

Esso Highlands Limited



Papua New Guinea LNG Project

**HIDES GAS CONDITIONING PLANT
Resettlement Action Plan**

PGHU-EH-SPZZZ-400001

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ACRONYMS

Acronym	Definition
ALRI	Acute lower respiratory tract infection
ANUE	Australian National University Enterprises
AusAID	Australia Aid
B4MD	Business for Millennium Development
BPEA	The Company Best Practices in External Affairs
BSA	Benefit Sharing Agreement
CA	Community Affairs
CDSP	Community Development Support Program
CEDAW	Convention on the Elimination of all forms of Discrimination against Women
CLO	Community Liaison Officer
CRC	Convention on the Rights of the Child
DA	Development Agreement
DSS	Demographic Surveillance Survey
DHS	Demographic Health Survey
DJAG	Department of Justice and Attorney General
DLPP	Department of Land and Physical Planning
DPE	Department of Petroleum and Energy
ECP	Evangelical Church of Papua New Guinea
EHL	Esso Highlands Limited
EHP	Eastern Highlands Province
EIS	Environmental Impact Statement
ELC	Environmental Law Centre
FN	Family Number
FPDA	Fresh Produce Development Agency
FRV	Full Replacement Value
GDC	Gigira Development Corporation
GN	Guidance Note
GPS	Global Positioning System
GPSr	GPS receiver
GR	Growth Rates
HGCP	Hides Gas Conditioning Plant
HGCP RAP	Hides Gas Conditioning Plan Resettlement Action Plan
HGDC	Hides Gas Development Corporation

Acronym	Definition
HHR	Heavy Haul Road
HHS	Households
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HQ1-3	Hides Quarries Sites 1, 2 and 3
IBD	Interest Bearing Deposit
IDP	Internally Displaced Person
IFC	International Finance Corporation
ILG	Incorporated Land Group
IMR	Papua New Guinea Institute of Medical Research
IPA	In-Principle Agreement
IRS	Indoor Residual Spraying
JDPBPC	Joint District Planning and Budget Priorities Committee
KAAR	Komo Airstrip Access Road
KTDC	Komo Tuguba Development Corporation
L&CA	Land & Community Affairs
LA	Landowner Association
Lancos	Landowner Companies
LBBSA	License-Based Benefit Sharing Agreement
LBD	Local Business Development
LLG	Local Level Government
LNG	Liquefied Natural Gas
LRP	Livelihood Restoration Program
LSMS	Living Standards Measurement Survey
M&E	Monitoring and Evaluation
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MP	Member of the National Parliament
MUAC	Mid Upper Arm Circumference
NARI	PNG National Agricultural Research Institute
NEFC	National Economic and Fiscal Commission
NGO	Non-Governmental Organization
O&GA	Oil and Gas Act
OIMS	Operations Integrity Management System
OLPG	Organic Law on Provincial Government
OSL	Oil Search Limited

Acronym	Definition
PAP	Project Affected Person
PDLs	Petroleum Development License
PEC	Provincial Executive Council
PIA	Project Impacted Area
PN	Person Number
PNG	Papua New Guinea
PNG LNG	Papua New Guinea Liquefied Natural Gas Project
PPL	Petroleum Prospecting License
PRL	Petroleum Retention License
PS	Performance Standard
RAP	Resettlement Action Plan
RC	RAP Coordinator
RDDT	RAP Document Development Team
RDT	Rapid Diagnostic Test
RIC	RAP Implementation Coordinator
RIT	RAP Implementation Team
ROT	Registrar of Titles
ROW	Right of Way
RPF	Resettlement Policy Framework
RTC	Resettlement Team Coordinator
SELCA	Socio-economic, Lands and Community Affairs
SHP	Southern Highlands Province
SIA	Social Impact Assessment
SLF	Sustainable Livelihoods Framework
SMLI	Social Mapping and Landowner Identification
SPA	Special Purpose Authority
SRI	Social Research Institute
STI	Sexually Transmitted Infections
TCS	Tax Credit Scheme
TFI	Turama Forest Industries
UBSA	Umbrella Benefits Sharing Agreement
UN	United Nations
VG	Papua New Guinea Valuer General
VLO	Village Liaison Officer
WB	World Bank

Acronym	Definition
WDC	Ward Development Committee
WHO	World Health Organization

EXECUTIVE SUMMARY

Introduction

Esso Highlands Limited (the Company) proposes to develop the Papua New Guinea Liquefied Natural Gas Project (the Project) to commercialize the gas reserves within the Southern Highlands and Western Provinces of PNG. Natural gas will be produced from gas fields at Hides, Angore and Juha and from existing oil fields feeding production facilities at Kutubu, Agogo and Gobe. It will be processed and then transported via pipeline from these provinces through Gulf Province and the Gulf of Papua to LNG producing and transporting facilities in Central Province.

Commencing in 2009, the development of the Project will be undertaken in phases, allowing the gas production schedule to be optimized and the LNG plant operation to be maximized. The Project is expected to have an operational life of approximately 30 years, beginning in 2014 when the first LNG cargo shipment is expected.

The Hides Gas Conditioning Plant (HGCP) site is an irregular shape about 1,500 m by 1,600 m and comprises an inner area of approximately 100 ha which is the plant site and a larger area around it of approximately 110 ha providing a buffer zone. The total area from which people will have to relocate is 210 ha. As a result of this HGCP development, some households will be subject to both involuntary physical and economic displacement. These impacts are described further in this plan.

Resettlement Goal

The Project's overall resettlement goal is to minimize resettlement where possible, but where unavoidable, to design and implement resettlement in a manner that improves, or at least restores, livelihoods and standards of living of physically and economically displaced persons.

Institutional and Legal Framework

Landowners affected by the Project are protected by legislated provisions contained in the Oil and Gas Act (O&GA). This Act defines the conditions for adequate and fair compensation for land that is accessed or acquired. It also contains the eligibility criteria for various types of damage compensation.

The process of resettlement will comply with all legal requirements and criteria, such as those specified in the O&GA, key PNG National Government institution guidelines, legislation of both the provincial and local governments, and the IFC's Performance Standards on Social and Environmental Sustainability. The HGCP Resettlement Action Plan (RAP) was developed in accordance with the requirements of International Finance Corporation's (IFC) Performance Standard 5 (PS5 – Land Acquisition and Involuntary Resettlement) and will address any differences or discontinuities between the requirements of PS5 and PNG law. In addition, the HGCP RAP reflects the Company's corporate approach to property rights and resettlement.

The Social, Economic and Cultural Environment

The proposed Hides Gas Conditioning Plant (HGCP) lies wholly within Komo-Margarima District in the Southern Highlands Province (SHP). The area is inhabited by the Huli ethnic group, whose socio-economic and cultural environment provide the context within which the resettlements will occur.

This report provides an analysis of Huli social organization, group constituency, residential patterns, exchange, and land tenure principles in order to understand how the prevailing socio-cultural conditions will shape the HGCP resettlement process.

In particular, the RAP focuses on the practice of multi-local residence amongst the Huli, wherein households frequently occupy, access and move between more than one house and gardens spread over several locations. In this respect, the issue of host community reception or rejection is not a consideration since people only move to locales where they already have, or can gain, rights and access.

Subsistence sweet potato farming is predominant, with little variation in agricultural practices according to seasonal cycles. Participation in the cash economy remains at a low-level. The dynamic and flexible nature of Huli group composition is a key factor in the resettlement process and is reflected in the proposed resettlement assistance package which offers options for improved replacement houses and livelihood restoration.

Socio-Economic Surveys and Baseline Status

Various baseline studies have been undertaken in the HGCP area to provide an understanding of the socio-economic characteristics of the impacted locales, as well as specific studies of the livelihood assets and activities of the households who will be physically or economically displaced.

This research has involved conducting a census and assets register and socio-economic survey using GPS to identify households, land ownership and usage patterns. Twenty three families were identified as physically resident on the HGCP. However, many of the houses outside the HGCP boundary had large gardens within the site. Where these households would be compelled to travel to some other far location to start new gardens, and thus have to erect a new house in that location to establish and tend such gardens, the Project made the decision to provide a full physical displacement package to these impacted households. This decision was consistent with the preferences expressed by resettlement affected landowners. Moreover, as many of these households were from the same clans, this decision would help preserve a sense of community for households in close proximity to each other as well as lessen any impact between haves and have-nots. A total of 490 household members were thus listed for the 59 HGCP families; some 25% of these residents were found to be living elsewhere and absent during the survey.

Ninety-nine physical structures are likely to be impacted by the HGCP site proposal. Eighty-eight (or 87%) were constructed of bush-material walls (usually woven cane or split timber slabs) with kunai (*Imperata grass*) thatch roof. Eighty per cent of houses were approximately 40m² in floor area.

Huli gardens are planted mainly with sweet potato as well as with highlands pitpit (*Setaria*), sugarcane, various greens and ferns, bananas and tanget (*Cordyline*). The families with gardens inside HGCP boundary possessed a total of 1,974 avocado trees, 4,500 marita (*Pandanus canoideus*), 290 ficus, 155 black palm, 12,181 mature Casuarina, 533 bamboo clumps and 98 mature pine trees. Pig husbandry is also an important component to subsistence and income livelihoods.

Employment levels were marginally higher than recorded in other neighboring Project areas, with a high percent of people receiving income through business and royalty/equity streams from the OSL's Hides Gas-to-Electricity development. Of particular note is that some 40% of respondents reported having a business interest in trade store operations. At present only eight of the affected households (12%) have trade stores requiring relocation. HGCP residents expend more money on trade store purchases than the mean average for the wider Hides catchment. In effect, HGCP is a relatively advantaged area from an economic

perspective. Those residents who had employment included carpenters, chainsaw operators, cooks and mechanics.

Education levels were close to the averages recorded for PNG. The HGCP social survey indicates that more than half the school-age children are not currently attending school, a figure lower than for the wider Hides catchment of 65%. Whilst 43% of HGCP respondents indicated they had received no education at all (wider Hides catchment 53%), the proportion of residents who had achieved Grade 1-10 was higher than for the general area.

Consultation and Disclosure for the HGCP RAP

The Project Land and Community Affairs (L&CA) section, together with a specialist RAP Implementation Team (RIT), conducted the initial consultation for the HGCP resettlement program on May 12th 2009. Consultation commenced with a series of public meetings to inform stakeholders about the Project and the associated surveys that would be conducted.

During December 2009 and January 2010 ongoing individual consultation was undertaken with households to finalize their preferred resettlement assistance packages. Ongoing future consultation will be undertaken with all 59 affected households and local government officials until agreement is reached on the proposed consultation packages offered.

Verbal information, provided during community meetings and household meetings on the proposed HGCP was supported by various materials, appropriate to the stage of the process, such as booklets, flyers, summaries and flipcharts.

Issues raised by the affected HGCP communities include: compensation rates; provisions for replacement land and housing; timing of the construction of relocation houses; the resettlement assistance package; subsistence and food shortages; in-migration, environmental damage; and loss of hunting opportunities. In particular, the HGCP residents requested the Company provide permanent house constructions to replace lost dwellings.

Project Impacts

Once resettlement occurs, both households living within, and households owning land within the proposed HGCP site will lose their land and fixed assets; and may be affected by various other physical, economic and cultural impacts. The main impacts expected are summarized below:

Impact	Scale
Residential structures affected	99 structures affected 59 households to be displaced
Community structures affected	One school affected by noise and dust – risk mitigations to be implemented, such as fencing, school upgrades, improved access, security and traffic control.
Loss of field and agricultural land	59 houses 155 gardens belonging to 55 households
Loss of trees and crops	165 sweet potato gardens 13,643 coffee trees 19,731 other trees
Loss of access to forest resources	59 households Access for clan/clan segment members
Disruption in social networks	Physically displaced
Impacts on business and employment	8 trade stores disrupted and displaced
Community services and facilities	Loss of access to water sources and access across the site
Cultural sites	48 cultural heritage and archaeological sites
Influx of migrants	Some influx expected owing to social and infrastructure development in the area.

Other impacts include influx of work seekers, and people wanting to take advantage of the improved and superior health facilities in Hides (at Juni) as opposed to their own area. This influx may increase populations in and around the HGCP and other adjacent facility sites, with a range of potential impacts. On the positive side, there will be improved infrastructure arising from the Project development which will enhance community livelihoods.

In terms of the availability of resettlement sites, the customary practice of multi-local residence will in the first instance allow relocatees to self-determine their preferred relocation sites. Each household has access to alternative lands, and possibly household structures or gardens, and so can resettle to these available sites. This strategy has proved appropriate and successful in the neighboring resettlement impacted area of Komo Airstrip. Impacts should therefore be low in terms of disruption of livelihoods and effects on host communities. However, it is also customary practice for individuals to 'lease' garden lands from others in case of shortage. During the initial household survey, 27 (46%) of the HGCP households indicated they will self-locate, and most of these have informed the Project's Resettlement Census and Survey Team that their destinations are between one to five hours walk away from the HGCP site. This situation is encouraging and has an analogue in the nearby Komo Airstrip resettlement zone where after full information and assistance package options had been presented, all of the households were enabled to self-relocate. The expectation is that a similar outcome will be achieved in the HGCP area. At the time of finalizing this RAP (October 2010) all affected households have agreed in principle to self-relocation, and the RIT are in the process of obtaining GPS coordinates for selected relocation sites.

Households which are especially vulnerable to displacement impacts will be identified and provided with special assistance. In Huli it does not follow that female-headed households are necessarily 'vulnerable'. In Huli it was traditional for male and females to live apart and have their own houses and gardens. Their sons or brothers or other close male relatives would build their houses for them. However, given the IFC criterion of "may be limited in ability to claim or take advantage of resettlement assistance" it is appropriate that special

attention is focused on these female households to ensure they are not disadvantaged in the relocation process.

Compensation and Resettlement Strategy

The Project's overall resettlement goal is to design and implement resettlement in a manner that improves or at least restores the livelihoods and standards of living of physically and economically displaced persons. Strategies for compensation and other support measures, as outlined in this RAP were developed based on PNG law, IFC PS5, the results of surveys, census, and consultation, and lessons learned from resettlement in other projects in PNG and on the Project.

The Project will pay full-replacement value for all lost crops and trees. These rates will reflect the recommendations made in an independent study. In those circumstances where there has been a shortfall between any payment and the FRV rate, the difference will be assessed and paid retrospectively.

In addition, eligibility and entitlements for statutory damage and deprivation compensation for communal clan land have been defined and will be compensated at FRV. Damage and deprivation payments will have regard for the customary classification of landowners, landholders and land users in respect of their tenurial status and portfolio of land rights and responsibilities.

Those households subject to economic displacement are eligible to receive damage and deprivation compensation as well as livelihood restoration. Those households subject to physical displacement are eligible to receive the same types of compensation as well as a relocatee assistance package. People subject to either economic or physical displacement will be eligible for further assistance under the livelihood restoration program.

The relocatee assistance package presented to households includes a number of replacement options in respect to the house component which are conditional on whether the household has a site-verified and pre-established abode at the relocation site. These options include part cash, provision of building materials, and/or a deposit into an interest bearing account for a period of no less than six months. Additional support measures include the provision of in-kind items, further deposits into interest bearing accounts, transit support, rations, mosquito nets, garden tools (e.g., spade, axe, file) and building tools (e.g. hammer, nails, etc).

An acknowledged discontinuity between the Huli term 'house' (*anda*) and the RAP analytic concept 'household' challenged the Project to devise a compensation scheme based on consistent and equitable principles that was nuanced to Huli culture and provided fair compensation to all members of the notional 'household'. Succinctly stated, HGCP landowners had expressed the view that because a man had four wives he should get four times the household component of the resettlement package, rather than just one times the household package. HGCP households did not accept the initial support package which had been negotiated with the adjacent Komo Airstrip landowners. Further negotiation resulted in an interim agreement whereby other parts of the existing resettlement package were agreed to but not the housing component which was deferred for further discussion. Following more extensive negotiation a final package was agreed upon with the HGCP households to pay more for the housing component than those households in Komo.

An independent PNG advocacy group (ELC) has been appointed by the Project to assist affected people to participate in the resettlement process on an informed basis by advising them of their rights, responsibilities, and options concerning resettlement in the context of both national PNG legislation and the Project plans and provisions. In addition, the Project will provide the services of a specialist Compensation Advisor, who will advise and consult with affected people on money management.

Livelihoods Restoration

Apart from compensation payments, livelihood restoration programs will be implemented to at minimum restore the income levels of the affected communities. These programs include land-based as well as non land-based activities.

The land-based component of the Livelihood Restoration Program (LRP) is comprised of extension and support activities, aimed at:

- Re-establishing existing gardens and subsistence agricultural practices; and
- Promoting rural enterprise through awareness creation and initiatives to generate cash income.

Extension services will be provided by the Project to assist HGCP resettlement-affected households to re-establish agricultural and livestock activities at their resettlement sites, increase production and develop new economic activities. These will include dedicated extension staff and outreach programs with settlers to teach new practices and technologies.

Outreach programs will cover: improved varieties of crops and virus-free planting material; assistance with the production of temperate climate vegetables (for potential sale); the production of animals for sale and home consumption (chickens, fish, rabbits and honey-bees); and crop and livestock processing technologies (such as preserving fruit and tubers and production of marita pandanus oil).

The non land-based component of the LRP is aimed at: diversifying the income base and reducing dependence on subsistence agriculture; generation of cash income through training in activities that could generate income; and collaboration with the Community Support Strategy in development of initiatives to benefit the broader community. These programs will be undertaken to improve the social infrastructure in the area and support for infrastructure development.

Grievance Management Framework

The objective of the Project's Third Party Grievance Mechanism is to receive, respond, and address any grievances made to the Project. Grievances will be responded to as quickly and efficiently as possible, avoiding escalation of the issue, reducing negative impacts on the local population and assisting to maintain a positive attitude towards the Project amongst stakeholders. At present a system of recording grievances is being implemented by the RIT and ELC, who are recording issues that cannot be resolved during the ongoing household consultation and negotiation process as grievances to be followed up by the Project.

Organizational Roles and Responsibilities

Overall responsibility for the planning, implementation, and monitoring of the HGCP resettlement program rests with the Company and the Land and Community Affairs (L&CA) Team of the Company who will be undertaking these activities for the HGCP RAP. Adequate resources and effective management will be allocated to ensure that the HGCP RAP is implemented as developed with the participation of affected people/communities in a timely manner.

The RAP clearly defines roles and responsibilities of the Company's L&CA Manager, the Resettlement Team Coordinator, the Resettlement Census and Survey Team, the RAP Documentation Development Team, Resettlement Advisor, and the RAP Implementation Team (consisting of Technical Advisors, Land and Community Affairs, Logistics and Procurement Team, Community Health, and Government Affairs Team). The Local Advocacy consultant will review and evaluate effectiveness whilst the Compensation Advisor will provide assistance to affected households. In addition, a Community Resettlement

Implementation Committee will be established to assist with community interaction and implementation of the RAP.

Monitoring and Evaluation

Monitoring and evaluation (M&E) are critical to achieve the goal of resettlement – to at a minimum restore income streams and improve living standards of affected people. The purpose of the M&E system is to provide the Project management, directly affected persons, households and communities, with timely, concise, indicative information on whether compensation, resettlement and development investments are providing positive inputs and to indicate the need for any course corrections that may be required to achieve the Project goals.

The M&E framework consists of internal progress monitoring, internal output monitoring, an external outcome evaluation, an external completion audit and regular reporting. Preliminary monitoring of implementation activities has commenced at the HGCP site, where the RIT and ELC representatives monitor the delivery of rations, and payment of transit allowances to affected households as part of the household consultation and negotiation process.

An independent third party will conduct the completion audit for the HGCP RAP. The completion audit's purpose will be to determine whether the Company's undertakings (RAP measures) to at minimum restore income streams were properly conceived, executed and have the intended outcome as measured against baseline conditions.

Resettlement Implementation Schedule

A schedule of tasks has been developed to implement the major components of resettlement over an expected four-month period, commencing in May 2010, with livelihood restoration and monitoring continuing for two years. Implementation activities will commence with the approval of the RAP by the Company, and submission of the RAP the Lenders.

Cost and Budget Estimate

The Capital Funding budget for the Project includes a resettlement budget. The Company is the source of funds for all resettlement related expenditure. The budget has been approved, and additional budget for contingencies will be made available as needed. The resettlement budget falls under the management of the Socio-economic, Lands and Community Affairs team. The cost of resettlement is estimated at approximately US\$ 5.6 million.

1.0 INTRODUCTION

This Resettlement Action Plan (RAP) focuses on resettlement of people currently residing on or immediately adjacent to land required for the development of the Hides Gas Conditioning Plant (HGCP). The HGCP is located within Petroleum Retention License (PRL) 12 and within lands inhabited by the Huli ethnic group. It will occupy an area of approximately 210 ha (see Figure 1-1 also provided in Appendix 10, Map1).

This RAP has been developed in accordance with the policies and guidelines presented in the Resettlement Policy Framework (RPF) document of November 2009.

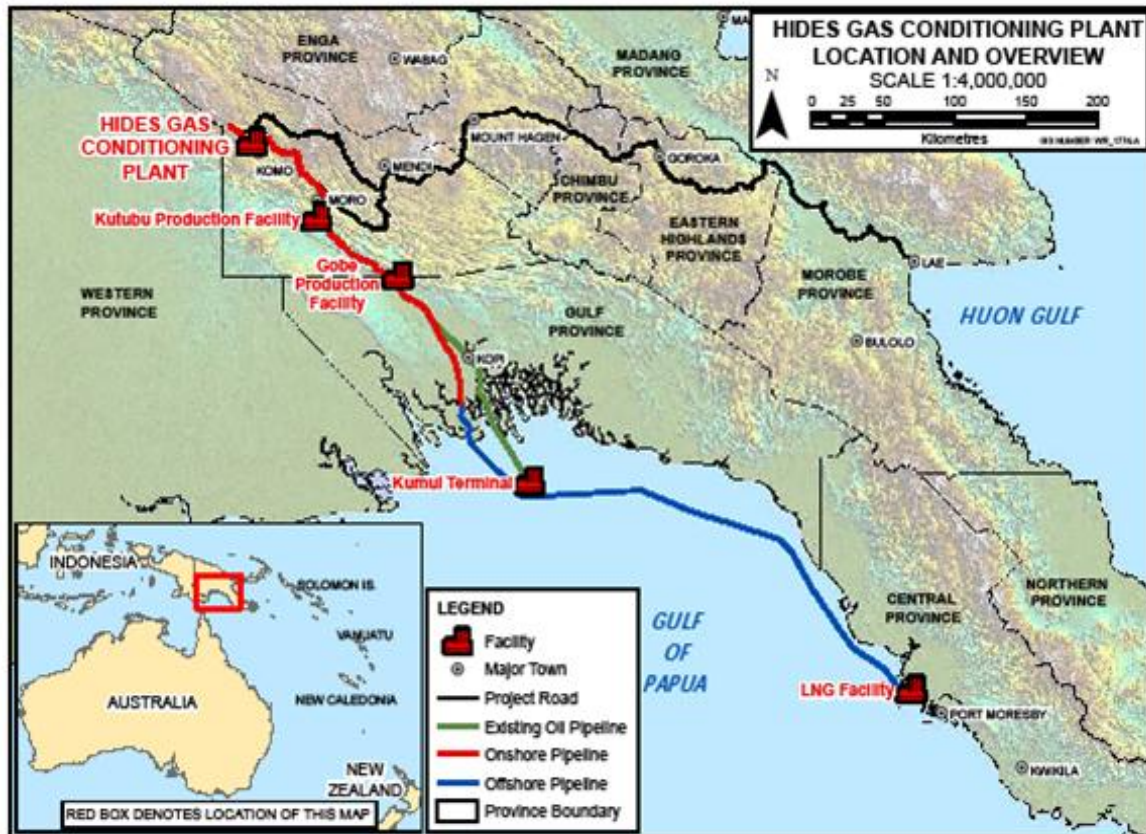


Figure 1-1: HGCP Location and Overview

1.1 Description of the Project

The Project will commercialize the gas reserves within the Southern Highlands and Western Provinces of PNG. Natural gas will be produced from gas fields at Hides, Angore and Juha and from existing oil fields feeding production facilities at Kutubu, Agogo and Gobe. It will be processed and then transported via pipeline from these provinces through Gulf Province and the Gulf of Papua to LNG producing and transporting facilities in Central Province.

The Company is the operator of the Project. The Project is to be implemented through a joint venture between licensees representing the following participating interests: Esso Highlands Limited as operator; Oil Search Limited; Santos Limited; Nippon Oil Exploration Limited; and the Independent State of Papua New Guinea and Mineral Resources Development Ltd representing landowners.

Figure 1-2 shows the location of some major Project components relative to the Hides Gas Conditioning Plant.

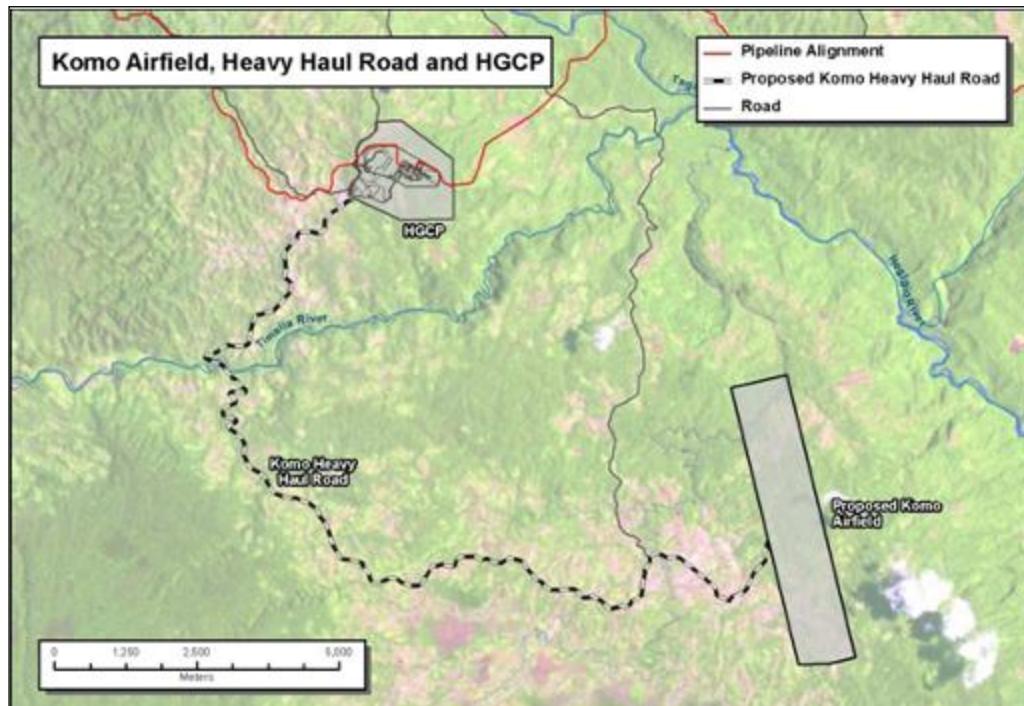


Figure 1-2: HGCP Plant in Relation to Komo Airstrip and Heavy Haul Road

The Project will enhance and expand existing production fields and facilities developed in the Southern Highlands Province in the 1990s, constructing a portion of the Project adjacent to or within the footprint of the existing oil production and transport facilities and infrastructure from Kutubu to Kopi.

The natural gas that will be used as feed gas for LNG processing will be produced from gas fields at Hides, Angore and Juha, via the Hides Gas Conditioning Plant and the Juha Production Facility and other gas fields at South East Hedinia and the existing oil fields via the existing facilities at Kutubu, Agogo and Gobe. The natural gas will be conditioned and then transported via an onshore pipeline to the Gulf of Papua and then via an offshore pipeline to the onshore LNG Plant some 20km northwest of Port Moresby at Caution Bay, where it will be liquefied and then exported via LNG carriers to international gas markets. In addition to LNG, the Project will produce condensate at Hides and at the LNG Plant. The former will be transported via pipeline to storage tanks at Kutubu and then exported via the existing crude oil pipeline to the existing Kumul Marine Terminal. The latter will be stored in tanks at the LNG Plant and then exported via condensate carriers.

1.2 Project Development Phasing and Areas Impacted by Displacement

The Project will be developed in five phases (Table 1-1). The Project is expected to have an operational life of approximately 30 years, beginning in 2014 when the first LNG cargo shipment is expected.

Reconnaissance surveys are underway or completed for some Phase I facilities (Komo Airstrip, HGCP, Heavy Haul Road). Schedules for RAP preparation for all other Phase I facilities will be finalized during 2011.

Table 1-1: Project Phases

Phase	Estimated Timing ¹
Phase 1: Develops Hides, Angore, Kutubu and Gobe	2009 – 2014
Phase 2: Additional Compression at HGCP	2019
Phase 3: Develops Juha	2022
Phase 4: Develops Agogo and Moran	2024
Phase 5: Develops SE Hedina	TBD

The affected land is owned by indigenous ethnic groups but represents a fairly small proportion of the total land mass owned by these cultural populations. The heaviest displacement impact will occur in the Hides-Komo environs as a result of its greater population density and the more extensive Project footprint in this region.

In-Principle Agreements are being negotiated over a significantly larger area than is likely to be required to provide construction contractors with flexibility. The buffer zone for the HGCP site has been determined by findings of the noise impact study. It incorporates a substantially larger area to the north of the site where noise levels are expected to be significantly higher. Additional households not included in the buffer zone, and across the road from the HGCP site, are included due to significant impacts to gardens, anticipated impacts of traffic along the road, and community cohesion.

1.3 The Hides Gas Conditioning Plant

The Project involves the construction of a gas conditioning plant approximately 11 km by road southeast of Nogoli Camp in the Southern Highlands Province of Papua New Guinea (see Figure 1-3).



Figure 1-3: Hides Gas Conditioning Plant Site (Beyond the Road)

The proposed site is situated on the south side of the Tagari River valley about 500 m above the valley floor at around 1,700 m above sea level on a broad limestone ridge. The plateau

¹ Indicates an estimated year for commencement of operations.

itself is undulating and pocked with sinkholes, the largest of which is Lake Mabuli to the immediate north of the HGCP site. The HGCP site is located immediately northeast of Hides Wellpad A on the proposed gas pipeline route, between an existing vehicle road which connects to Nogoli, Tari and Lae via the Highlands Highway, and the edge of the plateau which falls away steeply into the Tagari Valley. The eastern outer boundary of the site is just over the edge of the plateau.

To the immediate south of the HGCP site, the Timalia River flows northeast to the Tagari River in a deeply incised valley. Five kilometers southwest of the HGCP site the present road becomes impassable to vehicles where the bridge over the Timalia River has collapsed. A wire suspension footbridge allows walkers to cross.

The HGCP site is an irregular shape about 1,500 m by 1,600 m and comprises an inner area of approximately 100 ha which is the plant site and a larger area around it of approximately 110 ha providing a buffer zone. The total area from which people will have to relocate is 210 ha, as illustrated in Figure 1-4 (and detailed in Appendix 10, Map 2).

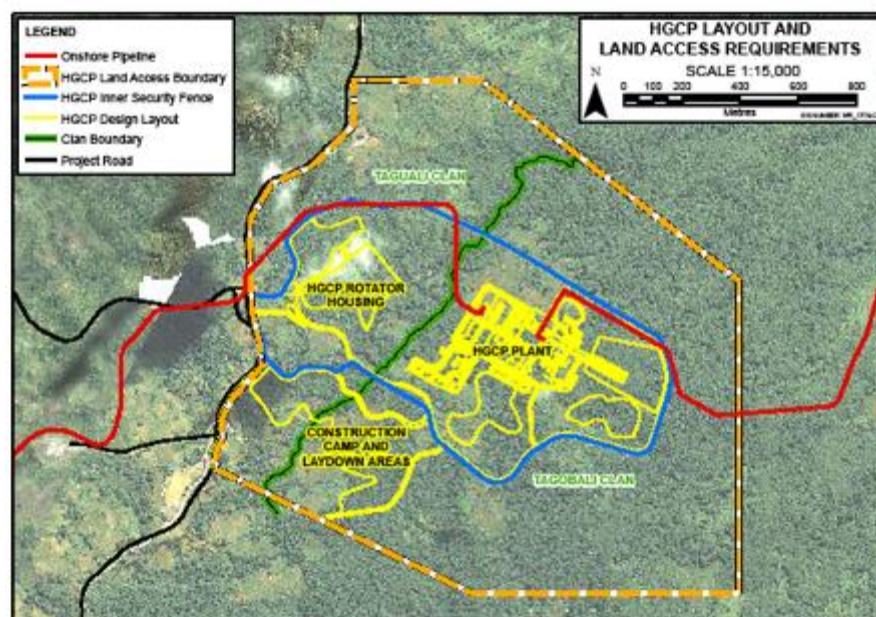


Figure 1-4: Illustration of Land Access Requirements for the HGCP

The HGCP will be enclosed behind a wire perimeter fence inside of which will be the 100 ha plant site within a security fence, and 65 ha of cleared and occupied land and safety zones within the wider buffer zone. The HGCP will receive full well-stream fluids from both the Hides and Angore fields. From Phase 3 of the Project, the plant will also receive gas and liquids separated at the Juha Processing Facility. The plant will include:

- Separation, slug handling, gas conditioning and compression;
- Liquids stabilization into a condensate product;
- Services and utilities will include:
 - Plant telecommunications;
 - Firewater system;
 - Open and closed drain systems;
 - Utility and instrument air system; and
 - Power generation and electrical systems;
- Hides Control Centre – office buildings and support services;

- Hides Industrial Area – adjacent to the HGCP and which will provide operational and maintenance support, parking for shuttle buses, utilities, laboratory, warehouse and offices; and
- Hides Operations Camp – will accommodate 260 operations personnel and contractors and will include the following facilities and buildings:
 - Administrative office for field operation;
 - Accommodation and ablution units;
 - Indoor catering and recreational facilities;
 - Sports facilities; and
 - Camp utilities including sewage, information technology, power and potable water treatment.

1.4 Resettlement Goals and Principles

The Project's overall resettlement goal is to minimize resettlement where possible, but where unavoidable, to design and implement resettlement in a manner that improves, or at least restores, livelihoods and standards of living of physically and economically displaced persons. Physical displacement involves the loss of shelter and assets resulting from acquisition of land associated with a project that requires the affected persons to move to another location. Economic displacement involves the loss of income streams or means of livelihood resulting from land acquisition or obstructed access to economic resources (land, water, forest) resulting from the construction or operation of a project or its associated facilities.

1.4.1 Resettlement Principles

A number of fundamental principles guide the resettlement process to achieve its stated goals. These principles are:

- Avoid and limit the need for physical/economic displacement through consideration of alternative sites, alignment, and other design modifications;
- Conduct consultation processes that achieve free, prior, and informed participation of affected people and host communities in decision making related to resettlement and ensure their continuing participation during implementation and monitoring/evaluation;
- Compensate people affected by land acquisition for loss of assets at full replacement value (FRV);
- Improve, or at least restore, the living conditions of all displaced households;
- Design and implement in a timely manner culturally sensitive and economically sustainable income restoration measures;
- Provide measures to support physical relocation and re-establishment;
- Identify and provide assistance to people who are especially vulnerable to displacement impacts; and
- Carefully monitor and evaluate to ensure that resettlement measures are meeting the needs of affected people and to identify the need for and implement corrective measures. Monitor the implementation of such measures.

1.4.2 Resettlement Process

Figure 1-5 illustrates the resettlement planning and implementation process.

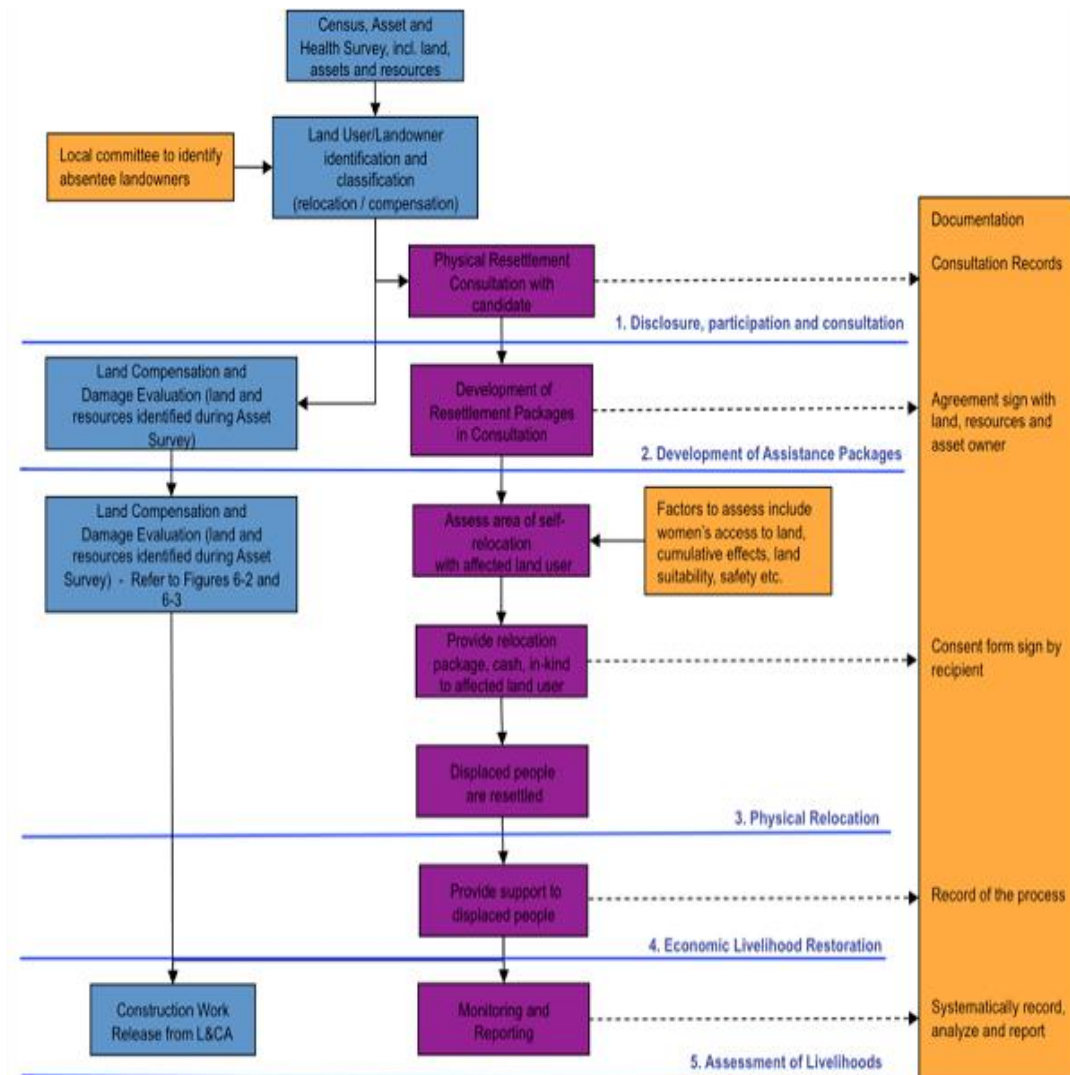


Figure 1-5: HGCP Resettlement Process

The RAP process involves:

- Collection and analysis of socio-economic data regarding households subject to loss of assets or resources;
- Determining pre-project baseline conditions of affected households as part of the resettlement–compensation assessment process, by means of a census of all directly affected households;
- Identification of the impacts that resettlement will have on people and property (land, crops, and access to forest and grazing resources) utilizing quantitative, qualitative and best professional judgment methods;
- Definition and description of eligibility criteria and compensation categories;
- Valuation of land, crops, buildings and all other affected property, including cultural heritage and property such as graves, sacred sites and monuments;

- Determination of various income restoration strategies (including assistance in sustainable agricultural techniques);
- Establishment and processing of individual, household and community compensation agreements;
- Establishment of complaints and grievance procedures;
- Preparation of a comprehensive budget and schedule for the implementation of the RAP;
- Preparation of a monitoring and evaluation process for the RAP implementation;
- Identification of the monitoring and evaluation indicators; and
- Provision of recommendations as to resettlement implementation.

1.5 Sources of Information

Key sources of information used in the preparation of this Resettlement Action Plan include:

- IFC Performance Standards (PS5) Land Acquisition and Involuntary Resettlement, (PS4) Community Health and Safety and Security, and (PS7) Indigenous People;
- Papua New Guinea Liquefied Natural Gas Project Environmental Impact Statement (EIS) and Papua New Guinea Liquefied Natural Gas Project Social Impact Assessment (SIA) as part of the Environment Impact Statement – 2009;
- Censuses and Survey results for the HGCP affected area;
- Komo Airstrip RAP;
- Social Mapping and Landowner Identification studies (SMLIs);
- National Content Plan (outlines workforce development, local business development, investment in strategic community programs);
- Assimilation of lessons learnt in other resource developments in PNG and especially adjacent to the Project – e.g., petroleum hubs of Moran, Mananda, Gobe and Kutubu, gold at Kare and Porgera, mining at Lihir²; and
- The Company Corporate Elements (Best Practices in External Affairs (BPEA), Land Use Standard, Community Awareness element of Operations Integrity Management System (OIMS) on Property Rights and Resettlement, the Company Policy on Human Rights).

1.6 Site Selection and Avoiding/Minimizing Resettlement

The final selection of the HGCP site reflected consideration of various alternatives, and criteria related to earthworks (soil strength, batter slope limits, cuts and fills), foundations (drainage, geotechnical issues of erosion, degradation etc), pipeline grade limits, access (to Angore well site, to future Juha development, roads and bridges), and cost. The process of selection involved assessment of a baseline site against three other viable options with reasonable topography and location (depicted in Figure 1-6 and detailed in Appendix 10, Map 3).

² See especially C. Filer, D. Henton & R. Jackson (eds.) Landowner Compensation in PNG Mining & Petroleum Sectors 2000 PNG Chamber of Mines & Petroleum – includes comparison of resettlement packages and history for Ok Tedi, Porgera, Lihir, Misima and Panguna.



Figure 1-6: HGCP Site Alternatives (2007)

Comparison tables for all these criteria were constructed to enable a risk matrix assessment to be undertaken that could produce a low-risk preferred outcome. This process aimed to identify key economic and social vulnerabilities and opportunities by developing an alternate option for each of the viable sites based on a 33% and 55% pipeline grade option.

The area between the security fence and the perimeter fence will serve as a noise and air quality buffer between the plant and neighbors. Noise levels from the Hides Gas Conditioning Plant at the perimeter fence are expected to be less than 45 dBA under neutral atmospheric conditions at night, which conforms to international standards.

While site selection was predominantly determined based on geotechnical considerations, a subsequent evaluation was undertaken by engineers and noise specialists in consultation with the RIT in an attempt to limit resettlement through design modifications to reduce the noise buffer.

A number of refinements to the HGCP site development plan have been implemented to ensure the impact on existing community infrastructure was minimized. In particular the Waru Catholic Church, Waru Community Centre, and Catholic Mission Elementary School are no longer within the HGCP intervention envelope. As a consequence, these structures will not have to be relocated.

2.0 INSTITUTIONAL AND LEGAL FRAMEWORK

This section addresses the PNG legal and institutional framework applicable to land acquisition and compensation. Although the Oil and Gas Act describes conditions for compensation, PNG does not have a resettlement policy *per se*. The HGCP RAP conforms to the requirements of IFC Performance Standard 5 (PS5 – Land Acquisition and Involuntary Resettlement) and addresses gaps between PS5 and PNG law. Institutional Framework

2.1.1 Provincial Government

The HGCP is located in the Southern Highlands Province (SHP). Within the SHP, the area falls within the Komo-Margarima district. In July 2009 Parliament passed legislation to create two new provinces by 2012. One of these is to be created by removing the districts of Tari-Pori, Komo-Magarima, and Koroba-Kopiago from the Southern Highlands Province to form the new Hela Province.

The following Government institutions exist within each province of PNG:

- **The Provincial Assembly:** is the paramount decision making body in a province. It is composed of Members of the National Parliament (MPs) and a limited number of appointed members representing women and other groups;
- **The Provincial Executive Council (PEC):** is the executive arm of the Provincial Government, and is comprised of the Provincial Governor, Deputy Governor and a series of Chairpersons appointed to supervise permanent development committees;
- **The Joint District Planning and Budget Priorities Committee (JDPBPC):** oversees and coordinates the preparation of district plans and budgets. JDPBPCs are comprised of the heads of local-level governments in the district (usually three), and three members appointed by the Chairman, who is the Open MP for the district;
- **The Provincial Administrator & Staff:** are responsible for overseeing the administration of the Organic Law on Provincial and Local Level Government which establishes the political, planning and financial management relationships between the National Government and the Provincial Governments³; and
- **The District Administrator & Staff:** are responsible for overseeing the administration of the Organic Law in the district.

2.1.2 Local Government

- **Local Level Governments (LLGs):** were originally given a constitutional mandate, a long list of legislative powers and, in principle, guaranteed funding under the Organic Law of 1977. Under the reformed Organic Law of 1997, the LLGs were to develop plans and budgets, raise taxes, fees and levies, pass and enforce laws, and provide a range of services. However, due to various constraints, the LLGs in most provinces function largely as political offices and have very limited capacity to raise revenue or deliver public infrastructure and services;

³ The Organic Law on Provincial Government (OLPG) was first introduced in 1977 as part of a vision for decentralization of finance and decision making to rural level bodies capable of driving social services and development. For many reasons these much-anticipated reforms did not achieve results and in 1997 a new Organic Law on Provincial and Local Level Government (OLPG&LLG) was introduced. The OLPG&LLG foreshadowed the devolution of greater financial, planning and legislative powers.

- **Special Purpose Authorities (SPAs):** were established by LLGs to carry out community development projects. The SPAs receive funds from Provincial Government through development levies, royalties and direct government grants; and
- **Ward Councilors/Chairmen:** are, presently, the only duly elected landowner representatives in the Project Impact Area. Ward councilors are part of the LLG system and should form part of a Ward Development Committee (WDC) under the provisions of the Local Level Administration Act 1997 Div.2. Ward Development Committees should service their ward constituencies in respect of services, development programs and infrastructure. At present WDCs are non-operative in the Southern Highlands Province.

2.1.3 Local LANCOS and the Hides Gas Development Company (HGDC)

The Project will engage local landowner companies (LANCOs) for all local labor hire and a range of other services and business opportunities. To date, LANCOS have been used in the resettlement program and to supply vehicles for use by the RIT. It is envisioned that the LANCOS will play a role providing services such as assisting with the construction of new houses and community buildings and with the implementation and monitoring of the livelihood restoration program. HGDC will mill timber harvested from the HGCP site which will be made available to resettlers.

2.2 **PNG Legislation Relating to Land and Resettlement**

2.2.1 Land Tenure and Rights

PNG land laws are largely based on 'customary land title'. Customary land notionally covers most of the usable land in the country (some 87% of the total land area). The remaining land is held as either Freehold Title (also known as fee simple) and held privately under a 99 year State Lease, or is Government land.

Ownership of customary land is determined by oral history, genealogy, and kinship and descent ties which define membership to some corporate group such as a clan.

Groups such as clans usually have a notional title over land. However, the effective landholding units, who own and/or operate the smallest portions of land whose ownership cannot be further divided, are individual heads of extended families and their descendants. Customary property, usually land, cannot be alienated by will; it can only be inherited according to the custom of the deceased's people.

Clan members who may have moved elsewhere but who retain natal clan membership, often contest land ownership. Such disputes may have a history which reaches back generations.

Project Area Landowners are defined in the Oil and Gas Act (O&GA) as persons who *"are customary landowners or who have registered title to:*

- Any part of the license area of a petroleum development license the operations under which are part of that petroleum project; or*
- Any land within the buffer⁴ zone of that petroleum project".*

2.2.2 Land Access

A private entity cannot purchase customary land, but under the Land Act of 1996, the private entity may negotiate with customary landowners for the land to: (i) be leased to the State; and (ii) for the State to then issue a State lease to the landowners, who may sub-lease the land to the private entity.

⁴ A buffer zone is the area around the dedicated project facilities – e.g., pipelines etc – which is determined by the Minister as up to 5km around that facility.

Where the State wishes to acquire customary land for governmental purposes, the PNG Constitution provides a statutory framework to do so by negotiation or, subject to certain conditions, by compulsory acquisition upon just compensation.

The PNG Constitution provides a number of safeguards against unjust deprivation of property. The Land Act, for example, enables claims for compensation in relation to State acquisition of property to be heard by the Land Titles Commission.

