

Esso Highlands Limited



Papua New Guinea LNG Project

**HIDES QUARRY SITES 1, 2 AND 3  
Resettlement Action Plan**

PGHU-EH-SPZZZ-410002

## CONTENTS

1.0	INTRODUCTION.....	23
1.1	Description of the Project.....	23
1.2	Project Development Phasing and Areas Impacted by Displacement.....	24
1.3	The Hides Quarry 1–3 Sites.....	26
1.4	Resettlement Goals and Principles.....	28
1.5	Resettlement Principles.....	28
1.6	The Resettlement Process.....	29
1.7	Sources of Information.....	30
1.8	Site Selection and Avoiding/Limiting Resettlement.....	31
2.0	INSTITUTIONAL AND LEGAL FRAMEWORK.....	32
2.1	Institutional Framework.....	32
2.1.1	Provincial Government.....	32
2.1.2	Local Government.....	33
2.1.3	Local Lancos and the Hides Gas Development Company (HGDC).....	33
2.1.4	Oilmin Involvement.....	33
2.2	PNG Legislation Relating to Land and Resettlement.....	33
2.2.1	Land Tenure and Rights.....	33
2.2.2	Land Access.....	34
2.2.3	Compensation.....	34
2.2.3.1	Legal Basis.....	34
2.2.3.2	Eligibility.....	35
2.2.3.3	Compensation Rates.....	35
2.2.4	Benefit Distribution Mechanisms.....	36
2.2.5	Disputes.....	37
2.3	PNG National Government Institutions.....	37
2.4	IFC Standards and Guidelines.....	38
2.4.1	IFC Performance Standards (PS) on Social and Environmental Sustainability.....	38
2.5	Project Owner Policies.....	39
3.0	OVERVIEW OF HQ1–3 SOCIAL BASELINE RESOURCES.....	40
3.1	Research Agencies Involved.....	41
3.2	Census, Land, and Assets Survey Methods.....	42
3.2.1	Census.....	42
3.2.2	Assets Register and Socio-Economic Survey.....	42
3.2.3	Land Use Survey Description and Methodology.....	43
3.2.4	HQ1–3 Health Survey.....	44
3.2.5	Cultural Heritage.....	45
4.0	THE SOCIAL, ECONOMIC AND CULTURAL ENVIRONMENT.....	46
4.1	Cultural Aspects.....	46
4.1.1	Background to the Occupation of the HQ1–3 Sites.....	46
4.1.2	Ancestral Land Rights.....	46
4.1.3	Ethnic Group Constituency and HQ1–3 Clans.....	47

4.1.3.1	Hagu Clan:.....	51
4.1.3.2	Warabia Clan: .....	52
4.1.3.3	Kela Clan .....	52
4.1.3.4	Mugago.....	52
4.1.3.5	Considerations for Resettlement Planning .....	53
4.1.4	Language and Migration .....	54
4.1.5	Huli Residential Patterns and Practices .....	58
4.1.6	Huli Social Organization.....	59
4.1.7	Land Tenure and Residence Principles.....	59
4.1.8	Resettlement and Landowner Status – Dispute Potential.....	59
4.2	Community Dynamics.....	61
4.2.1	Local Government and Other Government Engagement .....	61
4.2.2	The Role of the Churches .....	61
4.2.3	Leadership Roles.....	61
4.3	Demographics and Household Profile of Directly Affected Population .....	61
4.3.1	Population Size, Growth, Density and Spatial Distribution .....	62
4.3.2	Demographic and Household Profile of Directly-Affected Population .....	63
4.4	Economic Profile and Livelihoods .....	65
4.4.1	Economic Conditions and Activities/Livelihoods.....	65
4.4.2	Household by Economic Activity .....	66
4.4.3	Expenditure .....	69
4.4.4	Business Activity.....	72
4.5	Education Profile .....	73
4.5.1	School Attendance.....	74
4.5.2	Educational Attainment.....	76
4.5.3	Literacy .....	77
4.6	Nutrition and Health.....	79
4.6.1	Baseline Health.....	79
4.6.2	Nutrition and Health .....	80
4.6.3	PNG Nutrition and Related Conditions and Illnesses .....	81
4.6.3.1	Hemoglobin (Hb)/Anemia.....	81
4.6.3.2	Malaria .....	82
4.6.4	Hides Health Survey Findings.....	82
4.6.4.1	Health Service.....	83
4.6.4.2	Preventive Care .....	83
4.6.4.3	Fever, Respiratory and Gastro-Intestinal Symptoms .....	83
4.6.4.4	Female Health.....	83
4.6.4.5	HIV/AIDS and Other STDs.....	84
4.6.4.6	Alcohol, Drug Use and Tobacco Use .....	84
4.6.4.7	Domestic Violence .....	84
4.7	Infrastructure .....	84
4.7.1	Road System .....	85
4.7.2	Water and Sanitation .....	85

4.7.3	Sources of Energy .....	86
4.7.4	Communications .....	86
4.7.5	Community and Social Infrastructure .....	86
4.8	Structures .....	88
4.8.1	Types of House: Materials Used, Sizes, etc. ....	88
4.8.2	Location of Houses .....	89
4.9	Moveable Assets .....	90
4.10	Land Tenure and Land Use .....	91
4.10.1	Land Use and Land Size.....	91
4.10.2	Gardening Practices .....	92
4.10.3	Field Crops, Trees, and Economic Trees .....	93
4.10.4	Food and Economic Trees .....	93
4.10.5	Livestock.....	95
4.10.6	Use of Natural Resources .....	95
4.11	Cultural Heritage Sites.....	95
4.12	Vulnerable Households.....	98
4.13	Resettlement Sites .....	100
4.14	Project Knowledge and Attitude to Relocation .....	100
5.0	CONSULTATION AND DISCLOSURE FOR THE HQ1-3 RAP .....	105
5.1	Overview of Consultation and Disclosure.....	105
5.2	How Stakeholders were Identified for the HQ1-3 RAP .....	106
5.3	Consultation and Disclosure Methods Used .....	106
5.4	Role of the Local Advocate .....	107
5.5	How Stakeholders' Issues and Concerns were Elicited.....	107
5.6	Consultation and Disclosure Events .....	107
5.6.1	First Consultation and Disclosure Community Meeting .....	107
5.6.2	Awareness of the Proposed HQ1–3 Development .....	108
5.6.3	Consultation with Households about the Resettlement Assistance Package..	110
5.7	Issues Raised by HQ1-3 Stakeholders .....	110
5.7.1	Regional Stakeholder Issues .....	110
5.7.2	HQ1–3 Stakeholder Issues – Household Meetings .....	111
5.8	ELC Consultation Summary.....	113
5.9	Future Consultation Activities during Implementation.....	118
5.9.1	Ongoing Consultation and Disclosure Activities with Project-affected Landowners .....	118
5.9.2	Meetings with Provincial and Local Government.....	118
5.9.3	Meetings with Community Level Stakeholders in the Area.....	118
6.0	PROJECT IMPACTS.....	119
6.1	Introduction.....	119
6.2	Project Impacts.....	120
6.2.1	Loss of Residential Structures .....	120
6.2.2	Loss of Communal Structures.....	120
6.2.3	Loss of Foraging Areas.....	120
6.2.4	Loss of Trees and Gardens.....	120

6.2.5	Reduced Access to Forest and Other Resources .....	121
6.2.6	Impact on Water Sources.....	121
6.2.7	Disruption in Social Networks and Change in Community Infrastructure .....	122
6.2.8	Impacts on Business and Employment .....	122
6.2.9	Influx of People .....	122
6.2.10	Access Routes.....	123
6.2.11	Cultural Sites .....	123
6.2.12	Resettlement Sites.....	123
6.2.12.1	Existing Sites with Security of Tenure .....	123
6.2.12.2	Existing Sites with Limited Security of Tenure .....	123
6.3	Vulnerable People .....	124
6.4	Cumulative Impacts .....	124
7.0	COMPENSATION AND RESETTLEMENT STRATEGY.....	127
7.1	Strategic Considerations.....	127
7.1.1	Socio- economic and Cultural Considerations.....	127
7.1.2	Adverse Factors and Risks .....	128
7.1.3	Favorable Characteristics .....	129
7.1.4	Lessons Learned from PNG Resettlements .....	130
7.2	Eligibility and Entitlements .....	131
7.3	Resettlement Support Packages.....	136
7.3.1	Damage and Deprivation Compensation (Clan Land) .....	137
7.3.2	Huli Cultural Heritage Site Compensation .....	138
7.3.3	Additional Support Measures .....	138
7.3.4	Compensation Payment Process .....	139
7.3.5	Compensation and Assistance Advocacy .....	140
7.4	Summary of Mitigation Measures.....	140
7.5	Risks .....	143
8.0	LIVELIHOOD RESTORATION PROGRAM FOR RESETTLED VILLAGERS IN THE HIDES QUARRY 1-3 AREA .....	144
8.1	Introduction.....	144
8.2	Objective .....	144
8.3	Scope .....	144
8.4	Approach .....	144
8.5	Livelihoods Restoration Physical and Social Environment .....	145
8.5.1	Needs Hierarchy .....	145
8.5.2	Vulnerabilities .....	145
8.6	Land-based Development Initiatives .....	146
8.6.1	Assist Villagers with Re-establishing Subsistence Food Production in the New Locations .....	147
8.6.2	Improved Subsistence Food Production.....	147
8.6.3	Enhanced Cash Income from Agricultural Production .....	148
8.6.4	Animal Enterprises.....	149
8.6.5	Timber for Firewood and Construction .....	150
8.6.6	Information Required in Mid 2010 .....	150

8.7	Non Land-Based Initiatives .....	151
8.7.1	Basic Financial Skills and Money Management .....	151
8.7.2	Training in Non-Agricultural Skills .....	151
8.7.3	Support for Provision of Infrastructure .....	152
8.8	Implementation Schedule .....	152
8.9	Resources Needed to Undertake the Livelihood Program .....	153
8.9.1	Staffing .....	153
9.0	GRIEVANCE MANAGEMENT FRAMEWORK.....	156
9.1	Introduction.....	156
9.2	Mechanisms to Receive Grievances.....	156
9.3	Recording and Acknowledgement .....	157
9.4	Register .....	157
9.5	Assets .....	157
9.6	Management and Response.....	158
9.7	Monitoring and Evaluation .....	158
10.0	ORGANIZATIONAL ROLES AND RESPONSIBILITIES .....	159
10.1	Organizational Structure .....	159
10.2	Roles and Responsibilities.....	159
10.2.1	Social Programs Manager.....	160
10.2.2	Resettlement Team Coordinator .....	160
10.2.3	Resettlement Census and Survey Team.....	160
10.2.4	RAP Document Development Team .....	160
10.2.5	Resettlement Advisor.....	160
10.2.6	RAP Implementation Team .....	160
10.2.7	Technical Advisors.....	161
10.3	Local Advocacy Consultant and Compensation Advisor .....	162
11.0	MONITORING AND EVALUATION .....	163
11.1	Monitoring and Evaluation Components .....	163
11.1.1	Internal Progress and Output Monitoring.....	163
11.1.1.1	Input Monitoring .....	163
11.1.1.2	Output Monitoring .....	163
11.1.2	External Outcome Evaluation.....	164
11.1.2.1	Outcome Evaluation.....	164
11.2	Monitoring and Evaluation Indicators .....	165
11.2.1	Progress Monitoring.....	165
11.2.2	Output Monitoring .....	165
11.2.3	Outcome Evaluation.....	165
11.3	Completion Audit .....	165
11.4	Reporting and Response .....	165
11.5	Monitoring and Evaluation Framework.....	166
12.0	RESETTLEMENT IMPLEMENTATION SCHEDULE .....	168
13.0	COST AND BUDGET ESTIMATE .....	170
13.1	Introduction.....	170

13.2	Compensation for Private Assets.....	170
13.2.1	Gardens, Cultivated Trees, or Plants Compensation.....	170
13.2.2	Houses and Other Fixed Assets.....	170
13.2.3	Graves and Spiritual Sites.....	170
13.3	Compensation for Land and Resources.....	170
13.3.1	Annual Rental – In-Principle Agreement (IPA) .....	170
13.3.2	Compensation for Land Surface Damage .....	170
13.3.3	Compensation for Initial Damage to Naturally Occurring Bush, Vegetation, Birds, Animals or Fish .....	170
13.3.4	Gravel Royalty .....	171
13.3.5	Compensation for Impacts on Water Sources .....	171
13.4	Community Infrastructure .....	171
13.5	Livelihood Restoration .....	171
13.6	Monitoring and Evaluation .....	171
13.7	Total Costs .....	171

## FIGURES

Figure 1-1: HQ1–3 location and overview .....	23
Figure 1-2: HQ1–3 sites in relation to major Project components.....	24
Figure 1-3: HQ1–3 Access Road view from Well Pad A.....	26
Figure 1-4: Hides Quarry 1-3 Access Road route.....	27
Figure 1-5: Cutting <i>karuka</i> on HQ1 .....	28
Figure 1-6: HQ1–3 resettlement process .....	29
Figure 3-1: Resettlement survey types.....	41
Figure 4-1: Southern Highlands provincial districts .....	46
Figure 4-2: HQ1-3 and surrounding ethnic populations.....	48
Figure 4-3: Ethnic groups adjacent to the Huli.....	49
Figure 4-4: Ethnic populations in proximity to Huli.....	50
Figure 4-5: Genealogy chart for Warabia clan in Hides .....	51
Figure 4-6: HQ1–3 principal landowning clans .....	53
Figure 4-7: The Trans-New Guinea Phylum.....	55
Figure 4-8: Pre-contact Lowland-Highland trade networks and early exploration patrol routes.....	56
Figure 4-9: An historical model for migration (Ballard 1995).....	57
Figure 4-10: Huli landowner categories.....	60
Figure 4-11: Population densities in LNG Project area.....	63
Figure 4-12: Location of HQ1–3 households.....	64
Figure 4-13: Comparative employment levels for HQ1-3, HGCP, Komo and Hides catchments .....	67
Figure 4-14: Income sources for HGCP, HQ1-3, Komo Airstrip and Hides catchments.....	67
Figure 4-15: Average pigs and chickens per household – HQ1-3, HGCP, Hides and Komo catchments .....	69
Figure 4-16: Expenditure patterns of HQ1-3, HGCP residents by comparison with Komo Airstrip and Hides catchments .....	70
Figure 4-17: Travel profiles for HQ1-3, HGCP, Komo Airstrip and Hides catchments.....	71
Figure 4-18: Comparative household assets HQ1-3, HGCP, Komo Airstrip and Hides catchments .....	72
Figure 4-19: HQ1–3, HGCP and Hides catchment business participation .....	72
Figure 4-20: The Project catchment area higher education profiles.....	77
Figure 4-21: EIS SIA 2005–08 illiteracy rates (households) .....	78
Figure 4-22: Literacy: Illiteracy and male/female illiteracy rates across Hides and resettlement areas .....	79
Figure 4-23: Prominent social infrastructure inside and around the Hides area in relation to affected HQ1–3 households .....	85



Figure 4-24: Para School relative to Project infrastructure and Hides Quarry Access Road .....	87
Figure 4-25: Community infrastructure and Project mitigations .....	88
Figure 4-26: Hides Quarry Access Road house .....	89
Figure 4-27: HQ1–3 location of houses by family .....	90
Figure 4-28: Comparative levels of household assets across catchments and resettlement constituencies.....	90
Figure 4-29: HQ1–3 garden locales .....	91
Figure 4-30: Karuka Nut at HQ1 .....	92
Figure 4-31: Cultivated garden at HQ Access .....	92
Figure 4-32: HQ1 helicopter pad .....	93
Figure 4-33: Hides Quarry area ecology, trees, and weeds .....	94
Figure 4-34: Site HE007 ossuary in a raised coffin (Homa Mali) .....	96
Figure 4-35: HQ1–3 cultural heritage site locales.....	97
Figure 4-36: Resettlement sites identified .....	100
Figure 4-37: Community-expressed RAP concerns in HQ1–3.....	101
Figure 4-38: Respondents' willingness to relocate .....	102
Figure 4-39: Perceived benefits of relocation .....	102
Figure 4-40: Issues raised by affected landowners .....	103
Figure 5-1: Public consultation of resettlement process at HQ1–3, 11 May 2010.....	105
Figure 5-2: HQ1–3 landowners at 11 <sup>th</sup> of May 2010 resettlement program disclosure.....	108
Figure 5-3: Response patterns to Question I6 – relocation issues.....	109
Figure 6-1: Project development areas within the Hides environs .....	125
Figure 7-1: Overview of resettlement assistance.....	137
Figure 7-2: Compensation process .....	140
Figure 8-1: Livelihoods Restoration organizational structure .....	154
Figure 9-1: The Project Grievance Procedure .....	157
Figure 10-1: Social Programs Team and relationship with other relevant teams within the Company .....	159

**TABLES**

Table 1-1:	Project phases .....	25
Table 2-1:	Compensation eligibility .....	35
Table 2-2:	Agreed compensation schedule .....	36
Table 4-1:	HQ1–3 principal clan listing.....	50
Table 4-2:	Hides 4 compensation agreement details .....	53
Table 4-3:	Southern Highlands Province demographics .....	62
Table 4-4:	Southern Highlands Province growth rates .....	62
Table 4-5:	Age breakdown of HQ1–3 household residents .....	65
Table 4-6:	Income sources for HQ1-3, HGCP, and Hides catchment .....	68
Table 4-7:	Comparative levels of trade store purchases for HQ1-3, HGCP and Hides catchments .....	70
Table 4-8:	Proportion of formal education and literacy levels (EIS SIA Appendix 26 2008) .....	74
Table 4-9:	2004-06 National statistics for elementary enrollments .....	75
Table 4-10:	2007 National statistics for primary enrollments in Para and Yuni schools .....	76
Table 4-11:	Educational indicator illiteracy, selected Hides and Komo communities 2000 ..	78
Table 4-12:	Traditional pit latrine and bush usage across HQ1–3, HGCP, Komo Airstrip and Hides catchments .....	86
Table 4-13:	Crops and trees at HQ1–3 .....	94
Table 4-14:	Summary of Huli cultural heritage sites .....	96
Table 4-15:	Description of the cultural and archaeological sites from HQ1–3 .....	98
Table 5-1:	Summary of HQ1-3 consultation interactions for affected households and communities .....	106
Table 5-2:	Road show attendees .....	108
Table 5-3:	Awareness of the RAP Consultation Process .....	109
Table 5-4:	Summary of stakeholder issues .....	111
Table 5-5:	Issues raised during ELC consultation process .....	115
Table 6-1:	Summary of impacts due to resettlement and proposed mitigation measures	119
Table 7-1:	Eligibility and entitlements .....	131
Table 7-2:	Additional support measures for relocation .....	138
Table 7-3:	Summary of impacts due to resettlement, and proposed mitigation measures .....	141
Table 8-1:	Implementation schedule .....	152
Table 8-2:	Livelihood Restoration Program staffing .....	154
Table 11-1:	Draft Monitoring and Evaluation objectives hierarchy (extract) .....	167
Table 12-1:	Implementation schedule .....	168
Table 13-1:	Resettlement costs .....	171

## APPENDICES

Appendix 1	Summary of the Process to Obtain Access to Land
Appendix: 2	Resettlement Family/House Survey
Appendix: 3	Land Use Survey Form
Appendix: 4	Health Survey Questionnaire
Appendix: 5	Hides Quarries 1–3 Clan Data Table
Appendix: 6	Health Survey Report
Appendix: 7	Replacement Housing Options – Strategic Considerations
Appendix: 8	Hides Quarries Resettlement Agreement
Appendix: 9	Livelihoods Restoration Tables
Appendix: 10	Maps

## ACRONYMS

Acronym	Definition
ALRI	Acute lower respiratory tract infection
ANUE	Australian National University Enterprises
AusAID	Australia Aid
B4MD	Business for Millennium Development
BPEA	ExxonMobil 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
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
EM	ExxonMobil
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
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

Acronym	Definition
IDP	Internally Displaced Person
IFC	International Finance Corporation
ILG	Incorporated Land Group
IMR	Papua New Guinea Institute of Medical Research
IPA	In-Principle Agreement (also In-Principle Compensation Agreement or IPCA)
IRS	Indoor Residual Spraying
IUCN	International Union for Conservation of Nature
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	ExxonMobil Operations Integrity Management System
OLPG	Organic Law on Provincial Government
OSL	Oil Search Limited
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

Acronym	Definition
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
SPM	Social Programs Manager
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
WDC	Ward Development Committee
WHO	World Health Organization

## **EXECUTIVE SUMMARY**

### **Introduction**

Esso Highlands Limited (the Company) proposes to develop the Papua New Guinea (PNG) Liquefied Natural Gas (LNG) 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.

For construction purposes, the Project requires limestone from quarry sites Hides Quarry (HQ) 1, 2 & 3, and a spoil dump. The proposed quarry sites and quarry access road are located northwest of the present Hides Gas Conditioning Plant (HGCP). The Quarry access track spans a distance of approximately 2.5 km in length. The access road corridor is 50 m wide, 25 m either side of a centerline, except in areas where spoil areas are required, and near the HGCP site where a width of 100 m in total is required. Because of this HGCP development, some households will be subject to both involuntary physical and economic displacement. These impacts are described further in this report.

### **Resettlement Goal**

The Project's overall resettlement goal is to design and implement resettlement in a manner that gives physically and economically displaced persons the opportunity to at least restore their livelihoods and standards of living.

### **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 International Finance Corporation's (IFC) Performance Standards on Social and Environmental Sustainability. The HQ1-3 Resettlement Action Plan (RAP) was developed in accordance with the requirements of 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 HQ1-3 RAP reflects the Company's corporate approach to property rights and resettlement.

### **The Social, Economic and Cultural Environment**

The proposed Hides quarry sites lie 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 HQ1-3 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 garden 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 HQ1 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. The Census and Survey Team identified seven new families (FN180–186) that will be subject to physical relocation. In addition, three families have substantial garden areas within the affected sites, but live some distance from their gardens. A further ten families are resident within the entrance area of the Quarry Access Road; these were previously identified and surveyed as part of the HGCP resettlement survey and have been included within the HGCP RAP.

Where 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 will provide a full physical displacement package to these impacted households. This document focuses on the seven families, whose current houses will be directly affected by the Quarry and Access Road development, and the three families who will lose gardens. A further 15 households may lose small areas of gardens. Most families have requested that garden and tree compensation be split among family members with the result that 110<sup>1</sup> individuals will receive compensation payments.

Twenty-eight household members were listed for the seven HQ1–3 families; some 39% of these residents were found to be living elsewhere and absent during the survey.

All seven<sup>2</sup> (100%) of the impacted physical structures were constructed of bush-material walls (usually woven cane or split timber slabs) with *kunai* (*Imperata* grass) thatch roofs. Most of the impacted houses were approximately 40 sq m in floor area.

Huli gardens are planted mainly with sweet potato as well as with highlands pitpit (*Setaria*), taro (*Colocasia*), sugarcane, various greens and ferns, bananas and tanger ( *Cordyline*). Forty-six sweet-potato gardens were found along the access road and within HQ1. There were no active cultivations in either HQ2 or HQ3. These sites had previously been more densely settled and worked. The survey counted 8,085 coffee trees along the road alignment and on average impacted families owned the following: 28 pandanus trees; 25 Marita; 16 fig; 8 tree tomatoes, and 5 avocado trees. Pig husbandry is also an important component to subsistence and income livelihoods.

While there were noted discrepancies in responses to survey questions about the level of employment, 66% of respondents did note they derived income from labor-related hire. With the newly established construction camps at Well Pad A, many Hides Quarry individuals have been employed through the local landowner company, HGDC, which supplies skilled

---

<sup>1</sup> Most of these people are the young children of families losing gardens and other relatives who have ownership of trees.

<sup>2</sup> There are 13 houses at the entrance of the access road owned by 10 families.



and unskilled labor to all Project-related contractors in the Hides-Komo area. One individual had an interest in a trade store business. Levels of income generated by royalties (50%) and rental (83%) were comparable with those recorded for the adjacent HGCP catchment. Patterns of expenditure matched the distribution and category of goods profiles recorded for HGCP.

Of the three children in the age bracket for 5 to 14-year olds eligible to be at school, none were actually attending classes. The majority of adults (63%) had received no education at all, a level higher than both the broader Hides catchment (53%) and HGCP (43%). As a number of the Hides Quarry residents had already migrated previously from other areas in the Hides Project area, it does appear as if this choice to migrate reduced the level of their own and their children's education. The majority of those residents who had attended school attained only level-four education, with only one resident reporting they had reached level-ten education. As reported in the EIS SIA (2009) and other Project constituent RAPs, the educational attainments of HQ1-3 women generally lagged behind that of their male counterparts.

### **Consultation and Disclosure for the HQ1–3 RAP**

The Project Land and Community Affairs (L&CA) section, together with a specialist resettlement team from the Company (the RAP Implementation Team or RIT), conducted the initial consultation for the HQ1–3 resettlement program on May 11<sup>th</sup> 2010 at a site known as Baya Iba. Consultation commenced with a series of public meetings to inform stakeholders about the Project and the associated surveys that would be conducted.

During June 2010, individual consultations were undertaken with households to finalize their preferred resettlement assistance packages. Ongoing future consultation will be undertaken with all 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 HQ1–3 sites was supported by various visual materials, appropriate to the stage of the process - such as booklets, flyers, summaries and flipcharts.

Issues raised by the affected HQ1–3 communities include:

- Impact of the quarry on present and future water supply;
- Need to disaggregate land rental payments to individual land block owners;
- Shortage of land, given that many people had already moved to this site from HGCP area;
- Anxiety expressed by women about lack of food supply; and
- Need for awareness by BSP bankers to allay previous distrust of banking institutions.

The Environmental Law Centre (ELC) is actively playing a monitoring and review role as an impartial observer. A process of disclosure of documents is in place and will include: public dissemination and distribution of the HQ1–3 RAP; provision of all agreements into Huli, Pidgin, and English; and a Huli translation of the entire executive summary for public distribution. Copies of the HHR RAP will be available on the Project website and full copies will be left at strategic locations in Hides and Komo.

### **Project Impacts**

Once resettlement occurs, both households living within and households owning land within the proposed HQ1–3 sites, will lose their land and fixed assets and will suffer various other physical, economic, and cultural losses or adverse impacts. The main impacts expected are summarized below:

Impact	Scale of Impact and Mitigation
Residential structures affected.	Seven structures affected. Seven households to be displaced. Compensation packages to be negotiated including cash and in-kind provisions. Seven households and three directly affected households (losing majority of gardens) will be resettled, 15 losing some gardens and approximately 85 individuals who own, or who have been assigned ownership of portions of gardens and trees, though not requiring resettlement.
Community services and facilities	No community buildings affected. (Para school relocation is addressed in the HGCP RAP).
Loss of agricultural and forested land.	Land area lost to landowning clans (includes gardens and trees belonging to clansman families) Compensation for deprivation and loss to be paid to clans at FRV
Loss of trees and crops.	46 sweet potato gardens belonging to 25 clansman families (including 10 to be resettled). Includes 8,085 coffee trees, 2,748 pandanus, 2,364 Marita nut, 1,568 fig, 766 tree tomato, and 527 avocado trees. Losses include agricultural improvements such as trenches, walls, and fences built around gardens. Compensation for all crops, trees and other improvements will be paid at FRV.
Impact on water sources.	Seven water sources identified by affected households and remaining community. Mitigation - replacement water collection structures will be constructed.
Disruption in social networks.	Some disruption but majority plan to move to areas close to their current locations, so minimal social disruption is expected. Others moving back to alternative family sites.
Impacts on business and employment.	None expected. Higher employment levels expected during construction.
Cultural sites.	40 cultural heritage and archaeological sites. These will be addressed in accordance with defined protocols.
Influx of migrants.	Pressure on existing residents to host relatives may swell population. But little influx is expected in the HQ1-3 area as topography offers little advantage of moving closer to road or quarry sites.
Access routes	No adverse impacts expected.

Other impacts include probable influx of curious onlookers, work-seekers, and people wishing to take advantage of the improved and superior health facilities in Hides (at Juni) 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 enhance community livelihoods.

In terms of the availability of resettlement sites, the customary practice of multi-local residence will, in the first instance, allow relocated individuals to self-determine their preferred relocation sites. Each household has access to alternative lands, and possibly household structures or gardens, and can resettle to these available sites. This strategy has proved appropriate and successful in the neighboring resettlement impacted areas of Komo Airstrip and the HGCP, and similarly so with Hides Quarry and Access Road-affected households, all of whom have been able to identify resettlement sides.

Impacts should therefore be low in terms of disruption of livelihoods and effects on host communities. It is also customary practice for individuals to 'lease' garden lands from others in case of shortage. Those impacted landowners who prove to be 'vulnerable' in the sense of being 'landless'<sup>3</sup> will be given special assistance.

During the initial household survey, 57% of the HQ1–3 households indicated they would self-locate, and most of these have informed the survey team that their destinations are between 1 and 1.5 hours walk away from their present locales. At the time of writing (July 2010) all affected households have identified resettlement sites. The majority of these (70%) are within close proximity to their current sites, while two of the three who are moving further distances already have other houses and gardens in those areas - but in practice, access their HQ1-3 gardens from these locations at present.

Households that are especially vulnerable to displacement impacts will be identified and provided with special assistance as previously noted. The criteria of resettlement vulnerability must always be context and culture sensitive. Within HQ1–3, this includes the elderly, disabled and the landless. 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, 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 gives physically and economically displaced persons the opportunity to, at least, restore their livelihoods and standards of living. Strategies for compensation and other support measures, as outlined in this RAP, for people physically and/or economically displaced by the HQ1–3 sites were developed based on PNG law; IFC PS 5; the results of surveys, census, and consultation; and lessons learned from resettlement in other Projects in PNG and on this Project.

Compensation will be paid to clans for damage and deprivation to land. This will include annual rental of K700 per hectare used by the project (42 ha), as well as K1,030 per hectare (one-off) for initial damage to bush or vegetation, birds, animals, or fish for the total area (42 ha), and K2,757 per hectare (one-off) for damage to surface area (9.7 ha). Clans eligible to receive this compensation are the Hagu, Warabia, Kela and Mugago clans.

The project will pay Full Replacement Value (FRV) 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 the equivalent of FRV. Eligibility also covers absentee landowners who have left the area, either voluntarily or involuntarily. 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.

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 those

---

<sup>3</sup> For example, in those instances where they are immigrants from another tribal group.

subject to economic displacement, as well as a resettlement assistance package of K41,000, including part cash, and a deposit into an interest bearing savings account or a deferred payment option for either six or twelve months. The Project provides the services of a Compensation and Business Advisor, who will advise and consult with affected people on money management, and potential business and investment opportunities.. People subject to either economic or physical displacement will be eligible for further assistance under the livelihood restoration program.

The relocation assistance package presented to households includes a number of replacement options, conditional on whether the household has a site-verified and pre-established abode, including part cash, provision of building materials, and/or a deposit into an interest bearing account. Those households who wish to erect an improved permanent house will be given a set of plans and costs. Additional support measures include the provision of transit support, rations, mosquito nets, garden (e.g. spade, axe, file) and building (e.g. hammer, timber, nails etc) tools.

An acknowledged discontinuity between the Huli term 'house' (*anda*) - a physical structure with a dynamic occupancy profile - and the RAP analytic concept 'household' - nuclear family of man, wife/wives, and children - challenged the Project to devise a compensation scheme based on consistent and equitable principles that was nuanced to Huli culture. The resettlement compensation package provides for wives who live separately from their husbands.

Similarly, in Huli when males reached the age of 16 or older, it was common for them to have their own house (*balamanda*) and for them to co-reside with younger siblings or other male friends. For these individuals, as well as: widows (*dalo*), permanent bachelors (*daloali*), and young (16–25 year olds) unmarried males/females who are independent economic units with gardens, separate compensation packages have been provided. Consistent with the decision taken on the HGCP resettlement program, the Project will not provide replacement kit homes.

An independent PNG advocacy group (ELC) has been appointed by the Project to assist affected people with the resettlement process by advising them of their rights, responsibilities, and options concerning resettlement in the context of both national PNG legislation and Project plans and provisions, so participation is on an informed basis. In addition, the Project has provided 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 (LR) 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 HQ1–3 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 will cover improved varieties of crops and virus-free planting material; assistance with the production of temperate climate vegetables (for possible sale to the camps); 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 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, thereby 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 team.

### **Organizational Roles and Responsibilities**

Responsibility for the planning, implementation, and monitoring of the HQ1-3 resettlement program rests with the Company and its Social Programs Team who will be undertaking these activities. Adequate resources and effective management will be allocated to ensure that the HQ1-3 RAP is implemented as developed, with the participation of affected people and communities, in a timely manner.

The RAP clearly defines roles and responsibilities of the Company's Social Programs 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, while the Compensation Advisor will assist 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 and 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 HQ1-3 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 HQ1-3 RAP. The completion audit's purpose will be to determine whether the Company's undertakings (RAP measures) to at a 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 August 2010, with livelihood restoration and monitoring continuing for two years. Implementation activities will commence with the approval of the RAP by the Company and the Lenders' Independent Environmental and Social Consultants (IESC), and submission of the RAP to the government.

