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NATURAL GAS PROJECT

TEMANE AND PANDE GAS FIELD DEVELOPMENT MOZAMBIQUE/SECUNDA PIPELINE

VOLUME 1 OF 4

RESETTLEMENT PLANNING AND IMPLEMENTATION PROGRAMME

Final

SASOL

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TEMANE AND PANDE GAS FIELD DEVELOPMENT MOZAMBIQUE/SECUNDA PIPELINE

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RESETTLEMENT PLANNING AND IMPLEMENTATION PROGRAMME

Final

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EXPLANATORY NOTE TO THE RPIP

This document is submitted to the World Bank for purposes of meeting the financing requirements in accordance with the Safeguard Recommendations issued to Sasol by the World Bank in December 2002. Drafts of this document have been submitted to The World Bank and other stakeholders for inputs and comments prior to the finalisation of the documents and comments have been noted, heeded or otherwise attended to. This document is submitted as a final version for clearance by the World Bank (AFTES), submission to the World Bank Board for purposes of financing approval and disclosure at the Infoshop in Washington. The document will also be disclosed and made publicly available by Sasol in South Africa and Mozambique as required and explained herein. The document reflects the status of the Natural Gas Project (NGP) as at the end of July 2003.

Reference made to Sasol as part owner and operator on the NGP (unless otherwise particularly stated or unless the context or usage in this document or any other document cross-referenced or summarised herein would indicate otherwise, in which case reference to Sasol in its context may refer to a particular business unit within the Sasol Group of Companies) herein refers to:

- *Sasol Gas Holdings (Pty) Limited*, the Guarantee Holder as defined in the Contract of Guarantee entered into with the Multilateral Investment Guarantee Agency on or about 20 December 2002 under No: 0384-01-01; and
- *The Republic of Mozambique Pipeline Investments Company (Pty) Limited (ROMPCO)* as the borrower under the Contracts of Guarantee to be entered into for non-shareholder loans and the long term financing agreements already concluded and those yet to be concluded as far as the pipeline portion of the Sasol Natural Gas Project (NGP) is concerned, and
- *Sasol Petroleum International (Pty) Limited (SPI)* as the Guarantee Holder defined in the Contract of Guarantee entered into with the Multilateral Investment Guarantee Agency on or about 20 December 2002 under No: 0384-01-02; and
- *Sasol Temane Limitada (SPT)* as the borrower under the Contracts of Guarantee to be entered into for non-shareholder loans and the long term financing agreements already concluded and those yet to be concluded as far as the *Upstream Portion* of the NGP is concerned.

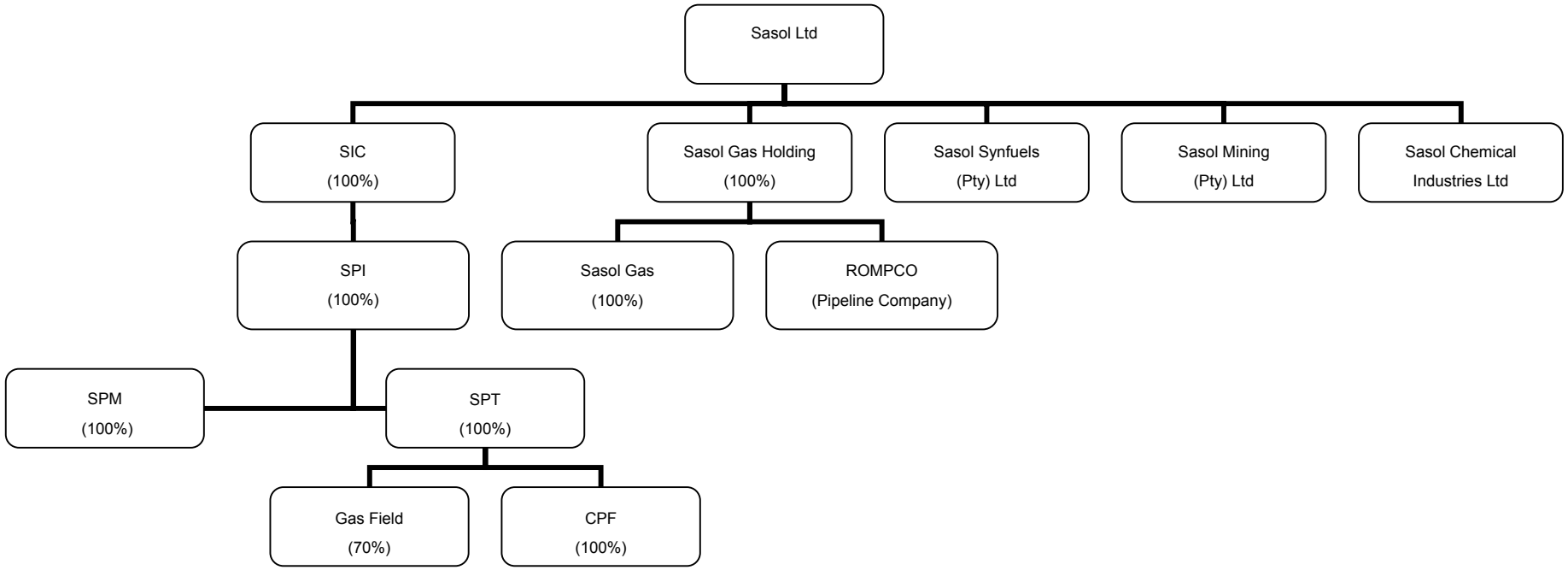
The *Upstream Portion* of the NGP means the finance, development, exploitation, operation and maintenance of the natural gas fields at the Pande and Temane gas fields in Mozambique and the finance, design, construction, operation and maintenance of a central processing facility in Mozambique, to the extent undertaken by SPT.

The *Pipeline Portion* of the NGP refers to the design, development, financing, construction, ownership, testing, commissioning, operation and maintenance of the natural gas transmission pipeline, undertaken by ROMPCO.

To the extent that other parties are referred to herein, the following should be noted:

- such references form part of observations only;
- when recommendations are made to, involving, or implicating such parties, such references should not be construed to be binding on, or to form an obligation or potential obligation made by Sasol on behalf of the party concerned.

Sasol Company structures involved in the Natural Gas Project are illustrated below:



FOREWORD

Underlying commercial agreements with the Government of Mozambique, regarding the development and the exploration of the Temane and Pande Gas Fields, gave rise to responsibilities and obligations for Sasol, as part owner and operator on the NGP, with regard to resettlement and compensation of affected parties relating to the infringement of their property rights due to activities related to the NGP.

A consultative approach was adopted to effect resettlement and compensation and agreement was reached with the Government of Mozambique regarding the development of a framework and procedures to ensure the fair and equitable treatment for all the affected parties. Sasol subsequently constituted a Joint Task Team (formerly known as the Resettlement and Compensation Task Group) in May 2001, with the blessing and support of the Government of Mozambique, to develop and facilitate the implementation of the required framework and procedures, to investigate and propose fair and equitable compensation calculation formulae and to monitor resettlement activities. The framework and procedures were internally approved and adopted in October 2002. These procedures were also incorporated into the Pipeline and Gas Field Development Plans, relating to the NGP, and formally approved by the Government of Mozambique.

Sasol developed an initial Resettlement Action Plan based on the approved procedures. Due to the fact that less than 50 households were affected by the execution of the plan and the roll-out of the NGP, the GOM exempted Sasol from obtaining formal governmental approval of this plan. However, this plan was expanded to a full scale Resettlement Action Plan in December 2002 to meet the requirements of the contracts of Guarantee between Sasol and the Multilateral Investment Guarantee Agency (“MIGA”) No 0384-01-01 and No 0348-01-02. To meet the financing requirement of the World Bank as per the Safeguard Recommendations issued to Sasol in December 2002, Sasol adapted the Resettlement Action Plan to a Resettlement Planning and Implementation Programme, based on the prescribed format and requirements of the World Bank. As such, Sasol thus adopted and applied World Bank Group policies, procedures, directives and standards as contained in Operational Policy 4.12 Involuntary Resettlement (OP 4.12), Bank Procedure 4:12 Involuntary Resettlement (BP 4,12) and Operational Directive 4.30: Involuntary Resettlement (OD 4.3).

The Resettlement Planning and Implementation Programme comprises four volumes, as explained below. The reader is referred to the executive summary, contained herein, to obtain a good overview of the RPIP. It has been agreed with the World Bank that Volumes 2 – 4 can be submitted subsequently to the clearance and approval of the RPIP, contained in Volume 1:

- Volume 1: Resettlement Planning and Implementation Programme.
- Volume 2: Land Settlement Plans (replacement housing).
- Volume 3: Land Use Plans (replacement machambas).
- Volume 4: Monitoring and Evaluation Programme.

All the volumes will be publicly disclosed at the World Bank Infoshop (http://www.worldbank.org/infoshop/), the NGP website http://w3.sasol.com/natural_gas//) and at the specific venues in South Africa and Mozambique as explained herein (See table hereunder).

Venue	Location
MOZAMBIQUE	
World Bank Offices	Maputo
Impacto Lda	Maputo
Ministry for the Coordination of Environmental Affairs (National Department – Mozambique (MICOA)	Maputo, Xai Xai, Inhambane, Matola
Direcção Nacional de Carvão e Hidrocarbonetos (DNCH)	Maputo
Sasol Temane Lda	Maputo
Municipal Offices	Matola, Inhassoro, Vilanculos
Governors Offices	Matola, Xai Xai, Inhambane
District Administrators Offices	Vilanculos, Inhassoro, Funhaloro, Mabote, Chokwé, Moamba, Maputo, Vilanculos,
Public Libraries	Maputo, Matola
SOUTH AFRICA	
Public Libraries	Bethal, Badplaas, Barberton, Kanyamazane, Komatipoort, Malelane, Nelspruit
Mark Wood Environmental Consultants	Honeydew, Johannesburg
Sasol Petroleum International (Pty) Ltd	Rosebank, Johannesburg
Sasol Technology (Pty) Ltd	Secunda

Documentation will be available in English and Portuguese.

Resettlement and compensation activities are ongoing and the RPIP provides background on the resettlement and compensation already executed on the NGP and still to be executed on the NGP. The RPIP thus remains a living document providing a framework and procedures for resettlement and compensation according to which Sasol will act on issues resulting from the NGP.

Sasol's Statement of Commitment to Resettlement and Compensation Responsibilities and Obligations on the NGP

Sasol welcomes the opportunity to have collaborated closely with the Government of Mozambique, the World Bank and other stakeholders to develop the Resettlement and Implementation Programme ("RPIP") for the NGP. Sasol considers the contents of the RPIP to provide a responsible framework and procedures according to which fair and equitable resettlement and related compensation of parties affected by the NGP were and will be ensured.

Sasol recognises that the NGP's operations and activities, as well as those of its partners, had and still may have resettlement and related impacts, such as property right infringement of affected parties as indicated in the RPIP and other relevant documents. As a responsible company, operating both locally and internationally through various business units, Sasol accepts its responsibility to manage these impacts on affected parties, directly associated with the NGP and that are within its control, in order to ensure the long-term sustainability of the project.

This commitment has already and will be effected by Sasol within the ambit, scope and objectives of any or all of the following:

- Honouring its obligations and responsibilities with regard to resettlement and compensation, arising from the RPIP, commercial and financing agreements pertaining to the NGP and other documents, such as the RESA, prepared as generic or project specific documents on the NGP;
- Providing appropriate and responsible resources, such as the Joint Task Team and the Resettlement Working Group, to implement the above.

Sasol further recognises that this commitment will require a dynamic approach, which will be adaptable, adjusting to changing circumstances including the availability of new information and the sharing of knowledge and further consultation with stakeholders, including partners, communities and the governments concerned.

SUMMARY RESETTLEMENT TABLE

As at 6 May 2003

Project component	Graves		Machambas			Homesteads		Other		
	No	Value (USD $)	No	Area (ha)*	Value (USD $)	No	Value (USD $)	No	Value (USD $)	Description
Seismic	14	1,756.81	1,533	47.00	265,570.64	0	0	4	165.91	Structural damage, livestock
Gas Field	3	600.91	384	97.74	154,223.03	11	70,000.00	1	22.73	Structural damage
Pipeline	6	781.10	164	10.99	29,886.21	3	1,431.82	40	31,742.13	Government-owned timber (9,445.273 m^3)
Total	23	3,138.82	2,081	155,73	449,679.88	14	71,431.82	45	31,930.77	

*The area quoted is land under cultivation for annual crops. It does not include land where only tree/perennial crop damage occurred

Please note that the values quoted above are actual values that do not reconcile with cost estimates provided in the Resettlement Planning and Implementation Programme. This is because of exchange rate fluctuations and the fact that some compensation activities, for example, a second round of machamba compensation payments on the pipeline, have been provided for in the estimate of cost but have not yet occurred.

DEFINITIONS

The following definitions apply for purposes of compiling this Resettlement Planning and Implementation Programme:

▪ Affected	:	Any person, party, household or homestead directly and actually affected by the project and that needs to be resettled or suffers damage caused by construction.
▪ Construction Area	:	Area of land (37 ha) demarcated for purposes of the CPF, including the main access road of 3.1 km in length and occupying servitude of 10 metres wide. Also included in this definition are areas zoned for well heads and flow lines, as well as an area 30 m wide over the total length of the pipeline from Ressano Garcia to Temane.
▪ Consequential Damage	:	The prolonged damage suffered by an affected party, after the original payment of compensation, as a result of continued construction activities that prohibit an affected party from continuing with normal agricultural activities. This damage relates only to cash crops.
▪ Construction	:	The physical activities required for the construction of any structures related to the Natural Gas Project.
▪ Exchange Rates	:	One US Dollar = 10.00 South African Rand (US $ 1.00 = R 10.00).
	:	One South African Rand = 2 200 Mozambican Meticais (R 1.00 = 2 200 Mts).
	:	One US Dollar = 22 000 Mozambican Meticais (US $ 1.00 = 22 000 Mts).
	:	These exchange rates are used for the purpose of this report only.
▪ Field Worker	:	Qualified persons appointed by Sasol to accompany construction teams and negotiate compensation.
▪ Homestead	:	A number of households all residing on the same property. This includes buildings but not machambas.
▪ Joint Task Group	:	Resettlement and Compensation Joint Task Group, a working group consisting of representatives from Sasol and GOM appointed by and reporting to the Project Liaison Committee.
▪ Machamba	:	Subsistence farming plot.
▪ Natural Gas Project	:	Sasol's investment comprising three primary activities, viz. exploration, gas field development and pipeline construction.
▪ Resettlement	:	The temporary or permanent loss of access to land, damage to public and private property, permanent physical and economic displacement, the relocation of graves as well as any compensation payable in terms thereof.