The Project will require access to land for its facilities for the term of the licenses granted under the O&GA. Sections 110 to 120 of the O&GA describe the rights and obligations of the licensees.

The O&GA also stipulates the need for preliminary and full-scale Social Mapping and Landowner Identification Studies for Petroleum Development Licenses, Petroleum Retention Licenses, Pipeline Licenses, and Petroleum Production Licenses⁵.

Where the people to be relocated do not own the land that is to be resettled, access to the relocation site could in principle be obtained via acquisition by the State under the Land Act.

2.2.3 Compensation

2.2.3.1 Legal Basis

Landowners affected by the Project are protected by legislated provisions contained within the O&GA. This Act contains provisions for adequate and fair compensation for land which is accessed or acquired.

O&GA Section 118 (2) specifies that compensation shall be paid for:

- The deprivation of the use and enjoyment of the surface of the land or any part of it or of any rights customarily associated with it, except where there has been a reservation in favor of the State of the right to such use and enjoyment, and damage:
 - to the surface of the land or any part of it, or any improvements on it; or
 - to any trees, fish or animals, caused by the carrying on of operations by the licensee;
- Severance of the land from other land of any owner, occupier or person interested in the land; and
- Rights of way and easements; and any other damage consequential on the licensee's use or occupation of the land.

The provisions of the O&GA are overseen by the PNG Government agencies of the Department of Petroleum and Energy and Department of Lands and Physical Planning.

⁵ Social Mapping and Landowner Identification (SMLI) reports are commissioned by the licensee and typically undertaken by anthropologists with a research and publication record relevant to the affected ethnic groups. The research involves fieldwork to ascertain who the social groups are within the licence area with respect to their history, language, culture, social organisation, trade and political and economic systems. Particular attention is paid to mapping out social groups and their distribution on the land. The report details relationships of people to land, and how a portfolio of rights to access and use are defined within the social context, and with regard to the descent and kinship systems. The final SMLI report is submitted to the Minister of the Department of Petroleum and Energy who can use it (along with any Social Impact Analysis) as an aid to the identification of project landowners prior to the commencement of any Development Forum. The Project Lands & Community Affairs agency uses the SMLI reports as a basis for ground-truthing clan ownership of tracts/areas likely to be accessed by or imposed upon by the project.

2.2.3.2 Eligibility

Table 2-1 indicates those individuals or groups eligible for compensation and is further discussed in Section 7.2.

Table 2-1: Compensation Eligibility

Compensation Type	O&GA Reference (sections)	Eligible Claimants
Deprivation of use of land	S118 (2) (a)	Landowners and land-users with rightful, recognized claims to land.
Damage to land surface	S118 (2) (b) (e) (i)	Owners of dwellings, fences, houses, and other man-made structures.
Damage to any trees, animals or fish	S118 (2) (b) (ii)	Persons recognized as owners of animals, planters of trees or, in the case of riverine fish, villages holding traditional fishing rights in the stretch of river where fish kills occur.
Damage to improvements	S 118 (3)	Recognized owners of improvements whether landowners or not.
Severance or reduced access to land	S 118 (2) (c)	Persons recognized as landowners or land-users on the land to which access is reduced.
ROW or easements	S 118 (2) (d)	Persons recognized as landowners along the ROW or easement.
Any other damage (e.g., water)	S 118 (2) (e)	In the case of water damage, villagers who habitually use the tainted water source.

2.2.3.3 Compensation Rates

The Valuer General's Compensation Schedule provides the legal basis for any licensee compliance with PNG Oil & Gas Act compensation provisions⁶. Table 2-2 shows the rates that landowners and developers have accepted as appropriate for the area for deprivation of clan land and these are generally higher than the Valuer General's rates. Specific rates agreed for the compensation of clan land in the HGCP area are reflected in the In-Principle Agreement with clan representatives (see Chapter 13.0 - Cost and Budget Estimate).

⁶ Oil & Gas Act section 118 (6): Where applicable, compensation payable under this section shall be determined with reference to the values for economic trees published by the Valuer-General, and any other values published by the Valuer-General.

Table 2-2: Agreed Compensation Schedule

COMPENSATION RATES USED - (Kina ⁷ per hectare)			
Initial Damage (One off)	Easy Access	Moderate Access	Difficult Access
Kunai or secondary growth	206.00	165.00	132.00
Low density - Lowland/Mid Montane & Alpine Forest	1,030.00	825.00	660.00
Medium Density Lowland/Mid Montane & Alpine Forest	1,287.50	1,031.25	825.00
High density - Lowland/Mid Montane & Alpine Forest	1,802.50	1,443.75	1,155.00
Surface damage (One off)	2,575.00	2,062.50	1,650.00
Land use – All areas (Annual)		210 ha	

The Project will verify that these rates negotiated for communal land are equivalent to, or higher than, full replacement rates. A top-up payment will be made should it be established that the rates paid are lower.

Compensation will also be paid for trees and crops owned or planted by individuals. A schedule of rates to be paid in compensation for acquisition of various economic plants and trees owned by individuals is produced by the Papua New Guinea Valuer General (VG). The most recent schedule, while dated January 2008, was drawn up in 2005. An independent⁸ assessment of the rates was undertaken in the HGCP area which established that a number of rates for trees are below market rates for the Hides-Angore-Komo area, although some, such as coffee, are above market rates. The market rates determined in this report will be applied for all resettlement impacted areas, to be compliant with PS5 requirements, and used retrospectively for any shortfalls for trees between payments based on VG rates and the full replacement values.

2.2.4 Disputes

Land disputes are common to all regions of PNG and are a major cause of social and economic disruption. Disputes may go back several generations and settling them can be a complex process.

PNG's Land Dispute Settlement Act 1975 created a three-tiered structure for dispute settlement based on a combination of Melanesian customs, principles and practice, and formal law of British origin. The Act provides a formal structure by which land disputes may be resolved. The mechanisms for resolution comprise three stages:

- **Mediation:** through Provincial Land Dispute Committees established for each province;
- **Judicially assisted mediation at the Local Land Court level:** where mediation fails to resolve land disputes, the matter may be taken to the Local Land Court for judicial determination. However, in practice, the lack of

⁷ 1 PGK = ~0.4 USD

⁸ Dr Mike Bourke, "Compensation Rates for Plants in the Hides-Angore-Komo area". March 2010.

magistrates is a constraint on the prompt hearing of land dispute cases in PNG; and

- **Appeal to the Provincial Land Court:** where a party aggrieved by a decision of the Local Land Court may appeal to the Provincial Land Court; and may invoke the inherent powers of the National Court and seek a judicial review of the Provincial Land Court decision.

These land dispute resolution mechanisms are provided for under PNG legislation. Landowners can avail themselves of these legal avenues upon application. The courts do not have a permanent presence in any locale but operate on a circuit basis. The PNG Department of Justice and Attorney General's office (DJAG) is currently working to improve efficacy and a viability of the village courts. The Company has engaged with DJAG in a facilitation role under the Company's Community Support Strategy.

2.3 PNG National Government Institutions

Key National Government institutions that are potentially relevant to this RAP are as follows:

- **The Department of Petroleum and Energy (DPE):** which administers the O&GA and currently distributes royalty and development levy entitlements;
- **The National Economic and Fiscal Commission (NEFC):** which is responsible for overseeing intergovernmental financial arrangements, making recommendations on the allocation of grants to Provincial Governments and assessing the impact of natural resource projects on national development;
- **The Department of Provincial and Local Level Government:** which administers the Organic Law and supervises the performance of Provincial Governments and any associated Special Purpose Authorities;
- **The Department of Internal Security:** which is responsible for ensuring public safety, protection of public assets and upholding law and order; and
- **The Department of Land and Physical Planning (DLPP):** which administers all alienated land (State and Freehold) in PNG and customary land dealings; facilitates customary land (land under the ownership of the original inhabitants of PNG) issues at the discretion of the customary landowners, for social and economic sustainability; and issues lease agreements and conditions for lease of State land (required for LNG facility).

The following National Acts and Regulations pertaining to land apply to the Project and are administered by DLPP:

- Land Act (1996);
- Land Regulation (1999);
- Land Registration Act (1981) (Chapter 191);
- Land Registration Regulation (1999);
- Land (Tenure Conversion) Act (1963);
- Land (Tenure Conversion) Regulations (1964);
- Land Disputes Settlement Act (1975);
- Land Disputes Settlement Regulation (1975) (Chapter 45);
- Land Groups Incorporation Act (1974); and
- Land Groups Incorporation Regulation (1974) (Chapter 147).

2.4 IFC Standards and Guidelines

2.4.1 IFC Performance Standards (PS) on Social and Environmental Sustainability

IFC Performance Standards (PS) on Social & Environmental Sustainability (2006) defines IFC's expectations of its clients, specifically in terms of roles and responsibilities for managing projects. The PS for resettlement is PS5: Land Acquisition and Involuntary Resettlement and its Guidance document is generally considered the internationally recognized standard for private sector projects.

The core requirements of PS5 are:

- To avoid or at least limit involuntary resettlement wherever feasible by exploring alternative project designs;
- To mitigate adverse social and economic impacts from land acquisition or restrictions on affected persons' use of land by: (i) providing compensation for loss of assets at full replacement cost; and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the free, prior and informed participation of affected people;
- To ensure standards of compensation are consistent, transparent and equitable;
- To improve or at least restore the livelihoods and standards of living of displaced persons; and
- To improve living conditions among displaced persons through provision of adequate housing with security of tenure at resettlement sites.

Other relevant documents, guidelines and standards considered in the preparation of this RAP are:

- IFC Handbook for Preparing a Resettlement Action Plan (2002);
- IFC Performance Standards on Social & Environmental Sustainability (2006);
- IFC Policy on Disclosure of Information (2006) Revised Environmental and Social Review Procedure (2007);
- PS 1: Social and Environmental Assessment and Management Systems;
- PS 7: Indigenous Peoples; and
- PS 8: Cultural Heritage.

The RPF⁹ identifies any gaps or conflicts between IFC PS5 requirements and PNG Laws and Regulations and defines the proposed strategies to close such gaps. The HGCP RAP is not expected to result in any variations in principles from those defined in the RPF.

2.5 Project Owner Policies

This Resettlement Action Plan reflects the Company's corporate approach to property rights and resettlement:

"We respect property rights in the nations in which we operate. Before implementing new projects, we engage in free, prior, informed consultation with communities that will likely be affected by our operations. Direct compensation programs and community programs that in some instances provide micro-development programs are incorporated into our projects, as required. In the rare case in which our projects require resettlement of people, we provide

⁹ PNG LNG Resettlement Policy Framework, October 2009

fair and just compensation to those affected and we are consistent with the World Bank Operational Policy and Bank Procedure on Involuntary Resettlement.”

3.0 OVERVIEW OF HGCP SOCIAL BASELINE RESOURCES

Various baseline studies have been undertaken in the HGCP area to provide an understanding of the socio-economic conditions of the area, as well as specific studies on the livelihood assets and activities of the households which will be physically or economically displaced. These are described below.

The *pre-resettlement socio-economic baseline survey*¹⁰ as it relates to the HGCP area consisted of the following investigations:

- Review of the large ethnographic volume of works on the Huli culture;
- Review of archival data including Government Patrol reports, travelogues, films, and mission-produced materials;
- Social Mapping & Landowner Identification studies; and
- Social Impact Assessments including cultural heritage surveys.

The Resettlement Census and Survey Team undertook a further set of refined studies to obtain more specific and contemporary information about impacted individuals, households, land holdings and attitudes. This research included:

- A land and house assets survey, providing a database of where people live and where they plan to relocate;
- A family and household socio-economic (census) survey of each resettlement household that will assist the Project to monitor the well-being of those who are affected by physical and/or economic resettlement (Appendix 2);
- An individual health and malaria survey which provides a baseline for ongoing healthcare both during and after the resettlement process;
- A physical examination of all affected household people, including (a) blood testing for malaria parasites and haemoglobin; (b) nutritional status as assessed by body mass index (BMI) for adults; and (c) standard anthropometric height/weight/age measurements for children with the addition of Mid Upper Arm Circumference (MUAC), based on standard WHO techniques; and
- A cultural heritage survey was also conducted to support the suite of HGCP area investigations.

The information from these surveys contributes to the development of options for livelihood support and community development training, agriculture, and health improvement initiatives. Figure 3-1 illustrates the various surveys associated with the resettlement program.

16 i.e., what is known before any resettlement associated studies

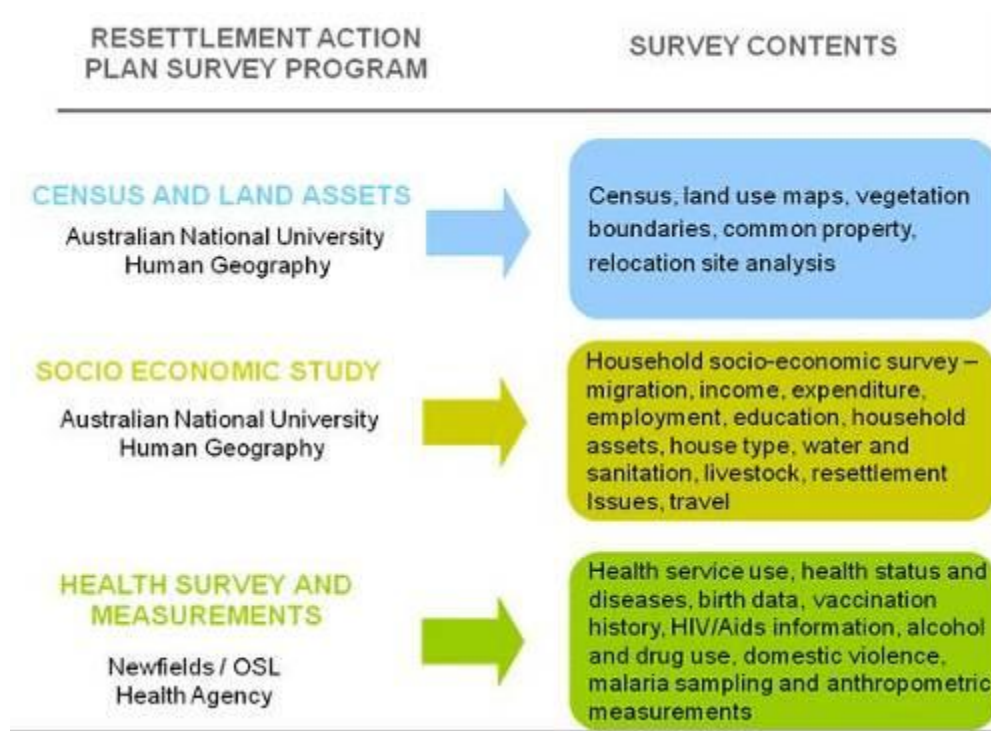


Figure 3-1: Resettlement Survey Types

3.1 Research Agencies Involved

The Project has engaged the services of Research Fellows of the Department of Human Geography, Research School of Pacific and Asian Studies, The Australian National University (ANU) under the auspices of ANU Enterprise Pty Ltd (ANUE). The team are internationally accredited research scholars in land mapping and agricultural systems in Papua New Guinea.

NewFields, a consulting firm, was engaged to develop a resettlement health measurement survey that will be used for monitoring certain health indicators. This information will assist with monitoring the well-being of households affected by Project resettlement. It will also feed into the Health Impact Management Plan.



Figure 3-2: Rose Bulla (ANUE) conducting Socio-Economic Survey at HGCP

The data collection for the resettlement health measurements survey is being performed by the Oil Search Health Agency that has operated in the Hides region for more than a decade. The team consists of four OSL Health staff and one nurse from the nearby Malanda Health Sub-centre to act as assistant and medical interpreter.

Cultural heritage clearance surveys will be conducted in all locales affected by resettlement prior to any physical displacement or disturbance of the ground. These surveys are conducted by PNG National Museum staff. All of these survey teams have partnership programs with the Archaeology Department, University of Papua New Guinea.

3.2 Census, Land and Assets Survey Methods

The people resident within the HGCP site are expected to relocate themselves outside of the site. The ANUE team was required to carry out a census of all persons resident within the site and to collect details of their assets, their land use, their social and economic activities, and the sites to which they will self-relocate. The surveys were conducted in June and July 2009.

This work was commissioned to fulfill three objectives:

- To provide information for the calculation of the amount of compensation families should be paid for the loss of houses, crops, economically valuable trees and capital improvements like ditches and fences caused by the construction of the Hides Gas Conditioning Plant;
- To identify the owners of the land within the Hides Gas Conditioning Plant Site; and
- To establish the social and economic status of the families that will have to relocate so as to assess the longer term impacts of relocation on them in accordance with International Finance Corporation (IFC) standards.

3.2.1 Census

The boundaries of the required areas of land identified by the Project were entered into GPS receivers (GPS)¹¹. The name of the head of household was recorded and the location of the house recorded as a waypoint in the GPS. Local Huli assistants with Grade 10 or better education, (under supervision from team members) recorded the names, approximate ages, sex and present location of all persons said to be 'members' of the household and living in a particular house¹². The household, or family, was allocated a Family Number (FN). Every person listed as part of that family was allocated a Person Number (PN). The combination of Family Number and Person Number was a unique personal identifier. Every person present during the survey was photographed with a digital camera and the image stored by the FN/ PN identifier¹³.

It is also important to make the caveat that the process of identification of resettlement households is an iterative one – i.e., there is a degree of back and forth between the landowners and the Resettlement Census and Survey Team until some sort of middle ground, or post-modernist view of the 'resettlement facts' is arrived at. In effect the resettlement landscape is not a 'frozen one' because the definition of 'correct' is itself flexible. As a consequence the actual number of displaced will vary slightly over the course of time as decisions are made about who is a member and who is not, and which households are within the Project footprint and which are not.

3.2.2 Assets Register and Socio-Economic Survey

Huli speaking team members (from outside the Project area) conducted household interviews, with both husbands and wives present. The information provided was entered directly onto forms and into a Microsoft Access database. The floor area of the houses owned by a family was measured by pacing around the external walls, the type of construction was recorded, and the house was photographed with a digital camera. Figure 3-3 is an example of a HGCP house. The images of the houses are stored and identified by Family Number and House Number.

¹¹ The GPS receivers being used are Garmin 60CSx which have a spatial accuracy of +/- 3 m. ExpertGPS software is used to transfer waypoints and tracks to the GPS receivers from maps provided by the Company as digital images and to edit and manage the GPS data collected in the field. The boundaries of the project land can be viewed on the GPSr screen in the field and decisions can be made about whether a particular asset is within project land or outside of it.

¹² In the case of multi-residency, a person is recorded in two households, but has a primary record in only one, to avoid double counting.

¹³ People can be photographed up to several weeks after the initial survey.



Figure 3-3: HGCP House

3.2.3 Land Use Survey Description and Methodology

During or after the census, household adults were asked to identify the location of all their cultivated land and to accompany team members to this land. Most households had at least two areas under sweet potato (the staple food) and some up to six. These 'gardens' are frequently some distance from the house and from each other. Houses and gardens are surrounded by food producing trees and 'economic' trees. They are also surrounded by a deep ditch and a fence of split timber palings pushed into the ground vertically and bound by cane along the top. The ditch and fence are designed to keep pigs and human trespassers out of the garden. Entrance is usually made across a single stick bridge over the ditch.

The ANUE team measured the area of sweet potato gardens, but counted individual plants in mixed crop gardens and in house gardens. Food trees and economic trees were also counted individually. Local assistants counted food plants, food trees, and 'economic' trees using handheld mechanical counting devices. The reasons why the areas of sweet potato gardens were measured and other gardens and trees were counted are as follows:

- Sweet potato dominates land use and is by far the most important field crop; and
- Huli horticulturalists in the area of the Project do not use mounds, but plant sweet potato into elongated beds that vary in length. Counting beds as 'mounds' would have severely disadvantaged landowners.

To count the literally hundreds of sweet potato plants within these gardens individually would have slowed down the survey significantly and introduced unknown counting errors. Planting densities and mound densities were calculated by counting all the individual plants in ten gardens and also all plants within 100m² (10m x 10m) random squares in 15 gardens at Komo and at the HGCP site to establish planting densities for the most common garden crops. A per square meter mound rate was calculated where a 'mound' is stated to be 1.5 m in diameter. A rate was applied to total garden areas to estimate the number of plants in a garden of a known area and the number of 'mounds'. This method is at least as accurate as counting hundreds of individual plants and a fairer method of estimating the area planted to sweet potato.

Hand-held Garmin model 60csx GPS receivers were used to measure sweet potato garden areas with an accuracy of $\pm 10\%$. The gardens have irregular shapes and usually have indefinite boundaries such as a wooden fence and a ditch, often covered in vegetation. The fence and ditch can be up to 3 m wide as can be the vegetation-covered field edge. The local assistants who participated in all garden survey work explained the method and rationale behind the survey and explained garden owners' concerns. They all agreed that it was fair and reasonable.

The ANUE team asked either the land owner or a younger male relative to walk the GPS around this irregular and indefinite boundary, accepting the boundary to be where he chose to walk. He would receive plenty of shouted advice from bystanders and be told to include as much land as possible, so there is little doubt that the landowners understand the process and if they were unhappy about it they would so indicate. The areas measured usually include uncultivated and fallow land, as well as land planted to crops. The error always favored the landowner.

Most disagreements occurred over the ownership of small areas within larger gardens. The areas planted by married sons or daughters, or other adults, within a larger garden have been recorded separately, with their own Family Number.

The names of the family and the informants present were recorded in field notebooks, together with the ID of the track, the area, and the tree counts. The garden owners were shown the map of the garden on the GPS and the area and some recorded the area on pieces of paper.

The GPS tracks were downloaded into ExpertGPS, a software package that can record and process the GPS data. The garden plots were then closed¹⁴ and cleaned up. When the Family Number was allocated, it was written into the field notebooks beside each survey record and attached to the digital GPS record that then had a Family Number (FN) and Garden Number (GN) as a unique identifier. A Land Use form was then completed in which all the area data, garden type, tree counts and other notes were written down, the Family Number was recorded on the Land Use form and filed with the Census Form and the Assets Registers and Socio-Economic Survey form. The data on the form was entered into an MS Access database. Expert GPS data can then be downloaded into GIS software formats for further analysis and presentation of maps and diagrams.

The land use surveys required considerable follow-up as household members remembered gardens some distance away, often days after they had sworn they have no more gardens. They also recalled trees planted on other land 20 years ago, up to a week after the first survey of their land and trees. To respond to questions and changes in information, the notebooks and forms were amended as required after the additional information was captured and verified. The notebook pages were numbered and dated and serve as a record of who was consulted and when.

3.2.4 HGCP Health Survey

In 2006 the Government of PNG, along with various international partners (e.g., AusAID, Asian Development Bank, etc.), performed a national-level demographic health survey of more than 10,000 households. This effort covered every province in the country and is considered to be the new national benchmark. The 2006 DHS was analyzed at national, regional and urban versus rural levels; however, data are not presented at provincial or census tract levels. Many key performance indicators such as mortality rates are unstable

¹⁴ A ground traverse around an area of land starts and begins at the same point. However the traverse almost never actually joins with the beginning of the line. 'Closing' the traverse creates a closed polygon, the area of which can be measured.

for small populations; hence, analysis can only be carried out for relatively large household samples.

Survey questions were asked at a household level and then aggregated at the selected levels of analysis – i.e. national, regional, urban, and rural. The ‘Health Survey’ was composed of seven sections: health service; preventive health; family health; female health; HIV/AIDS; alcohol and drug use; and domestic violence.

For the HGCP survey, the Project selected a subset of the published DHS questions that were likely to produce data that could ultimately be used as a critical baseline for future M&E. The Project believes that the survey data, particularly in conjunction with the objective health measurements, provide more than sufficient information regarding the overall baseline health status of the HGCP population.

The health questionnaire for affected landowners in and around the HGCP was administered to heads of households or their designees. Survey enumerators were all native speakers from a different geographical area in order to maintain a reasonable level of confidentiality. All households gave prior consent before survey administration. The health fieldwork received an ethical review and clearance from the relevant PNG institutional review board.

As part of the household census conducted for the HGCP, a health team composed of experienced medical professionals recruited from local clinics and managed by OSL was established. This team utilized the ANUE census as a basis for performing the field health measurements. Available data for individual households were reviewed in order to see if a specific household demonstrated a pattern of findings that was significantly different from the overall population. See Appendix 3, for tables showing the results of the survey.

3.2.5 Cultural Heritage

A cultural heritage and archaeological survey was conducted between May and June 2009 by the PNG Social Research Institute (SRI).

Their research followed the initial site assessment by the Project EIS archaeological team of the Australian National University, which had identified 11 important sites at Ketereanda, part of the proposed HGCP area. The SRI team consulted the claimant HGCP landowning clans of Taguali, Tagobali, Aya, and Nguane.

The areas covered in the 2009 site clearance survey included the HGCP footprint and settlement complexes such as Keteranda, Kelopa, Daberia-Kelapo, Mabuli, and Tilini.

The objectives were to:

- Conduct a pre-clearance survey to identify and map all known cultural heritage sites within the study area; and
- Determine and document mitigation and management measures that will form part of the Project’s environmental management plans (EMPs).

4.0 THE SOCIAL, ECONOMIC, AND CULTURAL ENVIRONMENT

The HGCP area lies wholly within the Southern Highlands Province (SHP) of Papua New Guinea. Within the SHP, the area falls within the Komo-Margarima district (Figure 4-1).

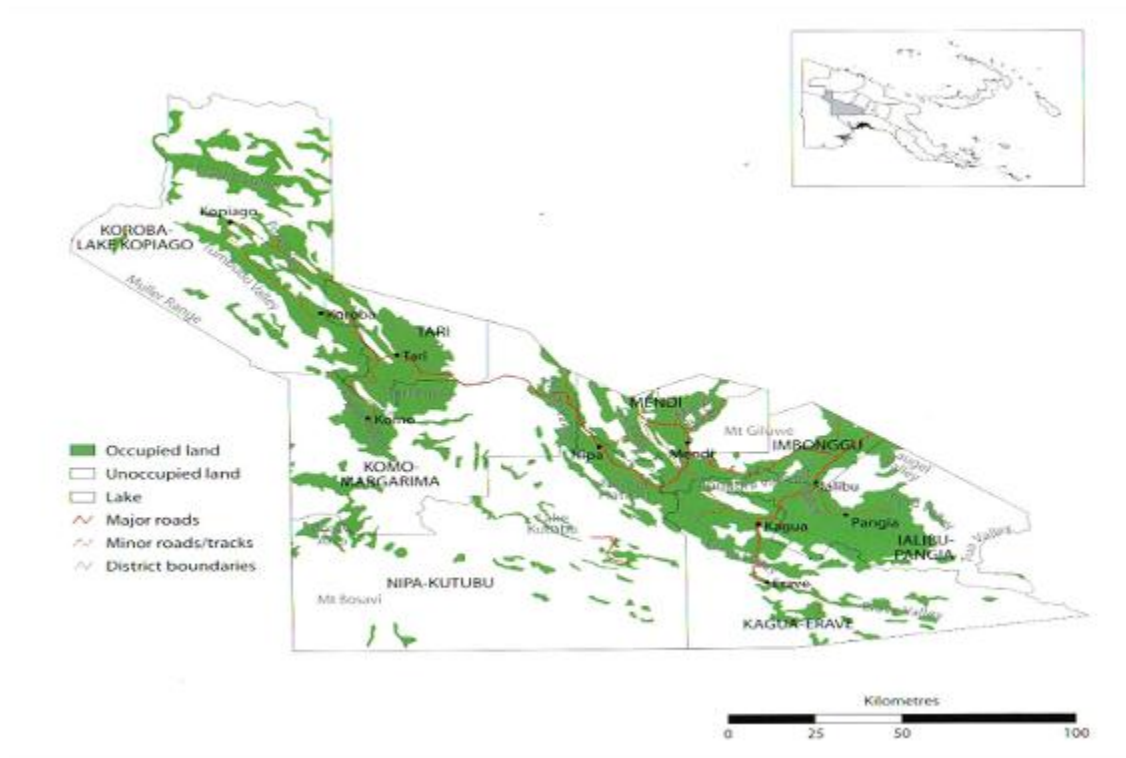


Figure 4-1: Southern Highlands Provincial Districts

4.1 Cultural Aspects

4.1.1 Background to the Occupation of the HGCP Site

The occupation history of the HGCP site is not known. The discovery of stone wasted blade adzes within the site that elsewhere in PNG date to the late Pleistocene, suggests a long human occupancy of this place. Situated 1000 m below the extensive *karuka* pandanus nut forests of the Gigira Ridge and overlooking the Tagari Valley where *marita* pandanus and other food plants flourish in the warmer, lower altitudes, this would have been an ideal site for prehistoric humans.

The present residents of the site are probably descendants of Huli refugees from the north who arrived only 200 years ago and who intermarried with the then 'Duguba'¹⁵ occupants. During the last 200 years, intermarriage, fighting and the movements of small groups have resulted in a proliferation of clan names and land ownership.

¹⁵ 'Duguba' is a term used by Huli speakers to refer to: (a) non-Huli speakers who live mainly on the eastern and southern borders of Huli; and (b) to Huli speakers who retain knowledge of their ancestral provenance from these non-Huli areas. Present day non-Huli Duguba speak Bedamini, Etoro, Onabasulu, Febi and Kaluli languages but the Duguba ancestors of present-day HGCP residents did not necessarily speak these languages.

4.1.2 Ancestral Land Rights

The HGCP site is 'customary' land. Although customary land is recognized in the Constitution of Papua New Guinea and has laws relating to it, it remains outside any formal system of land administration, with the exception of courts of dispute settlement. No titles are issued or are held by its occupants to customary land. Rights to dwell on this land, to cultivate, to plant trees or to bury the dead are conferred through membership of customary groups, and here called 'clans'. Clan membership is based on the ability of members to trace descent from a common male ancestor through an unbroken line of male links, or via relationships to them through females, or through historical events like adoption into the group in the distant past.

Details of relationships to ancestors and the histories of land occupation are not written down but are part of oral history and known as *malu*. For those who have not spent long periods of time hearing the histories being recounted and learning the genealogies that underpin the right to the occupation of a particular piece of land, and this includes many younger 'landowners', the details of clan membership and land ownership can be confusing. Because positions are constantly being negotiated among individuals, the information given to a naïve outsider by any one individual is at least contestable and at worst, wrong. Only a few, usually older and intelligent men, know and understand the details of clan membership and the occupation of land. They are known as individuals who 'hold the talk'.

This situation is not helped by Huli residency practices described by Goldman (2008, 48-56). In brief, while geographical territories are often clearly marked on the ground, the people who reside within a territory may belong to a number of clans and they may be a resident in and cultivate land within, more than one territory. Both territorial groups and clans are referred to in Huli as *hameigini*.

Three possible categories of resident occur on any piece of clan land each with attenuated tenurial rights:

- Agnates, or members of the primary landowning clan who trace their descent through males (known as *tene*);
- Cognates, those related through a female ancestor, known as *yamuwini*; and
- Those not related by descent, known as *wali haga*, *tara* or *igiri yango*, who are invited to occupy land or are given permission to do so by *tene* or *yamuwini* members.

Goldman portrays the *tene* clan members as the 'hotel owners' and the *yamuwini* and *wali haga* as 'guests' and/or 'guests of guests'. However, if the guests stay for long enough (a number of generations) they can sometimes attain the status of *tene* members being referred to as 'just like *tene*' (*tene ale dege*). It is not immediately apparent to an outsider who is *tene* and who are *yamuwini* or *wali haga*; and the same person may be *tene* in one territory and *yamuwini* in another and *wali haga* in yet another.

Under the circumstances prevailing at the HGCP site, where land is about to be given a monetary value, it is in the interests of groups occupying the land at the present time to make claims to *tene* status and to vigorously argue these claims in public. Even if these claims can be shown to be unjustified by oral histories that are agreed to by a majority of leading men, they will be brought up again-and-again in on-going discussions of land ownership. The belief is that by asserting *tene* status they will somehow be able to control the distribution of royalty and equity monies.

4.1.3 Ethnic Group Constituency/Clans

The HGCP catchment is inhabited by Huli people whose socio-cultural environment will mould and determine the process of resettlement.

The socio-cultural composition of the HGCP area reflects traditional migration patterns, inter-tribal relationships, and the history of contact in the area. The Huli (approximately 130,000-150,000 speakers) occupy areas northwest from Yalenda through Baguale-Homa-Paua-Yarale-Tari-Koroba, and the area on the western side of the Hegeio/Tagari River from South Komo through to Nogoli-Yaluba-Mogora Pugua-Levani and Tanggi.

Figure 4-2 illustrates the various ethnic groups adjacent to the Huli with an inset of all major ethnic groups in the Project environs.

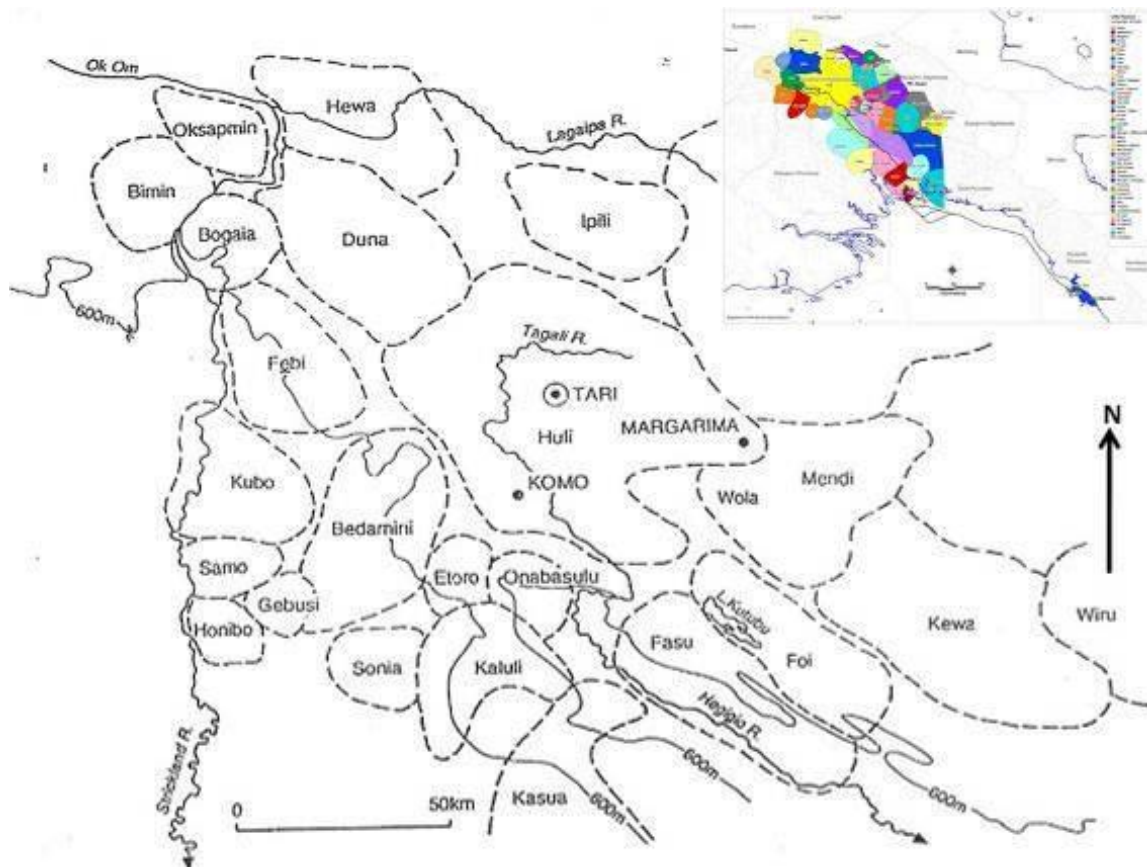


Figure 4-2: Ethnic Groups Adjacent to the Huli

There are no real boundaries between most of these groups and it is common to find a high degree of bilingualism at the very margins. The numerical preponderance of Huli within the resource development area, coupled with their ownership of the major gas fields of Hides, Angore and Moran, has molded the political and economic strategies adopted by neighboring groups. Other groups perceive themselves as threatened or at least at a 'disadvantage' because Huli are seen to use their numerical advantage in any conflict scenario. This has led to a tendency by numerically disadvantaged groups to adopt the litigation strategies, genealogical models, and principles of land tenureship of the dominant Huli culture in an effort to compete with them. Huli is now the *lingua franca* of at least 30 per cent of Fasu and is spoken by many Febi and Onabasulu. The fear of many of the Gulf groups is that they will eventually be overrun by the Huli through in-migration and sheer numbers.

Figure 4-3 indicates the political reality of Huli numerical preponderance for many of the petroleum project ethnic groups.

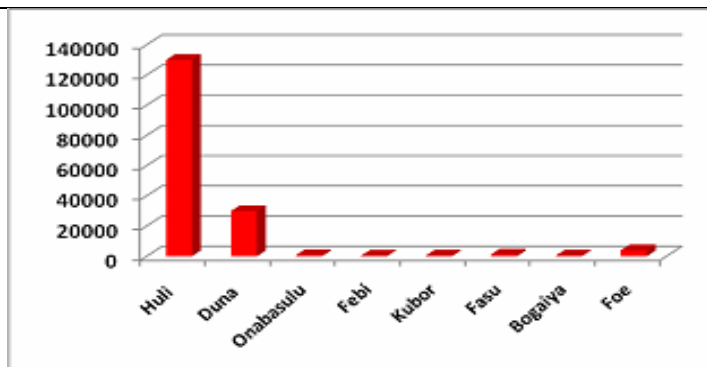


Figure 4-3: Ethnic Populations in Proximity to Huli

Table 4-1 provides a summary of the clans recorded for the HGCP and a quick comparison of these findings against the PRL12 Social Mapping & Landowner Identification study (Goldman 2008) and the Archaeological & Cultural Heritage research findings (SRI 2009).

Table 4-1: HGCP Principal Clan Listing

Principal Impacted HGCP Clans	ANU Fieldwork Team	Archaeological Team 2009	Goldman PRL12 SMLI 2008
Taguali	✓	✓	✓
Tagobali	✓	✓	✓
Aya	✓	✓	✓
Nguane	✓	✓	✓

At the HGCP site there appears to be two initial groups of occupants on the land, Taguali (with Huli origins) and Tagobali (with Duguba origins). The Taguali claim they arrived eight generations ago and pioneered settlements and cultivations in previously unused forest. The boundary between these two groups can be traced on the ground (Figure 4-4) and is not disputed. The Taguali, who are said to have originated in Koroba, have for the last 60-70 years occupied land previously occupied by the Nguane clan (which belongs to the Duguba Homani phratry) and settled at the HGCP at Nguane's invitation. This account of the pre-eminence of Nguane clan in this region is supported by Goldman (2008) in his PRL12 SMLI. On the Tagobali side of the boundary, claimants include the Tagobali sub-clan Daiya, and Aya clan. The location of the Aya and Daiya boundary does not appear to be in dispute; what is contested is the owner/guest (i.e., *tene* or *wali haga*) status of the Aya group.

The ANUE team reports that the promise of monetary rewards from the occupation of this land by the Project has caused some of these groups to attempt to disown their origins and to claim original landowning or *tene* status. The Aya are denying that they were invited onto the land by Tagobali ancestors and some Taguali sub-clans are denying that their ancestors were invited onto their land by Nguane hosts.

[illegible]

Figure 4-5: HGCP Site Clan and Sub-clan Boundaries

Resettlement planning and implementation took account of the dynamic and flexible nature of Huli group composition and settlement structure. The principal considerations were:

- No group is ever fixed or stable in terms of its composition. A census or snapshot of a community of people living together, or of a group of people claiming landowner status in a given territory, is unlikely to contain the same individuals from one census moment till the next. The social landscape is not frozen in time;
- The population of a bounded territory or parish can fluctuate dramatically as people move to be closer to resources or potential benefit streams. Most of these people will have a socially recognised claim to be there;
- To date, ethnic and clan issues have not impacted notably on the resettlement planning process for the HGCP site, as focus has been on the housing package offered;
- It is worth noting that members of the Taguali clan have indicated some difficulty in finding suitable alternative land for relocation, as the majority of this clan's land is within the HGCP site, along the Heavy Haul Road, or around impacted well pods; and
- Clan considerations become relevant to finding alternative sites, as people will not have the same tenurial (*tene*) status on land belonging to other clans which they access through matrilineal or affinal ties.

4.1.4 Language and Migration

Figure 4-6 depicts what is commonly referred to as the Trans-New Guinea Phylum with two of its many language stock sub-divisions:

- The Central and South New Guinea—Kutubuan super-stock; and
- The East New Guinea Highlands stock.

The West Central Family of Highland languages include Enga and Huli. The accepted model of language development suggests Huli, Kewa, and Sau were initially part of a large undifferentiated group speaking one language before subsequent fission into other genetically related languages of the Southern Highlands. There is, however, no indigenous understanding of a prior common language.

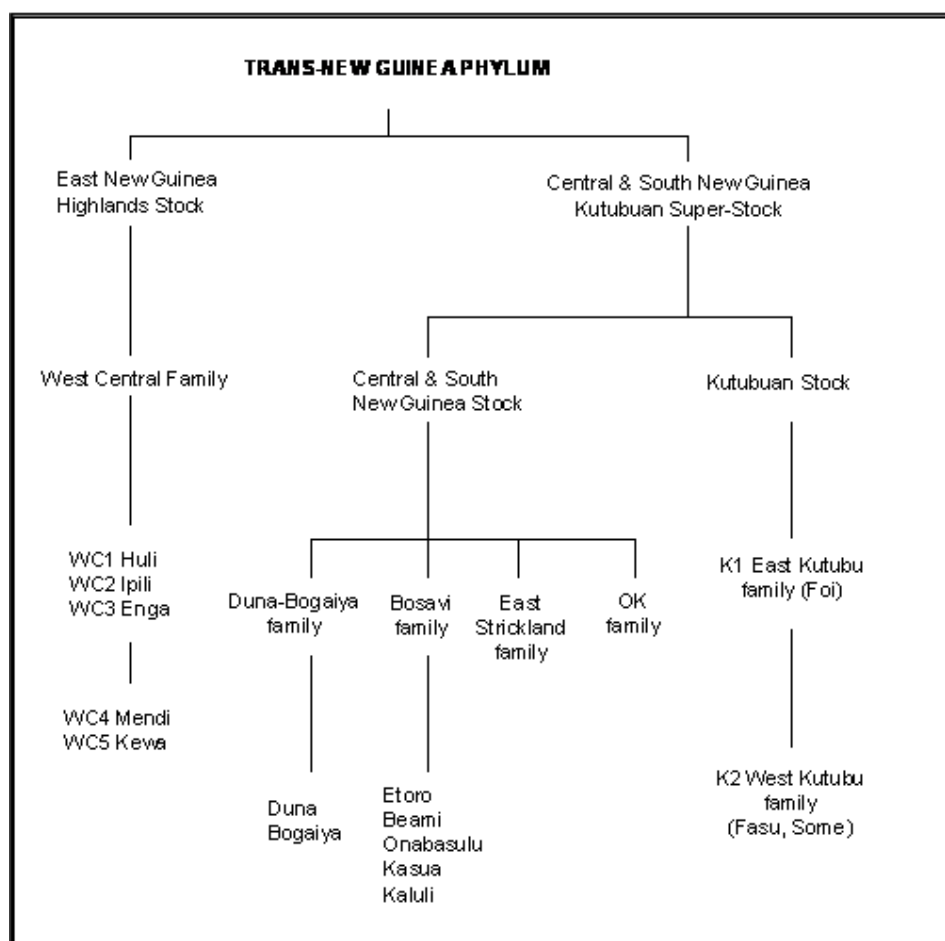


Figure 4-6: The Trans-New Guinea Phylum

The ethnographic evidence indicates well-defined, pre-colonial inter-tribal trade (Figure 4-7). These trade routes helped establish social landscapes in which people came to know about 'others'. Importantly then, the oil and gas explorations and pipelines will not so much create new pathways between previously isolated ethnic groups, as redefine and retrace old regional networks.

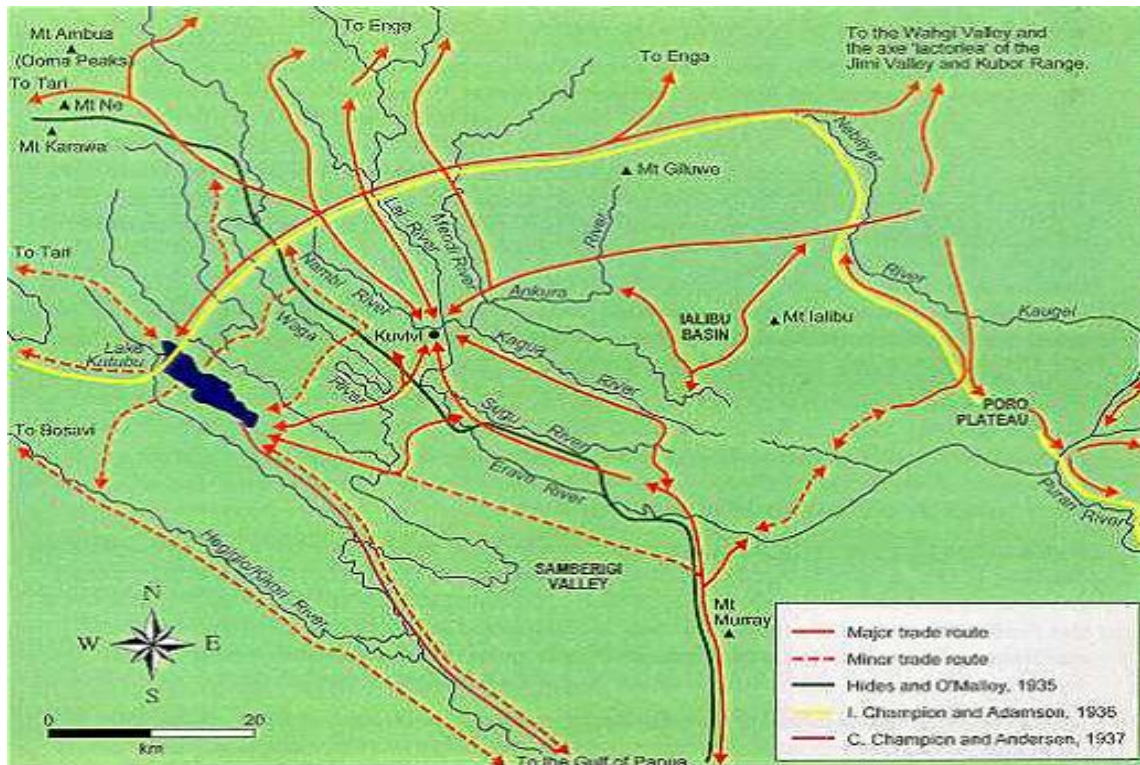


Figure 4-7: Pre-contract Lowland Highland Trade Network and Early Exploration Patrol Routes

The present demographic and geographic distribution of the various Huli populations within the Project area is a direct reflection of three sets of circumstances:

- Traditional migration patterns;
- Inter-tribal relationships; and
- The history of contact and resource development in the region.

With respect to understanding the present history of the HGCP area we need to consider the macro models which have been forwarded to explain the overall migrational history of Huli through time.

The research of ANU scholars like Ballard (1995) has proposed an evolutionary model explaining Huli history. Taro matures at between 7 - 12 months below 2,000 m and anywhere from 12 - 28 months above 2,000 m. Sweet potato, by contrast, matures between 5 - 8 months at 1,500 - 2,000 m or 7 - 12 months above 2,000 m. After the sweet potato arrived in Papua New Guinea (somewhere between 16 - 17th centuries), and following its adoption in the Highlands, it allowed for a rapid increase in populations of both people and pigs in some of the major Huli basins such as Tari. For a taro-based subsistence system, it is argued, sweet potato represented a 'revolution' of sorts allowing people to move to higher altitudes, and to feed and produce more pigs¹⁶. The consequences of such rapid explosions in population were various, including increased pressure on dry-land resources, wetland extensification, warfare, and out-migration to both lower and higher altitude regions. These migrations may have been in waves with a first diffuse settlement by small groups or individuals and then following warfare further larger waves (see Figure 4-8 below).

¹⁶ The Huli atypically have retained good oral history accounts of the first introduction of the sweet potato - which clan first harvested it and the pattern of distribution to other clans.