### **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 Land and Community Affairs (L&CA) Manager, who reports to the Company's Project Executive. The cost of the HQ1-3 resettlement is estimated at approximately US\$1.22 million, including IPCA clan payments. In addition, the landowning clans will receive an annual rental of K700/ha.

## 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 Quarries Sites 1, 2 and 3 (HQ1-3). The HQ1-3 is located within Petroleum Development License 7 (PDL7) and within lands inhabited by the Huli ethnic group. The overall lease boundary will occupy an area of approximately 66 ha, and the quarry access road will occupy 11 ha, yielding a total area of 77 ha (Figure 1-1, also shown in Map 1, Appendix 10).

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

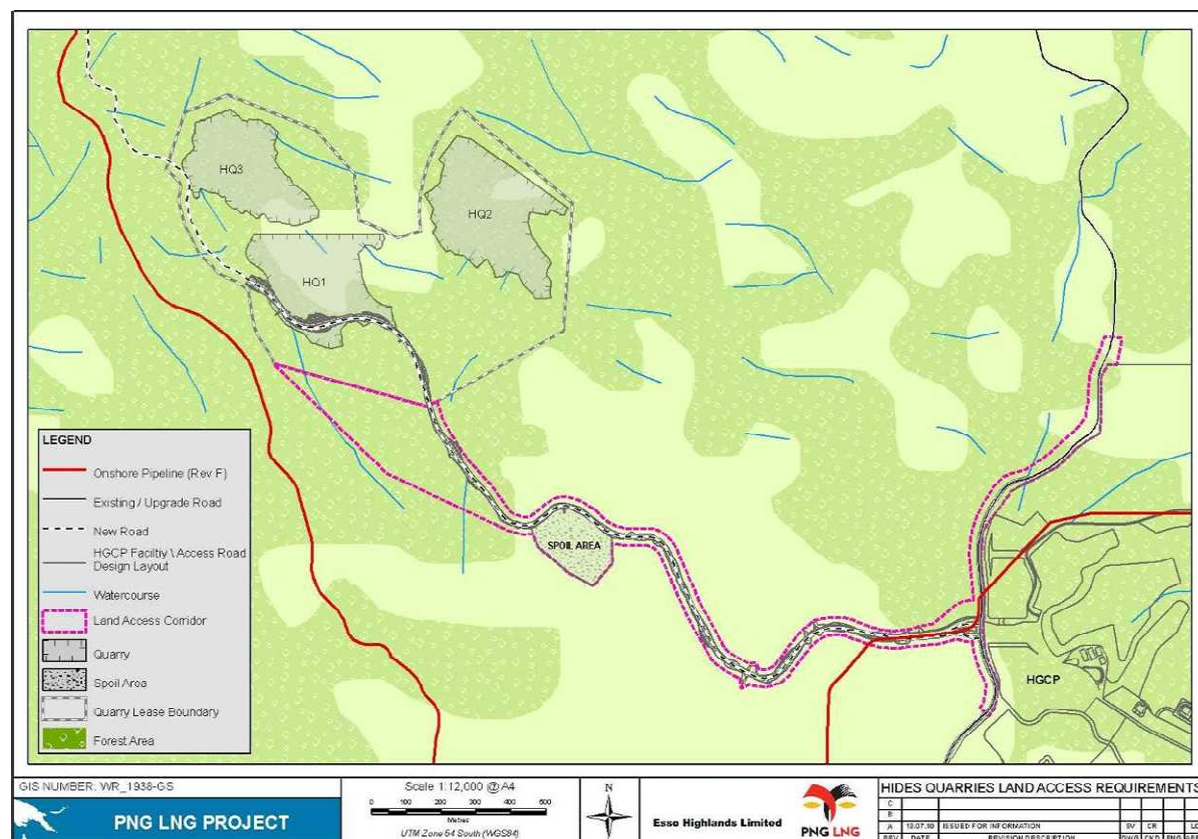


Figure 1-1: HQ1-3 location and overview

### 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 HQ1–3 sites.

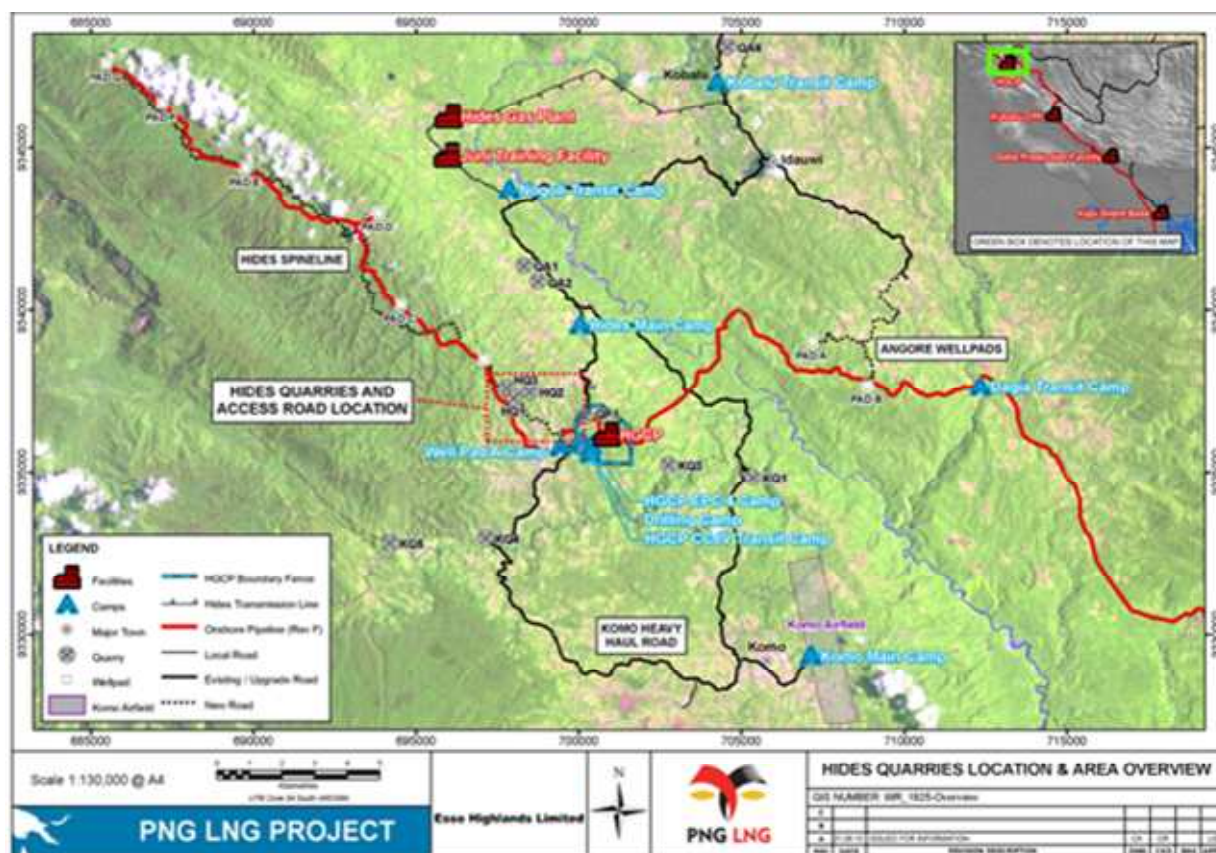


Figure 1-2: HQ1–3 sites in relation to major Project components

The Project will enhance and expand existing production fields and facilities developed in the Southern Highlands Province in the 1990s, by 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 (HGCP) 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, then transported via an onshore pipeline to the Gulf of Papua and an offshore pipeline to the onshore LNG Plant 20 km 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, and Heavy Haul Road). Schedules for RAP preparation for all other Phase I facilities will be finalized during 2011.

**Table 1-1: Project phases**

Phase	Proposed Facilities	Estimated Timing <sup>4</sup>
Phase 1: Develop Hides, Angore, Kutubu and Gobe	Hides Gas Field: Well Pads A, B, C, D, E, & G	2009 - 2014
	Hides Gathering System and Spine	
	Hides-HGCP Pipeline	
	Hides Gas Conditioning Plant (HGCP)	
	HGCP-Kutubu Condensate Pipeline	
	Kopi Scraper Station	
	Komo Airstrip and Heavy Haul Road to HGCP	
	LNG Project Gas Pipeline (Onshore/Offshore)	
	LNG Plant & Facilities	
	Gobe Gas Pipeline	
	Kutubu Gas Pipeline	
	Hides Gas Field: Well Pads F and B2	
	Angore Gas Field: Well Pads A and B	
	LNG facility	
	Angore Gathering System and Spine to HGCP	
	Angore-HGCP MEG Pipeline	
Phase 2: Additional Compression at HGCP	HGCP Booster Compression	2019
Phase 3: Develop Juha	Juha Gas Field Well Pads A, B, and C	2022
	Juha Gathering System and Spine to JPF	
	Juha-JPF MEG Pipeline	
	Juha Production Facility (JPF)	
	JPF-HGCP Gas Pipeline	
	JPF-HGCP Condensate Pipeline	
	JPF-HGCP MEG Pipeline	
Phase 4: Develop Agogo and Moran	Agogo/Moran Gas Pipeline	2024
Phase 5: Develop SE Hedinia	South East Hedinia Well Pads A & B	TBD

The affected land is owned by indigenous ethnic groups, but represents a small proportion of the total land mass owned by these cultural populations. The heaviest displacement impact will occur in the Hides-Komo environs because of its greater population density and the more extensive Project footprint in this region. In-Principle Agreements (IPAs) are being

<sup>4</sup> Indicates an estimated year for commencement of operations.

negotiated over a significantly larger area than is likely to be required to provide construction contractors with flexibility.

### 1.3 The Hides Quarry 1–3 Sites

In early 2010 the Project decided that two quarries were required, which are located approximately 2 km northwest of the HGCP site, and below the Hides ridge, about 6.5 km southwest of Nogoli camp. A road was also to be constructed to link the quarries to the HGCP; the proposed road was approximately 2.5 km in length. It is proposed that the road will enter the HGCP site about halfway along the site's western boundary and at the juncture where there is an existing road from the Tagari Valley that also links to the Highlands Highway (Figure 1-3).



**Figure 1-3: HQ1–3 Access Road view from Well Pad A**

The topography throughout the survey area is predominantly steep, highly dissected limestone karst formation, typified by the absence of rivers or streams. Numerous dolines, in-filled dolines (through previous landslips), and caves are located in the valleys between ridgelines and along the road alignment.

The proposed road proved to be located on ridges forming the interstices of large sinkholes upward of 150 m in diameter. The altitude of the road where it enters HGCP is 1,750 m above sea level and at the quarries is approximately 1,850 m above sea level; the gradient of the road is thus 100 m in 2,500 m, or 4%. A wider entrance to HGCP has been requested by the engineers to accommodate more vehicles and a turn-around bay (Figure 1-4).



Figure 1-4: Hides Quarry 1-3 Access Road route

The ridge on which the road is located varies from being relatively broad, but with steep slopes, to being extremely narrow with limestone rock outcrops. The slopes are long and straight, but concave in plan form, falling into large sinkholes.

It was initially suspected that HQ2 might be home to the rare and endangered Bulmer's fruit bat, so HQ3 quarry, to the immediate northwest of HQ1, was identified for use. The Bulmer's Fruit Bat survey yielded no indication of the presence of this species in the survey area, primarily due the absence of suitable habitat and anthropogenic disturbance.

The three quarries are located at the edge of cultivated land. To the west, the land is forested and quickly becomes steeper and higher. These areas are used for planting a domesticated pandanus, *Pandanus julianettii*, and harvesting the wild species *Pandanus brosimos*, known as *karuka* in Pidgin. Terrain within the quarry sites is very steep and rugged.



Figure 1-5: Cutting *karuka* on HQ1

#### 1.4 Resettlement Goals and Principles

The Project's overall resettlement goal is to design and implement resettlement in a manner that gives physically and economically displaced persons the opportunity to, at least, restore their livelihoods and standards of living. 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.

#### 1.5 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);
- 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.

## 1.6 The Resettlement Process

Figure 1-6 illustrates the resettlement planning and implementation process.

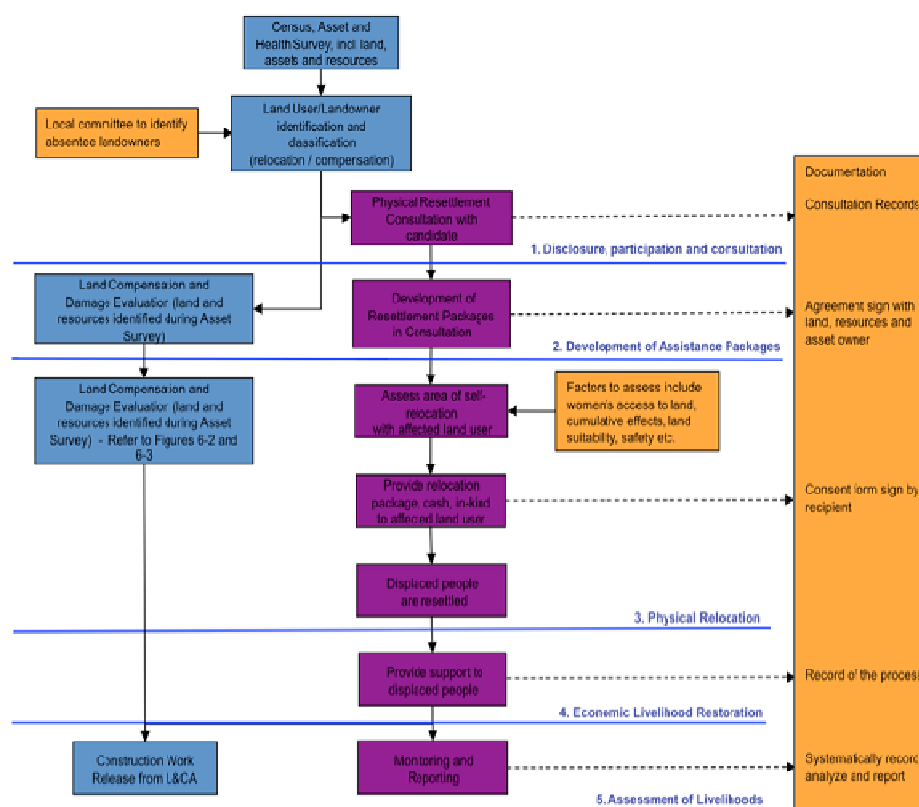


Figure 1-6: HQ1–3 resettlement process

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 regarding resettlement implementation.

### 1.7 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;
- Census and Survey results for the HQ1-3 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 learned 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 Lihir<sup>5</sup>; and

---

<sup>5</sup> 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.

- The Company's 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).

### 1.8 Site Selection and Avoiding/Limiting Resettlement

The main site selection drivers for quarry location were type of aggregate, proximity to HGDC, and environmental considerations such as: (a) the EIS requirement to not have a quarry on the Hides ridge, defined as an 1,800 m line; and (b) avoidance of endangered species such as the Bulmer's Fruit Bat (*Aproteles bulmerae*; IUCN listed as critically endangered). The pinnacles identified on HQ1 and HQ2 allowed for sizeable resources, which were also close to the projected access road. HQ3 was identified after HQ2 was compromised due to possible presence of the Bulmer Fruit Bat, and after further assessments of the costs to develop this site in the short term, owing to additional access road requirements. HQ3 is by far the lowest site down the Hides ridge.

The majority of the affected landowners had previously been subject to census and survey as part of the HGCP or Heavy Haul road environs; and these landowners were identified in these respective RAPs. The additional new resettlement impact in the proposed HQ1–3 sites was assessed as relatively minimal (i.e., less than ten); few people were actually resident on the proposed quarry areas, with most affected landowners concentrated along the quarry access road.

While physical resettlement in and around the quarry sites can be considered minimal, some socio-economic considerations were taken into account in an attempt to limit resettlement along the access road between the HGCP site and the proposed quarry sites. The resettlement Census and Survey and Implementation teams undertook several field visits with Project engineers to accurately demarcate the alignment of the proposed road, and make suggestions and recommendations regarding the number of households that should be included or excluded.

The teams also took into consideration issues of slope, as well as the officially delineated 25 m buffer zone on either side of the road. Based on this approach, it was recognized that in certain areas households located below the proposed road may require relocation despite being located further than the required 25 m buffer zone, while in other areas households within the 25 m buffer zone were identified as less at risk as they are located uphill from the proposed road alignment.

## 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 HQ1-3 RAP conforms to the requirements of IFC Performance Standard 5 (PS5 – Land Acquisition and Involuntary Resettlement), as well as differences between the requirements of PS5 and PNG law.

### 2.1 Institutional Framework

#### 2.1.1 Provincial Government

The Project affects the territories of four Provinces, as well as the National Capital District. These affected territories and their capital centers are:

- Southern Highlands Province – Mendi
- Gulf Province – Kerema;
- Western Province – Daru;
- Central Province – Port Moresby; and
- National Capital District – Port Moresby.

The HQ1–3 area 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 and 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 Governments<sup>6</sup>; and
- **The District Administrator and Staff:** are responsible for overseeing the administration of the Organic Law in the district.

---

<sup>6</sup> 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.



### 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;
- **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.

### 2.1.4 Oilmin Involvement

In addition to Lancos, the PNG Oil and Mining Industry Services Company (Oilmin) has a presence at Nogoli along with offices in Lae and Mount Hagen. Oilmin has been used to date for the procurement of rations, building materials, and other supplies.

## 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 (about 97% 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, 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 that 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:

- a) Any part of the license area of a petroleum development license the operations under which are part of that petroleum project; or
- b) Any land within the buffer<sup>7</sup> 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 then to issue a State lease to the landowners, who may sub-lease the land to the private entity.

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 Licenses<sup>8</sup>.

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

Legislated provisions contained within the O&GA. protect landowners affected by the Project. This Act contains provisions for adequate and fair compensation for land that is accessed or acquired.

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

---

<sup>7</sup> A buffer zone is the area around the dedicated project facilities – e.g., pipelines etc – which is determined by the Minister as up to 5 km around that facility.

<sup>8</sup> 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 license area with respect to their history, language, culture, social organization, 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.

- 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.

#### 2.2.3.2 Eligibility

Table 2-1 indicates those individuals or groups eligible for compensation and is further discussed in Section 7.0.

**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 fabricated 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 provisions<sup>9</sup>. 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

<sup>9</sup> 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.

agreed for the compensation of clan land in the HQ1–3 area are reflected in the In-Principle Agreement with clan representatives (Section 13.0).

**Table 2-2: Agreed compensation schedule**

<b>COMPENSATION RATES USED - (Kina<sup>10</sup> per hectare)</b>			
<b>Initial Damage (One-off)</b>	<b>Easy Access</b>	<b>Moderate Access</b>	<b>Difficult Access</b>
<i>Kunai</i> 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
<b>Land use – all areas (annual)</b>		<b>210 ha</b>	

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. The Papua New Guinea Valuer General (VG) produces a schedule of rates to be paid as compensation for acquisition of various economic plants and trees owned by individuals. The most recent schedule, while dated January 2008, was drawn up in 2005. An independent<sup>11</sup> assessment of the rates was undertaken in the HQ1–3 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 between payments based on VG rates and the Full Replacement Values for trees.

#### 2.2.4 Benefit Distribution Mechanisms

Project Area Landowners (defined in Section 2.2.1 under the O&GA) are eligible for, and receive by way of the Development Agreements they negotiate with the PNG State, various cash and non-cash entitlements. These benefits such as royalty, equity, business grants, and infrastructure contracts may be paid through intermediate entities such as:

- **Incorporated Land Groups (ILGs):** these are legally-registered corporations for the management of land resources. The registration process is governed by the Minister of Lands and the Registrar of Titles (ROT). One of the ILG's functions, as determined under Oil and Gas Act Section 169(b) (Identification of Landowner Beneficiaries) and Section 176(3)(f), is the receipt of benefits such as royalty and equity dividends;

<sup>10</sup> 1 PGK = ~0.4 USD

<sup>11</sup> Dr Mike Bourke, "Compensation Rates for Plants in the Hides–Angore-Komo area". March 2010.

- **Landowner Companies (Lancos):** these are incorporated under the PNG Companies Act, and give expression to local business aspirations and provide an avenue for direct and indirect employment and income generating activities. They have been formed to undertake business ventures;
- **Landowner Associations (LAs):** these are incorporated under the Associations Incorporation Act, to collectively represent local landowners that may also have formed themselves into ILGs or Agencies within a PPL, PRL or PDL. Whereas ILGs function to distribute royalties and equity dividends, a Landowner Association is supposedly vested with authority to represent landowners in negotiations that may affect their social and economic welfare. Although LAs are not formally recognised by, or alluded to, in the Oil and Gas Act, they are often mandated by MOA/MOU/DAs as for example in the Moran PDL 5 Development Agreement; and
- **Agents:** are clan/sub-clan representatives who receive and distribute benefits on behalf of their constituencies.

#### 2.2.5 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 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 inter-governmental 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 and 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 and 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 RPF<sup>12</sup> identifies any gaps or conflicts between IFC PS5 requirements and PNG Laws and Regulations, and defines the proposed strategy to close any gaps. The HQ1–3 RAP is not expected to result in any variations in principle 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 fair and just compensation to those affected and we are consistent with the World Bank Operational Policy and Bank Procedure on Involuntary Resettlement."*

---

<sup>12</sup> PNG LNG Resettlement Policy Framework, October 2009

### 3.0 OVERVIEW OF HQ1–3 SOCIAL BASELINE RESOURCES

Various baseline studies have been undertaken in the HQ1-3 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*<sup>16</sup> as it relates to the HQ1-3 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 hemoglobin; (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 to support the suite of HQ1-3 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.

---

<sup>16</sup> i.e., what is known before any resettlement associated studies



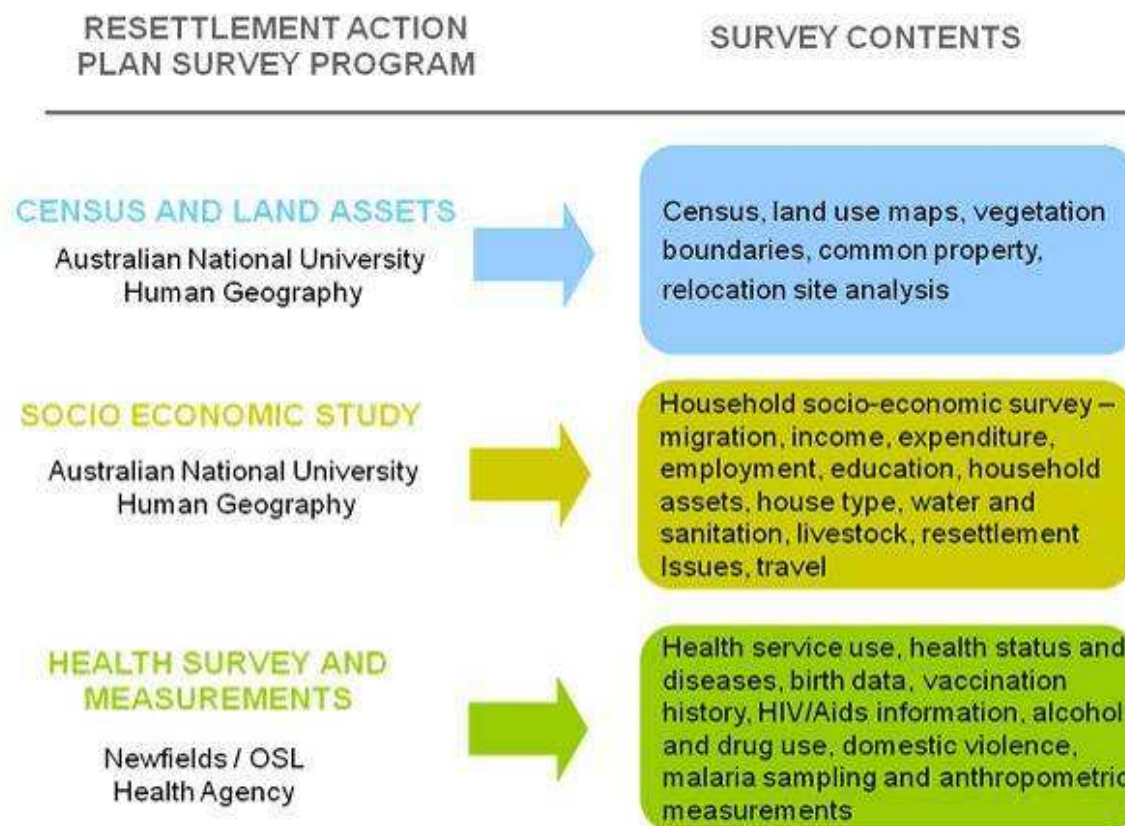


Figure 3-1: Resettlement survey types

### 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, and The Australian National University (ANU) under the auspices of ANU Enterprise Pty Ltd (ANUE). The team consists of 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.

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-center 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. PNG National Museum staff conducts these surveys. 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 residing within the HQ1-3 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 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)<sup>14</sup>. 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 ten or higher 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 house<sup>15</sup>. 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 identifier<sup>16</sup>.

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 reached. 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

---

<sup>14</sup> 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.

<sup>15</sup> 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.

<sup>16</sup> People can be photographed up to several weeks after the initial survey.

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. The images of the houses are stored and identified by Family Number and House Number.

### 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 (2) areas under sweet potato (the staple food) and some up to six (6). 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 hundreds of plants within these gardens individually would have delayed 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 all plants within 100 sq m (10 m x 10 m) random squares in resettlement-affected 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 just 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 landowner 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. They received plenty of advice shouted from bystanders and were 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 for planting 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 closed<sup>17</sup> 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 a Microsoft 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 claimed 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 HQ1–3 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 (DHS) of more than 10,000 households. This effort covered every province in the country and is considered 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 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 HQ1–3 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 HQ1–3 population.

The health questionnaire for affected landowners in and around the HQ1–3 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.

---

<sup>17</sup> 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.

As part of the household census conducted for the HQ1–3, 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. Appendix 3 contains tables showing the results of the survey.

### 3.2.5 Cultural Heritage

A cultural heritage and archaeological survey was conducted between February and May 2010 by archaeologists working for Coffey Environments. Results were summarized in two reports:

- HGCP to Hides Quarries Roads Pre-Construction Survey (PCS) Results and Mitigation Measures (which covered the area associated with the quarry access road only); and
- PCS Findings for Quarries HQ1, HQ2, and HQ3 (which covered the quarry lease areas only).

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 HQ1–3 area lies wholly within the Southern Highlands Province (SHP) of Papua New Guinea. Within the SHP, the area falls within the Komo-Margarima District.

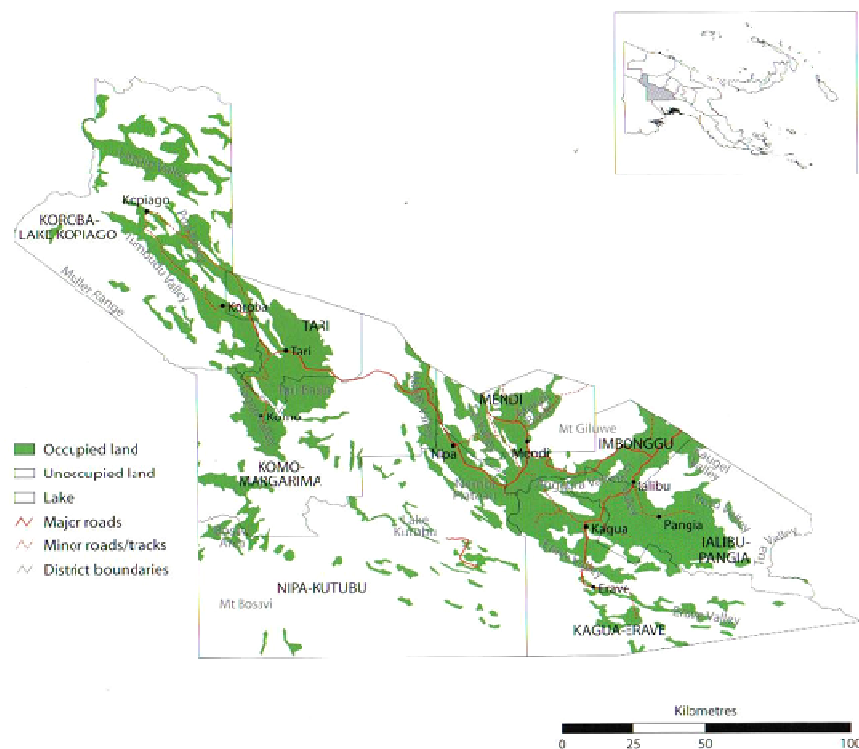


Figure 4-1: Southern Highlands provincial districts

#### 4.1 Cultural Aspects

##### 4.1.1 Background to the Occupation of the HQ1–3 Sites

The occupation history of the HQ1–3 sites is uncertain though clearly of some antiquity since the cultural heritage surveys identified dancing grounds previously associated with Tege rituals, large ancient ditches (*gana*), and the remains of a bachelor cult (*Haroli*) house. Given the identified clan associations of resident landowners include the Hagu, Warabia, Kela, Taguali and Damea social units; it is safe to surmise that the HQ1–3 population is part of the same constituency of groups represented in the broader HGCP environs. Many of the residents informed the Census and Survey Team they had moved to their present locations from the HGCP area many years ago when the wells were drilled.

##### 4.1.2 Ancestral Land Rights

The HQ1-3 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 to customary land are issued or are held by its occupants. Rights to dwell on this land, to cultivate, to plant trees, or to bury the dead are conferred through membership of customary groups frequently referred to as 'clans'. Clan membership is based on the capacity of members to trace descent from a common ancestor though an unbroken line of male links, 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 experienced 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 any 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 (3) 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 HQ1–3 sites, where land is about to be given a monetary value, it is in the interests of groups occupying the land now to make claims to *tene* status and to vigorously argue these claims in public. These claims are compounded in this area due to a longstanding dispute between various incumbent clans over ownership of, and rental due from, Well Pad A. Even if such 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 and HQ1–3 Clans

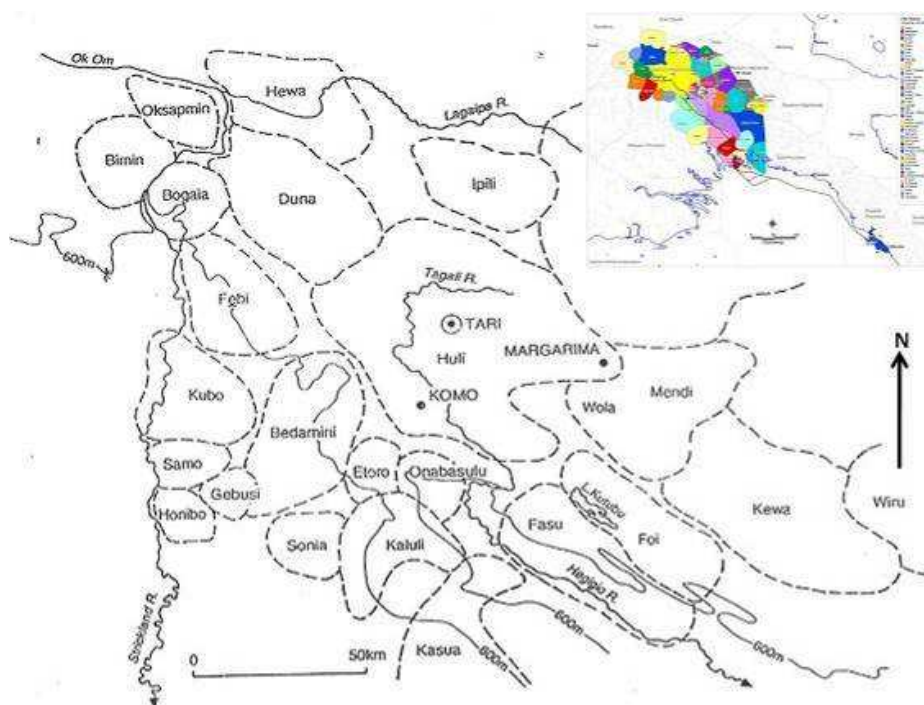
The HQ1–3 catchment is inhabited by Huli people (Figure 4-2) whose socio-cultural environment will mold and determine the process of resettlement.





Figure 4-3 illustrates the various ethnic groups adjacent to the Huli with an inset of all major ethnic groups in the Project environs.





**Figure 4-3: 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 tenure of the dominant Huli culture in an effort to compete with them. Huli is now the lingua franca of at least 30% of Fasua and is spoken by many Febi (PRL02) and Onabasulu (PDL2). 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 4-4 indicates the political reality of Huli numerical preponderance for many of the petroleum Project ethnic groups.