ACRONYMS

AR	Access Road
BP	Bank Procedure
CIF	Community Interface Forum
CMH	Companhia Moçambicana Hidrocarbonetos SARL
CPF	Central Processing Facility
DINAGECA	Direcçe o Nacional de Geografica e Cadastral
DNCH	Direcçe o Nacional de Carve o e Hidrocarbonetos
ENH	Empresa Nacional de Hidrocarbonets de Mozambique
EN1	National Road No 1
EPC	Engineering, Procurement and Construction
EPCM	Engineering, Procurement, Construction and Management
FL	Flow Line
GOM	Government of Mozambique
INIA	Instituto Nacional de Invetigação Agronómica (National Institute for Agricultural Research)
INPF	Instituto Nacional de Planeamento Fisica (National Institute for Physical Planning)
ISO	International Organisation for Standardisation
M&E	Monitoring and Evaluation
MICOA	Ministério Para a Co-ordenaçe o Accâo (Ministry for the Co-ordination of Environmental Affairs)
MIGA	Multilateral Investment Guarantee Agency
Mts	Meticais
NEMP	National Environmental Management Programme
NGO	Non Government Organisation
OD	Operational Directive
OP	Operational Policy
PLC	Project Liaison Committee
PPZ	Zone of Partial Protection
RAP	Resettlement Action Plan
RPIP	Resettlement Planning and Implementation Programme
RT	Resettlement Team
RWG	Resettlement Working Group
SDAP	Social Development Action Plan
SDF	Social Development Fund
SIC	Sasol Investment Company
SPTL	Sasol Petroleum Temane Limitada
TPDP	Temane/Pande Development Project
UEM	Universidade Eduardo Mondlane
US	United States

EXECUTIVE SUMMARY

BACKGROUND

Mozambique's natural gas resources have been under investigation for a number of years. Via an exploration agreement that covers the Exploration Block and a Petroleum Production Agreement that covers the Temane and Pande Gas Fields, Sasol, along with its Mozambican affiliate companies, was granted exploration rights in the northern parts of Inhambane Province, southern Mozambique. The Petroleum Production Agreement for the development and production of the Temane and Pande Fields was signed on 26 October 2000 by Sasol, Companhia Moçambicana Hidrocarbonetos SARL and the Government of Mozambique, and during November 2001, Sasol obtained Government approval for the Natural Gas Project. The purpose of the project is to pipe natural gas to Secunda, South Africa, for processing and onward distribution in South Africa for industrial applications.

Within Mozambique, the Natural Gas Project comprises three primary activities, viz. exploration, gas field development and operation, and pipeline construction and operation (Temane to Ressano Garcia). Each of the above three primary activities has unique resettlement requirements that are captured and addressed in this Resettlement Planning and Implementation Programme that has been compiled in accordance with World Bank Group policies, procedures and standards. Agreement has been reached that the principles, processes and actions taken thus far meet World Bank standards.

The purpose of the Resettlement Planning and Implementation Programme is to facilitate the equitable and fair treatment of all people affected by the Natural Gas Project insofar as resettlement and related aspects (such as property rights infringements) are concerned. The Resettlement Planning and Implementation Programme also makes provision for everyone to be treated in the same manner and assists in achieving consistency between various Sasol-related resettlement activities in Mozambique. Importantly, the Resettlement Planning and Implementation Programme comprises four volumes, viz. this *planning and implementation rep*ort plus two detailed *land use planning reports* (for replacement housing and replacement machamba lands) and a report for an *on-going monitoring and evaluation programme* to follow existing *compliance monitoring* [the latter three are still in preparation and it is expected that they will be released into the public domain by the end of August 2003].

Resettlement Planning and Implementation Framework
For resettlement aspects related to the Natural Gas Project, Sasol has adopted and implemented World Bank Group policies, procedures, directives and standards as contained within Operational Policy 4.12: Involuntary Resettlement (OP 4.12), Bank Procedure 4.12: Involuntary Resettlement (BP 4.12) and Operational Directive 4.30: Involuntary Resettlement (OD 4.30). The primary objectives of the policy, procedure and directive, as envisaged, are as follows:

- Involuntary resettlement should be avoided where feasible, or minimised, exploring all viable alternatives.
- Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed in a sustainable manner, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits.
- Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programmes. Indeed, community participation is integral in the planning and implementation of resettlement.
- Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, which ever is higher.

Statement of Resettlement Objectives
Sasol adopted the following resettlement objectives:

- To avoid resettlement where ever feasible through integrated and iterative planning.
- Where resettlement is unavoidable:
  - To minimise the scope, magnitude and impact of resettlement.
  - To treat all persons affected by resettlement (resettlers) with respect, dignity and fairness.
  - To pay resettlers fair and equitable compensation to the extent that they are affected by resettlement.
  - To assist resettlers in adapting to their new environment.
  - To monitor the effects of resettlement for a period of four years and to take the necessary actions to address resettlement problems that may arise.
  - To promote resettler socio-economic development through the formulation and implementation of a comprehensive corporate social responsibility programme.

Scope of the Resettlement Planning and Implementation Programme
The Resettlement Planning and Implementation Programme is being drafted partially as future intent and partially as work already completed (activities that were undertaken within the provisions of the Resettlement Planning and Implementation Programme). This is not considered as a constraint because from the outset of the project, Sasol and Government of Mozambique established a Joint Task Group to deal with resettlement matters.

The project comprises exploration, gas field development and pipeline construction. These project categories have been sub-divided into zones of potential impact, viz. homesteads, agricultural lands (mainly machambas) and graves.

Approach and Methodology
Data gathering was slightly different for each of the three project categories. However, in each case, the information gathered was used as baseline data for purposes of resettlement planning and implementation.

Exploration activities involved demining, surveying and bush clearing cut lines to enable seismic exploration personnel and equipment to undertake their exploration activities.

The development of the gas field involves the construction of a Central Processing Facility and ancillary infrastructure, the sinking of wells and the linking of wells to the Central Processing Facility via flow lines, most of which have an adjacent service road. During planning, utilising existing information and ground verification, gas field layouts were revised on an iterative basis to minimise resettlement requirements. Despite this resettlement was unavoidable.

Construction of the pipeline involves demining and bush clearing the entire route thereby establishing a “right of way” for the project. The “right of way” is 30 m wide and is the area in which all pipeline construction activities occurs. During planning, significant work was undertaken to quantify the potential social impacts associated with the pipeline. Arising from the preparatory work was the opportunity to align the pipeline “right of way” in such a manner to minimise social impacts and avoid physical displacement as far as is practically possible. Nevertheless, complete avoidance was not possible and, therefore, resettlement is required.

The Joint Task Team established fixed values in hard currency (US Dollars) for all entities impacted upon. These values are applied in-field to the number of entities affected. Compensation claims are calculated in US Dollars but are paid in Mozambican Meticais using the ruling exchange rate on the date of payment.

In terms of consultation and participation, this has occurred with the Authorities at all levels, with the Government of Mozambique and with Traditional Authorities. Two key features of authority consultation and participation are the establishment of the Joint Task Force and the accompaniment of Resettlement Team members by government representatives. Additionally, Sasol deploys a full-time Community Liaison Team that has on-going discussions at all levels within the Government of Mozambique and amongst affected communities.

Community consultation and participation have been on-going from the commencement of the Natural Gas Project. Sasol has also compiled and published a Comprehensive Executive Summary. A comprehensive record of all consultation is provided in Appendix 4.

DESCRIPTION OF KEY ELEMENTS OF THE NATURAL GAS PROJECT WITHIN MOZAMBIQUE THAT GIVE RISE TO RESETTLEMENT IMPACTS

The Natural Gas Project comprises three primary elements within Mozambique, viz. the exploration of the gas fields of Temane and Pande, and the Exploration Block, the development of the gas fields and the construction and operation of an underground pipeline from the CPF to Ressano Garcia.

Exploration involved the following main activities:

- Establishment of a temporary central base camp accommodating offices, workshops and accommodation for 150 staff.
- Deployment of teams to demine predetermined cut line routes.
- Deployment of bush clearing teams to clear cut lines of all vegetation. The cut line width was 6 m, but wider in sections to accommodate seismic equipment and machinery.
- Deployment of teams to undertake seismic testing involving the drilling of shallow boreholes (200 m), the generation of vibrations at 40 m intervals and the collection of seismic velocity data from within the boreholes.
- On completion of seismic testing on a particular cut line, cleared areas were left to regrow/revegetate in accordance with the approved environmental management programme.

Resettlement impacts arising from the above activities related mainly to grave exhumation and reburial, crop losses and temporary loss of access to machamba lands. Apart from minor accidental damage to infrastructure and the death of one goat, no infrastructure or homesteads were impacted upon during seismic exploration. Where these were encountered on a cut line, they were avoided by altering the predetermined route of the cut line.

Gas field development involves a number of different but interrelated activities/project components:

- Central Processing Facility.
  The planning of this facility was undertaken in such a manner to avoid resettlement. As a consequence, there are no associated resettlement impacts.
- Zone of Partial Protection.
  Resettlement impacts arising from the Zone of Partial Protection relate to the permanent displacement of five homesteads and 22 machambas and crop losses from the 22 machambas.
- Main Access Road.
  Resettlement impacts arising from the construction and operation of the main access road relate to the permanent displacement of four homesteads and 16 machambas, inclusive of crop losses from the 16 machambas.
- Wells, Flow Lines, Access Roads and Ancillary Works.
  Resettlement impacts related to wells, flow lines, access roads and ancillary works relate to grave exhumation and reburial, the replacement of two homesteads, crop losses and the temporary and permanent displacement of 346 machambas.

The *pipeline* from the Central Processing Facility at Temane to Ressano Garcia will cover a distance of approximately 520 km. Construction of the pipeline involves demining and bush clearing the entire route thereby establishing a "right of way" for the project.

Resettlement impacts related to the pipeline are crop losses, the temporary loss of access to machamba and commercial farmlands, the exhumation and reburial of graves, the permanent displacement of homesteads and timber crop losses by the Government.

MACRO LEGISLATIVE, POLICY AND REGULATORY FRAMEWORK

The purpose of this section is to provide an overarching understanding of the legislative policy and regulatory framework within which the Natural Gas Project is being implemented with regard to the use of land, resettlement and compensation.

An Environmental Impact Assessment has been completed for the development, operation and decommissioning of the Natural Gas Project in Mozambique, as a requirement of Mozambican Environmental Legislation (Government Decree 76/98).

In terms of *relevant legislation*, the following aspects are covered within the Resettlement Planning and Implementation Programme:

- Power of the eminent domain.
- Land.
- The Environment.
- Archaeology.
- Petroleum Law.

Policy aspects that are covered within the Resettlement Planning and Implementation Programme are the National Environmental Management Programme and the Service Infrastructure Code. The *regulatory environment* deals with Environment Law No 20/97, the Land Law and resettlement/expropriation and compensation.

Also discussed are *international best-practice guidelines and standards in environmental management* that cover World Bank Operational Directives and principles underpinning the ISO (International Organisation for Standardisation) system. In each case, *implications* for the Resettlement Planning and Implementation Programme are discussed. This section of the Resettlement Planning and Implementation Programme ends with a description of the *grievance mechanism* adopted for the Natural Gas Project.

INSTITUTIONAL ARRANGEMENTS/ORGANISATION RESPONSIBILITIES

This section of the Resettlement Planning and Implementation Programme describes roleplayers, their functions and their responsibilities as related to resettlement associated with the Natural Gas Project.

The composition of Sasol as applicable to the Natural Gas Project is illustrated and described. However, more importantly, Sasol representatives and their responsibilities are discussed within the context of linkages between Sasol and Government of Mozambique to achieve timeous and trouble-free resettlement. In this regard, Sasol has set two key resettlement objectives:

- To achieve trouble-free and timeous resettlement to provide a strong basis for on-going positive community relations into the future.
- To achieve resettlement that is fully compliant with the provisions of World Bank Group Operational Policy 4.12: Involuntary Resettlement, Bank Procedure 4.12: Involuntary Resettlement and Operational Directive 4.30: Involuntary Resettlement.

In this regard, Sasol has three key areas of responsibility:

- Management (including on-going liaison with the GOM, the Contractor and communities).
- Auditing (on-going monitoring of project implementation).
- Monitoring and Evaluation (post-implementation).

To achieve its objectives and meet its responsibilities, Sasol has appointed a full-time Project Manager who manages the interests and responsibilities of Sasol via a Resettlement and Compensation Task Group (Joint Task Team) and a Resettlement Working Group (RWG). Furthermore, independent contractors, various government departments and institutions, and non-government organisations assist Sasol in its activities.

DESCRIPTION OF THE ENVIRONMENT

The Natural Gas Project comprises three primary elements within Mozambique that have a vast area of influence covering three provinces, viz. Inhambane, Gaza and Maputo.

Gas Field (Exploration and Gas Field Development)
The Temane and Pande Gas Fields and Exploration Block are located south of the Save River in Inhambane Province within the Inhassoro (Temane) and Govuro (Pande) Districts. The other district comprising the study area is Vilankulo.

The study area comprises a broad coastal plain. The Govuro River flows parallel to the coast from north to south and bisects the study area. There are a number of uniform, small, coastal barrier lakes in the study area. Most of the soil types in the study area are of medium to low fertility. The area supports eight broad-scale vegetation types that are floristically diverse. This diverse vegetation provides a variety of habitats for animals supporting rich faunal diversity. Fauna and flora have been disturbed by peoples' influence. Nevertheless, a number of bird species were observed during field investigations.

The Vilankulo, Inhassoro and Govuro Districts that form the study area comprise urban, semi-urban and rural areas supporting well-established settlements and scattered populations. In general there are three distinct settlement types in the study area, viz. between the coast and the EN1, west of the EN1 and low lying flood plains of the Govuro and Save Rivers.

The 1997 population estimates for Inhassoro, Govuro and Vilankulo Districts were 43,406; 29,031 and 113,045 people, respectively. This accounts for approximately 18% of the population of Inhambane Province.

There are few formal income earning opportunities for the population in the study area. The majority of the population relies on subsistence agriculture for survival. Given the low socio-economic status of the population, there is still a high reliance on natural resources. In terms of the use of plants by local people, the natural vegetation of the area plays a very important role in the home economy, health, subsistence and cash earning potential of the local people.

Vilankulo has good transport linkages, while Inhassoro and Govuro have only reasonable transport linkages. Communications in the districts are poor. According to the 1997 census, 54% of the population over the age of five years could not read or write. This is reflective of inadequate primary and secondary education facilities in the three districts. Health service facilities in all three districts are limited, the only hospital is situated in the town of Vilanculo. There is little potable water and sanitation facilities in the province are also poor. There are no water borne sewerage reticulation or treatment plants in the area. Development in the three districts is co-ordinated by the Government.

Pipeline

The pipeline extends 520 km and traverses three provinces viz. Maputo, Gaza and Inhambane. Five geological forms have been identified along the route. In general, the route traverses sediments that are related to various cycles of marine transgression and regression with few rocky outcrops.

Four major landforms typify the pipeline route, viz. mountainous system of the Lebombo Mountains, denuded basaltic undulating plains, depositional littoral sandy plain and alluvial plains. Eight soil units occur along the pipeline route. The area shows small variations in terrain. The area traversed experiences hot summers and mild dry winters.

