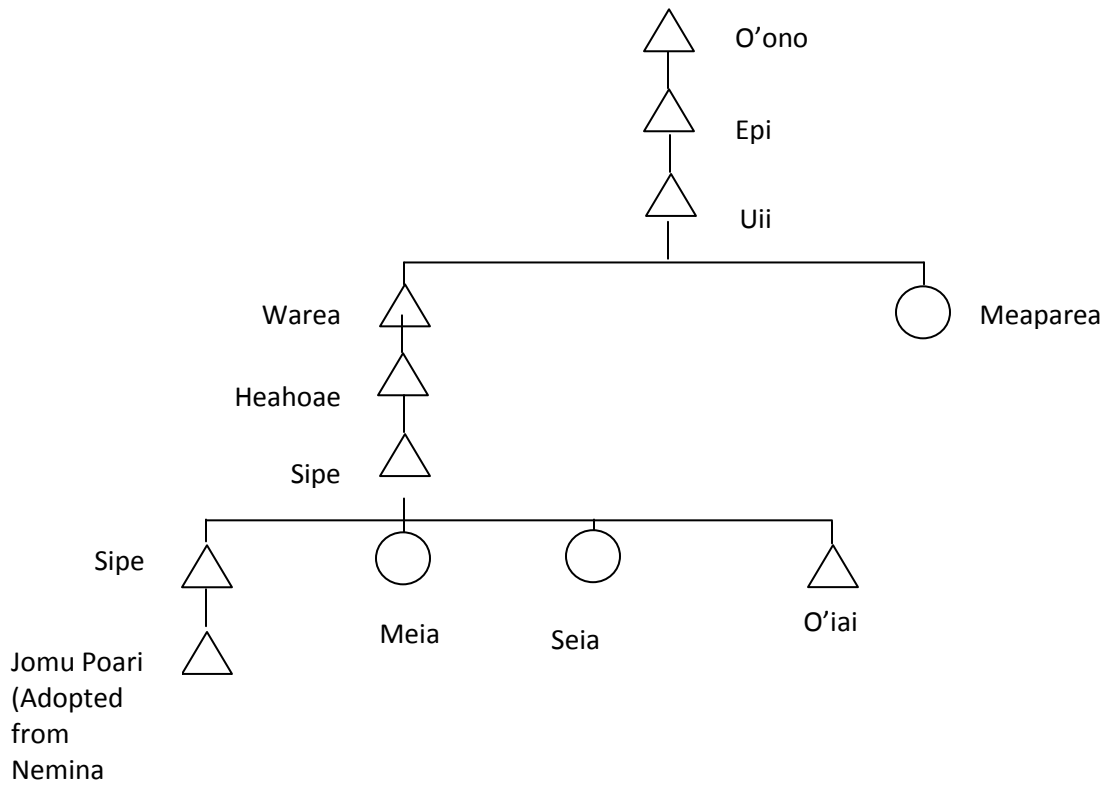
Name of Clan: **Nemina**

Clan leader: **Simon Poari**



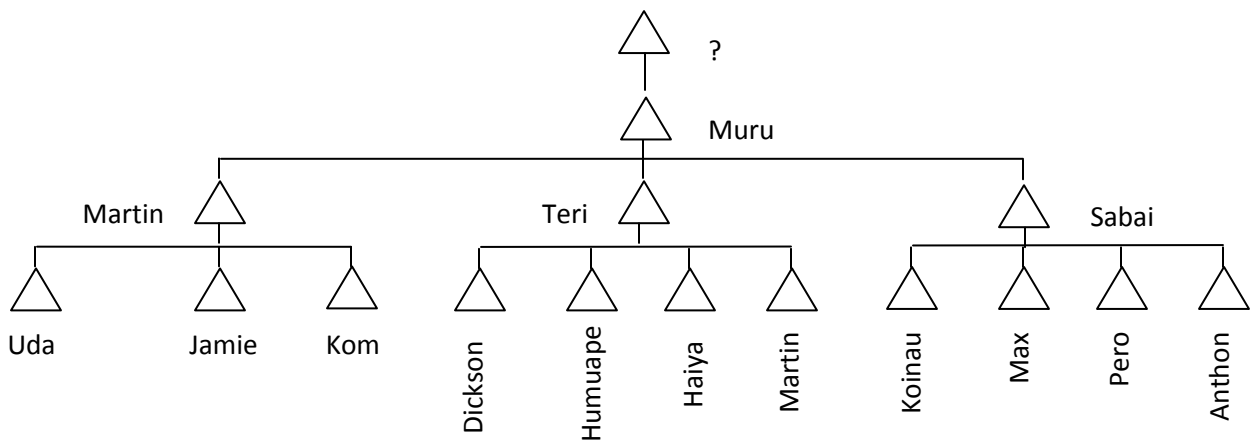
Name of Clan: **Epia**

Clan leader: **Jomu Poari**



Name of Clan: **Su'u**

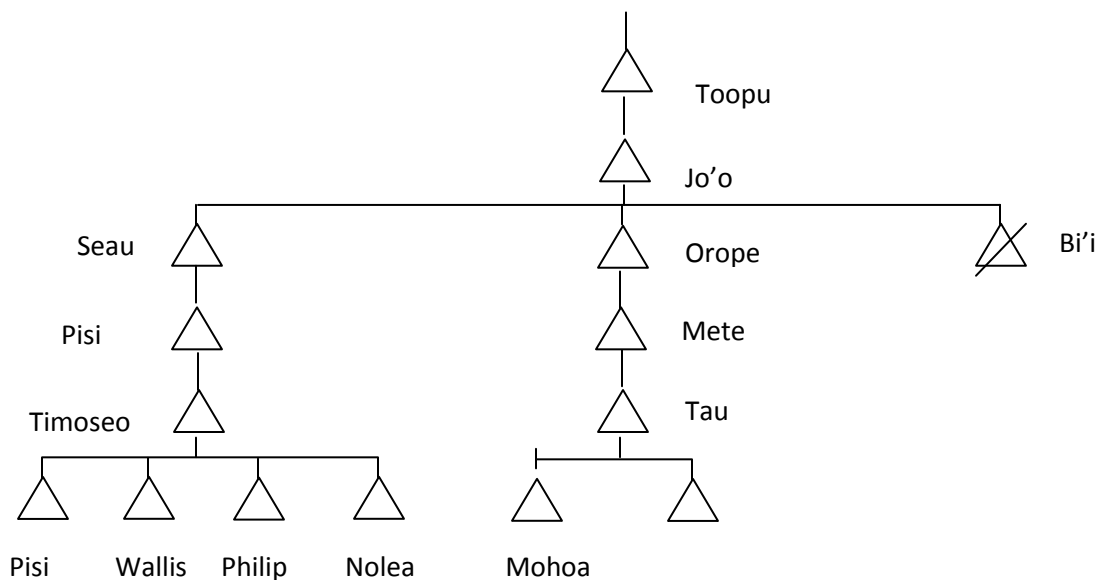
Clan leader: **Sabai Muru**



Name of Clan: **Hatu**

Clan leader: **Tau Mete**





 Name of Clan: **Orua**

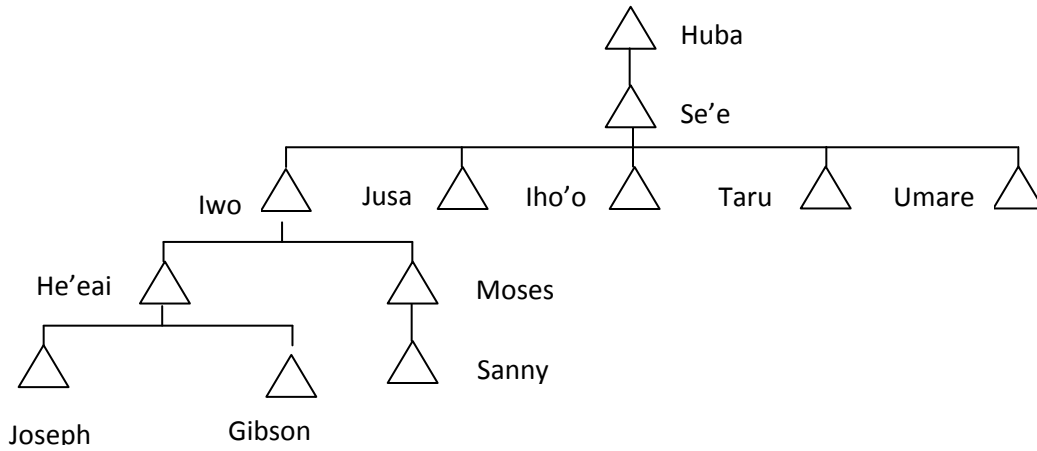
Clan leader: Mairi Jopore

Genealogy: Not Taken

Subu 1 Village

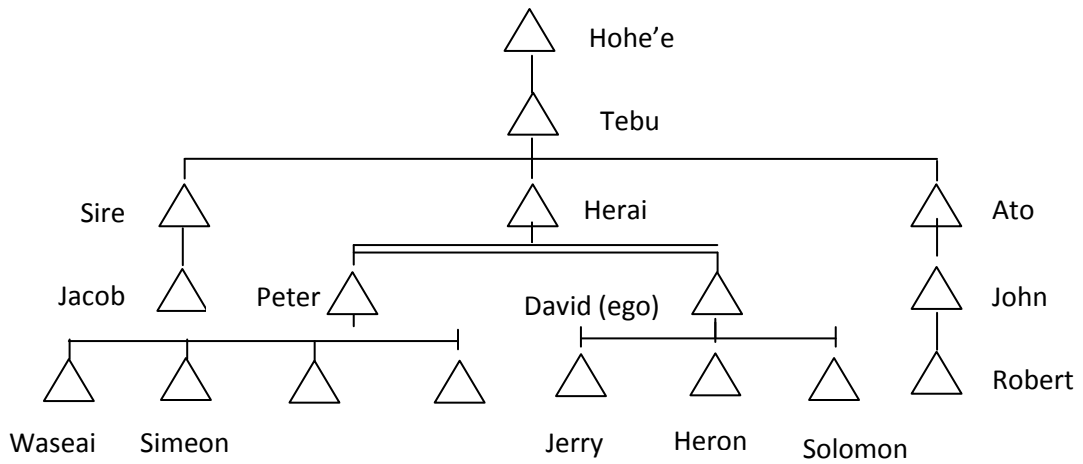
Name of Clan: **Subura**

Clan leader: **Moses Iwo**



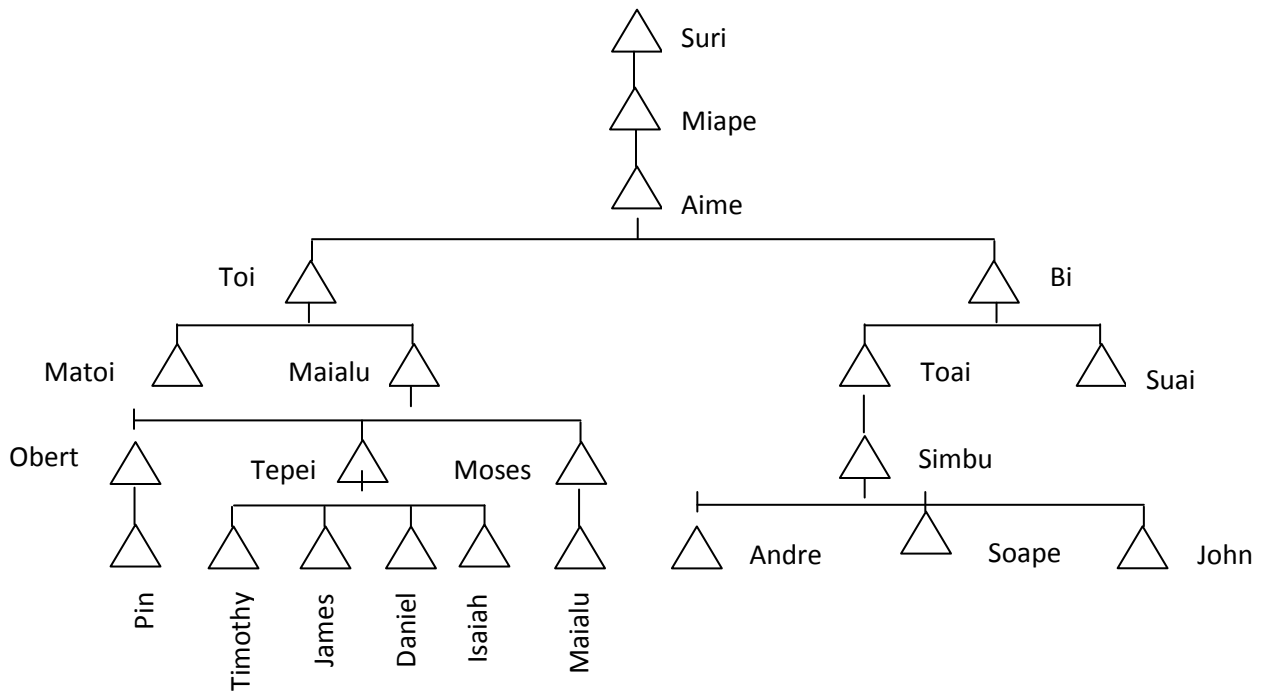
Name of Clan: **Owa**

Clan leader: **David Hiraie**



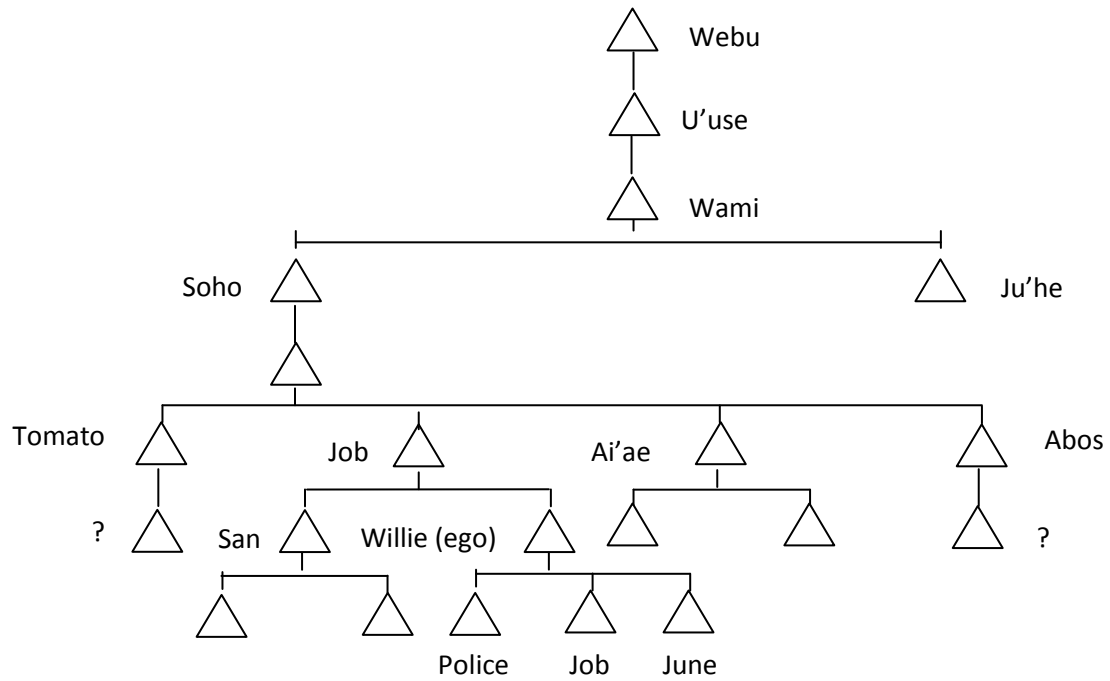
Name of Clan: **Oi'jo**

Clan leader: **Obert Maiaru**



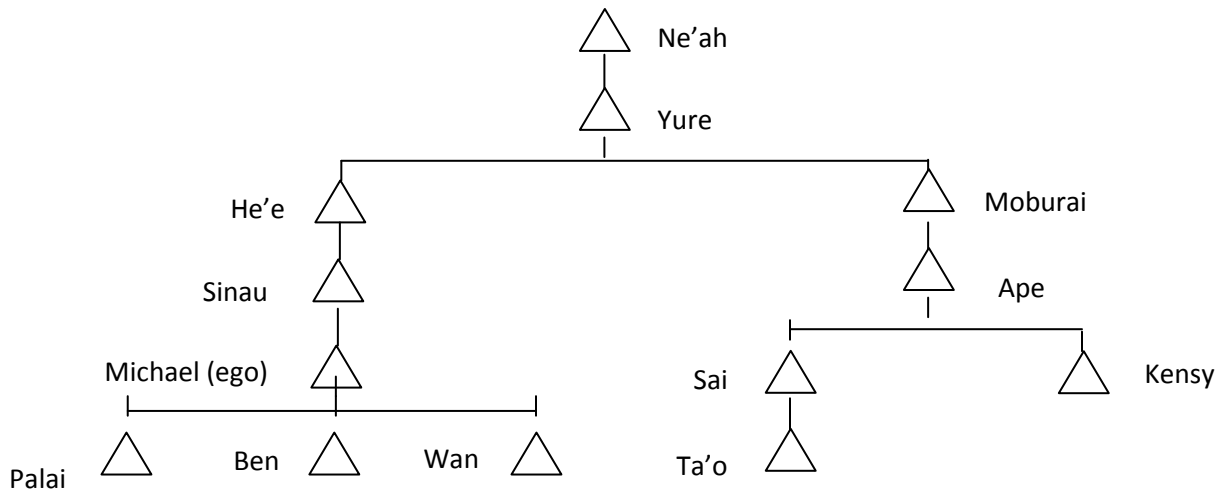
Name of Clan: **Wajou**

Clan leader: **San Job**



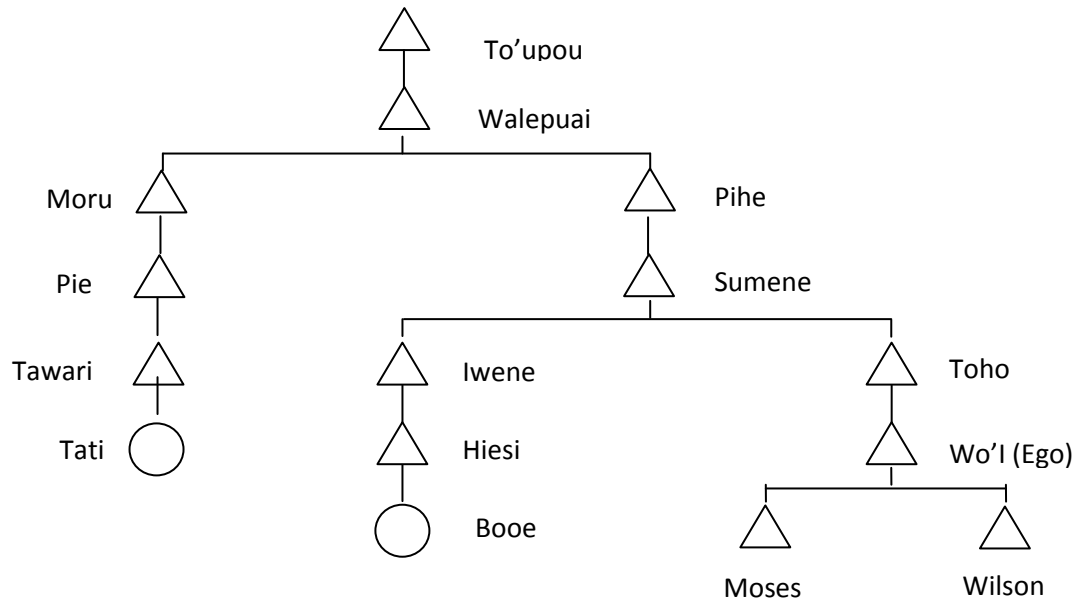
Name of Clan: **Aituya**

Clan leader: **Michael Sinau**



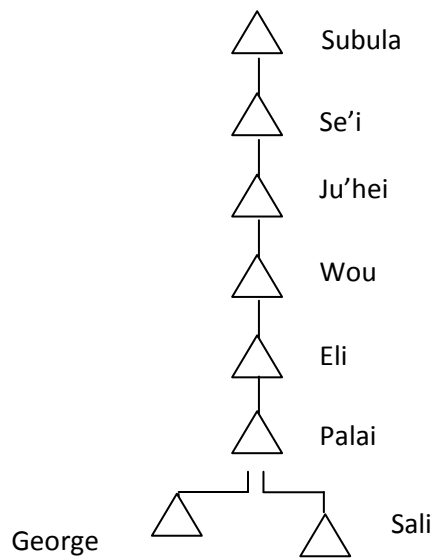
Name of Clan: **So'oh**

Clan leader: **Woi'e Too'hoi**



Name of Clan: **Perua**

Clan leader: **George Plai**



Name of Clan: **No'ouwa**

Clan leader: **Jonah Elie'i**

Genealogy: **Not taken**

Subu 2 Village

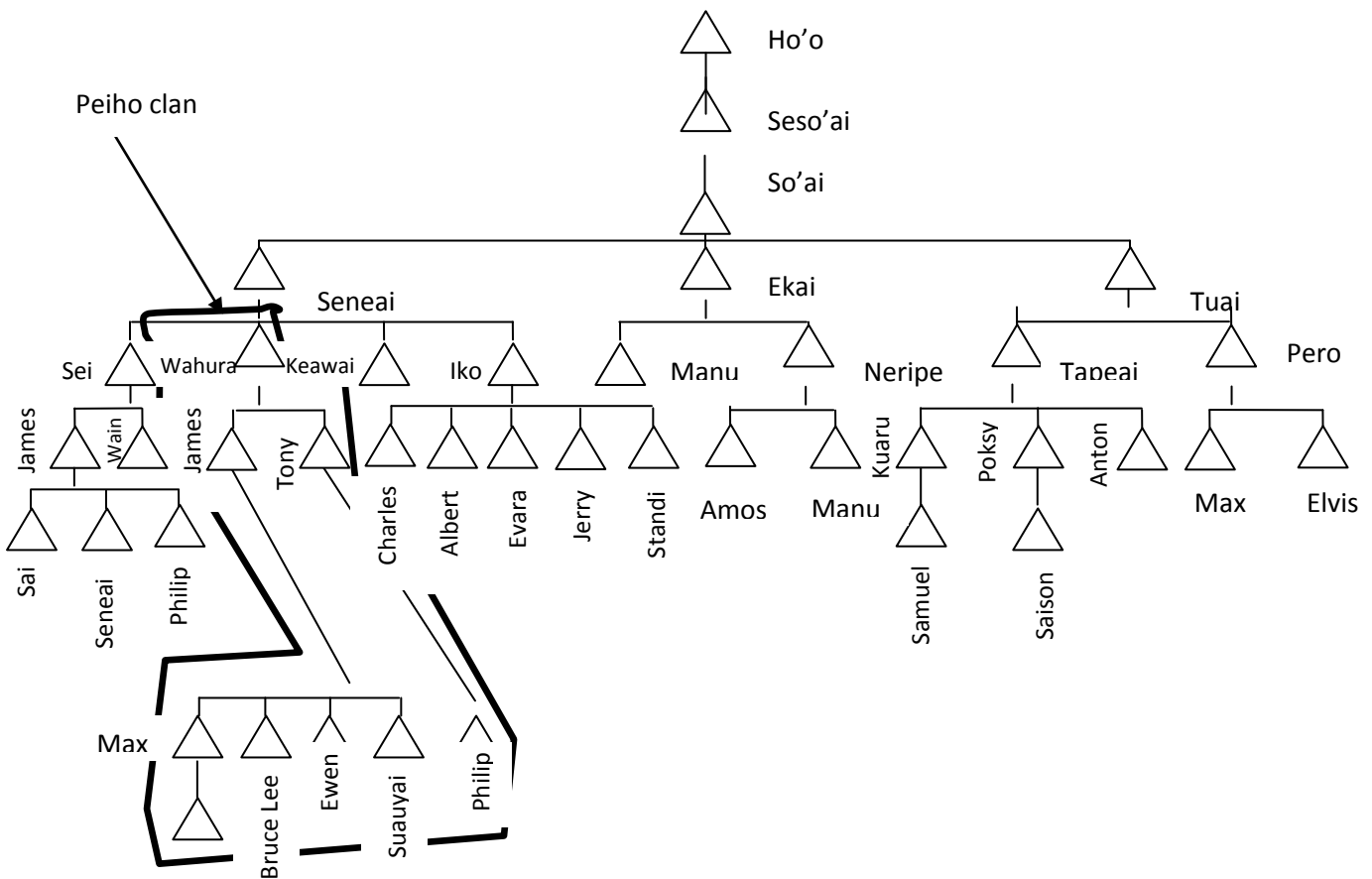
Name of Clan: Sajo'o

Clan leader: Amos Mamaie/Heni Morobe

Genealogy: Not taken

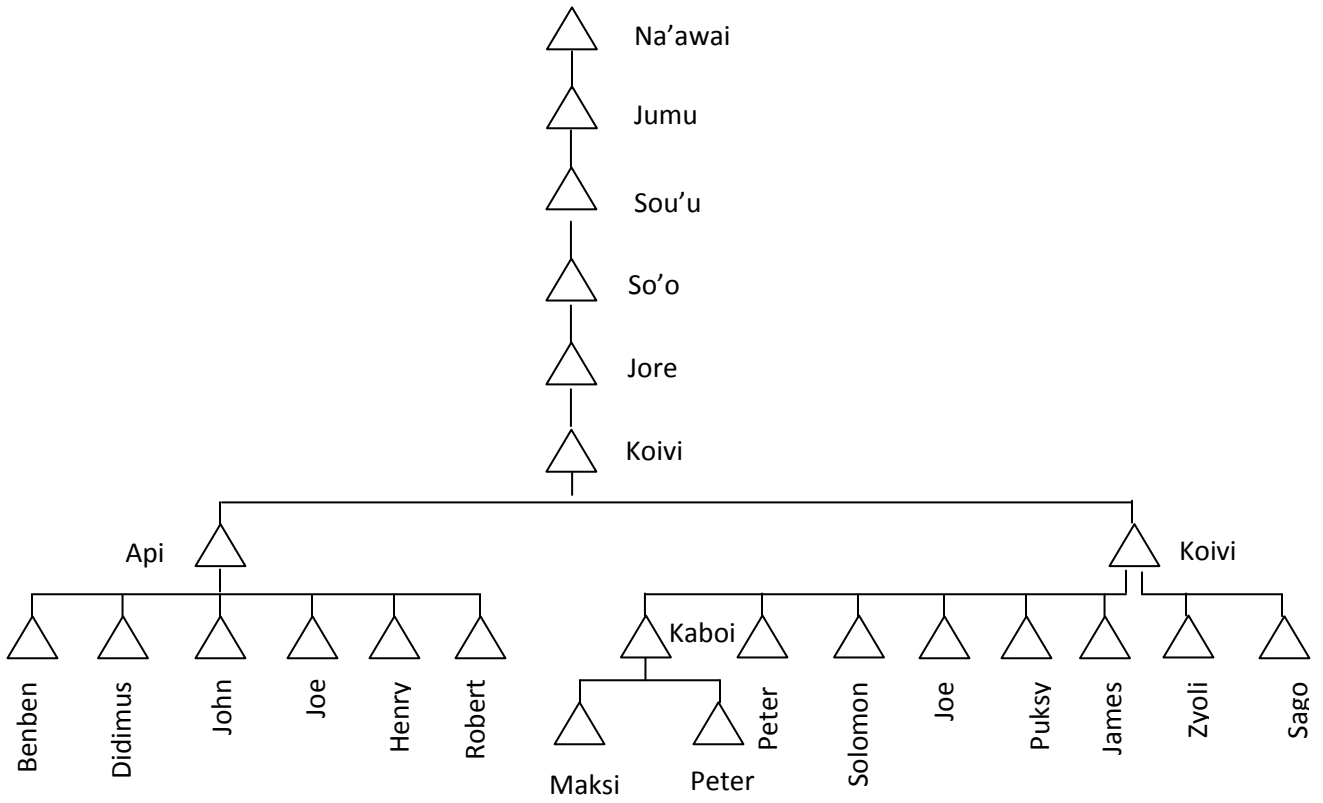
Ura Village

Name of Clan: **Jaho ; Peiho** Clan leader: **Amos Neripe; James Wahura**



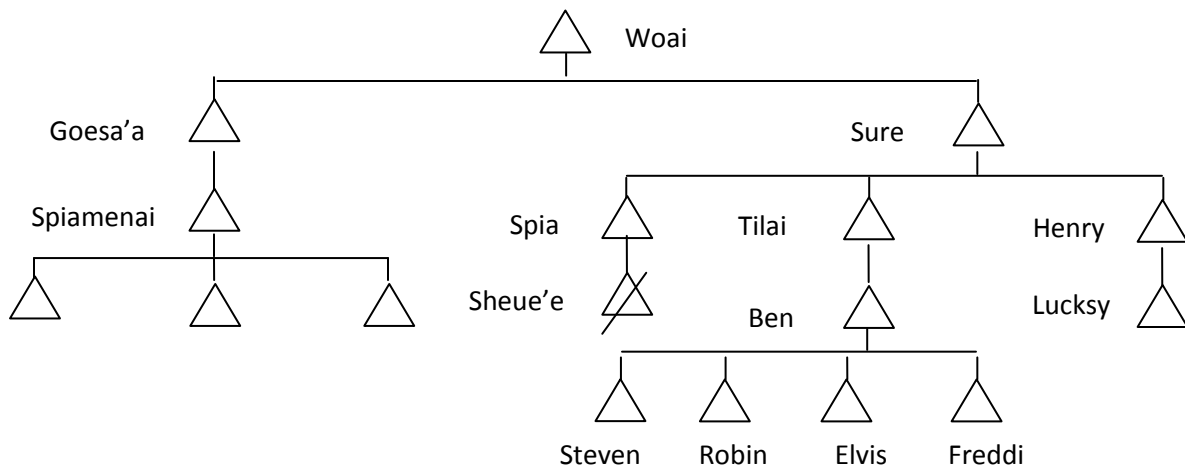