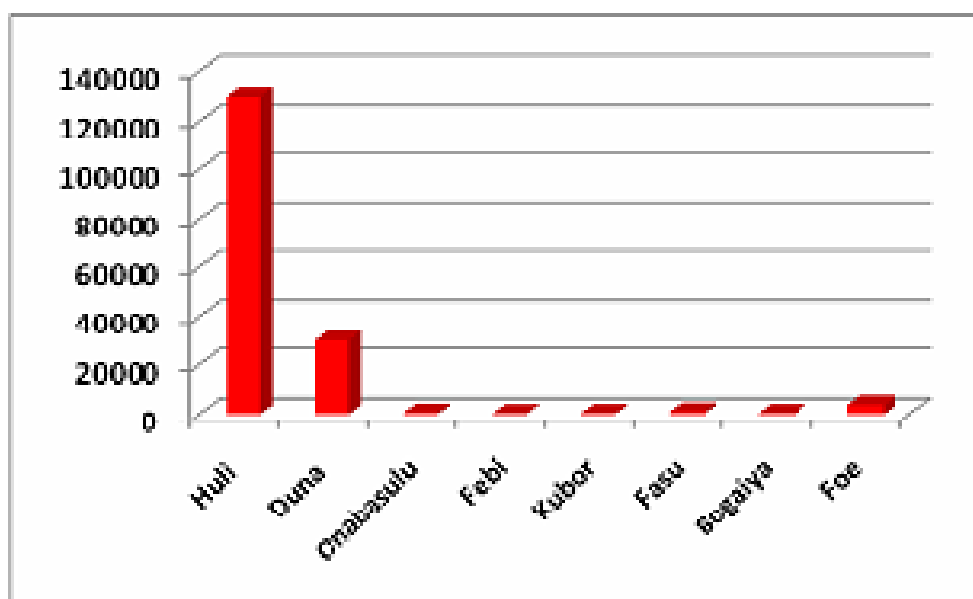


Figure 4-4: Ethnic populations in proximity to Huli

Table 4-1 provides a summary of the clans recorded for the HQ1–3 and a quick comparison of these findings against the pre-existing PRL12 Social Mapping & Landowner Identification study (Goldman 2008) and the Archaeological & Cultural Heritage research findings (Coffey Environment 2010).

Table 4-1: HQ1–3 principal clan listing

Principal Impacted HQ1–3 Clans	ANUE Fieldwork Team	Archaeological Team 2010	Goldman PRL12 SMLI 2008
Hagu (Kulu sub-clan)	✓	✓	✓
Warabia	✓	✓	✓
Kela	✓	✓	✓
Taguali	✓	✓	✓

The PRL12 Social Mapping report indicated that the land holdings of most of these clans were contiguous and run in an easterly direction from the Tagari River up to the Hides ridge in discrete vectors. Thus, many of the HQ1–3 clans, e.g., Taguali, are the same as those recorded in the HQ1-3 RAP. These Huli clans arrived about eight generations ago pioneering settlements and cultivations in previously unused forest areas.

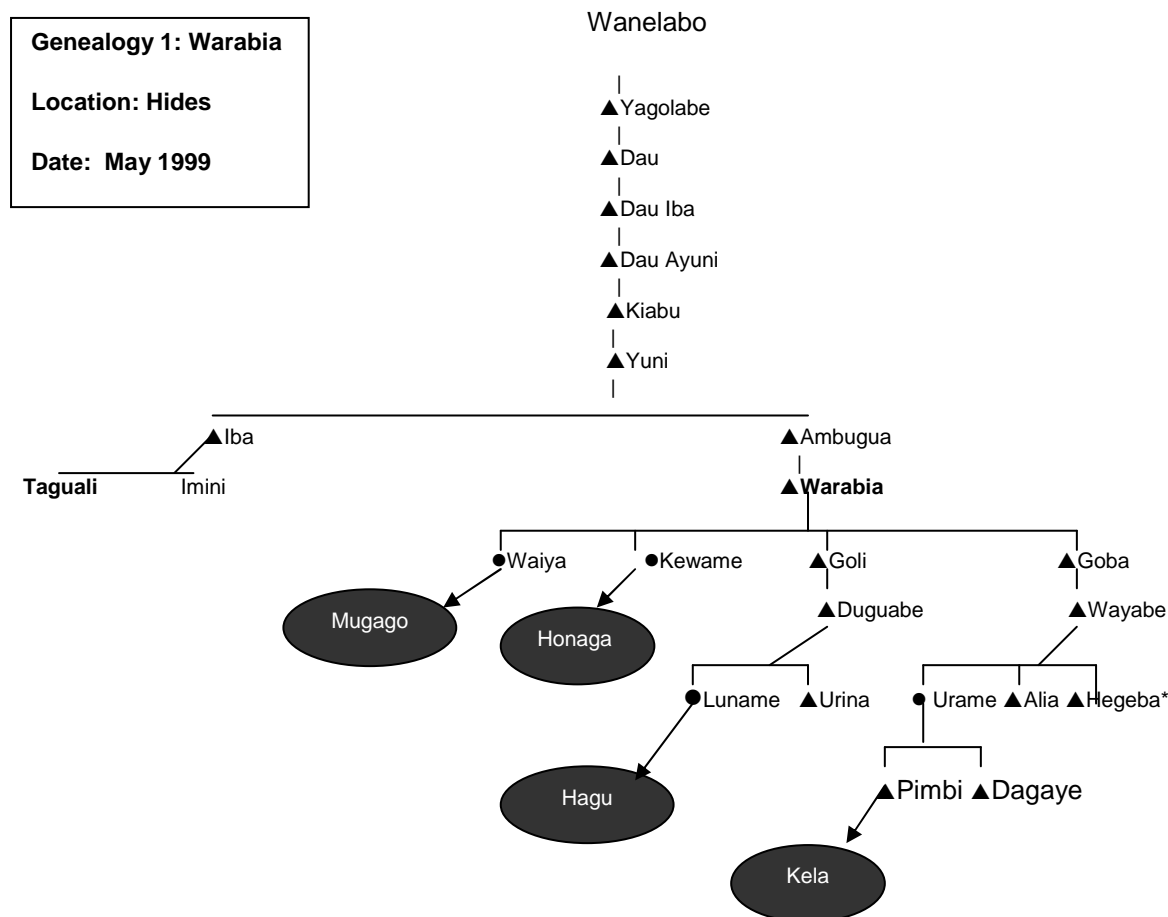
Recorded clan data sourced from the 2008 SMLI are shown in detail in Appendix 5.

These clans (including Mugago)<sup>18</sup> had been involved in a longstanding dispute concerning their relative tenurial status in respect to the Hides 4 well site. It was less a dispute about 'land' in the sense of clan segments wishing to oust other incumbent clans, and more about the relative landowning statuses of these clans and the effect this has on existing and

<sup>18</sup> This account is taken from the PRL12 Full Scale Social Mapping Study – Goldman 2008.

anticipated benefit rights. It is significant that during the resettlement negotiations these claims again surfaced. For this reason it is important we briefly overview the historical interaction between the HQ1–3 landowning clans.

Warabia perceive themselves as the *tene* landowners of Hides 4, and on that basis should be principal recipients and distributors of benefits. The counter-claims of Hagu and Kela, denying Warabia's account, had inflamed the situation to some extent, all of which again goes to show the significance attached by clans to recognition of their historically based identity and tenure in an area.



**Figure 4-5: Genealogy chart for Warabia clan in Hides**

As illustrated in Figure 4-5; Warabia claim that all of the other three (3) disputant clan segments occupied the land following inter-marriage with Warabia, in effect; they came and stayed on their respective wife's lands. All segments are considered as '*yamuwini*' to Warabia as *tene*.

#### 4.1.3.1 Hagu Clan:

Their genealogy starts with the progenitor Dabale who, it is claimed, traveled from Mt. Galoma in Levani straight to Hides 4. The Hides 4 site was the place of their *Ega Kamia Anda*, used previously to perform rituals. They claim that when they first arrived the land was nothing but bush. They did not see anyone else there until they cleared the bush and discovered Honaga, Daguali and Warabia. The claim is not that they were the first, but that

they saw no one else at that time. Their claims repose on: (1) the fact that Pami Te was their ritual site, though few men could actually remember this fact; and (2) they indicate a hoop pine tree on the land where they practiced various rituals and planted targets.

#### 4.1.3.2 Warabia Clan:

Their genealogical account shows unequivocally that Warabia, along with Hora, Hirabia and Imini are descended from a single spirit known as Wanelabo, who inhabited the Mt. Ilu, Tagari falls environs:

- Genealogical information indicates Kela, Hagu and Mugago and Honaga are all *yamuwini* segments born from Warabia agnates. Kela acknowledge this but the implication that, therefore, Warabia is the precedent clan is still disputed. Kela argue that they obtained their wife Urume from across the Tagali not in Hides 4;
- Warabia indicate that in the old Tege ritual of Ega Uri, when *tene* would hold the head part of the pig and *yamuwini* would hold the tail part of the pig, Mugago was the one *yamuwini* they chose to cooperate in this ritual. This is confirmed by Mugago clan;
- Warabia claim that Hagu clan was only passing through their land at the generation of Kulu in Hagu genealogy (some six generations before); and
- Kela clan, Warabia assert, was based in Kopalu and Idauwi, not in Hides 4.

#### 4.1.3.3 Kela Clan

Genealogical accounts showed this to be another offshoot clan from the Tani phratry who originally were settled at Tani in the Pureni-Tari area. Kela assert that this original cassowary came and settled on Hides 4 where it gave birth to Kela people. Kela corroborate descent from a Warabia woman, Urume, but assert this woman was originally located on the other side of the Tagari near Kobalu, at Mbaguale. The most likely scenario is that some small segment of Kela traveled to the Nogoli area some five to seven generations ago, much as was the case for most of the Huli clans.

#### 4.1.3.4 Mugago

Mugago are very much the 'passengers' in this dispute. They have sided with Warabia and acknowledge *yamuwini* status to Warabia's *tene*. They are thus on their mother's land. The clan genealogy taken has a rough fit with the Mugago section occupying an area south of the Waguba River. Their migration was out of the Bosavi area.

Clearly, this Hides 4 area is one where multiple groups have co-existed and inter-married over several generations. Resettlement since the Hides Project has occurred with major migration into the valley by various clan segments or lineages. By 1998, a compensation agreement for the site had been worked out, and the clans were calling themselves the 'middle clans' to differentiate themselves from the other groupings known as Hiwa and Dugube factions.

The above dispute was also enmeshed with the Hides 4 road, where the clans Honaga, Kajumba, Taguali, Dabia, Amburu and Warabia cross-claimed ownership of the tenements involved. An annual rental agreement was entered into in 1998 (Table 4-2).

In the event that these clans decide to re-activate the land dispute, they may have recourse, of their own volition, to the provisions of the Lands Dispute Settlement Act 1975. The project has no participant role in such decisions and would not be a party to such a dispute.

Table 4-2: Hides 4 compensation agreement details

Land	Area	Value	Annual rental	Date
Hides 4 access road	15.2 ha	K30,500 (1998)	K3,050	6 May 1998
Hides 4 water source and pipeline area	1.3 ha	K4,000	K400	6 May 1998
Rig site and lay down	8.5 ha	K23,000	K2,300	6 May 1998

Figure 4-6 (Map 2 Appendix 10) illustrates the approximate distribution of these clans in the HQ1–3 area.

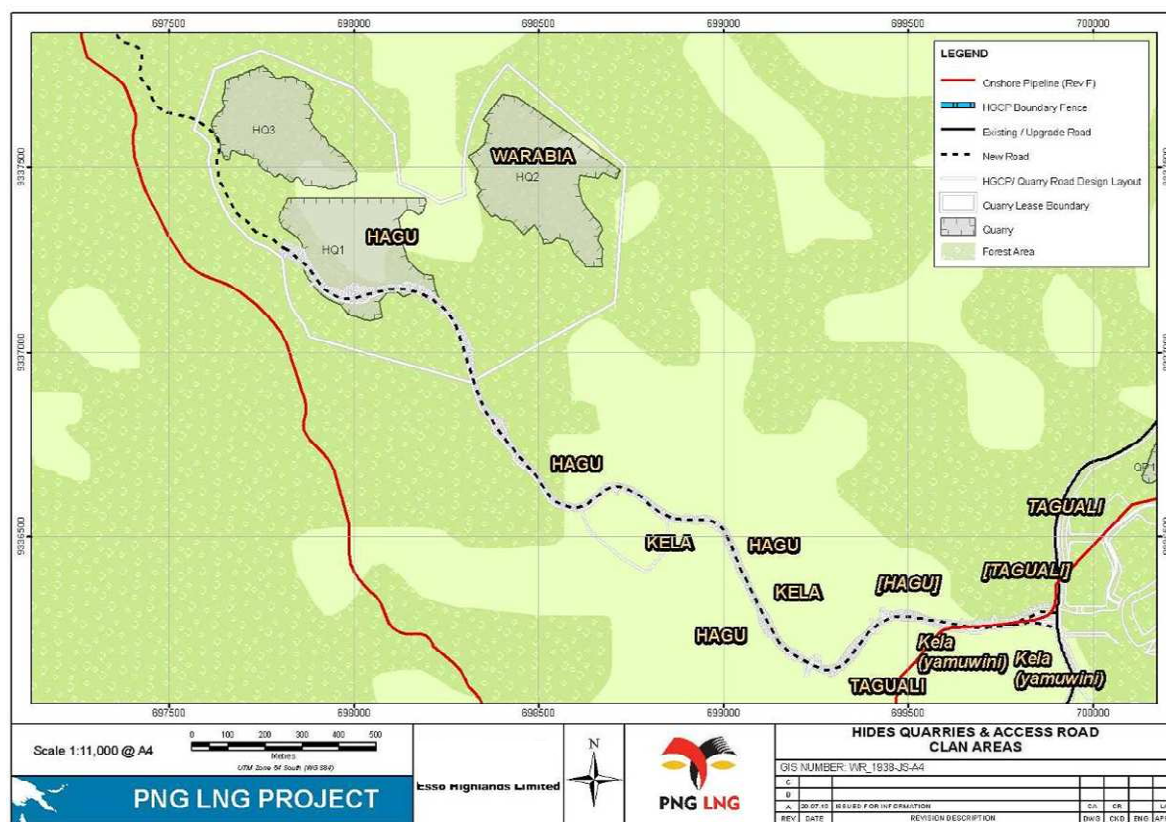


Figure 4-6: HQ1–3 principal landowning clans

#### 4.1.3.5 Considerations for Resettlement Planning

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 at one census moment as 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 recognized claim to be there.
- To date ethnic and clan issues have not notably affected the resettlement planning process for the HQ1–3 sites, as focus has been on the housing package offered. It is expected that such considerations could become more relevant at a later stage when issues of land rental compensation are debated.

As noted in the HGCP RAP, 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 environs, along the Heavy Haul Road, or impacted well pads. Many of the HQ1–3 affected landowners had already moved some years back from the Well Pad A area, and people from Kela and Hagu are commenting that they have little other available land.

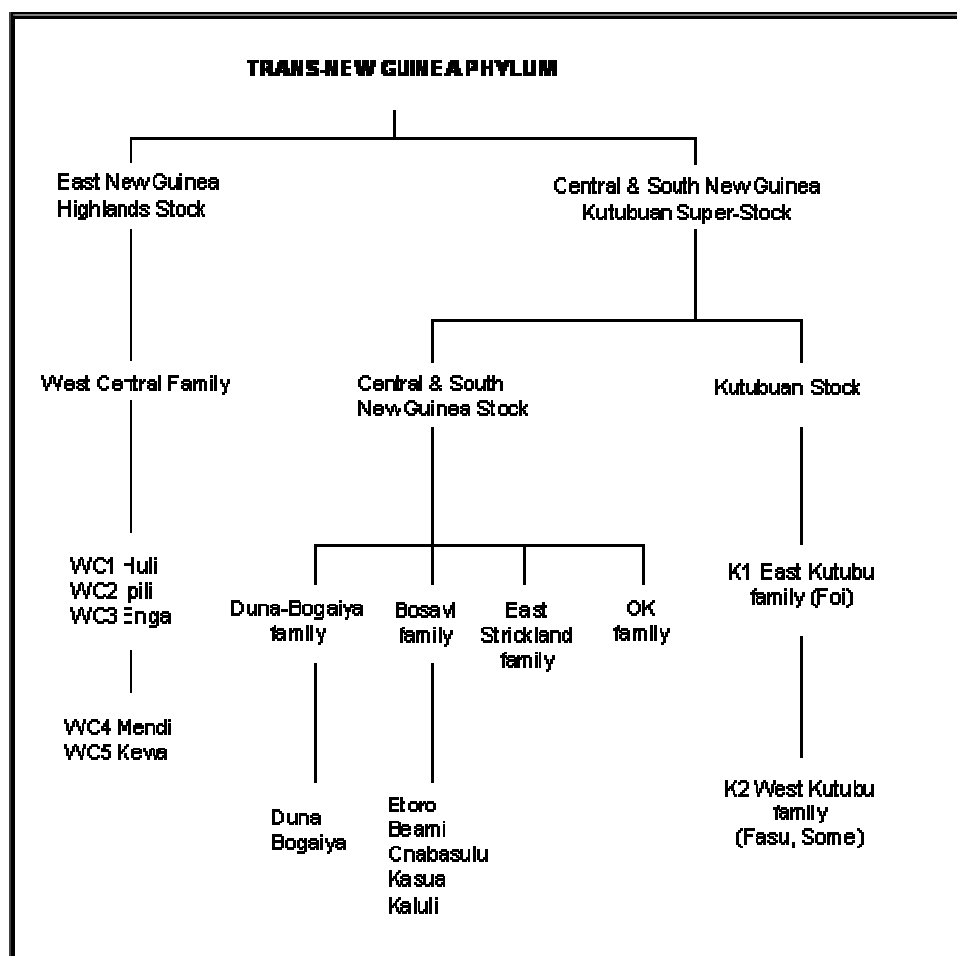
Because of the multiple project interventions within the Hides-Komo environs, many clans/clan segments appear to be affected by land loss on more than one occasion. As explained in the HGCP RAP, the issue of accurately portraying the amount of alternative available land (which most have) for any relocating individual is highly complex in Huli, given their multi-local residential status. To address possible and perceived land deprivation and shortage, the livelihood monitoring and evaluation program is regarded as the best approach to gauge such impacts and to provide robust recommendations for addressing all such problems.

#### 4.1.4 Language and Migration

Figure 4-7 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 includes 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 4-7: The Trans-New Guinea Phylum**

The ethnographic evidence indicates well-defined, pre-colonial inter-tribal trade (Figure 4-8). These trade routes helped establish social landscapes in which people came to know about neighboring 'others'. Importantly then, the oil and gas explorations and pipelines will not so much create new pathways between previously isolated ethnic groups, as it will redefine and retrace old regional networks.





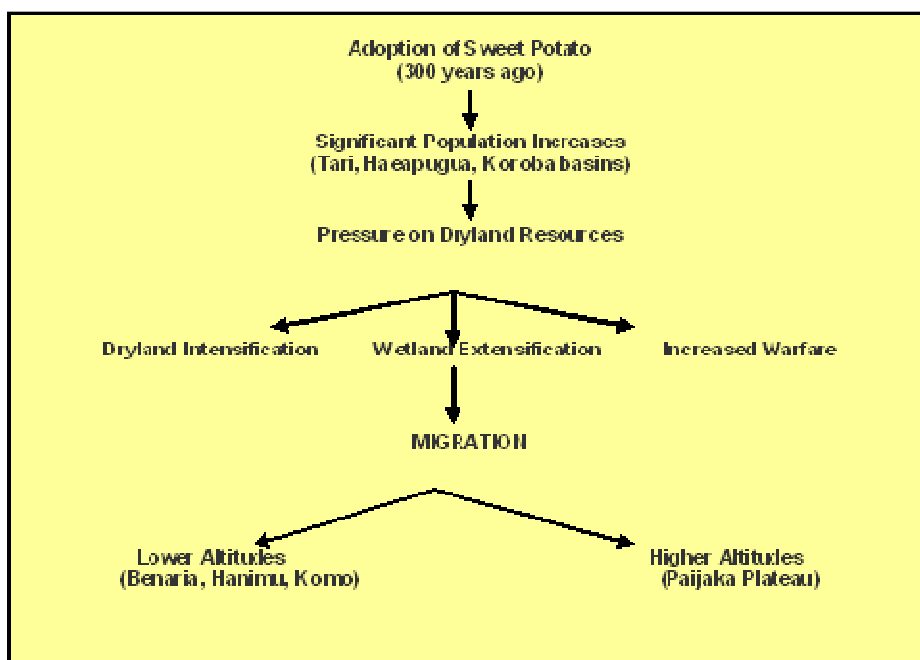
- Traditional migration patterns;
- Inter-tribal relationships; and
- The history of contact and resource development in the region.

The research of ANU scholars like Ballard (1995) has proposed an evolutionary model explaining Huli history. Taro matures between 7 and 12 months below 2,000 m, and anywhere from 12 to 28 months above 2,000 m. Sweet potato, by contrast, matures between 5 and 8 months at 1,500 m to 2,000 m, or between 7 and 12 months above 2,000 m. After the sweet potato arrived in Papua New Guinea (somewhere between the 16<sup>th</sup> and 17<sup>th</sup> centuries), and following its adoption in the Highlands, a rapid increase in populations of both people and pigs occurred in some of the major Huli basins such as Tari.

<sup>19</sup> 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.



diffuse settlement by small groups or individuals, and then following warfare additional larger waves (Figure 4-9).



**Figure 4-9: An historical model for migration (Ballard 1995)**

The kinds of evidence cited in support of the interpretive model shown in Figure 4-9 bear directly on our understanding of the HGCP and HQ1–3 areas.

- The Tari basin, long regarded as a Huli heartland and center, 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 4-9 occurred between 1790 and 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 (1,540–1,800 m) there are approximately 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 seven to eight generations previously, sometime between 1800 and 1840, probably spearheaded by the Wabiago clan, and followed by clans such as the Tobani from Yangome in Tari around 1840 to 1865. 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. However, 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 Dugube<sup>20</sup> by Huli. The archaeological evidence from these sites shows settlement and land use over several thousand years. Once trade and inter-marriage increased, these already resident Dugube clans became naturalized Huli; however, these Dugube groups never relinquished or forgot their non-Huli provenance.

#### 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 that 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 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 inter-marriage 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 patrilineal<sup>21</sup> 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.

---

<sup>20</sup> Duguba and Dugube are interchangeable terms, with different authors choosing different orthographies to render Huli.

<sup>21</sup> 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.

#### 4.1.6 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, 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 and 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.

#### 4.1.7 Land Tenure and Residence Principles

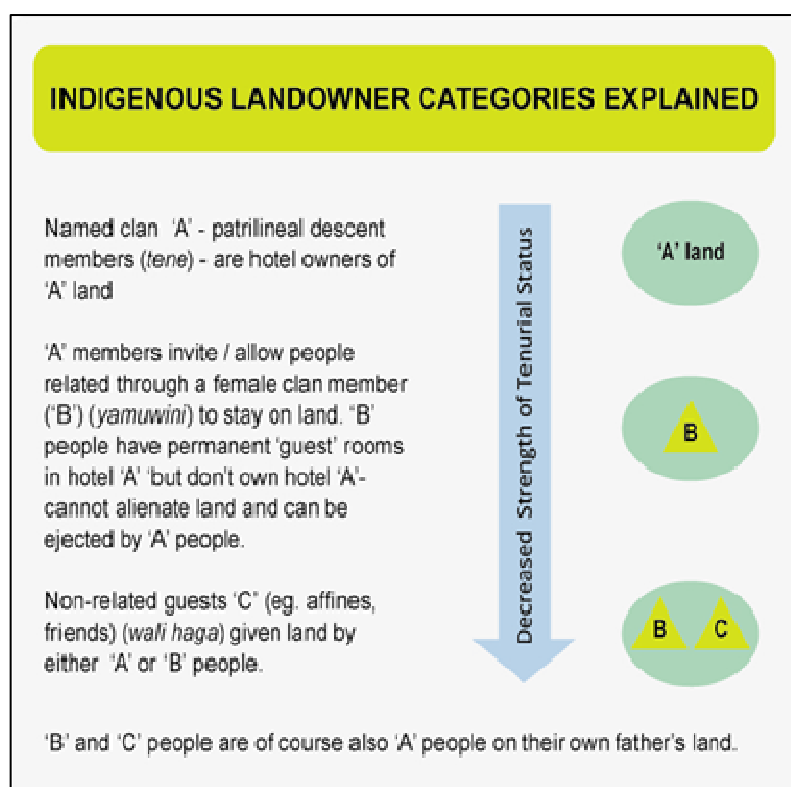
Essentially, each clan has a principal traditional territory (parish) that represents a central station for their ritual, territorial, and historical property. All members of that clan notionally have a right to land on that tract by virtue of their descent status in that clan. This land comprises gardening,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

#### 4.1.8 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 and 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 4-10: Huli landowner categories**

The history of disputes in Moran, northwest Moran, and Hides is largely 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 benefit<sup>22</sup>.

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 that relates how ancestral progenitors traveled the landscape, named landforms and rivers, and bequeathed rights to land. The

<sup>22</sup> 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. While 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 Hides 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 been, for many years in PNG, 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 HQ1-3 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 also provides strong leadership for women in the community. Communication through the use of mobile phones has greatly enhanced the influence and role of leaders.

## 4.3 Demographics and Household Profile of Directly Affected Population

The HQ1–3 resettlement area contains a relatively small number (seven) of households. This excludes ten families within the entrance area of the access road who will physically have to relocate. These families have previously been identified and surveyed as part of the HGCP RAP (May 2010) so will not be discussed further within this HQ1–3 RAP. A further three families were assessed as eligible for a full resettlement package since the area of gardens they cultivate within the development area is significant, possibly representing most of their gardens. This will enable them to re-establish their households elsewhere.

However, these three households are not resident in the area and have households and gardens elsewhere, but the extent of gardens at these alternative locations was not disclosed to the survey team. Thus, a conservative approach is being adopted for the RAP, by including these three households that will be assessed in more detail during the implementation phase. Two of the three households have houses and gardens located near the heavy haul road towards Timalia.

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 SIAs<sup>23</sup> (Appendix 2 contains the social and economic questionnaire survey form and Appendix 3 contains the results spreadsheets).

This comparison allows us then to understand the continuities and discontinuities between HQ1–3 standards of living and regional averages. The 2009 EIS SIA undertook a

---

<sup>23</sup> Thus the 'Komo catchment' included the census units of Komo Station, Emberali, and Mindirate

Household and Village questionnaire in locations such as Juni, Nogoli, Para, Laite, and Hides 4 within the general Hides region.

Across many of the socio-economic measures tested in the social questionnaire HQ1–3, 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 4-3 provides some demographic data taken from the 2000 National Census showing gender distribution of population, Households (HHs), and in descending order of governance, Districts, LLGs, 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 4-3: Southern Highlands Province demographics**

Southern Highlands Province 2000							
Total	Male	Female	HHs	LLGs	CU	Wards	Districts
546,265	278,331	267,934	96,461	30	2,749	677	8
<b>Komo-Margarima District</b>							
64,162	32,628	31,534	11,580	3	287	85	
<b>Tari-Pori</b>							
9,027	26,290	25,920	9,025	4	79	67	
<b>Hulia Rural LLG</b>							
15,125	7,493	7,632	3,076		72	29	
<b>Komo Rural LLG</b>							
15,815	8,284	7,531	2,623		51	21	
<b>Haiyapuga Rural</b>							
17,272	8,679	8,543	3,368		21	21	
<b>Koroba</b>							
20,732	10,512	10,210	3,324		73	23	

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

**Table 4-4: Southern Highlands Province 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 sq km with areas around Lake Kutubu supporting 40 persons per sq km (Figure 4-11). In the western part of

the Komo-Margarima District, density is less than 1–20 persons per sq km (Hanson *et al* 2001:91).

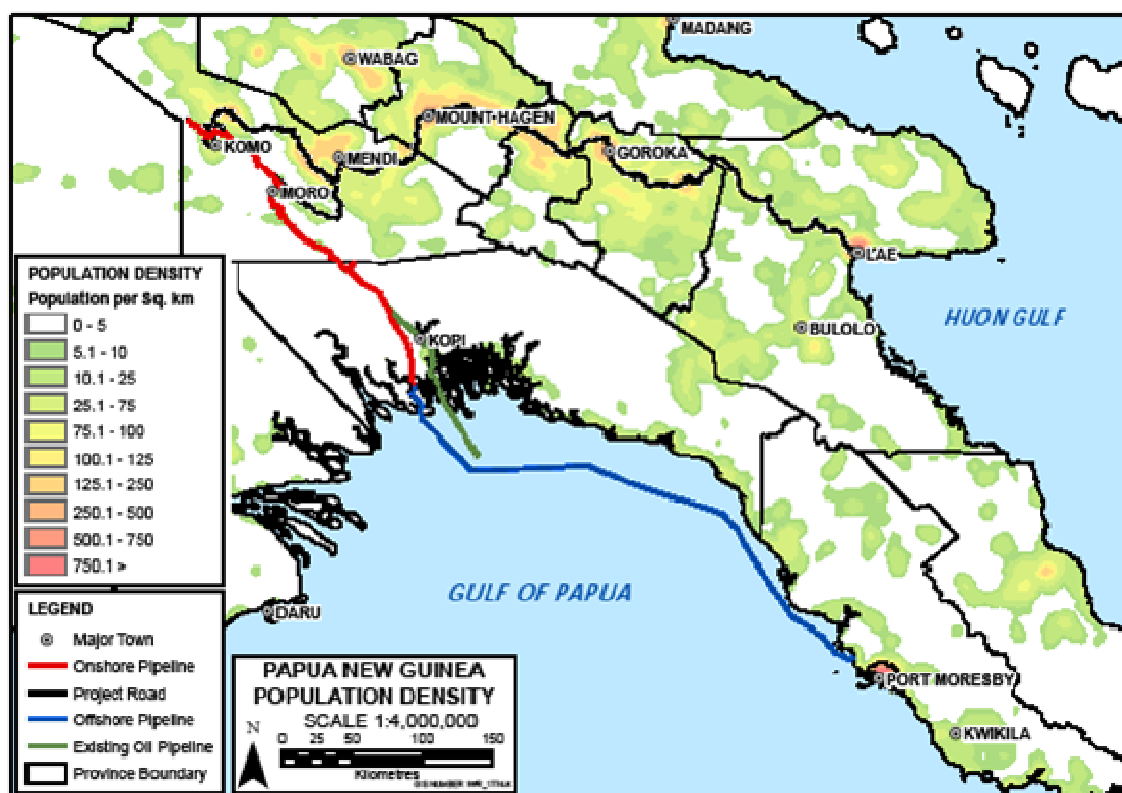


Figure 4-11: Population densities in LNG Project area

#### 4.3.2 Demographic and Household Profile of Directly-Affected Population

The locations of affected households are shown in Figure 4-12 (Map 3 Appendix 10).

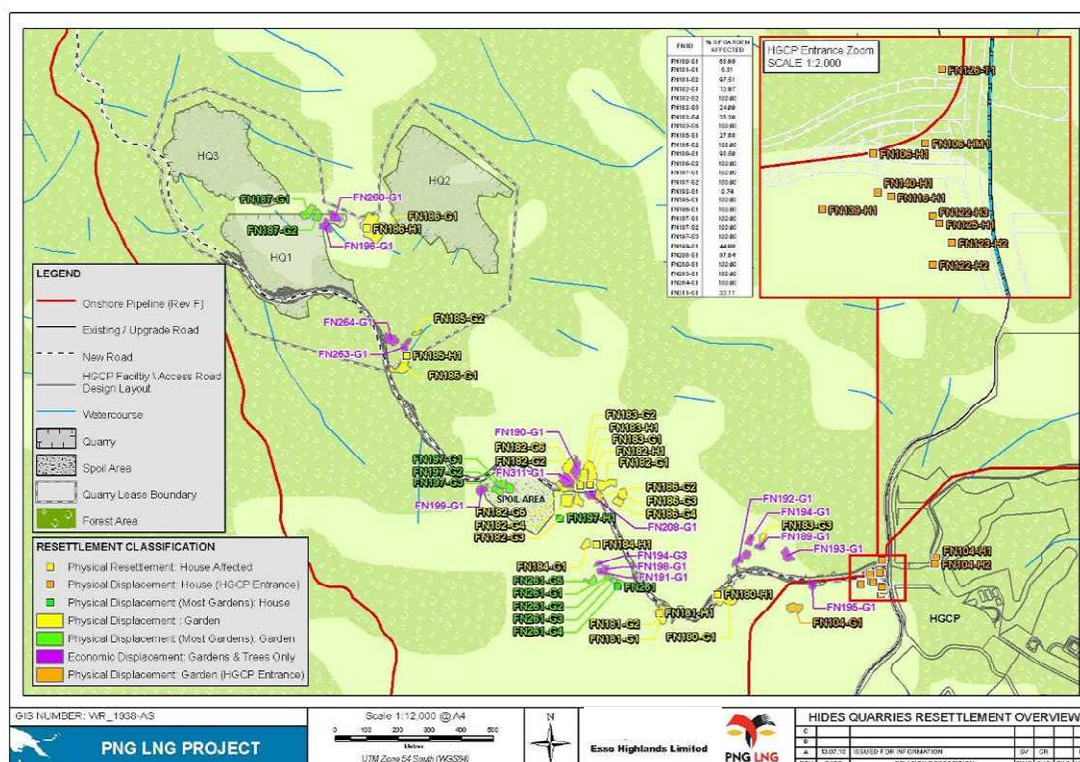


Figure 4-12: Location of HQ1–3 households

The census collected the names of 28 persons as members of the seven physically affected households at HQ1-3, and a further 20 members of the three households that will lose most of their gardens. Of the household members listed, 60% were present; the remaining 40% were all resident elsewhere in the Hides-Komo region. Of the persons subject to census, 53.5% were male. Fourteen percent were under 5 years of age, and 11% were under 15 years of age. Fifty-seven percent were aged between 20 and 55 years, and 7% were aged 55 and over.