Major surface hydrological features comprise 13 rivers. There are five different categories characterising ground water along the route. There are eight vegetation types that predominate along the route. Fauna generally comprises small- to medium-sized herbivores, bats, rodents, snakes, reptiles, amphibians, small carnivores and a variety of birds.

The area traversed by the pipeline covers three provinces and eleven districts and as can be expected, the social and socio-economic environments vary greatly.

Population densities along the route are uniformly low, with the exception of Chokwe and Guija and the Massinga District. The average household size has been determined at 5.21 people with 76% of households being native to their areas of residence. In the absence of formal employment opportunities, subsistence agriculture serves as an extremely important survival strategy. Livestock is an important source of food and income, with game meat being an important source of protein. There is a high reliance on natural resources and natural vegetation plays an important role in the home economy, health, subsistence and cash earning potential of the local people.

Social infrastructure and services varies significantly between the districts and provinces along the route traversed by the pipeline. Primary, secondary and rural roads feed off the EN1, primarily to towns, villages, areas of economic activity and important infrastructure. There are air transport links from Maputo City to Inhambane and Vilanculo. Telecommunications throughout the area are variable. Water and sanitation provision is also extremely variable in the area. In district centres there is piped water supply and water borne sewerage of variable frequency and efficiency. In rural areas, communal fountains provide safe drinking water and use is generally made of pit latrines. In summary and in general, the eastern districts are more developed than those in the west. Development in the three provinces is co-ordinated by the Government.

COMPENSATION

Compensation principles consistent with the provisions of Operational Policy 4.12: Involuntary Resettlement, Bank Procedure 4.12: Involuntary Resettlement and Operational Directive 4.30: Involuntary Resettlement apply. These principles have been approved as fair and equitable, and were signed off by the Joint Task Team.

Only people resident in the areas demarcated for exploration prior to commencement of survey activities are eligible for material compensation arising from their resettlement.

The approach and methodology can be summarised as follows:

- At the earliest opportunity, areas that will be impacted are identified and annotated on maps and aerial photographs. After issuance of the land-use authorisation, these areas are demarcated on the ground.

- Thereafter, baseline surveys are undertaken to:
  - Identify affected persons, parties or homesteads and to register names and record details.
  - Identify local community leaders/representatives to assist in this process.
  - Estimate the magnitude of the impacts relative to the need for resettlement and/or compensation.
  - Compile a land register.
  - Value compensatable assets.
  - As soon as possible thereafter, compensation offers are formulated and agreements signed with affected people.
- Sasol provides alternative land (if applicable), inclusive of ancillary support services, for example, transport for physical resettlement, the provision of housing, the provision of crop starter packs and replacement trees, and food support.
- Resettlement after-care and assistance are also provided to those people physically resettled.
- Following resettlement, Sasol will monitor and evaluate the resettlement process as well as the re-establishment of sustainable livelihoods by those affected by resettlement

Affected people residing within a project-affected area will be eligible for compensation in so far as their rights have been affected or infringed upon due to project related activities. Up to the drafting of the Final Resettlement Planning and Implementation Programme, payment of compensation to affected persons has been effected as soon as is practically possible. This relates to logistical arrangements along a linear development located, in part, in remote areas of the country. In some instances, affected persons have lodged complaints that the payment of compensation is too slow. However, on most occasions it has been determined that affected persons could not be traced at the time of compensation payments and that, therefore, their payment of compensation had to stand over until the next payment session. At the time of drafting the Final Resettlement Planning and Implementation Programme, there are few outstanding compensation payments.

BASELINE DATA AND ENTITLEMENT MATRICES

Baseline data for exploration, gas field development and pipeline construction are summarised in this document. In respect of individual privacy, compensation details have been excluded from this document. However, these details are available from Sasol on written request.

Exploration of the Temane and Pande Gas Fields and Exploration Block was undertaken during the second half of 2001. All baseline data have been collected and all compensation has been paid. Despite precautions taken there were instances where graves and gravesites were affected by machinery. At the completion of exploration, a total of 1,533 machambas had been registered and valued. No homesteads *per se* were impacted on by exploration activities.

Resettlement activities are on-going regarding *gas field* activities as not all work has been finalised. Where possible, the resettlement of graves has been avoided. However, as at 6 May 2003, three graves had been relocated. Also, as at 6 May 2003, a total of 384 machambas had been registered and valued. Where possible, resettlement of homesteads has been avoided through realignment of the main access road and flow line routes. However, complete avoidance was not possible and, as at 6 May 2003, 11 homesteads had been registered for resettlement.

Activities pertaining to the construction and operation of the *pipeline* commenced in April 2002. Registration and compensation of affected individuals is largely complete. Where feasible graves and gravesites have been avoided, however, six gravesites have been affected. As at 6 May 2003, a total of 164 machambas had been registered and valued. Where feasible, homesteads have been avoided. However, complete avoidance was not possible and at the time of drafting the Final Resettlement Planning and Implementation Programme, three homesteads have been registered for resettlement.

RESETTLEMENT ASSISTANCE AND AFTER-CARE

The lifespan of the production wells is anticipated to be approximately 25 years. The Central Processing Facility will be operational for 24 hours per day, seven days a week, and for the most part, will be automated. By implication, Sasol will have a limited presence on site during operations. It is in this context that resettlement assistance and after-care need to be considered. In this regard, resettlement assistance can best be described as short-term, intensive operations involving the physical resettlement and immediate re-establishment of affected entities. Resettlement after-care, by definition, involves medium- to long-term, low intensity support aimed at assisting resettled families to sustain themselves.

MONITORING, EVALUATION AND AUDITING

Compliance monitoring during construction by officials of the Government of Mozambique has been on-going since the commencement of resettlement activities and will continue for the duration of the implementation of the Resettlement Planning and Implementation Programme. Reporting is to the Joint Task Group for remedial actions by Sasol (if applicable). Furthermore, the Joint Task Group has undertaken direct in-field inspections and held personal interviews with affected individuals. Up to the present, no serious non-compliance has been observed or reported.

Furthermore, auditing of compliance with the Resettlement and Compensation Procedures for Temane/Pande Field Development Projects and the Mozambique/Secunda Pipeline and implementation of the Resettlement Planning and Implementation Programme is undertaken by an independent environmental auditor twice yearly for the duration of the construction period. Reporting is to Sasol for attention to remedial actions where applicable.

Sasol takes ultimate responsibility for on-going monitoring and evaluation post construction, Sasol is currently preparing a programme that will be implemented immediately following resettlement and which will continue for a four year period. This programme constitutes Volume 4 of this Resettlement Planning and Implementation Programme.

COST ESTIMATE

A first order cost estimate has been calculated according to four compensatable entities, viz. homesteads, machambas, graves and replacement trees, and costs associated with implementation of the Resettlement Planning and Implementation Programme, viz. the preparation of host areas and fees for support services to Sasol. In all cases, a standard exchange rate has been applied, viz. 1 US Dollar = 22,000 Mozambican Meticais.

At the time of drafting the Final Resettlement Planning and Implementation Programme, it is estimated that resettlement will cost in the order of US $ 1,579.447 inclusive of a 10% contingency.

PROGRAMMING AND SCHEDULING

The summarised schedule below illustrates that significant resettlement activities have already been completed, significant resources were expended during planning to avoid or minimise resettlement impacts where possible, and throughout, resettlement planning has occurred in an orderly manner. Also illustrated are outstanding resettlement activities, key features of which are:

- Completion of the first round of pipeline compensation and completion of compensation payments for gas field impacts.
- A second round of pipeline compensation payments due to the Natural Gas Project requiring the “right of way” through to the end of 2003 (and thereby impacting on affected machamba users for a second growing season).
- Development of Land Settlement and Land Use Plans.

- Physical resettlement of homesteads in the gas field.
- Development of a Monitoring and Evaluation System, and commencement of Monitoring and Evaluation.

	2001		2002				2003				2004
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q3	Q1
Seismic Exploration	xxx	xxx	xxx								
Pipeline - Preliminary Work		xxx	xxx								
Pipeline – Construction				xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Gas Field Development				xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Project Management/Reporting	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx

It must be noted that development of the Natural Gas Project is an evolving process and, therefore, additions and changes to the programme and schedule are anticipated.

It is anticipated that resettlement activities related to the Natural Gas Project are expected to be completed by March 2004, save for Monitoring and Evaluation that will be on-going for an estimated four years from date of resettlement.

CONCLUDING REMARKS

The development of the Natural Gas Project holds great potential for economic stimulation in Mozambique and South Africa. However, it is a significant undertaking comprising many and varied infrastructural elements spanning a large proportion of Central and Southern Mozambique. Although minimisation is possible, impacts on the social and socio-economic environments are unavoidable, the most serious of which are resettlement and compensation. In this regard, Sasol has recognised the importance of undertaking resettlement in a responsible manner and has committed itself to compliance with World Bank policies, processes and standards. In this regard, both completed and planned future resettlement activities are documented in this Resettlement Planning and Implementation Programme.

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ACKNOWLEDGEMENTS

The authors should like to acknowledge, with thanks, contributions from the following:

- Members of the Resettlement and Compensation Joint Task Group.
- Provincial, District and Local Administrators in affected areas.
- Various representatives of Sasol.
- World Bank representatives who commented on earlier revisions of this document.
- Affected residents and hosts.

1 INTRODUCTION

1.1 Background

Mozambique's natural gas resources have been under investigation for a number of years. Via an exploration agreement that covers the Exploration Block and a Petroleum Production Agreement that covers the Temane and Pande Gas Fields, Sasol was granted exploration rights in the northern parts of Inhambane Province, southern Mozambique (Figure 1). The Petroleum Production Agreement for the development and production of the Temane and Pande Fields was signed on 26 October 2000 by Sasol, Companhia Moçambicana Hidrocarbonetos SARL (CMH) and the Government of Mozambique (GOM), and on 20 November 2001, Sasol obtained GOM's final approval for the continuation of construction of the Natural Gas Project. The purpose of the project is to pipe natural gas to Secunda, South Africa (Figure 2), for processing and onward distribution in South Africa for industrial applications.

Within Mozambique, the Natural Gas Project comprises three primary activities:

- Exploration.
- Gas field development and operations.
- Pipeline construction and operation (Temane to Ressano Garcia)[1].

Each of the above three primary activities has unique resettlement requirements that are captured and addressed in this Resettlement Planning and Implementation Programme[2] (RPIP).

Within South Africa, the Natural Gas Project comprises an additional two primary activities:

- Pipeline construction and operation (Ressano Garcia to Secunda).
- Conversion of plant infrastructure at Secunda and Sasolburg.

Social impacts (inclusive of resettlement, if applicable) associated with South African components of the Natural Gas Project are addressed in a suite of Environmental Impact Reports and Environmental Management Plans prepared specifically for the Natural Gas Project (Section 13). For completeness, however, resettlement aspects on the South African section of the pipeline are presented in this RPIP in Appendix 1.

[1] This Resettlement Planning and Implementation Programme considers only the Mozambique section of the pipeline, i.e. from Temane to Ressano Garcia (the border point between Mozambique and South Africa).

[2] The common terminology is Resettlement Action Plan (RAP). However, given that this document is being prepared at a time when some aspects of resettlement have already been completed, the World Bank Group suggested it be more appropriately named as a Resettlement Planning and Implementation Programme.

Figure 1 **Map showing the location of the Temane and Pande Gas Fields, northern Inhambane Province, southern Mozambique.**