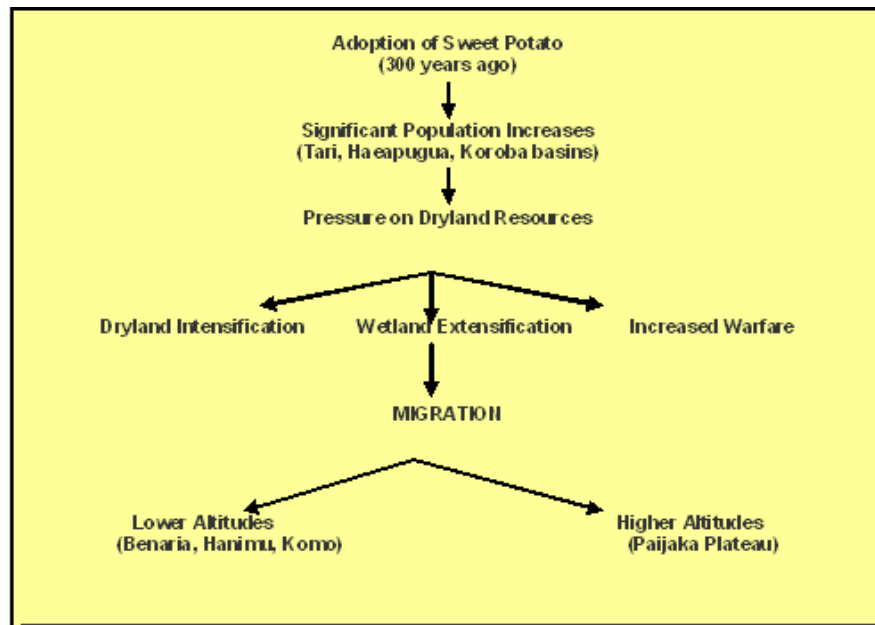


Figure 4-8: An Historical Model for Migration (Ballard 1995)

The kinds of evidence cited in support of the above interpretive model bear directly on our understanding of the HGCP area.

- The Tari basin, long regarded as a Huli heartland and centre, has a long occupation history and the extent to which parish size is small and the basin fragmented is indicative of its prior population density;
- While settlement and use of Levani land dates back more than 5,000 years, intensive agricultural exploitation on a scale suggesting major migration indicates that the sort of influx depicted in Figure 4-7 occurred between 1790 - 1910; and
- Most of the clans in the Hides and Komo basins, it is claimed, are offshoots from those of the same name resident in the Tari basin area. Thus small sections of the clans Bogorali, Dagima, Dobani, Mbuda, Tambaruma and Luguni appear to have settled after fighting in the central basin. In the Komo basin floor (1,540 m - 1,800 m) there are some 49 named clans identified as either Huli or Duguba in origin. The Hides Huli clans claim origins in the Haeapugua and southern Tari basins (Ballard 1995:235). The Huli in Komo moved there perhaps some 7 - 8 generations previously, sometime between 1800 - 1840, probably spearheaded by the Wabiago clan, and followed by clans such as the Tobani from Yangome in Tari about 1840 - 65. The estimated date of arrival in Hides and Komo matches the 'eruption of wars in Haeapugua' and the time when the process of drainage leading to wetland reclamation was initiated. Ballard is careful to indicate that there were probably two waves of out-migration: (a) a diffuse early phase in which people set up Huli-speaking communities; and (b) a more sharply defined migration following the Long Island ash fall some 300 years ago.

Succinctly stated, most of the Huli clans in the Hides area are offshoots of clans from the main Tari and Koroba areas, having migrated out of these basins after wars and population pressure. Hides and Komo were by no means virgin areas awaiting such colonization by Huli. There were already settled enclaves of migrants from the Papuan Plateau and Kutubu

areas collectively referred to as Dugube¹⁷ by Huli. The archaeological evidence from these sites shows settlement and land use over several thousand years. Once trade and intermarriage increased these already resident Dugube clans became naturalized Huli; however, these Dugube groups never relinquished or forgot their non-Huli provenance.

One of the landowning groups at the HGCP site are said to have 'Duguba' origins, while the other has Huli origins though everyone now identifies as 'Huli' and most speak both Huli and Pidgin.

4.1.5 Huli Residential Patterns and Practices

The Huli residential pattern has traditionally been one of scattered households living on small plots, rather than in nucleated villages. However, in some areas clustered households (not actual villages) use common facilities such as aid posts, schools, and various community based schemes. Some aggregation of households is also evident along major roads. These recent developments are most noticeable close to the development hubs of Hides and Moran.

In the pre-contact era and up until the 1970s men and women occupied quite separate residences, due in part to a trenchant ideology of sexual pollution and male - female separation in most spheres of activity. A sizeable proportion of Huli now maintain co-residential homes and this is the residential mode preferred by most young people. Huli practice polygamy and again each wife traditionally had her own gardens and houses.

Multi-local residence in Huli – the practice whereby people have more than one house and garden on different clan lands which they may access and use at any time – reflects the paramount need for security and the advantage to be gained from dispersing the effects of war and natural hazards on crops. The picture that emerges of any given piece of Huli land tract is one of a mosaic of garden plots and forest areas on which the owners and users may or may not be resident, and who invariably trace their descent to a wide variety of clans. People construct houses close to gardens and it is common for each person to have several houses then in different locations occupied variously from time to time and aligned with garden cycles.

Forest areas are used to collect wild pandanus, banana, other flora and fauna, and for hunting. In some areas there are discrete forest terrains for specific sub-clans of the clan. In other areas, because of intermarriage and the vicissitudes of clan population, the ownership or rights to hunt and collect are distributed between many clan segments in an intermixed and again mosaic pattern of usufruct rights.

The Huli conform to the patrilineal¹⁸ descent systems typical of much of the Highlands region. It is important to understand that history, boundaries, genealogies and descent statuses become defined only in the context of conflict. Such considerations have little impact on everyday interaction, except when they threaten or impinge on the politico-economic status quo.

4.1.5.1 Huli Social Organization

The Huli have a social organization based on named clans, some of whom recognize common descent, with each clan associated with a central territory commonly referred to as a 'parish'. The Huli deviate from the simple 'one clan one piece of land' model in the extent to which it is permissible for people to travel, occupy, stay and utilize gardens in other clan parishes to which they may or may not trace some kinship/descent affiliation. In essence,

¹⁷ Duguba and Dugube are interchangeable terms, with different authors choosing different orthographies to render Huli.

¹⁸ Patrilineal or agnatic descent confers membership to a named group by virtue of an unbroken line of descent from an apical ancestor though male links only.

there is a high degree and tolerance of multi-residence within the society, such that members and segments of any one-named clan are invariably spread across huge distances in Huli territory.

This type of complex residence strategy is further complicated by various category distinctions the Huli make between residents on the basis of their kinship and descent connections to the founding clan after which the parish is most usually named. The varying statuses and land rights accorded such satellite clan segments and individuals are discussed below.

Uneven development and the feelings of jealousy, frustration, and determination to capitalize on any future projects present a significant barrier to the smooth implementation of any resource development in the Huli environs. The Hides Gas-to-Electricity development has left a legacy of dissatisfied 'have-not' landowners. These disadvantaged people see the Project as an opportunity to secure Project benefits.

Huli people are divided into named patrilineal clans. It is estimated there are anywhere between 300 - 400 individually-named clans in total. Clans are internally divided into sub-clans and may be further divided into smaller units called lineages. Most clans are exogamous, meaning that clan members are typically expected to marry someone from another clan.

4.1.5.2 Land Tenure & Residence Principles

Essentially, each clan has a principal traditional territory (parish) that represents a central station for their ritual, territorial, and historical property. All members of that clan notionally have a right to land on that tract by virtue of their descent status in that clan. This land comprises gardening, grazing, gathering, and hunting tracts, various rivers, creeks, caves, sink holes, etc.

Land is held notionally by the clan and sub-clan corporations in perpetuity and can never be permanently alienated. Individual clan members (male and female), however, have the right to sub-let land to anyone for a fee or fixed term, or grant usage or title to garden and hunting tracts by gift, deed, or inheritance. Rights to use land include the forest areas within the clan and sub-clan boundaries. People have groves of trees, hunting lookouts, traps etc., in the forest and these are to be respected by other lineage or sub-clan members.

Individuals have often moved out of natal clan territories to take up residence on a permanent or temporary basis with relatives or friends. People who relocate in this way do not necessarily lose their rights to land in their 'home' clan territory. This retention of agnatic heritage is marked by a complex naming system in which individuals have patronymic prefixes to their individual names. These prefix names mark the natal clan membership of the individual.

4.1.5.3 Resettlement and Landowner Status – Dispute Potential

The indigenous category system provides land users with the right to compensation for any land improvements and houses that they construct. Compensation for land use deprivation (rents), however, will likely cause disputes because migrants who have established themselves over several generations will challenge the prerogative of landowners to claim such compensation. Long-term guests will claim to be independent hosts in their own right and not someone else's guest.

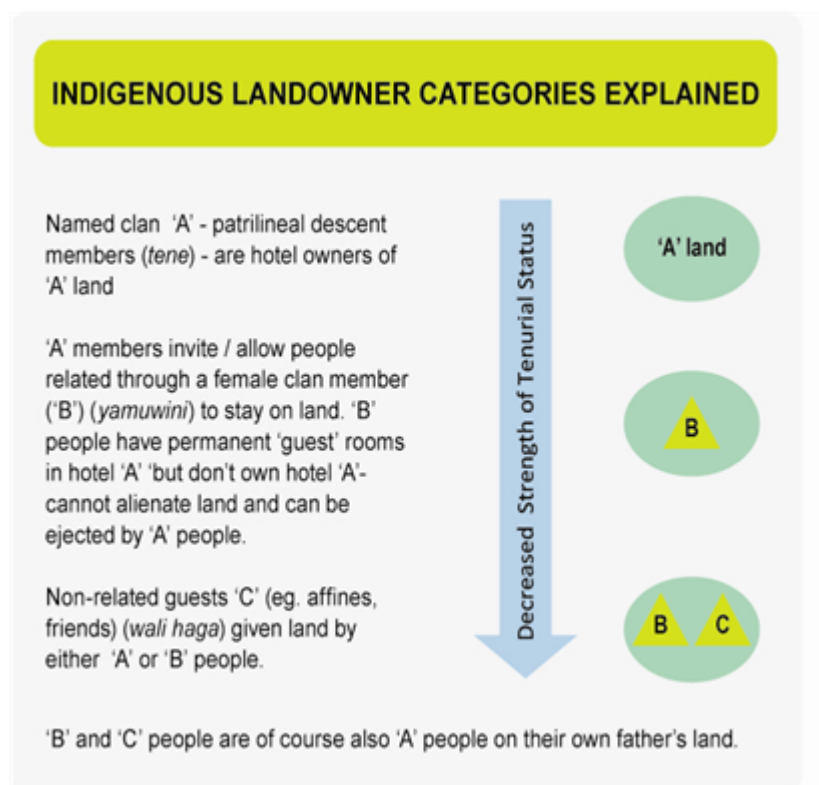


Figure 4-9: Huli Landowner Categories

The history of disputes in Moran, NW Moran, and Hides is to a large extent a manifestation of these kinds of problems. There is resistance to any control by primary landholding units over *yamuwini* (related guests whose rights are secondary to those of the landowner) and a desire on the part of *yamuwini* to be treated equally in benefit stream scenarios. Despite the fact that the system and its categories are well understood by Huli, there is room to maneuver within the system by exploiting grey areas and re-categorizing oneself as a 'primary' rather than 'secondary' resident. The most likely conflicts will emerge from the following situations:

- Disputes over traditional boundaries resulting from conflicting accounts of ownership of ancestral names and places;
- Tenants (secondary and tertiary clan citizens) who may use accounts to establish themselves as independent hosts/landowners; and
- Clan segments which have: (a) migrated out; or (b) which are related to a Project recipient clan segment and who also want to benefit¹⁹.

Other land disputes are likely to be triggered by the interaction of the system of Huli multi-local affiliation/residence and any license-based benefit distribution. The Huli land tenure ideology is referenced to a system of oral history which relates how ancestral progenitors travelled the landscape, named land forms and rivers, and bequeathed rights to land. The

¹⁹ Those which have migrated out after conflict may be obliged to pay outstanding compensations before they are recognized by the resident segment as eligible to share benefits. Whilst other related clan segments have no customary recognized right to a lien on the benefits, it is at the discretion of the recipient clan. For example, in the case of Pagada in Hides-Komo, they are willing to share some benefits with other Pagada segments in Mendi once outstanding bride-price due 10 generations ago is paid.

Huli land tenure ideology justifies land claims which are based on these genealogical footprints even if descendants no longer inhabit the same areas.

4.2 Community Dynamics

This section discusses some of the dynamics of the HGCP Communities, with specific reference to the following roles:

- Local Government and other Government engagement;
- The role of the Church;
- Leadership roles; and
- Role of committees.

4.2.1 Local Government and other Government Engagement

From the perspective of the affected landowners there is currently no evident local government activity that is relevant to resettlement, such as interaction with Land Officers, Health workers, Agricultural Extension Officers and District Managers. PNG Government Interaction related to resettlement mainly occurs in Port Moresby.

4.2.2 The Role of the Churches

Churches have for many years in PNG been major players in health and education. The most active denominations include Catholic, Seven Day Adventists, and Evangelical Church of Papua New Guinea. There is a Catholic permanent materials house near the Para School. The HGCP people are keen to retain the elementary school and the overall push for education for their members remains important.

4.2.3 Leadership Roles

Much of the current leadership is well educated and has key business interests in the region. The Church too provides strong leadership for women in the community. Communication through the use of mobile phones has greatly enhanced the influence and role of leaders.

4.2.4 Committees

The HGCP area is essentially an artifice of the Project and there was a lack of representative committees until recently. The resettlement program has accelerated the establishment of a representative body and formal meetings.

In many ways the HGCP community sees itself as 'special' in the sense that they own the land near the gasfield. Often they phrase this as being 'owners of the pig'.

4.3 Demographics

The HGCP resettlement area contains a relatively small number (59) of households comparable with the Komo catchment. The baseline data are viewed within the context of pre-existing social baselines for the larger Hides area as provided by the earlier 2005 and 2009 SIAs²⁰ (Appendix 2 contains the social and economic questionnaire survey form and Appendix 3 contains the results spreadsheets).

This comparison allows us to understand the continuities and discontinuities between HGCP standards of living and regional averages. The 2009 EIS SIA undertook a Household & Village questionnaire in locations such as Juni, Nogoli, Para, Laite, and Hides 4 within the general Hides region.

²⁰ Thus the 'Komo catchment' included the census units of Komo Station, Emberali, and Mindirate

Across many of the socio-economic measures tested for in the social questionnaire HGCP individuals and households are typical of both the local Hides catchment area and indeed the greater Huli region.

4.3.1 Population Size, Growth, Density and Spatial Distribution

Table 4-2 provides some demographic data taken from the 2000 National Census showing gender distribution of population, Households (HHS), and in descending order of governance Districts, LLG's, Wards and Census Units (CUs) of the Southern Highlands Province. These census units provide a degree of decentralized government within each PNG Province. The census units are not necessarily villages, but state determined areas used only for the purposes of the national decadal census.

Table 4-2: SHP Provincial Demographics

SOUTHERN HIGHLANDS PROVINCE 2000							
Total	Male	Female	HHS	LLGs	CU	Wards	Districts
546,265	278,331	267,934	96,461	30	2749	677	8
Komo-Margarima District							
64,162	32,628	31,534	11,580	3	287	85	
Tari-Pori							
9,027	26,290	25,920	9,025	4	79	67	
Hulia Rural LLG							
15,125	7,493	7,632	3,076		72	29	
Komo Rural LLG							
15,815	8,284	7,531	2,623		51	21	
Haiyapuga Rural							
17,272	8,679	8,543	3,368		21	21	
Koroba							
20,732	10,512	10,210	3,324		73	23	

Table 4-3 shows the provincial growth rate since 1990 to be approximately 5.4 per cent, making SHP one of the fastest growing provinces in PNG, though more than half of the area is unoccupied.

Table 4-3: SHP Growth Rates

Southern Highlands Provincial Growth Rate (GR) 1980–2000						
1980	1990	2000		1980–2000 GR	1980–1990 GR	1990–2000 GR
236,025	317,437	546,265		4.2%	3.0%	5.4%

Population densities are highest in the Tari Basin at about 190 persons per km² with areas around Lake Kutubu supporting 40 persons per km² (see Figure 4-10). In the western part of the Komo Margarima District, density is less than 1–20 persons per km² (Hanson et al 2001:91).

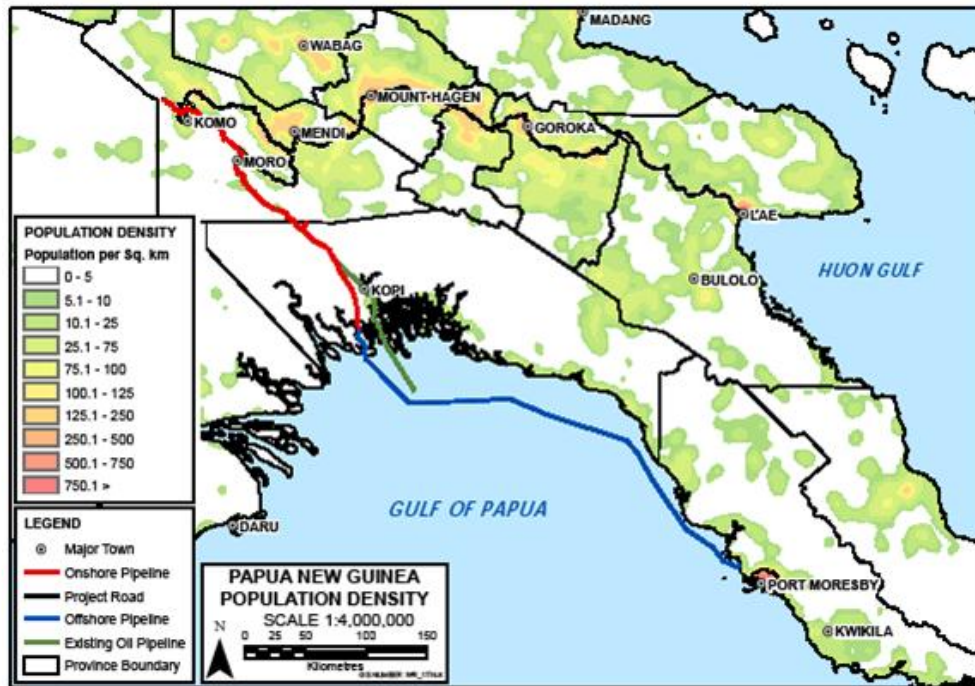


Figure 4-10: Population Densities in the Project Area

4.3.2 Demographic and Household Profile of Directly Affected Population

The locations of affected households are shown below in Figure 4-11 (Appendix 10, Map 5). Priority for relocation is determined by how households geographically related to Project areas. Households situated in the areas to be used for the construction of contractor camps are regarded as first priority to move, followed by those within the security fence and around the intersection of the western boundary of the HGCP site and the offshore pipeline.

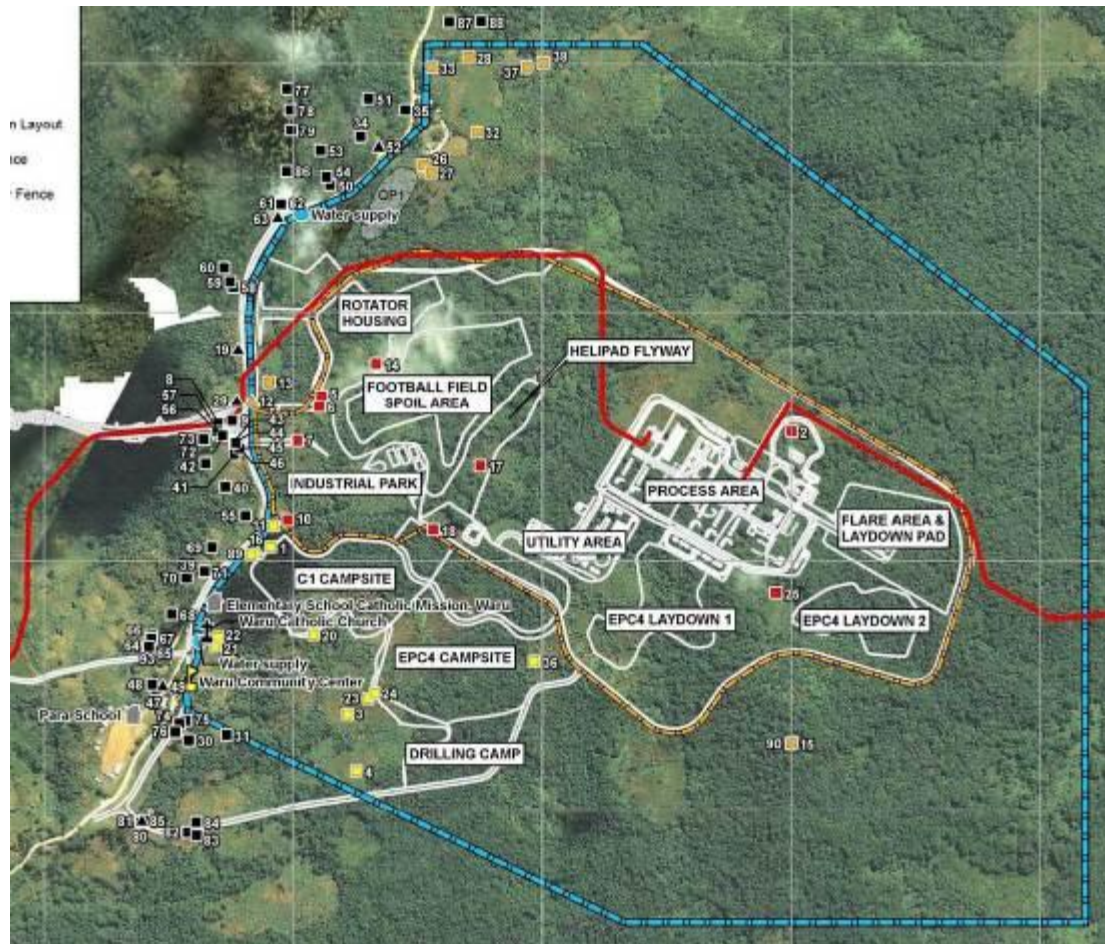


Figure 4-11: Location of HGCP Houses in Relation to Project Components

The Resettlement Census and Survey Team found that 23 households were inside the HGCP site, and 36 households outside the boundary. The HGCP is complicated by a strip of houses west of the present road, that are just outside the HGCP boundaries but which were included for physical relocation because: (a) they were extremely close (i.e., within 500m) to the HGCP perimeter fence; or (b) they had many of their gardens within the site and would be compelled to build another house at another location to establish new gardens. It appears further to be the case that many of these 36 houses will be impacted by both the Heavy Haul Road and another prospective road that will run almost due west from HGCP to three quarries (HQ1 - HQ3) on or near to the spine line road. This road will bridge over the existing public road to avoid accidents at the cross road. Accordingly these additional houses were included in the total of 59 households that require physical relocation, notwithstanding the fact that they remain technically outside the HGCP area.

The rationale for physical relocation of the 59 households in and around the HGCP site is depicted in Figure 4-12.

absentees to avoid being later accused by them of trying to exclude them from any prospective benefit streams.

Of the 490 persons subject to census 51% (251) of the population was male. Nine percent were under 5 years of age, and 32% were under 15 years of age. Fifty-one percent were aged between 20 and 55 years and 6% were aged 55 and over. Of the 490 people included in the survey, 300 (62%) were immediate family members and 38% had some other relationship to people in the household (i.e., not immediate family members). Three hundred and thirty six persons were photographed by the Resettlement Census and Survey Team. The age breakdown of the 490 people recorded is shown below in Table 4-5.

Table 4-5: Age Breakdown of HGCP Household Residents

Age Range	F	M	Total	%
0-4	24	22	46	9%
5-14	59	55	114	23%
15-19	22	30	52	10%
20-54	123	129	252	52%
55+	12	14	26	6%
Grand Total	240	250	490	100%

The probable reason for the large size of many families in the HGCP survey is the desire on the part of homeowners to be as inclusive as possible and to ensure that no one misses out on anticipated potential benefits from the Project. For this reason it can be difficult to accurately differentiate between those impacted by physical and/or economic displacement. Some members of families claim they have no other house, while others claim to have additional properties.

Fifty six percent of respondents had never married which is consistent with the results gained for the Hides catchment in the EIS SIA (2009). Rates of divorce and widowhood were marginally lower than the mean for the wider Hides catchment.

4.4 Economic Profile and Livelihoods

4.4.1 Economic Conditions and Activities/Livelihoods

Income across the Province is generally very low with the exception of those landowners who receive royalty and equity benefits. In respect to the Komo-Margarima and Nipa-Kutubu districts, Hanson et al concluded that: *“Overall, people in Komo-Margarima District [and Nipa-Kutubu] are seriously/extremely disadvantaged, relative to people in other districts of PNG”* (2001:101,104). Findings discussed below for the HGCP indicate that in the intervening period from 2001 - 2009 some specific areas within these districts have enjoyed increased standards of living.

Agriculture provides the main source of cash income through sales of coffee, fresh market food, and firewood. Most of the coffee grown in SHP is east of Nipa. Trade store businesses tend to be short-lived with only those situated close to major roads surviving beyond a 12-month period. Profits get disbursed through customary networks of obligations, and re-supply of store items is hampered by transport and road problems. Wage employment from the Kutubu-Gobe-Hides oil and gas operations is the main non-agricultural source of cash income.

Despite an ever-increasing use of trade store items (rice, tinned fish, canned drinks, biscuits) and an uneven influx of oil/gas royalty and equity monies over some two decades, the bulk of the Huli remain subsistence farmers, utilizing a bush-fallow technique devoted to sweet-

potato cultivation. With no marked seasonal changes and thus no annual horticultural cycle, little variation occurs in everyday gardening activities. Sweet potato is supplemented by crops such as sugarcane, taro, pandanus, bananas, leaf vegetables, and depending on locations, new crops like pineapple, tomatoes, potatoes, and pumpkin, and augmented by pig husbandry. In the province's lowland areas people generally rely on sago production, supplemented by low intensity mixed staple gardens and pig husbandry. Pig husbandry continues to play a vital economic role in Huli - both as a standard of wealth and as a prime medium of exchange in bride price and compensation payments.

Fishing occurs only irregularly, mostly when valley floors become flooded. Hunting wild game such as boar, snakes, cassowary, kangaroo, and possums provides minimal dietary input, and has declined with the transition to modernity and the cash economy.

Over the last decade there has been a marked decrease in the previously huge number of sweet potato varieties. The introduced activities of cattle farming, silkworms, and cash-cropping of coffee, fruits, and vegetables have had only sporadic success with little sustainability across the target area.

4.4.2 Household by Economic Activity

Declared employment levels for the HGCP residents are broadly comparable both with the Komo and Hides catchment findings (see Figure 4-13 below) and most of the employment is held by males in the community but on a part-time basis.

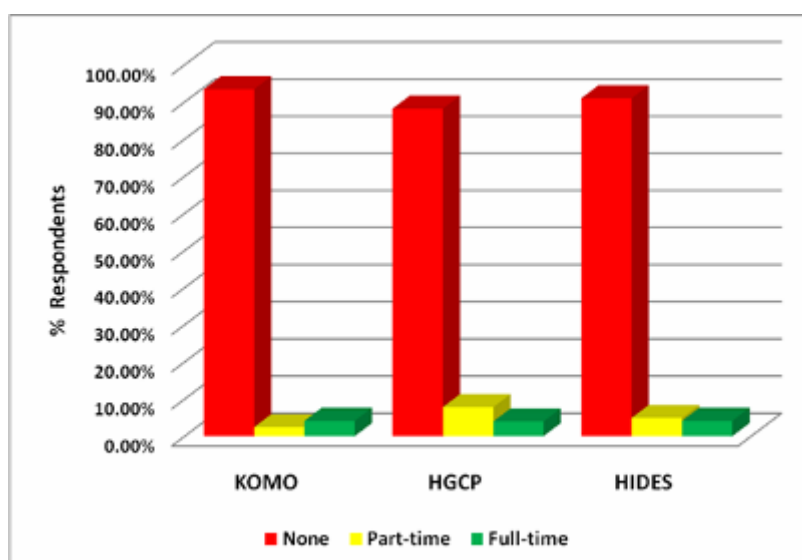


Figure 4-13: Comparative Employment Levels for HGCP, Komo, and Hides Catchments

Figure 4-14 provides a graphic illustration of low levels of formal employment in households affected by the HGCP, showing that the vast majority of households do not have any members in paid employment.



Figure 4-14: Employment Status of Affected Household Members

Those who had employment included carpenters, chainsaw operators (Figure 4-15), cooks, and mechanics.



Figure 4-15: Chainsaw Operators at HGCP Site

Longitudinal data from all previous oil and gas SIA surveys indicate that bride-price, local subsistence activity including fishing and cash cropping, and exchange (e.g., *wantok* gifts)

continue to represent the vitality of the traditional economy in the financial lives of the populace. These categories account for more than 75% of all income and expenditure.

Figure 4-16 and Table 4-6 set out the principal income sources relayed to the Resettlement Census and Survey Team for the HGCP residents and compares this with the results for the Komo Airstrip and wider Hides catchment obtained for the 2009 EIS SIA.

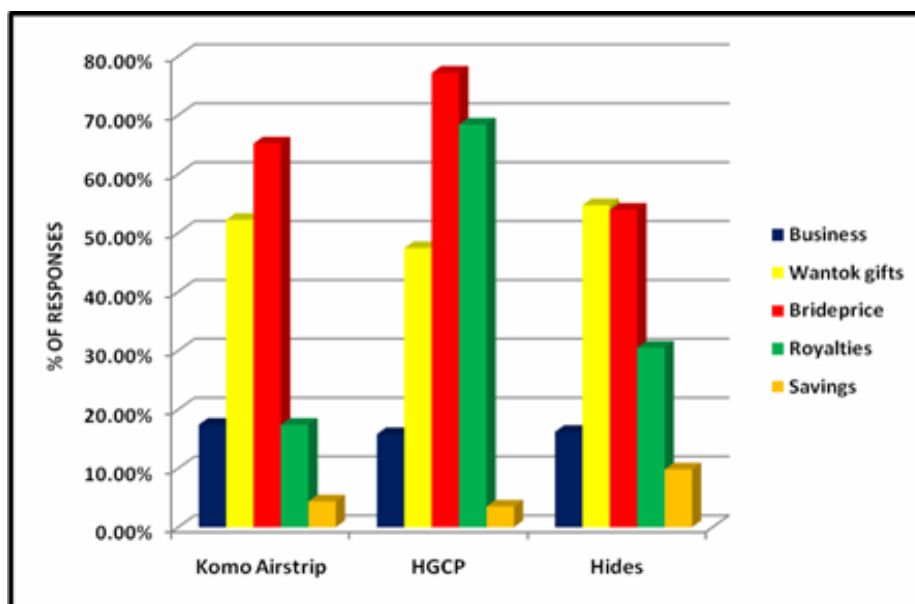


Figure 4-16: Income Sources for HGCP, Komo Airstrip, and Hides Catchment

The results indicate that whilst HGCP is a fairly representative community within the greater Hides region with respect to levels of employment (8.7%) and business (15.7%), a high proportion of respondents were recipients of Hides Gas-to-Electricity development royalties and bride price payments and income from sale of cash crops. Reported levels of savings were significantly lower amongst HGCP residents than for the region and this clearly may merit some attention in respect to any business development programs which are initiated in the area. Eighteen percent of respondents reported having their own bank account, whilst some 26% reported having a shared account.

The main sources of income received by households are summarized in Table 4-6. This shows that the HGCP area receives more income from royalties and agricultural produce sales than the Hides area as a whole.

Table 4-6: Sources of Income for HGCP, and Hides Catchment
(% of household receiving income from some source)

Source	2007-9 SIA % of Responses	Resettlement % of Responses
	Hides	HGCP
Employment	9.66	8.77
Royalties	30.58	68.42
Business	16.20	15.79
Cash crops	46.67	77.19
Livestock	36.48	91.23

Source	2007-9 SIA % of Responses	Resettlement % of Responses
	Hides	HGCP
Fishing	6.87	8.77
Bride-price	53.86	77.19
Wantok gifts	54.72	47.37
Savings	9.76	3.51

Figure 4-17 compares averaged holdings of pigs and chicken livestock per household. As noted above, the HGCP shows elevated numbers over the regional averages for Komo and Hides. There were no reported cattle holdings for the HGCP, and some 25% of respondents reported interests in fish ponds, cassowaries, ducks, and goats as income bearing activities.

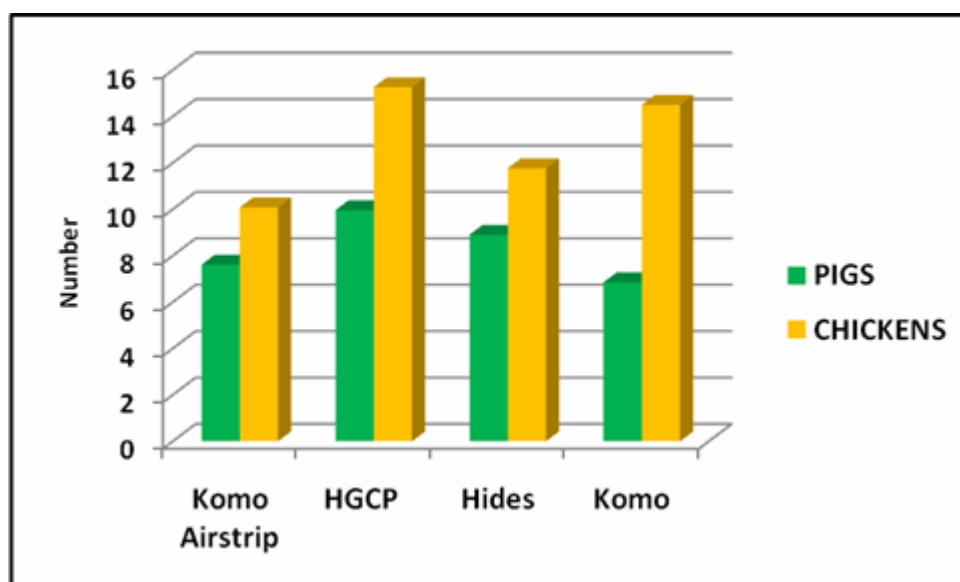


Figure 4-17: Averaged Pigs and Chickens per Household – Resettlement Areas

Reported income and expenditure is notoriously unreliable because it is not common for respondents to keep accurate records, or discuss financial issues with outsiders, and they often inflate income in the hope of receiving higher compensation. In the EIS SIA the author notes the perennial problems associated with obtaining reliable income and expenditure figures in a subsistence based rural economy:

“Many Household Surveys ask questions about income and expenditure levels and patterns. Invariably responses show expenditure outstrips income by a 2:1 margin. Why is this? Accurate responses to such questions are simply not obtainable or reliable because these are not the sort of topics that are revealed to outsiders in these communities. Moreover, such questioning is seen as intrusive and impolite.”²¹

Table 4 in Appendix 3 shows that some 24 of 55 households for whom data were estimated claimed their expenditure outstripped income. Fifteen households earned less than K5,000 which represents 27% of surveyed households, and this compares favorably with Komo Airstrip where some 91% of respondents earned less than this sum. Estimated average

²¹ Cf R. Barclay & G. Koppert Chad Resettlement & Compensation Plan Evaluation Report (2007) pp.23-24. – who makes similar observations relating to the reluctance of informants to provide precise data.

yearly income per household - and this includes a monetary value for pigs - is approximately K13,898. Expenditure followed a similar pattern averaging K12,000 per household.

The monitoring program includes surveys that will help to determine actual average yearly income, but results will always be distorted as households are reluctant to disclose all gardens outside the area utilized by the project.

4.4.3 Expenditure

The patterns of expenditure recorded similarly point to the continuity of traditional modes of social exchange through bride-price, wantok gifts, funeral donations, and compensation associated with disputes. By comparison with the EIS SIA findings for the wider Hides catchment it would appear that HGCP residents expend more than their peers on transport and trade store purchases. In most other regards the distribution profiles were not too dissimilar to those reported for the Komo Airstrip. Given that many of the Hides catchment villages are outside any viable road network, little can be inferred from this disparity in transport spending; however, that many HGCP people regularly spend cash in trade stores indicates the vitality of these business ventures in this area (see Figure 4-18).

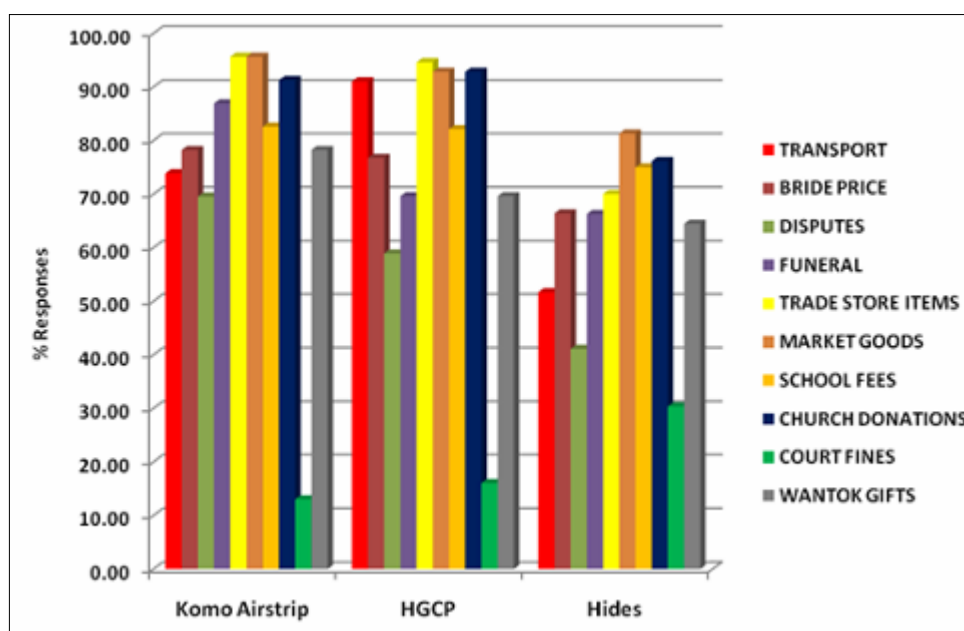


Figure 4-18: Expenditure Patterns of HGCP Residents by Comparison with Komo Airstrip and Hides Catchment

In respect to expenditures from petroleum/gas royalty and equity most informants cited the outlays in household consumption (88.3%) and educational fees (25.6%) with less than 8% citing investment avenues. As noted above, the numbers of landowners who report having investment funds is extremely low across the Hides-Komo region.

Table 4-7 illustrates the comparative high level of trade store expenditure for HGCP respondents across a range of goods. Similarly, for items such as vegetables, buai, fruit, scones, tobacco, packet noodles etc the survey found levels of declared expenditure running at between 10-20% higher than the area mean.

Table 4-7: Comparative Levels of Trade Store Purchase for HGCP and Hides Catchment (%)

Item	HGCP	Hides Catchment
Tinned Fish	97.74	57.51
Rice	96.49	59.55
Canned drink	85.96	56.22
Soap	87.72	61.16
Biscuits	84.21	1.39

Travel profiles for HGCP residents indicate that people in this resettlement zone have travelled both nationally and internationally slightly more than the mean average for their catchment area particularly to the destinations of Port Moresby, Mount Hagen, and Lae (see Figure 4-19). This finding is consistent with most of the other socio-economic indicators we have examined in this RAP - relatively speaking people enjoy a more advantaged existence than their neighbors within the greater Hides area.

These data suggest relatively robust disposable income levels compared with the catchment area averages.

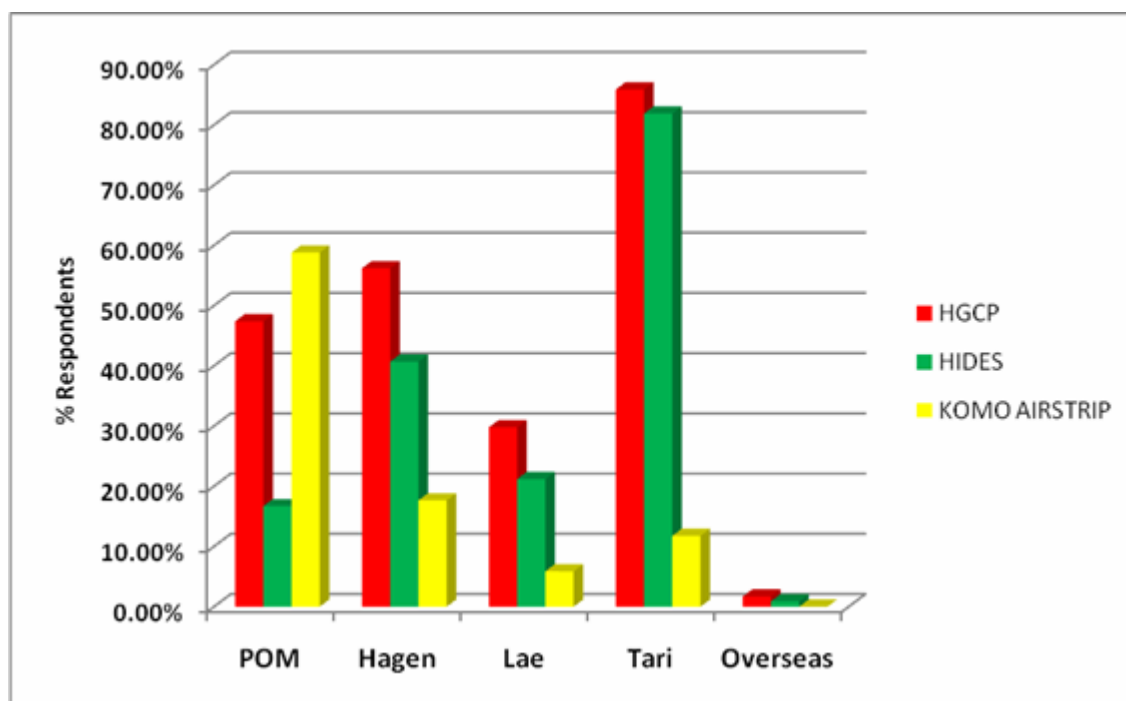
**Figure 4-19: Travel Profiles**

Figure 4-20 shows the comparative levels of reported ownership for a range of household assets. Mobile phones which were largely absent from the Hides-Komo area in 2005 - 2007 are now owned by upwards of 35% of the regional population. There are broadly similar levels of asset ownership across the resettlement impacted areas of Komo and HGCP which along most indicators are well above the Hides averages.

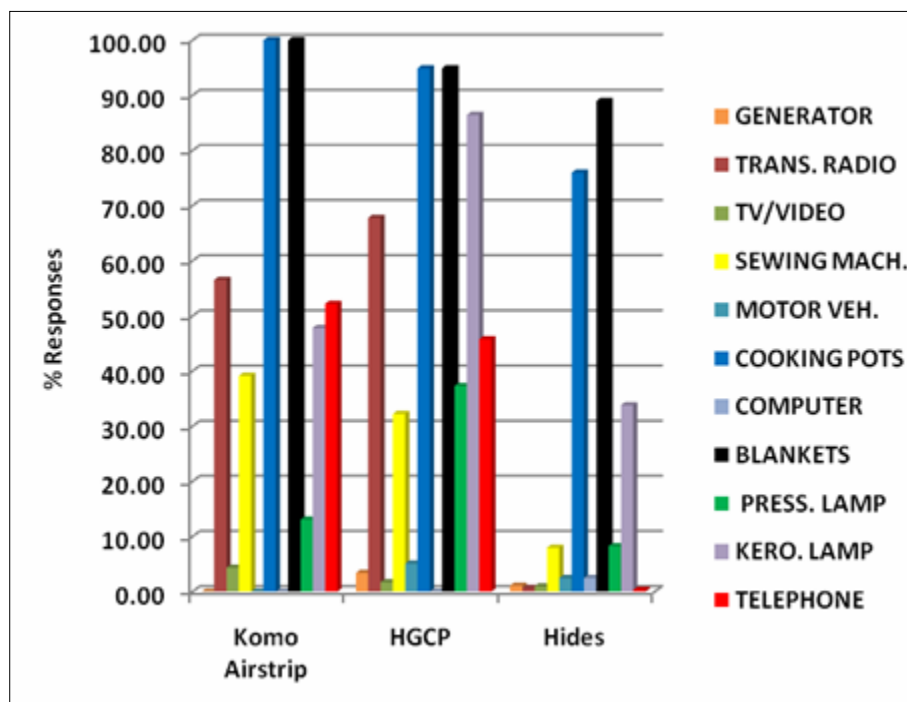


Figure 4-20: Comparative Household Assets Hides, Komo Airstrip and HGCP

4.4.4 Business Activity

The profile of business activity for HGCP respondents is consistent with the above findings of a high level of trade store purchases.

Figure 4-21 compares the reported levels and types of business activity undertaken by HGCP residents by comparison with the greater Hides area. There is clearly high participation in commercial trade store businesses - with eight trade store businesses likely to be affected by resettlement. This reflects the relatively high incomes from royalty and other businesses of landowners in HGCP. However, what is also noticeable from Figure 4-21 is the consequent and correlative drop in market economy for agricultural produce. These findings would suggest that with further increased cash income streams, land compensation (damage and deprivation), gas royalty and equity and business seed grants, people are less likely to want to invest this newfound income stream in their subsistence economy.

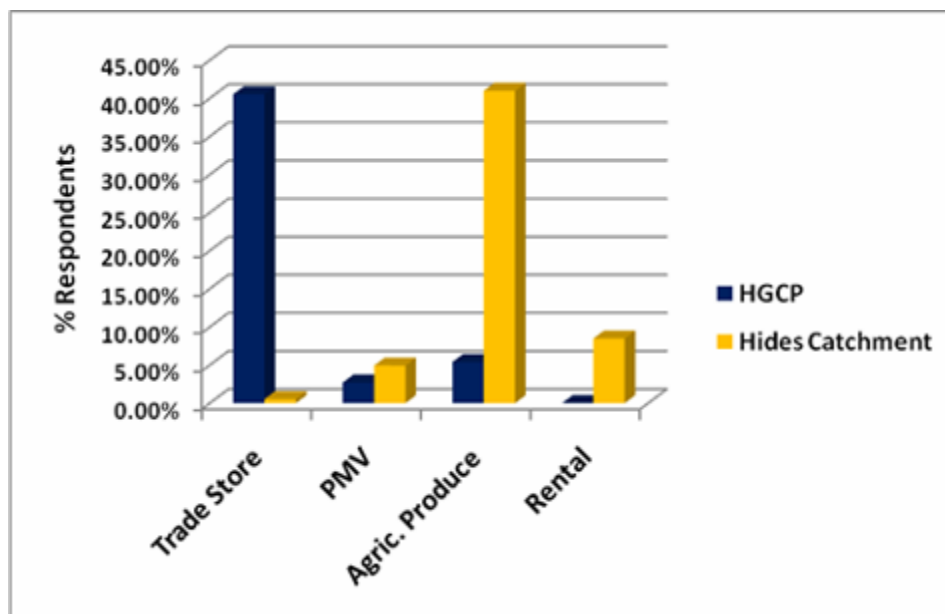


Figure 4-21: HGCP and Hides Catchment Business Participation

This trajectory merits further comment and reflects one of the most profound findings of the 2009 EIS SIA with respect to the longitudinal data which show a decreased level of cash cropping activities:

“In effect, the longer the monetary benefit streams pour into the communities, the less reliance is placed on marketing cash crops.... [The data indicate] an inverse relationship between an increase in cash income from project benefit streams, and a decrease in cash crop farming. The paradox is that at the very time when landowners have some cash flow for start-up businesses, they choose not to invest in agricultural-based farming” (EIS 2009)³¹

The HGCP findings require acknowledgement of this trajectory and the possibility that it will be accelerated by the combination of both resettlement and resource development benefit income. HGCP households have good levels of cash crop ownership e.g., coffee (91.2%), food crops (87.7%) but what is needed are activities that will create wealth and into which people can invest their rents in over the longer term. This means programs which can teach people how to spend their rents in ways that improve their living conditions better housing and washing and cooking facilities, production of more protein (rabbits), production of a broader range of foods (rice, beans, as well as sweet potato) etc. Notwithstanding the best efforts of the Project, however, the progress of ‘me now’ economies can be inexorable. From a nutritional standpoint this could actually be a positive shift since at the moment the health data are indicating <80% stunting in girls. A changed diet with higher protein content would act as a corrective against this present trend.

It should be noted that, while the eight trade stores identified have all been included in the RAP due to: a) their proximity to the road; or b) the fact that their owners will need to move to alternative sites, the necessity of relocating these stores will be further assessed during the implementation phase.