Name of Clan: **Meri**

Clan leader: **Koivi Koivi**



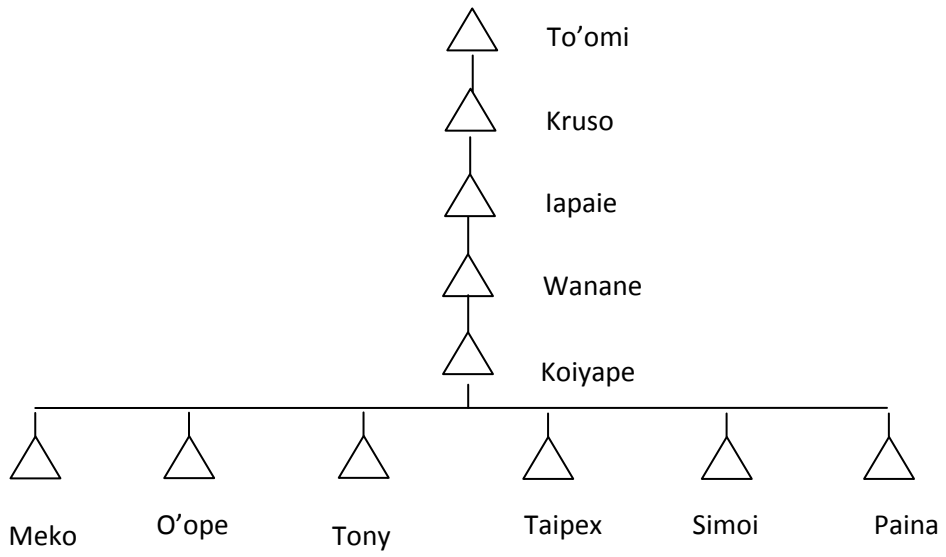
Name of Clan: **Mumurua**

Clan leader: **Beni Peter Tilai**



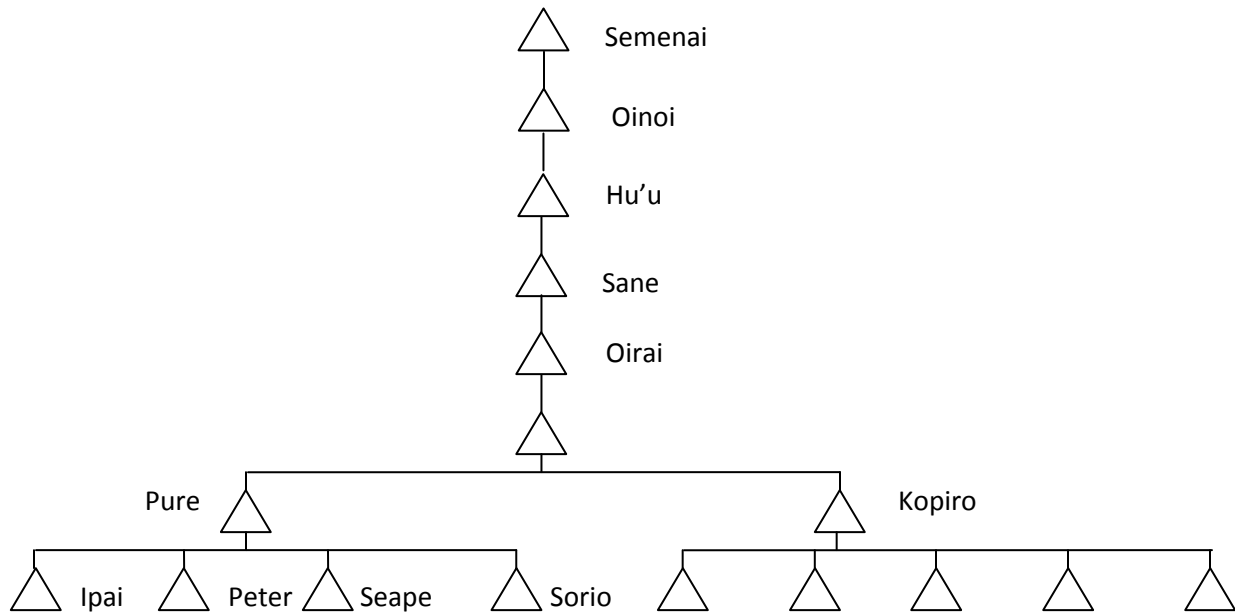
Name of Clan: **Kuhuwo**

Clan leader: **Iypai Koiape**



Name of Clan: **Pipijupe**

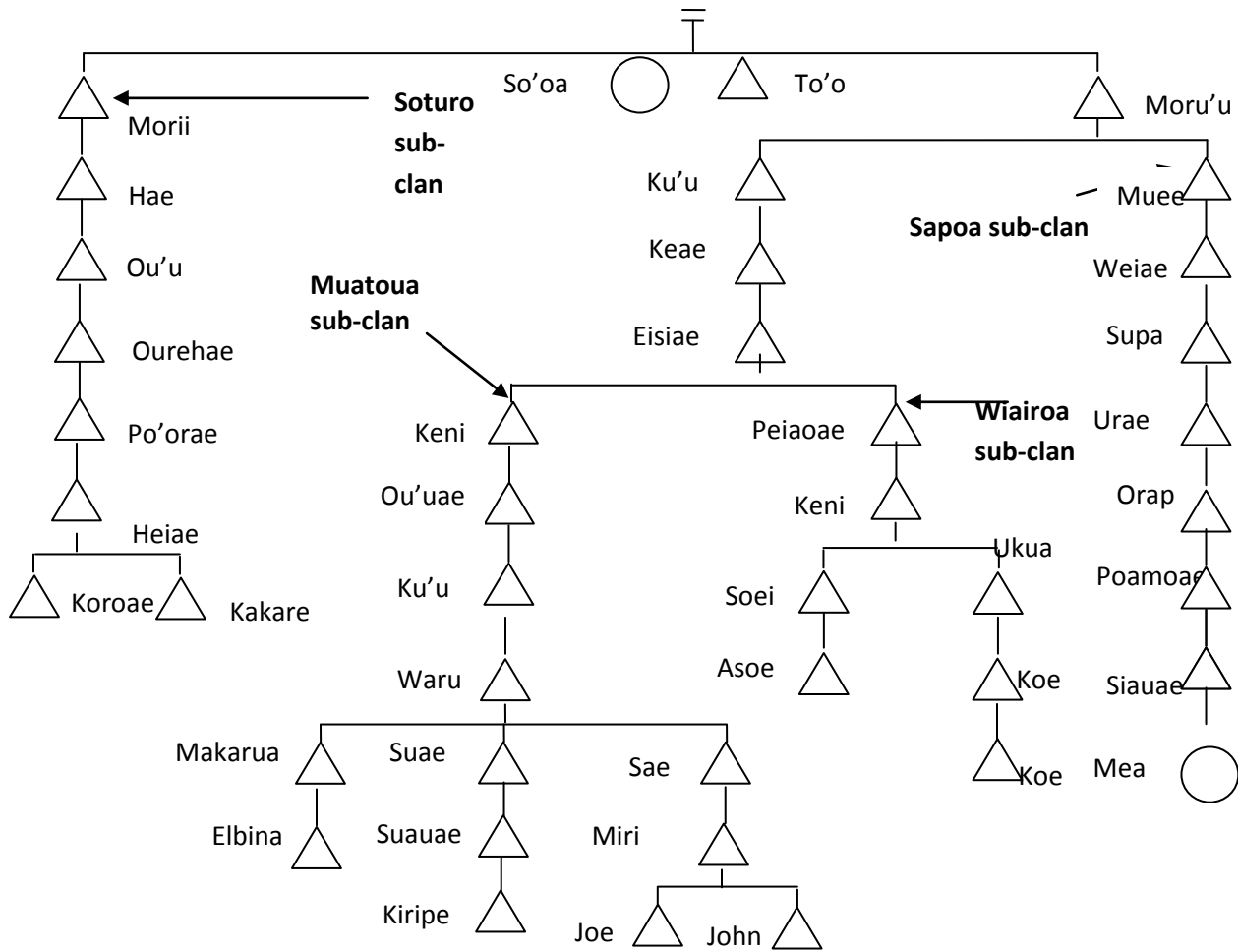
Clan leader: **Peter Pure**



Wabo Village

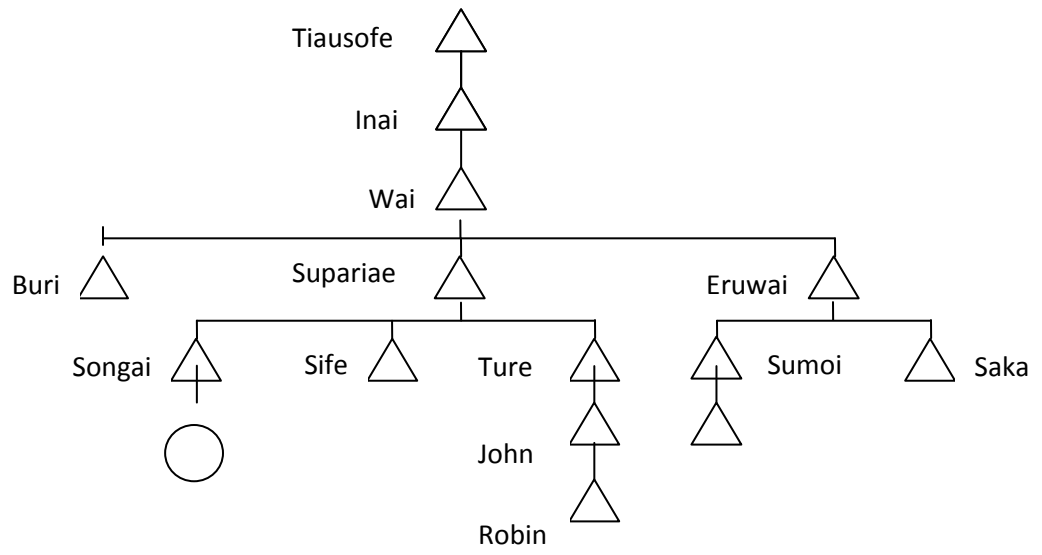
Name of Clan: **Use'e**

Clan leader: **Joe Miri**



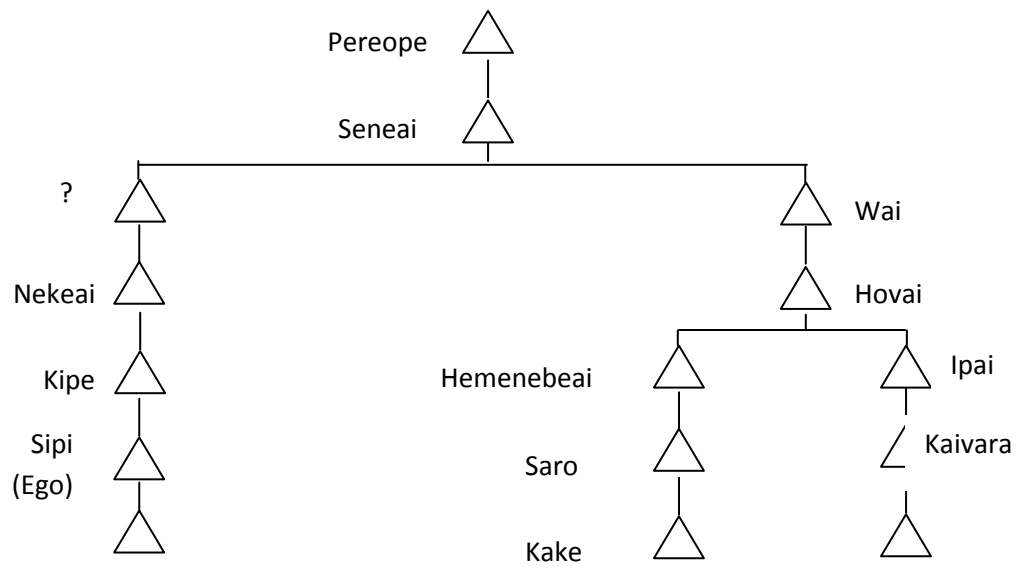
Name of Clan: **Perijuje**

Clan leader: **John Tura**



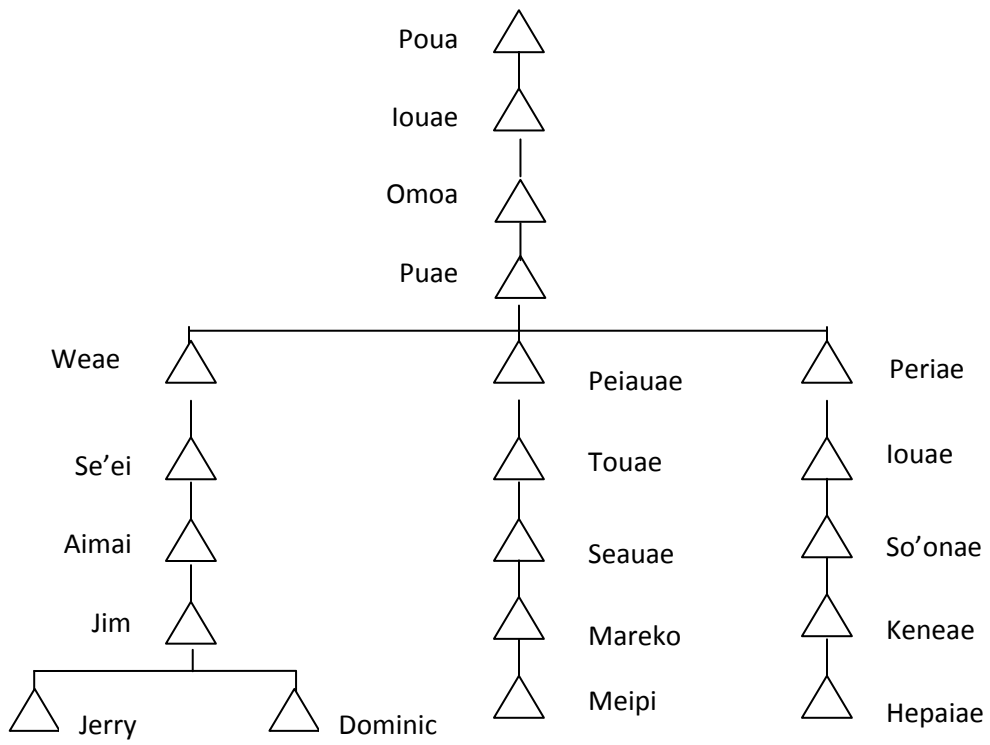
Name of Clan: **Sepia**

Clan leader: **Sipi Kipe**



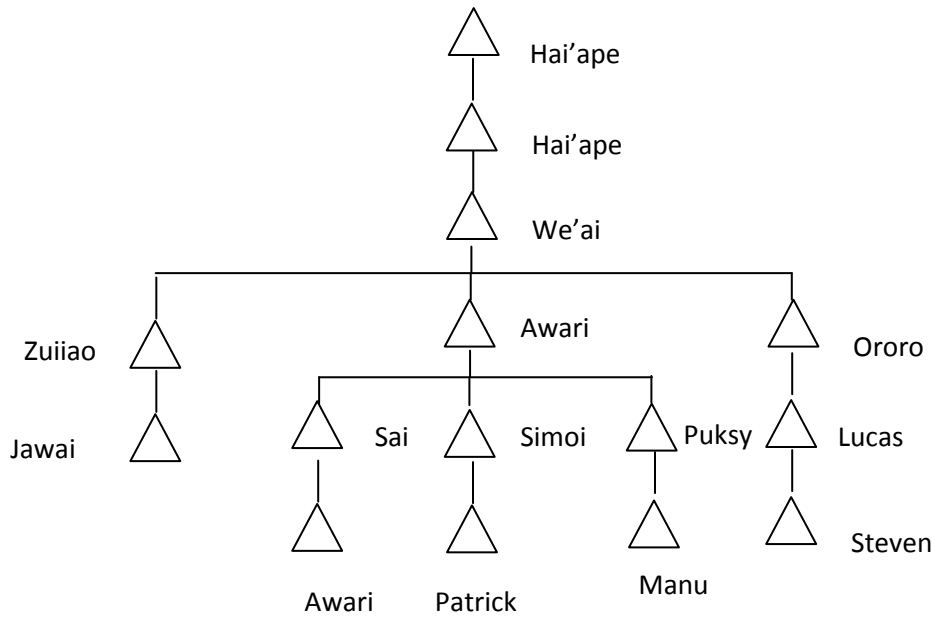
Name of Clan: **Eria**

Clan leader: **Mariko Siawai**



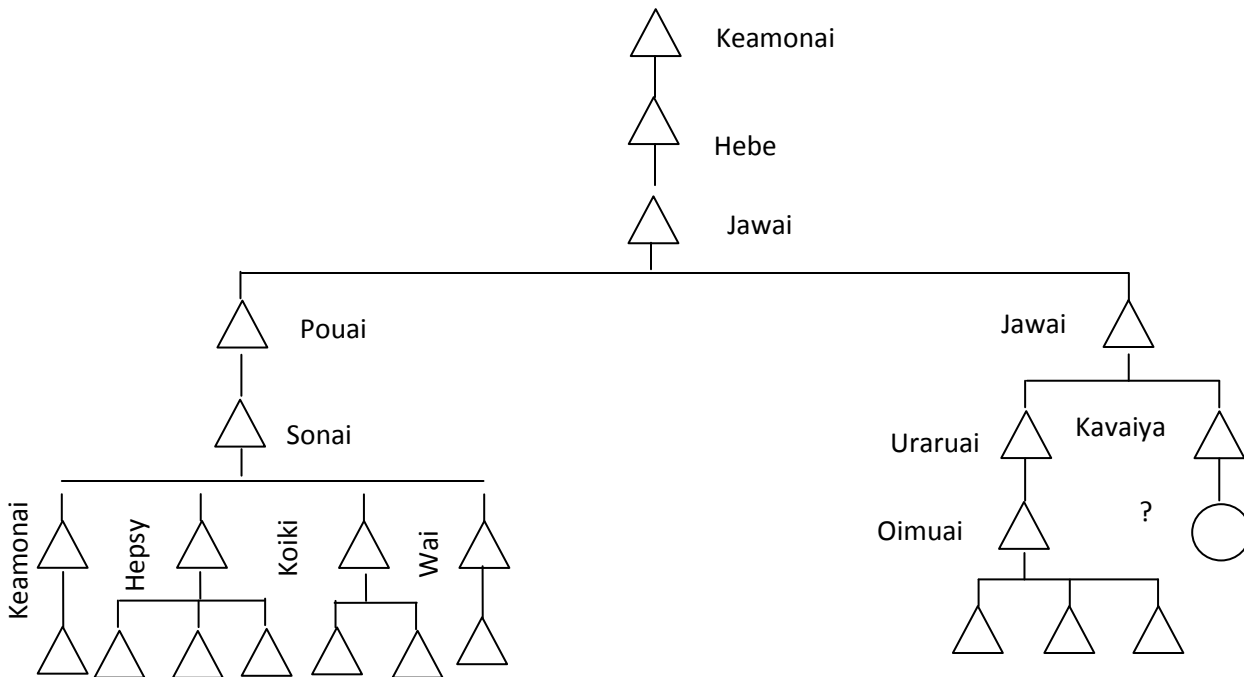
Name of Clan: **Ope**

Clan leader: **Lucas Ororo**



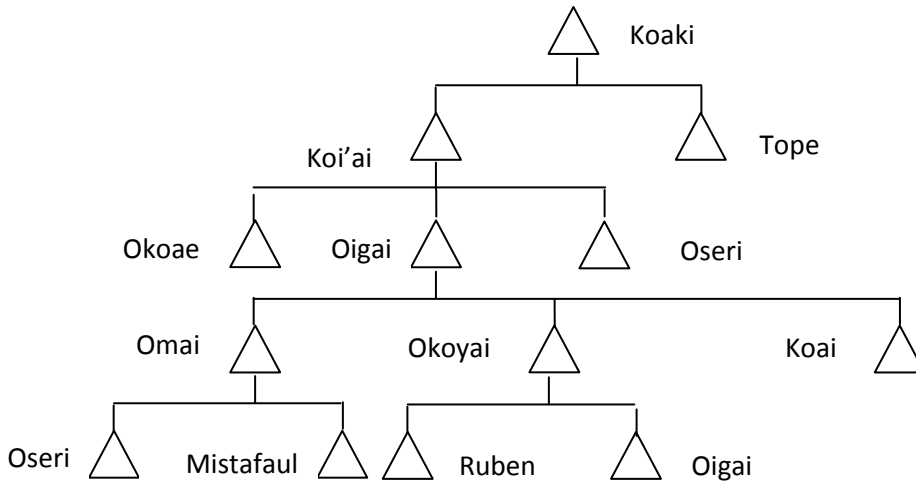
Name of Clan: **Si'i**

Clan leader: **Keamonai Sonai**



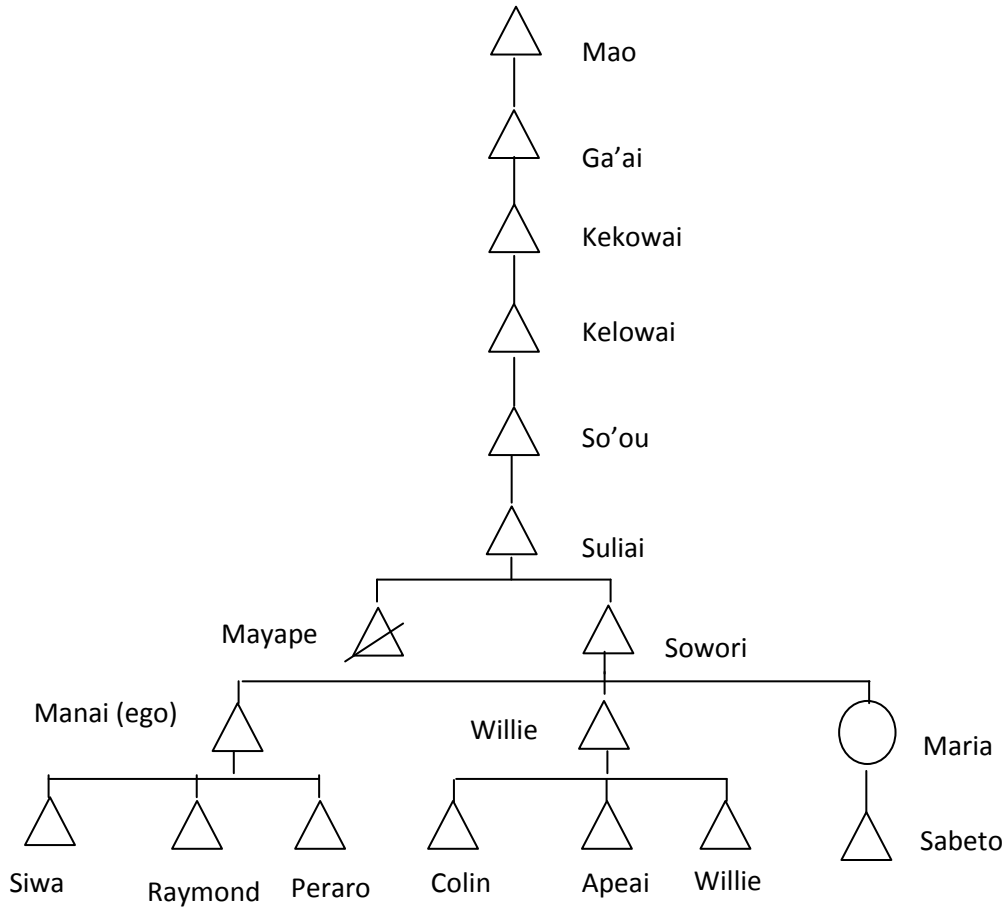
Name of Clan: **Sereose**

Clan leader: **Kowai Oikai**



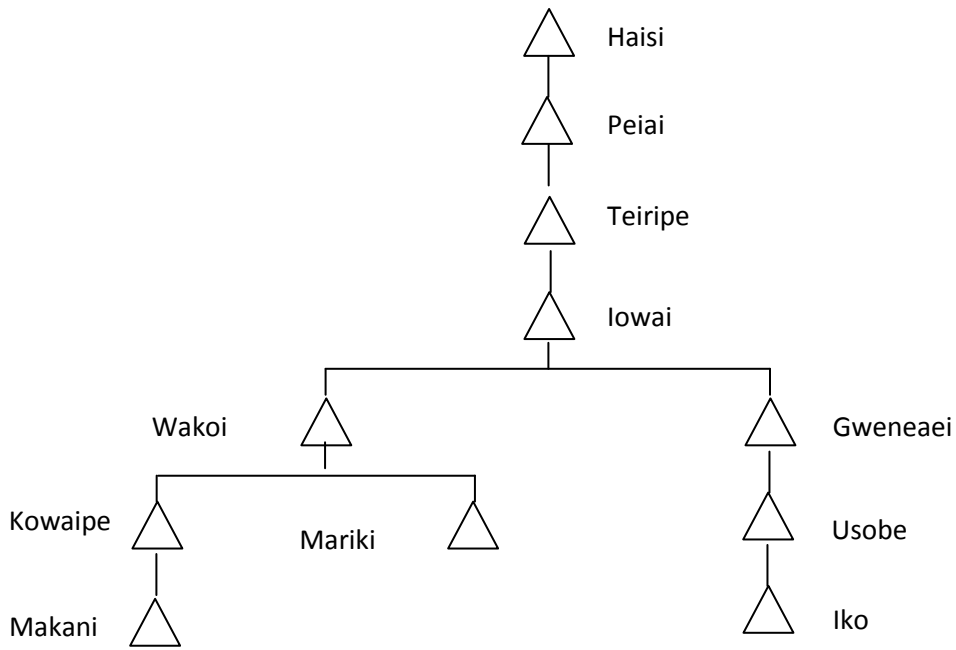
Name of Clan: **Taira/Taida**

Clan leader: **Manai Sowori (Jacob)**



Name of Clan: **Sesetoua**

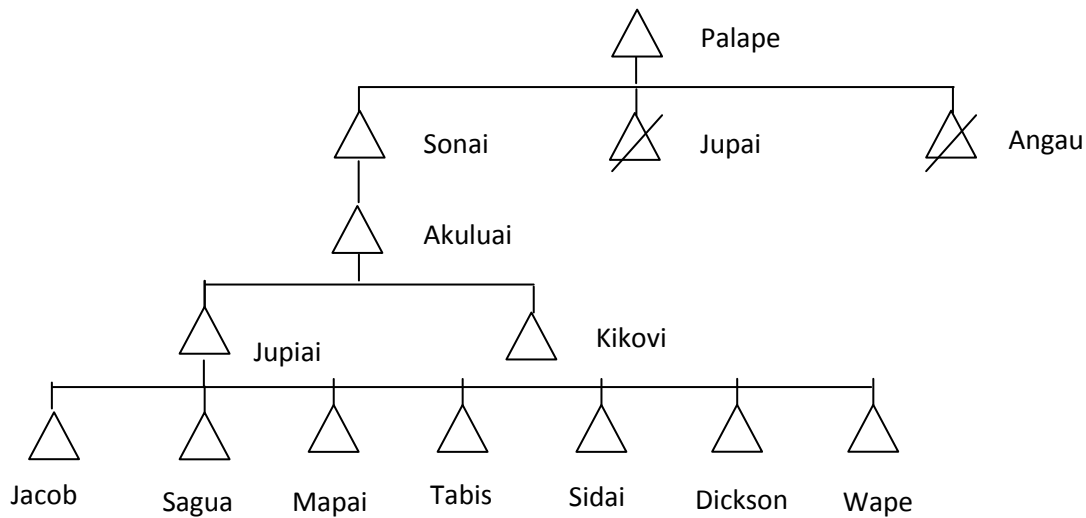
Clan leader: **Kowaibe Bakoi**



Name of Clan: **U'a**

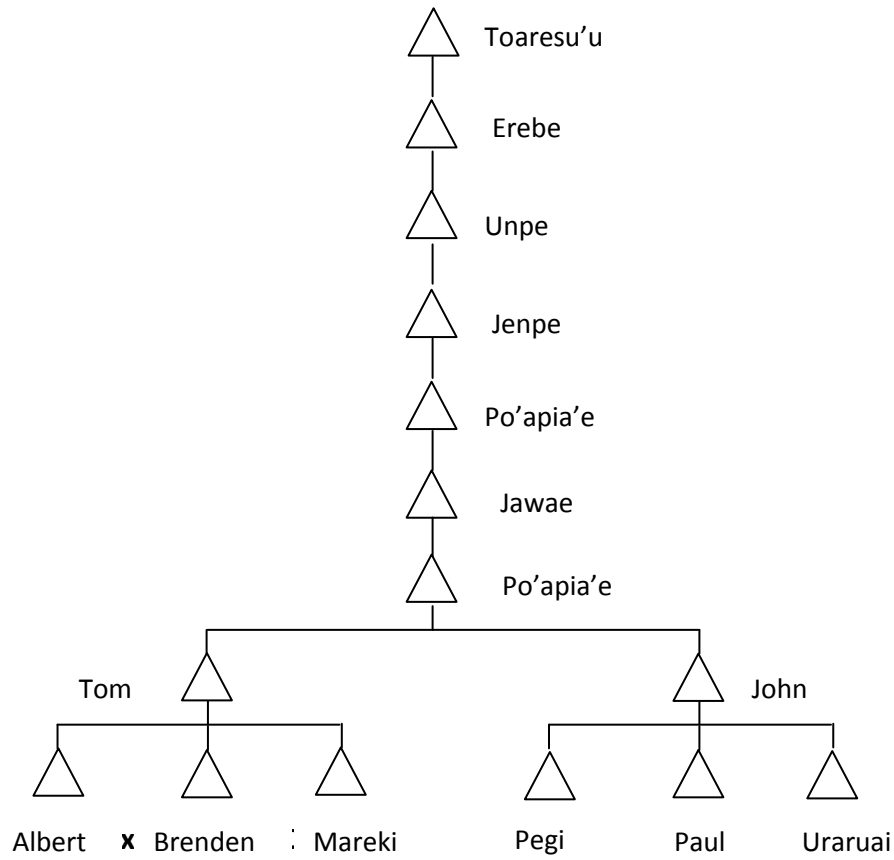
Clan leader: **Jacob Sawape**

Genealogy: Below is the Piripe Sub-clan genealogy. The major clan (U'a) genealogy was not taken because the leader was away at work (for InterOil) during our visits.