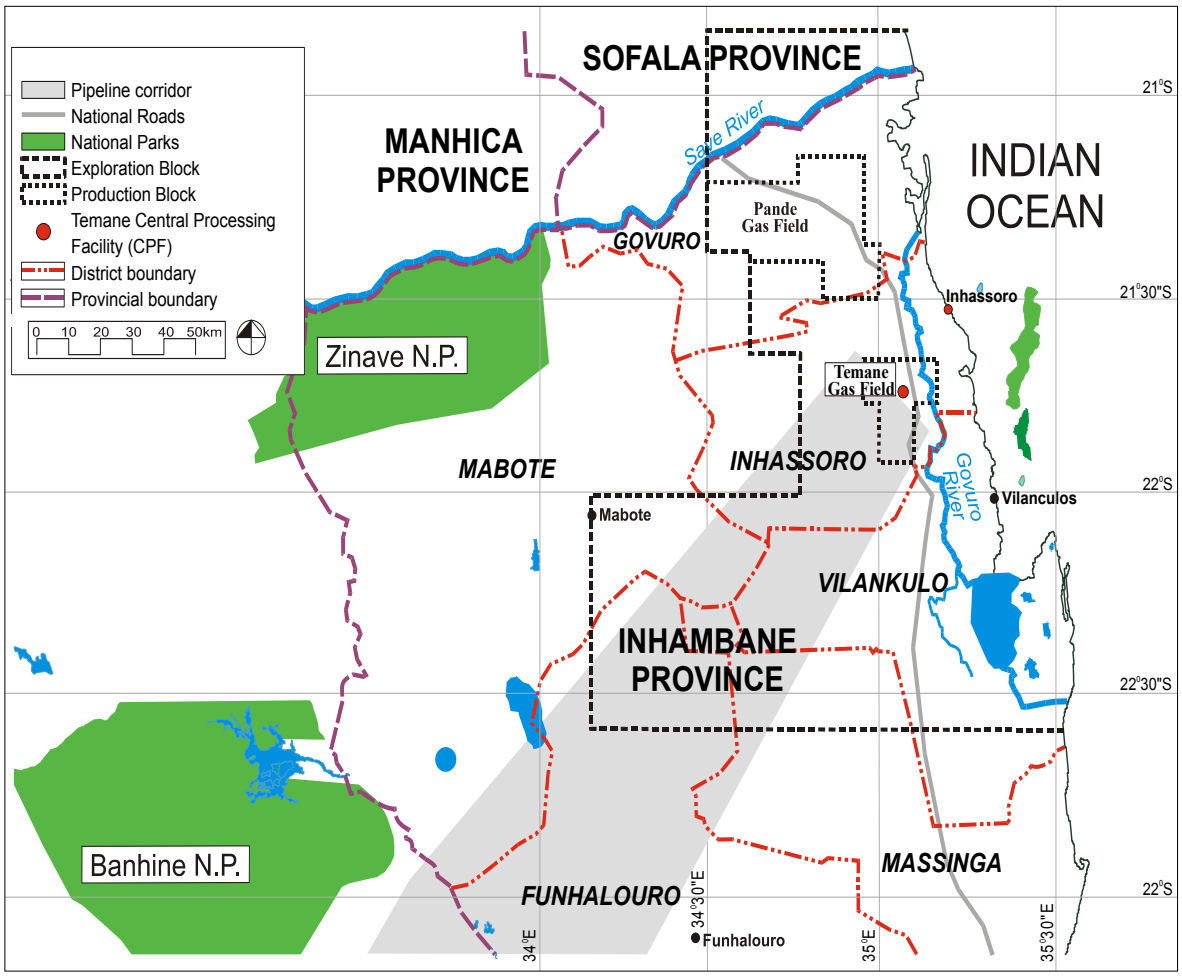
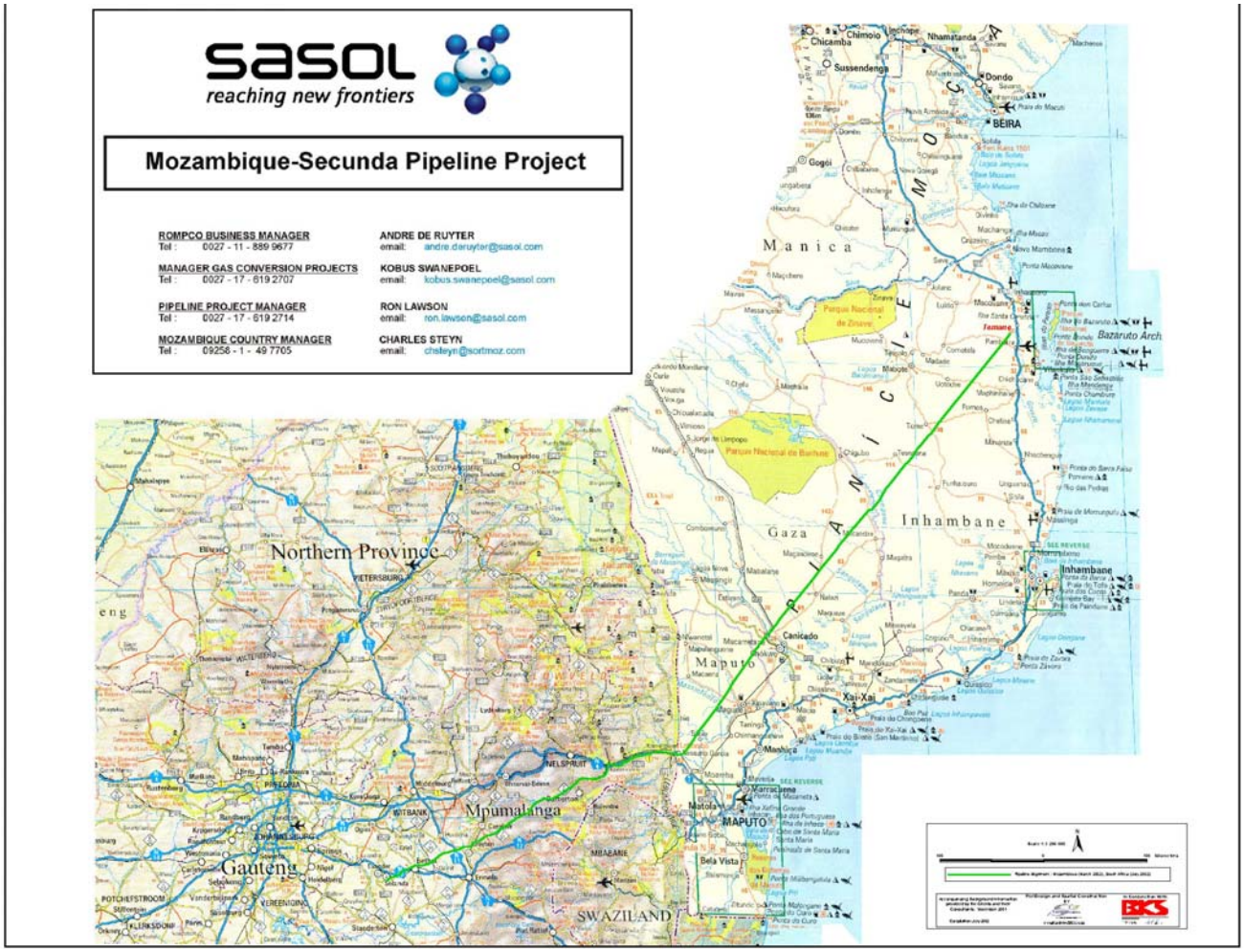


Figure 2 **Map showing the alignment and extent of the pipeline from Temane to Ressano Garcia (and on to Secunda, South Africa).**



1.2 RPIP framework

For resettlement aspects related to the Natural Gas Project, Sasol has adopted and implemented World Bank Group policies, procedures, directives and standards as contained within *Operational Policy 4.12: Involuntary Resettlement* (OP 4.12), *Bank Procedure 4.12: Involuntary Resettlement* (BP 4.12) and *Operational Directive 4.30: Involuntary Resettlement* (OD 4.30). Agreement has been reached that the principles, processes and actions taken thus far meet World Bank standards.

Essentially, OP 4.12 aims to address and mitigate economic, social and environmental risks brought about by involuntary resettlement as a result of development projects, and has the following primary objectives:

- Involuntary resettlement should be avoided where feasible, or minimised, exploring all viable alternatives.
- Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed in a sustainable manner, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits.
- Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programmes.
- Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, which ever is higher.

BP 4.12 outlines the procedure and actions required of the borrower, should involuntary resettlement be identified. For any specific investment initiative causing involuntary resettlement, these procedures are most commonly contained within a Resettlement Planning and Implementation Programme that details the entire resettlement process, from initiation through to after-care and monitoring and evaluation.

OD 4.30 aims to ensure that the population displaced by a project receives benefits from it and has objectives that are closely aligned to those of OP 4.12.

Community participation in planning and implementing resettlement is critical. Furthermore, appropriate patterns of social organisation should be established, and existing social and cultural institutions of the resettlers and hosts should be supported and used to the greatest extent possible.

1.3 Statement of resettlement objectives

For the purpose of this RPIP, the term resettlement (and related aspects such as the infringement of property rights) is used in its broadest context, comprising: the temporary or permanent loss of access to land, damage to public and private property, permanent physical displacement and the relocation of graves.

Sasol is committed fully to adherence and compliance with the RPIP framework outlined in OP 4.12, BP 4.12 and OD 4.30 of the World Bank Group. To this end, Sasol has adopted the following resettlement objectives for the Natural Gas Project:

- To avoid resettlement where ever feasible through integrated and iterative planning.
- Where resettlement is unavoidable:
  - To minimise the scope, magnitude and impact of resettlement.
  - To treat all persons affected by resettlement (resettlers) with respect, dignity and fairness.
  - To pay resettlers fair and equitable compensation to the extent that they have been affected by resettlement.
  - To assist resettlers in adapting to their new environment.
  - To monitor the effects of resettlement for a period of four years and to take the necessary actions to address resettlement related problems should they arise[3].
  - To promote resettler socio-economic development through the formulation and implementation of a comprehensive corporate social responsibility programme.

1.4 Scope of the Resettlement Planning and Implementation Programme

This RPIP has been developed to cover resettlement associated with all aspects of the Natural Gas Project. Of importance is recognition that the Natural Gas Project is already under way and, in some cases, construction is reasonably far advanced. This has implications for this RPIP in that it is being formalised mid-course under conditions where some activities have been completed[4], others are under way[5], and some have yet to start[6]. It should be noted that for completed and current activities, principles and practices contained within this RPIP have been applied. Similarly, they will be applied for future actions, including unforeseen activities that can be (and have been) encountered[7]. The implication of the aforementioned is that the RPIP is being drafted partially as future intent and partially as work already completed. This is not regarded as a constraint because from the outset of the Natural Gas Project, Sasol and GOM established a Joint Task Group to deal with resettlement matters. A key product of this Joint Task Group was the formulation of *Resettlement and Compensation Procedures for Temane/Pande Field Development Projects and the Mozambique/Secunda Pipeline* (Appendix 2). All resettlement activities undertaken to date have been in accordance with these procedures. Furthermore, the procedures have been incorporated into this RPIP.

As stated in Section 1.1, the Natural Gas Project comprises exploration, gas field development and pipeline construction. These three broad categories have been sub-divided into zones of potential impact to facilitate planning and management. Within the main categories and zones, the RPIP considers affects on three primary entities, viz. homesteads, agricultural lands (mainly machambas) and graves. Details of zones and entities are provided in Section 2 where project elements giving rise to resettlement are described and discussed.

3 Four years is deemed a suitable period in which to determine whether or not people affected by resettlement have been able to re-establish their livelihoods and livelihood strategies.
4 For example, seismic exploration of the Temane and Pande Gas Fields as well as the Exploration Block.
5 For example, the construction of the pipeline.
6 For example, certain flow lines.
7 For example, the widening of at least three bridges to accommodate trucks transporting pipes.

1.5 Approach and methodology

1.5.1 Data gathering

Data gathering, in accordance with the *Resettlement and Compensation Procedures for Temane/Pande Field Development Projects and the Mozambique/Secunda Pipeline*, was slightly different for each of the three broad categories under consideration as dictated by a particular activity and associated resettlement impacts. In each case, however, information gathered was used as baseline data for purposes of resettlement planning and implementation. Furthermore, in each case, a representative from both the Sasol Community Liaison Team and the GOM accompanied the RT.

1.5.1.1 Generic process

The generic process comprised the following activities:

- Formal introduction of the Resettlement Team (RT) to District and Local leaders, and community members.
- Formal documentation of all community interaction.
- Definition of organisational responsibilities and, in particular, the roles and responsibilities of the GOM, Sasol, contractors, the RT and community leaders.
- Identification of all entities to be affected (homesteads, machambas, graves and infrastructure) (in advance where possible).
- Registration of all affected persons.
- Provision of a GPS reference point for each site to be affected.
- Provision of photographic evidence in support of compensation claims.
- Measurement and valuation (by area and crop type or mix and whether annual or perennial) of damage likely to arise prior to such damage occurring.
- Agreement with each affected person as to the financial compensation payable.
- Issuance of a compensation certificate for cash redemption.
- Capture of compensation payments on film as payment verification.
- Development and maintenance of comprehensive records of compensation.
- Provision of all information through to Sasol's GIS Unit for the development of a comprehensive GIS for the Natural Gas Project.
- Facilitation of grievances for attention and action by Sasol.
- Monitoring of consequential damage and dealing with compensation claims as and when they arose.

1.5.1.2 Exploration

Exploration activities involved demining, surveying and bush clearing cut lines (for the most part, 6 m wide strips) to enable seismic exploration personnel and equipment to undertake their exploration activities. Variations on the generic process were as follows:

- Due to land mines, it was impossible to determine and document compensation prior to the damage occurring. Therefore, for the most part, compensation was documented at the time (or immediately after) that damage occurred. Although not totally achieved, the recording of damage was done in the presence of the affected person.

- For exploration, there was only temporary damage to machamba lands and crops. Where graves or homesteads were encountered, the exploration team deviated from its predetermined route in order to avoid impacting on these entities.
- The physical hand-over of cash to affected persons was not the responsibility of the RT. Rather, Sasol contracted a commercial payroll bureau for this function. However, the RT did facilitate compensation payment sessions, did attend these sessions and did cross-reference claimants with data gathered in the field.
- No transport assistance was provided to affected people. However, pay points were planned in such a manner that they were in close proximity to the affected people.

1.5.1.3 Gas field development

Development of the gas field involves construction of the CPF and ancillary infrastructure (for example, the main access road), sinking of wells (primarily production wells) and the linking of wells to the CPF via flow lines, most of which have an adjacent service road.

During planning (second half of 2001), utilising existing information (inclusive of aerial photographs and an aerial video flown in December 2001) and ground verification, gas field layouts were revised on an iterative basis to avoid, as far as possible, social impacts, thereby minimising as far as possible resettlement requirements. Despite this, however, resettlement was unavoidable and followed the generic process. In cases of physical displacement, the following applied:

- Homesteads.
  - Members of the Joint Task Team agreed on replacement house designs.
  - Affected people were free to choose the area to which they will move.
  - Chosen areas were verified by District and Local leaders as being suitable and within the planning frameworks of the District and Local Authorities.
  - Affected people were offered replacement houses as per the agreed design of the Joint Task Team.
  - Land settlement plans will be compiled taking into account individual replacement houses and ancillary infrastructure, for example, roads and domestic water.
- Machambas.
  - The District and Local Leaders identified replacement land.
  - Affected people verified that they were satisfied with the replacement land (locality and size).
  - Land-use plans will be compiled taking into account individual machamba allocations and ancillary infrastructure, for example, roads.
- Graves.
  - Given the sensitive nature of exhumation and reburial, affected families were paid compensation (inclusive to cover costs associated with exhumation and reburial), after which physical exhumation and reburial was undertaken by affected family members themselves.

1.5.1.4 Pipeline

Construction of the pipeline involves demining and bush clearing the entire route (from Temane to Ressano Garcia) thereby establishing a “right of way” for the project. The “right of way” is 30 m wide and is the area in which all pipeline construction activities is to occur. This is excepting four base camp and lay down areas that require a combined area of 64 ha.

During planning (second half of 2001), significant work was undertaken to quantify the potential social impacts associated with the pipeline:

- The entire pipeline corridor (for the most part, 400 m wide but in some instances, 800 m wide) route was flown and an aerial video was made. Video material was interpreted and provided detailed information on the location and extent of homesteads and agricultural lands (commercial and subsistence).
- Pre-identified areas of high population density were visited and potentially affected people were enumerated (homesteads, agricultural lands (commercial and machambas) and graves). Affected entities were georeferenced and plotted. Also, affected people were issued a “blue card” (inclusive of a photograph) identifying them as occupants of land within the pipeline corridor prior to the commencement of pipeline construction (Appendix 3). This exercise served a dual purpose:
  - To enumerate potential social impacts.
  - To identify (then) current land occupants with a view to preventing opportunistic occupation of land within the pipeline corridor (once construction had commenced) with a view to obtaining compensation.

  Enumeration and the issue of “blue cards” covered 65% of the pipeline corridor and, importantly, covered the areas of higher population density. Complete coverage could not be obtained because of access difficulties (primarily occasioned by the presence of land mines) and poor weather conditions during the latter part of 2001. Nevertheless, coverage was considered adequate particularly considering that areas not enumerated could be supplemented with information from the aerial video.

Arising from the preparatory work was the opportunity to align the pipeline “right of way” in such a manner to minimise social impacts and avoid physical displacement as far as is practically possible. Nevertheless, complete avoidance was not possible and, therefore, resettlement activities followed the generic process. In cases of physical displacement, the following applied:

- Homesteads.
  - Members of the Joint Task Team agreed on replacement house designs.
  - Affected people were free to choose the area to which they will move.
  - Chosen areas were verified by District and Local leaders as being suitable and within the planning frameworks of the District and Local Authorities.
  - Affected people were offered replacement houses as per the agreed design of the Joint Task Team (or alternatives where these were expressly requested by the affected individuals).
  - Land settlement plans will be compiled taking into account individual replacement houses and ancillary infrastructure, for example, roads and domestic water.

- Machambas[8].
  - The District and Local Leaders identified replacement land.
  - Affected people verified that they were satisfied with the replacement land (locality and size).
  - Land-use plans will be compiled taking into account individual machamba allocations and ancillary infrastructure, for example, roads.
- Graves.
  - Given the sensitive nature of exhumation and reburial, affected families were paid compensation (inclusive to cover costs associated with exhumation and reburial), after which physical exhumation and reburial was undertaken by affected family members themselves.