In addition to the business activities described above, one further premise on the edge of the noise buffer area is being used as a haulage business. Subsequent realignment of the HGCP envelope ensured there was no impact on this business premise. Education Profile

The baseline data collected variously from 1997 to 2005²² for the PIA indicate the following generalizations for the upstream Project area between Juha and Goaribari:

- 45% of respondents aged >6 years have not attended school;
- Only 43% of children between 6 - 14 years presently attend school;
- Only 17% of females over the age of 6 have completed grade 6, compared with the 2000 census national average of 62%. Women lag behind men across the Project Impact Area in many of the educational parameters coded and counted (for example, reported literacy levels and attendance at school, with many girls dropping out after Grades 7 and 8);
- Some 60% of women are illiterate compared with 45% of men (see Table 4-8); and
- For those older than 20, 48% of males and 64% of females have had no formal schooling.

Table 4-8 indicates that the Hides catchment is representative of the findings throughout the upstream Project area.

Table 4-8: Proportion Formal Education and Literacy Levels (EIS SIA Appendix 26 2008)

Age >6 No formal education			Age >15 Literacy levels	
PIA catchments	Males (%)	Females (%)	Males (%)	Females (%)
Hides	37	50	54	36
Kutubu	35	45	67	48
Kikori	31	38	62	51
Gobe	36	52	67	44
Moran	63	72	30	18
SE Mananda	49	64	49	31
Total	40	50	55	40

4.4.5 School Attendance

The HGCP social survey indicates that more than half the school-age children are not currently attending school, an average much lower than for the Hides catchment which is 65.31%. 42.86% of respondents indicated they had received no education at all (Hides catchment 53.15%), and HGCP residents who had achieved Grade 1-10 was higher again than for the general area.

The following circumstances are common throughout the area and merit comment:

- Schools close during times of war, as Project landowners are fearful of travelling or sending their children to school in enemy areas;
- School buildings are often burnt down in war reprisals;
- School supplies rarely keep pace with demand, and transporting supplies is problematic to outlying areas, such as Ayegelba, Yarale and Atare in Huli;
- Teachers are often absent for long periods. In other cases where the teacher is a non-local worker, they run away, leave, or get chased out of the community;

²² These data are supplied by OSL in their March 2008 Summary Social & Economic Report drawing on the various SIA/SEIS Household Surveys conducted for them since 1997-2005.

- Children in receipt of Project benefits often lose incentive to continue schooling;
- Resource developers frequently use Tax Credit schemes to establish good educational infrastructure, such as school classrooms. Due to PNG law, which only allows national trained staff in state schools, developers cannot staff these establishments. The sustainability of the school becomes an issue; and
- Over the last decade there has been little 'planning' either within or between developer and Provincial Government, in respect to issues surrounding staffing, supplies, and school location.

Teacher-student ratios indicate a slight improvement on the ratios since 2004. SHP has gone from 1:34.5 to 1:32.3 in 2006 (Table 4-9).

Table 4-9: 2004-6 National Statistics for Elementary Enrolments

Schools Total No	Preparatory				Elementary 1				Elementary 2				Total					
	Enrolment		Teachers		Enrolment		Teachers		Enrolment		Teachers		Enrolment					
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	T	M	F	T
Southern Highlands Province- 2004																		
275	3,673	3,166	113	72	2,801	2,432	75	72	2,689	2,101	96	53	9021	7,582	16,603	284	197	481
Southern Highlands Province -2006																		
414	5,528	4,872			4,894	4,325			4,290	3,606			14,712	12,713	27,425	457	391	848

Table 4-10 indicates that for the Para school which is adjacent to HGCP the teacher:student ratio drops to 1:56.7, only slightly worse than for nearest Hides catchment school of Juni. What is again clear is the marked drop off of female student participation the higher the school grade involved - this is particularly evident for schools in remote rural areas.

Table 4-10: 2007 National Statistics for Primary Enrolments in Para and Juni Schools Grades 1-6²³

School	Type	Agency	Grade 1			Grade 2			Grade 3			Grade 4		
			M	F	T	M	F	T	M	F	T	M	F	T
Para (HGCP)	Community	Govt	25	20	45	40	10	50	30	10	40	27	13	40
Juni (Hides)	Primary	Govt	25	22	47	25	20	45	25	22	47	50	20	70
			Grade 5			Grade 6			Total Enroll			Teachers		
Para (HGCP)			24	6	30	17	5	22	163	64	227	3	1	4
Juni (Hides)			16	25	41	30	20	50	212	171	383	3	4	7

4.4.6 Educational Attainment

Attainment of higher education qualifications in the PIA is predictably low, with few people having alternative training qualifications. Figure 4-22 provides the range of respondent answers to achievements of further education qualifications and it is clear that by comparison with the lowland and coastal regions, achievement levels are predictably very low throughout the Hides and Komo areas. Of the students who complete Grade 10, only 0.3% of females and close to 1% of males aged >20 complete tertiary qualifications.

²³ Provided by the PNG Dept of Education.

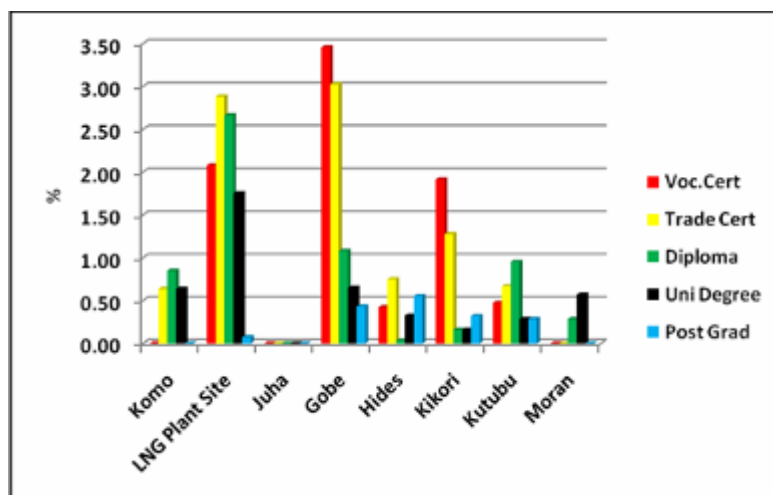


Figure 4-22: The Project Catchment Area Higher Education Profiles

4.4.7 Literacy

The United Nations Papua New Guinea Millennium Development Goals report noted that gender differences in adult literacy are marked, and are even larger for youths aged 15-24 years with a strong bias in favor of males. Females in both the Gulf and Southern Highlands Provinces were found atypically to be performing well below the national average in 2000; Southern Highlands was found to be the lowest achieving Province (2004:27). Figure 4-23 provides findings from the 2005-8 SIA HHS survey for all the catchments covered within the PIA.

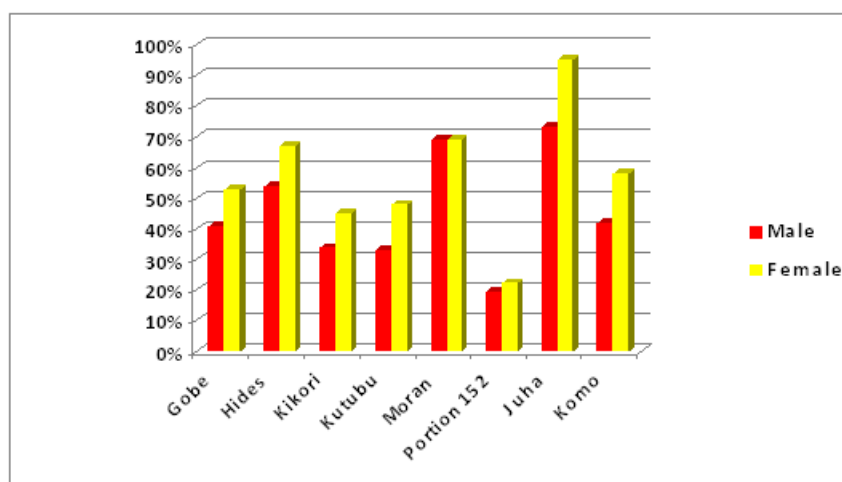


Figure 4-23: EIS SIA 2005–8 Illiteracy Rates (Households)

A comparison of illiteracy rates for those aged 10+ years across some selected Project Impact Area communities is provided in Table 4-11. The findings indicate that Huli communities have comparably higher rates of illiteracy than in either the Gobe or Kikori region communities. This seems consistent with observations that educational facilities and services have generally been of a poorer standard in the Huli ethnic catchments of Hides, Moran and Komo of the SHP.

Table 4-11: Educational Indicator Illiteracy, Selected Hides and Komo Communities 2000²⁴

Education Indicators	PIA Communities Huli – Hides Catchment											
	Honaga		Para (HGCP)		Hogambe		Laite		Kulu		Juni	
	M	F	M	F	M	F	M	F	M	F	M	F
Illiteracy 10+	93	100	42	41	53	63	90	95	70	90	36	46
Education Indicators	PIA Communities Huli :Komo Catchment											
	Komo		Mindite		Emberali							
	M	F	M	F	M	F						
Illiteracy 10+	70	82	66	76	65	77						

Within the Hides catchment Para ward figures are marginally lower than Juni but higher than the norm for the catchment. However, reference to the 2009 social survey findings for HGCP indicate that 35% of residents were illiterate, with again almost twice the rate amongst females (46%) than males (24%). All of these rates are somewhat better than the catchment averages recorded in the EIS SIA, but these latter figures included more communities at the periphery of the development hub.

Comparison of the above findings with the results of the HGCP social survey indicates the accuracy of previous baseline data. School attendance in the 5 - 14 years old bracket is below 50%. Illiteracy rates for 15+years is approximately 49%, and again higher for females (49%) than males (35%).

Figure 4-24 illustrates that in general the resettlement areas of Komo Airstrip and HGCP have literacy levels above the regional average, and thus conversely illiteracy levels lower than the general Hides catchment for both males and females. All of these rates are somewhat better than the catchment averages recorded in the EIS SIA, but these latter figures included more communities at the periphery of the development hub. Also noticeable and a country-wide phenomenon is the fact that female illiteracy rates are invariably higher than those of males because they tend to drop out of school at an earlier juncture. This is evident from the comparison of male/female attainment after Year 6 - that is, at Year 7 for HGCP males the rate of completion is between 2 - 4% to Year 12. For HGCP females it drops dramatically to 0 - 1.5% for any further education. The pressures on Huli females stem in part from the requirement of their male relatives for bride-price compelling an early marriage - and partly to the lack of female role models in the work force at the local level.

²⁴ These figures have been calculated as a % based on raw PNG National 2000 census data.

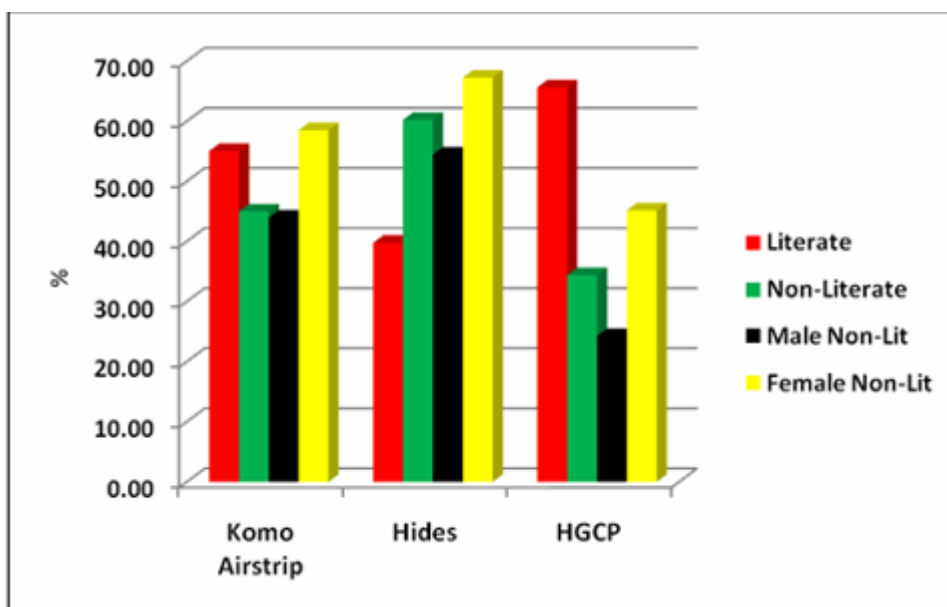


Figure 4-24: Literacy, Illiteracy and Male/Female Illiteracy Rates across Hides and Resettlement Areas

Low levels of literacy amongst affected HGCP households is graphically illustrated in Figure 4-25 below (Appendix 10, Map 8), which shows that the majority of HGCP households have no functionally literate members, although some have members who claim to be literate in Huli only.

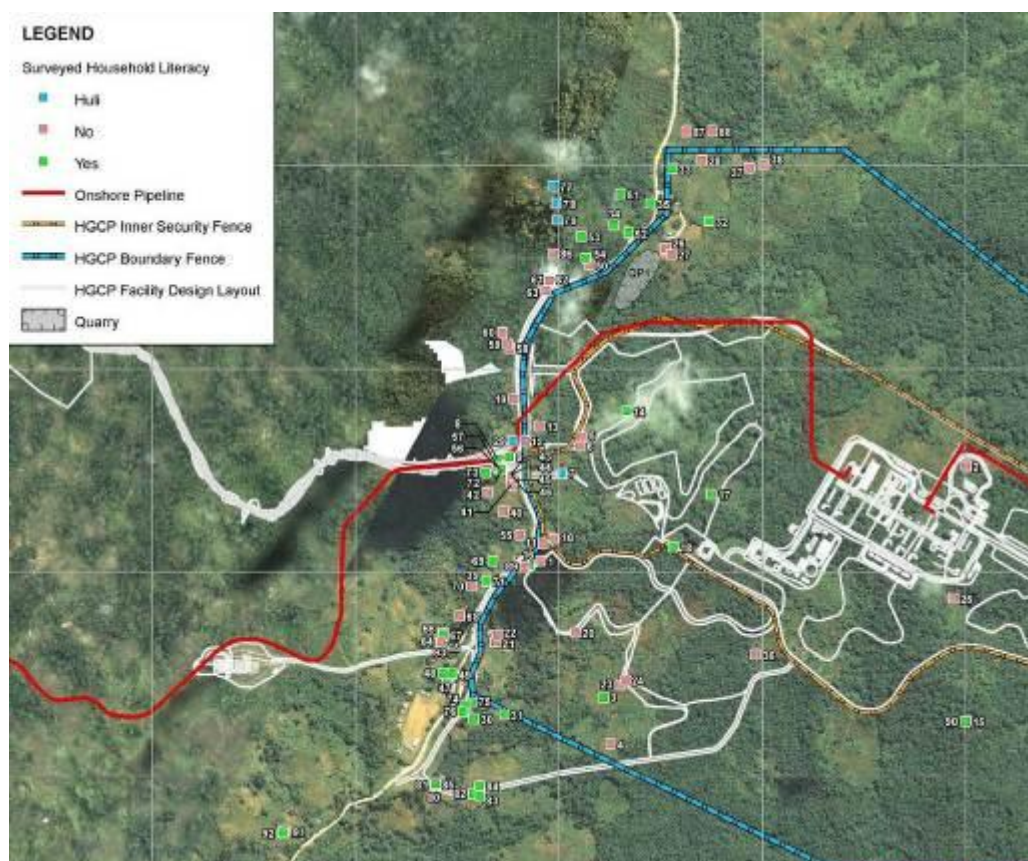


Figure 4-25: Literacy Levels of HGCP Affected Households

4.5 Nutrition and Health

4.5.1 Baseline Health

The general burden of disease in the HGCP environs is well known based on a variety of government and academic studies that have been conducted in the general Hides environs. The community level health profile is characterized by a 'U-shaped' pattern of mortality, i.e., a high level of under five mortality, a stable pattern for ages 5 - 50 and a rapid rise in mortality for greater than age 50. Respiratory diseases dominate the mortality picture for both the under age five and the over age 50 groups and account for at least forty percent of the observed mortality pattern (published data from PNG IMR)

The pattern of morbidity or sickness in Tari, a major population centre within 2 hours drive time of the HGCP site has been previously studied by the PNG Institute of Medical Research (PNG IMR). As previously noted, the youngest children have the greatest burden of illness. Acute lower respiratory tract infection (ALRI or pneumonia) was the most significant cause of morbidity, accounting for 70% of all illness episodes in children under six months of age and half of all illness in children 1 - 4 years (cited in Heywood, 2002). Gastroenteritis (diarrhea and vomiting), which was lowest in the first six months of life and most frequent in children aged six months to two years, accounted for 8% to 16% of all episodes.

The importance of episodes designated as fevers increased with age, accounting for 10% of episodes in children under 6 months old and increasing to 27% in the fourth year. Most of these episodes are probably not malaria despite frequent health clinic coding to the contrary. Vector-borne diseases, i.e., malaria, are an issue; however, the burden of malaria is significantly attenuated by the altitude in the HGCP area which is generally over 1,500 meters, a level which significantly impacts the presence of viable malaria parasites.

Therefore, malaria transmission tends to be seasonal and highly focal with marked geographical dependence upon temperature and rainfall.

Nutritional status is an extremely important co-factor to the observed pattern of morbidity (illness) and mortality (death). Published research indicates that there are clear increases in the risk of death associated with lower levels of nutritional status in Tari children (further details in Appendix 4.)

In terms of medical services, the Southern Highlands are significantly underserved; however, the situation in the HGCP area is more complex as there have been significant improvements in medical service delivery due to the efforts of Oil Search Limited (OSL). OSL outreach has dramatically improved the performance of both government and church run clinics in the Hides environs. In addition, OSL has implemented an aggressive indoor residual spraying (IRS) program in a 20 km corridor in Hides that has dramatically lowered underlying malaria transmission.

Exploratory data analysis was undertaken of the health survey data obtained from households in the Komo Airstrip area. Analysis is based on:

- Australian National University Enterprises (ANUE) Report on Census, Asset Register and Land Use Survey at HGCP(2009);
- June/July 2009 Resettlement Family/House Survey for Komo Airstrip;
- June/July Health Survey for HGCP;
- OSL malaria, hemoglobin (Hb) and anthropometric field measurements carried out over the June/July time period in conjunction with the ANUE survey of the HGCP site;
- September 2008 Full Scale Social Mapping and Landowner Identification Study of PRL-11 (includes Komo Station);
- 2006 National Demographic Health Survey (DHS);
- Comparison of HGCP Resettlement Family/House and Health Surveys to the 2006 DHS Rural and Highlands Region datasets and 2008 Social Mapping Study of PRL-11; and
- Review of Health centre medical data for Juni and Malanda clinics. These two clinics are the primary care delivery facility for the Hides area.

4.5.2 Nutrition and Health

Malnutrition remains a widespread problem in PNG, in particular among the poorest and most vulnerable segments of the population. Surveys over the last 20 years show that the nutritional status of children under five years old has not improved significantly (Gibson, 2000). In rural areas there is a high prevalence of underweight (weight for age), a very high prevalence of stunting (height for age) and a medium prevalence of wasting (weight for height) in children less than five years of age (FAO, 2003). Stunting rates as high as 77% in children ages 1 - 2 have been documented in the Highlands. Appendix 4 contains a detailed discussion of nutrition and other relevant health issues.

4.5.2.1 PNG Nutrition and Related Conditions and Illnesses

From the earliest published nutritional surveys, the high prevalence of stunting observed was related to the low protein and energy content of the typical PNG diet (Mueller, 2001). The sweet potato is the staple food in the Tari basin, as well as in the HGCP. Reliance on sweet potato as the main staple and a very low consumption of animal products is characteristic of traditional diets in most of the Highlands. Nearly all studies have associated the high prevalence of stunting observed with a diet low in protein and energy.

The observed nutritional pattern of compromised height for age, weight for age and height for weight has significant consequences for children. Heywood (2002) studied the relationship between attained growth at various ages and risk of death in a large sample of Huli children in the Tari Basin. Nutritional status was assessed in 1,232 children between six and 30 months of age. Results showed a gradual increase in mortality rate with lower levels of weight for age (W/A) with a steep rise for children less than 60% of the median.

As part of the health assessment, anthropometric measurements were performed on members of potential resettlement households in the HGCP affected area. While these measurements were performed on young children (under age five) and adolescents/young adults (ages 6 - 19), the primary focus is on young children ages one month to five years of age. Whenever possible all household children under age five were evaluated. Not surprisingly, there were limitations to this effort:

- A complete capture rate was not obtained, i.e., 78% of the identified under age five household children were measured;
- There is age uncertainty, particularly for children under age one. Without reasonably accurate age determination, the anthropometric calculations can not be performed, hence, two children under age 1 were not included in the analysis as accurate determination could not be made; and
- There is measurement error inherent to the methodology.

Despite these limitations, the data for the HGCP demonstrates a highly significant pattern of abnormal growth and development, particularly height for age (stunting), where 83% of measured children under age five demonstrated significant abnormalities. In addition there appears to be a potentially significant sex bias, i.e., female performance was worse. Appendix 4 contains a detailed discussion of the nutrition data.

4.5.2.2 Hemoglobin (Hb)/Anemia

In public health terms anemia is defined as a hemoglobin (Hb) concentration below the thresholds given by WHO (WHO, 2007). Anemia is one of the most common nutritional problems in the world today. The main causes of anemia are: dietary iron deficiency; infectious diseases such as malaria and hookworm; deficiencies of other key micronutrients including foliate, vitamin B12 and vitamin A; or inherited conditions that affect red blood cells (RBCs) (e.g., sickle cell anemia).

The WHO (2008) estimated the levels of anemia in PNG to be:

- Pre-school children - 59.6%;
- Pregnant women - 55%; and
- Women (not pregnant) - 43.1%.

Iron deficiency is probably the most common cause of anemia. Iron deficiency with or without anemia has important consequences for human health and child development - anemic women and their infants are at greater risk of dying during the perinatal period, children's mental and physical development is delayed or impaired by iron deficiency, and physical work capacity and productivity of manual workers may be reduced.

Vulnerability to iron deficiency varies greatly with each stage of the life cycle. This variation is due to changes in iron stores, level of intake, and needs relating to growth or iron losses. In general, children aged six months through five years of age and women of childbearing age - especially during pregnancy - are the most vulnerable groups.

Despite the high levels of anemia in PNG, the results of the HGCP survey do not demonstrate a significant pattern of anemia for any of the HGCP households either individually or as an aggregated community. The WHO levels of anemia in PNG are

estimates and not based on actual population surveys. Appendix 4 contains a detailed discussion of the HGCP hemoglobin (Hb)/anemia data.

4.5.2.3 Malaria

Malaria is a parasitic disease that can occur in four forms in humans: *Plasmodium falciparum*; *Plasmodium vivax*; *Plasmodium malariae*; and *Plasmodium ovale*. All forms are found in both lowland and highland areas of PNG. An individual can be infected simultaneously by multiple forms and mixed infections are common in PNG, particularly in the Highlands.

Over 300 malaria tests, rapid diagnostic with microscopy confirmation, were performed on HGCP household members and extended family members. Less than 2% of all tests were positive and a household pattern was not observed. The low rate of test positivity is a function of: (i) HGCP altitude; (ii) relative dry season during time of survey sampling; (iii) bed net utilization rates are relatively high; and (iv) ongoing malaria control efforts by OSL.

4.5.3 HGCP Health Survey Findings

Seven specific modules of the national Demographic Health Survey (DHS) were utilized as part of the resettlement household health assessment:

- Health services;
- Preventive care- bed nets, malaria;
- Illness- fever, cough, diarrhea;
- Female health;
- HIV/AIDS;
- Alcohol, tobacco and drug use; and
- Domestic violence.

The survey questions utilized for the HGCP households were identical to those used in the 2006 DHS to allow for a direct comparison to the 2006 DHS results. In order to reasonably determine and document baseline health status for the HGCP households, it is not necessary to ask the entire DHS question inventory. However, many sections queried by the general household HGCP survey do capture many critical demographic and physical, educational, financial, and social aspects of household performance.

In earlier sections of this report, data and discussion related to physical characteristics of households, educational attainment, consumer durable assets and income/consumption expenditure were discussed; therefore, this information will not be repeated in detail. In general, health outcomes are strongly covariate to educational attainment (particularly of mothers) and income/consumption/expenditure.

Educational attainment is a powerful predictor of overall health status. In addition, there are often marked male versus female disparities that also have significant impacts on long-term health outcomes, particularly since women dominate health decision making. In general, the 2006 national Demographic Health Survey (DHS) data indicate that educational status of women is strongly correlated with both childhood and maternal key performance indicator outcomes, e.g., maternal mortality, infant mortality, etc. Initial analysis of the Komo DHS survey indicates extremely low overall educational attainment for both men and women, although men clearly 'outperform' women in terms of years of completed school. The HGCP data describe a performance that is largely consistent with the rural and Highlands region 2006 DHS dataset. A brief synopsis of key findings is presented below. Appendix 4 contains a detailed discussion of the HGCP health survey data.

4.5.3.1 Health Service

On average, a household member last utilized health services 18 days prior to the survey. Access to clinics is a concern. Para aid-post was closed for many years due to lack of staff and medicines. Most HGCP people utilize the health centre at Juni which has more than six staff catering for 100 patients per day, and is well supplied by the medical agency at Oil Search Limited. The police station is located opposite. The clinic has attached health centre staff houses and represents the largest and best functioning service in the entire area. Juni can be between 1 – 1.5 hours away by car from the HGCP site. Emergency cases are also treated at the Oil Search Nogoli camp on a limited outpatient basis only, and walking time is between 1 - 2 hours. This clinic has x-ray and malaria testing facilities.

The survey results indicate that households primarily use the available health services for episodic acute illness/trauma care. This is not surprising as the distances to the clinic are substantial either by foot or even when vehicles are available. As will be seen in subsequent sections of the health survey, while vaccination rates appeared to be suboptimal, the frequency of antenatal care visits was significantly better. Overall, the lack of easy access is a critical determinant.

4.5.3.2 Preventive Care

There was relatively high ownership and utilization of bed nets for all households. In general there was reasonable awareness of the need for mosquito nets at a household level; however, there is not full household coverage due to a combination of cost and access.

4.5.3.3 Fever, Respiratory and Gastro-Intestinal Symptoms

There were extremely high levels of cough and fever complaints with substantially lower levels of gastrointestinal symptoms. The fever reports are most likely attributable to a respiratory infection as measured malaria rates during the field survey were extremely low.

The 100% use of firewood as a cooking and heating fuel is a major contributor to respiratory illness, particularly for children. In addition, cigarette smoking is extremely common. The ANUE team documented extremely smoky indoor conditions for virtually all households. In addition, the household construction rarely includes a mechanism for efficiently removing cooking and heating smoke.

The rate of reported diarrhea is low. This finding initially appears to be inconsistent with the 100% use of unimproved water sources; however, a more detailed investigation by the ANUE team revealed that water sources are carefully constructed and maintained by households and are actually well selected spring sources that have bamboo piping and are covered in order to prevent access by animals.

4.5.3.4 Female Health

Maternal mortality rates in PNG are extremely high, and the 2006 DHS indicates that rates have deteriorated significantly. However, the HGCP households typically averaged four ante-natal visits per pregnancy and delivery was performed by a nurse, a level of service significantly better than typical rural PNG and likely attributable to OSL clinic improvement efforts.

4.5.3.5 HIV/AIDS and Other STDs

HIV/AIDS is a critical issue for PNG. There is marked controversy over the 'true' prevalence level of HIV/AIDS, particularly in remote rural settings. Antenatal data from OSL sponsored clinics indicates that HIV prevalence in the HGCP area is extremely low and probably less than 1%. The knowledge, attitudes, practices and beliefs of the HGCP households indicates that HIV awareness has been achieved to all adult household heads. OSL outreach efforts are likely to be a major contributor to these results.

4.5.3.6 Alcohol, Drug Use, and Tobacco Use

Alcohol, drug use and smoking are serious problems in PNG, particularly binge drinking and chronic drunkenness. Therefore, the survey asked a large number of questions related to this topic. At a household level, there are very high rates of alcohol and tobacco utilization. Excessive drinking is a significant issue.

4.5.3.7 Domestic Violence

Domestic violence is a major issue in PNG, particularly in the Highlands. The self-reported level of violence is around 20-30%. This level may be significantly under-reported as domestic violence is a sensitive subject.

4.6 Infrastructure

4.6.1 Road System

The public road from Hides to Nogoli runs down the western edge of the proposed HGCP (see Figure 4-1). It is constructed of crushed limestone, and is in good condition. There are no other roads in the vicinity but there are various foot tracks. The drillers who worked at the HGCP built split wood duckboards along many of the HGCP tracks but these tend to be slippery in the wet.

4.6.2 Water and Sanitation

Ninety one percent (51 households from 56 responses) of survey respondents indicated that they sourced their water from springs. Only five (9%) households reported they had a water tank, which is a level of ownership only marginally better than the average Hides catchment figure of 6.6%. Average times to collect and return with water range from 1 - 120 minutes, with approximately 70% of respondents reporting that water is available all year round.

Table 4-12 indicates that reliance on customary modes of ablution has continued at the same levels over the last decade, but is somewhat higher for the resettlement zones of the Komo Airstrip and HGCP. That these figures are somewhat higher than for the regional catchments may be explained by the fact that in some communities within the wider region there are improved pit latrines or people are otherwise simply using the bush (e.g., Komo Airstrip 9%, HGCP 5%).

Table 4-12: Traditional Pit Latrine Usage Across Komo and Hides

	KOMO CATCHMENT	KOMO AIRSTRIP	HGCP	HIDES CATCHMENT
TRADITIONAL PIT LATRINE	74%	92%	92%	76%

In effect, and notwithstanding the findings of a relatively advantaged HGCP community in regard to business activity, income and expenditure, possessions etc, at the household level HGCP is typical of living conditions found across the Huli area.

4.6.3 Sources of Energy

Almost all (95%) of the HGCP households rely on firewood for fuel, much the same proportion as found for the rest of the Huli rural population (Komo catchment 99%, Hides catchment 93%).

4.6.4 Communications

Much as was reported in the Komo RAP, the level of mobile phone possession and usage has dramatically changed in the last 12 months since the erection of communication towers in the Komo-Hides areas. Whereas in 2007 the EIS SIA found only 0.3% of the respondent population had cell-phones, the 2009 HGCP social survey found that some 46% of

resettlement respondents had mobile phones. These telephones are inexpensive to purchase at 30 Kina and many people have more than one. They can be charged from dry cell batteries, or people give them to their *wantoks* in the camps to charge them on their behalf. This level of ownership compares favorably with the 52% reported for Komo Airstrip.

The only other access to telecommunications is that available in the Nogoli camp and owned and operated by the Gigira Development Corporation, which is the local landowner company. There are no public phones in the area.

4.6.5 Community and Social Infrastructure

Figure 4-26 illustrates prominent social infrastructure within and surrounding the HGCP site. While some of the establishments indicated will require relocation, others outside the site are included to demonstrate facilities to which affected households currently have access. Figure 4-27 illustrates mitigation measures planned for the Hides area.



Figure 4-26: Prominent Social Infrastructure Inside and around the HGCP Area in Relation to Affected Households

The Para School is the only directly affected social building. The Para school is situated in close proximity to the HGCP and proposed infrastructure development for the Plant has resulted in the school being close to roads that will be used by a range of vehicles during the construction and operations phases of the Project. To mitigate the risks of noise, dust and traffic a number of mitigation programs and initiatives will be implemented. These include, but are not limited to, upgrades to the school buildings to reduce dust and noise impacts, improved fencing, traffic control signage and measures, and improved access by pupils.



- Providing for replacement of the affected social infrastructure.
- Liaising with community representatives to ensure the new sites are acceptable and assisting with preparation of land and building programs
- Liaising with the appropriate National and Provincial Government organizations
- Provision of alternative water sources and access around the site.

In recognition of the urgency associated with replacing infrastructure, facilitating the building homes for resettled households and executing community development project, EHL has created a new construction team staffed with experienced construction personnel to be dedicated to these Project priorities.

Table 4-13: Summary of Community Infrastructure

Community Infrastructure	Owning Entity	Description	Impact	Assistance Provided	Relocation Site	Responsible entities	Schedule of works
Huli Barat and pathways	Community	Huli trench around buffer zone	Safety barrier and access around site	Financed by Project	See Figure 4-27	Project and community. The construction will be undertaken as a community project.	Construction planned for completion by last quarter 2010 (complete).
Pathways along road	Community	Earth pathway from Lake Mbuli to near Para School	Safety measure	Financed by Project	See Figure 4-27	Project and community	Construction commence early 2011 to complete by mid 2011
Market site	Community	Leveled site with drainage	Replace previous smaller, poorly drained sites along the road	Financed by Project	See Figure 4-27	Project and community	Construction early 2011
Water replacement sites	Community & individual households	Eight Water collection structures, <i>haus wins</i> , consisting of tin roofs and water tanks	Replace water collection sites used by general community	Financed by Project	See Figure 4-27	Project and community	Construction to commenced Dec 2010 and completed by mid 2011

4.7 Structures

Ninety-nine buildings were surveyed at the HGCP site²⁵. Thirty-eight are located inside the HGCP boundary and 61 are outside the boundary, but are considered by the ANUE surveyors to be either so close to a boundary, or close the northern extension of the Heavy Haul Road (HHR) along the western boundary of the HGCP site, that they should be included. The owners of the structures along the road are insistent that they should be included, arguing that road widening will result in boulders and loose material rolling down the steep slopes onto their houses and gardens.

The owners of the houses outside the present HGCP site boundaries have been informed that if construction impacts upon their houses and lands such that they have to relocate, the information collected from them will be used and the RIT will negotiate with them. Otherwise it will not be used. They have also been told they can approach the RIT to have their situation reviewed at any time.

²⁵ Not all structures reflected on map

Table 4-14: HGCP Building Construction

Type	Thatch Roof	Iron Roof	On Piles	Area (m ²)
Within HGCP site				
Bush materials	35	0	4	40
Semi-permanent	3	2	3	40
Outside HGCP site				
Bush materials	53	0	5	40
Semi-permanent	5	5	4	46
Permanent	3	3	3	54
Total/Average	99	10	19	44

Of the 38 structures within the site, two are men's houses (houses occupied by men from more than one family whose wives and children live in the family dwelling nearby); two are trade stores; and one is a bakery (all three are used as places to sleep by some members of the owners' families and one was in disrepair and was unoccupied because it had just been replaced by a new house).

Of the 61 buildings outside the HGCP site, three are men's houses and eight²⁶ are trade stores. One house is under construction and has no roof, but the owner has become mentally ill and is unlikely to finish it. Her young son is arguing that he should be compensated for the building, but his mother's family disagree with him.

Thirty-five of the 38 houses within the site (92%) are made from 'bush materials' and three from semi-permanent materials. Table 4-14 summarizes the materials used.

The permanent materials houses are larger than all other house types and semi-permanent houses tend to be larger than the bush materials houses.

'Bush material' houses fall into two main types: (1) very low traditional Huli houses, thatched with *Imperata* grass and walled with vertical timber slabs, rounded at either end; and (2) they are sometimes known as 'coastal' houses, which are rectangular in shape, with higher walls, but still no windows.

Traditional houses (1) have fireplaces running down the centre of the house. Often the house is divided across the middle and if it is not a house restricted to men, women live in one end and men in the other. These houses may have accommodation for pigs at the women's end. It is not possible to stand up inside one of these houses and they are frequently full of smoke from the fires, which seeps out through the thatch (Figure 4-28).

The design common to almost all 'coastal' houses (2) is one of a central room in which the only external entrance to the house is in one wall. A large fireplace runs down the middle of this room and on two or three sides of the fireplace are platforms raised about 75 cm off the ground and covered in woven cane. People sit or sleep on these platforms. The dirt floor around the fireplace is commonly covered in dry grass. Internal walls and low doorways create two further rooms, one at each end of the house. These houses are dark and smoke-filled, but are roomier and it is possible to stand in them (Figure 4-29).

Seven of these houses were raised off the ground on piles and had wooden sawn timber floors. These houses had fireplaces built on clay and stone lined platforms, isolated from the rest of the floor (see Figure 4-30). One 'coastal' house built of bush materials is raised at least three meters off the ground on tall poles.

Houses of semi-permanent materials construction have iron roofs, sawn timber frames and walls and small windows and all were raised on piles (Figure 4-31). Permanent materials are all raised on piles with iron roofs, sheet metal cladding, windows and more than one door.

Eight structures are trade stores (Figure 4-32). It is common for people to live in a trade store, in rooms at the rear. Not all the trade stores were fully stocked and only seven of the eight were operating. Five of the bush material houses are men's houses. Either a man constructs a house and invites other men to live in it with him, or two or more men construct a house and live in it together. It is common for families to have more than one house. Of the 99 structures surveyed, only 34 were the sole dwelling of the household. Twenty-eight households had two houses and 18 had three. The most common reason for multiple houses is polygamous marriages, where co-wives live in different houses and the husband lives in a house on his own, or a men's house. The most houses owned by a household was five; these houses were occupied by the husband, his five wives, their children, and his mother.

All families have a separate kitchen or cook house and one or more pig houses. Cook houses can be reasonably substantial, usually do not have walls, or have walls only on two sides and are a place where people sit and talk during the day. A fire pit is usually located in the middle of the kitchen. Pig houses are usually at a considerable distance from residence and are strongly built and often divided into bails to keep adult pigs separated from each other (Figure 4-33). A few households also have cassowary and/or chicken houses.

A detailed breakdown of HGCP houses surveyed, providing detail on house number, construction, location, family name, floor area, piles and roofing material is provided in Table 2, Appendix 3.



Figure 4-28: Traditional 'Bush' House



Figure 4-29: 'Coastal' Style Bush House



Figure 4-30: Raised Coastal House



Figure 4-31: Semi-permanent House with Iron Roof²⁷



Figure 4-32: Permanent House²⁸



Figure 4-33: Two Women and a Pig House at the HGCP Site

²⁷ Drilling pipe left behind from the oil project has been carried from the well heads and cut into suitable lengths for house piles with an oxy-acetylene torch.

²⁸ The house pictured here was constructed by Oil Search Ltd as a community meeting place, but it is similar to the permanent materials dwellings on the site.

4.7.1 Location of Houses

The houses at the HGCP site are clustered close to the vehicle road running along the western side of the site (Figure 4-34 and Appendix 10, Map 10). Houses located in gardens within the site are used when people are working in their gardens, or to get away from the relatively crowded road. A number of these houses are substantial structures; some are sited to obtain views out over the Tagari Valley. Figure 4-34 also illustrates the prevalence of dispersed households who have more than one house, often some distance from each other.

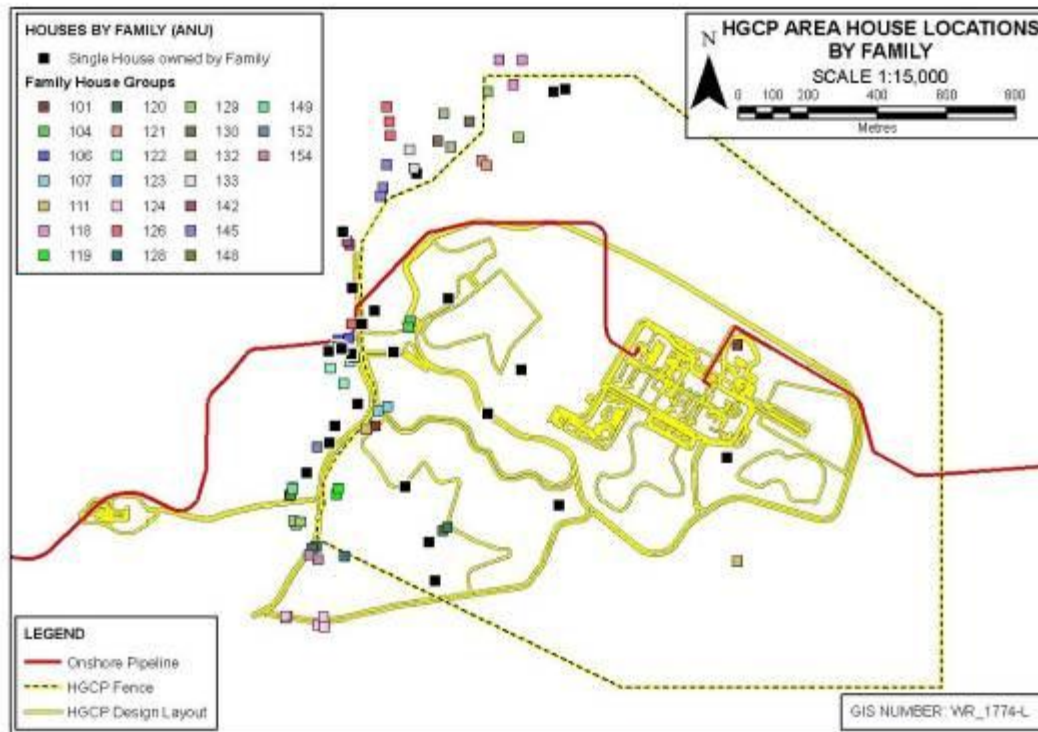


Figure 4-34: HGCP Location of Houses by Family

4.8 Moveable Assets

Figure 4-35 indicates that whilst across the general Komo and Hides catchments, levels of radio, mobile telephone and electric generators were owned by well below 10% of the population, in the specific resettlement constituencies of Komo and HGCP ownership levels of all such goods were extremely high. Given the business wealth in HGCP these results are not surprising and indicative of the avenues of consumer spending when disposable cash income is available.

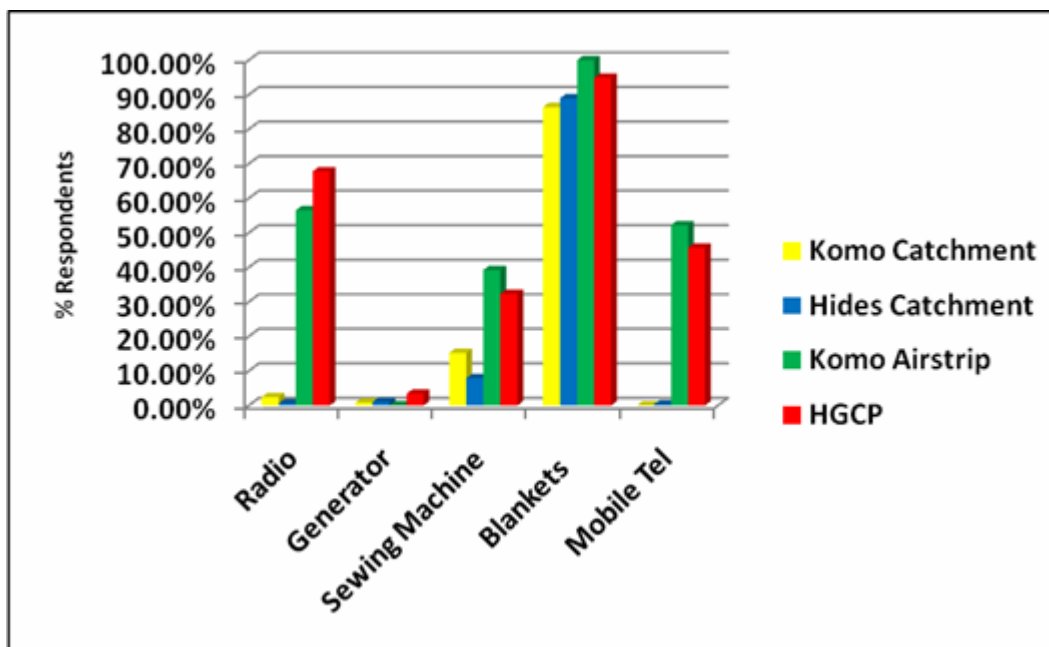


Figure 4-35: Comparative Levels of Household Assets Across Catchments and Resettlement Constituencies

4.9 Land Tenure and Land Use

The ANUE team surveyed 155 gardens belonging to 55 of the 59 HGCP households surveyed, which had a combined total area of 289,335 m². The amount of land families are cultivating within the HGCP site varies from 0.03 ha to 1.8 ha per family, with an average area of 0.45 ha. The area cultivated depends on the size of the household and whether it has land under cultivation outside of the HGCP site. A detailed breakdown of garden size per household is included in Table 3, Appendix 3.

An overview of fallow and cultivated land is provided in Figure 4-36 as well as Map 11, Appendix 10.

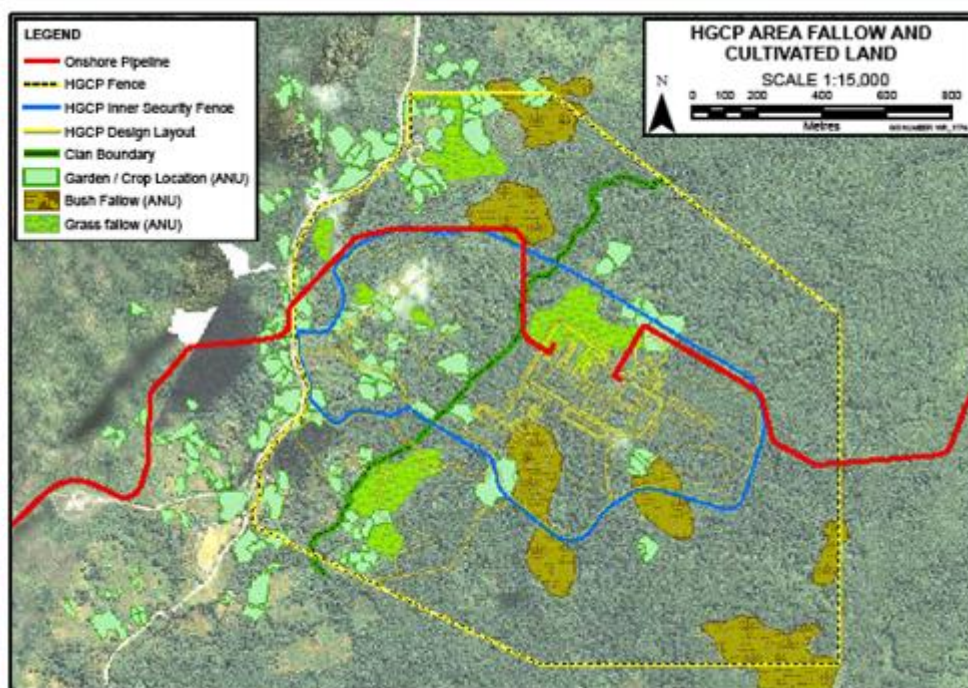


Figure 4-36: HGCP Area Fallow and Cultivated Land

Table 4-15 describes the number of HGCP houses against the size of gardens being cultivated. The larger the area cultivated by a household, the more likely it is not to have land under cultivation elsewhere and therefore the difficulties in replacing gardens.

Table 4-15: Distribution of HGCP Houses and Garden Size

Total size of area cultivated	Number of households
>1ha	9
0.5 – 1ha	13
0.25-0.5	17
< 0.25	16
TOTAL	55

As indicated by Figure 4-37 below, most gardens are clustered on the western side of the site, nearest to the road where access is easiest, but a substantial number are located in the centre of the site and a number of large areas are cultivated along the edge of the steep slope in the Tagari Valley. People were questioned about the existence of gardens away from the HGCP site and these gardens were also surveyed. However, it became apparent during the survey of gardens at one of the potential Hides Landfill site, that some families living within the HGCP site also had gardens at the Landfill site which they had not disclosed. Either people did not understand the question, or they felt it was in their interest not to reveal gardens outside the HGCP site.

Figure 4-37 (Appendix 10, Map 12) shows that while the majority of households have gardens in relatively close proximity to their houses, it is not uncommon for households to have gardens situated some distance to where they live.



Figure 4-37: HGCP Households and Gardens Surveyed

The census indicated an average of 8.3 persons per household which would yield 589 m² per person of sweet potato. Given that we understand that the household numbers may be a little inflated it is likely the more accurate figure is between 800-900 m² per person per year.

4.9.1 Gardening Practices

Crop compensation payments will be distributed to all family members that have invested in growing the crops. Within a garden a number of family members may cultivate their own areas of sweet potato. This includes wives, unmarried sons and daughters and aged parents. The survey teams came under great pressure to measure every individual's area of sweet potato, but this was resisted on the grounds that the head of the family should be able to redistribute any compensation received within the family. Both the heads of families and family members were in agreement with this decision. Moreover, it was understood that the aggregate measurement method advantaged all landowners; many of the sampled gardens would not have yielded the same crop total as the base-case garden used for compensation purposes.