Name of Clan: **Eripe**

Clan leader: **Tom Hove**



Appendix 2. CLAN PROFILES

(I) CLANS THAT ARE SIGNATORY TO LAND ACCESS MOA

Village of members resident	Major Clan	Clan Leader	Contact of Clan Leader
Poroi 1/Ura	Tejope	Barry Mataio	CHW Wabo station
Poroi 2	Orua	Mairi Jopore	Poroi 2 village
	Piua	Saraie Emau	Poroi 2 village
	Sobusa	Peneai Mamani	Poroi 2 village
	Soru	Mataiyo Tuniai	Poroi 2 village
	Waboa	Kevin Topae	Poroi 2 village
	Wehu	Puksy So'ena	Poroi 2 village
	Nemina	Simon Poari	Poroi 2 village
	Epia	Jomu Poari	Poroi 2 village
Hatu	Tau Mete	Poroi 2 village	
Wabo	Su'u	Sabai Muru	Wabo village
Subu 1 village	Suvura	Moses Iwo	Subu 1 village
	Owa	David Hiraie	Subu 1 village
	Oiya	Obert Maiaru	Subu 1 village
	Wai'jou	San Job	Subu 1 village
	Aituya	Michael Sinau	Subu 1 village
	So'oh	Woi'e Too'hoi	Subu 2 village
Subu 1/Subu 2	Perua	George Plai	Subu 2 village
Keremari village	No'ouwa	Jonah Elie'i	Keremari village
Subu 2/Ura	Sajoo	Amos Mamaie	Subu 2 village
URA	Jaho	Amos Neripe	Ura Village
	Meri	Koivi Koivi	Ura village
	Mumurua	Beni Peter	Ura village
	Peiho	James Wahura	Jame's camp near staging
	Kuhuwo	Iyapai Koiape	Ura village
	Pipijupe	Peter Pure	Ura village
Ura/Poroi 2	Eripe	Tom Hove	Poroi village
WABO	Use'e	Joe Miri	Wabo village
	Perijupe	John Tura	Wabo village
	Sepia	Sipi Kipe	Wabo village
	Eria	Mariko Siawai	Wabo village
	Si'i	Kiamonai So'onai	Wabo village
	Pirijana	Peter Eiai	Wabo village
	Suajupe	Wokope Hariai	Wabo village
	Wa'anjupe	Mataiyo Kauai	Wabo village