1.5.2 Valuations

The Joint Task Team established fixed values for all entities (primarily different annual and perennial crops) in hard currency (US Dollars). These values were applied in-field to the number of entities (primarily different annual and perennial crops) affected[9]. Compensation claims were calculated in US Dollars but were paid in Mozambique Meticais using the ruling exchange rate on the date of payment.

1.5.3 Consultation and participation

1.5.3.1 Authority consultation and participation

Authority consultation and participation has occurred at all levels within the GOM, viz. National and Provincial Government, District and Local Administrations, and traditional authorities. It should be noted that the Natural Gas Project spans three provinces and incorporates 11 District and numerous Local Administrations. Two key features of authority consultation and participation are the establishment of the Joint Task Force and the accompaniment of the RT by members of the GOM. A detailed record of consultation and participation is provided in Appendix 4. Furthermore, Sasol has also compiled and published a detailed Consolidated Executive Summary.

In addition to authority consultation and participation for resettlement purposes, Sasol deploys a full-time Community Liaison Team that has on-going discussions at all levels within the GOM.

8 It is important to note that the majority of land utilised for the pipeline "right of way" will only be temporarily required by the project. Once pipeline construction has been completed, the "right of way" will be rehabilitated and returned to original occupants for their use. Only in limited cases will land be permanently utilised by the project or, alternatively, will there be restrictions on use, for example, the planting of trees directly above the pipeline. In such cases, replacement land will be required for affected persons.

9 The RT counted entities damaged and agreed on the numbers with affected persons. Compensation was then calculated according to rates predetermined by the Joint Task Team.

1.5.3.2 Community consultation and participation

Community consultation and participation have been on-going from the commencement of the Natural Gas Project, on matters related to resettlement as well as on general matters related to the project. This consultation and participation has been undertaken by the RT as well as by members of Sasol's Community Liaison Team. A detailed record of consultation and participation is provided in Appendix 4.

1.6 Assumptions and limitations

1.6.1 Assumptions

- Final responsibility for resettlement activities associated with the Natural Gas Project is vested with Sasol.
- The compilation and execution of the RPIP are to comply with World Bank Group policies, procedures, directives and standards as elucidated in *Operational Policy 4.12: Involuntary Resettlement* (OP 4.12), *Bank Procedure 4.12: Involuntary Resettlement* (BP 4.12) and *Operational Directive 4.30: Involuntary Resettlement* (OD 4.30).
- All information provided by Sasol is valid and correct at the time of publication.

1.6.2 Limitations

- There is a paucity of documentation on the study area, particularly recent history. The RPIP is, therefore, reliant on verbal and anecdotal evidence provided by key stakeholders during key informant interviews.

Despite the assumptions and limitations, Sasol is confident that all important individuals and groups of people have been consulted and that the provisions of the RPIP adequately and accurately reflect the situation

1.7 Structure of the Resettlement Planning and Implementation Programme

It is important to note that this RPIP comprises four volumes:

- Volume 1: Resettlement Planning and Implementation Programme.
- Volume 2: Land Settlement Plans (replacement housing).
- Volume 3: Land Use Plans (replacement machambas).
- Volume 4: Monitoring and Evaluation Programme.

Volume 1 has been structured in such a manner that it takes into account completed activities while focussing attention on outstanding matters. Key components of Volume 1 are as follows:

- Section 1: Introduction.
- Section 2: Description of key elements of the Natural Gas Project and associated resettlement impacts, inclusive of zoning for resettlement planning and implementation.
- Section 3: Legal framework.
- Section 4: Institutional arrangements and organisational responsibilities.
- Section 5: Description of the environment.
- Section 6: Compensation.
- Section 7: Baseline data and compensation matrices.
- Section 8: Resettlement assistance and after-care.
- Section 9: Monitoring and evaluation framework.
- Section 10: Cost estimates.
- Section 11: Resettlement programming and scheduling.

Where applicable and appropriate, information and data are contained within a suite of appendices.

Volumes 2, 3 and 4 are in preparation and are due to be completed and published in the public domain by the end of August 2003.

2 DESCRIPTION OF KEY ELEMENTS OF THE NATURAL GAS PROJECT WITHIN MOZAMBIQUE THAT GIVE RISE TO RESETTLEMENT IMPACTS[10]

The Natural Gas Project comprises three primary elements within Mozambique that give rise to resettlement impacts:

- The exploration of the gas fields of Temane and Pande[11], as well as the Exploration Block.
- The development of the gas fields.
- The construction and operation of an underground pipeline from the CPF to Ressano Garcia.

2.1 Exploration

The seismic exploration and drilling programme was designed to supplement existing geological information, to confirm the positioning of production wells and to assist in the long term planning of the development of the gas field. Seismic exploration was undertaken during the second half of 2001 (June to December 2001) with 34 seismic survey lines (cut lines) investigated.

Exploration involved the following main activities:

- Establishment of a temporary central base camp accommodating offices, workshops and accommodation for 150 staff.
- Deployment of teams to demine predetermined cut line routes.
- Deployment of bush clearing teams to clear cut lines of all vegetation. The cut line width was 6 m, but wider in sections to accommodate seismic equipment and machinery.
- Deployment of teams to undertake seismic testing involving the drilling of shallow boreholes (200 m), the generation of vibrations at 40 m intervals and the collection of seismic velocity data from within the boreholes.
- On completion of seismic testing on a particular cut line, cleared areas were left to regrow/revegetate in accordance with the approved environmental management programme.

Resettlement impacts arising from the above activities related mainly to grave exhumation and reburial, crop losses and temporary loss of access to machamba lands (Table 1). Apart from minor accidental damage to infrastructure and the death of one unit of livestock (goat), no infrastructure or homesteads were impacted upon during seismic exploration. Where these were encountered on a cut line, they were avoided by altering the predetermined route of the cut line

[10] It is important to note that, in some cases, for example, the CPF and its associated Zone of Partial Protection, there has been a permanent loss of access to natural resources used by local people for a variety of purposes. These cases have not been considered as part of resettlement impacts.

[11] Thus far, seismic exploration has been undertaken in the Temane and Pande Gas Fields as well as the Exploration Block. Exploration has commenced and will be on-going throughout 2003.

Table 1 Resettlement impacts arising from the different elements of the Natural Gas Project within Mozambique.

Project Element	RPIP Zone Allocation	RPIP Sub-Zone Allocation	Impact Description	Temporary/ Permanent
Seismic Exploration	SE	G	Exhumation and reburial of graves	Permanent
Seismic Exploration	SE	CL	Crop losses (annual and perennial)	Permanent
Seismic Exploration	SE	LoA	Loss of access to machamba lands	Temporary
Seismic Exploration	SE	H(D)	Damage to infrastructure	Temporary
Seismic Exploration	SE	L	Livestock death	Permanent
Gas Field Development	PPZ	H	Displacement of homesteads	Permanent
Gas Field Development	PPZ	M	Displacement of machambas	Permanent
Gas Field Development	PPZ	CL	Crop losses (annual and perennial)	Permanent
Gas Field Development	AR	H	Displacement of homesteads	Permanent
Gas Field Development	AR	M	Displacement of machambas	Permanent
Gas Field Development	AR	CL	Crop losses (annual and perennial)	Permanent
Gas Field Development	FL	G	Exhumation and reburial of graves	Permanent
Gas Field Development	FL	H	Displacement of homesteads	Permanent
Gas Field Development	FL	M	Displacement of machambas	Permanent
Gas Field Development	FL	CL	Crop losses (annual and perennial)	Permanent
Gas Field Development	M	M	Loss of access to machamba lands	Temporary
Gas Field Development	M	CL	Crop losses (annual and perennial)	Permanent
Pipeline	P	CL	Crop losses (annual and perennial) – subsistence and commercial	Permanent
Pipeline	P	LoA	Loss of access to machamba and commercial farm lands	Temporary
Pipeline	P	G	Exhumation and reburial of graves	Permanent
Pipeline	P	H	Displacement of homesteads	Permanent
Pipeline	P	T	Timber crop losses	Permanent

2.2 Gas field development

The development of the gas fields of Temane and Pande involves a number of different but interrelated activities/project components:

- Central Processing Facility.
  The CPF will serve as the hub of Sasol's activities within the gas fields once the Natural Gas Project has been commissioned and is operational. The CPF is located near the hydraulic centre of the production wells in the Temane Gas Field approximately 40 km north of Vilanculo, approximately 6 km inland from National Road No 1 (EN1) and occupies an area of 110 ha[12]. The CPF will be security fenced.

  Incoming gas from the production wells will be cleaned at the CPF prior to transport to Secunda. Wastes, for example, condensate will be handled within the site of the CPF, pumped back into condensate wells or, eventually when volumes permit, trucked out for sale. Unusable gas will be disposed via flaring. The CPF will be fully automated requiring the presence of only 14 full-time employees on site. These employees will be accommodated within the precincts of the CPF.

The planning of the CPF was undertaken in such a manner to avoid resettlement. As a consequence, there are no resettlement impacts associated with the CPF.

- Zone of Partial Protection (PPZ).
  Due to security reasons and noise, a Zone of Partial Protection will be established around the CPF. This zone will be 500 m wide around the CPF and will occupy an area of 310 ha. The extent of the PPZ has been determined to take account of potential accidents within the CPF as well as the requirements of flaring (two flares).

Resettlement impacts arising from the PPZ relate to the permanent displacement of five homesteads and 22 machambas, and crop losses from the 22 machambas (Table 1).

[12] Takes into account the area required for the second flare.

- Main Access Road (AR).
  Access to the CPF is from the EN1. This has required the construction of a new black top main access road 4.8 km in length. For resettlement purposes, a width of 15 m was applied. The alignment of the access road was selected with a view to minimising resettlement. However, complete avoidance was not possible.

Resettlement impacts arising from the construction and operation (mainly safety aspects) of the access road relate to the permanent displacement of four homesteads and 16 machambas, inclusive of crop losses from the 16 machambas (Table 1).

- Wells, Flow Lines, Access Roads and Ancillary Works (FL).
  A number of wells already exist in the Temane and Pande Gas Fields. The development of the gas fields will involve the drilling of a number of wells for different purposes, for example, exploration-, test-, development-, production-, and condensate-wells. It is estimated that there will be a total of 34 wells with each well occupying an area of 1 ha, i.e. total well area of 34 ha.

  Gas extracted from the production wells will be transported to the CPF via 34 below-ground flow lines. Flow lines are of variable length (depending on the distance of the production well from the CPF) but a fixed width of 6 m. Also, there will be 6 m wide gravel access/service roads adjacent to most flow lines. Finally, wells, flow lines and access roads have associated ancillary works, for example, borrow areas that potentially have resettlement impacts.

Resettlement impacts related to wells, flow lines, access roads and ancillary works[13] relate to grave exhumation and reburial, the resettlement of two homesteads, crop losses and the permanent displacement of machambas (Table 1).

[13] It is important to note that the development of wells, flow lines, access roads and ancillary works is on-going and, therefore, additional resettlement impacts may be encountered in time.

- Manhice detour (M).
  A detour around a railway bridge in the town of Manhice, Maputo Province, was constructed to enable road transport of large and bulky equipment from Maputo Harbour to the CPF at Temane.

  Once all the equipment has been transported through to the CPF, the detour will be rehabilitated and affected individuals can continue farming practices as they did prior to the temporary disruption. The detour is expected to remain open until the end of 2003.

Resettlement impacts related to the Manhice detour relate to crop losses and the temporary displacement of fifty machambas (Table 1).

2.3 Pipeline

The pipeline from the CPF, Temane to Ressano Garcia will cover a distance of 520 km. Construction of the pipeline involves demining and bush clearing the entire route thereby establishing a "right of way" for the project. The "right of way" is 30 m wide and is the area in which all pipeline construction activities is to occur. In addition, there are four base camp and lay down areas that require of the order of 64 ha combined[14].

The 660 mm diameter pipe will be buried a minimum of 0.9 m underground[15]. On backfilling and trench closure, concrete markers will indicate the presence of the pipeline.

[14] It should be noted that permission to use land for base camps and lay down areas, and associated compensation to affected people, is dealt with directly by the EPCM Contractor. There was no damage to machambas, property or graves in these areas. Also, importantly, land for the base camps and lay down areas is required on a temporary basis only. The procedure followed by the EPCM Contractor is provided in Appendix 5.

[15] Except in exceptional circumstances, for example, river crossings, where it may be above ground.

In terms of permanent rights of Sasol, the agreement between Sasol and the GOM[16] stipulates the following:

- 400 m wide (200 m either side of the centre line of the pipeline). The area across which the construction of large buildings and large numbers of buildings is restricted. The safety zone of the pipeline is contained within the area 100 m either side of the centre line of the pipeline. In this area, no settlement of more than five people will be permitted.
- 100 m wide (50 m either side of the centre line of the pipeline). The area across which the construction of new buildings will be prohibited. This zone is also termed the Partial Protection Zone (PPZ) and is defined as land for which no right to land use by third parties exists and in which the exercise of any other activity other than that for which the PPZ was defined, must be licensed (See Preface).
- 30 m wide (15 m either side of the centre line of the pipeline). The area from which existing buildings and members of the local population will be resettled (See Preface).

In practice, Sasol does not place unnecessarily burdensome conditions on land use within its servitudes. By implication, for the most part, once the pipeline trench has been rehabilitated, local people will be able to return to their lands and practice agriculture above the pipeline. However, it must be noted that only shallow rooted annual crop cultivation may be practiced within the 30 m wide area. No deep rooted perennial crops will be permitted.

Resettlement impacts related to the pipeline are crop losses (annual and perennial crops) (subsistence and commercial), the temporary loss of access to machamba and commercial farm lands, the exhumation and reburial of graves, the permanent displacement of homesteads and timber crop losses by the GOM (Table 1)

[16] It must be noted that there are differences in the legislative environments in Mozambican and South African. In particular, legislation governing land ownership, servitudes and associated restrictions differ in each respective country. A consequence is that Sasol has had to apply different processes and methodologies in the two countries, particularly as related to the pipeline servitude and restrictions. Importantly, Sasol has no jurisdiction over, or power to change, the legislation and must operate within the parameters set by the respective Governments. In particular, in South Africa, land is privately owned and, therefore, Sasol has direct control over land-use within the servitude. A consequence is that the servitude width is relatively small. In contrast, in Mozambique, the Government owns all land. People can apply for land-use rights. However, Sasol and GOM are less confident about controlling land-use in servitude areas under communal usage and, therefore, exclusion zones are relatively large. Importantly, the Mozambique Council of Ministers approved the Pipeline Development Plan, inclusive of exclusion zones, during November 2001.

3 MACRO LEGISLATIVE, POLICY AND REGULATORY FRAMEWORK

The purpose of this section is to provide an overarching understanding of the legislative, policy and regulatory framework within which the Natural Gas Project is being implemented with regard to the use of land, resettlement and compensation. The focus is on key elements and, therefore, the information provided should not be regarded as a definitive treatise. Rather, the value of the information provided lies in providing a broad-based understanding of elements that are likely to affect or be affected by the development of the project.