Of the 20 members of the 3 households who are included due to garden losses, 60% are female. The majority (7 and 35%) are between 15 and 19 years of age (52% are female). Of the total 48 people to be relocated, 40% are aged between 20 and 54 (a 35-year range), and 21% between ages 15 and 19, while a further 31% are under age 15. This denotes a very youthful population with a particularly significant group of emerging adults.

The survey team photographed affected family members present at the time the initial census was undertaken. The age breakdown of the 48 people recorded is shown in Table 4-5.



**Table 4-5: Age breakdown of HQ1–3 household residents**

Age Range	Houses Impacted (7 HHs)		Most Gardens Impacted (3 HHs)		Total (10)	
	Total	% of Total	Total	% of Total	Total	% of Total
0-4	4	14	3	15	7	15%
5-9	3	11	4	20	7	15%
15-19	3	11	7	35	10	21%
20-54	16	57	3	15	19	39%
55+	2	7	3	15	5	10%
<b>Total</b>	<b>28</b>	<b>100</b>	<b>20</b>	<b>100</b>	<b>48</b>	<b>100%</b>

The HQ1–3 average family size of 4.8 persons per household contrasts with the averaged 8 to 12 members recorded for Komo and HGCP. This is perhaps in part explained by the fact that the HQ1–3 area is now well acquainted with the Project resettlement program and the calculus used for compensation. There is little advantage to be gained then by inflating household numbers, as the package does not increase accordingly. Moreover, the Hides Quarry houses are relatively distant from the Hides infrastructure and do not, therefore, attract related family members, which tend to swell house residents as in the case of the HGCP area.

A number of respondents (43%) had never married which is a little lower than the levels recorded for HGCP (56%) and Komo Airstrip (60.2%), and the more general Hides catchment (55%) noted in the EIS SIA (2009). In part, this figure may reflect the statistical skewing, which arises from such a small household sample and equally the small household population numbers.

#### **4.4 Economic Profile and Livelihoods**

The following sections provide short discussion on the status of livelihoods in the region. The importance of these considerations and the regional catchment comparisons is that they help highlight social issues, which are not otherwise captured by direct feedback from landowners, are not revealed by ELC direct interviews or focus group discussions, or for which affected landowners remain unaware. For example, understanding that one area may have lower literacy, lower school attendance rates, or that income from sale of agricultural produce is higher than in other adjacent areas, can only be revealed by this kind of comparative and metric exercise. These analyses go to the crux of understanding ‘issues’ within the HQ1-3 resettlement affected region.

##### **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 in the HGCP RAP (2010) indicate that in the intervening period between 2001 and 2010, some specific areas within these districts have enjoyed increased standards of living.

Agriculture is both the principal subsistence activity and 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 are 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, and leaf vegetables; and depending on locations, new crops like pineapple, tomatoes, potatoes, pumpkin, and taro, 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.

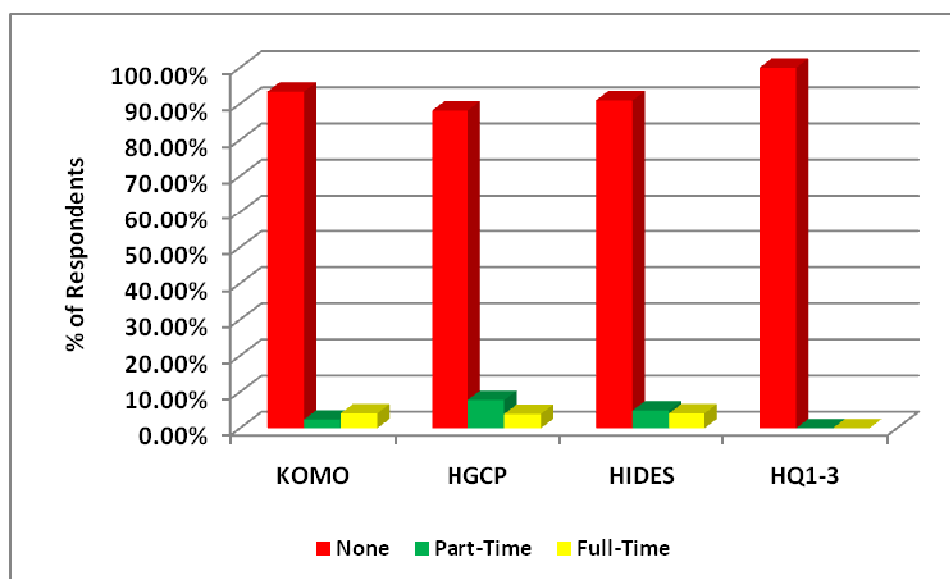
Over the last decade, there has been a marked and slightly worrying decrease in the previously huge number of sweet potato varieties. The introduced activities of cattle farming, silkworms, and cash cropping of coffee, fruits, and vegetables have had only sporadic success with little sustainability across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

#### 4.4.2 Household by Economic Activity

Declared employment levels for the HQ1–3 contrast significantly with findings for the Komo and Hides catchments, and HGCP areas (Figure 4-13) in that there were no members in paid employment. All HQ1-3 landowners practice subsistence horticulture so the total lack of paid employment does not imply quite the same consequences or values normally associated with industrialized societies. Importantly, the social survey was completed prior to the establishment of construction camps at Well Pad A, and in the intervening period, some<sup>24</sup> of the HQ1–3 landowners have indeed been engaged as laborers through HGDC.

---

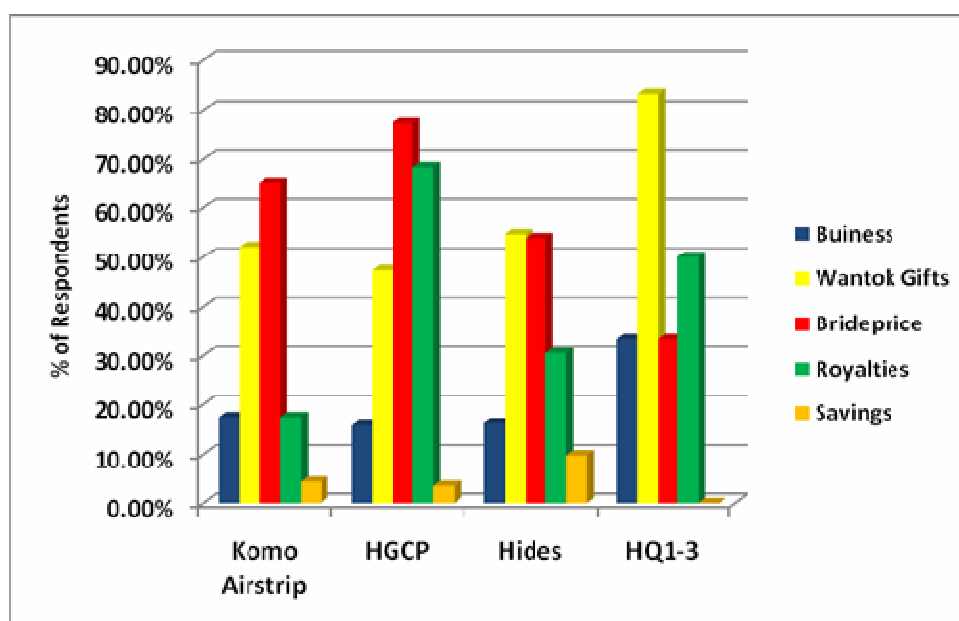
<sup>24</sup> The RIT team recorded two members in particular at that juncture who had been employed full-time.



**Figure 4-13: Comparative employment levels for HQ1-3, HGCP, Komo and Hides catchments**

Longitudinal data from all previous petroleum and gas SIA surveys indicated 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 accounted for more than 75% of all income and expenditure amongst affected households.

Figure 4-14 sets out the principal income sources relayed to the survey team for the HQ1–3 households resident in the Project area, and compares this with the results for the Komo airstrip and wider Hides catchment obtained for the 2009 EIS SIA.



**Figure 4-14: Income sources for HGCP, HQ1-3, Komo Airstrip and Hides catchments**

As noted above, the small statistical sample under consideration can provide a distorted view of the findings. Figure 4-14 appears to indicate a high level of business income when compared with levels in adjacent catchments; however, there were only two household-head respondents who reported this type of cash income stream. The results do indicate that HQ1-3 families receive bride price and royalties much in line with levels reported by HGCP residents. Similarly, income from the sale of cash crops appears significant – HQ1–3 (67%), HGCP (77%), and Komo Airstrip (78%).

Particularly noticeable is a high level of reported *wantok* gifts, which is consistent with the lower levels of employment found in the quarry catchment. Reported levels of savings were significantly lower than for any of the other resettlement catchments, or than that found for the Hides region; this clearly may merit some attention in respect to any business development programs that are initiated in the area. The report for personal bank accounts (17%) compares favorably with HGCP (18%), and the wider Hides catchment (11%).

**Table 4-6: Income sources for HQ1-3, HGCP, and Hides catchment** <sup>25</sup>

Source	2007–09 SIA (%)	Resettlement Surveys (%)	
	Hides	HGCP	HQ1–3
Employment	10	8	0 <sup>26</sup>
Royalties	31	68	50
Business	16	16	33
Cash crops	47	77	67
Livestock	36	91	100
Fishing	7	9	17
Bride price	54	77	33
<i>Wantok</i> gifts	54	47	83
Savings	10	4	0

Interest in the sale of agricultural produce represents 83% and for coffee represents 83.3%. These figures are broadly comparable with both HGCP (88% and 91%) and Komo Airstrip (96% and 83%), and noticeably higher than the Hides regional averages (72% and 59%). There were no reported interests in public motor vehicle ownership and only one instance of a business interest in a local trade store.

Figure 4-15 compares average holdings of pigs and chicken livestock per household. While resident HQ1–3 families have pig stocks at levels equal to that of the general Hides and Komo catchments, chicken numbers were relatively lower. There were no reported cattle holdings for the HQ1-3, but three (33%) households reported interests in fishponds as income-bearing activities.

<sup>25</sup> Percentage of respondents reporting income from a specific source.

<sup>26</sup> There was some discrepancy between the census which recorded nil employment, and the social survey which reported income from employment at 66%. It is believed the census figure is the more accurate reflection of the status of employment in the area.

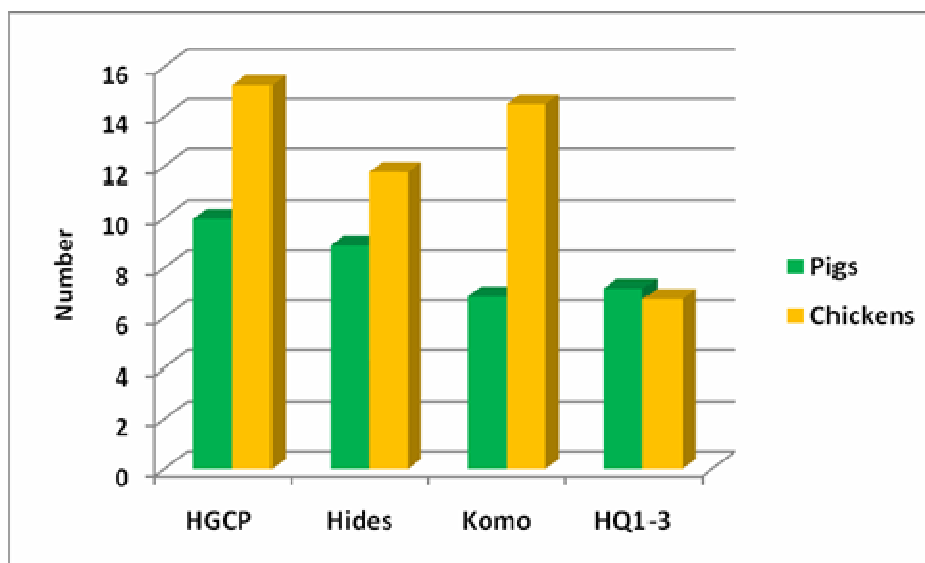


Figure 4-15: Average pigs and chickens per household – HQ1-3, HGCP, Hides and Komo catchments

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.

Estimated average yearly income per household, and this includes a monetary value for pigs, is approximately K12,098, comparable with HGCP (K13,898). Expenditure at K4,410 appears conservatively estimated and represents the first time a figure lower than income has been reported for any survey catchment in these environs.

#### 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 more HQ1–3 residents expend on disputes, bride price, and trade store purchases. In most other regards, the distribution profiles were not dissimilar to those reported for the Komo Airstrip and HGCP. That many resident HQ1–3 people regularly spend cash in trade stores indicates the vitality of these business ventures in this area (Figure 4-16).

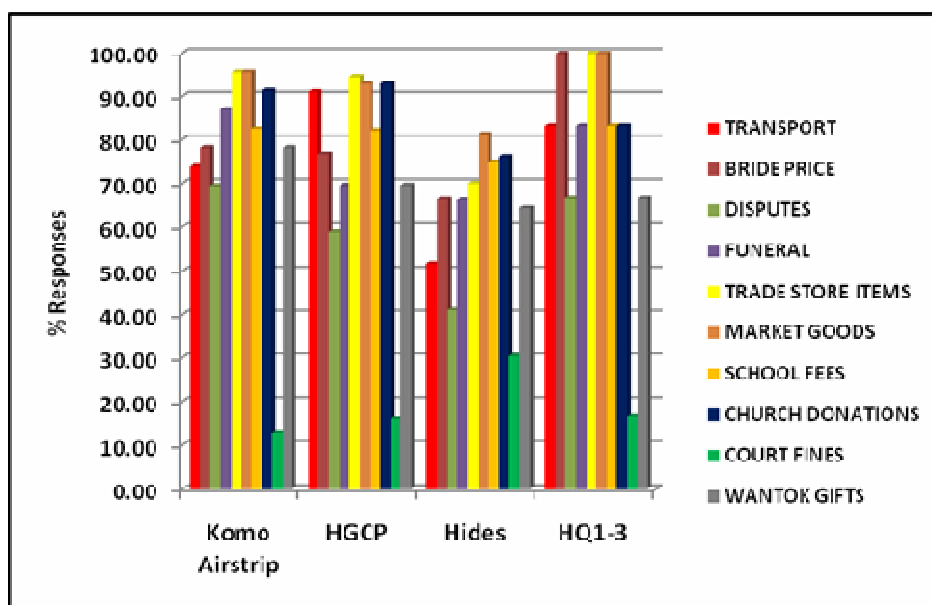


Figure 4-16: Expenditure patterns of HQ1-3, HGCP residents by comparison with Komo Airstrip and Hides catchments

In respect to expenditures from petroleum/gas royalty and equity, most informants cited the outlays in household consumption (33.3%). As noted above, the number 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 resident HQ1–3 respondents across a range of goods. Moreover, expenditure on some of the same items at markets is well above that of HGCP and closer to levels typical of the wider Hides catchment. These patterns are typical of 'rural' Huli communities, which are less advantaged than the resource hubs of Hides, Moran and Kutubu. Similarly, for items such as vegetables (88%), buai (88%), fruit (67%), scones, tobacco, packet noodles, etc., the survey found levels of declared expenditure at markets running at between 10–20% higher than the area mean.

Table 4-7: Comparative levels of trade store purchases for HQ1-3, HGCP and Hides catchments<sup>27</sup>

Item	HGCP	Hides Catchment	HQ1-3
Tinned fish (trade store)	98	58	100
Rice (trade store)	96	60	83
Rice (market)	4	6	17
Canned drink (trade store)	86	56	100
Soap (trade store)	88	61	67
Soap (market)	7	24	33
Biscuits (trade store)	84	1	100

<sup>27</sup> Percentage of respondents reporting purchases.

Travel profiles for HQ1–3 (Figure 4-17) broadly reflect the generalization made above that, Hides Quarry residents represent a more ‘rural’ enclave by comparison with the HGCP residents. Travel to further destinations, such as Port Moresby, Lae, and Hagen, more closely resemble levels indicative of the general Hides catchment, with most people reporting they had visited Tari. This finding is consistent with most of the other socio-economic indicators examined in this RAP. Relatively speaking, HQ1–3 residents enjoy a standard of living mid-way between HGCP and the wider Hides catchment people with levels of disposable income somewhat lower than that of their resource advantaged neighbors.

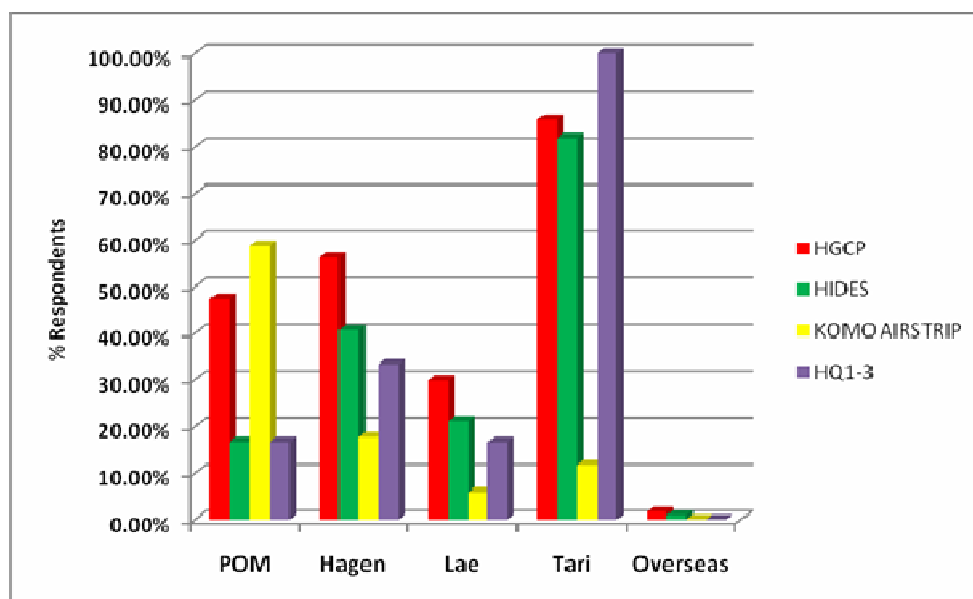


Figure 4-17: Travel profiles for HQ1-3, HGCP, Komo Airstrip and Hides catchments

Figure 4-18 shows the comparative levels of reported ownership for a range of household assets. Notwithstanding the extremely small sample size of the Hides Quarry database, mobile phones, which were largely absent from the Hides-Komo area in 2005–07, are now owned by upwards of 50% of the impacted population. There are broadly similar levels of asset ownership between HQ1–3 and Komo Airstrip with again slightly lower levels for consumables such as radios, sewing machines, and computers by comparison with findings reported for the HGCP.

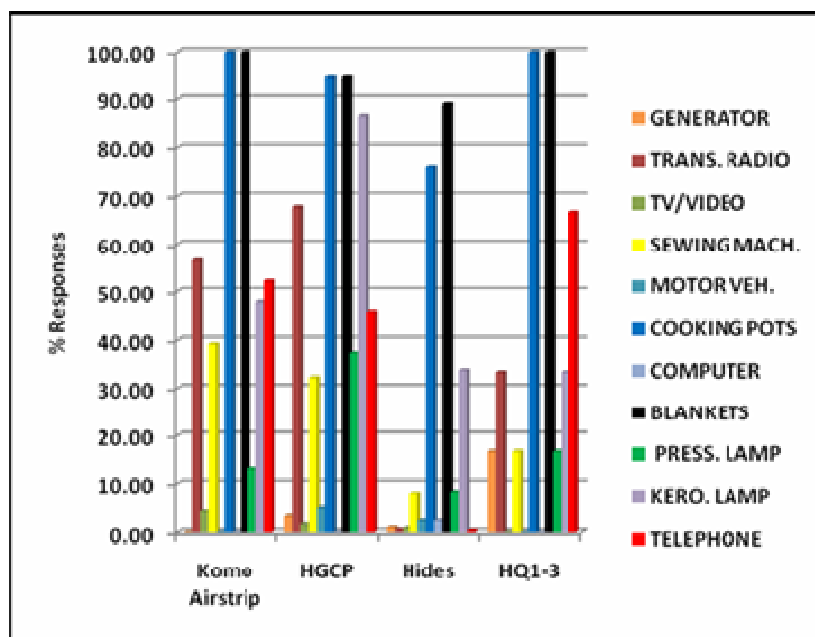


Figure 4-18: Comparative household assets HQ1-3, HGCP, Komo Airstrip and Hides catchments

#### 4.4.4 Business Activity

The profile of business activity for HQ1–3 respondents is illustrated in Figure 4-19. There is one respondent who has full ownership of a trade store by FN183, which is not located in the quarry area. As per our findings in the HGCP RAP, we would expect that as business interests increase, there would be a consequential and correlative drop in market economy for agricultural produce. With 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.

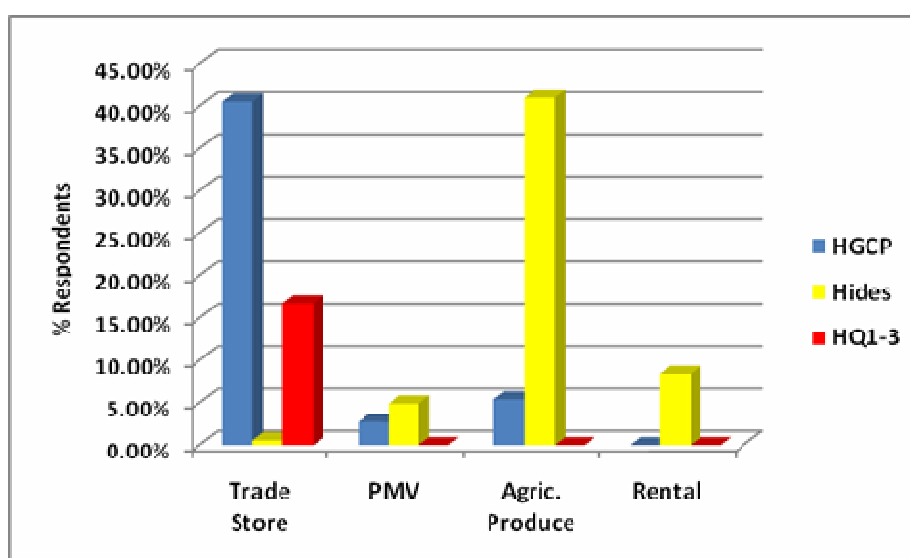


Figure 4-19: HQ1-3, HGCP and Hides catchment business participation



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” (Goldman 2009)<sup>28</sup>*

These findings thus beg the question of whether social intervention programs, which aim to stimulate market economies based on increased cash cropping, are likely to produce any significant or sustainable change in present patterns of behavior. The impact of passive royalty income streams in Alaska provides a comparable analogue. Few use the windfall income for investment in technology to enhance harvesting (hunting/fishing) activities and most simply drive long distances to retail outlets to spend the cash. The lure of a royalty/renters lifestyle is too great and there is some tipping point where the royalty income stream simply makes the effort of subsistence not worthwhile.

The Hides area findings require acknowledgement of this trajectory and the possibility that it will be accelerated by the combination of benefit income for both resettlement and resource development. HQ1–3 (as per HGCP) households have good levels of cash crop ownership – e.g., coffee and food crops (both 83%) – but what is needed are activities that will create wealth and into which people can invest their rents over the longer term. This means programs that can teach people how to spend their rents in ways that improve their living conditions and housing, and washing, and cooking facilities; and improve production of more protein (rabbits) and a broader range of foods (rice, beans, and sweet potato), etc.

Notwithstanding the best efforts of the Project, however, the progress of ‘me now’ economies can be inexorable. It may be that simply having healthy “Seven-Eleven” convenience stores is all the resettlement-affected populace want, wish to have, or will eventually end up with anyway. From a nutritional standpoint, this could actually be a positive shift, since now the health data are indicating less than 80% stunting in girls. A changed diet with higher protein content would act as a corrective against this present trend.

#### 4.5 Education Profile

The baseline data collected variously from 1997 to 2005<sup>29</sup> for the Project Impact Area indicate the following generalizations for the upstream Project area between Juha and Goaribari:

- 45% of respondents over the age of six have not attended school;
- Only 43% of children between 6 and 14 years presently attend school;
- Only 17% of females over the age of six have completed grade six, 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 seven and eight);
- Some 60% of women are illiterate compared with 45% of men (Table 4-8); and

---

<sup>28</sup> The supporting data is found in the EIS SIA chapter on Agriculture, Fisheries, Forestry & Subsistence.

<sup>29</sup> 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.

- For those older than age 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 of 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 Manada	49	64	49	31
<b>Total</b>	<b>40</b>	<b>50</b>	<b>55</b>	<b>40</b>

#### 4.5.1 School Attendance

The HQ1–3 social survey indicates that all (100%) of the school-age children currently do not attend school, a level much higher than recorded for the HGCP or Hides catchment, which was 65.31%. The families of schoolchildren in FN181-183 indicated that the problems were both lack of money for school fees, and the children had simply lost interest in going to school because it was too far to travel. A number of respondents (46.67%) indicated they had received no education at all, compared to HGCP (43%) and Hides catchment (53%), while the level of HQ1–3 residents who had achieved grades 1 through 10 (4%) was similar to the HGCP (4%) and higher again than for the general Hides (0.4%) area.

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

- Schools close during times of war, as Project landowners are fearful of traveling or sending their children to school in enemy areas;
- School buildings are often burned 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;
- 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 to student ratios indicate a slight improvement over the ratios since 2004 – SHP has gone from 1:34.5 to 1:32.3 in 2006

**Table 4-9: 2004-06 National statistics for elementary enrollments**

			<b>Southern Highlands Province 2004</b>	<b>Southern Highlands Province 2006</b>
<b>Total Number of Schools</b>			275	414
Preparatory	Enrollment	M	3,673	5,528
		F	3,166	4,872
	Teachers	M	113	
		F	72	
Elementary 1	Enrollment	M	2,801	4,894
		F	2,432	4,352
	Teachers	M	75	
		F	72	
Elementary 2	Enrollment	M	2,689	4,290
		F	2,101	3,606
	Teachers	M	96	
		F	53	
Total	Enrollment	M	9,021	14,712
		F	7,582	12,713
		T	16,603	27,425
	Teachers	M	284	457
		F	197	391
		T	481	848

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

**Table 4-10: 2007 National statistics for primary enrollments in Para and Yuni schools**

Gulf														
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
Yuni (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
Yuni (Hides)			16	25	41	30	20	50	212	171	383	3	4	7

#### 4.5.2 Educational Attainment

Attainment of higher education qualifications in the PIA is predictably low, with few people having alternative training qualifications. Figure 4-20 provides the range of respondent answers to achievements of further education qualifications. It is clear that by comparison with the lowland and coastal regions, achievement levels are predictably very low throughout the Hides and Komo areas.

In the HQ1–3 area, no respondents declared they had achieved tertiary qualifications or training. Of the students who complete grade ten, only 0.3% of females and close to 1% of males over age 20 complete tertiary qualifications.

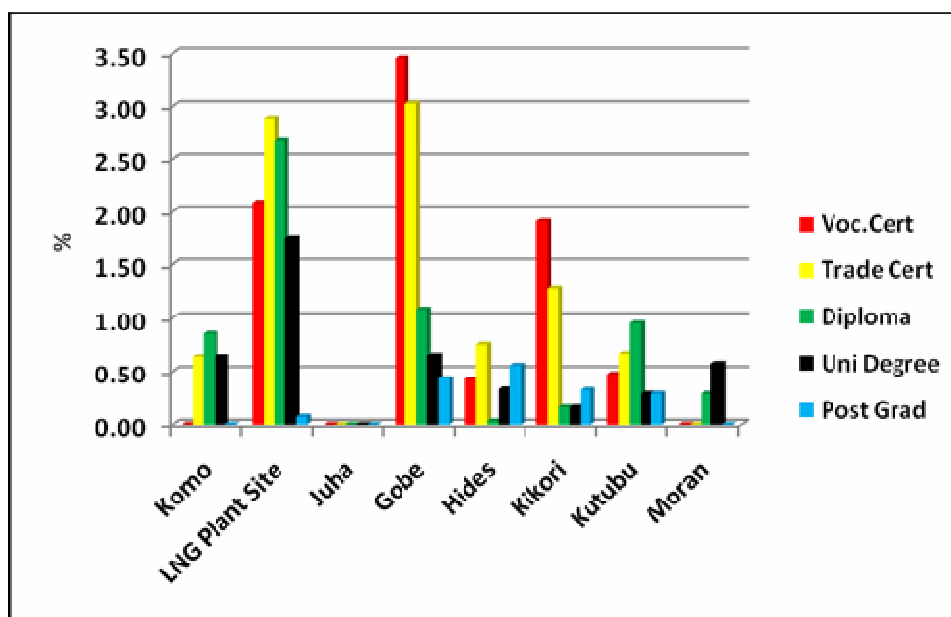


Figure 4-20: The Project catchment area higher education profiles

#### 4.5.3 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 to 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 4-21 provides findings from the 2005-08 SIA HHs survey for all the catchments covered within the PIA.

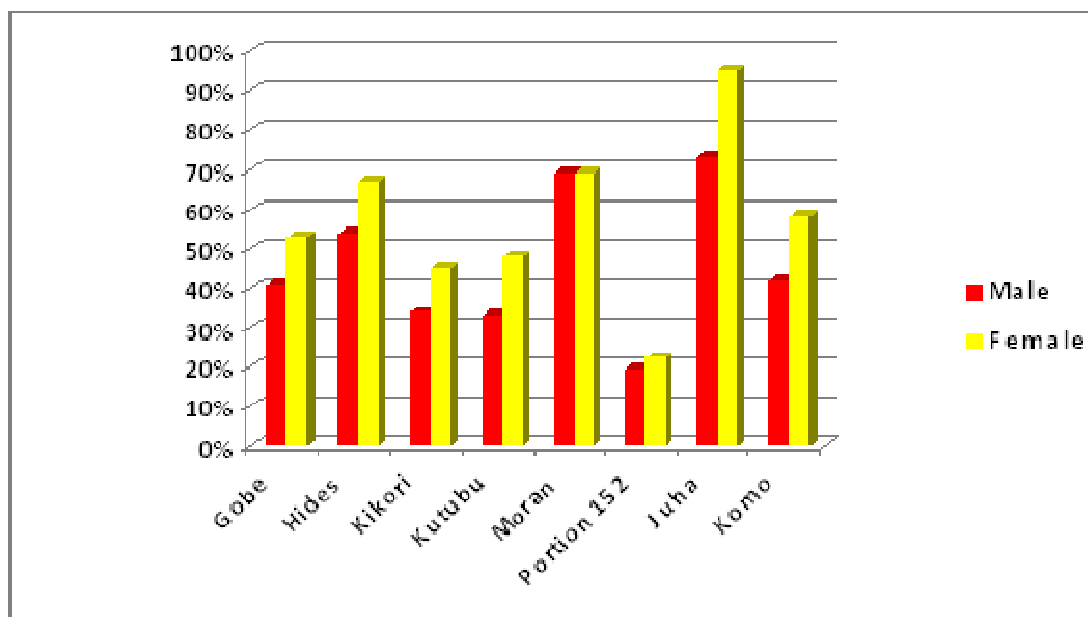


Figure 4-21: EIS SIA 2005–08 illiteracy rates (households)

A comparison of illiteracy rates for those aged ten years and older 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 (Hides, Moran and Komo) of the SHP.

Table 4-11: Educational indicator illiteracy, selected Hides and Komo communities 2000

Education Indicators	PIA Communities Huli – Hides Catchment											
	Honaga		Para (HGCP)		Hogambe		Laite		Kulu		Yuni	
	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 Yuni, 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 HQ1–3 social survey indicates the accuracy of previous baseline data. Illiteracy rates for those over 15 years old is approximately 57.14%, and again higher for females (69%) than males (46%).

Figure 4-22 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. Contrasting, but in line with our general findings above, HQ1–3 profiles match those of the general Hides catchment area, which 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 for males are because they tend to drop out of school at an earlier juncture. The pressures on Huli females stem in part from the requirement of their male relatives for bride price, compelling an early marriage, and partly from the lack of female role models in the work force at the local level.