Wabo/Uraru	Sesetoua	Kowaipe Bakoi	Wabo village

CLANS THAT ARE SIGNATORY TO LAND ACCESS MOA---CONTINUE

Village of Residence of clan members	Major Clan	Clan Leader	Contact of Clan Leader
URARU	Ope	Lucas Ororo	Uraru Village
	U'a	Jacob Sawape	Uraru Village
	Sereose	Kowai Oikai	Uraru Village
	Taira	Manai Sowori	Uraru Village
	Senjupe	Haipe Hariai	Uraru village
	Jenjupe	Kapiai Kauai	Uraru village
Yabramaru/Yurumatu	Hei'njupe	Max Nope	Yabramaru village
	Neila	Sek Tepe	Yabramaru village
	Wei'jupe	Esaupe Peter	Yabramaru village
Yurumatu	Hi'o	Solomon Poupe	Yurumatu village
Solipero	Tobira	Paul Yuguri	Solipero village
	Jaro	Issac Waseai	Solipero village
	Popu	Porex Haipiji	Solipero village

(II) COMPLETE CLAN PROFILES FOR CLANS FROM POROI – SOLIPERO

Clan profiles were completed for all the clans that own land along the Purari River, particularly those in the impact area of the hydro-project. A team consisting of landowning clan leaders and elders, two NSA team members and one PNG EDL representative travelled three separate days by dinghy to complete the land boundaries identification. However, not all the clans' leaders were available for the identification as some were away on work (with Inter-Oil).

In the event of marking the boundaries along the Purari River we witnessed two separated land disputes erupt. The first dispute was between Eria clan and Use'e. The disputed area is called Guruma (indicated red on the map). Another disputed area is between the Taira clan and Ope clans, but this was sorted when we got back in the