3.1 Relevant legislation

An Environmental Impact Assessment has been completed for the development, operation and decommissioning of the Natural Gas Project in Mozambique, as a requirement of Mozambican Environmental Legislation (Government Decree 76/98).

3.1.1 Power of the eminent domain

Following many years of internal conflict in Mozambique, and the switch from socialism to democracy, the country began a process of examining legislation with a view to its applicability and appropriateness in a democracy. A consequence is that the present legislative framework for Mozambique is not totally cohesive and differences in legislation and policy can be expected.

Importantly, the Government of Mozambique is the highest executive authority in the country with extensive and expansive powers of eminent domain. The President of the Republic of Mozambique, Sn J A Chissano, is head of Government within the country. He is assisted by a National Cabinet comprising Ministers nominated by him from candidates previously elected to the National Assembly. National legislation is tabled before the National Assembly where bills are passed into law. Provisions within laws enable Ministers to issue Regulations by decree. In addition, and of importance to Sasol, although there is a democratically elected Government in Mozambique, traditional leaders remain recognised for their valuable role, particularly at the level of local government.

3.1.2 Land

Law Number 6/79, which has been in force since 25 September 1979, is the primary element of legislation determining access to and the allocation of land. Under this law, land in Mozambique belongs to the State. Nevertheless, Land Act Number 19/97 does allow developers the right to use and benefit from land. Furthermore, the right to use and benefit from land can be granted to foreign collective entities if they have an approved investment project that has been formed or registered in the Republic of Mozambique. The concession period is 50 years, renewable once for an additional 50 years. The annual tax for usage of land varies according to the location and size of the land.

Although land-use rights do not imply ownership, outside entities wishing to obtain land-use rights, which displace those presently in force, must enter into negotiations with the local people and their leaders. In terms of land registered with the National Land Cadastre, Land Law 19/97 and associated Regulations (Law 66/98) state that displaced title holders must be compensated by the incoming entities to a value representing the actual loss arising from the loss of land title rights.

Once land-use rights have been granted to the new entity, the Mozambican Authorities are required to facilitate the official granting of replacement land for displaced persons. Should agreement not be reached between the new and old land-users, the State may intervene at its discretion.

The Land Law (Law 19/97) and Regulations under this law (Law 66/98) define areas designated as “Total Protection Zones” and “Partial Protection Zones”. “Total Protection Zones” include areas intended for nature conservation, conservation activities and State defence and security. There are five “Partial Protection Zone” categories, of which three are applicable to the Natural Gas Project:

- The 100 m strip of land surrounding sources of water.
- The 250 m strip of land surrounding dams and reservoirs.
- The 2 km strip of land alongside the terrestrial frontier.

The carrying out of any construction activity within the first two categories above requires a licence from the GOM.

Automatic “Partial Protection Zones” are defined for “Public Interest Servitudes” including the land on which gas production facilities are situated and a strip of 50 m on each side (See Preface).

3.1.3 Environment

Although addressing environmental and other related issues is relatively new in Mozambique, the Mozambican Constitution does lay out certain principles relating to the environment.

Environmental Law Number 20/97, passed in July 1997, aims to provide a legal framework for the use and correct management of the environment and its components, and to assure sustainable development in Mozambique. The law acknowledges the responsibility of the GOM to promote and implement the National Environmental Management Programme (NEMP). Extracts of this framework law are as follows:

- Environmental Law is applicable to all public and private activities that may influence the environment either directly or indirectly.
- The attention given to environmental management must be independent of the existence of scientific certainty about the occurrence of significant or irreversible negative environmental impacts, i.e. application of the precautionary principle.
- Polluters, or anyone who degrades the environment, are obliged to remedy the pollution, repair the damage or compensate financially for the resulting damage, i.e. application of the polluter pays principle.

- The Law forbids pollution of the environment at any stage of a project. This has important implications for industry.
- Law Number 20/97 stipulates the obligation of the Government in determining standards for environmental quality.
- Also, it forbids the establishment of infrastructures that, by virtue of size, nature or location may cause a significant negative impact on the environment.
- Lastly, the Law forbids all activities that may threaten the conservation, reproduction, quality and quantity of biological resources, especially those in danger of extinction.
- The Water, Mining and Hydrocarbons Laws also have specific requirements for environmental protection.

The framework law makes provision for the establishment of a National Commission for Sustainable Development that is linked to the Council of Ministers. The Commission was established in October 2000 and provides for the effective co-ordination and integration of sectoral policies and plans related to environmental management at the highest level within the GOM.

Furthermore, as a consequence of meeting the requirements of a convention established for a proposed industrial development project in Mozambique, the GOM has formulated a National Strategy and Action Plan for the Conservation of Biological Diversity. The primary objectives of this plan are to conserve biological diversity, promote the sustainable use of its components and to encourage the equitable sharing of benefits arising out of the utilisation of genetic resources. The Ministry for the Co-ordination of Environmental Affairs (MICOA) is responsible for the administration of the Strategy and Plan.

3.1.4 Archaeology

All archaeological remains (including national antiquities, and historical and cultural heritage) in Mozambique are protected by the National Heritage Protection Law (Law 10/88). Regulations promulgated under the law state that all projects that require excavation must include archaeological investigations as part of project planning and development, the same to occur under the aegis of the Department of Monuments of the Ministry of Culture and ICOMOS – Mozambique Committee.

3.1.5 Petroleum Law

The Petroleum Law (3/2001) requires licensed operators in Mozambique to comply with Good Oilfield Practices including compliance with the Land Law, of particular relevance to the Natural Gas Project and this RPIP, compliance with resettlement and compensation provisions of the Land Law.

3.2 Relevant policy

3.2.1 National Environmental Management Programme

The Ministry for the Coordination of Environmental Affairs was established in 1994. In 1995, MICOA compiled a NEMP that is a policy document outlining priorities for environmental management and sustainable development in Mozambique. It contains a national Environment Policy, a proposal for Framework Environmental Legislation and an Environmental Strategy. The NEMP consists of sectoral plans for the medium- and long-term and defines three policy areas:

- Rural - Agriculture and forestry are considered to be most important.
- Coastal - Mangrove degradation, coastal pollution and erosion are key aspects.
- Urban - Degradation of sanitation systems and poor water quality are the most urgent aspects requiring attention.

MICOA has responsibility for overseeing the implementation of the NEMP. This involves the promulgation and enforcement of environmental rules and regulations.

3.2.2 Service Infrastructure Code

The Service Infrastructure Code, promulgated by the Instituto Nacional de Planeamento Fisica, lays down specific requirements for service infrastructure development for the physical planning and development of an area to be affected by industry, urban development and related land use.

3.3 Regulatory environment

Key aspects of the regulatory environment relevant to the Natural Gas Project concern the environment, best-practice guidelines and standards in environmental management and the management of social impacts, especially resettlement.

3.3.1 Environment

Law No 20/97 establishes the regime of environmental licensing based on assessing the environmental impacts of activities. Within this law is provision for the establishment of a set of Regulations on the Procedure for Environmental Impact Assessment. These Regulations were promulgated in Decree No 76/98 and contain the following:

- General provisions.
  - Article 1: Definitions.
  - Article 2: Scope of application.
  - Article 3: Powers in the sphere of Environmental Impact Assessment.
  - Article 4: Proceedings.
  - Article 5: Pre-assessment.
  - Article 6: Environmental Impact Study.
  - Article 7: Public consultation.

- Article 8: Assessment criteria.
- Article 9: Review of the Environmental Impact Study.
- Article 10: Decision on environmental viability.
- Article 11: Time limits for communicating decisions.

- Environmental license.
  - Article 12: Validity.
- Environmental consultants.
  - Article 13: Register of environmental consultants.
  - Article 14: Responsibility of environmental consultants.
- Inspection, sanctions and fees.
  - Article 15: Inspection and audits.
  - Article 16: Responsibility for damage.
  - Article 17: Environmental license fees.
  - Article 18: Sanctions.
  - Article 19: Updating the sums charged and their destination.
- Appendix: Itemisation of activities that may have a significant affect on the environment and which require Environmental Impact Studies.

3.3.2 Land

A key aspect of the Land Law that is of relevance to the Natural Gas Project is the requirements that private investments involving the acquisition of the right to use land must submit an application for the right of use to land. Furthermore, the application must be inclusive of the following:

- A drawing of the location of the land.
- A description of the land area.
- An indication of the nature and dimension of the project.
- The opinion of the District Administrator (after consultation with affected local communities).
- A public notice and proof that such a notice has been displayed (for 30 days) in the headquarters of the district in question and at the location of the proposed project.

In terms of land rights of the local population[17], the following norms and procedures controlling access, use and ownership of communal land have been identified (Salema, 2001):

- The families are divided into “native families” whose ancestors were born in the area and “migrant families” who settled in the area relatively recently (during the war, after the war, as a consequence of the 2000 floods, etc).
- “Native families” own open kraal areas as well as forest areas where new kraals can be built, re-established or left to their heirs. The division of land is known to the chief who intervenes only when there is a land dispute between “native families”.

[17] Of application to the gas field covering the Vilankulo, Inhassoro and Govuro Districts of Inhambane Province.

- For “migrant families” to own land for cultivation:
  - They request land from the “native families” who then inform the traditional authorities of the decision reached.
  - They request land from the traditional authorities who either identify an unoccupied area where a “migrant family” may settle and cultivate or they identify an area owned by a “native family” for settlement and cultivation. In the case of the latter, the “native family” is involved in the process in order that consensus may be reached by all three parties.
- In cases where the land has fruit and/or palm trees growing on it, the family who owns the land has the right to harvest or the trees may be bought by the family who has the right to use the land.
- Over time, “migrant families” earn the right to bequeath land by inheritance.
- In all cases, the traditional authority has the final authority with regard to access, use and ownership of communal land.

3.3.3 Resettlement/expropriation and compensation

At present, there is no legislation or policy guiding the resettlement of people in Mozambique. However, the Mozambican Authorities, through the Offices of the Provincial Governors, are addressing the issue.

The Constitution of Mozambique validates the claim that all land is owned by the State. As such, it is not necessary for the State to compensate or consult existing land-users in the case of involuntary resettlement.

However, there are “general action” steps that can be and are followed in the case of involuntary resettlement:

- An application is submitted to the relevant government authority (depending on the size of land involved):
  - District Agricultural Officer.
    Family sector agricultural land usually less than 20 ha in size.
  - President of the Urban Authority.
    Family residential plots in urban areas.
  - Provincial Governor.
    Larger units of land (urban or agricultural).
- Once an application has been approved, requirements are determined according to future land-use, and suitable sites for development are identified.
- Identification of alternative residential sites for affected people is the responsibility of the local authority. The local authority is also responsible for compiling a register of all affected people.
- Construction of houses for the affected people is then undertaken by the applicant.
- Furthermore, the applicant is responsible for providing transport to facilitate the resettlement of affected people at the new site.

These “general steps” are, however, not authenticated policy or procedure of the GOM and appear to be unknown to the local people. Rather, local people seem to accept that they will be shown a new residential site without any additional assistance from the State or developer.

However, in the case of the Natural Gas Project, a Joint Government Task Group has compiled a Sasol and Mozambique Government Resettlement and Compensation Procedure for Temane/Pande Field Development Projects and the Mozambique/Secunda Pipeline. This document describes the process to be followed for resettlement, re-interment of graves and the physical payment of compensation. The document aims for the equal and fair treatment of all those affected by any projects undertaken by Sasol within Mozambique.

3.4 Best-practice guidelines and standards in environmental management

In addition to the country’s legislation, there are a number of internationally accepted best-practice standards and guidelines in environmental management (the discipline within which resettlement and related activities is housed).

3.4.1 World Bank Operational Directives

The World Bank has issued a number of Operational Directives (ODs), Operational Policies (OPs) and Bank Procedures (BPs), including some that are applicable to the social and socio-economic environments, and resettlement. In terms of the development of the Natural Gas Project, the following ODs, OPs and BPs are of relevance:

- OD 4.15 - Poverty Reduction.
- OD 4.30 - Involuntary Resettlement.
- OD 10.70 - Project Monitoring and Evaluation.
- OP 4.01 - Environmental Assessment.
- OP 4.02 - Environmental Action Plans.
- OP 4.11 - Cultural Property.
- OP 4.12 - Involuntary Resettlement.
- BP 4.01 - Environmental Assessment.
- BP 4.02 - Environmental Action Plans.
- BP 4.12 - Involuntary Resettlement.

3.4.2 International Organisation for Standardisation

A key outcome of the Earth Summit in Rio de Janeiro in 1992 was the establishment of the International Organisation for Standardisation (ISO). ISO certification is tied, but not limited, to the legislative framework of the country within which it is being applied. Equally importantly, the certification system is administered by the standards authority of the country. The ISO standards applicable to environmental management are contained within the ISO 14000 suite.

The main aim of ISO 14000 is to bring about continuous improvement in environmental management and the prevention of pollution. The value of ISO 14000 lies in the structural rigour that is required of the company and in the challenge to the company to define its own targets and standards for auditing, including the incentive for companies to strive for excellence beyond mere adherence to legislative or other standards. To qualify, companies are required to implement a comprehensive environmental management system that satisfies the following broad principles:

- Commitment to a number of key principles that have been developed in a company-specific environmental policy.
- Clear environmental policies and targets.
- Thorough record of all policies, procedures and activities.
- Due cognisance of legal requirements.
- Designation of responsibilities within specified time frames using specified resources.
- Training and personnel aspects of environmental management necessary for meeting environmental management objectives.
- Development and maintenance of internal and external communication to assist in attaining environmental management objectives.
- On-going monitoring of operations against standards specified by the organisation and prompt corrective action in cases of deviation from environmental management policy and targets.

3.5 Implications for the Resettlement Planning and Implementation Programme

As is evident, regulations and laws relating to resettlement are, in general, poorly defined. Furthermore, GOM policies are in a state of change, making the application of existing laws difficult. Also, the GOM, at present, lacks sufficient capacity to fully enforce legislation, regulations and policies. As a consequence, many are often ignored or poorly implemented.

Although accommodated within the RPIP, limitations do not detract from the primary objective of the RPIP, viz. to ensure that resettled people are not adversely affected by the investment project. As a result, even where there is poorly defined or non-existent legislation, it is a key purpose of the RPIP to ensure that the best interests of affected people are fundamental to any decision.

Despite the above, where available and applicable, existing resettlement legislation, regulations and policies must be followed. However, concomitantly, recognition must be made of World Bank Group policies, procedures and standards. At times this can be problematic because Mozambican legislation and World Bank Group policies, procedures and standards appear contradictory. Examples of this include:

- In most cases, legislation makes little provision for community participation. In contrast, World Bank Group policies, procedures and standards are centred on this basic principle.
- In Mozambique there appears to be no clearly defined resettlement planning procedure. In contrast, the World Bank Group advocates the formulation of a Resettlement Planning and Implementation Programme.