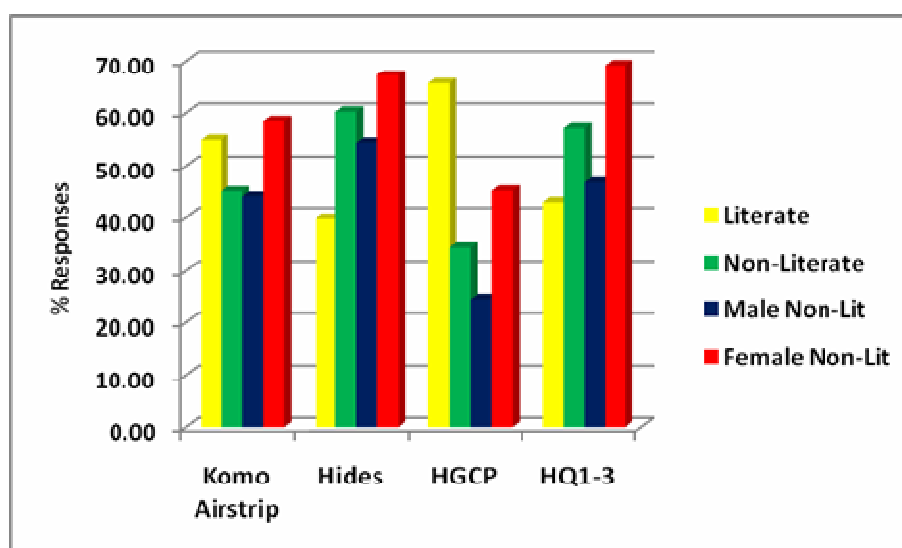


Figure 4-22: Literacy: Illiteracy and male/female illiteracy rates across Hides and resettlement areas

## 4.6 Nutrition and Health

### 4.6.1 Baseline Health

The general burden of disease in the Hides 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 age five mortality, a stable pattern for ages 5 to 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 40% of the observed mortality pattern (published data from PNG IMR).

The pattern of morbidity, or sickness, in Tari, a major population center within two 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 ages one to four 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 six 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 Hides area, which is generally over 1,500 m, a level that significantly affects 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 6).

In terms of medical services, the Southern Highlands are significantly underserved; however, the situation in the Hides 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-kilometer 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 Hides area. Analysis is based on:

- Australian National University Enterprises (ANUE) "Report on Census, Asset Register and Land Use Survey at HGCP(2009);
- June/July Health Survey for Hides;
- 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;
- 2006 National Demographic Health Survey (DHS);
- Comparison of Hides 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 center medical data for Juni and Malanda clinics. These two clinics are the primary care delivery facility for the Hides area

#### 4.6.2 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 one to two have been documented in the Highlands. Appendix 6 contains a detailed discussion of nutrition and other relevant health issues.



#### 4.6.3 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 Hides. 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 6 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 to 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 cannot be performed; hence, two children under age one 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 Hides 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 6 contains a detailed discussion of the nutrition data.

##### 4.6.3.1 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 folate, 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 Hides survey do not demonstrate a significant pattern of anemia for any of the Hides 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 6 contains a detailed discussion of the Hides hemoglobin (Hb)/anemia data.

#### 4.6.3.2 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. Multiple forms can infect an individual simultaneously and mixed infections are common in PNG, particularly in Highlands.

Over 300 malaria tests, rapid diagnostic with microscopy confirmation, were performed on Hides 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) Hides altitude; (ii) relative dry season during time of survey sampling; (iii) high bed net utilization rates; and (iv) ongoing malaria control efforts by OSL.

#### 4.6.4 Hides 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 Hides households were identical to those used in the 2006 DHS. It was felt that using the same questions would allow for a direct comparison to the 2006 DHS results. In order to reasonably determine and document baseline health status for Hides households, it is not necessary to ask the entire DHS question inventory. However, many sections queried by the general household survey do capture many critical demographic, 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 Hides 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 6 contains a detailed discussion of the Hides health survey data.

#### 4.6.4.1 Health Service

On average, a household member had last utilized health services 18 days prior to the survey. Access to clinics is a concern. The Para aid-post was closed for many years due to lack of staff and medicines. Most Hides people utilize the health center at Yuni, 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 center staff houses and represents the largest and best functioning service in the entire area. Yuni is approximately 1 to 1.30 minutes away, by car, from the Hides site. Emergency cases are also treated at the Oil Search Nogoli camp on a limited, outpatient basis only; walking time is between one to two 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, both by foot and even when vehicles are available. As 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.

#### 4.6.4.2 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.

#### 4.6.4.3 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 diarrhea rates are 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.

#### 4.6.4.4 Female Health

Maternal mortality rates in PNG are extremely high, but the 2006 DHS indicates that rates have deteriorated significantly. However, the Hides households typically averaged four antenatal 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.

#### 4.6.4.5 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 Hides area is extremely low and probably less than 1%. The knowledge, attitudes, practices, and beliefs of the Hides households indicate that HIV awareness has been achieved to all adult household heads. OSL outreach efforts are likely to be a major contributor to these results.

#### 4.6.4.6 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.

#### 4.6.4.7 Domestic Violence

Domestic violence is a major issue in PNG and 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.

### 4.7 Infrastructure

There is no infrastructure within the HQ1-3 area. The closest community facilities enjoyed by this population are those within and surrounding the Hides site illustrated in

Figure 4-23 (Map 4, Appendix 10). 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.

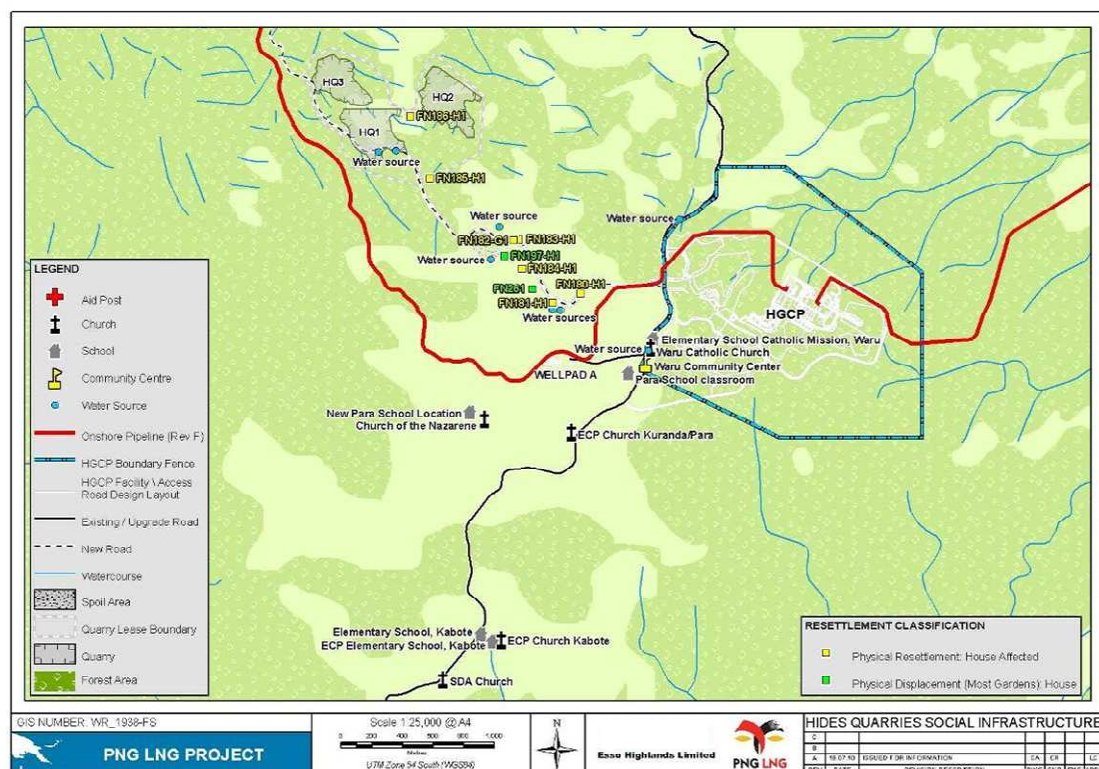


Figure 4-23: Prominent social infrastructure inside and around the Hides area in relation to affected HQ1–3 households

#### 4.7.1 Road System

The proposed quarry sites and quarry access road are located northwest of the present Hides Gas Conditioning Plant. The Quarry access track spans a distance of approximately 2.5 km in length. The access road will be no more than 50 m wide, 25 m either side of a centerline, except where sideslip and spoil areas are required and near the HGCP site where a width of 100 m in total is required.

#### 4.7.2 Water and Sanitation

All (100%) of survey respondents indicated that they sourced their water from springs (HGCP 91.07%). There were no households with water tanks, a level well below the average Hides catchment figure of 6.6%. Average time to collect and return with water was 35 minutes (with the range from 20 to 40 minutes); 66% of respondents reported that water was available all year round. The Census and Survey Team ensured that any houses that lay down-slope of the projected quarry interventions and were likely to be impacted – by construction or by loss of access to water resources – were captured in the baseline study. The Project's Environmental Team will be monitoring all water resources in the larger project area.

Table 4-12 indicates that reliance on customary modes of ablution is particularly high in the HQ1–3 environs. Use of traditional pit latrines was particularly low by comparison with other resettlement-affected zones.

**Table 4-12: Traditional pit latrine and bush usage across HQ1–3, HGCP, Komo Airstrip and Hides catchments**

	Komo Catchment	Komo Airstrip	HGCP	Hides Catchment	HQ1–3
Bush	13.60%	8.70%	5.26%	10.50%	66.67%
Traditional Pit Latrine	73.6%	91.3%	91.2%	75.5%	33.3%

Seven water sources have been identified along the Hides Quarry Road (HQR); these sources provide water for drinking and washing (bathing, laundry and washing of utensils) for the resettled individuals, as well as other local people living along this proposed quarry road. All these sources are within a 200 m area from the center line. The RIT visited, geo-referenced, and photographed all these water sources, as illustrated in

Figure 4-23.

Source 1 (Iba Kambara) is a small stream and supports most families living along the quarry road during dry season when all other sources have dried up. Sources 2, 3, 4, 5, 6 and 7 are very small underground water sources that are used during the rainy season. At the time of this survey, water was trickling from these sources through pandanus leaves or bamboo strips used as pipes. Source 4 is close to gardening sites and it is mostly used when gardening. Four houses are close to this water source, but most/all appear to obtain water from source 1. Water sources 2 and 3 are located along the same gully and said to support some 15 households. The two sources are unsafe for human use due to the quantity of livestock waste observed during the assessment. Sources 6 and 7 are in the quarry area and are not regularly used. The Project will provide replacement water sources, in the form of water collection structures and tanks (*water haus wins*), where access has been lost. Budget provision has been included for two such structures along HQR with construction planned for end of 2010/early 2011.

#### 4.7.3 Sources of Energy

All (100%) of the HQ1–3 households rely on firewood for fuel (Komo catchment 99%, Hides catchment 93%), much the same proportion as was found for the rest of the Huli rural population, with 16% of respondents reported using kerosene for lighting fuel.

#### 4.7.4 Communications

Similar to what was reported in the HGCP and 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 Hides-Komo areas. Whereas in 2007 the EIS SIA found only 0.32% of the respondent population had mobile phones, the 2010 HQ1–3 social survey found that some 66% of resettlement respondents had mobile phones. These telephones are remarkably cheap to purchase at 30 Kina and many people had 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 at the Nogoli camp, and owned and operated by the Gigura Development Corporation, which is the local landowner company. There are no public phones in the area.

#### 4.7.5 Community and Social Infrastructure

Directly affected social infrastructure, which was identified in the HGCP RAP (

Figure 4-23), includes the Para School. The Para school is situated in close proximity to the intersection of the Quarry Access Road and the Heavy Haul Road. Proposed infrastructure development for the Plant has resulted in the school being encircled by roads that will be heavily used by a range of vehicles during the construction and operations phases of the Project, as shown in Figure 4-24.



**Figure 4-24: Para School relative to Project infrastructure and Hides Quarry Access Road**

It has been agreed that the Para School will be relocated to a site selected by the community, next to the Nazarene Church and currently dormant Para aid-post, situated south of the proposed quarries and access road.

Planning has been undertaken with the community to define community plans for the greater Hides area, including both HGCP and the HQ1-3 environs. This has included identification and ratification of the new Para School site, identification of a market site at HGCP, identification of water replacement sites (including two at HQR), and construction of pathways along the road between Para and Mbuli Lake<sup>30</sup>. Figure 4-25 illustrates community infrastructure and project mitigation plans for relocation of Para School and water supply units (to address any possible loss of access to water sources).

<sup>30</sup> See HGCP RAP for further details



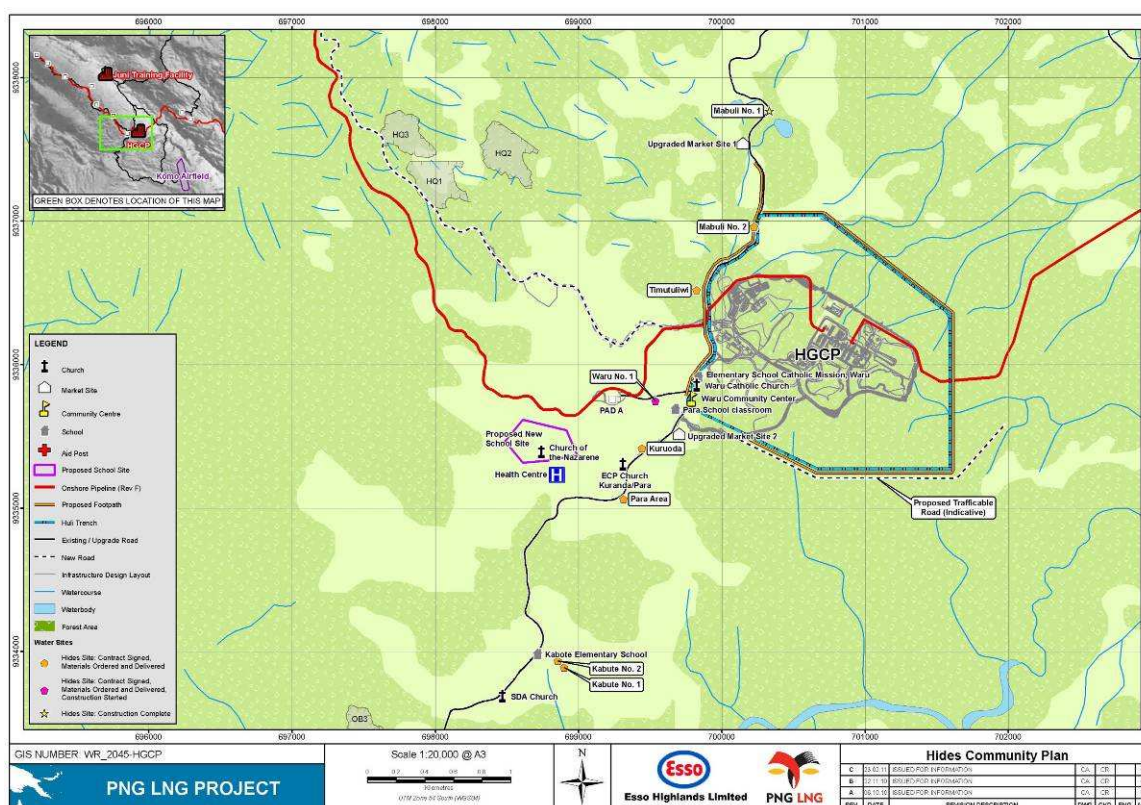


Figure 4-25: Community infrastructure and Project mitigations

## 4.8 Structures

### 4.8.1 Types of House: Materials Used, Sizes, etc.

Seven buildings were surveyed at the HQ1–3 site, and all were constructed of bush materials. There was no evidence of metal roofs or concrete floors.

‘Bush materials’ houses fall into two main types: either they are very low, traditional Huli houses, thatched with *Imperata* grass and walled with vertical timber slabs, rounded at either end; or they are what is sometimes known as ‘coastal houses’, which are rectangular in shape, with higher walls, but still no windows.

Traditional houses have fireplaces running down the center 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 these houses and they are frequently full of smoke from the fires, which seeps out through the thatch.

It is common for families to have more than one house. Of the families surveyed, 66% had other residences that they also used, which were mostly located around the perimeter of the present HGCP locale. The most common reason for multiple houses is polygamous marriages, where co-wives live in different houses and the husband lives in a house alone, or in a men’s house.

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 a kitchen. Pig houses are usually at a considerable distance from residence



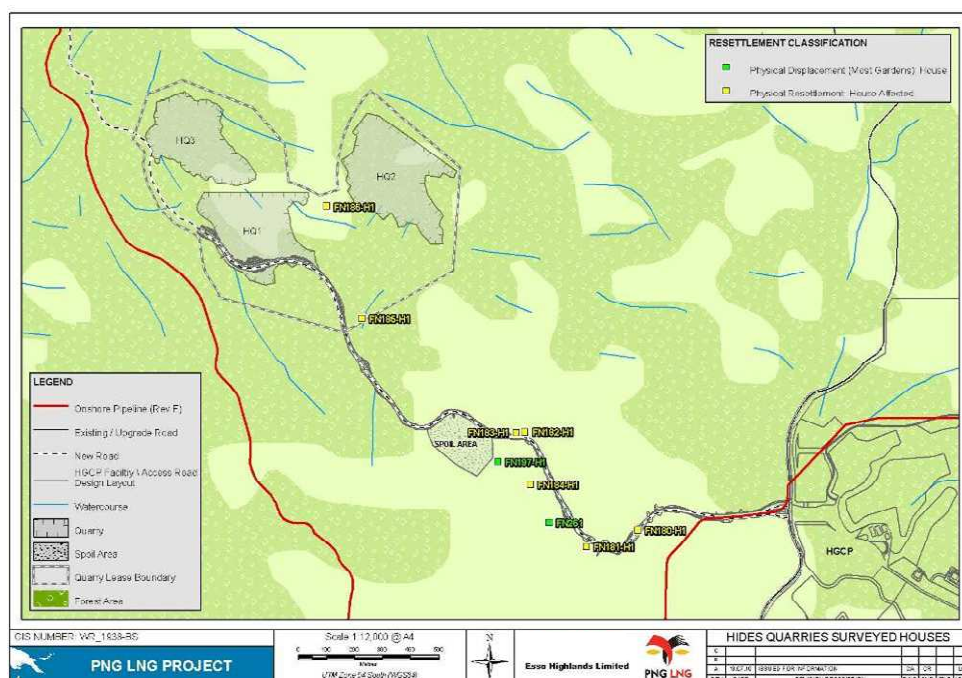
and are strongly built and often divided into bails to keep adult pigs separated from each other. A few households also have cassowary and/or chicken houses.



**Figure 4-26: Hides Quarry Access Road house**

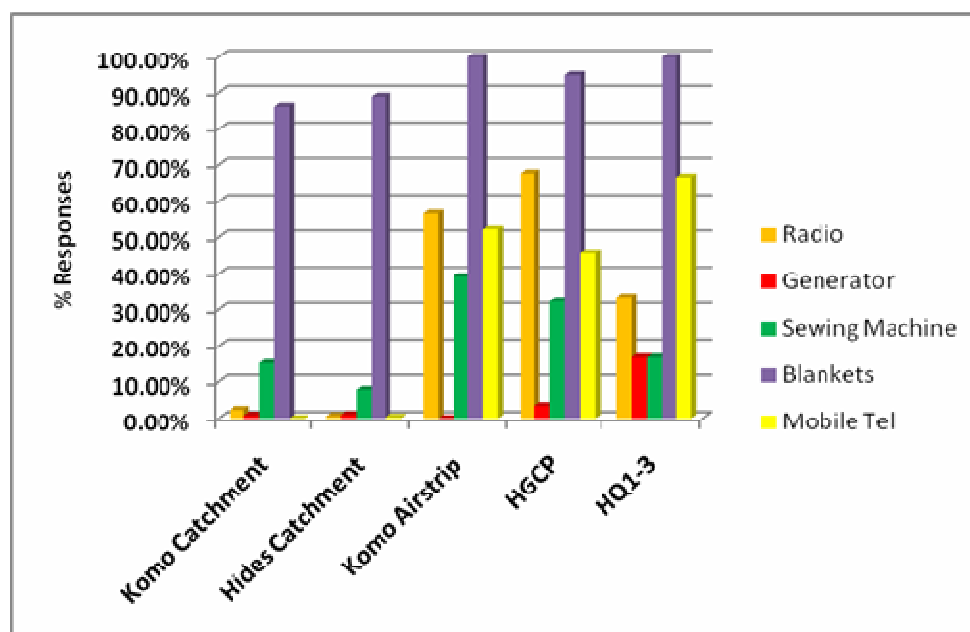
#### 4.8.2 Location of Houses

The houses at the HQ1–3 site are mostly situated along the proposed access road (Figure 4-27 and Map 5, Appendix 10).



## 4.9 Moveable Assets

Figure 4-28 indicates that, while 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, HGCP & HQ1–3, ownership levels of all such goods were relatively high. Given the business wealth in these areas these results are not surprising and indicative of the avenues of consumer spending when disposable cash income is available.







**Figure 4-30: Karuka Nut at HQ1**



**Figure 4-31: Cultivated garden at HQ Access**

#### 4.10.2 Gardening Practices

A 'garden' is treated as a unit and the area of the garden is used to calculate a rate for loss of the productive asset, over and above the Valuer General's scheduled rate for a sweet potato 'mound' (Valuer General 2008). This takes into account the additional food plants and the fence and ditch. Garden owners at HQ1–3 were happy with this idea when it was explained to them.

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 because 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 at the time – that the head of the family would redistribute compensation<sup>31</sup>. Moreover, as indicated above, it was well understood that the aggregate measurement method advantaged all landowners since 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, and various greens and ferns. Bananas and tanager (*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.

Tree crops are planted around all sweet potato gardens, around houses and along paths. The most important tree crop is marita (*Pandanus conoideus*); over 2,364 were counted at the HQ1–3 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*.

---

<sup>31</sup> Subsequent experience across all resettlement areas has shown that, upon signing of agricultural agreements, the majority of households insist in splitting the value of agreements between different family members. Some are content with proportional splits, while others insist on specified allocation of gardens and crops assessed for compensation. Despite significant logistical obstacles resulting from the process of split agreements, the RIT team recognises that this can be considered a fairer means of distributing compensation, ensuring that a greater segment of the affected population will directly benefit from compensation payments.



#### 4.10.3 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. Varieties of green leaf vegetables are 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, Casuarinas, Castanopsis and bamboos. Many of these trees are located around the edges of fields, houses, and in fallow land.



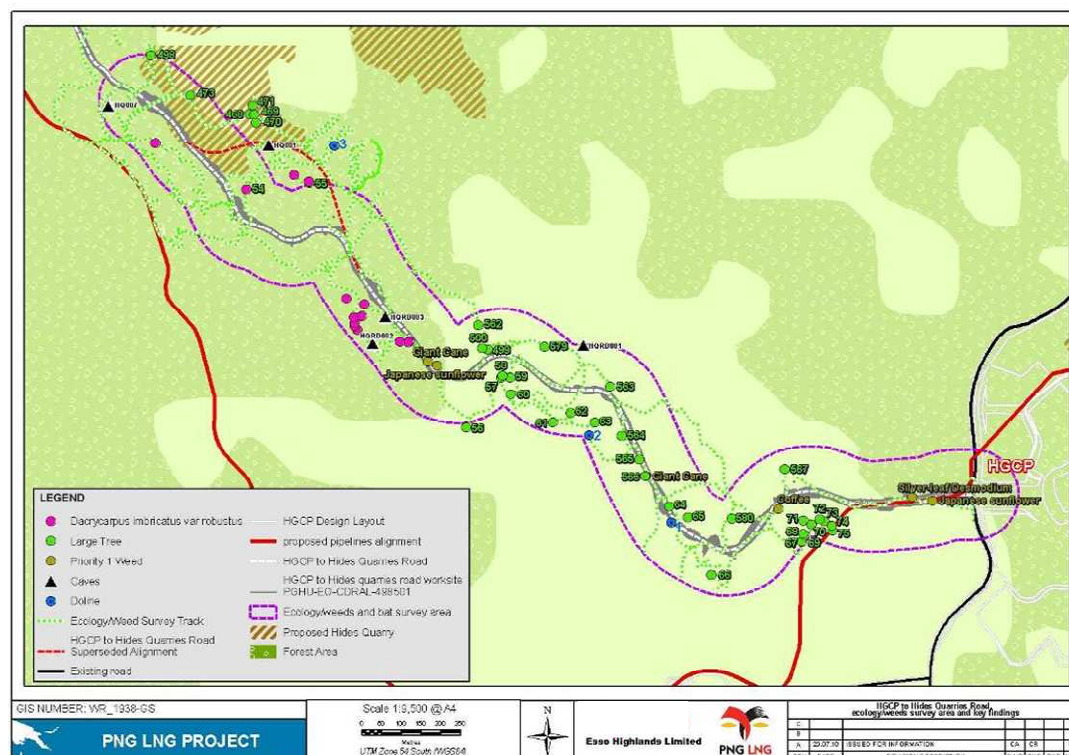
**Figure 4-32: HQ1 helicopter pad**

There are no significant differences between the agriculture at HQ1–3, Komo, and HGCP; although gardens in the higher quarry area are less well-developed (Figure 4-32).

#### 4.10.4 Food and Economic Trees

At HQ1–3, the following food trees were counted: 8,085 coffee trees, 2,748 pandanus, 2,364 Marita nut, 1,568 fig, 766 tree tomato, and 527 avocado trees. Other than the staple sweet potato, these gardens contained 19 other species; the most common species are Cordyline (tanget), Colocasia (taro), banana, and sugarcane. Other species include Chinese cabbage, pineapple, beans, Xanthosoma (Chinese taro), Setaria (Highlands pitpit), pumpkin, Rungia klossii, corn, tomatoes, and tobacco.

Around and within the gardens are a number of food trees, the most important of which is *Pandanus julianettii* (karuka), a reflection of the higher altitude in the quarry. The next most common food trees are *Pandanus conoideus* (marita) and *Ficus spp* (poke). Two introduced species, *Cyphomandra betacea* (tree tomato) and *Persea americana* (avocado) are also very common around existing houses and old housing sites. Other tree crops include mandarins and oranges.



**Figure 4-33: Hides Quarry area ecology, trees, and weeds**

A large number of useful trees (Figure 4-33, Map 7, and Appendix 10) are planted around gardens, and when gardens are fallowed, these trees make up an important component of the fallow vegetation. By far the most important economic tree is the Casuarina (yar). Castonopsis (pai), a timber tree that also produces edible nuts, is the next most important economic tree. Most families also own one or two pines trees and limbum palms. All families have at least one clump of giant bamboos, which are used for house construction and water containers.

The survey counted 8,085 coffee trees along the road alignment, of which 4,561 were mature trees, mostly moderately well-maintained (not pruned, but kept clear of overgrowth), and 3,524 were seedlings, probably planted along the road alignment in order to attract compensation payments. Two families owned more than 1,000 coffee trees and one family owned 600 trees, while the great majority of families owned less than 150 trees. Coffee provides a low, but regular and always available income here.

**Table 4-13: Crops and trees at HQ1-3**

Crops/Trees	Count of Crop
Coffee (seedlings)	3,524
Coffee (mature)	4,561
Avocado	527
Karuka	2,748
Marita	2,364
Tree tomato	766
Figs	1,568

The Project has committed to applying FRV rates for all gardens and trees. Resources will be engaged 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.

#### 4.10.5 Livestock

Average livestock per household levels have shown similar spikes over the regional mean for all the resettlement-impacted catchments. At a declared 7.17 pigs per household, HQ1–3 residents are typical of most of the rural Huli communities (e.g., Komo at 6.85). Conversely, levels of chicken ownership (6.75%) were considerably lower than for all other Komo and Hides areas.

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 in money) is seen as more important than agriculture to benefit-recipient landowners.

#### 4.10.6 Use of Natural Resources

Landowners are due to receive compensation for damage to and loss of forest resources. In the HQ1–3 areas, the balance of the non-cultivated 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, short grasses, ferns, cane grass, and shrubs dominate the fallow land. As the fallow proceeds, increasing numbers of woody plants colonize the site until it becomes what is known as a bush fallow.

### 4.11 Cultural Heritage Sites

The research evidence indicates that the antiquity of human presence in the Hides area may extend beyond the mid-Holocene (c.5,000-6,000 years ago). Wasted blade stone artifacts (known to be present in PNG from 6,000-40,000 years ago) have been found in the locale, 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.

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. Figure 4-34 depicts the type of sites typically found in the Huli region. Note that many individual sites can be classed under more than one category.



Figure 4-34: Site HE007 ossuary in a raised coffin (Homa Mali)

Table 4-14: Summary of Huli cultural heritage sites

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

Figure 4-35 (Map 8, Appendix 10) shows the distribution of the cultural sites found both with the quarry sites and along the quarry access road.



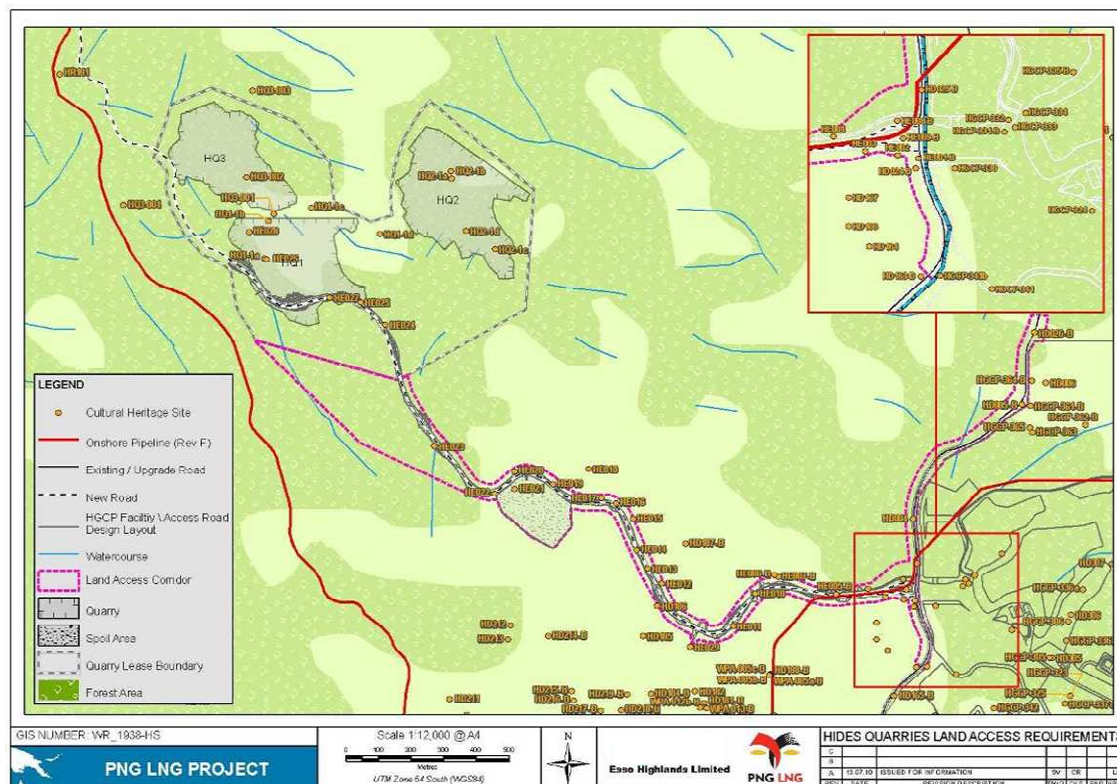


Figure 4-35: HQ1–3 cultural heritage site locales

Within the quarry areas, the cultural heritage survey identified 12 sites in addition to the five that had previously been surveyed as part of the 2009 EIS. Six sites occurred within the HQ1 worksite, four sites within HQ2, one site within HQ3, and one site just outside HQ1. These sites included clan boundary ditches; an old men's house (balamanda); dancing grounds (mali hama); a bachelor cult house (haroli anda); spirit sacrifice locales, such as caves; and a women's house.

The 2008 EIS investigations had identified 14 cultural heritage sites in close proximity to the Hides Quarry Access Road, and these were described in the 2009 EIS SIA Appendix 36. Twenty-eight sites were identified in the 2010 survey but five of these had previously been identified during the initial quarry survey in 2009. Table 4-15 sets out the main findings of the cultural heritage research.

**Table 4-15: Description of the cultural and archaeological sites from HQ1–3**

Inside HQ1–3 Sites		
Site No.	Description	Recommendation
HQ1-1b, HE025, HE026, HE002, HE011-13, HE015, HE021, HE029	Clan ditches	Avoidance, compensation, and appropriate salvage
HQ2-1c, HQ3-001, HQ1-1d, HE014, HE016, HE030	Men's House	Avoidance, compensation, and appropriate salvage
HQ2-1a, HE028, HE030, HE042	Dancing Grounds	Avoidance, compensation, and appropriate salvage
HQ2-1d, HE032, HE038	Bachelor House	Avoidance, compensation, and appropriate salvage
HQ1-1a, HQ001, HQ3-002, HQ1-1c, HE024, HQ3-004, HE010, HE019, HE020, HE022, HE024, HE027-028, HE035, HE036-037, HE039, HE041	Spirit Sacrifice Sites	Avoidance, compensation, and appropriate salvage
HQ2-1b	Sacred Stone Site	Avoidance, compensation, and appropriate salvage
HQ3-003	Women's House	Avoidance, compensation, and appropriate salvage
HE005-009, HE001, HE030-040	Burial Sites	Avoidance, compensation, and appropriate salvage

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 40 known cultural sites within the HQ1–3 area likely to be impacted and which will require archaeological team(s), as appropriate, working in tandem with the National Museum representatives to ensure due respect is rendered for treatment of the sites, graves, and other material.