village (Uraru). Besides these, there are land disputes with other clans, particularly those from the inland or further away, claiming land along the Purari. Those claiming land are saying they are following their 'roots', as for example, Daniel Epeai of Saisu clan who had made a claim against Korowai Heai of Use'e clan.

In the Melanesian tradition, evidence of land ownership is not written. Melanesian land ownership or 'land title' is simply a story; a clan history about the wars, the settlements, the hunting grounds, the sago, the mountains, and other resources. For this reason we cclan ollected as evidence of ownership. Many of them lacked details. However, which is not unusual. Some clans did not give their stories and genealogies, as for example, Jao and Sereose clans.

The basic information in the clan profiles includes the name of the clan, name of all the sub-clans, the names of the leaders both for the major and the sub-clans, their place of residence and the clan members.

Clans that Originate from Wabo Village

Village now residing	Major Clan	Sub clan	Clan Leader	Clan Population	Clan leader contact
WABO	Eria		Mariko Siawai	66	Wabo village
WABO		Puai	Jim Aimai		Wabo village
WABO		Ue'e	Keneai So'onai		Wabo village
WABO	Perijupe		John Tura	41	Wabo village
WABO	Sepia		Sipi Kipe	55	Wabo village
WABO/ URARU	Use'e		Joe Miri	81	Wabo village
WABO		Muatoua	Kiripe Miri		Wabo Village
WABO		Soturo	Kakare Heiai		Wabo Village
WABO		Sapoa	Makani Kerai'e		Wabo Village
URARU		Hasime	Korowai He'ai		Uraru Village