- Within Mozambican legislation, neither financial compensation for the loss of assets or the affects of resettlement on the present means of income are considered for subsistence land users. The World Bank, however, stipulates that compensation for lost assets must be made prior to resettlement at full replacement cost. Furthermore, affected people must be left, in at least the same, but preferably in an improved state as a result of the resettlement action.

Given the above apparent and real contradictions, the RPIP must take into account legislation, regulations and policies but simultaneously must interpret them in such a way that expansion and improvement are possible.

3.6 Grievance mechanism

As a means of dealing with complaints and issues arising from the resettlement process, Sasol has formulated a grievance mechanism through which affected people can lodge a claim or grievance in a simple and affordable manner, and in the hope of the speedy and satisfactory resolution of disputes. This procedure will allow for the reassessment of decisions when affected people voice concerns regarding the results of the resettlement process as such concerns arise, and will assist in the taking of timeous corrective action. The procedure also facilitates transparency.

Sasol shall obtain the information necessary to determine if affected households raise any grievances. The following procedure will be followed by Sasol and the GOM representative in addressing disputes with affected people:

- Sasol and the GOM representative will investigate the dispute, and, if necessary, discuss it with the local chief, before they re-evaluate the decision.
- If the dispute cannot be resolved at the field level, it should be referred to the Joint Task Group for resolution. If the Joint Task Group cannot resolve the dispute, it should be referred to the Project Liaison Committee (PLC) for its decision.
- If the claimant does not accept the decision of the PLC, he/she can appeal the decision in the manner normally available to him/her though the Mozambican legal system. This will involve an appeal to the District Administrator in the first instance, thereafter to the Provincial Governor, and in the final instance the matter can be referred to a Mozambican court of law.

A written record of all disputes/grievances raised during construction will be maintained by Sasol (Appendix 6). These records will be monitored regularly by an independent agency as part of the on-going monitoring and evaluation process. Copies of these records should be forwarded to the GOM through the Joint Task Group.

4 INSTITUIONAL ARRANGEMENTS/ORGANISATIONAL RESPONSIBILITIES

4.1 Sasol

Sasol (Figure 3) is fully and finally responsible for all resettlement activities as contained within this RPIP. Two key objectives of Sasol are:

- To achieve trouble-free and timeous resettlement to provide a strong basis for on-going positive community relations into the future.
- To achieve resettlement that is fully compliant with the provisions of World Bank Group Operational Policy 4.12: Involuntary Resettlement, Bank Procedure 4.12: Involuntary Resettlement and Operational Directive 4.30: Involuntary Resettlement.

Sasol has three key areas of responsibility:

- Management (including on-going liaison with the GOM, the Contractor and communities).
- Auditing (on-going monitoring of project implementation).
- Monitoring and Evaluation (post-implementation).

Sasol is managing its interests and responsibilities via a Resettlement and Compensation Task Group (Joint Task Team) and a Resettlement Working Group (RWG) (Figure 4). Sasol's Resettlement Project Manager liases closely and continuously with the Contractor's Resettlement Project Manager to effect trouble-free and timeous resettlement.

Up to the present, the Sasol team comprises a Manager, Project Manager, Resettlement Co-ordinator and resettlement team.

Sasol is responsible for the planning and implementation of resettlement activities, in compliance with the World Bank Group Operational Policy 4.12: Involuntary Resettlement, Bank Procedure 4.12: Involuntary Resettlement and Operational Directive 4.30: Involuntary Resettlement pertaining to the Natural Gas Project. Distinction has been drawn between the temporary or permanent loss of access to land and infrastructure, with processes and procedures for each being detailed separately.

Primary resettlement activities include:

- Identification and registration of affected parties.
- Enumeration, valuation and agreement on compensation payable to affected parties.
- Payment to affected parties.
- Resettlement from area or temporary hand-over of land to the EPC or EPCM (if temporary, also return of land to the affected person once construction activities have been completed).

Figure 3 Sasol company structures involved in the Natural Gas Project.

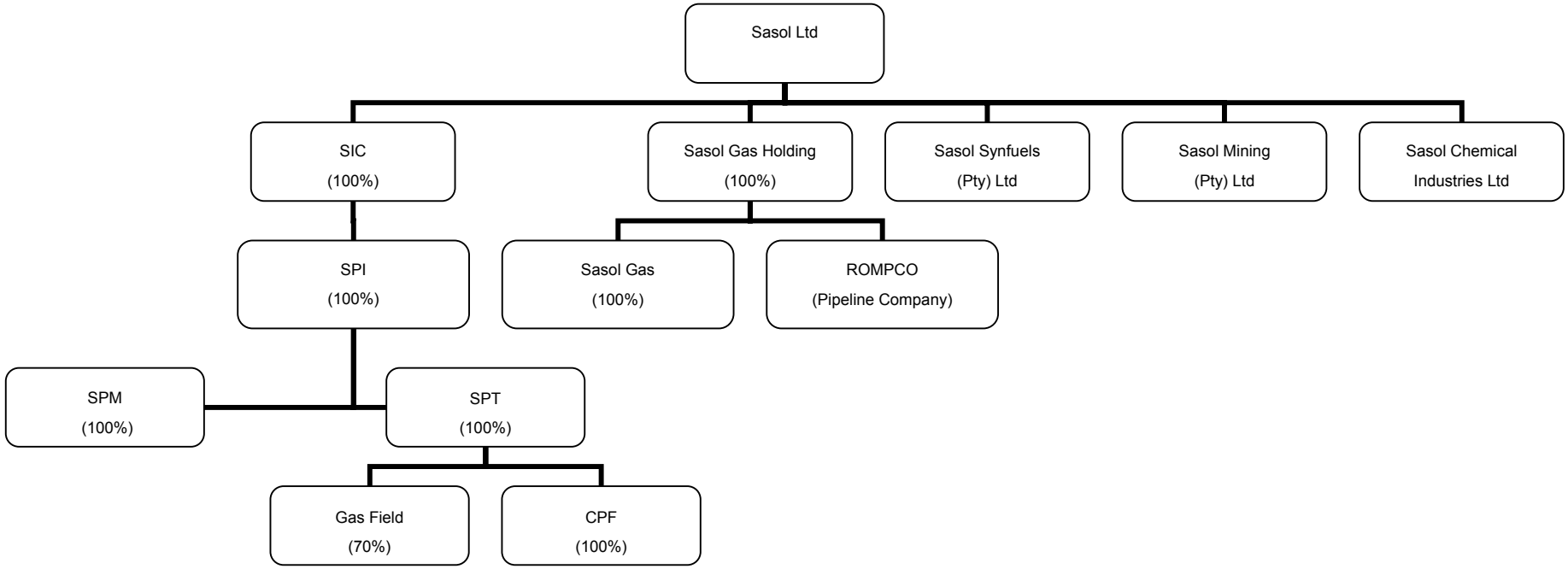
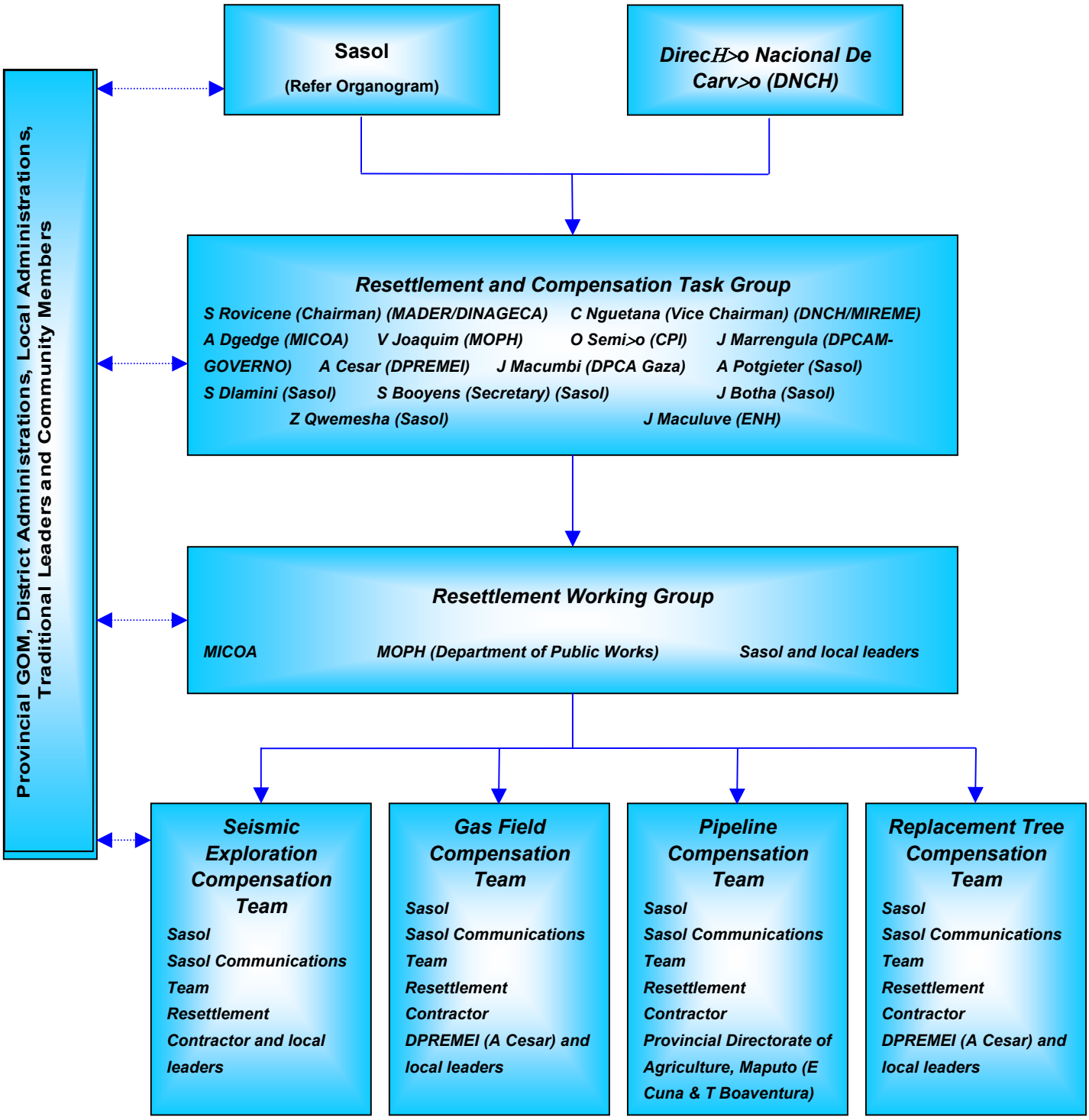


Figure 4 **Organisational structure as pertains to resettlement activities associated with the Natural Gas Project.**



Sasol manages its interests and responsibilities via the Joint Task Team comprising a designated Resettlement Project Manager (Sasol) and representatives from MADER/DINAGECA, DNCH/MIREME, MICOA, MOPH, CPI, CPCAM-GOVERNO, DPREMEI, DPCA Gaza and ENH. Day-to-day resettlement management is undertaken by a Resettlement Working Group (RWG) comprising the Sasol Project Manager and a representative from MICOA and MOPH, while day-to-day resettlement activities are undertaken by different Resettlement Teams (Figure 4).

As is evidenced from Figure 4, Provincial, District and Local Government and Traditional Authorities participation occurs at all levels within the organisational hierarchy.

4.2 Government of Mozambique

The President of the Republic of Mozambique, Sn J A Chissano, is head of Government within the country. He is assisted by a National Cabinet comprising Ministers nominated by him from candidates previously elected to the National Assembly. National legislation is tabled before the National Assembly where bills are passed into law. Provisions within laws enable Ministers to issue Regulations by decree.

The institutional framework of Provincial and Local Government in Mozambique is as follows:

- The “Governor” is head of government and administration in the Province.
- He is assisted by the “District Administrator” (rural areas) and the “Presidente of the Town Council/City Council” (urban areas).
- At a more local level within the institutional framework is the “Posto Administrativo” (rural areas) or the “Grupo Dinamizador” (urban areas).
- The next tier within the provincial government structure is the “Bairro Central” (rural areas) or the “Bairro” (urban areas).
- They are assisted by the “Polana” or “Secretario” (rural areas) or the “Circulo” (urban areas).
- The urban areas have a further tier, known as the “Quateiro”.

The Natural Gas Project is being constructed in rural areas of Mozambique and, therefore, the rural institutional framework applies.

The Provincial Government, through the Governor, is the Implementing Agent for any development in the Province.

The four levels of Government (National, Provincial, District and Local) are involved in the Natural Gas Project in two main areas:

- Direct liaison with Sasol on issues such as project approval and compensation criteria (National and Provincial Government).
- Representation on the RWG dealing with, *inter alia*, community liaison, eligibility, verification and conflict/dispute resolution (Provincial, District and Local Government).

Provincial Government input was sought from the outset. Representatives from the Provinces of Inhambane, Gaza and Maputo have been actively involved in the determination of a standard set of compensation values for annual and perennial crops. In addition, GOM representative are active in the field monitoring progress, processes and procedures of the RWG and the RTs. These representatives report back their findings to the Joint Task Group with suggestions for corrective measures if required.

Local Government's public administration structures comprise primarily of District Government Directorates and Administrative Posts. The primary role of Local Government is to facilitate communication and information dissemination between Sasol and potentially affected parties. To this end, Local Government representatives are able to assist in locating and identifying potentially affected individuals and are also able to verify the eligibility of these individuals. Furthermore, Local Government officials act as an important point of reference to which queries, complaints and grievances can be brought for forwarding to the relevant parties for action. The involvement of Local Government will need to be maintained well into the future to facilitate continued communication between potentially affected parties and Sasol.

4.3 Traditional Authorities

Traditional Authorities, which complement the formal administration, are present in all rural areas of Mozambique, with chiefs having authority at local and village level. As with Local Government, all communication between Sasol and potentially affected entities is facilitated through the relevant Traditional Authorities.

4.4 Contractors

For all aspects of the Natural Gas Project, resettlement is the responsibility of Sasol. Therefore, contractors need only to maintain close communication with Sasol regarding access to areas of work. Should contractors encounter any resettlement related issues, these are referred to the RWG for action.

4.5 Support organisations

4.5.1 Resettlement contractors

Sasol appointed resettlement contractors from South Africa and Mozambique to assist with the planning and implementation of resettlement arising from the Natural Gas Project. Both contractors have experience and expertise in resettlement and the requirements of the World Bank Group as pertains to resettlement.

4.5.2 Payroll bureau

Two payroll bureaus are involved in the Natural Gas Project.

The first contractor is a Mozambican based services company that provided the initial compensation payment service for exploration, gas field development and pipeline construction. However, during the second half of 2002, the contractor ceased operations in Mozambique.

The second contractor is a Non Government Organisation (NGO) that was retained by Sasol in January 2003 to provide a compensation payment service for remaining elements of the Natural Gas Project.