#### **4.12 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, landless, 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 because of the adverse effects of resettlement.

Households that are especially vulnerable to displacement impacts will be identified and provided with special assistance.

The criteria of resettlement vulnerability must always be sensitive to context and culture.. In Huli, it does not follow that female-headed households identified in the survey 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.

In the context of this HQ1–3 RAP, the following incidences of vulnerability have been identified:

- Despite that, as noted previously, female-headed households need not necessarily be considered vulnerable as they commonly have male relatives who will provide support, this group (FN182) 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 females' input is valued as much as the males' 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 (FN186) heads of household, or those seriously ill at the time of resettlement, 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; and
- Guidance Note 2 PS 5 provides definitions of 'at risk' people which include those at an economic disadvantage, social status, and/or landless. 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, if required, and will be monitored closely to ensure they are not adversely affected by the move. In this category is FN180. Martin Malagu is a Duna (ethnic group to north of Huli) with a house on the quarry access route who currently resides on his wife's land. His wife is from Taguali clan who will lose land both within the HQ1–3 area along the HHR road, and HGCP. At the time of writing (July 2010) FN180 has identified an alternative resettlement site close to his existing site but will be monitored to assess qualification for a supplementary assistance package, which provides for long-term assistance in accessing alternative land.

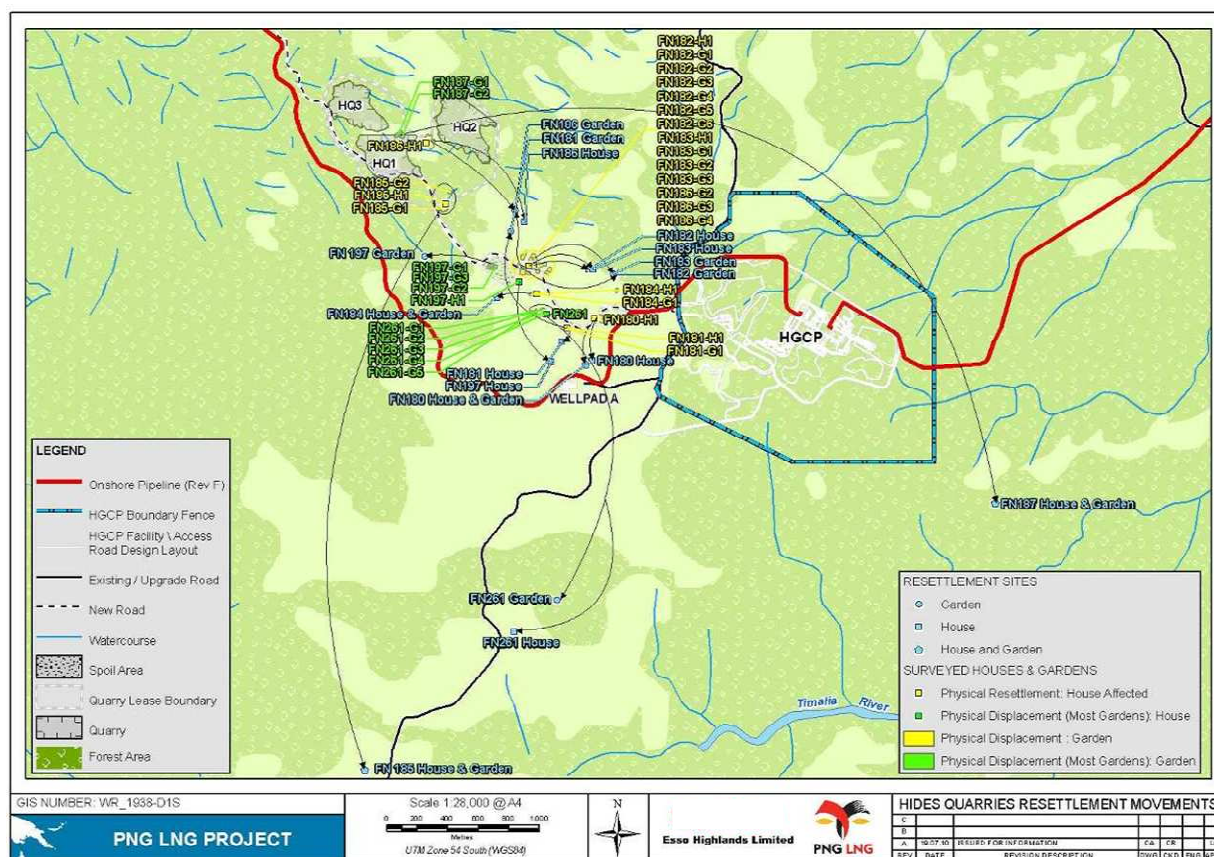
ELC is currently compiling a list of vulnerable households and individuals across all resettlement sites, which will be used for ongoing monitoring of these households' progress during and post-resettlement. Based on criteria for vulnerability, including landlessness, female-headed households, and households headed by elderly people, five potentially vulnerable households were identified. One of these households may struggle to obtain land; two households are headed by females; and two are headed by elderly men.

It should be noted that, within the social context in which households commonly receive support from other relatives and clan members, these may not all be considered vulnerable. These households have, however, been identified for further monitoring to ensure their ability to restore their livelihoods post-resettlement.

### 4.13 Resettlement Sites

At the time of writing, preliminary agreements have been reached with affected HQ1–3 households on the compensation package and the identification of proposed relocation sites with the RAP Implementation Team (RIT). All sites will be visited, geo-referenced, and the distribution points for rations agreed.

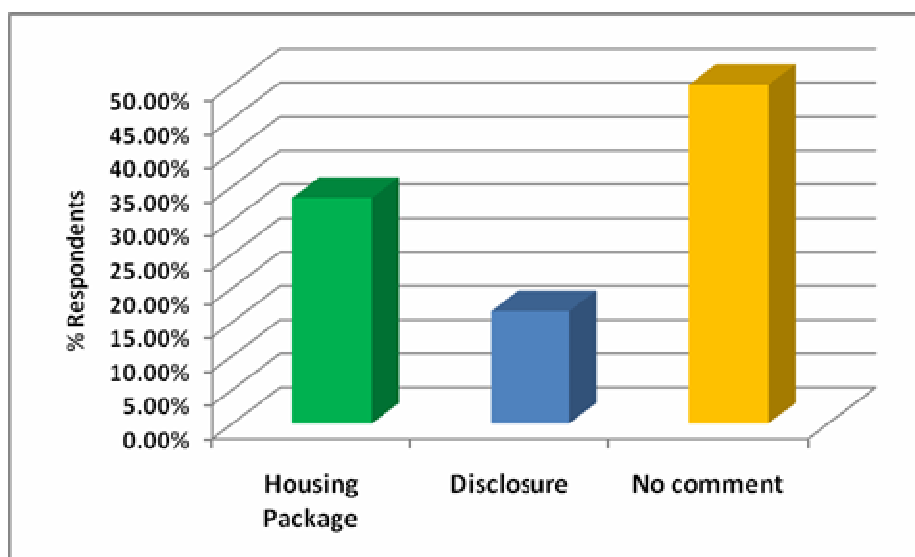
Seven of the HQ1–3 households will move to locations close to the Hides Quarry or HGCP locales, which they estimate will be no more than one hour walking distance. Figure 4-36 (Map 9 Appendix 10) shows the location of resettlement sites that have been identified at the time of writing, in relation to their current locations, indicating the distance households will be moving. It should be noted that the three households who will lose most of their gardens but do not reside in the Project area, will effectively move back to sites where they currently have other houses and gardens.



### 4.14 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 a one hour walk from their current home. Following an extended consultation process (Section 5.0), the majority of affected households have identified resettlement sites, and at the time of completion of this RAP (July 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 the resident HQ1–3 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 provisions for housing, and (b) adequacy of RAP consultation and disclosure (Figure 4-37).



**Figure 4-37: Community-expressed RAP concerns in HQ1–3**

In response to the Question 15, “*Are you willing to self-relocate?*”, Figure 4-38 illustrates that at the juncture of time the questions were posed, more than half the respondents indicated their willingness to be displaced, while most of the other 33% 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 change 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 both Komo and HGCP.



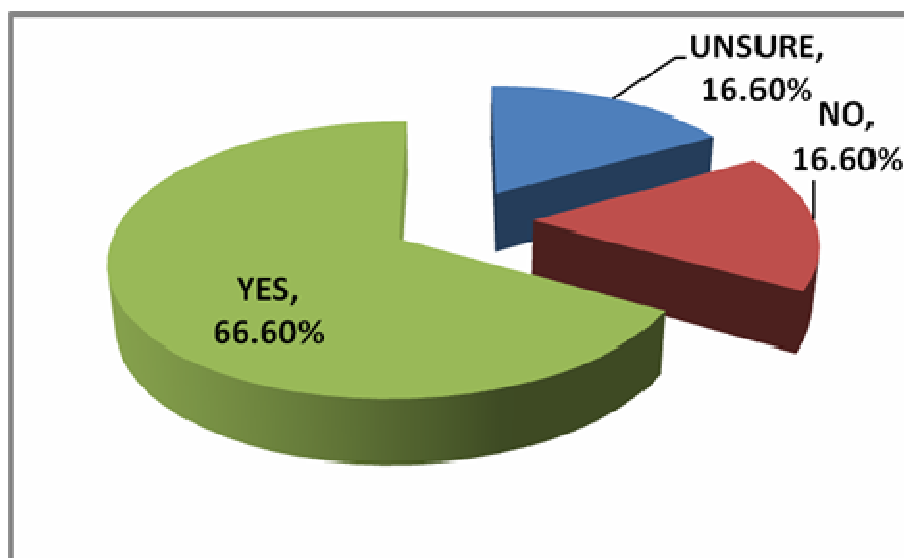


Figure 4-38: Respondents' willingness to relocate

In response to the Question 17, *"Do you think your life will be better after the relocation?"* 50% of respondents answered 'no', 33% responded 'yes' and the remainder were 'unsure'. This diffidence and negativity is expected in the early phase of the resettlement process. In answers to Question 18, *"Do you think there will be any benefits from the relocation?"*, while affected landowners understood the cash stream benefits and expressed hope for the possibility of new houses with power and water, the majority of respondents identified employment and roads as the most likely benefits.

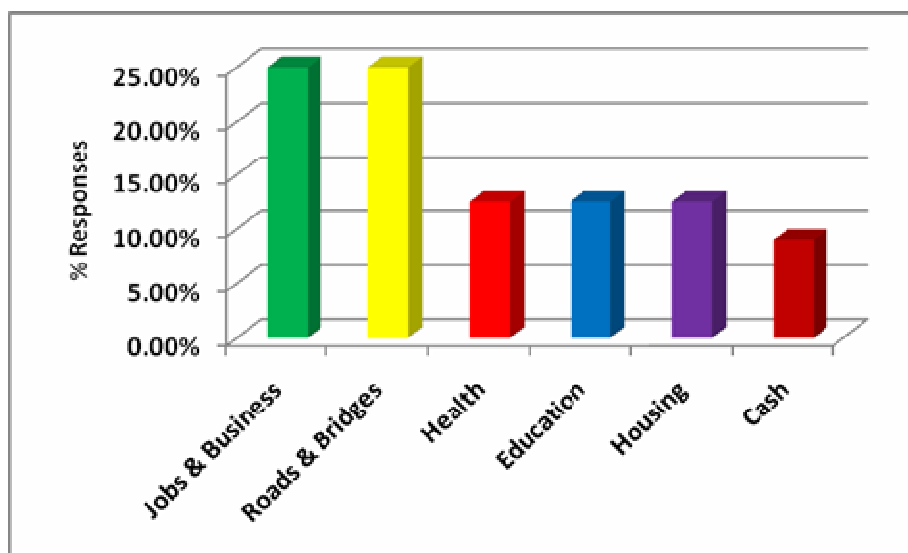


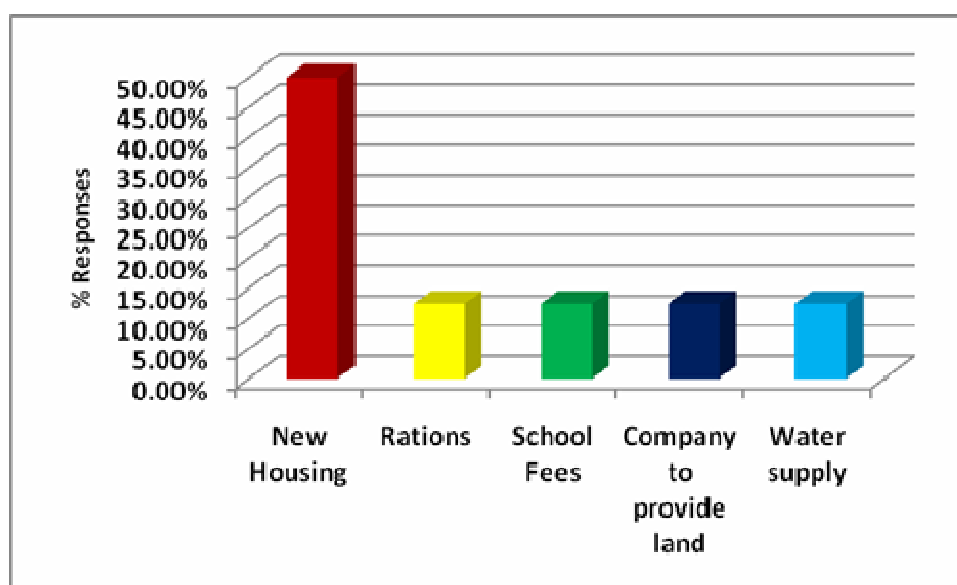
Figure 4-39: Perceived benefits of relocation

Of the responses given to Question 110, *"What is the relationship to this [relocation] land?"*, regarding the kinship or descent affiliation people would have in the new locations to which they might move, 50% declared they would relocate to their 'father's' land while the remainder were unsure. 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 30 minutes and one hour.

Other issues raised by the HQ1–3 affected landowners were captured in the open survey Question I13, *"Is there anything else you would like to say?"*

Figure 4-40 below illustrates emphatically that the single most important concern of resident HQ1–3 affected residents was that the developer should provide a replacement house for those physically displaced by the Project intervention. This issue was also to the fore in their responses to Question I6 discussed further below. Also significant was the raised concern of continued access to spring water, which may be affected by the proposed quarry development.



**Figure 4-40: 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 indicate again 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 HGCP and 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.

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 payment of clan rentals to individual landowners not clans.



## 5.0 CONSULTATION AND DISCLOSURE FOR THE HQ1-3 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) 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 section outlines the consultation and disclosure activities undertaken for the preparation of the HQ1–3 RAP. The Project specialist resettlement team from the Company conducted consultation on 11 May 2010. Details on the principles, approaches, and purpose of consultation, are further detailed in the Resettlement Policy Framework (RPF).



**Figure 5-1: Public consultation of resettlement process at HQ1–3, 11 May 2010.**

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 11 May 2010, the initial public meeting was held at Baya Iba Hides Quarry area to inform stakeholders about the Project need for the RAP, raise awareness, and begin identifying issues;
- Between May and July 2010, individual meetings were held with each of the identified seven households to be displaced to discuss the proposed support packages in detail;

- 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 Resettlement Implementation Team (RIT), the Environmental Law Centre (ELC) was also involved in consultation activities. ELC accompanies the RIT team members during group and household consultation sessions in order to provide legal advice to households as well as to the resettlement team.

In summary, numerous interactions have been held with HQ1–3 households and adjoining communities, as presented in

Table 5-1. This resulted in households becoming well informed about the process and their rights.

**Table 5-1: Summary of HQ1-3 consultation interactions for affected households and communities**

Consultation Type	Date	Number of Meetings	Number of Attendees per Meeting
Public Disclosure Events	May 11, 2010	1	33
Resettlement Survey	June-July 2010	18	
Household Consultation – Disclosure & preliminary negotiations	May 22 & 26, 2010	6	

## 5.2 How Stakeholders were Identified for the HQ1-3 RAP

In early 2010, the Project undertook a land use, asset register, and household census study for the HQ1–3 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 HQ1–3 locale. 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 HQ1-3 location was supported by various materials, provided as appropriate to the stage of the process. Illiterate Huli, 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 avidly read the written material. Information provided includes:

- the “Resettlement Information Booklet for the ExxonMobil PNG LNG Project” (written in English, Huli, and Pidgin);
- the “Resettlement Information Booklet for the HQ1–3 Resettlement Action Plan” (written in English, Huli, and Pidgin);

- Flipcharts and A0 vinyl sheets to support verbal presentations during the public meetings;
- About 100 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 (11 May 2010). Sufficient copies 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 of the original draft Resettlement Assistance Package proposed by the Company, presented in both graphic and verbal format, for the information and consideration by household members during and after the individual meetings;
- A summary version of the draft Resettlement Policy Framework (RPF) and draft HQ1–3 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 HQ1–3 area; and
- A full version of the completed RPF will be disclosed widely throughout the Project area through the same points as the Project EIS. In the Hides 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 ELC have attended the HQ1–3 consultation and disclosure sessions and continue to monitor resettlement activities in the area. Actions 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 the role either 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, together with 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 HQ1–3 RAP was a series of resettlement consultation and disclosure community meetings. These are briefly summarized below:

##### **5.6.1 First Consultation and Disclosure Community Meeting**

The initial resettlement consultation and disclosure public meeting in HQ1–3 on the 11<sup>th</sup> of May 2010 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.

**Table 5-2: Road show attendees**

Number of Attendees			
Male	Female	Children	Total
11	12	13	36



**Figure 5-2: HQ1–3 landowners at 11<sup>th</sup> of May 2010 resettlement program disclosure**

#### 5.6.2 Awareness of the Proposed HQ1–3 Development

The HQ1–3 households were consulted to establish their awareness and understanding of the RAP Consultation Process, following the first community meeting.

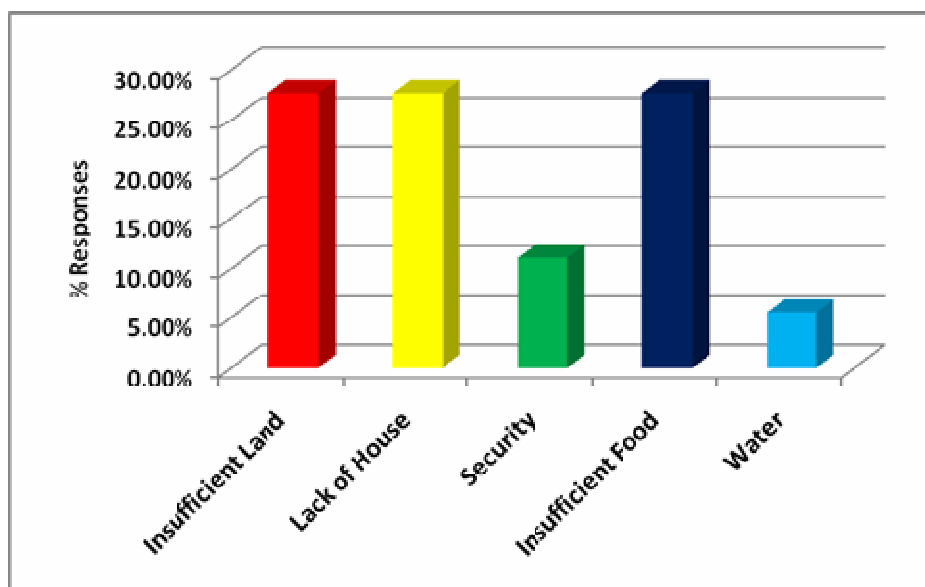
The results of these questions are summarized in Table 5-3.

**Table 5-3: Awareness of the RAP Consultation Process**

Question No.	Question Posed	Yes	No	Unsure
I1	Did you attend the road show presentations of the RAP?	5	2	-
I2	Do you think you understand the Resettlement Action Plan?	2	3	2
I3	Would you like the Project to explain the Resettlement Action Plan to you again?	3	2	2

When asked if there were any specific aspects of the resettlement plan that they disagreed with (Question I4), 33% of respondents expressed the view that the Company should build houses for them, while the remainder proffered a 'no comment' response.

In response to Question I6, *"What problems do you think the relocation will present to you and your family?"*, Figure 5-3 indicates again the familiar concerns of Hides Quarry impacted residents that they will have insufficient land, inadequate or no replacement housing, and possible food shortages. These concerns merely echo the findings above for, and are consistent and continuous with, those expressed in neighboring resettlement-affected catchments.

**Figure 5-3: Response patterns to Question I6 – relocation issues**

Issues raised by the affected HQ1–3 communities during the public consultation and disclosure road shows include:

- Possible impact of the quarry on present and future water supply;
- Need to disaggregate land rental payments to individual land block owners;
- Shortage of land, given many people had already moved to this site from HGCP area;
- Anxiety expressed by women about lack of food supply;

- Need for awareness by Bank of South Pacific (BSP) bankers to allay previous distrust of banking institutions; and
- Need for parity of package with HGCP affected landowners.

### 5.6.3 Consultation with Households about the Resettlement Assistance Package

Consultation began in June 2010 with the seven households that were identified as having to be resettled from the HQ1–3 site, with the intention of ascertaining what their expectations were in respect to the various resettlement assistance packages they had heard about. The ELC attended in their role as local advocate.

Each consultation was conducted as a meeting between all available members of each household and a consultation team, which included a member of the Resettlement Implementation Team, an interpreter, and a representative of ELC.

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;
- 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 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 (2) days later for further discussions on the draft package; and
- 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 HQ1-3 Stakeholders**

This section provides a summary of stakeholder issues regarding HQ1–3 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 public meetings, pertaining to the HQ1–3 resettlement process.

### 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 HQ1–3 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 feels there has been both a lack of accountability associated with, and tangible results from, the distribution of these monies for social development projects;
- While the LBSA process is complete, 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 LBSA 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 other Lancos who are experiencing cash flow problems. 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. The RIT team has now facilitated the presence of Bank of South Pacific (BSP) on a fly-in-fly-out basis. 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 and attendant 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. These concerns lie behind many of the responses to Question I6 about 'post-relocation security' (Figure 4-37) above; 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 HGDC residents.

While the issues noted above do not pertain directly to the HQ1–3 resettlement process, they indicate a background of unresolved discontent and antipathy to government, which affects the resettlement program.

#### 5.7.2 HQ1–3 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 proposed compensation package, provision of rations, findings of the census survey, and communication and information about the Project. Other issues include 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:

**Table 5-4: Summary of stakeholder issues**

Topic	Issue	Project Response
Housing	Emphasis on the demand that the Project provide replacement housing	The project will not be providing replacement housing. However, a portion of the compensation package is allocated to construction of housing, and the project will provide assistance with construction of timber homes based on a selection of options to those who elect to spend the building supply component of the package accordingly.

Topic	Issue	Project Response
	Concern that the proposed package, which is allocated by household, will not be sufficient for larger households	Supplementary compensation is provided for households with more than one wife, as well as to adolescent children.  The housing package provided is considered generous in terms of replacing lost assets.
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 within the HQ1–3 areas	The issue of land availability will be investigated on a case-by-case basis as households identify resettlement sites. All physically displaced households impacted by the HQ1-3 development were able to find alternative sites. Adequacy of replacement land to provide for household subsistence needs will be monitored.
	Concerns regarding livestock (particularly pig) husbandry in new areas with different clan allegiance	All impacted households have selected relocation sites within close proximity to their original locations, or in areas where they have other clan allegiance.
Compensation	Queries regarding compensation for improvement to land	Compensation will be paid for improvements to land, including ditches, fences, and trenches used in traditional Huli gardening practices.
	Concern over compensation to be paid into bank accounts, noting that there is no local bank in the area, and that traveling to banks in Tari presents significant security risks along the highway; request that BSP provide full awareness to landowners about how banking operates	Concern noted. The Project is currently negotiating with BSP to bring local banking facilities to the area. In the interim, BSP banking representatives will visit the project on a weekly basis to provide banking awareness training as requested, and address banking queries with resettled individuals.
	Request for cash payments of compensation, rather than deposits into bank accounts (see above) or in-kind options	The requirement for a portion of compensation payments to be paid into accounts is included in the resettlement package to a) improve security of funds, and b) ensure affected households will have access to funds once Interest Bearing Deposits (IBDs) mature. The Project also provides the services of business and compensation advisors who will consult with impacted households regarding appropriate use of their compensation money to promote long-term sustainability. Should suitable alternative investment opportunities be identified, a larger cash component may be considered on a case-by-case basis.
	Concern that the resettlement package be equal to that enjoyed by HGCP affected landowners as the 'impact' will be the same for HQ1–3 residents	The smaller package offered on this, and other linear components of the project, relates to the relatively smaller impacts. The reasons are that households will move in relatively close proximity to original sites, and small areas of gardens will be lost to the Project. Households impacted by large-scale infrastructural components such as the Komo Airfield and HGCP facility will lose their entire garden area, while those along the HHR will lose only a small percentage of their gardens. The policy is also to compensate for entire gardens in cases where any lesser portion is damaged (e.g. the fences/ ditches surrounding the gardens are destroyed), which is an added benefit although the ditches will need to be replaced.
Rations	Concerns that three months' rations would not be sufficient to re-establish gardens—general opinion is that such rations would be required for up to 18 months	As noted above, the relatively smaller impacts on affected households' gardens means that impacts on subsistence activities will be significantly less than those impacts experienced by households resettled from the Komo and HGCP sites. Acknowledging this concern, however, the rations period was



Topic	Issue	Project Response
		subsequently extended to 6 months.
	Request that those only losing gardens (hence source of subsistence) should also receive rations until their gardens are re-established	Eligibility for rations for households only losing gardens will be assessed on a case-by-case basis, based on the extent of garden size lost, and whether this is deemed to impact household subsistence levels.
Future sustainability	Numerous concerns raised over the future of children in new areas and the need for the Project to pay school fees	All households will move to areas within close proximity to current sites, thus access to schools will not be affected. It is worth noting that at the time of the survey no school-aged children from impacted households were attending school.  The Project continues to explain the resettlement program and its housing, cash, and livelihood benefits. The displacement package does not contain set provisions for payment of school fees, but advice is provided to benefit recipients to plan their income and expenditure, and establish savings regimes to ensure monies are available for such disbursements.
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	Crop damage payments to individuals has been effected and agreed. Land deprivation compensation will initially be assigned to the relevant clan, or clan segment. A fair and rationale division amongst its members can be paid into nominated individual accounts, following community agreement.
Employment	Numerous requests for preferential recruitment of affected households for job opportunities related to the Project	This request will be put to the Contractors responsible for construction activities in the HQ1-3 area. Affected households will be considered for project employment opportunities; however, the Project must also ensure fair and equitable access to these opportunities for all Project area residents.

## 5.8 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 Resettlement 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 explain the rights and recourse options open to landowners;
- Explain the Developer's Resettlement Action Plan, and listen and record any issues or problem; and
- Report back to the Resettlement Implementation Team findings and recommendations.

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

With the particular expertise of ELC members, their training as lawyers, and inclusion in the team of Josepha Kanawi (a Chief Magistrate fully conversant with PNG land laws and dispute processes), advice is provided to household members regarding the most appropriate ways to address issues arising with regard to compensation disputes and

grievances. ELC has kept a log record of grievances that remain unresolved following the consultation process, which is submitted to the implementation team and management for further consideration.

Some of the key issues that have been identified by the ELC team in the initial stages of consultation with households FN180-185 related to matters pertaining to cultural considerations; disputes regarding census findings; compensation parity with HGCP; the availability of appropriate land for resettlement; and allocations of rations, as summarized in Table 5-5.

**Table 5-5: Issues raised during ELC consultation process**

Issue Type	Issue	ELC Recommendation	Project Response	Outcome
Cultural considerations	The total resettlement assistance package offered to households must recognize that in Huli, different wives of one man may be accommodated in separate structures. .These physical structures thus require separate compensation paid to the female occupant.	ELC recommended that additional compensation be offered in such cases to the additional wives for construction of additional houses.  This is to ensure that the Project is sensitive to cultural realities. The Project is advised to balance cultural realities with legal obligations of PNG under domestic and international laws, e.g., the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), which PNG ratified 'without reservation'. PNG domestic laws recognize marriages conducted under custom as legal marriages, thus the Project is correct to recognize and provide compensation for multiple wives.	A sum of K10,000 per wife resident in a separate house was agreed on.	Households with more than one wife resident in a separate house are to be given an additional K10,000 per additional wife, to be paid to the women concerned.
Cultural considerations	In Huli culture, boys over the age of 16 may establish 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 referred the matter to management, recommending that additional compensation should be considered to enable these boys to establish their own households independent of their parents. Note: in recent consultations at Disclosure session at Tombete, we were told that men and boys live in separate houses from women and girls, who live in separate women's house and we must be careful how we compensate such households for that one men's house and one women's house.	Under discussion during implementation phase.	For permanent bachelors (daloali), and young (16–25 year olds), unmarried males/females who are independent economic units [i.e. have their own dwelling and maintain separate subsistence gardens], separate compensation package will be provided.
Dispute of census findings	A number of households raised concerns that their assets, including trees, crops, and 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 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.

Issue Type	Issue	ELC Recommendation	Project Response	Outcome
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 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 team.
Parity with HGCP	During initial consultation, a number of Hides Quarry Road households were adamant that they would not accept anything lower than what was offered to HGCP relocated individuals (K51,000 basic package); while some insisted that they should receive a minimum of K80,000.	ELC advised households that a fair package would be negotiated for all affected households. It was pointed out to affected households that the impact on Hides Quarry Road households, experiencing significantly fewer impacts, and required to move shorter distances, could be considered lower than that for HGCP households, and that this needs to be considered in agreeing on an appropriate package.	The project acknowledges the importance attributed by IFC to consistent compensation rates throughout an area stated in IFC PS 5(8) <sup>32</sup> “...standards for compensation will be transparent and consistent within the project”. In some cultural contexts, this decision helps avoid possible adverse scenarios, which can result from inconsistent compensation rates applied to neighboring Project constituencies <sup>33</sup> . However, concern was raised that an equivalent package to HGCP would create problems with HGCP residents who had already emphasized that they will be more heavily impacted by resettlement. The Project proceeded with negotiations until an acceptable, somewhat reduced, package was agreed on.	Following negotiations, households agreed to a package of K41,000, acknowledging the relatively smaller impacts than experienced by those resettling for the HGCP site. The HQ1-3 landowners appreciated the argument that they would only be losing a very small percentage and number of gardens, and that all the affected families would be moving a very small distance away. Moreover, because they would still be using most of their established gardens it was not necessary to continue the provision of rations beyond a 3-month period (subsequently increased to six months). By comparison with the HGCP residents, the loss and deprivation of HQ1-3 landowners was assessed as relatively smaller in scale. The HGCP constituency argued that from their perspective the impact of the intervention on Hides Quarry residents was less and did not merit parity of compensation. The HQ 1-3 residents accepted the validity of this argument.

<sup>32</sup> IFC Performance Standard 5 –Land Acquisition and Involuntary Resettlement (2006), and Guidance Note 5(2007) G.24 (13) ‘.....transparent, consistent, and equitable manner’.

<sup>33</sup> Detailed in the IFC *Handbook for Preparing a Resettlement Action Plan* p.30.

Issue Type	Issue	ELC Recommendation	Project Response	Outcome
Land for resettlement	A number of households raised concerns that they will not be able to find appropriate land for resettlement, citing issues pertaining to clan membership, and multiple wives as constraints to potential land availability.	ELC highlighted this matter as a very critical concern for management to resolve to ensure that such households are justly compensated for their loss. ELC advises that a land survey should be undertaken of the Haku and Kela clans to confirm if there is actual land shortage.	Specific cases of households claiming to have no alternative land are investigated, and where legitimate, measures will be considered to assist with additional compensation to pay for replacement land if required.	To date all affected households have identified alternative sites to which to resettle, and these have been geo-referenced by the RIT team. Investigations into land shortages will be ongoing.
Compensation for economic trees	Questions arose during interviews on the assessments of some of the trees, especially the local bai (Castanopsis) and bauwa (Casuarina) trees, with affected households noting that these trees are very useful to the communities, and yet they are assessed and very low rates are paid for compensation.	ELC explained that crop compensation is calculated based on Valuer General rates, showing lists of the VG's schedules to those who queried the rates offered.	The Project currently uses rates that are based on those of the Valuer General in compensating for crops and economic trees. Calculations have shown that, rounded off as a total package, average compensation can be considered on a par with what may be considered 'full replacement value' for such crops.	Compensation payments for crops and economic trees will be calculated in a similar manner as was done for Komo and HGCP.
Rations	Queries were raised regarding eligibility for rations for households that will receive only garden/crop compensation, and not the full household package.	ELC advised affected households that rations would be provided to these households at a reduced rate, on a fortnightly basis. ELC noted the concern to management, emphasizing that some Hagu clan members may not have sufficient land to re-establish gardens after losing land to the Project elsewhere.	Rations will be provided to households receiving only crop/garden compensation at a revised rate on a fortnightly basis.	Rations will be provided to households affected by economic displacement, taking into account the extent of land loss. Investigations into land shortages will be ongoing and monitoring undertaken through the Livelihood Restoration Program.