In addition to sweet potato, Huli gardens are also planted with highlands pitpit (*Setaria*), sugarcane, various greens, ferns, bananas and target (*Cordyline*). Gardens are surrounded

by a deep ditch and a fence made of sharpened *Casuarina* stakes, bound together at the top by cane.

Tree crops are planted around sweet potato gardens, around houses and along paths. The most important tree crop is *marita* (*Pandanus conoideus*). Over 4,500 were counted at the HGCP site. Other important tree crops are avocado, karuka (*Pandanus julianettii*) oranges, mandarins, lemons, guava, highland betelnut, and tree tomato. Large *marita* and karuka orchards are also maintained some distance from residences and wild karuka is accessed at higher altitudes. Another source of green leaves is a *ficus* spp. *Cordyline*.

4.9.2 Field Crops, Trees and Economic Trees

The most common crop observed in mixed-crop house gardens and in sweet potato gardens is sugarcane. The next most common crops are bananas, Chinese taro, pineapple and *Colocasia taro*. A variety of green leaf vegetable is widespread - the most common of these are *gereba* (*Rungia klossii*), *tigibi* (*Oenanthe javanica*) and a number of edible ferns. Other crops found in almost all cultivated areas are Highlands pitpit (*Setaria palmifolia*), beans, cucumber, corn, cassava, pumpkin, cabbage, and peanuts.

As well as measuring land areas, a count and record was taken of tree crops, coffee, avocado, karuka, *marita*, citrus, tanget, figs, and *Casuarinas*, *Castanopsis* and bamboos. Many of these trees are located around the edges of fields, houses and in fallow land.



Figure 4-38: Rice-garden at HGCP

4.9.2.1 Sweet Potato

Seventy-seven (77) sweet potato gardens were measured within the HGCP site and 78 outside the site, cultivated by the 59 families that have either houses or gardens or both within the site. The gardens inside the site comprised 16 ha and those outside 13 ha. Any garden cut by the outer boundary of the site is classed as inside for the purposes of the research and HGCP RAP.²⁹ The average size of gardens inside the site was 0.20 ha and outside the site 0.17 ha. The average size of cultivated area per family was 0.45 ha. The smallest garden area cultivated by a family was 0.03 ha (this family has gardens elsewhere) and the largest area cultivated by a family was 1.9 ha.

²⁹ Some gardens within the HGCP were not measured because of refusals by landowners to assist the research team.

For 20 of the 59 resettlement families, 100% of their sweet potato land was inside the site. For five families between 75% and 100% of sweet potato area was inside, for three families between 50% and 75% of sweet potato land was inside, for 16 families less than 50% of sweet potato land was inside, and the remainder had no sweet potato gardens within the site.

The largest area planted in sweet potato (inside and outside) by a family was 1.9 ha. Eight other families had more than 1 ha under cultivation. Thirteen families had between 0.5 and 1 ha under cultivation, 16 had between 0.25 and 0.5 ha of sweet potato under cultivation and the remainder had less than 0.25 ha of sweet potato under cultivation. The area cultivated depends upon the family size, the number of other closely related families living nearby and the age of the family members. Older people, divorcees, widows and young people with few or no children, tend to cultivate smaller areas. Men in polygamous marriages have larger areas under cultivation.

There are no significant differences between the agriculture at Komo and at HGCP; both have long beds, not mounds.

4.9.2.2 Food & Economic Trees

At HGCP the following food trees were counted: 1,974 avocado; 189 citrus (mandarin, orange and lemon), 4,980 Cordyline (tangent); 290 ficus; and 1,206 karuka pandanus. Pineapples, tree tomatoes, mango and betel nut plants were also counted.

Every household has plantings of a number of economic species that are used for construction and fuel. The most common species is *Casuarina oligodon* or *yar*, with 12,181 counted at HGCP. The valued timber tree *Castanopsis* or *bai* was the next most common economic tree planted - 880 were counted at HGCP. The wood of the *bai* tree is used for house construction. Also observed were 533 giant bamboo clumps, 155 black palms (used for bow making and house construction) and 98 klinkii pines (see Table 4-16).

Table 4-16: Crops and Trees at HGCP

Crops/Trees	Count of Crop
Tree crops	
Coffee (seedlings)	5,852
Coffee (mature)	7,791
Avocado	1,974
Karuka	1,206
Marita	4,500
Citrus	189
Figs	290
Economic Trees	
Casuarinas	12,181
Castanopsis	880
Bamboos	533
Tangent	4,980
Black palm	155
Pines	98

4.9.2.3 Coffee

Thirty-three families have planted 5,852 coffee seedlings during 2009, an average of 178 seedlings per family. The maximum number of seedlings per family was 565, the minimum was six. Overall, 110 coffee gardens were surveyed of which only 13% were in good condition, 38% in moderate condition, 11% in poor or very poor condition and 39% were seedlings, planted to take advantage of the impending compensation payments.

Given the condition of many of the trees and based on average production per coffee tree in the highlands PNG, the average earnings from coffee are likely to be around K100 per year per family. These figures suggest that the claims made by many of the HGCP families to have earned 1,000s of Kina from coffee every year are grossly exaggerated. Very few families would be likely to earn this level of income from coffee.



Figure 4-39: HGCP Landowner with Pandanus

4.9.3 Livestock

Average livestock per household levels show similar spikes over the regional mean for the Komo and HGCP resettlement areas. At a declared 10 pigs per household, HGCP residents could rightly be described as relatively advantaged over their more rural catchment counterparts (e.g., Komo at 6.85). Conversely, levels of chicken ownership (45.7%) were somewhat lower than for other communities (79%) in the greater Hides region. These findings again reinforce the EIS SIA comment of a gradual increase in livestock wealth over the last decade across the Project areas. This reflects their continued importance to local economies of exchange and household consumption, rather than direct cash income assets. It also indicates that livestock investment (both in time and money) is seen as more important than agriculture to benefit-recipient landowners.

4.9.4 Use of Natural Resources

Landowners are due to receive compensation for damage to and loss of forest resources. In order to estimate the areas of forest and fallow land, imagery provided by the Company was used to map grass and bush fallows. The balance of the land is forested.

The soil fertility of agricultural land is maintained by fallowing. Land is cultivated for between 10 and 15 years and is then left in fallow and new land is cleared and planted. During the fallow natural plant succession develops on the previously cultivated land. During the early years of a fallow, the fallow land is dominated by short grasses, ferns, cane grass and shrubs. As the fallow proceeds, increasing numbers of woody plants colonize the site until it

becomes what is known as a bush fallow, as illustrated in Figure 4-40 (Appendix 10, Map 13) below.

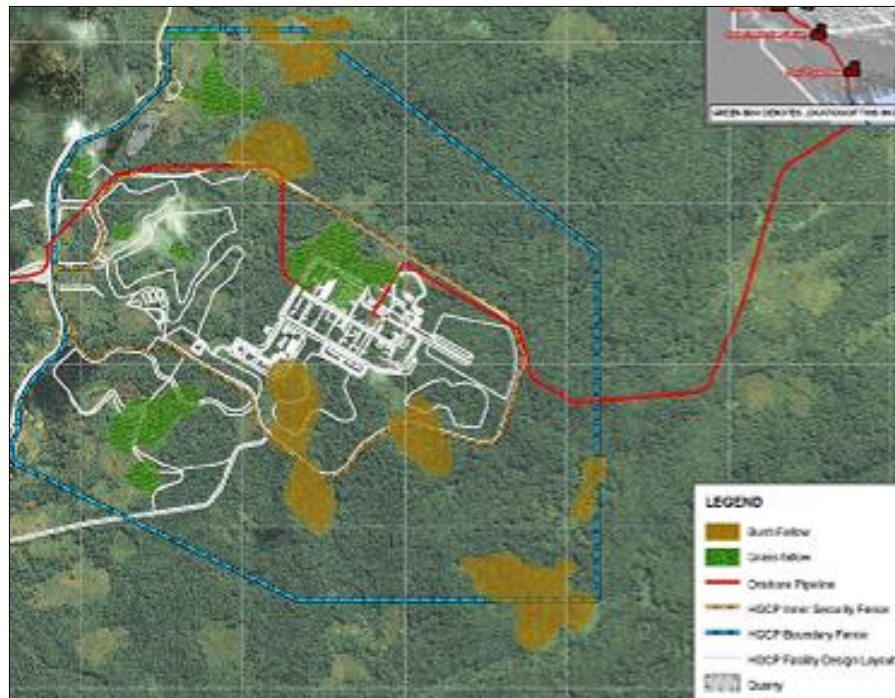


Figure 4-40: HGCP Fallow Land

Figure 4-41 shows fallow land bordering the HGCP site.



Figure 4-41: Fallow Land on Edge of HGCP Site Overlooking Tagari Valley

4.9.4.1 Resources Used

Forty-nine households (83%) use only firewood for cooking, three use firewood and kerosene and one uses firewood and gas. There is no information on the fuel uses of six households. Firewood is gathered in nearby forested land, usually a forest fallow, or from land which is being cleared for cultivation. It is common to see firewood stored beneath the floors or under the eaves of dwelling houses. Many women have expressed concern that relocation will deprive them of access to firewood from their own land.

Three households draw water from a stream and 38 (64%) from a spring; five use a spring and their own tank water and five a spring and water from a communal tank; three draw water from a stream and a spring; and there is no information on water sources for three households. The water sources for 37 households are used all year round, while for 17 the

sources dry up after a period with little rain. This is an area with no marked wet or dry seasons. For five households there is no information. For 20 households (34%) a water supply is five minutes from the house and for another 20 households it is ten minutes away; for five households it is 20 minutes away and for 11 it is more than 20 minutes away. No simple relationship exists between distance to a water source and the type of source or its permanency. Running surface water is not common in this karst landscape but numerous small springs occur in the sides of gullies and elsewhere. Water sources appear not to be owned by individual families and are accessible to all.

Forty-two households (71%) house their pigs within the HGCP site and a further eight (14%) house them inside and outside of the site. Five household have their pigs outside the site. Thus a majority of household will have to re-house their pigs elsewhere.

4.10 Cultural Heritage Sites

The research evidence indicates that the antiquity of human presence in the area may extend beyond the mid Holocene (c.5 - 6,000 years ago). Wasted blade stone artifacts (known to be present in PNG from 6,000 - 40,000 years ago) have been found on this site, including several tanged blades, grinding stones, polished axes, and chert flakes. All of this indicated to the research team the existence of a significant relict landscape. The most significant site complexes were that of Ketereanda, Mabuli³⁰ and Kaloma. The Resettlement Census and Survey Team also recorded sites of previous war drains, dancing grounds, men's houses, spirit houses, a number of ritual stones including mortar and pestles ubiquitous in the Huli region, and numerous burial sites. Most of the artifact evidence constituted surface finds - previously disturbed during garden making, and it may be that a clearance of the site will provide further in-situ stratigraphical contexts.

Cultural heritage programs and protocols of the proponent have been developed to deal with both archaeological evidence and secondary burials, and to ensure that where appropriate relocation of ritual items occurs in accordance with Huli custom. Table 4-17 depicts the type of sites typically found in the Huli region. Note that many individual sites can be classed under more than one category.

³⁰ Also recorded in Full Scale Social Mapping & Landowner Identification of PRL 12 (Goldman 2008, p.85).

Table 4-17: Summary of Huli Cultural Heritage Sites

Site group	Categories
Sacred Site	<ul style="list-style-type: none"> • Ancestral Settlement Site (<i>Gebeanda</i>) • Sacred Stone Site (<i>Liruanda/Honeanda</i>) • Spirit Sacrificial Site (<i>Damaanda/Dama Nogo Baga/Dama Ne Miaga/Ega Kamianda</i>) • Female Earth Spirit Site (<i>Dindi Ainyaanda</i>) • Spirit Ditch (<i>Dama Gana</i>) • Myth Site
Ceremonial Site	<ul style="list-style-type: none"> • Bachelor Cult Site (<i>Ibagiyaanda/Harolianda/Moreanda</i>) • Tege Pulu Performance Area (<i>Tegehamal/Guruanda</i>) • Dance Ground (<i>Malihama</i>) • Divination Site (<i>Tiariyaga</i>)
Settlement Site	<ul style="list-style-type: none"> • Men's House (<i>Balamanda</i>) • Cemetery (<i>Homali</i>) • Guardhouse (<i>Waipabeanda/Pabeanda</i>) • Ancient Ditch (<i>Bambali Gana</i>) and Walkways (<i>Bamba Hariga</i>) • Clan Boundary Ditch (<i>Kamia Kalane</i>)
Economic Site	<ul style="list-style-type: none"> • Garden Site (<i>Mabu</i>)
Archaeological Site	<ul style="list-style-type: none"> • Archaeological Site • Surface Artifacts • Artifacts held by Community Members

Figure 4-42 below shows the distribution of the cultural sites found (also see Appendix 10, Map 14).

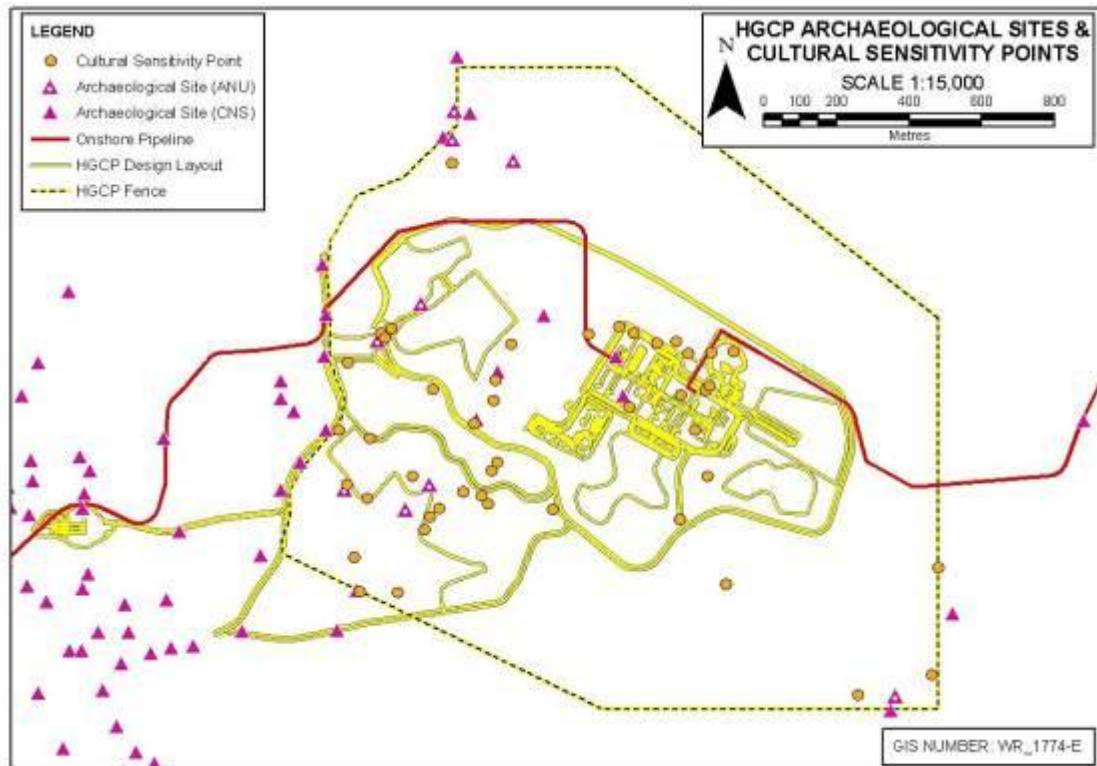


Figure 4-42: HGCP Cultural and Archaeological Sites

Archaeological finds (chert flakes, stone objects) are reported for HGCP-314 to HGCP-322 which occur along the patch of grassland on the northwestern slopes of Keteranda (see Table 4-18). Artifact finds HGCP-337a-e were made as surface scatters (chert flakes) on the southern slopes of Tilini.

Table 4-18: Description of the Cultural and Archaeological Sites from Ketereanda

Site No	Location	Description	Recommendation
HGCP-312	Ketereanda	Settlement Complex of Taguali clan.	Cultural and Archaeological Salvage required.
HGCP-315	Ketereanda	Single Find Spot of chert flake on the northern slopes of Ketereanda.	Cultural and Archaeological testing or excavation required.
HGCP-316	Ketereanda	Flakes, mortar, pestle and grinding stone founded during gardening.	Cultural and Archaeological testing or excavation required.
HGCP-317	Ketereanda	Scatter of chert flakes exposed on the barren slopes.	Cultural and Archaeological testing or excavation required.
HGCP-318	Ketereanda	Concentration of chert flakes near a house site.	Cultural and Archaeological testing or excavation required.
HGCP-319	Ketereanda	Chert flake exposed on the western slope of Ketereanda.	Cultural and Archaeological testing or excavation required.
HGCP-320	Ketereanda	Highly disturbed area (helipad clearing) where flakes were found.	Cultural and Archaeological testing or excavation required.
HGCP-321	Ketereanda	Waisted blade(also chert flakes) exposed on the northern slopes of Ketereanda.	Cultural and Archaeological testing or excavation required.
HGCP-322	Ketereanda	A scatter of flakes on the north-western slopes of Ketereanda.	Cultural and Archaeological testing or excavation required.
HGCP-323	Ketereanda	A men's house site overlooking the northern slopes (HGCP-312).	Cultural and Archaeological testing or excavation required.

The Kaloma settlement complex on the HGCP was not recorded during the initial cultural site inspection in 2008. This complex (see Table 4-19) is owned by the Tagobali clan and was marked by ethno-botanical species indicative of cultural heritage sites in the Huli region.

Table 4-19: Description of the Cultural and Archaeological Sites from Kaloma

Site Code	Site Name	Description of Site	Further Action
HGCP-313a	Kaloma	Grinding stone exposed through uprooting of tree. North slope of the Kaloma settlement Complex.	Cultural and Archaeological Salvage.
HGCP-314	Kaloma	Located to the northeast and on the slope of the Kaloma settlement complex.	Cultural and Archaeological Salvage.
HGCP-326	Kaloma	Settlement complex of the Duguba Tagobali clan, southeast of Ketereanda.	Cultural and Archaeological Salvage.
HGCP-327	Kaloma	A grinding stone, lying exposed on the footpath along the access track between Ketereanda and Kaloma.	Cultural and Archaeological Salvage.
HGCP-328	Kaloma	Ritual stone objects dug up during gardening (mortar, pestle, tanged blade and other pieces).	Cultural and Archaeological Salvage.
HGCP-329	Kaloma	A men's house site, part of this settlement complex associated with the ritual objects.	Cultural and Archaeological Salvage.
HGCP-355	Kaloma	Chert flakes and spirit worship stones (Liru, Hone) were found as surface scatters.	Cultural and Archaeological Salvage.

The Taperia-Kelapo settlement complex shows signatures of human presence over thousands of years, perhaps as early as the Holocene and/or mid-Holocene period (10,000-6,000 years ago). Much of this landscape is claimed by the Taguali clan, and the southern slopes by the Aya clan. Cultural sites include both men's house and sacred sites (see Table 4-20).

Table 4-20: Description of the Cultural and Archaeological Sites from Kelapo, Taperia and Parapore.

Site Code	Site Name	Description of Site	Further Action
HGCP-305	Kelapo	Previously recorded men's house site. Chert flakes exposed as surface scatters.	Cultural and Archaeological Salvage.
HGCP-306	Kelapo	Chert flakes scattered on disturbed ground surfaces.	Cultural and Archaeological Salvage.
HGCP-324	Kelapo	Chert flakes as surface scatters beside a family house.	Cultural and Archaeological Salvage.
HGCP-333	Kelapo	Chert flakes and tanged blade, exposed through gardening.	Cultural and Archaeological Salvage.
HGCP-334	Kelapo	Chert flakes utilized stones and a grinding stone.	Cultural and Archaeological Salvage.
HGCP-335	Kelapo	Settlement complex.	Cultural and Archaeological Salvage.
HGCP-336a	Kelapo	Settlement complex.	Cultural and Archaeological testing or excavation required.
HGCP-336b	Kelapo	Sacred sites, part of the Kelopa settlement.	Cultural and Archaeological testing or excavation required.
HGCP-330	Taperia	A dance ground enclosed by a drain network.	Consent to destroy required.
HGCP-331	Taperia	Burial sites to the north of HGCP-330.	Consent to destroy required.
HGCP-332	Taperia	Scatter of flakes on the disturbed ground surface.	Archaeological testing or excavation required.
HGCP-340	Parapore	Scatter of flakes on the disturbed ground surface.	Archaeological testing or excavation required.
HGCP-341	Parapore	A polished axe adze found in a peaty area.	Archaeological testing or excavation required.

At Mabuli most of the cultural sites are modern burials and as is evident from Table 4-21 below, more burials and ceremonial grounds were found at Parate in the north of the HGCP.

Table 4-21: Description of the Cultural and Archaeological Sites from Mabuli and Parate

Site Code	Site Name	Description of Site	Further Action
HGCP-356	Mapuli Tate-te	Burial site is located on the hilltop, surrounded by secondary forest.	Further cultural site clearance.
HGCP-357	Mapuli Tate-te	Burial site, part of a settlement complex (part of HGCP-356).	Further cultural site clearance.
HGCP-358	Mapuli	A men's house site part of a settlement complex.	Further cultural site clearance.
HGCP-359	Mapuli	A men's house site located in very thick forest.	Further cultural site clearance.
HGCP-360	Mapuli	A sacred site located in very thick forest part settlement complex.	Further cultural site clearance.
HGCP-361	Parate	Site is located on the ridge top about 12m north off the road.	Consent form to destroy required.
HGCP-362	Parate	A burial site located on a slope, skeletal remains removed for secondary burial.	Consent form to destroy required.
HGCP-363	Parate	A bachelor cult house part of clan-owned communal properties.	Consent form to destroy required.
HGCP-364	Parate	Burial site within a private land.	Consent form to destroy required.
HGCP-365	Parate	A dance ground part of a settlement complex.	Archaeological testing or excavation recommended.

On the southern slopes of the Keteranda ridge spine the cultural landscape of Tilini is found. This is a sacred site area (Damaanda HGCP-340 to HGCP-341a-e) just north of the Para school settlement. There has been significant ground disturbance already exposing chert flakes. Similarly, and located nearby, are the Togoma and Kerome complexes with sites listed in Table 4-22.

Table 4-22: Description of the Cultural and Archaeological Sites from Togoma and Kerome

Site Code	Site Name	Description of Site	Further Action
HGCP-343a	Togoma	Burial site, chert flakes as surface scatters.	Further survey and/or detailed recording required.
HGCP-343b	Togoma	Single find spot, ritual stone object.	Further survey and/or detailed recording required.
HGCP-344	Togoma	Chert flakes as surface scatters disturbed areas.	Further survey and/or detailed recording required.
HGCP-345	Kerome	Surface scatter of chert flakes on a highly disturbed area.	Further survey and/or detailed recording required.
HGCP-346	Kerome	Surface scatter of chert flakes in highly disturbed area.	Further survey and/or detailed recording required.
HGCP-347	Kerome	Surface scatter of chert flakes on a highly disturbed area.	Further survey and/or detailed recording required.
HGCP-348	Waru	Part of the Waru Settlement Complex.	Further survey and/or detailed recording required.
HGCP-349	Togoma	Surface scatter of chert flakes on a highly disturbed garden site	Further survey and/or detailed recording required

Cultural heritage programs and protocols of the proponent have been developed to deal with both archaeological evidence and secondary burials, and to ensure that where appropriate relocation of ritual items occurs in accordance with Huli custom.

The Cultural Heritage Management Plan (CHMP) notes that the Company's preferred management approach for known cultural heritage sites is avoidance. For those sites that cannot be avoided however, the appropriate management measure(s) may include sample salvage-excavation and/or salvage through surface collections.

In effect there are at least 48 known cultural sites within the HGCP boundary area likely to be impacted and which will require a dedicated archaeological team working in tandem with the National Museum representatives to ensure due respect is rendered for treatment of these.

4.11 Vulnerable Households

According to the resettlement principles defined in the RPF, people who are especially vulnerable to displacement impacts are to be identified and provided with special assistance. The RPF defined vulnerable individuals and groups to include mainly the aged, young, infirm and disabled. This should be viewed in the context of the circumstances of the surrounding communities to identify households or people: a) for whom Project impacts are more significant; b) who need assistance to relocate or take advantage of Project benefits; or c) who become vulnerable as a result of the adverse effects of resettlement.

The criteria for resettlement vulnerability must always be context and cultural sensitive. Huli culture does not follow that the eight female-headed households identified in the survey are necessarily 'vulnerable'; it was traditional for male and females to live apart and have their own houses and gardens. Sons or brothers or other close male relatives would build houses for the women. However, given the IFC criterion of "*may be limited in ability to claim or take advantage of resettlement assistance*", it is appropriate that special attention is focused on these female households to ensure they are not disadvantaged in the relocation process.

In the context of this HGCP RAP, the following incidences of vulnerability have been identified:

- Despite, as noted above, female headed households need not necessarily be considered vulnerable as they commonly have male relatives who will provide support, this group is noted as potentially vulnerable and deserving of special monitoring. In Huli men tend to monopolize decision making in the political and domestic domains, most often controlling cash income except for sums the female may earn through local market trading. The RIT works with these households to ensure that the female's input is valued as much as the male's input with respect to resettlement housing and in-kind options. Many of the females encountered are very strong and would be offended to be seen as vulnerable so the RIT has to be very careful in their consultation efforts with these stakeholders and not offend them.
- Households with aged/elderly heads of household are also treated as 'vulnerable' and may require assistance for transit or decision-making if they lack extended family support or occupy the house by themselves.
- Households who do not have alternative land within their immediate clan structure, and will thus need to move to land on which they have reduced tenure (tene) status are considered vulnerable, as they may be considered alienated from their land, and have limited rights on the land to which they will relocate. These households will be provided with additional compensation to enable them to acquire alternative land, and will be monitored closely to ensure they are not adversely affected by the move.

4.12 Resettlement Sites

At the time of writing, preliminary agreements have been reached with affected HGCP households to identify proposed relocation sites to the RAP Implementation Team (RIT). This team has just commenced visits to resettlement sites which will be recorded by GPS, and initiate delivery of rations while details of the proposed housing package are still under negotiation. The RIT are to encourage and monitor households' progress with the establishment of new gardens at the relocation sites.

The number of households to be resettled in HGCP is 59 households with some facing major disruption and relocation, while others will need to move shorter distances and will face less disruption. Currently many households live within close proximity to the main vehicle road to the west of the HGCP area and hence have the ability to access health and education services as well as markets.

People are moving to a number of locations. Some are in forested land east of HGCP; many are moving to sites close to HGCP near the current vehicle road; and some are moving up to eight km south of HGCP, but still near the existing vehicle road. The location of the new resettlement sites vary with some up to 60 minutes steady walking from the road, but groups with children or elderly people will require up to 90 minutes to the most remote sites. About 70% of the new sites are within 30 minutes walk of the vehicle road and rest are within 60 minutes of steady walking. Those people living nearer the vehicle road generally have less favorable sites for agricultural production, but better access to the road. Those living further away will have better physical environment for agriculture, but with somewhat poorer access to services and markets.

About half of the households (about 30) say that they plan to move to sites where the vegetation is tall woody re-growth (secondary forest). The rest are moving to sites with either previously unused forest (primary forest) (20 households) or previously used short grasslands (10 households).

Figure 4-43 (Appendix 10, Map 15) provides a preliminary overview of resettlement sites that have been identified by affected households, for which GPS coordinates, have been obtained by the RIT. As the process of identifying GPS coordinates for the relocation is still underway, this map only provides a partial illustration of the areas people are selecting to move to. While a large number of households have selected to relocate to alternative sites in close proximity to where they live now, mostly choosing to remain as close to the road as considered feasible, it is worth noting that some are moving significantly further. These households have chosen to move back to areas they have previously resided in due to ties with clans in these areas.

An important area worth considering that is not yet indicated on the map below, lies to the east of the HGCP site, where it is estimated approximately 20 households will relocate to. This will have significant implications on these households' access to infrastructure and services, which are predominantly located to the west of the site, along the road.

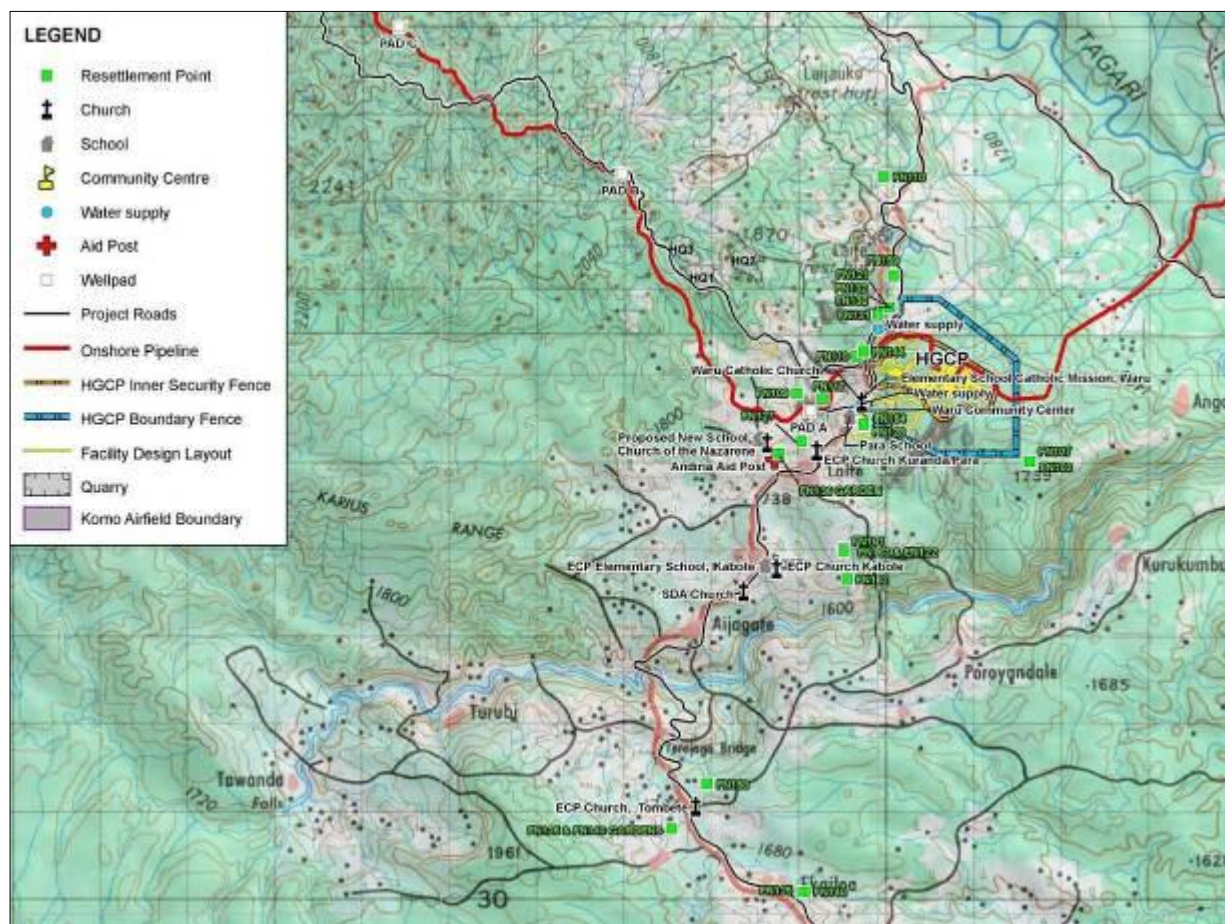


Figure 4-43: Preliminary Overview of Resettlement Sites Identified by Affected Households

4.13 Project Knowledge and Attitude to Relocation

During the initial survey, affected households were asked about their willingness to relocate outside the area. Some people were not prepared to commit themselves to a particular outcome prior to understanding the full suite of assistance measures. Of those willing to relocate, almost all expected to move no more than between 1 - 5 hours walk from their current home. Following an extended consultation process (see Chapter 5.0), the majority of affected households have identified resettlement sites, and at the time of completion of this RAP (May 2010) measures are being considered to provide special assistance to households still experiencing difficulty with this matter.

The resettlement family/house social survey (Appendix 2) recorded comments from HGCP affected resettlement landowners in response to Question 14 *'Are there any aspects of this Resettlement Action Plan that you do not agree with?'* As was the case for Komo Airstrip site, there was evident concern with: (a) the Valuer General rates and computations of compensation; (b) the provisions for housing; (c) the lack of alternative land (28.9%) and need for developer to supply this; (d) adequacy of RAP consultation and disclosure; and (e) the involuntary nature of the displacement (Figure 4-44).

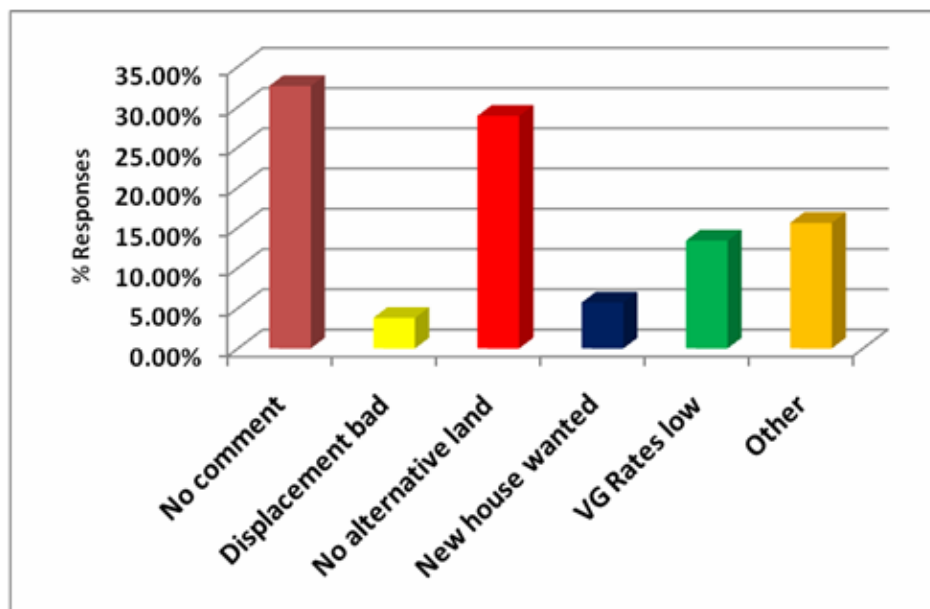


Figure 4-44: Community Expressed Concerns in HGCP

In response to the Question 15 'Are you willing to self-relocate?' Figure 4-45 illustrates that at the juncture of time the questions were posed approximately half the respondents indicated their willingness to be displaced, whilst most of the other 46% were divided between 'unsure' and 'no'. This is an encouraging response pattern because resettlement experience in that area suggests that gradually those who were previously reluctant changed their mind during the course of the program as they come to learn more about the resettlement package. This has indeed proven to be the case at HGCP, where at the time of completion of this RAP, all households have indicated willingness to move and signed the interim rations agreement according to which they have agreed to identify relocation sites. Furthermore more than 50% of households have signed the revised Resettlement Assistance Package agreement, while the consultation process with remaining households is still underway.

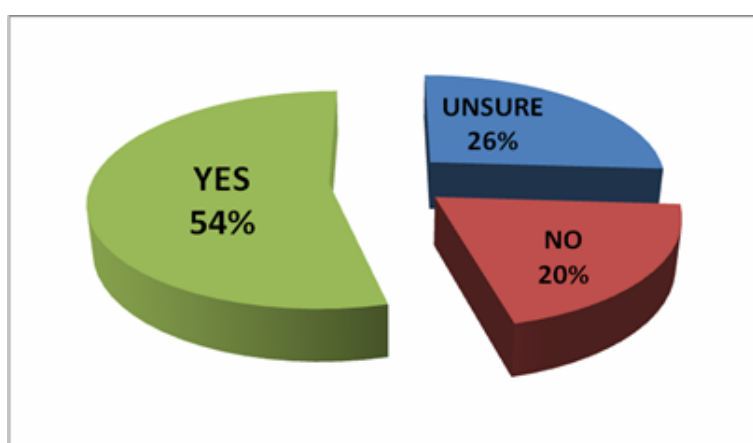


Figure 4-45: HGCP Respondents Willingness to Relocate

In response to the Question 17 'Do you think your life will be better after the relocation?' Seventy five percent of respondents were 'unsure', whilst the remaining 25% were divided between positive and negative attitudes. This diffidence and uncertainty that is registered in

the response patterns for Questions I5 & I7 is also manifested in answers to Question I8 'Do you think there will be any benefits from the relocation?' Whilst affected landowners understand the cash stream benefits and expressed hope for the possibility of new houses with power and water, the majority of respondents were unsure as to what other benefits might flow (see Figure 4-46).

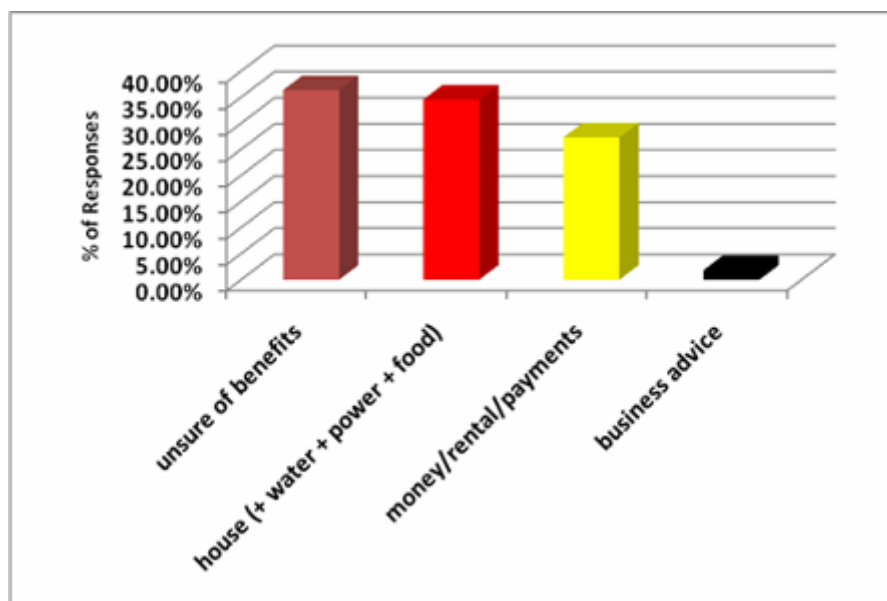


Figure 4-46: Perceived Benefits of Relocation

Of the 38 responses given as to the kinship or descent affiliation people would have in the new locations - Question I10, 'What is the relationship to this [relocation] land?' - to which they might move, 63% declared they would relocate to their 'father's' land, 29% to their 'mother's' land, and the remainder would reside uxori locally (near wife's parents). This pattern is culturally typical of the Huli where people's strongest tenurial rights will always be within their patrilineal clan territory. Walking distances to the relocation land varied between ten minutes and 5 hours.

Other issues raised by the HGCP affected landowners were captured in the open survey Question I13 'Is there anything else you would like to say?' Figure 4-47 below illustrates emphatically that the single most important concern of HGCP affected residents was that the developer should provide a replacement house (kit-house type H56/H90) for those physically displaced by the Project intervention. This issue became prominent during the initial household negotiation process aimed at finalizing the Resettlement Assistance Package (see Section 5.8) during which households did not accept the package offered by the Project, insisting on the provision of kit houses. Extensive consultation and a revision of the original package resulted in an in principle agreement on a revised package, discussed in Section 5.8 and Section 7.3. Also significant was the raised concern of prompt payment of all compensation benefits before relocation takes place.

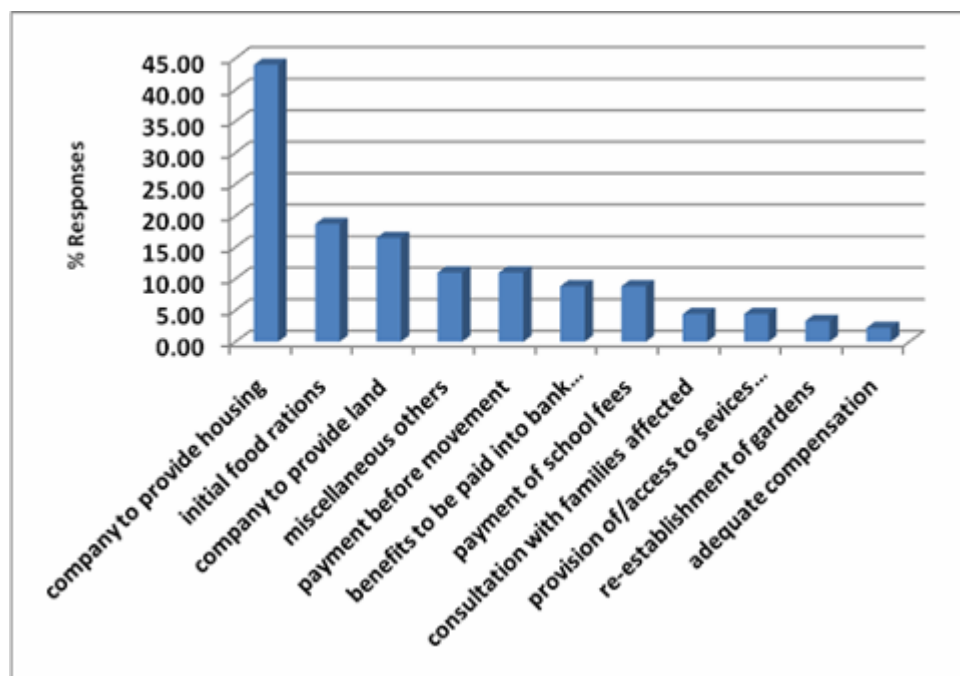


Figure 4-47: Issues Raised by Affected Landowners

The findings discussed above do not present as atypical in the general context of resettlement in the Hides-Komo region. In the initial phase of disclosure - when these concerns were recorded - landowners voice all of their anxieties which over the course of the following months become attenuated and honed as they learn more about the resettlement process and both strategize and prioritize their demands.

It is important to again indicate that these statistics reflect the responses of affected landowners at the time of the land use research. As further consultation and disclosure is effected the lessons learned from the Komo Airstrip resettlement are that households become more comfortable with the assistance package and other benefits, and more willing both to disclose the whereabouts of other houses and to relocate. In effect, the description given above of households willing to move is not a frozen landscape - it is dynamic and responsive to other resettlement inputs.

At the time of writing, the issue of replacement housing in the HGCP has been settled with the addition of a further cash sum to be used either on new housing or deposited into an interest bearing account. Negotiations are underway to resolve this issue.

Other issues that were raised by households consulted during the census included:

- Proper management of cash compensation through bank accounts;
- The availability of land for gardens, livestock and food security;
- Access to potable water and bush for the collection of firewood and other forest products;
- The need for suitable housing, including 'permanent' housing built with imported materials; and
- The involvement of Government personnel as promised in the PRL12 LBBSA.

Among those unwilling or unsure about relocation, the most commonly stated concern was a lack of land or insufficient land, on to which to relocate. Other common problems raised were the loss of access to resources enjoyed at the present location (forest products,

hunting areas, building materials, firewood, burial sites, bush foods such as mushrooms, and so on). Other persons said they need to know whether a house would be built for them before they can agree to move. The possible lack of services including roads, health institutions and schools in the relocation area, the risk of malaria and the lack of employment opportunities were other concerns that were raised.

Table 5 in Appendix 3 provides a summary of HGCP families' willingness to relocate at the time of the initial census, indicating their proposed destinations for relocation as well as concerns families have about the move at the time of the census in mid-2009.

5.0 CONSULTATION AND DISCLOSURE FOR THE HGCP RAP

5.1 Overview of Consultation and Disclosure

According to the RPF, the laws of PNG require consultation with people affected by projects. National Goal 2(9) of the PNG Constitution calls for every citizen to be able to participate, either directly or through a representative, in the consideration of any matter affecting an individual's interests or the interests of his or her community. Supporting this goal, the Company policy and IFC Performance Standard 5 require *"free, prior, informed consultation with communities that will be affected by a project."*

This process includes identification of stakeholders, dissemination of information, training and support for representative community groups, and formal and informal consultation with stakeholders.

This chapter outlines the consultation and disclosure activities undertaken for the preparation of the HGCP RAP. The Project L&CA function, together with a specialist RAP Implementation Team conducted consultation from 12 May 2009. Details on the principles, approaches, purpose of consultation, are further detailed in the Resettlement Policy Framework (RPF).

The consultation process undertaken is summarized below:

- Preliminary visit to households in the area to announce that a public meeting would be held to discuss the RAP;
- On 12th May 2009, the initial public meeting was held in the HGCP area to inform stakeholders about the Project need for the RAP, raise awareness and begin identifying issues;
- Between July and August 2009 a comprehensive household survey was undertaken in the HGCP area, including:
- A land use, asset register and household census study was conducted to identify affected landowners; and
- An agricultural and land use survey of affected households to measure garden sizes and identify potentially affected crops, as well as natural resources that would be lost to the proposed development;
- Between December 2009 and February 2010, individual meetings were held with each of the identified 59 households to be displaced to discuss the proposed support packages in detail. Extensive consultation, involving several meetings with most households, was undertaken from December 2009 to April 2010;
- Following the refusal by all households to accept the initial package as offered during this extensive period of consultation, the proposed package was revised. This revision occurred through detailed consultation with an advisory committee of key community representatives. An In Principle Agreement with the committee on the revised package was signed in April 2010;
- A further process of consultation and negotiation with individual households is currently underway to sign individual household agreements relating to the revised Resettlement Assistance Package. This includes both the housing package as agreed to with the HGCP advisory committee, and the agricultural improvements packages calculated for each household based on recorded assets, including crops and other improvements;

- Future consultation will be undertaken through a combination of community and household meetings to cover a range of planning and implementation issues; and
- In addition to consultation activities undertaken by the RAP Implementation Team (RIT), the Environmental Law Centre (ELC) was also involved in consultation activities. ELC accompanies the RIT members during group and household consultation sessions in order to provide legal advice to households as well as to the RIT.

In summary, numerous interactions have been held with HGCP households and adjoining communities, as presented in Table 5-1. This resulted in households becoming well informed about the process and their rights. Details are included in Appendix 5.

Table 5-1: Summary of HGCP Consultation Interactions for Affected Households and Communities

Consultation Type	Date	Number of Meetings	Number of Attendees per meeting
Public Disclosure Events	12 May 2009	2	150
	17 Dec 2009		167
Health Survey	July-Aug 2009	59	
Agricultural Survey	July-Aug 2009	59	
Resettlement Survey	July-Aug 2009	59	
Household Consultation – Disclosure & Preliminary Negotiations	Dec 2009 –Feb 2010	75	
Rations Agreement	6 March 2010	1	128
	March 2010	4	Household Heads
	9-15 March 2010	59	Households
Signing of Household Compensation Agreement	April 2010	59	

5.2 How Stakeholders were Identified for the HGCP RAP

In July-August 2009 the Company undertook a land use, asset register and household census study for the HGCP site. This work, undertaken by a team from the Australian National University Enterprise (ANUE), was commissioned to fulfill three objectives:

- To identify the owners of the land within the HGCP site. The land is not to be acquired but is to be leased from its owners for the life of the Project;
- To establish the socio-economic status of the families that will be relocated so as to provide a baseline against which to measure the longer-term impact on their livelihoods; and
- To provide information to enable calculation of the compensation payable to families for the loss of houses, crops, economically valuable trees and capital improvements such as garden drainage ditches and fences.

5.3 Consultation and Disclosure Methods Used

Verbal information (during community meetings and household meetings) on the proposed HGCP location was supported by various materials, provided as appropriate to the stage of

the process. The written material is avidly read by the literate Huli generally those who have been through, or presently attend school, (teachers, pastors and others) who read portions of the documents to the non-literate members of the community. Information provided includes:

- The Resettlement Information Booklet for the Project (written in English, Huli and Pidgin);
- The Resettlement Information Booklet for the HGCP Resettlement Action Plan (written in English, Huli and Pidgin);
- Flipcharts and A0 vinyl sheets to support verbal presentations during the public meetings;
- About 200 A4 double-sided paper information flyers that summarized a larger PowerPoint slide presentation (presented on vinyl A0 flipcharts). The flyers were printed in the three languages used in the area, English, Pidgin and Huli and distributed to attendees at the first community meeting (12th May 2009). A sufficient number of were made available for distribution to those unable to attend;
- A one page summary of the census/survey data for each household, reviewed with them before the commencement of the individual household meetings;
- A handout (Appendix 6) of the original draft Resettlement Assistance Package proposed by the Company, presented in both graphic and verbal format, for the information and consideration of household members during and after the individual meetings;
- A summary version of the draft Resettlement Policy Framework and draft HGCP RAP were distributed to Project-affected landowners;
- A revised summary paper of the completed RAP (in English, Pidgin and Huli) was provided to landowners in the HGCP area; and
- A full version of the completed RPF has been disclosed widely throughout the Project area through the same points as the Project EIS. In the HGCP area this will include public places such as local schools.