WABO		Wairoa	Koe Koe		Wabo Village

Clans that Originate from Kairuku/Weijana

Village of Residence	Major Clan	Sub clan	Clan Leader	Clan Population	Contact of Clan Leader
URA	Nemia		Moses Puamuai	34	Ura village
WABO		Elijo	Albert Keipe		Wabo Village
WABO	Onatoua		Emwai Puri	43	Wabo Village
URARU		Noneai	Puksie Ape		Uraru Village
WABO	Topukenipe		Isaya Ioipe	13	Wabo Village
WABO	Saisu		Daniel Epeai	14	Wabo Village
WABO	Pokaporoa		Puamuai Hakauai	64	Wabo Village
WABO		Huratoua	Monai Periai		Wabo Village
URARU		Siraijupe	Periai Nameai		Uraru Village
WABO	Pupisanoa		Andrew Joupe	92	Wabo Village
URARU		Pakaiju	Soho David		Uraru Village
URARU		Ja'haiju	Oro Kipe		Uraru Village
WABO	Nonoae		Albert Kerut	Not taken	Port Moresby
WABO	Sepekaporoa		Koe'e Koe'e	Not taken	Wabo Village
WABO	Weatoua		Waru Teipe	Not taken	Wabo Village

WABO	Su'u		Norman Hare	Not taken	Wabo Village
URA	Soaruloa		Levi Napiae	Not taken	Ura Village

Clans that Originate from Tatu

Village of Residence	Major Clan	Sub clan	Clan Leader	Clan Population	Contact of Clan Leader
WABO	Pirijana		Peter Eiai	53	Wabo Village
URARU		Sena	Kipe Hare/ Peter Hare		Ururu Village
WABO	Sesetoua		Kowaipe Bakoi	11	Wabo Village
WABO	Senjupe		Philip David/Aimai Touai	61	Wabo Village
WABO		Seope	Phillip David/ John Harepe		Wabo Village
WABO		Sira	Aimai Touai/ Onksy Peter		Wabo Village
WABO	Wa'anjupe		Mataiyo Kauai	7	Wabo Village
URARU	Jenjupe		Kapiai Kauai	9	Ururu Village
URARU	Sei'jupe		Haipe Hariai	33	Ururu Village
URARU		Sei'I	Se'heai Je'hai		Ururu Village