## **5.9 Future Consultation Activities during Implementation**

### **5.9.1 Ongoing Consultation and Disclosure Activities with Project-affected Landowners**

Ongoing consultation activities will be conducted under the implementation management structure as defined in Section 9.1. 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;
- Documentation, including mapping, of all resettlement sites;
- 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 provision and utilization of timber on the HQ1–3 site to provide building materials for HQ1–3 resettled individuals;
- Consultation regarding sign off of 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.

### **5.9.2 Meetings with Provincial and Local Government**

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

### **5.9.3 Meetings with Community Level Stakeholders in the Area**

Further interaction will be undertaken with other community stakeholders in the area during the implementation phase, particularly for those areas around HQ1–3 subject to involuntary resettlement.

This interaction 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;
- Inclusion of HQ1–3 personnel in training and employment opportunities;
- General awareness of quarry construction activities and associated safety requirements;
- Information on the operational use of the site, such as a schedule of usage, traffic, and use of the quarry access road by residents; and
- Potential issues that may arise related to “influx” particularly opportunistic influx along the proposed access road and closer to the proposed HGCP area.

The PNG Government has acknowledged the need to have a presence in the field locales and is currently making arrangements to ensure DPE officers have a permanent field presence. The Company’s Government Interface Team regularly interacts with government representatives in this regard.

## 6.0 PROJECT IMPACTS

### 6.1 Introduction

The creation of the proposed HQ1–3 site by the Company will mean that people, who currently reside within the locale or use land and resources within this area, 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 HQ1–3 area will lose their land and fixed assets, and will suffer 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 might not necessarily incur all types of losses.

Based on the findings provided by the various baseline surveys in the HQ1–3 area (Section 4.0), the Project impacts are summarized in Table 6-1:

**Table 6-1: Summary of impacts due to resettlement and proposed mitigation measures**

Impact	Scale
Residential structures affected	Seven structures affected Seven households and three (losing majority of gardens) directly affected households will be resettled, with 15 losing some gardens and approximately 85 individuals who own, or who have been assigned ownership of portions of gardens and trees, though not requiring resettlement.
Community services and facilities	No community buildings affected.
Loss of agricultural and forested land	88 ha of land
Loss of trees and crops and other agricultural improvements	46 sweet potato gardens 8,085 coffee trees, 2,748 pandanus, 2,364 Marita nut, 1,568 fig, 766 tree tomato, 527 avocado. Loss of agricultural improvements such as trenches, walls, and fences built around gardens
Impact on water sources	Seven water sources identified by affected households and remaining community.
Disruption in social networks	Resettlement-affected households.
Impacts on business and employment	None expected.
Cultural sites	40 cultural heritage, archaeological sites.
Influx of migrants	Although Project-related construction activities in and around Hides-Komo will inevitably attract people from outside the area in search of economic opportunities, little influx is expected in the HQ1-3 area. The topography of the site gives little advantage to moving near to road or quarry sites. Pressure on existing residents to host relatives, however, will swell population.
Access routes	No adverse impacts expected.

Other impacts include possible influx of curious onlookers, relatives wanting land close to the access road to build trade store businesses and work seekers. 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 that will allow for more effective marketing channels.

## 6.2 Project Impacts

An overview of the main impacts identified in Table 6-1 is provided in the sections below:

### 6.2.1 Loss of Residential Structures

Baseline studies have found seven households living within the proposed HQ1–3 site. The census collected the names of 28 impacted household persons. All of the affected structures were constructed of bush materials walls (usually woven cane or split timber slabs) with kunai (*Imperata* grass) thatch roof. All houses were 40 sq m or less in floor area.

All families surveyed at HQ1–3 rely on natural sources for drinking and domestic water (usually a local spring), and use the bush or basic pit latrines which sometimes is just an uncovered pit with no structure over it. Pit latrines will therefore be lost for all of the Hides Quarry households, as well as access to clean water, as water sources are carefully constructed and maintained by households and are actually well selected spring sources that have bamboo piping and are covered to prevent access by animals. The housing relocation package provides sufficient allowance for replacement of pit latrines, as well as provision for water tanks to be constructed for rainwater collection at replacement sites. Piggens and other structures are assessed and compensated accordingly.

### 6.2.2 Loss of Communal Structures

Para School is located on the perimeter of the HGCP site and has been addressed in the HGCP RAP.

### 6.2.3 Loss of Foraging Areas

All of the households inside the HQ1–3 reported keeping pigs and other livestock. These would need to be moved during the relocation, and adequate piggens 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 developer 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. Section 6.4 provides further discussion on cumulative impacts and monitoring measures proposed to establish residual impacts.

### 6.2.4 Loss of Trees and Gardens

Forty-six gardens belonging to 25 families will be lost. Three families have five gardens within the road or quarry area, two families have three gardens, and five families have two gardens. Fifteen families have only one garden impacted. Most families have requested that garden and tree compensation be split among family members with the result that 110<sup>34</sup> individuals will receive compensation payments.

The 46 gardens surveyed averaged 0.10 ha in area with the usual large variation; the largest was 0.48 ha and the smallest 0.03 ha. The total area of sweet potato gardens impacted by the Project is 4.7 ha.

In addition to sweet potato, Huli gardens are also planted with highlands pitpit (*Setaria*), sugarcane, various greens, and ferns. Bananas and tanget (*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.

---

<sup>34</sup> Most of these people are the young children of families losing gardens and other relatives who have ownership of trees.



The families surveyed, plus those who have houses outside the area, owned a total of 8,085 coffee trees along the road alignment, of which 4,561 were mature trees, mostly moderately well maintained (not pruned, but kept clear of overgrowth), and 3,524 were seedlings. Two families owned more than 1,000 coffee trees and one family owned 600 trees, while the great majority of families owned less than 150 trees. In addition, the survey counted 2,748 pandanus, 2,364 Marita nut, 1,568 fig, 766 tree tomato, and 527 avocado trees.

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 Resettlement Team 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 Project land acquisition activities. However, Project rental of land, associated 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, 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.

While 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, but now they can use money. Land pressure is directly related to population increases and soil fertility (shorter fallows, salinity, etc.), 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 that, it is felt, requires Project measures or intervention.

#### 6.2.5 Reduced Access to Forest and Other Resources

Most of the HQ1–3 households report collecting and utilizing, to various extents and on a daily or periodic basis, natural resources occurring in the surrounding village lands. Forest resources are used for home consumption or for sale to generate income, directly or after processing. Wood is also collected either for personal firewood or for resale, and 100% of Hides Quarry 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 Impact on Water Sources

Most families have been moved back a few hundred meters from their original locations, which mean that they have not moved far from these water sources. Though there are a few alternative water sources (not surveyed) mentioned within the vicinity, families would have to

walk the additional distance to get to these sources. Some families will have to cross the Hides Quarry Road (HQR) to get to these alternative water sources, and moving vehicles during construction pose danger to their safety (maybe short term).

Landowners (resettled individuals and other residents) in the area are concerned that they may face a real water problem from the HQR construction as all their current water sources are within 200 m of the proposed construction areas. The probability of water resources being affected during construction will be assessed during the implementation phase and monitored during construction. Remedial measures will be implemented should water sources be negatively affected so that similar quantities and qualities of water will be available.

#### 6.2.7 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 some time with the relocated family in their new location.

The majority of HQ1-3 affected households will move relatively short distances, and thus limited impact on social networks is anticipated. Those who will move longer distances are moving to sites where they currently have other land and houses, and are already integrated into local social networks. Approximate walking distance for households to social infrastructure will be similar or less when compared to current locations.

The proposed relocation site for the Para School will still be in close proximity to relocated households. While schooling does not currently appear to be a priority amongst affected households, it is worth noting that opportunity for education will not be adversely affected by the relocation. The intention to develop a community center with increased focus on reviving the current Para health post can also be considered as a factor that could contribute to increased access to community and social infrastructure.

#### 6.2.8 Impacts on Business and Employment

Employment levels in the HQ1–3 area were non-existent at the time of the initial ANUE census and survey. Since that time, several residents have found work on the newly established Well Pad A camp, and it is anticipated this will increase during the construction phase in the general Hides area.

The construction of the HGCP and Hides Quarry Access Road will create employment opportunities, providing additional sources of disposable income to Hides Quarry 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 (plant sites, camps, roads, bridges, etc.), creating further employment and income opportunities.

#### 6.2.9 Influx of People

The Project related construction activities in and around Komo-Hides will inevitably attract people from outside the area in search of economic opportunities. In particular, the training center and improved health center facilities at Juni will attract an influx of people who see the area as a desirable residential choice. Improvement in facilities at other centers near the Project, such as at Tari, will offset this risk, but it is likely that there will be increased pressure on land and services in the Hides area.

The cumulative impact of these changes is likely to present as increased land disputes, fighting, and 'law and order' problems. In the context of other adjacent resettlement zones

such as Komo Airstrip and the haulage road, there may be a general north-to-south migration of Komo and Mananda Huli to the Hides valley, again to seek employment, avail themselves of area facilities, and to be close to improved road networks.

A robust influx management plan will be required for the Hides area that addresses pressure on agrarian resources, mitigates increased use of virgin forest areas, and ensures the capability of the social service infrastructure to deal with higher population loads. This plan is currently in the process of being developed.

#### 6.2.10 Access Routes

The HQ1–3 households will likely have improved access to surrounding land after the quarry construction due to the intersection of the Heavy Haul road and the quarry access roads. In the short term, this is unlikely to have much benefit to these residents, most of who will relocate to areas close to the HGCP. In the long term, after construction, however, this will endure as improved infrastructure.

#### 6.2.11 Cultural Sites

Approximately 40 sites of cultural importance or significance have been identified within the proposed HQ1–3 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 program in place.

#### 6.2.12 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 most households currently residing or cultivating gardens in the HQ1–3 area already have access to alternative land. This will be confirmed during the implementation phase, and with reference to the following two sets of circumstances:

##### **6.2.12.1 Existing Sites with Security of Tenure**

The cultural practice of multi-local residence means that most households have alternative lands, gardens, and houses. In some instances of genuine vulnerability, supplementary assistance packages will be available to assist landowners with access to other land for the duration of the Project.

##### **6.2.12.2 Existing Sites with Limited Security of Tenure**

Although the availability of alternative land reflects the prevalent practice of multi-local residence and the cultural context of Huli tenurial rights and residence practices, it is also customary practice for individuals to ‘lease’ garden lands from others where necessary. Payment would be made in pigs or shell, in the pre-colonial era, which more recently has been replaced with cash. This form of customary lease could not, however, be relied upon as a solution for a ‘land-for-land’ program by the Project because it would not provide security of tenure. IFC principles reflect the paramount importance of ensuring “*security of tenure at the resettlement site without having to face the risk of forced eviction*”.

In the event of any dispute between the lessor and lessee parties, or their clan-based units, it will always remain the prerogative of the lessor to evict the lessee irrespective of any current formal or informal arrangement. Precisely the same argument applies should the Project attempt to enter into formal lease arrangements with customary landowners. Such

an arrangement would deprive the lessor, or inheriting child of the lessor, of the right to change their minds about the arrangement sometime in the future; this would put at risk the relocated individual and his/her household.

As such, customary mechanisms will be relied on in the first instance to provide access to replacement land. The Project refers to ethnographic literature concerning Huli multi-local residence customs, indicating how affected families can self-relocate. Following this principle, the livelihood restoration assistance package (as discussed in Section 7.0: Resettlement and Compensation Strategy) will be utilized. This approach is viewed as giving affected persons the best chance of stability and enhanced livelihood.

### 6.3 Vulnerable People

In the context of this HQ1–3 RAP, the following potentially vulnerable households have been identified:

- 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—vulnerable ‘landless’ households.

### 6.4 Cumulative Impacts

When assessing the impacts of relocation for HQ1-3 households, it is important to take into account the fact that this catchment forms part of the wider Hides-Komo region in which a number of Project infrastructure will be developed. Apart from the HQ1-3, this includes the HGCP, Komo Airstrip, Heavy Haul Road, other quarry sites, as well as associated access, landfill sites, well pads, relocated school, existing and new camps, and the pipeline. These proposals need to be considered in terms of cumulative impacts of resettlement in the region, particularly in terms of identification of suitable relocation sites, as well as increased pressure on available land, social services, and natural resources.

The potential cumulative impact of these various interventions within the development period is a shortage of available land:

- For the impacted households to move<sup>35</sup>;
- For what we might regard as the overall land holdings of any clan; and
- For non-impacted landowners who might otherwise have viewed the impacted lands as potential relocation sites at some future juncture of time.

The risks are:

- A shortage of the types of land required for subsistence by landowners; and
- Diminished carrying capacity if livelihood restoration strategies fail to meet the target objectives.

Figure 6-1 illustrates the planned facility interventions in the Hides area with an indication of the overall area (420 ha) associated with these. The map indicates that the impacted area represents only a small percentage of the surrounding land mass (some 10%), but this should be seen in context since this would not, *per se*, reflect discriminations between

---

<sup>35</sup> Total Hides area land accessed for the project is approximately 420 ha. Total population affected by physical relocation as a percentage of the wider Hides catchment is approximately 30%.

available land types and subsistence potential; however, alternative land is also available to sub clans outside the Hides area.<sup>36</sup> –

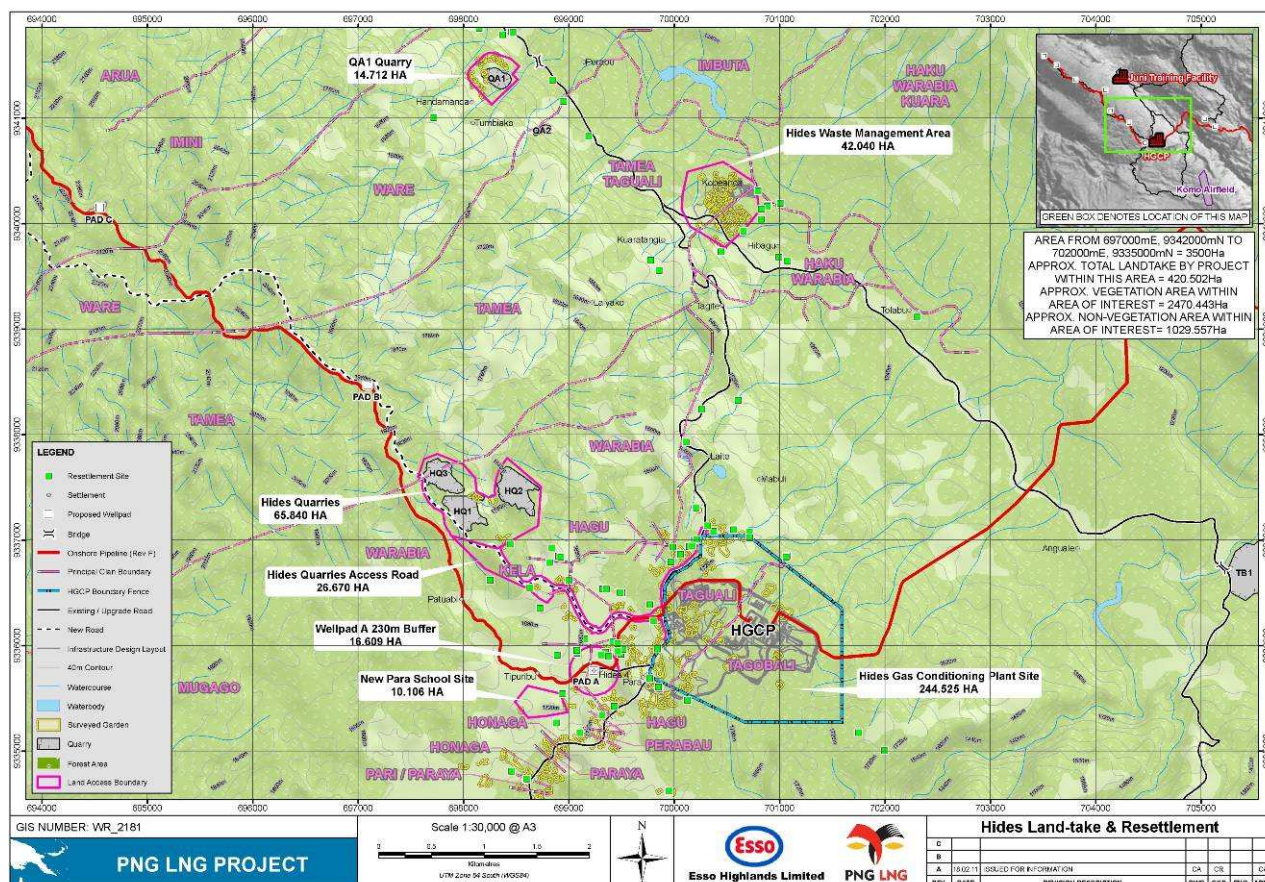


Figure 6-1: Project development areas within the Hides environs

The project has committed to post-relocation monitoring which includes assessment of

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

These ongoing monitoring activities will assist the project to establish whether there are genuine cases of hardship and deprivation.

In line with Huli tradition, access to other land is normally always possible, and it may be the case that some households claim a land shortage as a means to obtain additional compensation. Nevertheless, land available to each clan is limited and so households could be forced in some areas to obtain land from other clans, resulting in less security of tenure. A preliminary review of resettlement sites that have been identified by affected households already shows that two of these have chosen sites near to the Heavy Haul Road. Others have noted that they have already been moved by the Project before due to prior components (e.g., Well Pad A). It is crucial that the broader Project's current and future land

<sup>36</sup> 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 relocated individual. However, sub clans also have access to land outside the Hides area, thereby reducing the impact of land loss within Hides.

access requirements be kept in perspective, so that households may be provided guidance in site selection to avoid the risk of sequential relocations as the Project progresses.

An assessment of agricultural potential and livelihoods practices has shown that a five-person household requires an area of approximately 0.45 ha for sustainable subsistence agriculture, which involves alternating land-use between cultivation of gardens and fallow periods. In addition to land requirements for subsistence agriculture, access to infrastructure is also an important consideration for site selection. It has been noted that the majority of households prefer to relocate to areas close to existing roads, with access to schools, markets and other infrastructure. It can be expected that pressure on these areas will become greater as more households are required to relocate from their existing homes, and need to find alternative sites.

Land availability for resettlement will not be a problem for the HQ1-3 resettled individuals, as all households have identified sites. Further Project developments in the area (landfill and heavy haul road) will require further resettlement. Land availability for this future resettlement, taking account of the Project's requirements and Lender's concerns (Review, May 2010), should be assessed and monitored to determine whether sufficient land is available.



## 7.0 COMPENSATION AND RESETTLEMENT STRATEGY

The Project intends to compensate and/or assist people who will be affected by resettlement to, at minimum, restore their income streams and improve their standards of living. This Section explains the strategies for compensation and for other livelihood support measures for the people physically and/or economically displaced by the HQ1–3 component. Development of the measures is based on PNG law (O&GA); IFC PS 5; 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 HQ1–3 resettlement plan 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. An overview of the social circumstances that influenced resettlement considerations and of the lessons learned from other projects is summarized below:

#### 7.1.1 Socio- economic and Cultural Considerations

The HQ1–3 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 relocated individual 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 (EOS JV) 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 Section 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; there is no lexical term that denotes the collective of a man, 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, HQ1-3 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 because 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 sq km, whereas the western part of the Komo-Margarima district has a population density of less than 20 persons per sq km. The cumulative impact of involuntary physical relocation in the adjacent resettlement areas of HGCP, Komo Airstrip, Heavy Haul Road, quarries 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.<sup>37</sup> 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 Heavy Haul Road and 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

---

<sup>37</sup> Land Economics & Development in the Southern Highlands (p.44). In Haley & May (2007) *Conflict & Resource Development in the SHP*. ANU E press (Canberra).



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;
- 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 liaise effectively 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, 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 inter-marriages 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 relocated individuals on the HQ1-3 can relocate to alternative sites. The majority of HQ1-3 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 is 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 Komo Airstrip, HGCP and HQ1–3 RAPs. In particular, the following lessons were considered relevant to the HQ1–3 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 the proponent provide housing. Replacement housing constructed by the households to be resettled (owner/builder) is the preferred option, as this option 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 summarizes eligibility and entitlements relevant to the affected HQ1–3 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 tenurial status and portfolio of land rights and responsibilities.

These compensation streams include entitlements to individuals for privately owned assets as well as entitlements to clans for communal resources. Entitlements for communally owned resources are reflected in the In-Principle Agreement (IPA) for Area 11, PLAF 11-Dagia to HGCP (Hides 1 and Hides 2 Quarries.) The primary clans owning land in the HQ1-3 area are the Hagu, Warabia, Kela and Mugago clans. The exact extent of land ownership amongst these clans is in the process of being agreed by the clans in order for the Project to process clan payments for land damage and deprivation. Approval has however been granted by clan leaders to continue work on the site while these issues are being resolved.

The package that has been negotiated for those affected by the HQ1-3 and access road development is based on that applied to the HGCP, but has been modified to take account of the reduced level of impact. Impacts are reduced as households do not have to move as far and will remain within their existing social environment. Affected households will also lose only parts of their gardens (although full gardens will be compensated) and will still be able to access these remaining portions of their gardens after development. The three households losing gardens only will remain, or return, to existing sites where they have houses and some gardens.

Table 7-1 also provides a list of considerations that will be taken into account when the HQ1–3 RAP is implemented.

The project has committed to applying FRV rates for all gardens and trees. Dedicated resources will be engaged 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.

**Table 7-1: Eligibility and entitlements**

Eligibility	Affected Category	Assistance/Compensation	Considerations for Implementation
<b>1. Houses and other Fixed Assets (Physical Relocation) - Resettlement Assistance Package</b>			
Recognized owners of the assets and structures (identified in the ANUE Surveys by the cut-off	<b>Category 1</b> Households with an available relocation home	<b>Housing:</b> The housing package totals K41,000. <ul style="list-style-type: none"> <li>• Component 1) Household has the option of selecting K10,000 either in cash, or deposited into a Bank Managed Fund - Interest Bearing Deposit or Savings Account.</li> <li>• Component 2) Household will have K10,000</li> </ul>	Clearly inform about site development and relocation schedules  Consultation to determine list of options for materials, goods and equipment  Delivery of in-kind packages will be negotiated upon agreement and delivery will start at the moment of relocation

Eligibility	Affected Category	Assistance/Compensation	Considerations for Implementation
date) and including houses, pigpens <sup>38</sup> etc)		<p>deposited into a Bank Managed Fund - Interest Bearing Deposit.</p> <ul style="list-style-type: none"> <li>Component 3) Building and house materials: household has the option of selecting building materials up to K20,000 (including roofing iron, ridge caps, guttering, nails, water tank and cement), and the remainder to be deposited into a Bank Managed Fund - Interest Bearing Deposit or Savings Account or, K10,000 to be deposited into a Bank Managed Fund - Interest Bearing Deposit or Savings Account, (if the household already has an existing house to move to and verified by the Resettlement Team).</li> <li>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.</li> <li>Transit assistance of K1,000</li> <li>Dismantling incentive of K500</li> </ul>	
		<p><b>Provided to all households:</b></p> <p>Transition rations for up to six months</p> <p>Livelihood restoration measures directed at establishing and maintaining subsistence patterns – seeds, two-garden cycle assistance, and training and production of cash crops</p> <p>Access without financial penalty to old house materials</p> <p>Replacement garden tools</p> <p>Health care program, malaria nets, and medical monitoring of relocated individuals' health</p> <p>Provision of Compensation Advisor to assist and advise on investment and business options</p>	
	<b>Category 2</b> Households with no available relocation land	<p>Support will be provided for finding suitable land for relocation.</p> <p>Otherwise as for Category 2</p>	As for Category 1
<b>2. Land Deprivation</b>			

<sup>38</sup> Pit-latrines are not culturally recognized or counted as a land improvement item; no separate compensation category has been established for these and they are understood and explained as part of the 'housing' replacement component.

Eligibility	Affected Category	Assistance/Compensation	Considerations for Implementation
Recognized landowners	Clans or other groups (e.g. ILOs) with rightful recognized claim to communal land	The primary clans owning land in the HQ1-3 area are the Hagu, Warabia, Kela and Mugago clans. The exact extent of land ownership amongst these clans is in the process of being agreed by the clans in order for the Project to process clan payments for land damage and deprivation. Approval has however been granted by clan leaders to continue work on the site while these issues are being resolved. Annual payment for land deprivation as per guidelines set out in IPA, includes compensation for use of, and damage to surface land, as described below:	Clearly inform about site development and relocation schedules.  Clearly inform affected group authorities about site development and land allocation schedules and regulations.  Compensation paid at agreed intervals directly and publicly to landowner
		1. Compensation for the use and enjoyment of the surface of the land <b>(88ha)</b>	The Company will pay Landowners at a rate per year at equivalent market rates (currently negotiated at K700 but to be verified against market rates) for each hectare of land occupied (but not otherwise damaged) by the Company. This payment is for depriving Landowner(s) of the use of the surface of the land, for cutting 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).
		2. Compensation for land surface damage <b>(31ha)</b>	If the Company damages the surface of any land of the Landowner, the Company will make a one-off compensation payment at equivalent market rates (currently negotiated at K2,575, to be verified against market rates) to the Landowner(s) for each hectare of the land surface that is damaged by the Company.
		3. Compensation for initial damage to naturally occurring bush, vegetation, birds, animals or fish <b>(88ha)</b>	The Company will make a single payment to the Landowner(s) for any damage on their land to the natural bush, birds, and fish at equivalent market rates (currently negotiated at K1,030, to be verified against market rates) for each hectare of land on which the Company damages the natural bush.
		Gravel royalty-	The Company will pay royalty for every cubic meter of gravel, sand or stone within the QA1 license area measured in situ, which is taken and used by the Company for civil construction or maintenance works. This royalty was originally negotiated at K1.50 per cubic meter, plus a non-disruption premium of K0.30 per cubic meter. This rate is currently being renegotiated.
	Individual/ household landowners for garden land	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 relocated individuals' health	Clearly inform about site development and relocation schedules  Compensation paid at agreed intervals directly and publicly to landowner  Rations will be delivered bi-weekly for a period up to six months

Eligibility	Affected Category	Assistance/Compensation	Considerations for Implementation
		Provision of Compensation Advisor to assist and advise on investment and business options	Economic and livelihood restoration programs If significant portion of agricultural land available to a household, physical relocation will be considered (house and other fixed assets)
		Vulnerable individuals and groups including aged, young, infirm and disabled will obtain the following: <ul style="list-style-type: none"> <li>Assisted transit</li> <li>Provision of enhanced house facilities on request and after consultation</li> <li>Other assistance on request and after consideration</li> </ul>	Identify all vulnerable households and the nature of vulnerability prior to resettlement, and monitor closely during implementation to ensure effectiveness
<b>3. Damage to Trees and Crops</b>			
Recognized land and resource users and owners	Clans or other groups (e.g. ILOs) with rightful claim to communal land	Cash compensation based FRV for trees naturally seeded in affected area	Clearly inform about site development and relocation schedules One-off compensation to community (landowners group) directly and publicly to landowner
	Individual/household landowners for trees and crops.	Cash or in-kind compensation FRV for affected area for crops and trees planted by individuals (excluding mature crops). The same benefits will apply to any areas impacted by side-casting damage during implementation. Compensation for agricultural improvements (including trenches, ditches and fences) will also be included. Assistance to restore the livelihoods through economic restoration programs	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 Replacement or market value 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 Provide compensation at or prior to the moment when the land/resource stops being available to the owner
<b>4. Reduced access to Land and Resources</b>			

Eligibility	Affected Category	Assistance/Compensation	Considerations for Implementation
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	Cash or in-kind compensation at agreed intervals until reduction in access ceases Assistance to restore the livelihoods through economic restoration programs	Clearly inform about site development and relocation schedules Cash compensation at FRV 'Lost production' compensation 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. This will be done 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 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	Cash payment for proven loss of reasonable profits due to physical displacement Cash and assistance to re-establish business or other suitable economic activity Training programs and employment related to local content development	Clearly inform about site development and relocation schedules Compensation will be assessed in a case-by-case basis
	Individuals with proven loss of wages	Cash payment for proven loss of wages due to physical displacement Training programs and employment related to local content development	Clearly inform about site development and relocation schedules Compensation will be assessed on a case-by-case basis

## 6. Community Infrastructure

Owners of Public Infrastructure	National, Provincial or Local governments, Clans or ILOs with recognized ownership of infrastructure affected by the Project; (Note: no impacts expected)	Infrastructure will be replaced to an as-before or higher standard Alternatively, compensation will be paid at full replacement cost, without allowance for depreciation	Clearly inform about site development, relocation schedules and potential impacts to infrastructure One-off payment or assistance to replace infrastructure as appropriate and assessed on a case-by-case basis
---------------------------------	---	---	--

Community social infrastructure	Relocation of community structures e.g. churches, schools, etc. (Note: no impacts expected)	Full replacement and construction by the Project Full replacement compensation and constructed by community If social infrastructure requires relocation, a suitable location will be identified to allow continued access for those affected	Clearly inform about site development, relocation schedules and potential impacts to infrastructure Should relocation of any schools or aid posts be required then the Project will provide equivalent replacement, or improved facilities, prior to disruption of such services. The process of replacement will include the development of detailed schedules, plans and the provision of resources. This will ensure that replacement can be completed, and the facilities fully operational, prior to disruption occurring.
Communal water sources	Mitigation for impacts on water sources	Side-casting may result in sediment laden run-off entering water sources	The project will investigate risks to all water resources and identify suitable mitigation measures as defined in Table. Water sources will be monitored for adverse impacts during construction and post implementation of mitigation measures.

### 7.3 Resettlement Support Packages

The Project will assist people affected by resettlement to restore their income streams and improve their standard of living. Compensation and/or assistance will be available to all households, economically or physically displaced by Project activities that were residing in the resettlement area when the cut off date was formalized.

Resettlement assistance packages will be finalized in consultation with all displacement-affected people. Resettlement Assistance Packages will provide options to households affected by 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.



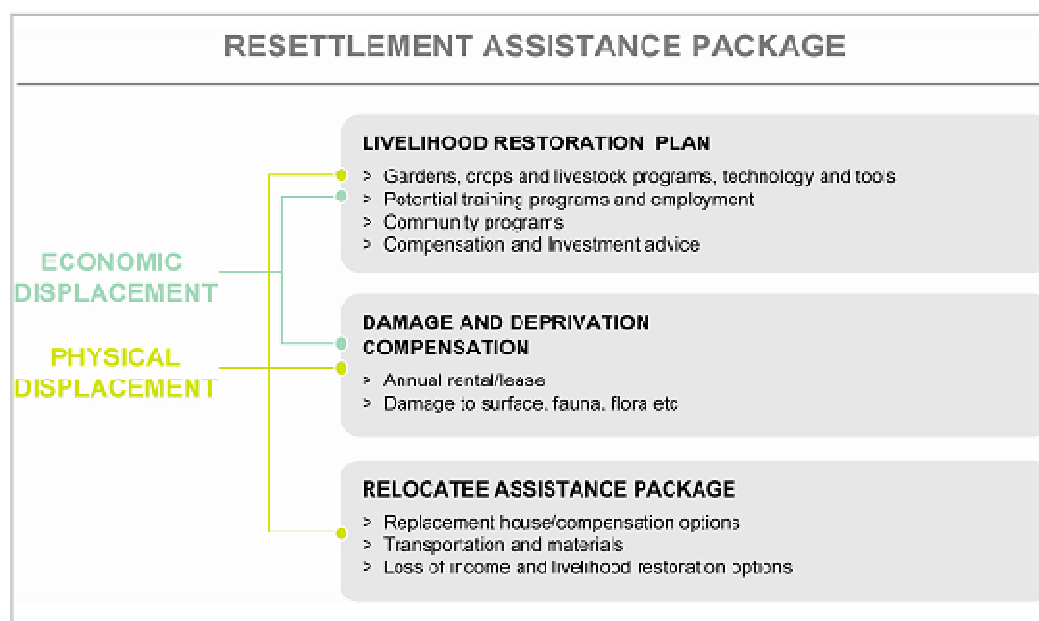


Figure 7-1: Overview of resettlement assistance

### 7.3.1 Damage and Deprivation Compensation (Clan Land)

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

- **Annual payment for land deprivation** through use of land, as per the deprivation rates (annual rental) guidelines set out in Land Management Manual. The agreed rate for land deprivation is PGK 700 per hectare per annum. This rate is in accordance with provision in the Oil & Gas Act, but will be reconsidered at the time of payment to ensure it corresponds with market value.
- **Compensation for Damage:** One-off payment for damages as per process set out in Land Management Manual and in accordance with Valuer General rates. The agreed rate for land damage is PGK 2,575 per hectare. This rate is in accordance with provision in the Oil & Gas Act, but will be reconsidered at the time of payment to ensure it corresponds with market value.
- **Compensation for initial damage** to naturally occurring bush, vegetation, birds, animals or fish: The agreed rate for initial damage is PGK 1,030 per hectare. This rate is in accordance with provision in the Oil & Gas Act, but will be reconsidered at the time of payment to ensure it corresponds with market value.
- **Gravel royalty:** A one-off gravel royalty will be paid for every cubic meter of gravel removed from the quarry site. An initial rate of R1.50 per cubic meter, with an additional non-disruption premium of PGK0.30 was agreed on at the time the In Principle Compensation Agreement (IPCA) was signed between the Company and representatives of land owning clans around HQ1-3. This rate is currently being renegotiated.