5.4 Role of the Local Advocate

The Environmental Law Centre (ELC) plays a monitoring and review role as an impartial observer. Representatives of the have attended the HGCP consultation and disclosure sessions and continue to monitor resettlement activities in the area. Actions have included attendance at both public meetings and individual house negotiations. Feedback and clarification were given to the household members on issues where there was evident confusion about either the role of the PNG Government or the Company's resettlement process.

Following this, they presented the Project with a written report providing information on activities undertaken (summary table of interviews held, issues and principal concerns raised, responses given, and further action required). The report includes an assessment of the issues influencing the achievement of the objectives set for the role of Local Advocate. The report also included suggestions/recommendations aimed at supporting the effectiveness of the role.

5.5 How Stakeholders' Issues and Concerns were Elicited

During the land use, assets register and household census study, information was disclosed to landowners about the compensation process, and issues raised by landowners were recorded. Responses to issues raised were provided at subsequent meetings.

5.6 Consultation and Disclosure Events

A key method for consultation and disclosure during the HGCP RAP was a series of resettlement consultation and disclosure meetings with the community. These are briefly summarized below:

5.6.1 First Consultation and Disclosure Community Meeting

The initial resettlement consultation and disclosure public meeting in HGCP on 12th May 2009 served to:

- Raise awareness of the RAP process for people who may be displaced physically or economically;
- Improve awareness of the levels of resettlement support and service provision available, and likely to be viable and sustainable, within the regional environment;
- Answer questions relating to the resettlement process;
- Undertake a preliminary identification of community needs, concerns, expectations and priorities in relation to resettlement; and
- Pave the way for the Land Use, Asset Register and Household Socio-economic Census Study to follow in July.

Attendance at this community meeting is summarized in Table 5-2. Attendance was lower than expected as a number of community leaders and representatives were attending Benefit Sharing Agreement (BSA) meetings in New Britain Province at the time.

Table 5-2: Road-show Attendees

Number of Attendees			
Male	Female	Children	Total
82	10	58	150

5.6.1.1 Awareness of the Proposed HGCP Development

The HGCP households were consulted to establish their awareness and understanding of the RAP Consultation Process, following the first community meeting.

The results of these questions are summarized in Table 5-3.

Table 5-3: Awareness of the RAP Consultation Process

Question No.	Question posed	Yes	No	Unsure	No response
I1	Did you attend the road-show presentations of the RAP?	52	4	0	3
I2	Do you think you understand the Resettlement Action Plan?	28	6	18	
I3	Would you like the Project to explain the Resettlement Action Plan to you again?	52	3		

When asked if there are any specific aspects of the resettlement plan that they disagreed with (Question I5) 34% of respondents expressed the view that they still did not understand the resettlement process; 23% said they had no other land and that the developer should purchase land for them; 13% of those interviewed said they were unhappy with the rate of remuneration. At the time of writing, all households have identified alternative land to which to relocate, and the RIT are in the process of obtaining GPS coordinates for this land.

In response to Question I6 - *What problems do you think the relocation will present to you and your family?* - 45% of respondents noted potential loss of resources (house/land/gardens/income), 28% shortages of food, water and materials, and 27% expressed concerns about the time and resources available to rebuild their houses themselves. The vast majority (76%) of affected residents were unsure whether their life would be better or worse after resettlement. Notwithstanding this uncertainty, at least a third of respondents were aware of the potential benefits of resettlement in respect to cash incomes (e.g., rental, damage compensation) and business advice.

5.6.2 Second Information and Disclosure Community Meeting

A second resettlement information disclosure meeting was held on 17 December 2009 in preparation for the negotiation of the Resettlement Assistance Package.

The purpose of the second community meeting was to:

- Present the results from the ANUE census and survey, advising the affected people of the cut-off date for resettlement baseline conditions (16 July 2009);
- Present, and provide copies of, the Resettlement Information Booklet for the Project and the Resettlement Information Booklet for the HGCP Resettlement Action Plan (written in English, Huli and Pidgin);
- Outline in general the future Resettlement Process as it will apply to HGCP area landowners;
- Outline the general elements of proposed support packages for each household ; and
- Introduce the Environmental Law Centre (ELC) and explain their role in assisting landowners who will be required to resettle.

The community meeting also sought to ensure that households affected by resettlement, and who were absent from the first Consultation Round held on the 12th May 2009 received sufficient information disclosure prior to commencement of further RAP activities. As explained above, where a household head is absent, the RIT make every effort to locate them and engage. Where absentees cannot be located, because they are in other provinces or at an unknown destination, their land and asset interests are recorded for compensation purposes.

Attendance at this community meeting is summarized in Table 5-4.

Table 5-4: Disclosure Meeting Attendees

Number of Attendees			
Male	Female	Children	Total
113	29	25	167

5.6.3 Consultation with Households about the Resettlement Assistance Package

Immediately following the second community meeting, consultation began with the 59 households that were identified as having to be resettled from the HGCP site. Household meetings were conducted during December 2009 and January 2010 with the intention to finalize the proposed Resettlement Assistance Package and to obtain sign-off. The ELC was in attendance in their role as Local Advocate.

Each consultation was conducted as a meeting between all available members of each household and a three-member consultation team (which included a member of the RIT, an interpreter and a representative of L&CA). Three consultation teams were fielded, enabling concurrent meetings to be conducted.

Each household meeting was conducted in accordance with the following steps:

- The consultation team reviewed the one-page summary of the census/survey data for the relevant household before commencement of the meeting; and
- The draft Resettlement Assistance Package being proposed by the Company was explained to each household. This included an explanation of the process for calculating and paying improvements compensation. At this time, each household was provided with a handout (Appendix 6) for their information and consideration during and after the meeting. This handout outlines the options available under the Resettlement Assistance Package. Each household was asked to consider the information presented and requested to meet again two days later for further discussions on the draft package.

Two representatives from the ELC acted as observers of the meetings, rotating between meetings and providing assistance and advice pertaining to legal issues related to resettlement and compensation.

5.7 Issues Raised by HGCP Stakeholders

This section provides a summary of stakeholder issues regarding HGCP resettlement. The section begins with an overview of general issues that have been raised by stakeholders in the wider Hides-Komo catchment area about the proposed LNG development. This is followed by a summary of issues raised during the first and second public meetings pertaining to the HGCP resettlement process. Finally, issues raised by HGCP affected households during household meetings are outlined.

5.7.1 Regional Stakeholder Issues

A number of ongoing issues within the wider Hides-Komo catchment area have the potential to impact directly on the progress of the resettlement plans and initiatives in the HGCP area:

- Landowner Associations from Hides PDL-7 had previously issued a public ultimatum to the DPE to recompense them for past MOA failures, and to provide K100m for relocation. This followed widespread publication of claims that DPE had misappropriated K160m of landowner funds and had channeled much of this to individual leaders of Landowner Companies and Landowner Associations in the Hides area. The PDL-7 community feel there has been both a lack of accountability associated with, and tangible results from, the distribution of these monies for social development projects;
- Whilst the LBBSA process is completed it spawned a number of landowner challenges in the immediate period following the meetings. It is clear that small interest groups may continue to pursue their objectives in a drawn-out and litigious manner, perhaps citing their non-attendance at the LBBSA as a rationale not to abide by that umbrella agreement;
- At present the umbrella landowner company Hides Gas Development Corporation (HGDC), which subsumes many of the pre-existing Lancos in the Hides-Komo region, is experiencing some teething problems with contracts and this is exacerbating tensions in the area. There are many start-up Lancos who wish to act independently of HGDC and others such as the KTDC (Komo Tuguba Development Corporation) Lanco in Komo which are experiencing cash flow problems. It would not be surprising for landowners to leverage their cooperation with the resettlement program against resolution of these business development issues. Equally, dissension within HGDC has the potential to cause splintering of the umbrella organization;

- There is no operational bank in the region. Landowners who receive cash either have to travel to Moro, Mendi or Port Moresby. With the quantum of compensation to be paid this could present problems both to the entitled recipients and logistically to the resettlement implementation agency. Delays in such payments can frustrate entitled landowners;
- There is also widespread concern that with the multiple areas subject to resettlement, and the known packages which contain a cash component, this will accelerate in-migration impacts on social order. The fear is that cashed-up landowners become a target for 'raskol' gangs, and that relatives take the opportunity to either prevail on them for hospitality, or seek early payment of debts and/or new lines of credit; and
- Contractors who utilize Nationals from other areas of PNG may become targets of criticism from local employment aspirants who feel that jobs must first be given and available to residents within the HGDC impact area.

While the issues noted above do not pertain directly to the HGCP resettlement process, they indicate a background of unresolved discontent and antipathy to government which impacts on the resettlement program.

Those identified issues/risks which directly and uniquely concern the Government interface with landowners (e.g. UBSA, LBSA, seed business funding) are not areas where the Project directly engages other than to inform the Government when unresolved issues are (or likely to) impact Project execution.

In respect to other issues which directly relate to Project programs or initiatives, the Project has engaged in the following ways:

- Progressed the establishment of HGDC and working to ensure a firm business model is in place;
- Continued to work closely with Lancos to explain employee hiring policies;
- Engagement with Bank of South Pacific (BSP) to establish a banking facility; and
- Provided support for the Government policing efforts in the Project area.

With specific respect to the HGCP environs, the following issues were identified at the time of writing and had been voiced both to the RIT and the ANUE research team during their community engagements.

Claims that Government made certain promises during the Umbrella Benefits Sharing Agreement (UBSA) and LBBSA continue to hamper negotiations at HGCP. These include:

- There appears to be some expectation that the Company will construct houses made from 'permanent' materials. The expectations are of a house (H65 or H90) similar to that provided by PNG Forest Product's kit houses. The HGCP residents claim this is the promise made to them by the Southern Highlands Provincial Governor at the LBBSA; and
- Claims that the Government at the LBBSA also promised the people water and electricity.

The following sections look at some specific issues raised by affected stakeholders during community meetings and household consultation meetings.

5.7.2 HGCP Stakeholder Issues – First Public Meeting

Feedback from those local community members who attended the initial public disclosure of the resettlement program on 12th May 2009 on the HGCP site highlighted the following issues:

- Valuer General rates of compensation are inadequate and inequitable;
- The nature and frequency of rental payments;
- Concerns around provisions for replacement land and housing;
- Land availability and assistance with subsistence livelihoods;
- In-migration and 'law and order' impacts;
- Destruction of the environment and loss of natural hunting opportunities;
- Support for residents and their school fee obligations;
- Queries around what the Resettlement Assistance Package would entail; and
- Fear of food shortages as it would take time to replant subsistence gardens.

These issues are well known to the Hides L&CA team as a result of ongoing landowner liaison. Although several community members voiced a concern that they had no other land areas on which to relocate, it was difficult to gauge whether these claims were accurate or part of a concerted effort to obtain further resettlement benefits. The Project is working closely with the impacted communities through the L&CA team and the independent research teams to establish the extent and credibility of such claims. At the time of writing, 46 HGCP resettlers had identified resettlement sites with the RIT recording GPS co-ordinates for these sites.

In the Huli cultural context the Project cannot implement a 'land for land' policy because the Project cannot provide security of tenure. The expert advice given by the land research teams and consultant anthropologist is that most Huli have alternative locations to which they can relocate and thus the risks of moving to new sites are limited and adverse 'host' community reception or impact are not relevant considerations or concerns. The team has undertaken detailed consultation in cases where resettlers have reported difficulty in accessing land. As noted above the large majority of HGCP resettler households have now identified a resettlement site.

5.7.3 HGCP Stakeholder Issues – Second Public Meeting

The issues raised at the second public consultation meeting on 17th December 2009 included the following:

- Concern over the type of replacement house to be provided, indicating that only permanent housing of the H65 or H90 type would be acceptable;
- Need for Government presence during resettlement to deal with community issues about land and environment - in particular Lands, Department of Environment & Conservation, and a Provincial Government representative;
- Discrepancies in the survey results require amendments;
- Lack of alternative land for relocation;
- Claims that the Resettlement Census and Survey Team had instructed affected households to stop all construction and gardening activities following the initial cut-off date after the survey, resulting in current problems with subsistence as food is no longer produced;
- Concern over loss of natural resources used for building, grazing and subsistence;

- Concern over loss of environmental resources and hunting opportunities;
- Concern over access to services after relocation; and
- Request that 40% of affected persons have employment with the Company.

5.7.4 HGCP Stakeholder Issues - Household Meetings

In addition to public consultation meetings, various issues were identified during household consultation, as well as encounters with landowners during field visits. Such issues related predominantly to housing, availability of land, structure of the compensation package proposed, provision of rations, findings of the census survey, communication and information about the Project, future sustainability (particularly considering children's futures) in the face of land losses, payment of land rental, and concern over lack of social support if moving far away from current friends and neighbors. Some of the key issues in this regard can be summarized as follows:

- Housing:
 - Emphasis on the demand for H65/H90 houses which landowners claim was promised during the Kokopo agreement under the UBSA signed in May 2009;
 - General dissatisfaction with housing options proposed in the relocation package presented; and
 - Concern that the proposed package, which is allocated by household, will not be sufficient for larger households. Note that the package does not distinguish between household size, or the number of structures to be compensated for. Larger households, particularly those accommodating extended families with separate structures for different wives, are thus discriminated against as compensation does not allow replicating their current living conditions to the extent it does smaller households with only one structure to replace;
- Lack of land in appropriate clans:
 - No other land to move to as most/all potentially accessible land is within the affected area around the HGCP site or, for some, along the Heavy Haul Road or other Project affected areas;
 - Almost all available land belonging to the Taguali clan is within the Project Impacted Area (HGCP/Heavy Haul Road/Pipeline/Landfill/existing Wellhead) - this makes it very difficult to find alternative sites to move to with similar tene status (tenure rights);
 - Concerns regarding livestock (particularly pig) husbandry in new areas with different clan allegiance; and
 - Note that the HGCP area has been considered a 'safe-haven' during tribal warfare, and moving away from this area could pose security risks. There was a request for the Project to ensure sufficient provision for security of households in new locations;
- Compensation:
 - Queries regarding compensation for improvement to land;
 - Concern over compensation to be paid into bank accounts, noting that there is no local bank in the area, and that travelling to banks in Tari presents significant security risks along the highway;
 - Request for cash payments of compensation, rather than deposits into bank accounts (see above) or in-kind options;

- Concern that in-kind compensation in the form of tools and equipment would be of sub-standard quality, and consequent request for cash payments to procure such equipment; and
- Concern that the transport allowance of K1,000 per household is not sufficient. Claims that actual costs for transit could amount to K1,500 for one trip, and that in some cases two to three trips may be required to transport all of a household's belongings to the new site;
- Rations:
 - Claim that Resettlement Census and Survey Team instructed affected households to stop planting after the cut-off date in July 2009 as relocation would occur in September 2009. In April 2010 they had no food and demanded that rations be provided;
 - Concerns that six months' rations would not be sufficient to re-establish gardens - general opinion is that such rations would be required for up to 18 months; and
 - Request that those only losing gardens (hence source of subsistence) should also receive rations until their gardens are re-established;
- Survey findings:
 - Concerns about structures/gardens not included in the initial survey; and
 - Concerns that information recorded in survey reflects incorrect ownership status of certain structures/gardens;
- Information and communication:
 - Requests for more detailed information as to the boundary of the HGCP site and buffer zone; and
 - Request from landowners to communicate directly with the Company representatives and government officials to state their concerns;
- Future sustainability:
 - Concerns that bush materials used to build housing come from land that will be taken by the Project, and thus less available for construction of new houses outside the Project area; and
 - Numerous concerns raised over the future of children in new areas;
- Land rental:
 - Numerous requests that land rental for areas occupied by structures and gardens should be paid to landowners, while the clan should only receive rental payments for communal areas. This is noted to be in line with Huli customs;
- Social support:
 - Concerned about moving far away from everyone else/current neighbors, consequently lacking social support networks; and
- Employment:
 - Numerous requests for preferential recruitment of affected households for job opportunities related to the Project.

5.8 Finalization of the Resettlement Assistance Package

Finalization of the Resettlement Assistance Package was complicated by the refusal by HGCP households to accept the initial package proposed. This resulted in a lengthy period of negotiations during the first quarter of 2010. During March 2010, an initial Rations Agreement was signed to allow preliminary access and identification of relocation sites by

households. This was shortly followed by an agreement on the proposed package, signed on 30 March 2010.

5.8.1 Interim Agreement

Following an extended consultation period during which numerous meetings were held with affected households as well as influential community leaders amongst these households, an interim agreement has been signed whereby affected households have agreed to identify replacement sites and establish new gardens, as well as permitting drilling and minor earthworks to commence at the HGCP site, while the housing package is being negotiated.

Table 5-5 below provides a summary of the consultation process leading up to the signing of the HGCP Interim Rations agreement.

Table 5-5: Meetings and Preparation for the HGCP Interim Agreement

Date	Met With	Purpose/Outcome
28 Feb 2010		Rations approved for HGCP people by the Company.
1 March 2010	Met with key HGCP representatives.	Discuss priority areas for resettlement.
2 March 2010		Inform lenders of the news on rations. Listed priorities.
3 March 2010	Meeting with HGCP leadership at Nogoli.	Noted change in mood. Set up meeting for all affected HGCP people for Saturday 6.3.2010.
4 March 2010	Priority households Key HGCP Representative	In the Field. Visited all the priority households. Liaised with ANUE team and L&CA. Met with key HGCP Representative who will have private talks with clansmen. Received the compensation (improvements) printouts from ANUE, also better maps than before.
5 March 2010		Approval sought and granted to use the draft Agreement document. Printed Agreement Documents.
6 March 2010	Full-scale meeting of the entire HGCP group. Key HGCP Representative and other leaders.	The leadership addressed the meeting. The early work paid off and the decision was made by the whole group that they would accept the conditions and sign the Agreements when they are visited as individual families. Met with key HGCP Representative and others regarding protocols to be observed when consultations begin.
7 March 2010		Rations accuracy checked against similar sized families at Komo.
8 March 2010		Checked profiles all through as three are to be legitimately excluded. Twenty five Agreements printed and checked.
9 and 10 March 2010	HGCP households	Field testing revealed that the housing references were confusing to the people. The Agreements were modified (after approval) so that housing references are removed and will go into the Housing part of the Agreement when it happens. Printed the modified p3 and re collated etc.
11 March – 13 March 2010	HGCP households	Agreements signed in the field.

Date	Met With	Purpose/Outcome
15 March 2010 - ongoing	HGCP households	Follow up with each HGCP family to locate, visit, and identify GPS coordinates at the sites of new food gardens and new house-sites.
30 March 2010	L&CA HGCP committee	L&CA obtain a signed MOU from this representative committee on acceptance of K51,000 resettlement assistance package.

5.8.2 Final Agreement

Final agreement on the Resettlement Assistance Package for HGCP was negotiated with an advisory committee of HGCP resettlers. This was followed with another round of meetings with individual households to obtain their agreement to the revised package.

The HGCP committee present at the signing of the Resettlement Assistance Package Agreement on 8 May 2010 was comprised of 11 members of the community, representing various clans, as illustrated in Table 5-6. Minutes of this meeting are included in Appendix 7.

Table 5-6: Representatives Present at Signing of Resettlement Assistance Package Agreement

HGCP LO Committee	L&CA	ELC	RIT
11	3	3	4

Negotiation around the proposed Resettlement Assistance Package continued after the interim agreement was signed, as the proposed housing packaged was still under contention. On 30 March 2010 an agreement was reached between the L&CA and the HGCP committee. This culminated in the signing of a MOU by the HGCP committee for a total resettlement assistance package of K51,000 for each household on 8 April 2010. A copy of the agreement signed is included in Appendix 8.

In summary: a total allowance of K51,000 will be provided for resettlement assistance for each household. The household can receive this as follows:

- **Component (1):** A sum of K10,000 in cash or which can be used for building materials or put into an interest bearing deposit account (IBD).
- **Component (2):** A sum of K1,000 which can be put into an IBD for a minimum term of six months or longer at the discretion of the recipient.
- **Component (3):** A sum of K30,000 for building materials (roofing iron, timber, gutters, water tanks), household items (lamps, bedding, cooking utensils etc), for the hire of a carpenter, household items, or payment into an IBD.
- **Component (4):** For households with multiple wives and houses an additional sum of K10,000 will be provided to the wife of the household, upon completion of her house.
- **Component (5):** Trees from the HGCP site will be stockpiled and sawn up to provide timber for house construction, and will be supplied to each household as building materials. The balance of sawn timber will be donated to community programs.

The Committee raised the following two key issues during the meetings:

- Separate packages were requested for each of a man's wives who lived in their own houses; and
- Some HGCP residents felt it was grossly unfair that some households outside the area should get the same as households within the HGCP, since the former were only losing land/garden.

The first issue was resolved with the inclusion of an amount of K10,000 per wife in the resettlement assistance package. The second issue was addressed through a detailed explanation and review of the eligibility of all HGCP resettlement households by the RIT.

At the time of writing, the RIT have signed 33 HGCP relocation agreements. Strategic decisions were made resulting from revisions of the resettlement assistance package, as shown in Figure 5-1. This figure also illustrates differing priority levels for resettlement, based on construction schedules, with households located in areas to be occupied by the contractors' camp being of highest priority. From this figure it can be seen that all but one of the 11 high priority households have signed the agreement.

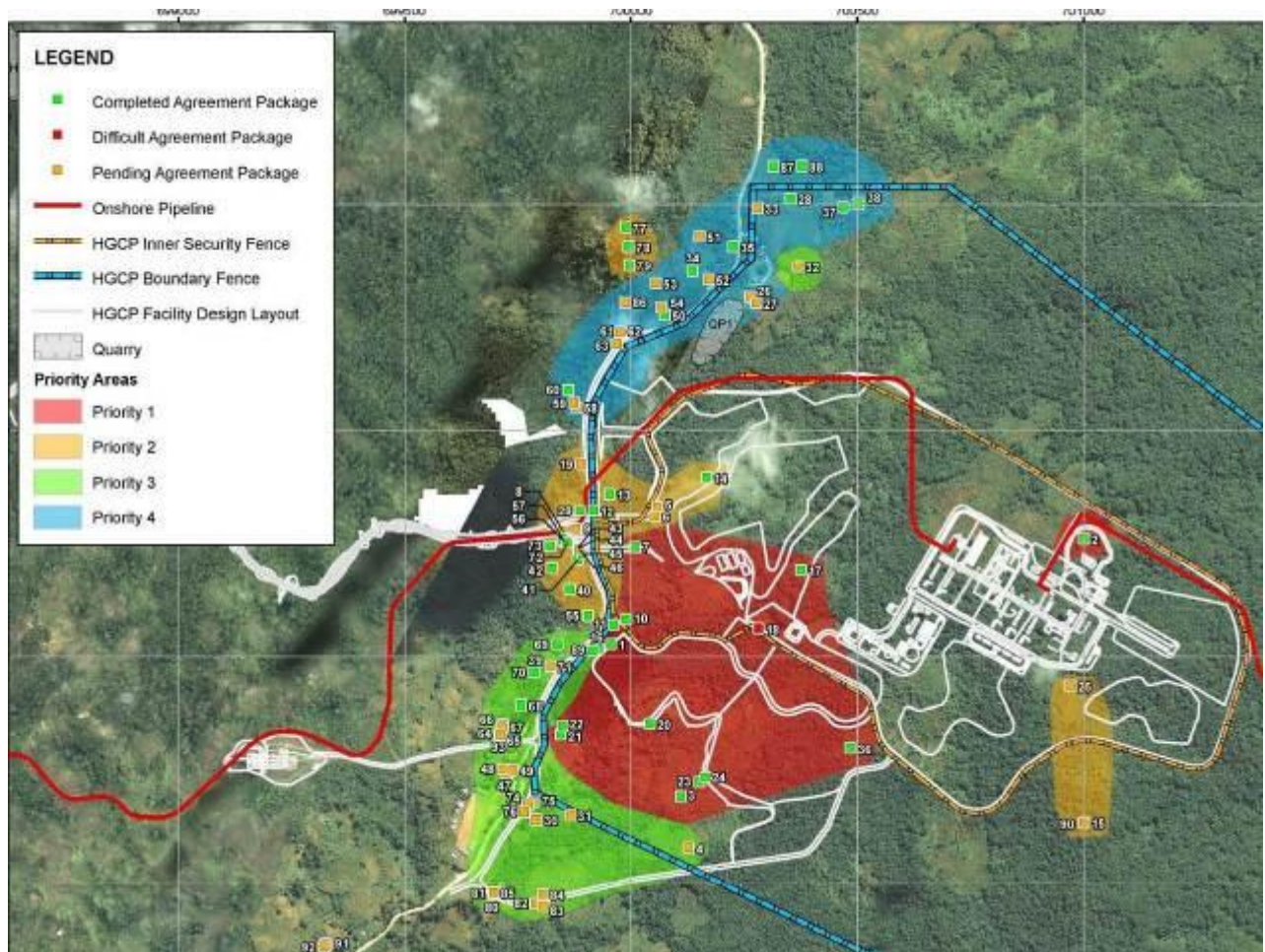


Figure 5-1: HGCP Resettlement Assistance Package Agreements and Resettlement Priority

5.9 ELC Consultation Summary

The ELC's involvement in the public engagement process is a multi-task one with the following components:

- Monitor the public consultation activities of the RAP Implementation Team by maintaining an ongoing presence in the field;
- Provide independent advice to affected landowners regarding the existing PNG national legislation on resettlement and compensation, and to explain the rights and recourse options open to landowners;
- To explain the Project RAPs and to listen and record any issues or problem; and

- To report back to the RIT findings and recommendations.

ELC conduct this work by accompanying RIT members during community and household meetings, undertaking independent field trips and consultations, and providing advice on legal issues as and when these arise. For both the Komo and HGCP resettlement catchments ELC representatives met with each of the affected households, often on more than one occasion in cases where particular issues required follow-up consultation.

With the particular expertise of ELC members, advice is provided to household members regarding the most appropriate ways to address issues arising with regard to compensation disputes and grievances. ELC have kept a log record of grievances that remain unresolved following the consultation process, which is submitted to the RIT and management for further consideration.

Some of the key issues that have been identified by the ELC team related to matters pertaining to cultural considerations, disputes regarding census findings, and the availability of appropriate land for resettlement. A summary of the types of issues encountered is shown in Table 5-7 below, noting recommendations made by the ELC, Project response to these issues, as well as the outcome.

Table 5-7: Issues Raised During ELC Consultation Process

Issue type	Issue	ELC Recommendation	Project Response	Outcome
Alienation from land and clan	<p>Twenty three households in HGCP feel that they will be completely alienated, as they will move to land that is not theirs. They perceive that they may miss out on spin off benefits and other business opportunities.</p> <p>Further they raised the concern that those alienated' have lost ownership of their land, an entity that identifies them and gives value to them, without their land they are valueless.</p>	<p>L&CA officers will be briefed to look into this issue. Further an L&CA Business Development Officer should attend and brief the team on business development programs and particularly attend a focused meeting with the RIT and L&CA, and on such households anticipating alienation.</p> <p>ELC advised that as per the Constitution, the State has acquired the land and is subjected to justly compensate the customary landowners. ELC noted that land is important. Resolution is at the discretion of the Company as they are not legally required to give another package but the matter is considered to be a grievance.</p> <p>In general, the Company is advised to implement the PNG Government's land reforms in the Project area where possible or show its sensitivity to the Government's land reform Policy.</p>	<p>RIT members have considered the matter, and remain confident that appropriate alternative land is available for all affected households.</p> <p>In cases where there is economic disadvantage or real landless cases, they are treated in accordance with IFC Guidance N2 PS5 – as 'vulnerable' and given extra compensation to allow rental of gardens'</p>	

Issue type	Issue	ELC Recommendation	Project Response	Outcome
Land Rentals	Numerous requests were made to have land rentals to be paid to individuals, and not to clans, as the subsequent distribution of such money is often not considered fair by landowners affected.	<p>ELC has recommended that such payment of land rental money to individual households should be considered by the Project.</p> <p>L&CA are advised to pay annual land rentals to individual landowners, and not to clans as previous experience with Oil Search paying to clans has only seen certain individuals benefiting and others miss out. However small the amount may be, since everyone has IBDs as a consequence of signing up to the housing package, and eventually passbook accounts, ELC recommends that land rentals be deposited into individual accounts.</p> <p>If the people who are on the land are not deprived of their land and need to be compensated, then it is recommended that the Company make a recommendation to the State on how the land rental coming from the Company should be paid and monitored to ensure that people are actually benefiting.</p>	This has been accommodated in the environmental damage and rental payments where feasible.	.
Access to infrastructure	The issue of access to social infrastructure, such as schools and churches, was raised by resettlers, some of whom will relocate to new sites a considerable distance away from these facilities.	This concern was noted and submitted to management, with the recommendation that alternative access routes be considered.	An access track around the HGCP site, as well as possible footpaths to facilitate easier access to facilities will be provided.	Alternative access routes are being evaluated and discussed with the community to obtain agreement on the best alternatives.

Issue type	Issue	ELC Recommendation	Project Response	Outcome
Rations	Numerous households raised concern over delays in rations delivery.	ELC recommends that such delays be addressed and rations be delivered as well as transit allowances paid as a matter of urgency, as it impacts on trust and goodwill with affected households.	The RIT are working on prompt resolution of issues pertaining to delays in rations delivery.	An alternative ration delivery system is to be discussed with the community whereby community leaders will assist in the distribution process.
Rations	A number of households raised concerns that the rations supplied to them are not sufficient for their household needs.	ELC representatives investigated such cases, noting that in many cases the numbers of household members now claimed to rely on the rations being delivered have increased from those recorded in the census. Recommendations regarding the appropriate numbers of people to provide for are made on a case-by-case basis.	Reports from the livelihoods specialist indicate that the number of household members relying on rations is in fact often considerably <i>lower</i> than recorded in the initial census, and that in many instances rations are being sold rather than used for household consumption	Generally accepted that the allocation of rations per person are more than adequate.
Cultural considerations	The total K50,000 resettlement assistance package offered to households may not be sufficient for households where the household head has more than one wife, as different wives are customarily accommodated in separate structures.	<p>ELC recommended that additional compensation be offered in such cases to the additional wives for construction of additional houses.</p> <p>This is to ensure that the Project is sensitive to cultural realities. But the Project is advised to balance cultural realities with legal obligations of PNG under domestic and international treaties e.g., The Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) in which PNG ratified 'without reservation', thus effectively supporting monogamous marriages, yet PNG domestic laws recognized marriages conducted under custom as legal marriages, thus the Project is correct to recognize and provide compensation for multiple wives.</p>	A sum of K10,000 per wife was agreed on.	Households with more than one wife are given an additional K10,000 per additional wife, to be paid to the women concerned.

Issue type	Issue	ELC Recommendation	Project Response	Outcome
Cultural considerations	In Huli culture boys over the age of 16 are regarded as adults, and entitled to their own homes. Numerous concerns were raised about such sons being included as part of their fathers' households, as it is felt that they should be entitled to separate housing packages.	ELC recommended that additional compensation should be considered to enable these boys to establish their own households independent of their parents. Note: in consultations at the disclosure session at Tombete, we were told that men and boys live in a separate house from women and girls.	Housing for boys over 16 has been agreed where they constitute a separate economic unit – a number of additional Family Numbers were created and assigned to these households.	
Dispute of census findings	A number of households raised concerns that their assets, including trees, crops, as well as housing structures, were not accurately recorded during the initial census, and thus do not appear on the list of items for which additional improvement compensation was calculated.	ELC representatives investigated the matter as far as possible by inspecting the additional assets claimed, and consulting with other household and community members.	Such matters were referred to the Resettlement Census and Survey Team for clarification, and rectified where appropriate.	Where relevant additional assets have been recorded for compensation. Cases that could not be resolved were registered as grievances.
Dispute of census findings	Issues of ownership and entitlement to the household and additional assistance packages were frequently disputed, with a number of people claiming that others who were present at the time of the survey misrepresented them, claiming ownership of structures and other assets that did not belong to them.	ELC representatives investigated these cases to established true ownership of the disputed assets.	Such matters have been referred to the Resettlement Census and Survey Team.	Where appropriate issues regarding asset ownership were corrected. For unresolved cases a grievance was registered to be followed up by the Project.
Dispute of census findings	Some households raised concerns that their business assets (including a sawmill business and fishponds) were not recorded as such, thus failing to take into account the impact relocation will have on their income generation ability.	These cases were recorded and investigated by the ELC, and recommendations made to consider the impact of lost income if claims of business activities could be validated.	Independent valuations of such business assets were conducted.	If claims to lost income generation ability were validated, additional assets were recorded as business activities to be fairly compensated based on valuation findings.

Issue type	Issue	ELC Recommendation	Project Response	Outcome
Cash payments/IBD Bank accounts	Numerous households requested that their compensation be paid in cash rather than deposited in an IBD bank account as stipulated in the Resettlement Assistance Package	ELC advised households that the stipulation concerning IBD accounts is to their benefit, as a) it can be considered safer than being paid in cash, and b) it is aimed to ensure greater sustainability as this will encourage them to save, and also earn interest on the money deposited. This was particularly highlighted for mothers who can in this manner ensure providing for their children into the future, rather than risking all the cash paid out to be spent on immediate needs. The majority of resettlers understood this explanation and are now supportive of opening accounts. Some have requested that their cash components also be deposited into IBD accounts.	The agreement stipulates an amount of K10,000 which can be paid in cash, K10,000 to be deposited in an IBD account, and a further K30,000 either in-kind (building materials etc.) or in an IBD account. Households who request a greater component to be deposited into IBD accounts can be thus accommodated.	BSP banking representatives from Port Moresby have visited the HGCP site to open accounts for HGCP resettlers.
IBD accounts – bank charges	Concerns were raised about the very high bank charges (10%) charged by the Tari branch of BSP bank.	The high banking charges in Tari were acknowledged, and recommendations made to investigate other alternatives.	The Project made contact with the BSP bank in Port Moresby to visit the site, as this would incur lower charges than the Tari branch. Further alternatives for optimal banking services to resettlers are being considered.	BSP banking representatives from Port Moresby have visited the HGCP site to open accounts for HGCP resettlers.
Vulnerable households	A number of particularly vulnerable cases were highlighted during consultations. Examples of factors contributing to vulnerability issues include a) contested entitlement, b) injury while serving as a security guard for the Project, and mother of one of the families.	Cases identified as particularly vulnerable have been noted for specific monitoring, and recommendations made on a case-by-case basis.	The Project has taken note of these households as vulnerable for various criteria identified, and will pay particular attention to monitoring their progress.	Vulnerable households are identified for special attention and monitoring throughout the resettlement process.

In addition to the above issues raised and corresponding recommendations, some general recommendations made by ELC representatives pertaining to the resettlement process include:

- Encourage investment and small business venture advice through the Company's business development activities;
- The RIT must consult the Resettlement Census and Survey Team to make sure the actions taken have accommodated all affected parties in the HGCP area;
- The Resettlement Census and Survey Team should investigate claims regarding inaccurate recording of assets and ownership, so that these issues can be resolved;
- RIT and the Company must make sure the cultural context is taken into account before the housing package is awarded to all households, especially pertaining to women, young men and 'hausman';
- Consider having a land structure assessment of each new site. Failing to do so could place the Company at risk of possible legal action against it in the event any natural disaster befalls the resettlers. Although the resettlers are responsible for choosing resettlement sites, they could argue that the Project made them move to the new sites;
- The Company is advised to limit manmade disasters by making proper assessment of Land Structures to ensure against possible triggering of natural disaster due to interference of landscape by the Project activities. Natural disasters are beyond the control of the Company ('Act of God'); however, the Company is expected to exercise due care in ensuring that relocated sites of households are not vulnerable to natural disasters and manmade disasters, creating of buffer zones is one such response;
- In taking cultural traits into account in its dealings with the Huli people, the Company must balance cultural context with Domestic Laws and the host country's obligations under various UN Treaties such as The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and The Convention on the Rights of the Child (CRC). The Company's compliance with International Finance Corporation's (IFC) Performance Standards does help, indirectly, the Company to conform to host country's obligation under UN Treaties;
- The Government's lack of presence is a constant concern on the ground. The ELC appreciates that the Company must do all it can to ensure smooth running of its operations within the law. Yet, in many instances the lack of government presence and the obvious breakdown in law and order has placed the Company in situations where it must protect its Project. The Company, none the less is cautioned against acting as de facto government;
- The preoccupation of Project area landowners in creating Landowner Companies is like putting the cart before the horse. The Company is equally to be blamed for engaging with Landowner Companies without ensuring and equipping the landowners with legal or corporate personality which can be achieved through the incorporation of land groups through the Department of Lands and Physical Planning. Social mapping as stipulated under the Oil and Gas Act does help identify ownership of Land under the License; and
- The creation of a legal person by incorporation of the clan ownership is a prerequisite to all other dealings with land. The newly passed law on the incorporation of the land group is still awaiting the Governor General's endorsement before it becomes effective. ELC understands that this is

because implementing government departments are still sorting out their capacity to handle such huge workload when all landowner groups in PNG submit to this process.

5.10 Future Consultation Activities During Implementation

5.10.1 Ongoing Consultation and Disclosure Activities with Project-affected Landowners

Ongoing consultation activities will be conducted under the implementation management structure as defined in Chapter 10.0. In summary, key topics for future consultation related to implementation include:

- Complete signing off of the Resettlement Assistance Package, particularly housing, with all affected households. At the time of writing 32 agreements are yet to be signed;
- Documentation, including mapping, of all resettlement sites. At the time of writing 46 sites have been mapped, with 11 remaining to be mapped;
- Consultation to finalize Resettlement Assistance Package options selected by households. This includes the mix between interest-bearing deposits, building materials and household items. More specifically orders of building materials and household items will need to be finalized for each household;
- Consultation associated with making K10,000 initial cash payment under the Resettlement Assistance Package;
- Consultation regarding the utilization of timber on the HGCP site to provide building materials for HGCP resettlers;
- Consultation regarding the provision of timber and building materials to resettlers and in the supervision of house construction;
- Consultation regarding sign off on a payment of improvements compensation;
- Ongoing monitoring of the rations delivery and planning and implementing livelihood support programs;
- Provision of malaria nets and other health initiatives that may be required; and
- Process for on-going monitoring and evaluation of resettlement activities.

5.10.2 Meetings with Provincial and Local Government

Provincial and Local Government are key stakeholders with regard to infrastructure and service provision. Consultation with these agencies will take place when functioning structures are in place.

5.10.3 Meetings with Village Level Stakeholders in the Area

Further interaction will be undertaken with other community stakeholders in the area during the implementation phase, particularly in those areas where there may be a higher density of landowners.

This will be through a mixture of community and smaller group meetings. Key topics for consultation and disclosure will include:

- Discussion of possible/potential impacts of affected people inhabiting existing land/dwellings or constructing new dwellings;
- Inclusion of HGCP development activities into the planning and implementation of the National Content Plan. This could include training and employment associated with the construction and operation of the HGCP;
- General awareness of construction activities and associated safety requirements;

- Information on the operational use of the site, such as a schedule of aircraft movements, both during construction of the HGCP and general operation of the Project thereafter;
- Other local development initiatives proposed to be undertaken by the Project; and
- Potential issues that may arise related to 'influx', particularly opportunistic influx.

6.0 PROJECT IMPACTS

6.1 Introduction

People who currently reside within the proposed HGCP area, or use land and resources within this area, or live close to the intended infrastructure boundary, will no longer be able to do so and/or will have to relocate. As resettlement occurs, both households living within and households owning land within the proposed HGCP area, will lose their land and fixed assets and will be affected by various other physical, economical and cultural losses or adverse impacts. Although a common set of impacts is identified for all the individuals or groups, it should be noted that a particular group or individual may not necessarily incur all types of losses.

Based on the findings provided by the various baseline surveys in the HGCP area (Chapter 4.0) the Project impacts are summarized and presented in Table 6-1 below.

Table 6-1: Summary of Impacts due to Resettlement

Impact	Scale
Residential structures affected	99 structures affected 59 households to be displaced
Communal structures affected	1 school affected by noise and dust – risk mitigations to be implemented, such as fencing, school upgrades, improved access, security and traffic control.
Loss of field and agricultural land	59 households 155 gardens belonging to 55 households 220 ha of clan land
Loss of trees and crops	165 sweet potato gardens 13643 coffee trees 19,731 other trees
Loss of access to forest resources	59 households Access for clan/clan segment members
Disruption in social networks	Physically displaced
Impacts on business and employment	8 trade stores to be relocated Impacts on other businesses - haulage business, timber mill, and fish ponds.
Community services and facilities	Loss of access
Cultural sites	48 cultural heritage and archaeological sites
Influx of migrants	Some influx expected owing to social and infrastructure development in the area

Other impacts include possible influx of curious onlookers, work seekers, and people wanting to take advantage of the superior health facilities in Hides as opposed to their own area. This influx may swell populations in and around the HGCP and other adjacent facility sites, with consequential law and order impacts. On the positive side, there will be improved infrastructure arising from the Project development which will allow for more effective marketing channels.

6.2 Main Project Impacts

An overview of the main impacts identified in Table 6-1 is provided in the following sections.

6.2.1 Loss of Residential Structures

Baseline studies of impacted households have found 23 households living within the boundary of the HGCP site and 36 outside the site boundary. The census collected the names of 490 impacted persons from the households. Eighty-eight of the 99 affected structures were constructed of bush materials walls (usually woven cane or split timber slabs) with kunai (*Imperata* grass) thatch roof, whilst others are constructed of woven cane grass walls with corrugated iron roofs. Ninety-three per cent of houses are 50 m² or less in floor area.

Where houses are of semi-permanent construction, they have iron roofs, sawn timber frames and walls, small windows and all are raised on piles. Three houses are built of permanent materials, on piles with iron roofs, sheet metal cladding, windows and more than one door.

More than 90% of the families surveyed at HGCP rely on natural sources for drinking and domestic water (usually a local spring), and use basic pit latrines, sometimes just an uncovered pit with no structure over it. Pit latrines will therefore be lost for all of the households inside the airstrip site as well as access to clean water. Their current water sources are carefully constructed and maintained by households, are well selected spring sources, have bamboo piping and are covered to prevent access by animals.

6.2.2 Loss of Communal Structures

A committee representing the interests of all clans present in the HGCP site was formed in March 2010, through initiatives of C1, L&CA. While this committee has the advantage of representing the broader interests of HGCP resettlers, it is at present too large (with regular fluctuation in membership) to function effectively as a planning committee. For this reason a smaller subcommittee of approximately 10 people will be selected with the specific mandate of assisting with community planning initiatives required for the replacement and reestablishment of affected community infrastructure.

6.2.3 Loss of Foraging Areas

All of the households inside the HGCP site reported keeping pigs and other livestock. These would need to be moved during the relocation, and adequate pig pens and foraging areas should be available for their upkeep. The availability of such pens and foraging areas depends on the status of the chosen relocation site: (a) if the family has another house and pig pen there will be no problem; (b) if they do not, then they should be able to build these with the compensation they get from the existing pig pen structures - the Project will not build pig pens; and (c) frequently in Huli houses they build the pig house at the back of the women's house as an adjunct room.

6.2.4 Loss of Trees and Gardens

One hundred and fifty-five gardens belong to the 59 households that had either houses or gardens or both within the HGCP site. The amount of land cultivated by these families varied from 0.03 ha to 1.8 ha per family, with an average of 0.45 ha.

As well as sweet potato, Huli gardens are also planted with highlands pitpit (*Setaria*), sugarcane, various greens and ferns. Bananas and target (*Cordyline*) are planted regularly throughout the garden area. Gardens are surrounded by a deep ditch and a fence made of sharpened *Casuarina* stakes, bound together at the top by cane.

The families surveyed, plus those who have houses outside the area, owned a total of 1974 avocado trees, 4,500 marita (*Pandanus canoideus*), 290 ficus trees and 155 black palm trees; 12,181 mature *Casuarina* trees, 533 bamboo clumps and 98 mature pine trees. Thirty-three families had planted 5,852 coffee seedlings during 2009, and average of 178 seedlings per family. Overall 110 coffee gardens were surveyed containing some 13,643 trees; 13% were in good condition, 38% in moderate condition, and 11% in poor condition. The families also had economic trees such as 12,181 *Casuarina oligodon* and 880 *Castanopsis*.

These various trees and crops will be lost during the process of relocation. The time, effort and resources required to construct new ditches and fences around new plots of land will also be considered. If the Huli households are required to vacate the land before harvesting their crops, they will lose these resources as well as any seeds required for the next crop cycle. Harvested crops are used for home consumption, for sale as a source of income generation or for both purposes. Households that have to abandon standing crops before they are harvested will, therefore, lose their potential source of food and/or income. If they

do not have access to alternative lands and crops, this loss will place them in a vulnerable situation until they can plant and harvest crops in alternative locations. Such situations will be assessed by the RIT on a case-by-case basis and mitigated through provision of rations for an extended period until new crops are ready for harvesting.

A possible risk associated with the loss of land is the potential for breakdown of customary land allocation mechanisms once land transactions become monetized through the Project land acquisition activities. However, rental of land associated with projects mainly with oil and gas developments, has been occurring within the Hides-Komo-Kutubu-Gobe-Kikori region for almost two decades. These rental agreements are made with local corporate entities, which are usually clans or clan segments. The rental monies are shared between all members of that corporation. The remainder of the land continues to be used under customary practice and is unaffected by these development interventions. In Huli households multi-local residence has not been impacted and individuals and families continue to move between garden areas where they have rights through their kinship and descent networks. Whilst the introduction of a cash economy has meant a new medium of wealth, the principles of land use have not changed. It was customary for people to rent land areas in the pre-contact era for which they paid in pigs and pearl shells - now they can use money. Land pressure is directly related to population increases and soil fertility (e.g., shorter fallows, salinity) not the monetized transactions of land acquisition. Given this context, the identified risk (i.e., breakdown in customary land allocation mechanisms) is not an impact/risk which it is felt requires measures or intervention.

6.2.5 Reduced Access to Forest and Other Resources

Most of the HGCP households report collecting and utilizing natural resources occurring in the surrounding village lands to various extents and on a daily or periodic basis. Forest resources are used for home consumption or to sell to generate income, either directly or after processing. Wood is also collected either for personal firewood or for resale and 94.6% of HGCP households reported reliance on firewood for fuel. Relocation will result in the loss of their capacity to utilize these resources, adversely affecting their food security and the income generating capacity of certain households, unless these resources can be replaced at the resettlement sites. Apart from the Tari Valley, most other areas have access to large forest tracts so it can be assumed that the number of households who might be directly and adversely affected will be very small.

6.2.6 Disruption in Social Networks and Change in Community Infrastructure

The Huli often rely on customary networks of obligation with regard to economic transactions and exchange, and rely on extended family members for assistance with the caretaking of children and pigs. These social ties will likely be temporarily disrupted by the involuntary resettlement. However, for transactions such as bride wealth and compensation it is common for people to travel long distances to witness and participate in these significant events. Equally, there is a degree of fluidity in household members so it can be assumed that such relatives may spend periods of time with the relocated family in their new location.

6.2.7 Impacts on Business and Employment

Employment levels for the HGCP residents are broadly comparable both with the Komo and wider Hides catchment findings; most of the employment is held by males in the community on a part-time basis. A higher than expected level of income from livestock (91.2%) and cash-crops (77.2%) is reported which seems well above the regional mean and may indeed be linked to respondents' expectations about possible replacement compensation. A high percent of people receive income through business and royalty/equity streams associated with Hides Gas-to-Electricity development. Of particular note is that some 40% of respondents reported having an interest in trade-store businesses and HGCP residents expend more money on trade-store purchases than the average for the wider Hides catchment. In effect, HGCP is a relatively advantaged area.

There is likely to be some disruption to these income activities from the relocation but the mitigation plans should redress the situation within the short-term period of 1 - 3 years. The potential loss of business interests are likely to present a temporary set-back for the business owners and the dispersal of the community means their constituency of customers will likely change in the future. These losses, once defined, will be compensated. Equally, relocatees may not in the short-term have access to quite the same number of stores they had at the HGCP. Set against such disadvantages, however, will be the monetary compensation for lost income and replacement buildings, and the opportunity to relocate these on-going concerns elsewhere and closer perhaps to other population hubs, where the market for the stores will be similar to what it is currently. Equally, for the community, all trade-stores sell much the same range of small goods so it is unlikely there will be any disadvantage to resettled residents in terms of access to types of goods sold elsewhere.