Clans that Originate from Ururu

Village of Residence	Major Clan	Sub clan	Clan Leader	Clan Population	Contact of Clan Leader
URARU	Ope		Lucas Ororo	21	Ururu Village
URARU	Koru		Kanape Korope	Not taken	Ururu Village
URARU	U'a		Jacob Sawape	26	Ururu Village
URARU		Peripe	Jupiai So'onai		Ururu Village
	Onapare Se'i		Kaiwaya Joho'ae	12	Ururu Village
	Sereose		Kowai Oikai	Not taken	Ururu Village
WABO	Si'i		Wai Mareko/ Kiamonai So'onai	31	Wabo Village
WABO/ URARU		Onapare	Kawai Ururuai		Wabo Village
URA/ POROI 2	Eripe		Tom Hove	15	Poroi 2 Village
WABO	Taida/Taira		Manai Sowori	25	Wabo Village
URARU		Peakaproa	Mata Worai		Ururu Village
URARU	Owo Pariri		Jeperepe Kaivaea	Not taken	Ururu Village
URARU	Su'uroa		Peitape Siae	Not taken	Ururu Village

WABO	Heiaporoa		Mata Kipe	Not taken	Wabo Village
URARU	Sinae		Haepe Haripe	Not taken	Uraru Village

Clans that Originate from Pawaia 1 and 2 now live in Poroi 2 village

Village of Residence	Major Clan	Sub clan	Clan Leader	Clan Population	Contact of Clan Leader
POROI 2	Piouwa		Mairi Jopore	42	Poroi village
POROI 2	Piua		Saraie Emau	46	Poroi (2) Village
POROI 2		Porahu	Dickson Soru		Poroi 2 village
POROI 2	Su'u		Sabai Muru	37	Poroi 2 village
POROI 2	Orua				Poroi 2 village
POROI 2	Soru		Mataiyo Tuniai	9	Poroi 2 village
POROI 2		Soiyano	Mataiyo Tuniai		Poroi 2 village
POROI 2	Waboa		Kevin Topae/ Pius John	42	Poroi 2 village
POROI 2	Wehu		Puksy So'ena/ Waro Kekero	25	Poroi 2 village
POROI 2	Nemina		Simon Poari	45	Poroi 2 village
POROI 2	Epia		Jomu Poari	32	Poroi 2 village
POROI 2	Hatu		Tau Mete	30	Poroi 2 village
POROI 2		Butisa	Moi Hato		Poroi 2 village
POROI 2	Sobusa		Peneai Mamamani	Not taken	Poroi 2 village
Poroi 1	Tejope		Barry Mataio	45	Wabo Station

Clans from SUBU 1 and 2

Village of	Major	Sub clan	Clan Leader	Clan	Contact of Clan
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Residence	Clan			Population	Leader
SUBU 1	Owa		David Hiraie	14	Subu 1 village
SUBU 1	Oiyo		Obert Maiaru	22	Subu 1 village
SUBU 1		Wobuhe'a	Simbu Toea		Subu 1 village
SUBU 1	No"ouwa		Johna Elie'i	16	Subu 1 village
SUBU 1	Wai'jou		San Job/Willie Job	33	Subu 1 village
SUBU 1	Perua		Joshua Plai	35	Subu 1 village
SUBU 1		Se"e	Solomon Moba		Subu 1 village
SUBU 1		Subura	Simeon Umare		Subu 1 village
SUBU 1	Aituya		Michael Sinau	16	Subu 1 village
SUBU 1	So"oh		Woi'e Too'hoi	19	Subu 1 village

Clans that originated from Ura Village

Village of Residence	Major Clan	Sub clan	Clan Leader	Clan Population	Contact of Clan Leader
URA	Jao'ho		Amos Neripe / Max Pero	39	Ura village
		Ho'o	Kuaru Tapeai		Ura Village
	Meri		Koivi Koivi	59	Ura village
	Mumurua		Beni Peter	39	Ura Village
	Kuhuwo		Ipai Koiape	11	Ura village
	Peiho'o		James Wahura	20	Ura village

Clans that originated from [G] Yurumatu and Solipero Villages

Village of Residence	Major Clan	Sub clan	Clan Leader	Clan Population	Contact of Clan Leader
YURUMATU	Hi'oo		Solomon Poupe	66	Yurumatu village
YURUMATU		Yurio	Pinepe Tuape		Yurumatu village
YURUMATU		Wobuzu	Huyaripe Kemeai		Yurumatu village
YURUMATU		Borai	Soipere Kope		Yurumatu village
YABRAMARU	Neila		Sek Tepe	25	Yabramaru village
YABRAMARU		Siakuai	Sekeai Teepe		Yabramaru village
YABRAMARU	Heijupe		Max Nope	46	Yabramaru village
YABRAMARU		Zoriyu	Weseai Nope		Yabramaru village
YABRAMARU		Zawaiyo	Samson Poroipe		Yabramaru village

YABRAMARU		Kayaiyu	Sorop Zaupe		Yabramaru village
YABRAMARU		Emenai	Morobe Za'hai		Yabramaru village
YABRAMARU	We'jupe		Esaupe Peter	27	Yabramaru village
YABRAMARU		Wereyai	Papuan Mena		Yabramaru village
SOLIPERO	Ope (Tobira)		Paul Yuguri	Not taken	Solipero village
SOLIPERO	Jaro		Issace Waseae	Not taken	Solipero village
SOLIPERO	Popu		Porex Haijiji	Not taken	Solipero village

Appendix 3: TERMS OF REFERENCE

The purpose of this project is to obtain as accurate as possible assessment of the inhabitants of a particular area and their communities and range of sociological interests and activities.

This sociological study is to establish initially what people and groups exist within a project area. Sufficient information will be required to allow PNGSP to negotiate access to an area of land to undertake technical feasibility works and establish what groups might have a legitimate claim for future compensation in the event of the project proceeding.

In the event that this sociological study, combined with the outcome of the technical and financial studies indicates that the project is viable, a more detailed and comprehensive sociological study may be commissioned as part of the EIA works to be undertaken through the feasibility study. This later study will address the broader concerns and potential impacts of the project on the communities should the project be implemented.

The initial study should address the following points:-

- a. What individuals and groups, organized or otherwise, are living and/or have an interest within the defined area.
- b. Define the inter-relationships between the various individuals and/or groups
- c. Define the relationship, if any, that these individuals or groups have with the nearest local PNG distinct administration
- d. Define the structure of any organized groups with regard to leaders or organizers including names and contact details of group representatives
- e. Establish what village(s) or isolated communities are within the project area or might be affected by any project
- f. What issues, concerns and aspiration does each of the defined groups have
- g. Define the areas that each group owns, has control over or influences within the project area
- h. Define what the overall attitude that each group has towards a significant infrastructure project in the area
- i. What are the relationship and interdependencies between each group, if any
- j. Define any issues or dispute between groups that might have an effect on the project feasibility studies

- k. Is there any evidence over the last decade of any significant migration into or from the area and if so for what reasons and proportionally for which of the population

Appendix 4: RESEARCH TOOLS

(I) Suvery Questionnaire

STRICTLY CONFIDENTIAL

QUESTIONNAIRE SERIAL NUMBER:

[][][]

ENERGY DEVELOPMENT LIMITED

Demographic Survey of communities living in the proposed Wabo Dam site (along the Purari River) in the Gulf Province of Papua New Guinea

INFORMED CONSENT

Nancy Sullivan and Associate Limited is contracted by the Energy Development Limited (hereafter PNG EDL) to do a sociological assessment or 'social mapping' to establish initially what people and groups exist within this proposed dam site area. Our aim is to collect detailed as necessary information which PNG EDL will use to negotiate access to your land and undertake technical feasibility works.

The purpose of this survey is to get idea of how you live, what land issues are there, who own what land, who are migrants, what services are here, what ways you get money and others things about your lifestyle. This information will help the company to make good decision as to how it can involve you in the process and progress of development if the dam project really eventuates.

All information gathered will be confidential so you need not fear telling the truth or expressing your views. You can refuse to answer a question if you feel uncomfortable. You can also stop at any time of the study should you feel you do want to continue. I hope you fully understand (if not explain further in your own words, also give opportunity for informant to ask questions for clarity).

I completely understand the nature of this study and agree to participate. I take full responsibility for disclosing the information I provide here for this study.

Signature of participant: _____

Date: _____

Signature of research supervisor: _____

Date: _____

STRICTLY CONFIDENTIAL

QUESTIONNAIRE SERIAL NUMBER:

[_ | _ | _]

Appendix 2: Energy Development Limited

Demographic Survey of communities living in the proposed Wabo Dam site:

A component of the Sociological Study

INDIVIDUAL QUESTIONNAIRE

Q001. Village _____

Q002. LLG _____

Q003. District _____

Result codes:

Completed 1

Partially completed 2

Refused to continue (at any part of the interview) 3

Other (specify) 8

INTERVIEWER: Code [_ | _]

DATE INTERVIEW: ____ / ____ / 2010

CHECKED BY SUPERVISOR: Signature _____

Date: ____ / ____ / 2010

Demographic Survey Questionnaire

Section 1: Demography

No.	Question and Filters	Coding categories	Skip to																		
Q01	(Circle the gender of respondent)	Male [1] Female [2]																			
Q02	What is your age? (Write the estimate age if don't know, use events to help estimate, for example, independence, WII)	[]																			
Q03	What is your marital status?	Married [1] Separated [2] Divorce [3] Widowed [4] Never married [5]																			
Q04	How many people live in the house that you live now?	[]																			
Q05	List all the languages you speak	[]																			
Q06	Can you read?	Yes [1] No [2]	→Q08																		
Q07	If yes, circle the language you read?	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Yes</th> <th style="text-align: center;">No</th> </tr> </thead> <tbody> <tr> <td>Tok Ples</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Tok Pisin</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>English</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Motu</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Other _____</td> <td></td> <td></td> </tr> </tbody> </table>		Yes	No	Tok Ples	1	2	Tok Pisin	1	2	English	1	2	Motu	1	2	Other _____			
	Yes	No																			
Tok Ples	1	2																			
Tok Pisin	1	2																			
English	1	2																			
Motu	1	2																			
Other _____																					
Q08	Can you write?	Yes [1] No [2]	→Q10																		
Q09	If yes, circle the languages you write?	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Yes</th> <th style="text-align: center;">No</th> </tr> </thead> <tbody> <tr> <td>Pawaian Tok Ples</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Tok Pisin</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>English</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Motu</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Other _____</td> <td></td> <td></td> </tr> </tbody> </table>		Yes	No	Pawaian Tok Ples	1	2	Tok Pisin	1	2	English	1	2	Motu	1	2	Other _____			
	Yes	No																			
Pawaian Tok Ples	1	2																			
Tok Pisin	1	2																			
English	1	2																			
Motu	1	2																			
Other _____																					
Q10	What is your <i>lotu</i> ? (state the religion if not belong to any denomination)	[]																			

Q11	How often do you attend church?	All the time [1] Sometimes [2] Once in a while [3] Never attend [4]	
-----	---------------------------------	--	--

Part 2: Access to Basic Service (Education, Health, Infrastructure, Communications)

2 a. Education (including technical levels)

	Question and Filters	Coding categories	Skip to
Q12	What is your highest education level?	Primary School [1] Secondary School [2] College [3] University [4] Other (specify) _____ Never been to school [8]	→Q21
Q13	If you have received Technical Training, what trade have you specialized in?	[_____]	
Q14	Since completing your trade, how many years of work experience do you have?	a.[_____] total years of experience b.[_____] years of experience related to trade of specialization c. No experience	
Q15	What year did you complete your highest level of education?	[_____]	
Q16	How much was the school fee then?	[_____]	
Q17	Who paid your school fee?	[_____]	
Q18	What year did you start your primary education?	[_____]	
Q19	How much was the school fee?	[_____]	
Q20	Who paid your school fees?	[_____]	