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-to-case basis, following valuation of affected businesses by an independent

valuer. At this stage there is no indication that any business infrastructure or services will be impacted; and

- **Loss of Employment Income:** Payment for proven loss of wages due to physical displacement (relocation). This will be judged on a case-to-case basis. There is no indication at this stage that any households will lose employment.
- **Garden and tree 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, or above, market rates. The rates applied to planted trees will be based on the market rates determined by the specialist valuation study (Dr Mike Bourke).

### 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 HQ1–3 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 region<sup>39</sup>.

### 7.3.3 Additional Support Measures

In addition to the provision of housing, for those entitled, the following support measures will be provided for the HQ1–3 community.

**Table 7-2: Additional support measures for relocation**

Support Measure Number	Type and Description
1	<b><u>Tools.</u></b> Households are provided with four sets of tools to re-establish their gardens.
2	<b><u>Transit</u></b> Additional funding for assistance with logistics and effects of physical relocation up to K1,000.
3	<b><u>Interim Rations/Inconvenience</u></b> Rations or monetary equivalent distributed to representative of each family, at a designated point, from the time garden access is lost, and for maximum period of 6 months, or until gardens are re-established, whichever is the sooner.
4	<b><u>Mosquito Nets</u></b> To be provided to each household occupant.
5	<b><u>Materials</u></b> Affected people may remove existing house materials.
6	<b><u>House Dismantling Incentive</u></b> K500 to each house owner who has agreed to relocate and can dismantle their old house.

<sup>39</sup> Compensation rates specific to each cultural heritage site have been calculated by Dr Chris Ballard (ANU), as a contractor to Coffey International.

7	<b><u>Geotechnical Support</u></b> If the household chooses to build on to their <u>existing house</u> 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 the 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 (Section 7.0):

- 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;
- Health care program, malaria nets, and medical monitoring of relocated individuals' health; and
- Provision of Compensation Advisor to assist and advise 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 HQ1–3 development is illustrated in Figure 7-2. The compensation payment process, as defined in the RPF, is as follows:

- 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.

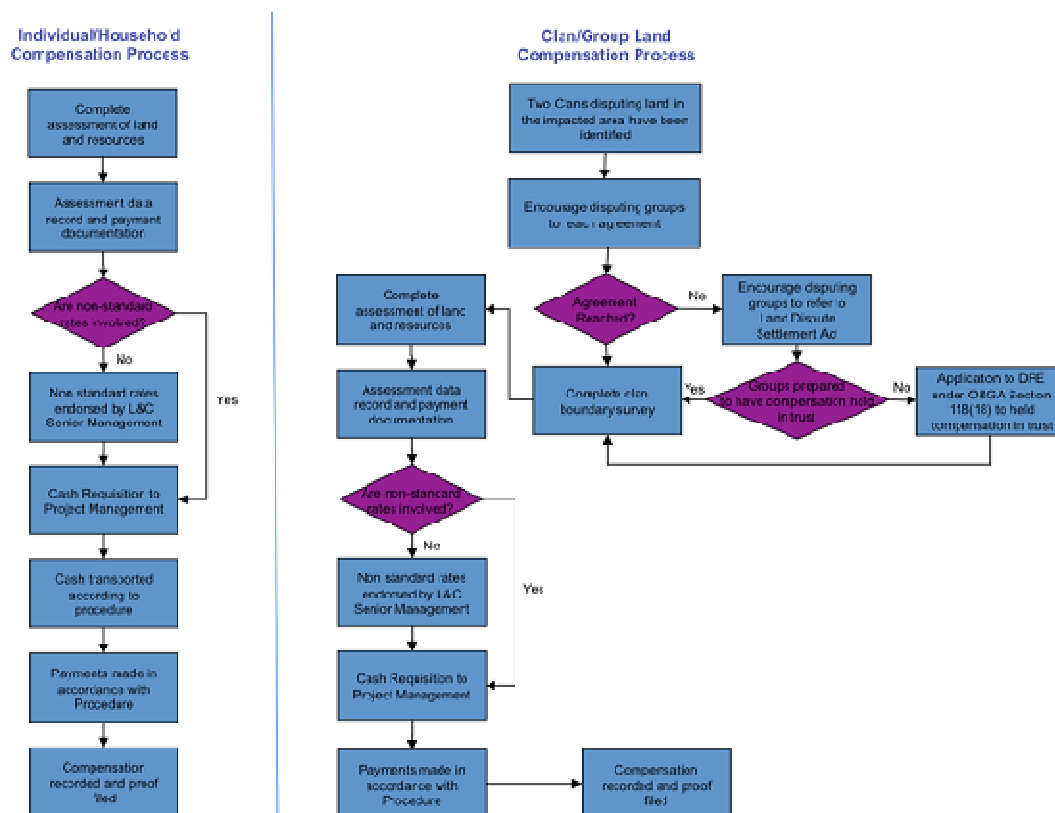


Figure 7-2: Compensation process

### 7.3.5 Compensation and Assistance Advocacy

The HQ1-3 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 HQ1-3 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 presents a summary of mitigation measures that affected landowners and communities will be subject to, together with the types of compensation available, in relation to possible impacts identified.

**Table 7-3: Summary of impacts due to resettlement, and proposed mitigation measures**

Impact	Scale	Mitigation – Project Responses
Residential structures affected	Seven structures affected Seven households and three (losing majority of gardens) directly affected households will be resettled, 15 losing some gardens and as well as approximately 85 individuals who own, or who have been assigned ownership of portions of gardens and trees, though not requiring resettlement.	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 and signaled by signed agreements with independent monitoring by PNG Environmental Law Centre (ELC) representative lawyers.
Community services and facilities	No community buildings affected	Para School is being moved as part of the HGCP RAP. Construction of the Hides Quarry Access Road will significantly improve neighboring communities' (including resettled households) access to community services and facilities, as well as business and employment opportunities.
Loss of agricultural and forested land	88 ha of land	As per O&GA section 118 and Eligibility Matrix, these affected landowners are entitled to damage and 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 agricultural and forested land will be compensated through payment of FRV to clans.
Loss of trees and crops and other agricultural improvements	46 sweet potato gardens 8,085 coffee trees, 2,748 pandanus, 2,364 Marita nut, 1,568 fig, 766 tree tomato, 527 avocado trees. Loss of Agricultural improvements such as trenches, walls, and fences built around gardens.	As per O&GA section 118 and Eligibility Matrix landowners are entitled to one-off damage compensation payments. Compensation for crops, trees and agricultural improvements will be paid at FRV. Compensation for land and crop losses, as well as temporary rations to assist with subsistence requirements until gardens are re-established. A livelihood restoration program will be implemented across the Hides-Komo area to assist affected households with restoring or improving livelihoods. This program includes both land-based and non-land based components, aimed at enhancing existing agricultural practices as well as providing training that can assist household members in securing waged employment and diversifying family incomes.
Impact on water sources	Seven water sources identified by affected households and remaining community	The Project is currently investigating risks to water resources and identifying suitable mitigation measures. This includes review of design parameters and the monitoring of contractors. Remedial measures will be implemented should sources be negatively affected and these include establishment of water collection stations using tanks and roof collection.  For physically resettled households, a portion of the compensation package is allocated to provision of water tanks for rainwater collection at replacement homes.  Similar to those provided in other resettlement areas, water collection structures would comprise <i>haus wins</i> , consisting of tin roofs and water tanks. Provision has been made for two such structures to cater for residents whose water sources are impacted by the Hides Quarry Road development.  The structures will be financed by the project, and be built according to the following dimensions: Roof: 7.7 m x 11 m, Base: 5.7 m x 9 m, and 3 x 5,000 liter tanks. The location of these sites will be determined in

Impact	Scale	Mitigation – Project Responses
		consultation with the community representative committees for the Hides Quarry Road. Construction to commence in first quarter 2011, and completed by mid-end 2011.
Disruption in social networks	Resettlement affected households	Relocating individuals 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. A new SIA for the relocated individuals will be required and should include questions to monitor social network functioning.
Impacts on business and employment	None expected	No loss of employment anticipated. Compensation will be paid for short-term interruption of trade-store business. Business relocations likely to show improved profits once landowners receive cash benefits such as royalty and equity. Assistance can be provided to relocate businesses if requested, and will be negotiated based on specific circumstances and needs. The construction of the Hides Quarry Access Road will create employment opportunities, providing additional sources of disposable income to Hides Quarry 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 (plant sites, camps, roads, bridges etc.) creating further employment and income opportunities.
Cultural sites	40 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 National Museum and overseen by archaeologists.
Influx of migrants	Although Project related construction activities in and around Hides-Komo will inevitably attract people from outside the area in search of economic opportunities, little influx is expected in the HQ1-3 area. The topography of the site gives little advantage to moving near to road or quarry sites. Pressure on existing residents to host relatives, however, will swell population.	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 south. In the initial stage of construction, the site will likely be of interest to 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 is currently developing Project Induced In-Migration response plans using a community-based process whereby local communities, and newly established resettlement committees are encouraged to assist with monitoring and curbing influx to the area. The outcomes of these activities will assist in developing an area specific plan for the Hides area. It is anticipated that these plans will be implemented by mid 2011.
Access routes	No adverse impacts expected	The HQ1–3 households will likely have improved access to surrounding land after the quarry construction due to the intersection of the Heavy Haul Road and the quarry access roads. In the short-term this is unlikely to have much benefit to these residents most of whom who will relocate to areas close to the HGCP. In the long-term after construction, however, this will endure as improved infrastructure.

## 7.5 Risks

A number of potential risks can be identified which may pose problems for the implementation of resettlement in the HQ1–3 environs:

- 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 is no operational bank in the region. Landowners who receive cash either have to travel to Moro, Mendi or Port Moresby. The HQ1-3 survey found only 16% of respondents acknowledged having their own account when asked about account ownership. 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 and attendant impacts on social order.

## **8.0 LIVELIHOOD RESTORATION PROGRAM FOR RESETTLED VILLAGERS IN THE HIDES QUARRY 1-3 AREA**

### **8.1 Introduction**

The livelihoods restoration program to be implemented across the Hides and Komo areas will be inclusive of all households affected by resettlement across the Project area, including HQ1-3 affected households.

The livelihood of most people in the HQ1–3 area is based on subsistence agriculture. Survey results indicate that a number of villagers also derive some cash income, mainly from wage employment with HGDC, 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 and lack of transport, and poor nutrition and associated health problems. Agricultural improvements are therefore an important component. At the same time, the livelihood restoration strategy anticipates change resulting from employment and business opportunities provided by or associated with the Project and development initiatives that may be funded by Project revenues.

This document is a proposed livelihood strategy for villagers who are being resettled from the HQ1–3 area because of works associated with LNG development.

### **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 that 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 HQ1–3 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 HQ1–3 resettlement. The key stakeholders consulted included:

- Villagers who are scheduled to be resettled;
- Other villagers in the vicinity of the HQ1–3 sites; 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 restore, at a minimum, 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 HQ1–3 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 HQ1–3 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 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 that could improve subsistence food production, in particular, sweet potato and other staple foods.

### **8.5.2 Vulnerabilities**

The main vulnerabilities that 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 (LR) 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 HQ1–3 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 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 resettled households 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 HQ1–3 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 with 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.

These categories for assistance are detailed further in the following sections.

#### 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 tools<sup>40</sup>.

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 that are currently available, or will be by late 2010, which can assist people with improving the efficiency of subsistence food production. The most important of these is pathogen-tested sweet potato planting material. A joint team from Queensland Department of Primary Industries and the PNG National Agricultural Research Institute (NARI) has conducted research 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.<sup>41</sup>

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.

---

<sup>40</sup> 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.

<sup>41</sup> For example, in China, use of pathogen-tested 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.

### 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 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 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 of 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 tons per week of a range of fresh foods. It is estimated that peak demand for catering at the Project work camps will be 150 tons 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 that could be sold to catering companies associated with oil and the Project in SHP (Appendix 9 Table 1). Information that is more detailed is now being generated from the catering companies at Nogoli and Moro for planning purposes.

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 HQ1-3 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 intermediaries 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 to 1,600 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 animals 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 HQ1-3 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 resettled households 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 HQ1-3 area as the

temperature range is suitable and rainfall is not excessively high. Domestic honey production in PNG is about 50 tons per year, with demand of about 200 tons 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 HQ1-3 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 that have to be completed in the first half of 2010 so that this program can be developed more fully. Some are higher priority than others are. 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;
- Assess 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;
- 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 (Table 2, in Appendix 9 contains 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, and 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 of 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 supplied 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 a 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 HQ1-3 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;
  - Welding; and
  - Driving;
- Oil and gas 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;
- Bread 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 Center is some 14 km from the HGCP site. It is also planned to be complete and training recruits for construction of the HGCP and associated infrastructure by July 2010. When fully operational, the Juni Training Center will have capacity to train up to 200 trainees each year over a three-year period in general, specialized, 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 than they have been able to access in the past. These services include health, education, and public infrastructure required to support an increased residency at the HGCP

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 at the introduction of new opportunities, training in non-agricultural skills, and diversification. The Project is establishing demonstration gardens at Komo (commenced November 2010) and Hides (early 2011) to show resettled households the benefits of new varieties, alternative crops and production methods. The Community Development Support Program will extend this program to the larger community. There will be some overlap between phases. The proposed approach and timing is illustrated in Table 8-1:

**Table 8-1: Implementation schedule**

Time Frame	2010		2011				2012+			
Phase/Activity	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4+
<b>Phase 1:</b>										
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										
<b>Phase 2:</b>										
Ongoing monitoring of gardens – household visits										
Ongoing group training sessions										
Outreach on fresh food production, animal production and other initiatives										
Implement selected Projects 2011-2013										
Non-agricultural training programs										
Monitoring of livelihood restoration program										

## 8.9 Resources Needed to Undertake the Livelihood Program

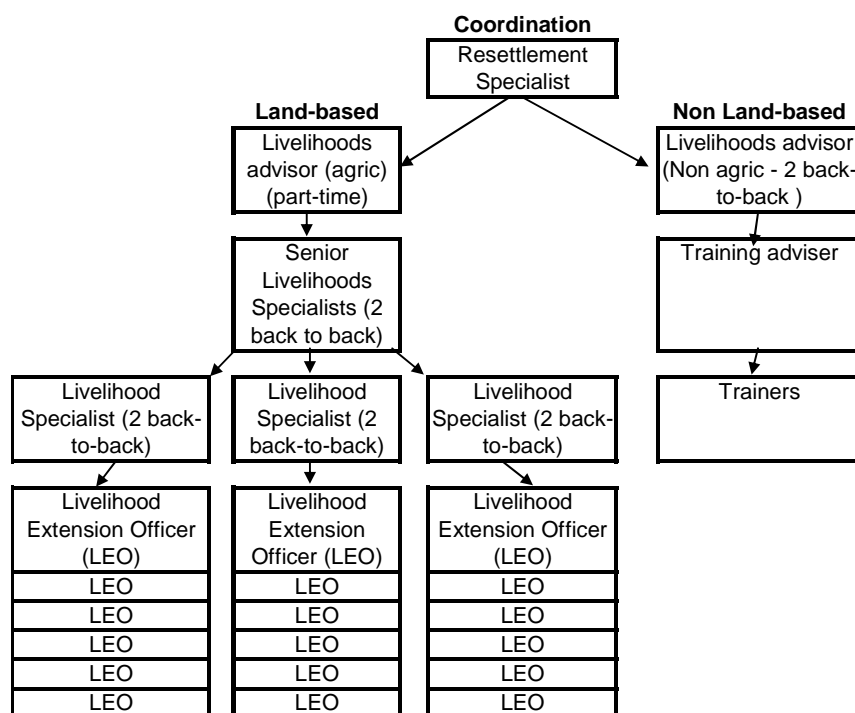
The LR Team will be based at Nogoli as well as Komo to support all the resettlement projects in the area. Each area will require varying levels of staffing according to their stages of implementation. HQ1–3 is the third program to be implemented after Komo and HGCP.

It is planned that each household being resettled be assisted for two years after they move locations. Thus, the duration of the program in the HQ1–3 area is from the latter part of the third quarter 2010 to third quarter 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 in Figure 8-1.



**Figure 8-1: Livelihoods Restoration organizational structure**

The LR Team's responsibilities are shown in Table 8-2. 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 LRP
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 (two 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 (six 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"> <li>Monitor progress of garden re-establishment</li> <li>Provide assistance and advise as required</li> <li>Provide agricultural training</li> </ul>

Component	Position	Qualifications	Responsibilities
	Livelihood Extension Officers (24 positions)	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"> <li>• Monitor progress of garden reestablishment</li> <li>• Facilitate access to agricultural inputs (seeds etc.)</li> <li>• Provide extension advice/support as required</li> <li>• Assist with agricultural training</li> </ul>
Non land-based	Livelihoods Advisor (non agricultural - two back-to-back positions)	Development and training experience	Implement the non land-based component of LRP
	Training Advisor	Training experience and experience in the coordination of external trainers	Training needs assessment Identify appropriate training programs 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 HQ1-3 households will consider grievances through the Grievance Procedure, which will apply across all Project activities. The 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 Grievance Procedure that has been adopted for the HQ1-3 RAP has been defined in the RPF. The Project will disclose information about the Grievances Mechanism to the affected HQ1-3 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 (Land & Community Affairs) personnel assigned to the HQ1-3 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 ([grievance@pnglng.com.pg](mailto:grievance@pnglng.com.pg)) 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 further detailed below:

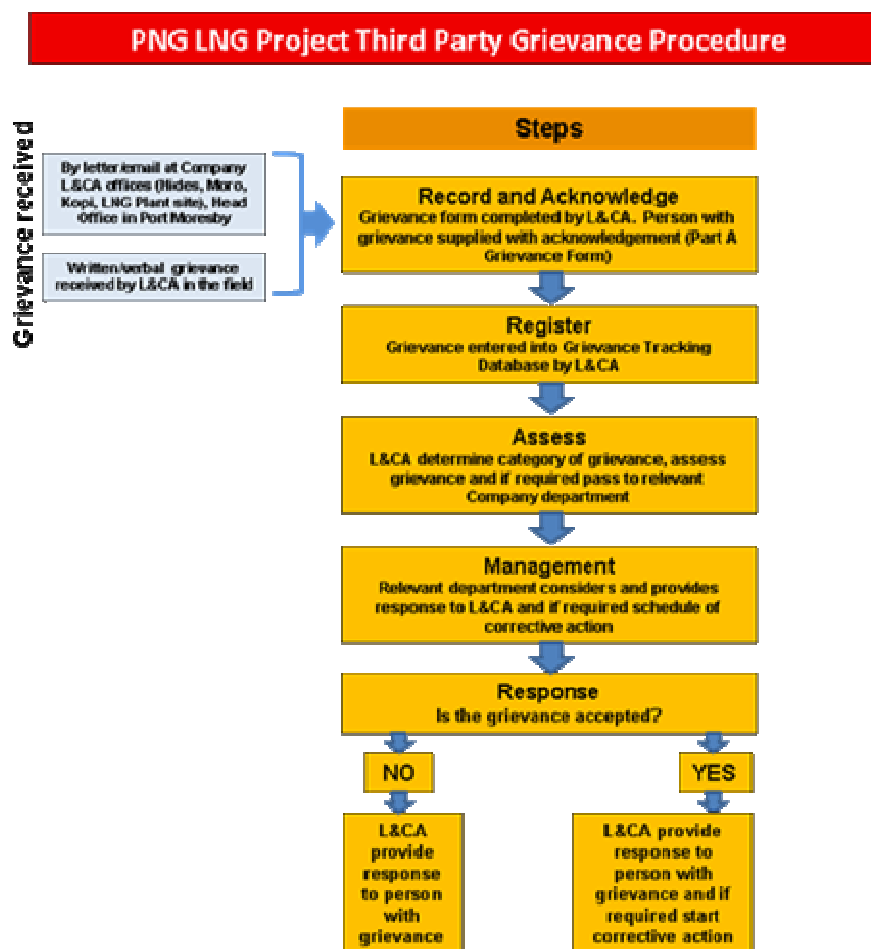


Figure 9-1: The Project Grievance Procedure

### 9.3 Recording and Acknowledgement

L&CA personnel will record all grievances, regardless of how they are received, 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 days of receipt of the grievance. This acknowledges receipt of the grievance and provides the person with a unique identification (tracking) number.

### 9.4 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 to avoid duplication and to determine whether there is any context or precedent related to the issue<sup>42</sup>.

### 9.5 Assets

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

<sup>42</sup> All past recorded grievances must be entered into the Grievance Tracking Database.

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.

## **9.6 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.

## **9.7 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.

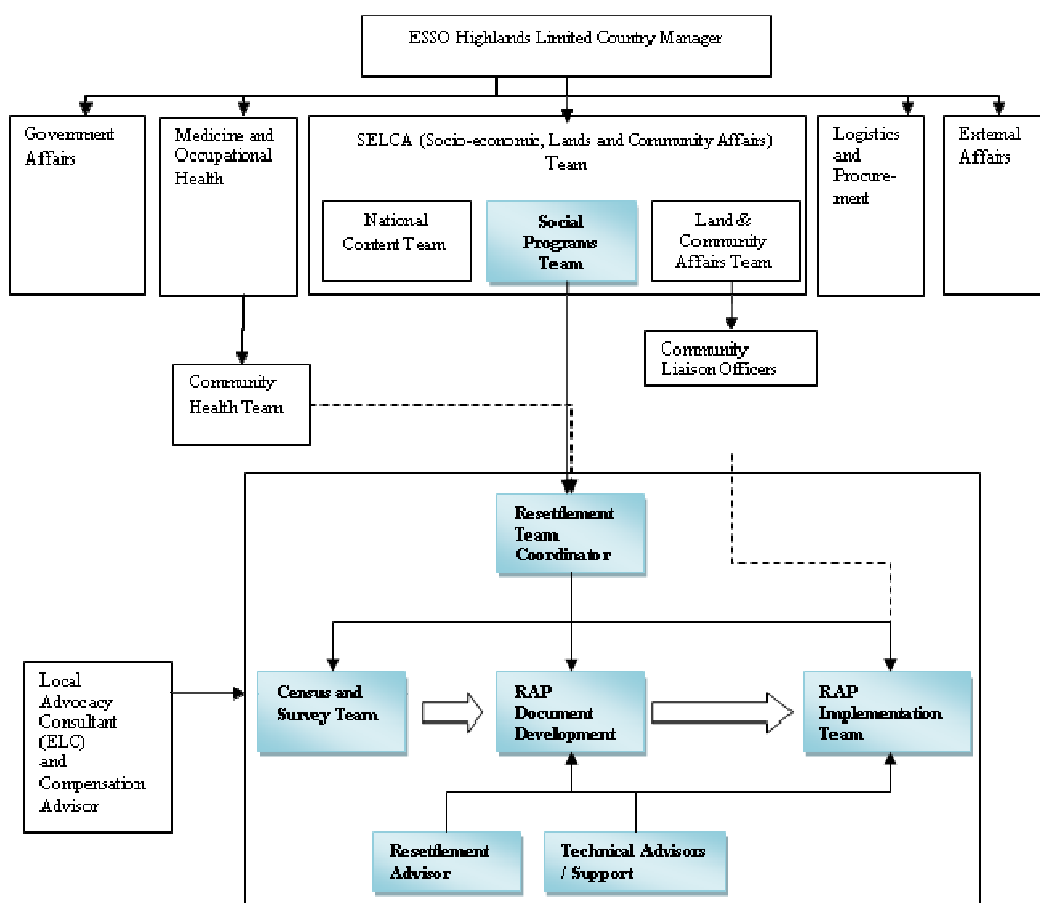
At present, a system of recording grievances is being implemented by the ELC, who are recording issues that cannot be resolved during the ongoing household consultation and negotiation process as grievances to be followed up by the Project.

## 10.0 ORGANIZATIONAL ROLES AND RESPONSIBILITIES

Overall responsibility for the planning, implementation, and monitoring of the HQ1-3 resettlement program rests with the Company as specified in the RPF. The Company's Social Programs Team will be undertaking these activities for the HQ1-3 program.

### 10.1 Organizational Structure

The relationship between the Social Programs Team and other relevant teams within the Company is illustrated in Figure 10-1.



Note: Organizational restructuring is underway that may result in minor changes to the organization chart

**Figure 10-1: Social Programs Team and relationship with other relevant teams within the Company<sup>43</sup>**

## 10.2 Roles and Responsibilities

The roles and responsibilities of each post undertaking the resettlement program, as defined in the RPF, are outlined below:

<sup>43</sup> This structure was revised in 2011.

### 10.2.1 Social Programs Manager

The Company's Social Programs Manager (SPM) has overall responsibility for achievement of resettlement goals. The SPM is responsible for gaining corporate approval for the HQ1–3 RAP and ensuring that it conforms to the RPF. The SPM will also receive regular progress reports on the implementation of the HQ1–3 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.

### 10.2.2 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 HQ1-3 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.

### 10.2.3 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.

### 10.2.4 RAP Document Development Team

The RAP Document Development Team (RDDT) is responsible for planning and preparation of individual site-specific RAPs, including the HQ1-3 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.

### 10.2.5 Resettlement Advisor

An expert advisor will review the HQ1-3 Draft RAP, and provide high-level input and guidance prior to documents being endorsed for distribution and implementation.

### 10.2.6 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 HQ1–3 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, non-nationals and PNG nationals with experience in the resource extraction industry, including resettlement at Lihir and Porgera.

A Senior Social Advisor and the overall Resettlement Team Coordinator support this field team. The RAP Implementation Team works closely with both the Resettlement Census and Survey Team, and L&CA.

#### 10.2.7 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 advisors 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 Community Health Team that reports to the Medical and Occupational Health Manager will manage the health element. 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.

### 10.3 Local Advocacy Consultant and Compensation Advisor

The Project has implemented two initiatives, Local Advocate and Compensation Advisor, to assist the HQ1–3 displaced people to be fully informed of and to better benefit from compensation and other entitlements. These measures are in 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.

## 11.0 MONITORING AND EVALUATION

This Section describes the Monitoring and Evaluation program that will be used for the HQ1–3 RAP implementation. The Monitoring and Evaluation (M&E) process is critical to achievement of the goal of resettlement – to restore livelihoods and improve 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 HQ1-3 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 HQ1-3 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 – education; health; investment; expenditure; etc., – 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 HQ1–3 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 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 HQ1–3 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 HQ1–3 RAP implementation to allow time for necessary actions prior to the completion audit.

During the first year of HQ1–3 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 HQ1–3 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-month 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 HQ1–3 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 Hides Quarry 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 HQ1–3

resettlement program. Additionally, the evaluation will capture lessons learned from the HQ1–3 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 HQ1–3 RAP.

### **11.2.2 Output Monitoring**

Outputs will be measured by a set of mainly quantitative indicators measured against the targets of each action. Preparation of an indicator matrix is in progress. 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 HQ1–3 that attended training and benefited from livelihood restoration programs.

### **11.2.3 Outcome Evaluation**

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, as established in the DSS baseline and SIA health stats.

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 HQ1–3 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. Other useful indicators will be household investment in income-producing activities, housing improvements, and purchase of 'luxury' items such as bicycles and radios.

## **11.3 Completion Audit**

An independent third party will conduct the HQ1–3 RAP completion audit. The completion audit's purpose will be to determine whether the company's undertakings (HQ1–3 RAP measures) to restore affected people's living standards and income streams were properly conceived and executed and have had the intended outcome, as measured against the baseline data on HQ1–3 affected people.

The completion audit will occur once all HQ1–3 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 HQ1-3. 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 Social Programs 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 (M&E) 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 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 followed:

*"By the year 2015, all households displaced by the PNG LNG 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."*

By achieving the outcomes listed in Table 11-1, 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, as well as targets for each indicator and 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 visas/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 timely.
		1.3.3	All required payments of compensation and invoices are paid timely.
	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 HQ1-3 area to inform the community of the Project and resettlement process.
	Input	2.1.1	An open disclosure process has been conducted, and all potential stakeholders informed of the process using appropriate language and terminology.
		2.1.2	The Project and resettlement process has been thoroughly explained to the HQ1-3 community and other stakeholders using appropriate language and terminology.

## 12.0 RESETTLEMENT IMPLEMENTATION SCHEDULE

Table 12-1 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 August 2010 with most implementation activities being undertaken over a four-month period. Ration deliveries continue for three months and the livelihood and monitoring programs extend over two years.

**Table 12-1: Implementation schedule**

Activity or Task	Actions	2010						2011+		
		J	A	S	O	N	D	J	F	M+
Planning	Completion of RAP									
Approvals	Internal Company approval of the RAP									
	RAP approval by Lenders' Independent Environmental and Social Consultants (IESC)									
	Internal approval of detailed implementation work plan									
	RAP Summary to community									
	Ration & building material mobilization									
Land issues	Confirm resettlement sites and water sources.									
Confirm and finalize compensation agreements	Carry out final identification of vulnerable households requiring assistance									
	Verify inventories of affected land and assets (incl. special valuations)									
	Finalize entitlement contracts (housing and compensation agreements)									
	Transit allowance, distribution tools, and nets									
Compensation payments	Cash payments									
	Ration distribution.									
	Housing package, distribution materials and advisors									
	IBD deposits									
Relocate households to new sites	According to phases of construction									
Community projects	Water points									
Graves, spiritual and other cultural sites	Relocate/recover									
Livelihood restoration and development measures (see detail schedule)	Replacement of gardens									
	Non-agricultural training and agribusiness programs									
	(July 2012)									



Verification and monitoring	Design and implementation of monitoring and evaluation system (ending July 2012)									
	Local advocacy and compensation advisors									
	Internal monitoring									
	External evaluation (including completion audit)									

## **13.0 COST AND BUDGET ESTIMATE**

### **13.1 Introduction**

This section provides a summary of costs to replace and compensate assets as defined in the housing and compensation agreements, community projects, and mitigation programs to restore and improve livelihoods. These cost estimates reflect the budget commitments of the company relating to the resettlement of households at the HQ1–3 site.

Compensation rates used reflect the equivalent of current market 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 and 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 Company has committed to applying Full Replacement Value (FRV) rates for all gardens and trees either individually or communally owned. Resources will be engaged 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. Damage to all ditches, fencing, and drainage will be compensated, independent of any crop and tree assessments.

#### **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 & Gas Act. Other structures will be assessed or valued according to the circumstances of each and compensation equal to the cost of replacement provided, such as pig pens and garden houses.

#### **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 and Resources**

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 are paid at FRV. These payments are not included in the totals below, as they are financed from a separate budget, but include the following:

#### **13.3.1 Annual Rental – In-Principle Agreement (IPA)**

Through the IPA process managed by Land & Community Affairs, the company pays the Landowners at a rate of K700 per year for each hectare of land occupied (but not otherwise damaged) by the Company. This payment is 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 & Gas Act.

#### **13.3.2 Compensation for Land Surface Damage**

Landowners that incur land surface damaged 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 the components listed directly above through a single payment to the Landowner(s) for damage

on their land to the natural bush, birds, and fish. The rate paid is 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 & Gas Act.

#### 13.3.4 Gravel Royalty

The Company will pay royalty for every cubic meter of gravel, sand, or stone within the QA1 license area, measured in situ, which is taken and used by the Company for civil construction or maintenance works. This royalty was originally negotiated at K1.50 per cubic meter, plus a non-disruption premium of K0.30 per cubic meter. This rate is currently being renegotiated.

#### 13.3.5 Compensation for Impacts on Water Sources

Provision has been included to restore access to community water resources, should these be lost during road construction.

### 13.4 Community Infrastructure

The Hides Quarry Road development does not directly affect any community buildings – these are addressed in the HGCP RAP. Access to water points may be restricted, so two replacement structures are planned for the larger community, together with the similar structures being constructed around the HGCP site.

### 13.5 Livelihood Restoration

Provision has been made for livelihood restoration programs for resettlement-affected households as outlined in Section 7.3.

### 13.6 Monitoring and Evaluation

Internal and external resources will undertake Monitoring and Evaluation.

### 13.7 Total Costs

Table 13-1 provides a summary of costs to replace and compensate assets as defined in the housing and compensation agreements, community assets, and mitigation programs to restore and improve livelihoods. In addition, provision is included for the one-off IPCA payments to the clans, who also receive an annual rental payment of K700/ha<sup>44</sup>. Total costs for the HQ1-3 resettlement process will be approximately US\$1.22 million, as summarized in Table 13-1.

**Table 13-1: Resettlement costs**

Item	Total US\$ (million)
Asset and garden compensation <sup>45</sup>	0.55
Livelihood and other assistance	0.18
Community development projects	0.27
IPCA payments	0.17
Other	0.05
<b>Total</b>	<b>1.22</b>

<sup>44</sup> All IPCA payments will be reviewed to confirm equivalence to FRV.

<sup>45</sup> Tree and garden crop compensation payments will reflect Full Market Values.