Impacted business infrastructure will be compensated based on procedures developed during consultation with affected tradestores. ELC will provide independent assessment and monitoring of agreements. An independent valuer has been engaged by the Project to determine values and to advise on compensation negotiations during implementation. Table 6-1 summarizes the impacts, compensation and assistance measures that will be provided to the eight tradestores.

Table 6-2: Tradestores - Summary of Impacts and Compensation Measures

Business Type	Nature of Impact	Assistance to be Provided	Schedule for Relocation & Re-establishment	Indicative Budget
<p>Eight Tradestores*, distributed along the road between the Para School and Lake Mbuli.</p> <p>One owner had two stores and one included a separate structure with snooker table.</p> <p>Most buildings were single rooms consisting of grass roofs and sawn timber walls. Sizes range from 18.8m² to 52.9m².</p>	<p>Tradestores need to be moved as they are located too close to the road or within Project areas. Loss of business will be incurred while tradestores are re-established at new locations</p>	<p>Compensation payment for the replacement of the building and loss of trade.</p> <p>Compensation and business advice will be provided by the Project and monitored over a two year period or until fully re-established.</p>	<p>Relocation will be undertaken once agreements have been concluded with each owner and compensation payments completed. Agreements and dismantling are planned to be concluded by last quarter 2010 (complete).</p>	<p>Compensation will vary according to types of buildings and level of trade.</p> <p>Values are expected to range from K18,000 to K100,000, based on building size and stock.</p>

Note: Names of owners excluded for confidential purposes.

On the positive side, the construction of the HGCP will create employment opportunities, providing additional sources of disposable income to households to allow them a higher level of investment and expenditure. Furthermore, it is likely that other business opportunities will arise to support the construction of Project related infrastructure such as plant sites, camps, roads, bridges etc., creating further employment and income opportunities.

6.2.8 Influx of People

The Project related construction activities in and around Komo-Hides may attract people from outside the area in search of economic opportunities. A draft Project Induced In-Migration (PIIM) Study has been undertaken to provide a more detailed assessment of influx potential in the vicinity of the key Project locations including the LNG Plant site, Kikori, Kopi,

Moro, Gobe and the Nogoli-Komo-Hides Gas Conditioning Plant areas. An expected outcome of the PIIM Study has been a better understanding of potential in-migration pathways and concentration points, key environmental, social and spatial impacts.

The Project is currently developing PIIM response plans using a community-based process. The outcomes of these activities will assist in developing an area specific plan for the Hides and Komo areas. It is anticipated that these plans will be implemented by mid 2011.

6.2.9 Loss of Access to Community and Public Services and Facilities

Permanent relocation of households to alternative areas can potentially impact their access to health facilities, schools and churches, or access to services of a lesser standard than they might otherwise have enjoyed. However, the data indicate that most of the Hides area now has the full complement of educational establishments, and it may be the case that relocation could potentially improve access to both healthcare and education.

6.2.10 Access Routes

Approximately 20 households who will be relocating to the east of the HGCP site will have significantly reduced access to infrastructure and services, which are predominantly located to the West of the site, along the road.

Walking paths will be provided around the HGCP site as part of the Huli ditch that will be constructed around the buffer zone as a safety and security measure. These paths will be defined with the input of the Hides Community Planning Committee, that will be established for the purpose of developing community infrastructure plans in the Hides area. Likewise an arterial track along the southern boundary off the plant site is also planned.

6.2.11 Improved Infrastructure and Transport Links

Relative to other rural areas in the Southern Highlands, the HGCP area has benefited from the resource development activities that are centered at Hides and operated by Oil Search Ltd. The road infrastructure in the general Hides area is good and OSL has invested significant time and monies in upgrading local health clinics, including the Juni Health Centre located just north of Nogoli camp.

Improved air and land transport links associated with the Project's development may support the provision of cheaper agricultural goods inputs and the development of more effective marketing, increasing the attractiveness of coffee cultivation as a means of generating supplementary income. These improved links may also support some further agricultural diversification in cash or food crops.

6.2.12 Cultural Sites

Approximately 48 sites of cultural importance or significance have been identified by the Social Research Institute within the proposed HGCP site. This includes graves and spiritual sites that were evident during the research.

Any transfer or reinterment of these sites will be undertaken in a culturally acceptable manner, with agreement of local communities, and conforming to national legislation and international protocols. The Project has a Cultural Heritage Management Plan in place.

6.2.13 Resettlement Sites

The identification of resettlement sites is normally a complex process involving the selection of sites that have the potential to restore livelihoods of communities to be resettled, but will not result in significant impacts on host communities. Available information indicates that all households currently reside or cultivate gardens in the HGCP area have access to alternative land. This will be confirmed during the implementation phase, taking account of two possibilities described in the following sections.

6.2.13.1 Existing Sites with Security of Tenure

The cultural practice of multi-local residence means that most households have alternative lands, gardens and houses. The relative wealth advantage of HGCP residents, and their business interests in the landowner company HGDC, suggests that they will be well placed to manage the relocation impacts. Most households have more gardens than shown to the Resettlement Census and Survey Team (as has become evident when surveying other RAP sites), as households generally believe that their compensation packages may be reduced should it become known that they have other gardens.

6.2.13.2 Existing Sites with Limited Security of Tenure

The form of customary lease whereby people 'rent' out gardens could not be relied upon as a solution for a 'land-for-land' program by the Project because it would not provide security of tenure over the life of the Project and protect landowners against risk of forced eviction.

Importantly for all the Huli resettlement affected areas, it is very difficult for outsiders to assess the alternative residential sites that might be accessed by any one family or person³¹. A very detailed genealogy and personal history profile is needed to accurately gauge what other lands any family could reasonably access for relocation/resettlement purposes. Fortunately, all households at HGCP have access to land with security of tenure.

6.3 Vulnerable People

In the context of this HGCP RAP, the following potentially vulnerable households have been identified (as discussed in Section 4.11):

- Female headed households;
- Households with aged/elderly heads of household; and
- Households that do not have access to replacement land within their clan structure, and may thus be alienated by the resettlement.

³¹ A complex set of graduated tenurial rights intersects with clan lands that are widely dispersed throughout Huli. In effect Huli have a notional right to live on their natal clan land – a right that can be suspended indefinitely if the person fails to contribute to clan compensations – and this land may be scattered around Huli. Also the obligations of maternal kin to provide land and shelter to cognates – i.e. a mother's brother responsibilities to a sister's son – people can often access gardens in their mother's or mother's-mother's, or mother's fathers land areas. Finally, people may access land on their wife's clan territory or any non-related friend's land. Hence the degree to which these potentialities can be realized – and the continuum between ownership and usage rights - depends on the status of family relationships at any one juncture of time and the longevity of residence.



- (1) Livelihood restoration; and
- (2) Social impact monitoring

³² A detailed map of land types would need to be generated and multiple clan segment boundaries plotted before an estimation could be derived of other available land for a resettlement affected person. Even then with a hypothetical figure of 10% loss – i.e. 90% available – it would be erroneous to infer that all lands within the 90% necessarily represent viable and equally attractive alternatives to the affected relocatee. However, sub clans also have access to land outside the Hides area, thereby reducing the impact of land loss within Hides.

7.0 COMPENSATION AND RESETTLEMENT STRATEGY

This chapter explains the strategies for compensation and for other livelihood support measures for the people physically and/or economically displaced by the HGCP component. Development of the measures is based on PNG law (O&GA); IFC PS5; the results of surveys, census, consultation with the affected households; and lessons learned from resettlements during other projects in PNG.

7.1 Strategic Considerations

The HGCP RAP has been based on an assessment of the socio-economic and cultural circumstances of the affected households as well as previous resettlement activities in PNG. The following sections provide an overview of the social circumstances which influenced resettlement considerations and of the lessons learnt from other projects.

7.1.1 Socio- economic and Cultural Considerations

The HGCP population will be affected by both physical and economic displacement. The Huli utilize a scattered, rather than nucleated, household settlement pattern, and there is a high degree of tolerance of multi-residence with members and segments of any one named clan spread across large distances. Any given piece of land tract is composed of a mosaic of garden plots and forested areas occupied by owners and users, who may or may not be resident and who invariably trace descent to a wide variety of clans. People commonly have more than one residence and gardens in several clan areas (e.g., on their mother's, father's, wife's, mother's father's, or father's mother's lands) that they may move between for any number of reasons.

The resettlement options will be consistent with these characteristics in the following ways:

- **Self-relocation:** will be encouraged because it is customary, though various kinds of allowances and other assistance measures will be provided as well;
- **Relocation sites:** will be self-determined by the affected persons though the Project will assist any relocatee who does not have another site. This approach reflects the customary residence practices, and will obviate the need to construct 'resettlement sites' or engage with 'host' communities;
- **New housing assistance:** will be provided for those who wish to build an improved bush-house. The Project commissioned architect plans have already been developed and people will be assisted to locate a suitable builder. Additionally, the Project offers assistance to move housing materials; and
- **Livelihood restoration measures:** will focus on increasing the productivity of affected people's existing garden land, as well as facilitating the shift from subsistence dependence to non-land based and cash producing income streams. This will include opportunities in terms of employment and small business, cash from rentals and other revenues.

More detailed information on social, economic and cultural characteristics can be found in Chapter 3 and the survey tables in Appendix 3.

The Project has used the western concept of a 'household' to refer to a physical and familial entity (i.e., nuclear husband and wife (wives) and children) entity which is also the recipient agency for the RAP. It is acknowledged that there is no indigenous analogue in Huli to 'household'. The Huli word *anda* denotes a physical building and not the occupants, and there is no lexical item which denotes the collective of a man and wives and children. In traditional Huli culture men did not co-reside with their wives as all inter-sex behavior was hedged by ideologies of pollution and contagion. Whilst many young Huli have adopted the Western practice of conjugal households - as was found to be the case in Komo - many

elder Huli continue to reside alone; their one or more wives in this polygamous society reside in separate physical abodes.

This acknowledged discontinuity between the Huli concept of 'house' and the RAP analytic 'household' challenged the Project to devise a compensation scheme based on consistent and equitable principles that was nuanced to Huli culture and provided fair compensation to all members of the notional 'household'. Succinctly stated, HGCP landowners expressed the view that because a man had four wives he should get four times household component of the resettlement package.

The following section outlines some of the risks posed to the resettlement process as a result of inherent adverse characteristics and potential benefits of favorable characteristics of the social, economic and cultural environment. This is followed by a look at lessons learned from other resettlement projects in PNG.

7.1.2 Adverse Factors and Risks

Adverse factors and risks to the resettlement process include the following:

- Population densities vary dramatically across the Southern Highlands Province. The Tari Basin has around 190 persons per km², whereas the western part of the Komo-Margarima district has a population density of less than 20 persons per km². The impact of involuntary physical relocation in the adjacent resettlement areas of HGCP, Komo Airstrip, quarry and landfill areas may increase local population densities and result in pressure on available land suitable for cultivation, as well as increased destruction of virgin forest areas. The likelihood of this is increased by a projected influx of people to the area seeking work, taking advantage of improved educational and health infrastructure and services, and voyeuristic tourism;
- People in the Komo-Margarima District are economically disadvantaged in relation to many other districts in PNG. Allen (2007) has indicated literacy rates in this district are below 20% and by far the lowest across the Southern Highlands Province.³³ This vulnerability could restrict the abilities of households to successfully relocate without sustained disadvantage;
- Households typically rely on customary networks of obligations within communities, and the potential loss of such support could result in varying degrees of hardship with respect to sustained subsistence and livelihood;
- Decisions taken by one generation have potential to adversely (if inadvertently) affect future generations. In resource developments of this nature and duration inter-generational conflict can occur as criticisms are made that children's birth rights have been 'sold down the river' by the signatory generation;
- Many households gravitate to locations close to roads, often to take advantage of start-up trade-store opportunities. It is likely that many of the households along the HGCP route will move very close to the allocated buffer zone or fence perimeter. In part this reflects their concern to ensure that no-one else moves to the same location, but equally it will also subject them to various environmental hazards during the program of road construction;
- The strong influence of community/clan over individual in terms of decision making can be a risk to the Project in cases where individuals who may be inclined to reach agreement with the Project will be prevented from doing so out of fear for exclusion when the bigger group is opposed to what is offered;

³³ 'Land Economics & Development in the Southern Highlands (p.44). In Haley & May (2007) *Conflict & Resource Development in the SHP*. ANU E press (Canberra).

- The presence of powerful individuals in the community also presents a potential risk factor as these will often exert their influence over others for motivations based on self-interest. In cases where these personal interests are in opposition to the Project, they are in a position to influence the group, which as shown above, will determine the decisions of other individuals;
- The lack of effective government at local or provincial level poses a considerable risk to the Project, as there are few if any mechanisms in place to provide affected households and communities with the infrastructure and services required for maintaining their standard of living. The risk also exists that, in the absence of effective government assistance, the Project becomes seen as the provider for what would traditionally be considered Government responsibility; and
- The lack of effective community representative structures is a potential risk factor as it deprives the Project of a structure through which to effectively liaise with communities on the Project and resettlement related issues.

7.1.3 Favorable Characteristics

Social, Economic and Cultural characteristics that may be beneficial to the resettlement process include the following:

- Despite the presence of a high number of ethnic groups (see Figure 4-2) boundaries are permeable between most of these cultures and it is common to find a high degree of bilingualism at the very margins. Huli is now the lingua franca of at least 30% of Fasu and is spoken by many Febi and Onabasulu, making integration due to resettlement a more feasible option than moving within Huli territory for those with relatives in these other locales. As most clans are exogamous, there exists a necessary degree of interaction between clans in the exchange of women for marriage. Furthermore, previous intermarriages will have created ties between clans, suggesting widespread links between communities that could be drawn on in the event of resettlement;
- Multi-local residence in Huli means households often have access to more than one house and gardens as they are able to use their kinship, descent and affinal networks and obligations to reside in various places. The advantages of such a practice in relation to resettlement are:
 - There is a high degree of tolerance and acceptance of such travel;
 - Underlying, widespread support structures exist;
 - The issue of 'host community reception/rejection' is not a consideration since people move only to those locales where they have established rights to access and use; and
 - Alternative accommodation is in most cases readily and immediately available and crops are likely to be simultaneously cultivated at alternative sites, thereby providing ongoing resources for household consumption and for selling. The fact that most relocatees on the HGCP can relocate to alternative sites. The majority of HGCP residents can already nominate relocation locales;
- There are no marked seasonal changes in the Highlands, meaning no annual horticultural cycle exists and there is little variation in everyday gardening. As such, resettled households should not experience the loss of certain crops during resettlement, and similar agricultural practices should be relatively easy to re-establish elsewhere. Furthermore, sweet potato gardening and pig husbandry are the predominant subsistence forms with low-level cash economy participation, meaning economic impacts should be limited;

- The Huli typically self-build their homesteads, indicating the existence of relevant skills and cultural practices should the need arise for construction of new accommodation due to resettlement;
- Currently, individual clan members have the right to sub-let land to anyone for a fee or fixed term, or grant usage to title and hunting tracts by gift, deed or inheritance. These principles indicate opportunities for resettled households to utilize alternative land to cultivate or reside on;
- The dynamic and flexible nature of Huli group composition and settlement further suggest a capacity to adapt and accommodate to new situations and to readjust;
- Strong community and clan cohesion, as well as the strong role of the churches indicate the presence of strong social support networks that could be of great benefit to affected households post relocation;
- Although cited as a risk above, the strong influence of community/clan over individual in terms of decision making can be of benefit to the Project in cases where the majority of the community are in agreement with the Project. This will assist in overcoming difficulties with individual households that remain in opposition; and
- Similarly the presence of powerful individuals in the community, though potentially a risk factor, can be harnessed by the Project as these individuals can be of great assistance in negotiations and consultation with community members.

7.1.4 Lessons Learned from PNG Resettlements

Lessons learned from past extractive industry project experience (particularly Lihir Gold Mine and Porgera Mine) in PNG have been considered in the development of the Project Compensation and Resettlement Strategy and specifically for the HGCP RAP. In particular, the following lessons were considered relevant to the HGCP Resettlement Program:

- Commercial contracts (including compensation packages) should be concluded before resettlement commences to avoid protracted negotiation and resultant cost increases;
- Housing must be culturally appropriate, practical in design and take account of health considerations, should housing be provided by the proponent. Replacement housing constructed by the households to be resettled (owner/builder) is the preferred option, as this results in fewer disputes arising from design, materials or quality of workmanship. A wide range in housing in the area was identified through the surveys undertaken;
- The owner/builder option will also limit possible future problems relating to maintenance;
- If building materials are to be provided, only high-quality/long-lasting materials should be supplied, owing to the high rate of weathering experienced in the Highlands;
- There should be no discrimination in compensation entitlements between communities or groups losing equivalent resources as this leads to distrust, which in turn will undermine the Project; and
- Compensation payments should include investment options to generate income, as this increases the effectiveness of cash income streams.

7.2 **Eligibility and Entitlements**

The RPF provides a full schedule of eligibility criteria for compensation and entitlements that will be adopted for the Project.

Table 7-1 below summarizes eligibility and entitlements relevant to the affected HGCP community for statutory damage and deprivation compensation. Damage and deprivation payments will have regard for the customary classification of landowners, landholders and land users with respect to their tenorial status and portfolio of land rights and responsibilities. The HGCP area includes a number of absentee landlords as a result of past conflict forcing many to leave the area. Eligibility criteria for absentee landlords, according to the RPF, are:

- Households or individuals living outside the affected area who own an existing house or structure within the affected area not utilized at the cut-off date; and
- Households or individuals living outside the affected area who own a garden within the affected area not utilized at the cut-off date.

Table 7-1 also provides a list of considerations that will be taken into account when the HGCP RAP is implemented. As defined above, compensation has been calculated based on the Valuer General rate as well as further assessment and valuation to account for ditching, drainage, walls or other activities to equal Full Replacement Value (FRV).

Table 7-1: Eligibility and Entitlements

Eligibility	Affected Category	Assistance/Compensation	Considerations for Implementation
1. Houses and other Fixed Assets (Physical Relocation) - Resettlement Assistance Package			
Recognized owners of the assets and structures (identified in the ANUE Surveys by the cut-off date)	Category 1 Households with an available relocation home.	Housing/investment components: <ul style="list-style-type: none"> • Component 1) A sum of K10,000 in cash or it can be used for building materials or invested in an interest bearing deposit (IBD) account; • Component 2) A sum of K10,000 which can be put into an IBD for a minimum term of six months or longer at the discretion of the recipient; • Component 3) A sum of K30,000 for building materials (roofing iron, timber, gutters, water tanks etc.), household items (lamps, bedding, cooking utensils etc.), for the hire of a carpenter, household items, or payment into an IBD; • Component 4) For households with multiple wives and houses an additional sum of K10,000 will be provided to the wife of the household, upon completion of her house; and • Component 5) Trees from the HGCP site that are purchased by the Project will be stockpiled and sawn up to provide timber for house construction, and will be supplied to each household as building materials. The balance of sawn timber will be donated to community programs. Provided to all households: <ul style="list-style-type: none"> • Transit assistance up to K1000; • Transition rations for up to six months; • Livelihood restoration measures directed at establishing and maintaining subsistence patterns - seeds, two garden cycle assistance; training and production of cash crops; • Access without financial penalty to old house materials; • Replacement garden tools; • Health care program, malaria nets, and medical monitoring of relocatees' health; and • Provision of Compensation Advisor to assist and advise on investment and business options. 	<ul style="list-style-type: none"> • Clearly inform about site development and relocation schedules; • Consultation to determine list of options for materials, goods and equipment; and • Delivery of in-kind packages will be negotiated upon agreement and delivery will start at the moment of relocation.
	Category 2 Households with available relocation land but no house.	<ul style="list-style-type: none"> • As for Category 1. 	<ul style="list-style-type: none"> • Technical support for house building will also be encouraged through consultation activities; and • Otherwise as for Category 1.

Eligibility	Affected Category	Assistance/Compensation	Considerations for Implementation
	Category 3 Households with no available relocation land	<ul style="list-style-type: none">Support will be provided for finding suitable land for relocation.Otherwise as for Category 2.	<ul style="list-style-type: none">As for Category 2.
2. Land Deprivation			
Recognized landowners	Clans or other groups (e.g., Independent Land Organizations - ILOs) with rightful recognized claim to communal land.	<ul style="list-style-type: none">Annual payment for land deprivation as per guidelines set out in Land Management Manual.	<ul style="list-style-type: none">Clearly inform about site development and relocation schedules;Clearly inform affected group authorities about site development and land allocation schedules and regulations; andCompensation paid at agreed intervals directly and publicly to landowner.
	Individual/household landowners for garden land.	<ul style="list-style-type: none">Annual payment for land deprivation as per guidelines set out in Land Management Manual;Livelihood restoration measures as above.Replacement garden tools;Health care program, malaria nets, and medical monitoring of relocatees health; andProvision of Compensation Advisor to assist and advise on investment and business options.	<ul style="list-style-type: none">Clearly inform about site development and relocation schedules;Compensation paid at agreed intervals directly and publicly to landowner;Rations will be delivered weekly while livelihood is re-established (up to six months);Economic and livelihood restoration programs; andIf significant portion of agricultural land available to a household is affected, physical relocation will be considered (house and other fixed assets).
		<p>Vulnerable individuals and groups including aged, young, infirm and disabled to obtain the following:</p> <ul style="list-style-type: none">Assisted transit;Provision of enhanced house facilities on request and after consultation; andOther assistance on request and after consideration.	<ul style="list-style-type: none">Identify all vulnerable households and the nature of vulnerability prior to resettlement, and monitor closely during implementation to ensure effective.
3. Damage to Trees and Crops			
Recognized land and resource users and owners	Clans or other groups (e.g., ILOs) with rightful recognized claim to communal land.	<ul style="list-style-type: none">Cash compensation based FRV for trees naturally seeded in affected area.	<ul style="list-style-type: none">Clearly inform about site development and relocation schedules.One-off compensation to community (landowners group) directly and publicly to landowner.

Eligibility	Affected Category	Assistance/Compensation	Considerations for Implementation
	Individual/household landowners for garden land.	<ul style="list-style-type: none"> • Cash or in-kind compensation FRV for affected area for crops and trees planted by individuals (excluding mature crops); and • Assistance to restore the livelihoods through economic restoration programs. 	<ul style="list-style-type: none"> • Clearly inform about site development and relocation schedules; • Cash compensation at FRV; • Cost at replacement of trees considering 'lost production' at full replacement value; • Once-off compensation or at agreed intervals to individual/household owners directly and publicly; • FRV of trees and crops in the calculation of compensation amounts; • Compensation will include land and resources not affected by the Project but that will not be accessible due to relocation of owners to distant locations (see reference below: Reduced Access to Land and Resources); • Economic and livelihood restoration programs will have provisions directly targeting affected individuals/households; and • Provide compensation at or prior to the moment when the land/resource stops being available to the owner.

Eligibility	Affected Category	Assistance/Compensation	Considerations for Implementation
4. Reduced Access to Land and Resources			
Persons recognized as landowners of land to which access is reduced	Individual/household landowners and land users with reduced access to land due to Project activities.	<ul style="list-style-type: none"> Cash or in-kind compensation at agreed intervals until reduction in access ceases; and Assistance to restore the livelihoods through economic restoration programs. 	<ul style="list-style-type: none"> Clearly inform about site development and relocation schedules; Cash compensation at FRV; 'Lost production' will be considered for compensation. This means that if there is interrupted access to land during construction for a short time then affected people will be eligible for compensation for lost production - (i.e., what they could have grown or done with the land had they had access); One-off payment or compensation at agreed intervals to individual/household owner directly and publicly; Economic and livelihood restoration programs will have provisions directly targeting affected individuals/households; Compensation provided at or prior to the moment when access to land/resource takes effect; and If access to land and resources is permanent due to distant relocation, Land Deprivation compensation will apply.
5. Impacts on Business and Employment			
All affected persons with monetary income through own business or as workers	Individuals with proven revenues from own business.	<ul style="list-style-type: none"> Cash payment for proven loss of reasonable profits due to physical displacement; Cash and assistance to re-establish business or other suitable economic activity; and Training programs and employment related to local content development. 	<ul style="list-style-type: none"> Clearly inform about site development and relocation schedules; and Compensation will be assessed in a case by case basis.
	Individuals with proven loss of wages.	<ul style="list-style-type: none"> Cash payment for proven loss of wages due to physical displacement; and Training programs and employment related to local content development. 	<ul style="list-style-type: none"> Clearly inform about site development and relocation schedules; and Compensation will be assessed on a case by case basis.

Eligibility	Affected Category	Assistance/Compensation	Considerations for Implementation
6. Community Infrastructure			
Community social infrastructure	Relocation of community structures e.g., churches, schools, etc.	<ul style="list-style-type: none"> • Full replacement and construction by the Project; • Full replacement compensation and constructed by community; and • If social infrastructure requires relocation a suitable location will be identified to allow continued access for those affected. 	<ul style="list-style-type: none"> • Clearly inform about site development, relocation schedules and potential impacts to infrastructure.

7.3 Resettlement Support Packages

The Project's overall resettlement goal is to design and implement resettlement in a manner that improves or at least restores the livelihoods and standards of living of physically and economically displaced persons. Compensation and/or assistance will be available to all households economically or physically displaced by the Project activities that were residing in the resettlement area when the cut off date was formalized.

Figure 7-1 below illustrates the resettlement packages available to those that are physically or economically displaced.

Resettlement Assistance Packages will be finalized in consultation with all displaced people. Resettlement Assistance Packages will provide options to households affected by the Project resettlement with respect to:

- Type of compensation and means of delivery;
- Kinds of livelihood restoration to be implemented;
- Mix of additional assistance initiatives to be provided; and
- Integration with the community-wide development initiatives of the Community Development Support Strategy.

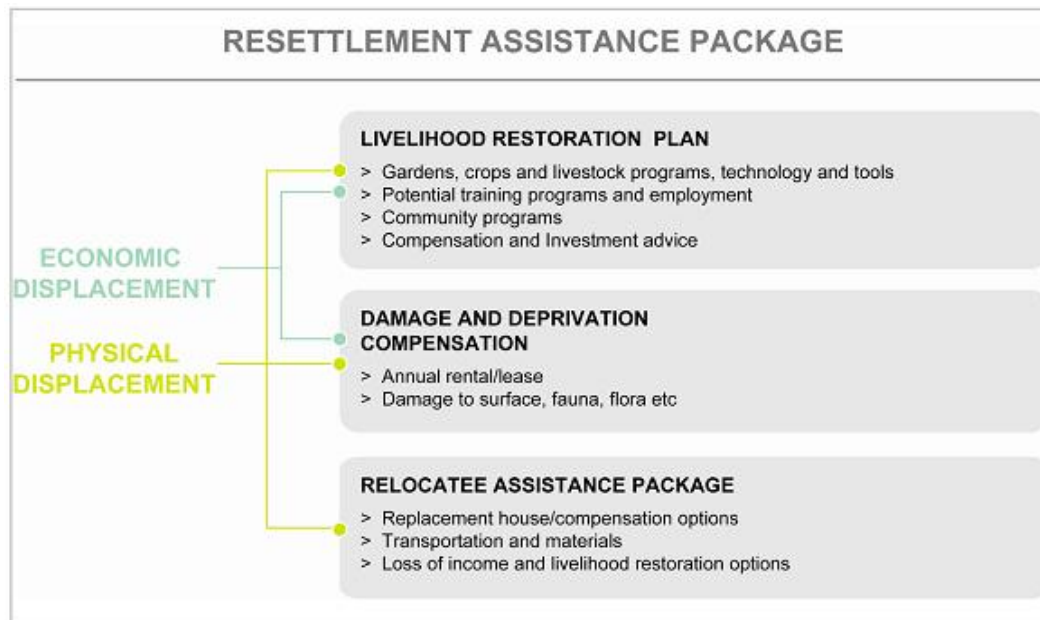


Figure 7-1: Overview of Resettlement Assistance

7.3.1 Damage and Deprivation Compensation

Damage and Deprivation Compensation will be provided as cash payments to the clan for the following:

- **Annual Payment for Land Deprivation:** per the deprivation rates (annual rental) guidelines set out in Land Management Manual; and
- **Compensation for Damage:** One-off payment for damages as per process set out in Land Management Manual and in accordance with Valuer-General rates.

Compensation will be provided to individuals for the following:

- **Loss of Business Income:** Payment for proven loss of reasonable profits due to physical displacement (relocation). This will be judged on a case-by-case basis. Businesses operating in the HGCP area include eight trade stores, a haulage business and fish pond;
- **Loss of Employment Income:** Payment for proven loss of wages due to physical displacement (relocation). This will be judged on a case-by-case basis. There is no indication at this stage that any households will lose employment.
- **Garden crops:** Payment at the equivalent of full replacement value. A compensation formula has been generated utilizing a representative 'base-case' garden in the Hides-Komo catchment. This valuation method consistently produces a total compensation equivalent to market rates and is well above the level that otherwise would result using the standard 2008 VG rates.

7.3.2 Huli Cultural Heritage Site Compensation

The Project requires a schedule of standard compensation rates for impact to cultural heritage sites in the HGCP area. For the affected Huli of Southern Highlands Province, a very elaborate classification of different forms of sacred, ceremonial and cultural heritage sites has served as the basis for site surveys associated with the Project. In light of this, the standard compensation rates gazetted by the PNG Valuer General in 1998 for impact to

cultural heritage sites have been modified and elaborated to suit the local conditions of the Hides-Komo region³⁴.

7.3.3 Additional Support Measures

In addition to the provision of housing, for those entitled, the support measures presented in Table 7-2 will be provided for the HGCP community.

Table 7-2: Additional Support Measures for Relocation

Support Measure Number	Type and Description
1	Tools
	<ul style="list-style-type: none"> Households are provided with four sets of tools to re-establish their gardens.
2	Transit
	<ul style="list-style-type: none"> Additional funding for assistance with logistics and effects of physical relocation up to K1,000.
3	Interim Rations/Inconvenience
	<ul style="list-style-type: none"> Rations or monetary equivalent distributed to representative of each family at designated point from time garden access is lost for maximum period of six months, or until gardens are re-established, whichever is the sooner.
4	Mosquito nets
	<ul style="list-style-type: none"> To be provided to each household occupant.
5	Materials
	<ul style="list-style-type: none"> Affected people may remove existing house materials.
6	Geotechnical Support
	<ul style="list-style-type: none"> If the household chooses to build on to their existing house cluster with the funds provided, the Project will supply a Geotechnical Officer to inspect and advise on the stability of house-sites in order to limit any future problems from possible land instability. If design is later changed by additional earthworks or structure alteration that cause instability, the Project will not be responsible for any damage caused by such instability.

Households who lose only gardens (economically displaced) will obtain the following compensation and support programs (see Section 7.4):

- Livelihood restoration measures directed at establishing and maintaining subsistence patterns and increasing productivity - seeds, two garden cycle assistance, and agricultural and agribusiness training;
- Replacement garden tools;
- Malaria nets and medical monitoring of relocatees' health; and
- Provision of Compensation Advisor to assist and advice on investment and business options.

7.3.4 Compensation Payment Process

The process for compensation assessment and payment for individuals and clans affected by the HGCP is illustrated in Figure 7-2. The compensation payment process, as defined in the RPF, is as follows:

³⁴ Compensation rates specific to each cultural heritage site have been calculated by Dr Chris Ballard (ANU), as a contractor to Coffey International.

- The Resettlement information surveyors complete an improvement data assessment and the compiled information is put into the Field Data Assessments form;
- The data from these forms are transferred into the payment forms and are forwarded to the Company for approval and a cash requisition is made;
- The payments are transferred through the Company L&CA Cash Movement and Storage Procedures; and
- Compensation payment will be made to the owners by L&CA representatives with the RIT accompanying them.

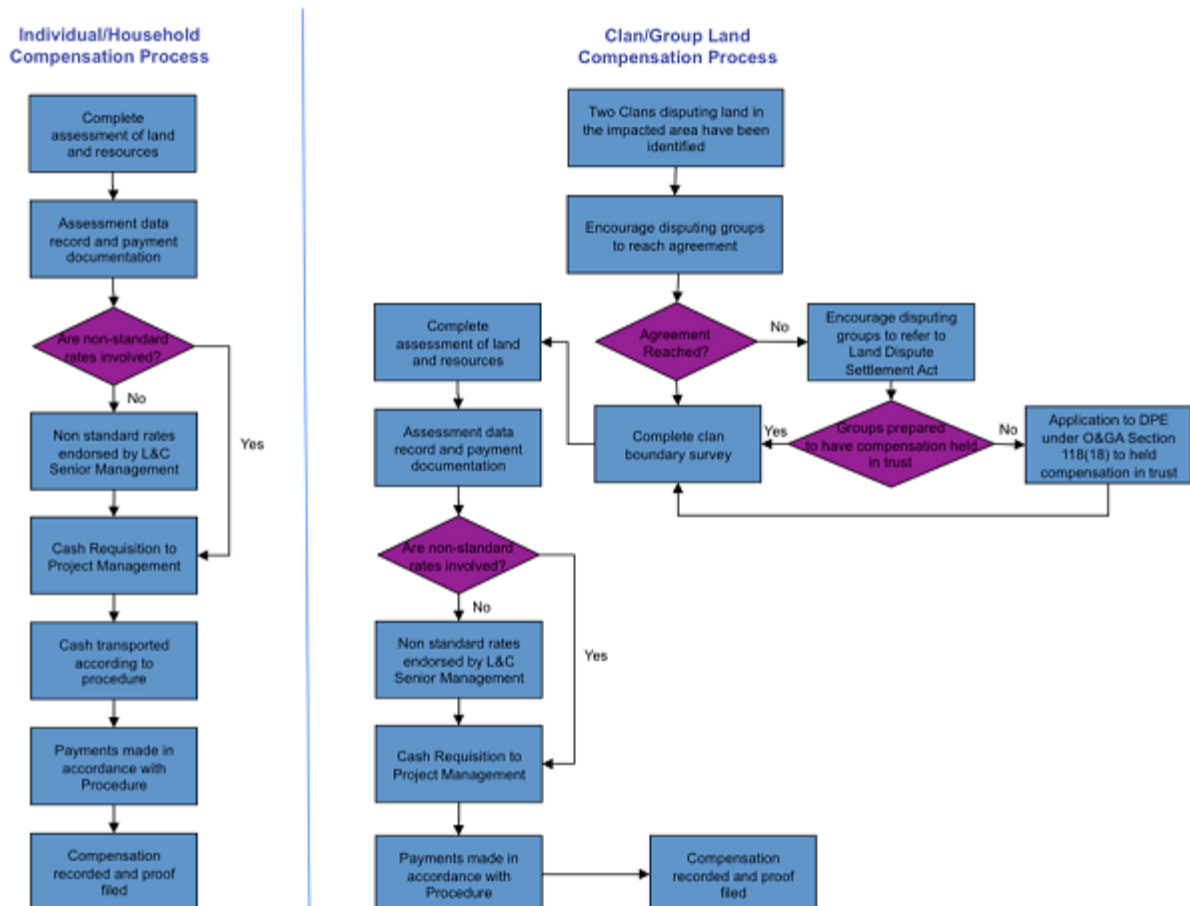


Figure 7-2: Compensation Process

7.3.5 Compensation and Assistance Advocacy

The HGCP community has already benefited from the Project's initiatives to provide a Local Advocate to assist the affected constituencies to participate in the resettlement process on an informed basis. The Environmental Law Centre (ELC) has been undertaking this role as Local Advocate and acting as an independent advisor to the HGCP community with respect to their rights, responsibilities, and options concerning resettlement in the context of both national PNG legislation and the Project plans and provisions. The ELC is a non-profit public interest environmental law organization whose core mission is to ensure protection of the environment and sustainable management of natural resources in Papua New Guinea.

In addition to the advocacy role, the Project will also provide the services of a Compensation Advisor, who will advise affected people on money management matters, such as, for example:

- Financial forward planning;

- Investment options;
- Expansion or 'start-up' business ventures; and
- Training and employment opportunities.

7.4 Summary of Mitigation Measures

Table 7-3 below presents a summary of mitigation measures that affected landowners and communities are entitled to, together with the types of compensation available, in relation to possible impacts identified.

Table 7-3: Summary of Mitigation Measures and Project Responses

Impact	Scale	Mitigation - Project Responses
Residential structures affected	99 structures affected 59 households to be displaced	Physical relocation package finalized after consultation and negotiation with impacted landowners. Package reflects agreed cash and in-kind compensation provisions for affected landowners. Landowner acceptance evidenced by signed agreements with independent monitoring by PNG Environmental Law Centre (ELC) representative lawyers.
Communal structures affected	1 school affected by noise and dust	Project will provide improvements and upgrades to existing school to mitigate impacts such as fencing, school upgrades, improved access, security and traffic control.
Loss of field and agricultural land	59 houses 155 gardens belonging to 55 households 125 absentees	As per O&GA Section 118 these affected landowners are entitled to deprivation compensation (rental). These payments are made to the respective landowning corporations (i.e., clans or clan segments) and have to be shared out amongst the respective members in accordance with custom. In the event of disputes the money is held in escrow until the dispute has been resolved either formally through the court system or informally.
Loss of trees and crops	165 sweet potato gardens 13,643 coffee trees 19,731 other trees	As per O&GA Section 118 landowners are entitled to one-off damage compensation payments that be paid out by L&CA. In the event of disputes the money is held in escrow until the dispute has been resolved either formally through the court system or informally.
Loss of land and other economic resources	59 households	Livelihoods restoration measures directed at establishing and monitoring subsistence patterns.
Loss of access to forest resources	59 households and clan/clan segment members	As per O&GA Section 118, these affected landowners are entitled to deprivation compensation (rental). These payments are made to the respective landowning corporations (i.e., clans or clan segments) and have to be shared out amongst the respective members in accordance with custom. In the event of disputes the money is held in escrow until the dispute has been resolved either formally through the court system or informally.
Disruption in social networks	Resettlement affected households	Relocates will self-relocate to areas in close proximity. Social networks with respect to exchange relations will continue as these are based on kinship, descent, affinity and friendship ties not related <i>per se</i> to specific locales/areas.

Impact	Scale	Mitigation - Project Responses
Impacts on business and employment	Physically/economically displaced: 8 Trade Stores	No loss of formal employment anticipated. Impacted business infrastructure will be compensated based on procedures developed during consultation with affected stores. ELC will provide independent assessment and monitoring of agreements. An independent valuer has been engaged. Compensation includes cost of building re-establishment and loss of trade (Table 6-2). Compensation and business advice will also be provided by the Project Compensation and assistance measures will be negotiated and based on the specific circumstances of each store and owner.
Community services and facilities	Access to water sources and across the site will also be affected	Alternative water sources will be provided together with access around the site Access to education and health facilities will be monitored when relocation sites have been determined
Cultural sites	Cultural heritage, archaeological sites	Compensation schedules for range of cultural heritage sites. Skeletal material to be handled by PNG National Museum. Appropriate rituals to be undertaken by local landowners and caretakers of sites. Sacred stones and artifacts to be relocated by people themselves. Other material to be lodged with PNG National Museum and overseen by archaeologists.
Influx of migrants	To general Hides area and Juni where training centre and improved health facility will be located	Squatter settlements will be difficult to establish in this area as most of the land is under customary ownership so that migrants without close relatives will find it hard to maintain any subsistence livelihood. The Provincial Government is establishing a new police barracks at Komo and this will ensure a measure of security for the community. In the initial stage of construction the site will likely attract short-term onlookers. A police station already exists at Juni. Given there are only two roads out of Komo to Hides some consideration of a boom gate and permitted vehicular access should be considered. The Project has commissioned an In-Migration Management Plan, research for which is currently underway. This plan will include site based measures to manage the potential impact of population influx around the Project areas.

7.5 Strategic Considerations Related to Revised Resettlement Assistance Package

The following discussion addresses the strategic decision of consistency of compensation principles taken as a consequence of the Resettlement Assistance Package revisions agreed to by HGCP affected landowners.

In a linear resettlement project such as this one it is common for different constituencies to demand and negotiate different rates and resettlement package provisions. Moreover, in some cultural areas like HGCP males live separately from their one or more wives who each have their own dwelling. In other non-Huli Project areas co-residential conjugal houses prevail. These differences present challenges in creating equitable, but culturally sensitive resettlement packages. In effect the Resettlement Assistance Package often becomes a live

document and a work-in-progress. These revisions to the resettlement packages compel the Project to consider the consistency and equity of principles for compensation it offers throughout the affected areas. In this respect, because the total value of the HGCP package was higher than that provided for the Komo Airstrip by some K20,000, the decision was taken to inform the Komo affected households that this further sum would be added to their package to maintain parity with HGCP. Both areas will be impacted by sizeable infrastructure interventions.

This strategic decision thus takes into account the importance attributed by IFC to consistent compensation rates throughout an area stated in IFC PS5(8)³⁵ “...*standards for compensation will be transparent and consistent within the project*”. Also, this decision helps avoid possible adverse scenarios which can result from inconsistent compensation rates applied to neighboring Project constituencies³⁶.

7.6 Risks

A number of potential risks can be identified which may pose problems for the implementation of resettlement in the HGCP area:

- At present the umbrella landowner company Hides Gas Development Corporation (HGDC), which subsumes many of the pre-existing Lancos in the Hides-Komo region, is experiencing difficulties with contracts and this is exacerbating tensions in the area. There are many start-up Lancos who wish to act independently of HGDC and others such as the KTDC (Komo Tuguba Development Corporation) Lanco in Komo which are experiencing cash-flow problems. Landowners may leverage their cooperation with the resettlement program against resolution of these business development issues;
- There is no operational bank in the region. Landowners who receive cash either have to travel to Moro, Mendi or Port Moresby for banking services. The HGCP survey found only 7 (12%) respondents acknowledged having their own account when asked about account ownership. With the amount of compensation to be paid this could present problems both to the entitled recipients and logistically to the resettlement implementation agency. Delays in payments can frustrate entitled landowners;
- There is also concern that with the multiple areas subject to resettlement, and the known packages which contain a cash component, this may accelerate in-migration and attendant impacts on social order and

³⁵ IFC Performance Standard 5 –Land Acquisition and Involuntary Resettlement (2006), and Guidance Note 5(2007) G.24 (13) ‘.....transparent, consistent, and equitable manner’.

³⁶ Detailed in the IFC *Handbook for Preparing a Resettlement Action Plan* p.30.

8.0 LIVELIHOOD RESTORATION PROGRAM FOR RESETTLED VILLAGERS IN THE HIDES GAS CONDITIONING PLANT AREA

8.1 Introduction

The livelihood of most people in the Hides Gas Conditioning Plant (HGCP) area is based on subsistence agriculture. Survey results indicate that a number of villagers also derive some cash income, mainly from trade store sales, their interests in the local landowner companies and limited crop production sales. The mix of restoration measures also considers other factors, such as low education levels and lack of work experience, the scattered nature of habitation with lack of transport, and poor nutrition and associated health problems. Agricultural improvements are therefore an important component. At the same time, the Livelihood Restoration Program (LRP) anticipates change resulting from employment and business opportunities provided by or associated with the Project and development initiatives that may be funded by the Project revenues.

This chapter details the proposed LRP for villagers who are being resettled from the HGCP area because of works associated with the Project.

8.2 Objective

The LRP is designed to give physically and economically displaced persons the opportunity to at least restore their livelihood and standards of living. The program initially focuses on land-based livelihoods and is then extended to include other non-land based components. The LRP will be implemented in collaboration with the Community Support Strategy (CSS) initiative, aimed at building capacity for development, so that the resettled community can benefit from all initiatives in the area. The CSS entails the implementation of agricultural and other projects leading to improved standards of living and the creation of enhanced local capacity.

8.3 Scope

IFC Performance Standard 5 on Involuntary Resettlement recognizes that resettlement may result in severe social, economic and environmental impacts. These problems include the dismantling of production systems, loss of productive assets and income and the relocation of people to areas where there is increased competition for resources. The directive calls for the planning and execution of development programs which provide the resettled community with sufficient investment resources and opportunities to improve their livelihoods.

The LRP is for the benefit of the affected community, notably HGCP affected households and will take account of any other development programs in the area to maximize benefits. The selected projects fall within the scope of local development initiatives and programs and as such there is local capacity to implement and monitor the initiatives.

8.4 Approach

During the RAP consultation process, several key stakeholders were engaged with the specific purpose of establishing their area of expertise, their experience with development projects and their willingness to participate in the LRP associated with the HGCP resettlement. The key stakeholders consulted included:

- Villagers who are scheduled to be resettled;
- Other villagers in the vicinity of the HGCP site; and
- Agents and camp management providing and sourcing fresh produce for the camps.

The focus of this LRP is primarily on land-based activities to at minimum restore livelihoods with a secondary focus on non-land based activities to reduce dependence on subsistence agriculture. The reason for the land-based focus is:

- Villagers are skilled agriculturalists, with land and labor available for expanded agricultural production;
- Most people have limited education and this limits their ability to participate in more complex business ventures; and
- During discussions with those to be resettled and their neighbors, their highest priority sought for assistance was with agricultural based activities, such as the sale of fresh food to catering companies associated with the Project and production of chickens for sale.

To address other, non land-based options, the RAP Implementation Team will work closely with various training agencies in PNG and the Community Support Strategy Team. Their focus is on institutional capacity building and supporting local community representative organizations which will be supported to identify and implement suitable development programs for the benefit of local communities.

8.5 Livelihoods Restoration Physical and Social Environment

The physical and social environment in the HGCP area is reasonably uniform for planning purposes. All villagers in the area are Huli speakers engaging in subsistence gardening activities, largely focused on sweet potato. Formal employment and other business opportunities, such as contracting services, are channeled through the local Lancos and the umbrella landowner company, the Hides Gas Development Company (HGDC).

Rainfall in the HGCP area is about 3,000 mm per year, with about the same amount each month, on average. The altitude of locations where villagers are planning to move is about 1,700 m (+/- 30 m). The daily temperature range is 13 - 23 degrees Celsius throughout the year. These temperatures are ideal for a number of temperate climate vegetables, including potato, cabbage, broccoli, carrots and lettuce.

The fertility of the soil in the sites people are selecting to move to varies with the vegetation cover, with the most fertile sites on previously unused forest. Overall soils are reasonably fertile and are suitable for both subsistence and commercial food production.

8.5.1 Needs Hierarchy

The results of the socio-economic survey, as well as various consultations with the affected community revealed the highest priorities to be:

- Not being disadvantaged because of a move to poorer quality land or a more remote location;
- Benefiting from new opportunities associated with the Project;
- Obtaining assistance with producing and marketing fresh vegetables and fruit for sale, such as to catering companies serving camps for the Project;
- Production of certain animals for sale and home consumption, in particular broiler chickens, but also carp fish, rabbits and honey bees; and
- Accessing technologies which could improve subsistence food production, in particular, sweet potato and other staple foods.

8.5.2 Vulnerabilities

The main vulnerabilities which affect the community are:

- Move to a new location where the environment for agricultural production is poorer than the former location;
- Move to a new location with less access to markets and services than their former location;
- Loss of agricultural land;
- Loss of access to economic trees;

- Exposure to jealousy and other community issues at new site;
- The inactivity associated with waiting and the impact this can have on livelihoods; and
- The anxiety associated with resettling and the tendency for implementation or construction timetables to shift.

8.6 Land Based Development Initiatives

The land-based component of the livelihood restoration strategy is comprised of extension and support activities, aimed at:

- Re-establishing existing gardens and subsistence agricultural practices; and
- Promoting rural enterprise through awareness creation and initiatives to generate cash income.

Extension services will be provided by the Project to assist HGCP resettlement-affected households to re-establish agricultural and livestock activities at their resettlement sites, increase production and develop new economic activities. These services will be provided prior to relocation so as to limit any interruption in production. Consideration will be given to the dispersed nature of resettlement and the relatively small numbers of households that will be resettling. Extension services will therefore include:

- Dedicated extension staff contracted by the Company provided with transport, equipment and materials needed to offer services; and
- Outreach programs with settlers to teach new practices and technologies with potential to help people increase incomes.

Outreach will cover:

- Improved varieties of crops and virus free planting material, particularly pathogen-tested sweet potato;
- Assistance with the production of temperate climate vegetables, other vegetables and fruit for sale to catering companies associated with the Project;
- Production of animals for sale and home consumption, especially chickens, but also carp, rabbits and honey bees; and
- Crop and livestock processing technologies, including preserving fruit and tubers and production of marita pandanus oil.