2 b. Health

Q21	How would describe your health?	Healthy most of life [1] Sometimes healthy, sometimes sick [2] Sick most of my life [3]	
Q22	In the last twelve	Yes [1]	

	months, did you get sick?		No [2]	→Q26																								
Q23	What type of sick did you get? (the following symptoms are easily identified by village people)	<table border="1"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>Fever</td> <td>1</td> <td>2</td> </tr> <tr> <td>Diarrhea</td> <td>1</td> <td>2</td> </tr> <tr> <td>Headache</td> <td>1</td> <td>2</td> </tr> <tr> <td>Scabies</td> <td>1</td> <td>2</td> </tr> <tr> <td>Malaria</td> <td>1</td> <td>2</td> </tr> <tr> <td>Tuberculosis</td> <td>1</td> <td>2</td> </tr> <tr> <td>Others (specify) _____</td> <td></td> <td></td> </tr> </tbody> </table>		Yes	No	Fever	1	2	Diarrhea	1	2	Headache	1	2	Scabies	1	2	Malaria	1	2	Tuberculosis	1	2	Others (specify) _____				
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Scabies	1	2																										
Malaria	1	2																										
Tuberculosis	1	2																										
Others (specify) _____																												
Q24	Did you get treatment?		Yes [1] No [2]																									
Q25	What was your source of treatment?	<table border="1"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>Medicinal drugs</td> <td>1</td> <td>2</td> </tr> <tr> <td>Herbal remedy</td> <td>1</td> <td>2</td> </tr> <tr> <td>Traditional medicine</td> <td>1</td> <td>2</td> </tr> <tr> <td>Prayer/Faith</td> <td>1</td> <td>2</td> </tr> <tr> <td>Other (specify) _____</td> <td></td> <td></td> </tr> </tbody> </table>		Yes	No	Medicinal drugs	1	2	Herbal remedy	1	2	Traditional medicine	1	2	Prayer/Faith	1	2	Other (specify) _____										
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Prayer/Faith	1	2																										
Other (specify) _____																												
Q26	When you are sick where do you go first?		Aid-post/Health Centre [1] Witch doctor [2] Church/pastor [3] Friends [4] Other _____																									
Q27	Did you have anyone of the following diseases in your lifetime?	TB Malaria Pneumonia Typhoid Asthma Ear Disease Skin Disease Leprosy Diarrhea with blood (Dysentery) STI Others _____																										
Q28	Do you know about HIV/AIDS?		Yes [1] No [2]																									
Q29	Did you get HIV test?		Yes [1] No [2]	→Q31																								
Q30	Where did you get it?																											

		[_____]	
	Maternal & Child Health (For mothers only. Young girls and men skip this section)		
Q31	How many children did you give birth to?	[_____]	
Q32	How many of them died at birth?	[_____]	
Q33	How many died before reaching age of 5?	[_____]	
	Question and Filters	Coding categories	Skip to
Q34	How many are still alive?	[_____]	
Q35	How many of them	Received full course of immunization [_____] Some immunization [_____] No immunization [_____]	
Q36	Are you using any family planning methods?	Yes [1] No [2]	→Q38
Q37	What method are you using?	Barrier methods (condoms, diaphragm) [1] Pills [2] Injection [3] Natural methods (ovulation, rhythm) [4] Traditional methods [5]	
Q38	What is your reason for not being on family planning?	Distance to access this service [1] Partner or husband not agreeing [2] Religious beliefs [3] Fees charged for this services [4] Don't know if the service is provide here [5]	
Q39	Do you discuss family planning methods with your husband/partner?	Yes [1] No [2] Tried but failed [3]	
Q40	Who assisted you in your last labour?	Village birth attendant [1] Health worker [2] A village mother [3] Your husband [4] Other _____	
Q41	Have you faced any problems in any of your labours?	Yes [1] No [2]	→Q43
Q42	What kind of		

	problem(s) did you face? (briefly describe)		
--	---	--	--

Part 4: Agriculture Trends

	Question and Filters	Coding categories	Skip to
Q43	How many gardens did you make since last year?	[_____]	
Q44	What are the five main food crops you plant in your garden? (List of most common)	1. _____ 2. _____ 3. _____ 4. _____ 5. _____	
Q45	What are the five main <i>kumu</i> plants you plant in your garden? (List of most common)	1. _____ 2. _____ 3. _____ 4. _____ 5. _____	
Q46	What are the five main fruit crops you plant in your garden? (List of most common)	1. _____ 2. _____ 3. _____ 4. _____ 5. _____	
Q47	What tools do you use to plant tuber crops now?	Digging sticks [1] Spades/shovel [2] Improvised crowbar [3] Other _____	
Q48	For planting other food crops like banana, what tools do you use?	Digging sticks [1] Spades/shovel [2] Improvised crowbar [3] Other _____	
Q59	Do you have gardens close to the river bank? (Purari)	Yes [1] No [2]	→Q51
Q50	How many? (gardens)	[_____]	

Part 4. Food

	Question and Filters	Coding categories	Skip to
Q51	At your home, what food do you eat every day?	<p>Sago [1] Banana [2] Taros [3] Yams [4] <i>Kaukau</i> [5] Other (specify) _____ [8] No response [99]</p>	
Q52	Which of these <i>kumu</i> do you have most of time?	<p><i>Aibika</i> [1] Tulip [2] Watercress [3] <i>Krusako</i> [4] Pumpkin tips [5] Cabbage [6] <i>Cangkong</i> [7] Other _____</p>	
Q53	Which of these fruits do you eat most of the time?	<p>Pawpaw [1] Cucumber [2] Guava [3] Pineapple [4] Mango [5]</p>	
Q54	What type of protein do you have most of time?	<p>Fish [1] Pork [2] <i>Kapul</i> [3] Bandicoot [4] Snakes [5] Other _____</p>	

Part 5: Economy (Commerce); Wealth mapping

Q55	In your village, what makes a person rich or wealthy?	<p>A person who has many pigs [1] A person with a lot of money [2] A person with a lot of material goods [3] A person with big land area [4] Other _____</p>	
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Q56	What is your employment status?	Garden work [1] Formal employment [2] Informal employment [3] Unpaid work [4] Other (specify)	
Q57	What is your main source of income?	Gardening [1] Formal employment [2] Informal employment [3] Labourer work LNG project [4] Royalties [5] No income source [6] Other (specify)	→Q59
Q58	How much money do you make in a month this year?	K0.00 – K100.00 [1] K101.00 – K500.00 [2] K501.00 – K1,000.00 [3] K1,001.00 – K5,000.00 [4] >K5000.00 [5]	
Q59	How many people in the same house as you live, are working for money?	[_____]	
Q60	What are main sources of income of your household?	Gardening [1] Formal employment [2] Informal employment [3] Labourer work LNG project [4] Royalties [5] No income source [6] Other (specify)	→Q063
Q61	How much money do all the people in your house make in a month?	K0.00 – K100.00 [1] K101.00 – K500.00 [2] K501.00 – K1,000.00 [3] K1,001.00 – K5,000.00 [4] >More than K5000.00 [5]	
Q62	Comparing 3 years (2007) ago and now, did you make...	More money [1] Less money [2] No difference [3] Never made any money [4]	

Part 6: Clan and tribal groups

Q63	What is the landowning status of your clan?	Principal land owner [1] Landowner (land given by PLO) [2] Settler (land given for use by PL) [3] Settler (land given for use by LO) [4] Other (specify) _____	
Q64	Who makes the decision of who get what regarding resources on the land owned by your clan?	Clan leader [1] Clan elders [2] Community leader [3] Other _____	
Q65	Do mothers and daughters have any say?	Yes [1] No [2]	
Q66	What is your level of knowledge of your clan history? (for wife, their own clan history)	Full [1] Partial [2] Don't know [3]	
Q67	In your clan, do daughters have land use rights?	Yes [1] No [2] Don't know [88]	
Q68	Traditionally, were daughters and sisters had user rights over land owned by their clan?	Yes [1] No [2] Don't know [88]	

Part 7: Culture, hunting, fishing

Q69	Were you initiated? (for male only)	Yes [1] No [2]	→Q71
Q70	At what age?	[_____]	
Q71	Do you know your traditional folklore?	Yes [2] No [2]	
Q72	Do you know traditional dance?	Yes [1] No [2]	
Q73	Do you still observe menarche rituals? (for female only)	Yes [1] No [2]	
Q74	When you go hunting, what are your top three catch?	_____ _____ _____	

Q75	When you go fishing, what are top three catch?	<hr/> <hr/> <hr/>	
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Part 8: Migration & Trade patterns

Q76	Are you from originally from this village?		Yes [1] No [2]
Q77	If you're a migrant, where did you or ancestors come from?	[_____]	
Q78	How many generations have lived here?	[_____]	
Q79	(For visitors only) How long have you stay here?	[_____]	
Q80	Why are you visiting?	Visiting spouse family [1] Visiting relatives [2] Visiting traditional trading partners [3] Visiting traditional ally [4] Visiting friends [5] Employment opportunity [6] Other _____	
Q81	Do you still practice some form of trade today?		Yes [1] No [2]
Q82	What items do you exchange?	[_____]	
Q83	What items do you exchange them for?	[_____]	
Q84	Which neighboring tribes do you have relatives?	[_____]	
Q85	Describe your relationship with them?	Name of tribe _____ _____ _____	Strength of relationship _____ _____ _____

Part 9: Law and Order

Q86	Which of these crimes in your life time?		Yes	No	
		Stealing	1	2	
		Fighting	1	2	
		Murder	1	2	
		Bashing wife	1	2	
		Bashing husband	1	2	
		Extra-marital sex	1	2	
		Marijuana/ <i>kuku dipi</i>	1	2	
		Gun sales	1	2	
Others					

Haven't committed any crime					
Q87	When was the last time you committed a crime?	[_____]			
Q88	Did you stand before village court?	Yes [1] No [2]			
Q89	In your life time did you ever stand before any court or justice system?	Yes [1] No [2]			
Q90	For very serious crimes like rape, how do you solve them?	Pay compensation to victim's family [1] Solve it at village court [2] Refer it to police [3]			

Part 10. Attitude towards the proposed dam project

Q91	Do you support the proposed dam project which Energy Development Limited (PNG EDL) wants to build?	Yes [1] No [2] Not sure [3]	
Q92	If Yes, state your reasons		

Q93	If no, state your reasons?		
Q94	If not sure, why not?		

(II) Interview Guide

Lifestyle:

Basic description of everyday activities

What do men do? What do women do? What do children do?

What food they eat all the time? Where do get them

What season do you make garden?

What season brings forth good harvest?

What season brings for the poor harvest?

What months are good for fishing?

What times are good for hunting?

What foods do you gather in the bush?

Hairstyles; make-ups; perfumes....

Economy

Describe the village economy:

- How many are engage in subsistence economic activities only?

- What proportion of village population are working for money
- Main sources of village income
- Other development happening which they are or will participate

Government Services

Describe the situation of government service:

- How easy or hard to access it?
- Quality of service
- Cost of service

Other service providers

Describe service provided by other organization like church or company

- What services are provided?
- How is it helping the communities?

Resource ownership/Land ownership

In this village, how is resource ownership facilitated?

- Who decides who get what
- Are women (wife and daughters) have a say?

Purari River Use

Describe your dependency on the river

- What do you use the river for? (Fishing, washing, cooking, laundry, drinking etc...)
- Do you garden along the river?
- How well do food crops grow along the river compared to gardens further away from the river?

Views on the Dam

What are your opinions of the dam?

How do you feel if the dam eventuates?

How will your life be affected by this development?

Will it cover some important culturally and historically significant sites, e.g., initiation or other ritual sites?

Do you support?

If yes, why? If not, why?