The proposed strategy includes a number of components in the HGCP area focused on what is more convenient and appropriate to assist resettled households with both subsistence food production and cash income generation from land-based activities. The main categories for assistance are:

- To assist villagers in re-establishing subsistence food production in the new locations;
- Improved subsistence food production;
- Enhanced cash income from agricultural production;
- Animal enterprises; and
- Timber for firewood and construction.

8.6.1 Assist Villagers with Re-establishing Subsistence Food Production in the New Locations

The main focus will be on sweet potato, which dominates subsistence food production. Improved planting material of other food crops will also be supplied, including maize, cassava and banana. Villagers know what has to be done to re-establish their food gardens. They may however require assistance with sourcing planting material, accessing their former food gardens to obtain planting material, and basic garden tools³⁷.

Some baseline assessments of the new sites (which are currently being identified) are required to assess their suitability for subsistence food production. The role of the Livelihood Restoration (LR) Team here will be to stay in close contact with households, especially adult women, as they re-establish new food gardens and to monitor problems as they appear. The work program will include advising villagers of the need to replant sufficiently large areas of food gardens soon after resettlement.

To ensure appropriate nutrition, assistance will also be provided with the cultivation of other potentially promising crops, as discussed in Section 8.6.2.

8.6.2 Improved Subsistence Food Production

There are a number of new technologies which are currently available or will be by late 2010 which can assist people to improve the efficiency of subsistence food production. The most important of these is pathogen-tested sweet potato planting material. Research has been conducted by a joint team from Queensland Department of Primary Industries and the PNG National Agricultural Research Institute (NARI) to evaluate virus-free planting material. Initial results are encouraging. In overseas locations, use of pathogen-tested planting material has given large increases in sweet potato yield, including in China and in Queensland.³⁸

Importantly, the increase in tuber yield only lasts for two generations and then new pathogen-tested planting material has to be used. Hence it is important to establish propagation facilities in the local area. Senior NARI staff advise that pathogen tested planting material of PNG varieties will not be available from NARI Aiyura until late in 2010. However it may be possible to accelerate this process. Both introduced varieties and local highland varieties are being evaluated under pathogen-tested conditions. NARI can provide plantlets in tubes or tubers. These are then multiplied in insect-proof screen houses to generate planting material for distribution.

Planting material of improved types has been developed for a number of other crops, including maize, disease free potato (FPDA and Alele Ltd), banana, peanuts, rice and soybean. Maize is a particularly important crop in this context as it provides carbohydrate food in about 100 days after planting, which is much faster than for sweet potato.

While superior planting material has been developed at research stations, there is very limited available supply of improved planting material of these crops. One of the early tasks is to establish the most efficient way to propagate and distribute relatively large volumes of improved planting material to resettled villagers. Later this can be extended to households who are not being resettled.

8.6.3 Enhanced Cash Income from Agricultural Production

Extension and demonstration services will also extend to the development of new activities such as, fresh food to be sold to catering companies. Specific programs will be developed for resettled households through a consultation approach between households, specialists

³⁷ Based on experiences at Komo where each household obtained one set of tools, each household will now be provided with four sets of tools that will ensure quicker garden re-establishment.

³⁸ For example, in China, use of PT sweet potato planting material has given mean increases in tuber yield of 38%, with tuber yield increases of up to 62% for some varieties. Source: Wang, Q.M. (2009). Sweet potato viruses in China. Crop Protection doi:10.1016/j.cropro.2009.11.002.

appointed by the Company, and development agencies (e.g., Business for Millennium Development) to implement the programs.

Guidance on marketing, financial and business management will also be provided in relation to demonstration projects established for affected households. Extension services will be provided in close cooperation with staff of government departments, NGOs and other development agencies. In addition, the LR Team will work closely with the Community Support Strategy (CSS) programs.

The Community Support Strategy (CSS) provides strategic direction for initiatives designed to promote the development of conditions conducive to enhanced livelihoods of PNG communities. The primary component of the CSS is the Community Development Support Program (CDSP). The CDSP Program will describe the activities the Company will undertake to invest in sustainable long-term community development. Community Development Support activities will be developed and implemented in a culturally appropriate and sustainable manner, by adopting the following principles:

- Maintain ongoing relationships with communities that are informed, empowered and ultimately fully accountable for their own development;
- Support communities and local government in defining their own development agenda through participatory planning and decision-making;
- Encourage self-reliance and re-enforce local institutions and process, positioning the Company as a partner rather than the principle actor in local development - avoid creating a relationship of dependency;
- Where possible, use a tripartite approach involving community, government and the Project;
- Ensure all social investments have a sound business case; and
- Create a viable exit and handover strategy early.

Improved transport links associated with the Project's development may support the provision of cheaper inputs and the development of more effective marketing, increasing the attractiveness of cash cropping of fruit and vegetables and other activities. These improved links may also support some further agricultural diversification in cash or food crops.

The greatest potential for increasing cash income for villagers is for sale of fresh food to catering companies associated with the Project. Current plans are for eight camps in the Hides-Angore-Komo area, commencing over the period mid 2010 to December 2013. These will have capacity for about 2,000 persons.

Currently most locally grown fresh food sold at the Nogoli and Moro camps comes from the Mount Hagen area, Simbu Province and Enga Province with some seven tones per week of a range of fresh foods. It is estimated that peak demand for catering at the Project work camps will be 150 tones per week. Demand will increase steeply from early 2010, peaking in 2012, after which demand will decline in 2013, then stabilize at a much lower level from early 2014 onwards. A new group, Business for Millennium Development (B4MD), have proposed forming a new company, Southern Highlands Produce, which would purchase fresh food in Southern Highlands Province as well as in the Mount Hagen area. Its estimates for 2010 indicate the type and volume of produce which could be sold to catering companies associated with oil and the Project in SHP (see Appendix 9 Table 1). More detailed information is now being generated from the catering companies at Nogoli and Moro for planning.

It is known which crops can be grown in different environments in this area. Constraints to expanding production are marketing; access to inputs (suitable seed and fertilizer); and knowledge by villagers about commercial vegetable production. There are good prospects for growing a number of fresh foods in the HGCP area, including sweet potato, potato, pumpkin, taro, beans, tomato, Chinese cabbage, round cabbage, beans, cucumber, ginger,

silver beet, spring onion, parsley, avocado, banana, mandarin, purple passion fruit, *suga prut*, tree tomato and lemons. The LR team will liaise closely with B4MD to link production of fresh food to marketing efforts of B4MD. This organization will be working with existing organizations who are currently supplying fresh food to the camps. The LR team will liaise with any other company that provides suitable opportunities that can be exploited by the resettled communities, taking account of the number and distribution of resettled households.

A number of technical issues will also need to be addressed for resettled households to benefit from marketing opportunities; these include sourcing seed or plant material and technical advice on production methodologies. For some crops, such as mandarin and orange, planting material is available in PNG.

Marita (*Pandanus conoideus*) is commonly grown in this area over an altitudinal range of 50 - 1600 m. It produces well in many environments, including poorly drained sites. Villagers extract a sauce from the oil-rich fruit and use this to garnish carbohydrate foods, such as sweet potato and banana. The fruit also has a high content of pro-Vitamin A (carotene). The oil can be extracted and used as the basis of body and hair lotions. The technology to do this has been established by staff of the Fresh Produce Development Agency (FPDA), although this is not done commercially in PNG. There is significant market potential for this produce in PNG and in some overseas markets, including in Japan.

It is also proposed to give guidance to villagers to produce snack foods from locally grown foods, including sweet potato, banana and cassava. There is high demand for snack foods in both urban and rural areas in PNG, but locally produced products are not available. Again the technology has been developed by FPDA, but has not been applied to increase villagers' cash income.

For all the above measures proposed it is important to remember that anything the Project supports must meet the health and safety requirements of the Project.

8.6.4 Animal Enterprises

A number of animal enterprises have potential in this area for both subsistence production and for sale. These include pigs, broiler chickens, carp fish, and honey bees.

- **Pigs:** are the most important domestic animal in the PNG highlands, including in this area. Production can be increased through a number of measures, including superior breeds and high protein feed. However, there has been very little, if any, improvement in pig production in the PNG highlands over the past 50 years, despite significant effort to do so. Use of de-wormer may perhaps increase production and further information will be sought on this. Other than this possible input, it is not proposed to focus on pig production;
- **Broilers:** production of broilers in Highland villages has expanded greatly over the past 20 years. There is likely to be a large increase in demand for chickens, especially live ones, in the HGCP area as some people receive relatively large cash payments associated with the Project. At the moment, access to stock feed is a limiting factor, as is access to day old chickens, so settlers need to be assisted to overcome these constraints;
- **Honey:** production in PNG is concentrated in Eastern Highlands Province (EHP). Bees are likely to produce moderately well in the HGCP area as the temperature range is suitable and rainfall is not excessively high. Domestic honey production in PNG is about 50 tones per year, with demand of about 200 tones per year, so there are good markets for honey. It is worth setting up some hives as demonstrations to gauge local interest. Technical advice on honey production is available from staff of EHP Division of Primary Industry; and

- **Fish:** there has been a rapid expansion of inland fish farming in the PNG highlands over the past decade, particularly carp production. Fingerlings are available from the Highlands Fisheries Centre at Aiyura near Kainantu in Eastern Highlands Province. People have managed fish ponds in the Komo area in the past, and further restocking of ponds is justified by the interest in fish farming.

8.6.5 Timber for Firewood and Construction

Currently timber for firewood and building comes from *Casuarina* (*yar* in Tok Pisin) and bush trees. There is likely to be increased demand for timber for both firewood and building as people migrate into the HGCP area and for construction of new dwellings and businesses.

Specialist advice will be provided on both production and processing of timber. Environmental issues related to such timber production will also need to be considered.

8.6.6 Information Required in Mid 2010

There are a number of tasks which were completed in the first half of 2010 so that this program can be developed more fully. Some are higher priority than others. Tasks include:

- Assessing the physical environment to which villagers are being relocated, in particular to assess its suitability for long-term subsistence food production;
- Consult with affected people;
- Evaluate skills to determine the level of training that will be required and the appropriate people to be trained (males and females);
- Assessing the establishment of new subsistence food gardens for relocated people;
- Make an assessment of cash income levels of households being resettled. This data is being collected as part of the baseline study, but will be verified through sample surveys undertaken during implementation. Indications are that household cash incomes are about K500 - K2,000 per household per year;
- Some more information is required on sources of planting material, technical advice and other issues for improved subsistence food production, fresh food sales, coffee, chickens, goats, carp, honey bees, and other sources of land-based cash income. A study tour will be undertaken to Lae, other locations in Morobe Province, Aiyura, Goroka, Mingende and Mount Hagen to make contact with individuals and gain necessary information on which to base a more detailed program (See Table 2, in the Appendix 9 for further details). There are a large number of potential fresh foods which could be sold and information is needed on each crop;
- Demand for fresh food (types; volumes; timing) from catering companies serving the Project. There is some preliminary information from Business for Millennium Development (Table 1, Appendix 9). This is being refined and confirmed through discussion with the catering companies; and
- Specialist advice will be obtained on timber production for firewood and construction for this area.

8.7 **Non Land-Based Initiatives**

The non land-based component of the livelihood restoration strategy is aimed at:

- Diversifying the income base of affected households and reducing their dependence on subsistence agriculture;
- Enhancing household members' ability to generate cash income through training that could generate income; and

- Collaborating with the Community Development Support Program (CDSP) in development initiatives to benefit the broader community.

Non land-based initiatives aimed to improve livelihoods through capacity building and training programs that will be implemented as part of the broader Project, with benefits to the Project affected households, include:

- Financial skills and money management;
- Training in non-agricultural skills; and
- Support for provision of infrastructure.

Each of these is discussed in detail in the following sections. An overview of each is provided with timing and costs described in later sections. Each component will have to be considered in detail during the planning phase.

8.7.1 Basic Financial Skills and Money Management

The affected community will be entitled to relatively large compensation and disturbance payments. A Compensation Advisor, appointed as part of the RIT, will provide advice to individual households and groups: on financial management, such as saving, budgeting, home economics and business plans; coordinate training in financial management; and facilitate access to financial institutions and development organizations.

The women of the HGCP community would benefit particularly from the training programs in home economic management as they have expressed significant concern that income derived from the Project (through compensation or long-term land rental) would not be managed effectively for household well-being.

8.7.2 Training in Non-Agricultural Skills

A training needs assessment will be conducted to identify appropriate training programs to be offered to representatives of each affected household. The objective of training will be to enhance household members' ability to earn additional income, independent of land-based subsistence activities. Such training programs could include:

- Construction skills to prepare people to work on the construction of the Project and of replacement houses, for example in:
 - Brick laying;
 - Carpentry; and
 - Driving;
- Related skills to prepare people to work for the Project such as:
 - Cleaners; and
 - Security guards; and
- Micro-enterprise skills, to prepare people to launch new businesses, such as:
 - Vehicle maintenance and repairs;
 - Driver training;
 - Construction and operating guest houses;
 - Cooked food outlets;
 - Baking; and
 - Retailing, including sale of mobile phones and phone cards.

The LR team will work closely with other organizations undertaking training in the area. For example, the Workforce Development component of the National Content Plan for the Project aims to train PNG citizens in the construction trades, technical and professional skills that will be needed during the construction and production phases of the Project. The Juni Training Centre is some 14 km from the HGCP site. It is also planned to be complete and

training recruits for construction of the HGCP by July 2010. When fully operational, the Juni Training Centre will have capacity to train up to 200 trainees each year over a 3-year period, in general skills, specialized skills and office skills. Accommodation will be provided for around 130 people, including approximately 90 trainees at any one time, as well as 40 instructors and support staff.

8.7.3 Support for Provision of Infrastructure

It could be expected that a significant portion of the population required to resettle would opt for housing in the vicinity of the HGCP to optimize employment prospects and to access a broader range of government services (in particular health and education as well as public infrastructure required to support an increased residency at the HGCP) than they have been able to access in the past.

The Project will also support infrastructure development, such as access roads around the HGCP area, through the Community Support Strategy activities currently being investigated.

8.8 Implementation Schedule

Implementation will be phased, with the first phase directed at replacing mainly existing gardens and pilot agribusiness opportunities, and the second phase geared to the introduction of new opportunities, training in non-agricultural skills and diversification. There will be some overlap between phases. The proposed approach and timing is illustrated in Table 8-1 below.

Table 8-1: Implementation Schedule

Time Frame	2010			2011				2012	
Phase/Activity	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Phase 1:									
Initial interactions to commence program - all households									
Individual household meetings - identify issues/needs									
Training needs assessment									
Facilitate access to agricultural inputs, particularly planting material									
Monitoring of gardens - household visits									
Collate information on possible agricultural support initiatives									
Establish demonstration projects and plots									
Initiate non-agricultural training programs									
Phase 2:									
Ongoing monitoring of gardens - household visits									
Ongoing group training sessions									
Outreach on fresh food production, animal production and other initiatives									
Implement selected projects									
Non-agricultural training programs									
Monitoring of livelihood restoration program									

8.9 Resources Needed to Undertake the Livelihood Program

The LR Team will be based at Nogoli as well as Komo to support all the resettlement projects in the area. Each area will require varying levels of staffing according to their stages of implementation. HGCP is the second program to be implemented after Komo.

It is planned that each household being resettled be assisted for two years after they move location. Thus the duration of the program in the HGCP area is from the latter part of the second quarter of 2010 to the second quarter of 2012.

8.9.1 Staffing

Livelihood restoration implementation specialists will be appointed to implement the program. The program for each of the two main components, namely the land-based and non land-based components, will be planned through a consultative process with the affected communities and then implemented over a two-year period.

The proposed organizational structure for implementation of the LRP is illustrated on Figure 8-1.

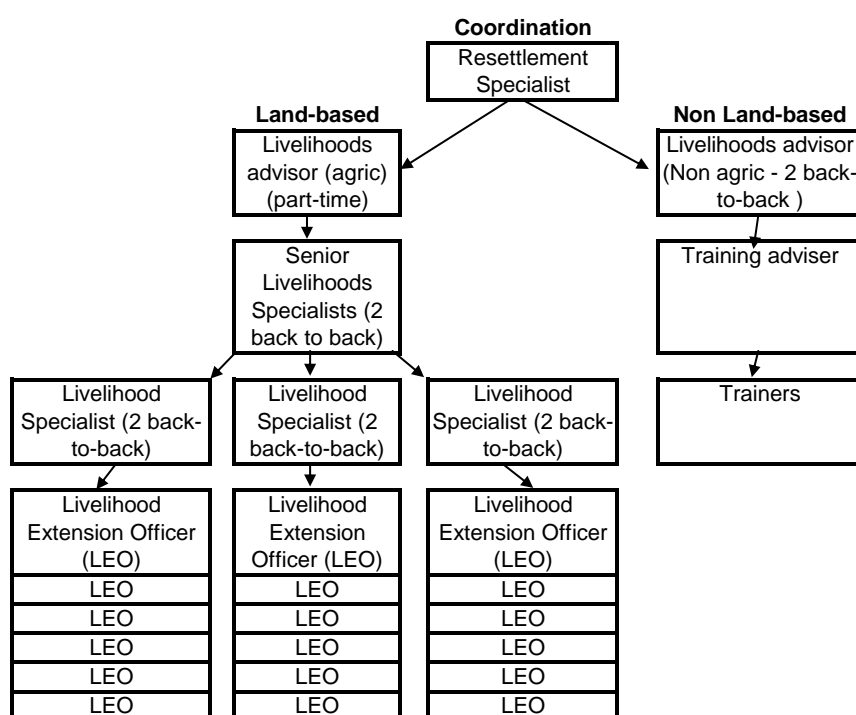


Figure 8-1: Livelihoods Restoration Organizational Structure

The LR Team's responsibilities are shown in Table 8-2 below. Other resource requirements include hire of vehicles, hardware, disposable equipment (office supplies etc.), PNG and overseas based consultants, demonstration materials and planting materials.

Table 8-2: Livelihood Restoration Program Staffing

Component	Position	Qualifications	Responsibilities
Coordination	Resettlement Specialist	Resettlement and development experience.	Oversee coordination of LR program.
Land-based	Livelihoods Advisor (agricultural) (part-time)	Expert in PNG agriculture and extension.	Overall guidance and coordination of land-based component of Livelihood Restoration Program. Provide program strategy.
	Senior Livelihoods Specialists (positions working back-to-back)	Formal qualifications in agriculture; minimum of 5 years experience in PNG agricultural development and extension.	Assist with coordination and administration for land-based component; provide specialist training.
	Livelihood Specialist (back-to-back positions)	These positions will be filled by suitably qualified Nationals, at least half by women. These people will have formal qualifications in agriculture at the degree or diploma level.	Conduct field visits to: <ul style="list-style-type: none"> • Monitor progress of garden reestablishment. • Provide assistance and advise as required; and • Provide agricultural training.
	Livelihood Extension Officers	These staff will work most closely with the resettled families, both women and men. All will be recruited from the local area, be village based, respected farmers and will be Huli speakers. It is planned that at least half should be women.	Conduct field visits to: <ul style="list-style-type: none"> • Monitor progress of garden reestablishment; • Facilitate access to agricultural inputs (seeds etc.); • Provide extension advice/support as required; and • Assist with agricultural training.
Non Land-based	Livelihoods advisor (Non agricultural - back-to-back positions)	Development and training experience.	Implement the non land-based component of LR program.
	Training Adviser	Training experience and experience in the coordination of external trainers.	<ul style="list-style-type: none"> • Training needs assessment; • Identify appropriate training programs; and • Coordination of training.
	Trainers	Suitably qualified training organizations will be approached to provide training as per needs identified.	Provide training as required.

9.0 GRIEVANCE MANAGEMENT FRAMEWORK

9.1 Introduction

The resettlement process for the HGCP households will consider grievances through the Third Party Grievance Procedure, which will apply across all Project activities. The Third Party Grievance Procedure is available to people affected by displacement, other local populations residing in the Project Impact Area, and other stakeholders directly affected by the Project.

The Third Party Grievance Procedure that will be adopted for the HGCP RAP has been defined in the RPF. The Project will disclose information about the Third Party Grievances Mechanism to affected HGCP community, adjoining landowners and interested persons and organizations. The transparency and fairness of the process will be explained through both verbal (via regular stakeholder meetings) and written (newsletters, website, posters, etc.) updates.

9.2 Mechanisms to Receive Grievances

Grievances will be received both verbally and in writing through the following mechanisms:

- L&CA personnel assigned to the HGCP area will receive verbal grievances through their periodic visits to communities and capture them in the Grievance Form;
- Written grievances will be lodged in person or sent to the L&CA offices located at Hides, Moro, Kopi and the LNG Facility site, or at the Head Office at Port Moresby;
- L&CA personnel will be in constant communication with local authorities, making themselves available to respond to any grievance brought up through community leaders; and
- The Project will also establish an email address: pnglng-grievance@exxonmobil.com for stakeholders (particularly absentee landowners or other local populations who may not reside near one of the L&CA offices) to lodge grievances.

Figure 9-1 illustrates the Third Party Grievance Flowchart. The steps are detailed in the following sections.

9.2.1 Recording and Acknowledgement

All grievances, regardless of how they are received, will be recorded by L&CA personnel using the Grievance Form. All grievances will be recorded in duplicate in Part A of the Grievance Form. A copy of the form will be provided to the person raising the grievance either at the time of raising the grievance or within seven (7) days of receipt of the grievance. This acknowledges receipt of the grievance and provides the person with a unique identification (tracking) number.

9.2.2 Register

Once recorded, all grievances will be registered in a centralized Grievance Tracking Database. L&CA personnel will enter all grievances into the Database. However, before doing so, L&CA will check the Database to determine whether it is a new complaint so as to avoid duplication and to determine whether there is any context or precedent related to the issue³⁹.

³⁹ All past recorded grievances must be entered into the Grievance Tracking Database.

9.2.3 Assess

Grievances will be reviewed and assessed by L&CA using all available information to determine whether it is a grievance related to the Project, the government or another external entity. If the grievance is not related to the Project, the person raising the grievance will be informed and reasonable efforts will be made to facilitate involved entities to address the issue. In this case, the grievance will be closed out in the Database.

9.2.4 Management and Response

Depending on the nature of the grievance, the L&CA Manager will assign the grievance to the appropriate Project department for action and resolution. The assigned Project department will review and investigate the grievance, and provide a response (with a resolution and if necessary a schedule of corrective actions) to the L&CA Manager. The L&CA Manager will ensure that a written response will be provided as soon as possible and not more than 30 days after receiving the grievance. If, however, more time is required for resolution, L&CA will keep the person raising the grievance informed.

9.2.5 Monitoring and Evaluation

L&CA will monitor progress of each respective grievance and keep the person raising the grievance informed of its status. Updates will be given on a regular basis and information sharing will not exceed 30 days and will continue until the grievance is resolved. The L&CA Manager will monitor implementation of the response and corrective action of Project grievances. Within a month of the response being provided to the person raising the grievance, L&CA personnel will make a visit to verify that the situation has been resolved to the satisfaction of all involved. If required, monitoring will be made on a regular basis, which will be determined on a case-by-case basis.

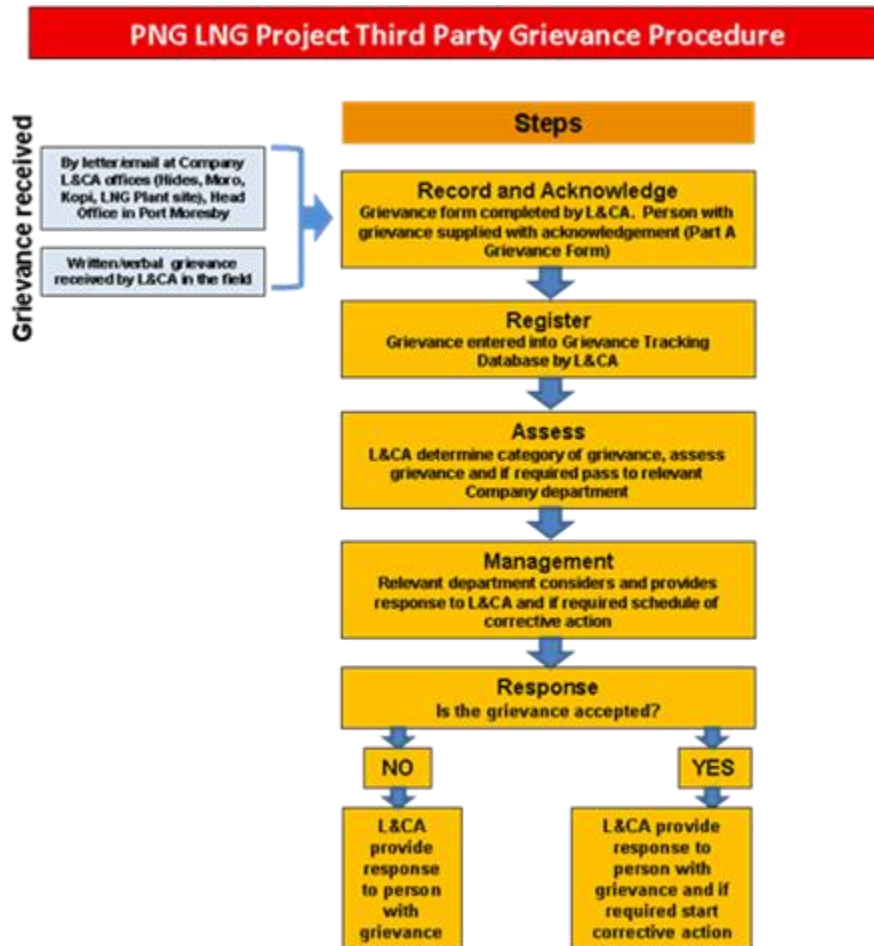


Figure 9-1: The Project Grievance Procedure

At present a system of recording grievances is being implemented by the ELC, who are recording issues that cannot be resolved during the ongoing household consultation and negotiation process as grievances to be followed up by the Project.

10.0 ORGANISATIONAL ROLES AND RESPONSIBILITIES

Overall responsibility for the planning, implementation, and monitoring of the HGCP resettlement program rests with the Company, as specified in the RPF. The Land and Community Affairs Team of the Company will be undertaking these activities for the HGCP program.

10.1 Roles and Responsibilities

The roles and responsibilities of each post undertaking the resettlement program, as defined in the RPF, are outlined in the following sections.

10.1.1 Land and Community Affairs Manager

The Company's L&CA Manager (SPM) has overall responsibility for achievement of resettlement goals. The SPM is responsible for gaining corporate approval for the HGCP RAP and ensuring that it conforms to the RPF. The SPM will also receive regular progress reports on the implementation of the HGCP RAP, including reasons for any delays or variations from the RAP, as well as proposed corrective actions. The SPM will provide status reports to Company executive management, external lenders, and stakeholders, as required. The SPM may commission input advice from specialist advisors as required.

10.1.2 Resettlement Team Coordinator

The Resettlement Team Coordinator (RTC) reports to the SPM and has day-to-day responsibility for the development and on-going stewardship of the RPF. The RTC will coordinate the following HGCP teams:

- Resettlement Census and Survey Team;
- RAP Document Development Team; and
- RAP Implementation Team (including the monitoring and evaluation).

The RTC will serve on the Grievance Panel as defined by the Grievance procedure.

10.1.3 Resettlement Census and Survey Team

The Project has contracted a Resettlement Census and Survey Team from Australian National University Enterprise (ANUE) to complete initial reconnaissance surveys, census and asset and livelihood surveys, and spatial mapping. In addition they will also complete any required clan boundary demarcation and identification. The OSL Health Team has also been contracted as part of this team to complete relevant health surveys as part of the initial process.

10.1.4 RAP Document Development Team

The RAP Document Development Team (RDDT) is responsible for planning and preparation of individual site-specific RAPs, including the HGCP RAP. The Team is composed of resettlement and consultation and disclosure practitioners with experience in resettlement in PNG and other countries.

It also includes expert advisors in sectoral areas such as anthropology and human geography, agriculture, human health and environmental management. As part of the RAP preparation, members of this team will support the RAP Implementation Team to complete relevant consultation and disclosure activities.

10.1.5 Resettlement Advisor

The HGCP Draft RAP will be reviewed by an expert advisor who will provide high-level input and guidance prior to documents being endorsed for distribution and implementation.

10.1.6 RAP Implementation Team

The RAP Implementation Team (RIT) is composed of an Implementation Coordinator (RIC) with day-to-day management responsibility for:

- Initial formation and on-going operations of the RAP Implementation Team;
- Management of RAP implementation for relevant areas;
- Planned consultation with and information disclosure to affected households and host communities;
- Provision of regular progress reports to the RTC and RIC;
- Liaison with the Local Advocate and Compensation Advisor;
- Coordination of the Resettlement Assistance Package delivery; and
- Resettlement grievance procedure operation.

In addition, coordination and support personnel will assist with coordinating and implementing:

- Physical infrastructure development;
- Procurement and logistics;
- Compensation advice;
- Consultation and disclosure;
- Resettlement package delivery; and
- Grievance management.

The RIT will also be responsible for implementation of livelihood restoration and development support programs for the HGCP households and for RAP implementation progress monitoring and reporting. In addition this group will also establish and maintain a resettlement database containing the monitoring baselines.

The team employs experienced Community Liaison Officers from the region, Expatriates with specialist skills and PNG Nationals with experience in the resource extraction industry, including resettlement at Lihir and Porgera.

This field team is supported by a Senior Social Advisor and the overall Resettlement Team Coordinator. The RAP Implementation Team works closely both with the Resettlement Census and Survey Team, and L&CA.

10.1.7 Technical Advisors

The RAP Document Development Team will be able to call on the advice and assistance of a panel of technical advisors focusing on areas such as agricultural development and support implementation, livelihood restoration implementation and architectural and dwelling design support. These people will be available to be brought in for specialist advice as required.

In addition, the RIT will draw on support of staff with specific expertise from SELCA and other Project departments listed below:

- **Land and Community Affairs:** The Land and Community Affairs Team (L&CA) will provide Community Liaison Officers (CLOs) to support the implementation of resettlement activities by acting as the principal point of day to day contact with households to be relocated. They will also coordinate all consultation processes and will work closely with the Local Advocate and Compensation Advisor. In addition the RIT will also communicate and coordinate with the relevant Village Liaison Officers (VLOs) from the affected areas;

- **Logistics and Procurement Team:** Procurement and logistical support on all materials and services necessary for physical resettlement (e.g., housing materials, water tanks, etc.) will be provided by an in-country logistical support team who will coordinate directly with the RTC;
- **Community Health Team:** The health element will be managed by the Community Health Team that reports to the Medical and Occupational Health Manager. This group will also be responsible for monitoring the health status of resettled households; and
- **Government Affairs Team:** The Government Affairs Team will support the resettlement process by coordinating communication and consultation with the relevant Local and Regional Government Departments.

10.2 Local Advocacy Consultant and Compensation Advisor

The Project has implemented two initiatives - Local Advocate and Compensation Advisor - to assist the HGCP displaced people to be fully informed of and to better benefit from compensation and other entitlements. These measures are a response to the low literacy levels of the affected populace and the complexity of information regarding resettlement, statutory rights under PNG legislation, and the various compensation calculations and options.

The Environmental Law Centre (ELC) will perform the advocacy function. The Local Advocate will assist affected people to understand their entitlements, as well as provide support for and help to resolve grievances at the household level. In the event a grievance cannot be resolved, the advocate will advise the complainant on the judicial process.

The Project will also provide the services of a Compensation Advisor who will assist affected people who receive compensation to spend and invest wisely. Advice will include:

- Explaining compensation processes and bases;
- Assisting in financial planning;
- Outlining investment options;
- Facilitating 'start-up' business ventures; and
- Advising on potential training and employment opportunities.

10.3 HGCP Community Resettlement Implementation Committee

Existing structures will be utilized to appoint an Implementation Committee that is representative of most of the landowners and has influence in the Project area. The Committee is expected to consist of some eight to 12 affected households. The Committee will be appointed permanently, allowing for some rotation between representatives, and will be remunerated appropriately until resettlement has been implemented. The Committee will assist with the following:

- Resolution of disputes;
- Liaison between Project and community;
- Provide guidance to the RIT; and
- Disseminate information.

11.0 MONITORING AND EVALUATION

This Chapter describes the monitoring and evaluation strategy that will be used for the HGCP RAP implementation. The M&E process is critical to achievement of the goal of resettlement, to at least restore the livelihoods and standards of living of affected people.

The purpose of the M&E system is to provide the Project management, and directly affected persons, households and communities, with timely, concise, indicative information on whether compensation, resettlement and development investments are on track and achieving the Project restoration goals. This system will also track Project goals on improvement in the welfare of the affected people and indicate the need for any course corrections. The Resettlement Team Coordinator (RTC), supported by the Field Implementation Coordinators, will coordinate M&E internal and external implementation.

Preliminary monitoring of implementation activities has commenced at the HGCP site, where the RIT and ELC representatives monitor the delivery of rations, and payment of transit allowances to affected households as part of the household consultation and negotiation process.

11.1 Monitoring and Evaluation Components

The monitoring and evaluation framework has five components:

- Internal progress monitoring;
- Internal output monitoring;
- External outcome evaluation;
- External completion audit; and
- Reporting.

11.1.1 Internal Progress and Output Monitoring

Internal input and output monitoring are critical to keeping resettlement measures on schedule and achieving the desired outputs.

11.1.1.1 Input monitoring

Input (or progress) monitoring will measure whether the RAP measures are implemented on schedule and as defined in the RAP. Input monitoring will be done on an ongoing basis during RAP implementation in order to expedite delayed actions or resolve inconsistencies.

The Resettlement Team Coordinator (RTC) will be responsible for verifying that all elements of the HGCP RAP are on schedule and as planned. The RTC will note delays or changes to the RAP, investigate reasons, and work with the responsible persons to identify corrective actions and ensure that they are carried out in a timely manner.

Input monitoring will result in an internal scheduling report, which will not be for public disclosure.

11.1.1.2 Output Monitoring

Information will be collected on a range of socio-economic parameters for example education, health, investment and expenditure - to assess the post-relocation status of affected households and to gauge the success or otherwise of implementation programs.

If the desired outputs are not evident, new programs and initiatives will be implemented to ensure improvements in lifestyles and standards of living are achieved. Formal output monitoring will be recorded on a monthly basis during the implementation of the HGCP RAP and continue as long as livelihood restoration measures are implemented. These monthly reports will be consolidated every six months into a report for public viewing. This report will assist in increasing the participation of Project Affected Persons (PAPs). The RTC will coordinate monthly output monitoring through Field Coordinators.

11.1.2 External Outcome Evaluation

11.1.2.1 Outcome Evaluation

The objective of outcome evaluation will be to determine the extent to which inputs and outputs are achieving or are likely to achieve the overall goal and the principles of the HGCP RAP, with particular emphasis on livelihood restoration and standard of living. Outcome indicators look at the products or effects of inputs and outputs and, thus, are generally more qualitative.

The RTC will coordinate and support external outcome evaluation. The actual evaluation will be conducted by an independent external entity on a semi-annual basis during RAP implementation. The final outcome evaluation will be conducted about four months prior to the expected completion of the HGCP RAP implementation to allow time for necessary actions prior to the completion audit.

During the first year of HGCP RAP implementation, the evaluator will focus on the:

- Effectiveness of resettlement organizational structure and resources (both human and financial);
- On-going process of consultation;
- Timeliness and effectiveness of compensation, relocation, and re-establishment assistance;
- Plans and initial implementation of livelihood restoration plans; and
- This evaluation report will be made public.

Starting in the fourth quarter of the first year and throughout the remaining HGCP RAP implementation period, the evaluators will focus on livelihood restoration, including:

- Living conditions, including housing, water supply, access, sanitation and health;
- Effectiveness of livelihood restoration measures, established largely by proxy indicators of restored or improved income;
- Grievance mechanism use and effectiveness;
- General level of satisfaction with livelihood situation among resettled households, achievable through the use of participatory methods; and
- The production of a six-monthly report that will be made public.

Basic outcome evaluation methods will be finalized in collaboration with the evaluators, but will include at minimum the following activities:

- Familiarization with the HGCP RAP and all baseline data;
- Review of census information on all displaced households;
- Field visits, consultation, and informal interviews with displaced households, their clans/host families, and other key informants;
- Observance of consultation processes;
- Review of grievances and resolutions; and
- Sample survey of displaced households (at least 18 (30%) HGCP households).

The evaluators will judge the effectiveness of both measures and outcomes, and will make recommendations for any changes to measures and/or implementation processes necessary to implement displacement measures in a way that achieves the goal of the HGCP resettlement program. Additionally, the evaluation will capture lessons learned from the HGCP resettlement process that may be useful for the Project's other resettlements.

11.2 Monitoring and Evaluation Indicators

Each M&E component will apply a different set of indicators. The following sections describe the different types of indicators for each M&E component.

11.2.1 Progress Monitoring

Progress will be monitored against the implementation measures and schedule set out in the HGCP RAP.

11.2.2 Output Monitoring

Outputs will be measured by a set of mainly quantitative indicators measured against the targets of each action. An indicator matrix is being prepared. The Project, for example, plans to distribute mosquito bed nets to all relocated households. The output measure would be the number of affected people who received and used mosquito nets. Additional examples of output measures include: the number of households that received rations for six months after relocation; the number of households that received replacement garden tools; and the number of displaced individuals from HGCP that attended training and benefited from livelihood restoration programs.

Outcomes will be evaluated by a core set of mainly qualitative indicators designed to demonstrate whether the RAP has achieved its goals. Preparation of a preliminary set of core indicators is in progress. These will be finalized in collaboration with the persons who will conduct the outcome evaluation. Using the mosquito net example again, the outcome indicator would be a reduction in malaria incidence among resettled people as measured against the baseline, established in the Demographic Surveillance Survey (DSS) baseline (undertaken by the Project's Medical and Occupational Health group) as well as SIA health statistics.

Evaluation of livelihood restoration will consider income itself, but given the subsistence nature of most baseline livelihoods and the difficulty of establishing actual 'income', proxy indicators will be emphasized. In the context of HGCP affected people, changes in child nutritional status as indicated by type and frequency of certain foods and reduction in incidence of nutritionally related illnesses/conditions will be a useful indicator that incomes have improved, as will household investment in income producing activities, housing improvements, and purchase of 'luxury' items such bicycles and radios.

11.3 Completion Audit

An independent third party will conduct the HGCP RAP completion audit. The completion audit's purpose will be to determine whether the Project's undertakings (HGCP RAP measures) to improve affected people's living standards and at minimum restore income streams were properly conceived and executed and have had the intended outcome, as measured against the baseline data on HGCP affected people.

The completion audit will occur once all HGCP RAP measures have been implemented and, in terms of livelihood restoration, once a sufficient amount of time has passed to produce verifiable outcomes (approximately two years from physical or economic relocation).

The completion audit will effectively close the resettlement process for the affected people from HGCP. The audit will indicate whether any resettlement objectives have not yet been achieved, will identify actions needed to achieve them, and will set a completion target date. The Completion Report will be made public.

11.4 Reporting and Response

Progress and output monitoring will be reported each month by the RTC to the Social Program Manager, as defined in the RPF. In addition, it is suggested that the output monitoring reports be disseminated every six months for public disclosure. This will increase the participation of PAPs as well as serve as additional means of monitoring the accuracy of

internal reports. Issues will be further discussed and elevated to the relevant management team for decisions on corrective actions, based on specialist input where relevant.

In addition, Evaluation Reports will also be provided to the L&CA Manager to examine corrective actions that may have been identified and elevate relevant issues to appropriate management teams for consideration.

Reports will be made public by appearing on the Company's website, and summaries will be disseminated to affected communities.

11.5 Monitoring and Evaluation Framework

A monitoring and evaluation framework is currently being developed whereby the M&E process will be structured to ensure comprehensive coverage of all relevant issues to be addressed in this process.

Table 11-1 below provides a summary of a draft M&E objectives hierarchy that has been developed to illustrate outcomes and outputs that will be measured as part of the M&E process, based on the topics discussed above.

The purpose of the resettlement process is defined as follows:

By the year 2015, all households displaced by the Project are re-established in their new homes, and their standard of living (including livelihoods, nutritional status, and access to services) has been fully restored.

By achieving the outcomes listed in the table below, which will be evaluated by an external evaluator, it is believed that this purpose can be attained. In turn achievement of the outputs, which will be internally monitored, will lead to achievement of the desired outcomes.

A number of inputs have been identified for each of the outputs identified in the table, and a set of indicators (predominantly quantitative, focused at input and output level) are in the process of being developed.

Information captured in the framework for input and output monitoring will be presented to the external evaluators to assist with the outcome evaluation.

Means of verification will be established for each indicator, whereby information presented in the framework can be confirmed. The framework will also include baseline data well as targets for each indicator, as well as tools for in-field monitoring (including questionnaires and recording formats to be used by field staff).

Furthermore the framework will include detail on responsibilities for collecting, analyzing and reporting on the data required for monitoring, as well as an indication of the frequency at which data will be collected, analyzed and reported on.

Table 11-1: Draft Monitoring and Evaluation Objectives Hierarchy (extract)

	Year 1	#	Objective
	Purpose		By the year 2015, all households displaced by the Project are re-established in their new homes, and their standard of living (including livelihoods, nutritional status, and access to services) has been fully restored or improved.
YEAR 1	Outcome	1	By end 2010 the resettlement process is effectively managed and implemented by a well resourced, appropriately qualified organizational structure.
	Output	1.1	Human and financial resource requirements have been identified.
	Input	1.1.1	Job descriptions for all required positions have been drawn up.
		1.1.2	A comprehensive budget has been drawn up to cover all expenses related to resettlement implementation, including staffing, and household compensation payments.
	Output	1.2	Appropriately qualified and experienced staff have been appointed to implement all components of the resettlement program.
	Input	1.2.1	All positions have been filled with appropriately qualified staff.
		1.2.2	Staff have all undergone the necessary Company and country policies for work in PNG (including health checks and obtaining the necessary visa's/work permits for expatriates).
		1.2.3	Staff are all familiar with their duties, and able to perform these effectively.
	Output	1.3	Sufficient budget has been secured for effective implementation of the resettlement program.
	Input	1.3.1	The resettlement budget has been approved.
		1.3.2	All required cash requisitions are done timeously.
		1.3.3	All required payments of compensation and invoices are paid timeously.
	Outcome	2	By the end of 2010 a comprehensive consultation process will have been conducted with all affected households, and mechanisms will be in place to ensure ongoing consultation.
	Output	2.1	A thorough disclosure process has been conducted across the HGCP area to inform the community of the Project and resettlement process.
	Input	2.1.1	An open disclosure process has been conducted, and all potentially stakeholders informed of the process using appropriate language and terminology.
		2.1.2	The project and resettlement process has been thoroughly explained to the HGCP community and other stakeholders using appropriate language and terminology.

12.0 RESETTLEMENT IMPLEMENTATION SCHEDULE

Table 12-1 below sets out the tasks required and which need to be undertaken in order to implement resettlement. It should be noted that this schedule is preliminary until final resettlement planning is completed, after which a more detailed implementation schedule will be developed.

Implementation will commence in May 2010 with most implementation activities being undertaken over a four month period. Ration deliveries continue for six months and the livelihood and monitoring programs extend over two years.

Resettlement implementation will be phased with the Early Works Area commencing first followed by the area around the main access road and then the remainder of the HGCP site, and households situated within the buffer zone (see Figure 5-1 in Section 5.8.2). This will allow time for the affected households to reconstruct their houses and to re-establish their fields at their selected resettlement sites.

Table 12-1: Implementation Schedule

Activity or Task	Actions	2010										2011 +	
		A	M	J	J	A	S	O	N	D	J	F +	
Planning	Completion of RAP												
Approvals	Internal Company approval of the RAP												
	RAP approval by Lenders												
	Internal approval of detailed implementation work plan												
	RAP Summary to community												
Resources	Contract staff for Resettlement Unit												
	Ration & building material mobilization												
Land Issues	Confirm resettlement sites												
	Geophysical assessment of relevant housing sites												
Confirm and finalize compensation agreements	Carry out final identification of vulnerable households requiring assistance												
	Verify inventories of affected land and assets (including special valuations)												
	Finalize entitlement contracts (housing and compensation agreements)												
	Transit allowance, distribution tools and nets												
Compensation payments	Cash Advance												
	Ration distribution												
	Housing package, distribution materials and advisors												
	IBD Deposits												
Relocate households to new sites	According to phases												
Community projects	Water points and access paths and roads												

Activity or Task	Actions	2010										2011 +	
		A	M	J	J	A	S	O	N	D		J	F +
Graves, spiritual and other cultural sites	Relocate/recover												
Livelihood restoration and development measures(see detail schedule)	Replacement of gardens												
	Non-agricultural training & agribusiness programs (June 2012)												
Verification and monitoring	Design & implementation of monitoring and evaluation system (June 2012)												
	Local advocacy & compensation advisors												
	Internal monitoring												
	External evaluation (including completion audit)												

13.0 COST AND BUDGET ESTIMATE

13.1 Introduction

This chapter provides a summary of costs to replace and compensate assets as defined in the housing and compensation agreements, the replacement of social infrastructure and mitigation programs to at minimum restore livelihoods. These cost estimates reflect the budget commitments of the Project relating to the resettlement of households and communal structures at the HGCP site.

Compensation rates used reflect the equivalent of full replacement rates with costs based on mid 2010 pricing.

13.2 Compensation for Private Assets

13.2.1 Gardens, Cultivated Trees or Plants Compensation

Gardens trees belonging to individual households have been identified and assessed by the ANUE team with direct input from the L&CA teams for the Project. The Project has committed to applying FRV or market rates for all gardens and trees. Measures will be implemented to ensure no affected landowner has been or will be deprived or disadvantaged by a shortfall between the VG rate - which may have been previously applied - and the newly adopted FRV rates.

13.2.2 Houses and Other Fixed Assets

Housing structures will be compensated through the Housing Agreement, in accordance with Section 118(2) (b) of the Oil and Gas Act. Other structures will be assessed or valued according to the circumstances of each and compensation equal to the cost of replacement provided.

13.2.3 Graves and Spiritual Sites

These are moved and compensated as part of the environmental/heritage component and so not included in the resettlement costs.

13.3 Compensation for Land

Compensation will also be received by the clans for their allocation of the land to the Project. A verification process will be undertaken to ensure that rates paid are paid at FRV. These payments are not included in the totals below (Table 13-1), as they are financed from a separate budget, as described below.

13.3.1 Annual Rental - In Principle Agreement (IPA)

Through the IPA process managed by L&CA, the Company pays the Landowners at a rate of K900 per year for each hectare of land occupied (but not otherwise damaged) by the Company for depriving the landowner(s) of the use of the surface of the land, for cutting the landowner(s) off from other parts of their land, and for any loss or restriction of rights of way, in compliance with Section 118(2) (a), (c) and (d) of the Oil and Gas Act. Approximately 210 ha have been compensated at HGCP under this process.

13.3.2 Compensation for Land Surface Damage

Landowners that incur land surface damaged, for example the area of 100 ha within the security fenced area, will received a one-off payment at the rate of K2,575 for each hectare damaged.

13.3.3 Compensation For Initial Damage to Naturally Occurring Bush, Vegetation, Birds, Animals or Fish

The Company, via the L&CA team, manages compensation issues related to components listed directly above through a single payment to the landowner(s) for damage on their land

to the natural bush, birds, and fish at the rate of K1,030 for each hectare of land on which the Company damages the natural bush, in compliance with Section 118(2) (b) of the Oil and Gas Act.

13.4 Community Infrastructure

Access around the site will be provided through the construction of roads and walkways to the north and south of the Project site, linking these areas to the existing road to the west of the plant site. Alternative water supply points will be established around the site, following consultation with the community. See Table 4-13 for a summary of community infrastructure.

The resettled community will also benefit from community support programs coordinated and managed through the Community Support Strategy program of the Project. Such programs are expected to include the improvement of social services as well as business development programs.

13.5 Livelihood Restoration

Provision has been made for livelihood restoration programs for resettlement-affected households as outlined in Chapter 8.0.

13.6 Monitoring and Evaluation

Monitoring and evaluation will be undertaken by internal and external resources.

13.7 Total Costs

Estimated total costs for the HGCP resettlement process will be in the order of US\$ 5.6 million, as summarized below in Table 13-1.

Table 13-1: Resettlement Costs

Item	Total US\$ (million)
Asset and garden compensation (Including school)	3.4
Livelihood and other assistance	1.0
Community infrastructure projects	0.9
Other	0.3
Total	5.6