4.5.3 Independent auditor

An external, independent auditor has been appointed by Sasol to undertake six-monthly audits of all aspects related to the implementation of the RPIP for the Natural Gas Project.

4.5.4 National institutions

The following national institutions are involved in resettlement matters pertaining to the Natural Gas Project:

- Ministério Para a Co-ordenação Accâo (MICOA) (Ministry for the Co-ordination of Environmental Affairs).
  MICOA is responsible for environmental aspects comprising *inter alia* the evaluation of Environmental Impact Assessments and the monitoring of environmental performance and compliance.
- Instituto Nacional de Invetigação Agronómica (INIA) (National Institute for Agricultural Research).
- Universidade Eduardo Mondlane (UEM).
- Instituto Nacional de Planeamento Fisica (INPF) (National Institute for Physical Planning).
- Direcção Nacional de Geografica e Cadastral (DINAGECA).
  DINAGECA is responsible for all land related matters in Mozambique.

4.5.5 Non Government Organisations

Apart from the NGO contracted to provide compensation payment services, NGOs have not played a role in resettlement activities for the Natural Gas Project. Into the future, NGOs could play a supportive role, particularly in “after-care” support in the following areas:

- Establishment of community institutions.
- Liaison between Government and community institutions.
- Ongoing assessment of community needs.
- Training.
- Securing financial support for community-based projects.

4.6 Institutional capacity and linkages

The implementation of this RPIP and the roles and responsibilities of different organisations needs to be considered within the context of Mozambique as an emerging and developing economy starting from a low base following many years of conflict. This is because, despite the best intentions of all levels of Government, innovative legislation to attract much-needed investment to the country and highly qualified and motivated personnel, institutional capacity is constrained by limited resources and a lack of technical capacity.

In addition, despite planning frameworks, implementation and enforcement of various plans between the different levels of Government and different Government departments and parastatals remains constrained by the lack of formal linkages between the different role players, often with no definition of common priorities for the good of the whole.

The above two constraints need to be recognised with Sasol's efforts directed at assisting the GOM to overcome them, to address both short-term needs and medium- to long-term aspirations.

5 DESCRIPTION OF THE ENVIRONMENT

This description of the environment has been sourced primarily from three Environmental Impact Study reports produced for the Natural Gas Project (Mark Wood Consultants & Impacto, 2001a, 2001b and 2002) (Section 13). These reports can be viewed on Sasol's Web Page (http://w3.sasol.com/natural gas//).

The Natural Gas Project comprises three primary elements within Mozambique, viz. the exploration of the gas fields of Temane and Pande as well as the Exploration Block, the development of the gas fields and the construction and operation of an underground pipeline from the CPF to Ressano Garcia. The area of influence of these elements is vast and covers three provinces, viz. Inhambane, Gaza and Maputo. For consistency and ease of reference, this description of the environment is split between gas field and pipeline elements.

5.1 Gas field (exploration and gas field development)

The Temane and Pande Gas Fields, and the Exploration Block, are located south of the Save River in Inhambane Province within the Inhassoro (Temane Gas Field) and Govuro (Pande Gas Field) Districts (Figure 1). The other district comprising the study area is Vilankulo (Figure 1).

5.1.1 Biophysical environment

5.1.1.1 Geology, topography and drainage

The study area comprises a broad coastal plain. The topography is uniformly flat and low-lying, and does not exceed 170 m above sea level. The coast is strongly influenced by the southward flowing Mozambique current, which creates warm inshore waters at temperatures exceeding 21°C. The south-east wave pattern generates north-flowing long-shore currents carrying vast quantities of sand that form northward pointing sand spits, each of which shelters a calm mangrove-fringed bay.

The coastal Govuro River flows parallel to the coast from north to south and bisects the study area. The river has a catchment area of 11 200 km^2, over which the mean annual rainfall is between 800 – 1,000 mm. A south-north orientated chain of small coastal barrier lakes occur parallel to the Govuro River. The surrounding area to the east of the river comprises mostly seasonal and permanent wetland habitats.

There are a number of uniform, small, coastal barrier lakes in the study area as a consequence of the sandy lowland nature of the coastal plain and the pattern of sand deposition. Small streams feed some of these lakes. Others are seasonal and dry up completely during winter. Water quality varies widely. Generally, the lakes are fresh water and lie on sandy beds with substantial organic deposits.

5.1.1.2 Soils

Most of the soil types in the study area are of medium to low fertility, with the exception of the soils in the Govuro River Valley, which are fertile clayey and sandy soils.

5.1.1.3 Climate

Records from 1997 show a mean annual temperature of 24.1°C at Inhambane. Monthly temperature variation is small, with the coldest month measuring an average of 20.3°C (July) and the hottest, an average of 27.4°C (February). Relative humidity is fairly constant ranging from 70% (October) to 80% (January).

Rainfall in the province is unevenly distributed and distinct wet and dry seasons occur. Rainfall records from Inhambane in 1996-1997 show a highest monthly record (January) of approximately 250 mm. The wet season begins in October and ends in March. The dry season spans the period April to September. In 2000, the area was exposed to high levels of rainfall and flooding.

5.1.1.4 Flora and fauna

The area under consideration supports eight broad-scale vegetation types that are floristically diverse (Table 2). Common floral species include: *Sclerocarya birrea, Trichilia emetica, Anacardium occidentale, Ziziphus mucronata, Brachystegia* sp., *Maytenus heterophylla, Dichrostachys cinerea, Digitaria* sp., *Perotis patens, Panicum maximum, Strychnos madagascariensis, Terminalia sericea, Afzelia quanzensis, Rauvolfia caffra, Julbernardia* sp., *Rhynchelytrum repens, Corchorus junodii, Nidorella* sp. and *Thespesia acutiloba*. The white (*Avicennia marina*), black (*Bruguiera gymnorrhiza*) and red (*Rhizophora mucronata*) mangroves are common in the mangrove swamps.

The diverse vegetation types provide a variety of habitats for animals supporting rich faunal diversity. However, while larger mammals may not be present due to past and present influences of man, smaller mammals are abundant. Fauna includes birds, small mammals and reptiles, and a host of invertebrate species. Fauna and flora have been disturbed by people's influence on the resource base. Many bird species that nest in specific trees no longer occur because of a lack of nesting sites and because birds were a source of protein during the war years. Nevertheless, a number of bird species were observed during field investigations. These include Sunbirds (white-bellied, scarlet-crested and purple-banded), Barblers (arrow-marked, green-backed and bleating), Bulbuls (sombre and black-eyed), Drongos (fork-tailed and square-tailed), Mousebirds, Hornbills (yellow-billed and grey) and the Emerald spotted dove. Small mammals include rats and mice, while reptiles comprise mainly of snakes (mambas, cobras and adders).

Table 2 Broad-scale vegetation types of the study area.

Vegetation Type	Description
Hummock dune pioneer communities	Littoral thicket and forest of recent dunes
Mangrove swamps	Mangrove
Closed woodland and hygrophytic grassland mosaic	Deciduous tree savanna with palms (poorly drained lowlands)
Acacia open woodland	Discontinuous dry savanna woodland – tree savanna and "tandos" grassland (Gorongosa lowland)
Julbernardia-Brachystegia closed woodland and thicket	Miombo woodland on lake basin and Sul do Save sands
Mixed *Brachystegia* woodland and deciduous forest mosaic	Deciduous miombo – deciduous forest and savanna mosaic
Mixed open woodland	Deciduous miombo tree savanna with gregarious dense dry woodland
Carpodiptera-Guibourtia forest	Deciduous miombo tree savanna with gregarious dense dry woodland

Most of the fauna are typical of similar habitats in the region. However, Red Data Species (mammals and birds) have been recorded.

In addition to terrestrial fauna, the many aquatic environments support a range of fish species and aquatic invertebrates.

5.1.2 Social and socio-economic environment

An understanding of the social and socio-economic environment provides a basis for resettlement through an understanding of peoples' reaction to resettlement and an insight into social networks and production patterns and systems. Indeed, it is within this understanding of the environment that baseline data, gathered for purposes of resettlement planning, are analysed and interpreted.

In this regard, it is important to understand the context of Mozambique. The country has suffered many years of war from which many negative consequences have resulted, for example, a dislocated population, rural depopulation, poor state of repair of infrastructure, collapsed public services, extremely poor people, little commercial agriculture, highly susceptible subsistence agriculture and limited stock ownership.

The Vilankulo, Inhassoro and Govuro Districts that form the study area comprise urban, semi-urban and rural areas supporting well-established settlements (for example, Maimelane, Pande and Vila Franca do Save) and scattered populations often reasonably isolated from one another. Historical migration within and between the districts was from rural to urban (in search of safety during the war years) but, more recently, there has been

back-migration as people seek to reclaim their historical land rights[18]. Furthermore, there has been displacement of people as a result of the 2000 floods that, in some cases, has resulted in the establishment of new settlements, for example, Maluvane.

In general, there are three distinct settlement types in the study area:

- Between the coast and the EN1.
  This area is relatively densely populated. However, soils are poor making crop cultivation difficult. Therefore, residents partake in lake and sea fishing activities to supplement their protein intake and their household income.
- West of the EN1.
  Area of relatively low population density. However, soils are more fertile and, therefore, agriculture is the primary economic activity.
- Low lying flood plains of the Govuro and Save Rivers.
  Area of relatively high population concentrations. Soils are fertile allowing for two agricultural crops per season. Cattle ranging also occurs in these areas.

Population density is highest in Vilankulo District at 24 inhanbitants/km^2 (as influenced by the town of Vilanculo) compared to Inhassoro (6 inhanbitants/km^2) and Govuro (7 inhanbitants/km^2) Districts (that is reflective of dispersed settlement patterns).

5.1.2.1 Demographics

The 1997 population estimates for Inhassoro, Govuro and Vilankulo Districts were 43,406, 29,031 and 113,045 people, respectively. This accounts for approximately 18% of the population of Inhambane Province.

The Temane and Pande Gas Fields and associated infrastructure are situated within the Inhassoro and Govuro Districts, respectively, close to the towns of Maimelane and Pande, respectively. Both these settlements are located along the EN1 and although the population and residential densities are higher than surrounding rural areas, they are still considered rural in nature. Other settlements in the rural areas comprise scattered populations, often isolated from each other. Maimelane has an estimated population of 21 537 people, considered to be the highest population concentration in the district, while Pande has a population of only 5 239.

In general, for both Temane and Pande, the proportion of females is higher (57%) than that of males (43%). While the majority of households are headed by men, 41.4% of families consist of three or more women. The reason for these largely female households is due to male migration to Maputo and Beira, within Mozambique, as well as to Zimbabwe and South Africa. As a result, of the 58% of the population in the Temane and Pande areas that is economically active (16 years and older), 36% are women and 26% are men.

The average household size is 4.97 (although a significant percentage (approximately 40%) of households comprise five or more family members).

[18] It is important to recognise that long-standing rights to land usage exist and that these need to be respected.

A significant majority of the population has always lived in the study area. This is indicative of a stable population. Nevertheless, there is movement of people within and between districts, usually as a consequence of seeking out new lands on which to practice subsistence agriculture.

5.1.2.2 Socio-economics

There are few formal income earning opportunities for the population in the study area. The majority of the population relies on subsistence agriculture for survival. Common crops include maize, manioc, dry beans and sweet potatoes. Most of the produce is used for home consumption. However, when available, surplus crops are sold to generate an income. Although there is little to no commercial agricultural activity, some commercial agricultural crops are grown as family sector crops, for example, sugar cane, and are used to generate a cash income, for example, by selling sugar cane stalks or using the cane for the production of alcoholic beverages that are sold.

Livestock (goats, sheep and poultry) is an important source of food and income. Furthermore, game meat and fish are important sources of protein.

Given the low socio-economic status of the population, there is still a high reliance on natural resources. In terms of the use of plants by local people, the natural vegetation of the area plays a very important role in the home economy, health, subsistence and cash earning potential of the local people:

- Home economy.
  Plants are used to meet a variety of needs of the household, including: fuel wood (firewood and charcoal) and building materials.
- Health.
  Plants play a crucial role in the health of the local populations by being used as medicinal remedies.
- Subsistence needs.
  Plants provide an important source of the food needs of the local people. These include vegetables (Incaca (*Mormodica balsamina*)) and fruits (*Vangueria infausta* and *Strychnos madagascariensis*).
- Cash-earning.
  Plants are used for craft material, for example, mats (*Cyperus* ssp.), charcoal (*Acacia* ssp., *Albizia petersiana* and *Dichrostachys* ssp.) and wooden crafts (*Afzelia quanzensis*).

In some cases, activities have become ”commercialised”, for example, the production of charcoal that is sold to generate an income. An important consequence of natural resource use is relatively large-scale deforestation and resultant erosion.

5.1.2.3 Social infrastructure and services

- Transport and communication.
  Vilankulo District has good transport linkages, with access on both provincial and national road networks. There is also access to sea transport as well as a small airport. Inhassoro and Govuro Districts have only reasonable transport linkages. The 2000 floods have damaged a number of the major roads in the area, resulting in difficult travelling conditions.

Communications in the districts are poor. Telephonic communication in Inhassoro and Govuro Districts was hampered by the 2000 floods. Nevertheless, telephone networks are currently being upgraded with the installation of fibre optic cables in the Vilankulo area and the supply of telephone lines to Inhassoro. Furthermore, cellular networks have been installed in Vilanculo, greatly facilitating communication in the area.

- Education.
  According to the 1997 census, 54% of the population over the age of five years, in Inhambane Province, could not read or write. This is reflective of inadequate primary and secondary education facilities in the three districts (Table 3). There is no institution offering tertiary level education in Inhambane Province.

Table 3 Educational facilities in Inhambane Province.

Type	Vilankulo District	Inhassoro District	Govuro District
Lower Primary	43	26	15
Higher Primary	5	2	2
Secondary	1	0	0

- Health-care facilities.
  According to the Instituto Nacional de Estatistica, in 1999 Mozambique had a total of 1,155 health service facilities and Inhambane Province, more specifically, had a total of 81 health service facilities. In the districts that make up the proposed development area, health service facilities are limited, and the only hospital is situated in the town of Vilanculo.

  Inhassoro District has three health centres with minimal facilities. Most infrastructure has been adversely affected by the recent floods, and services are largely inaccessible to the general population. There are reportedly only eight available beds in the district, resulting in a high turnover of patients in order to keep beds available for emergencies. The main health centre (Sede) is in Inhassoro town. This centre is staffed with one doctor, one nurse, six basic nurses, seven elementary nurses, four midwives, and one paediatric nurse. There is another health centre in Maimelane, which is staffed with one basic nurse, one midwife, and one general assistant. The other health centre is based in Macovane, and there is only one nurse and one midwife employed at this centre. Health care facilities in Inhassoro District are poorly resourced, there are inadequate materials and available medicines and, therefore, the ability to cope with a large number of patients is hampered.

  In addition to the above-mentioned facilities, there is evidence that the local people in these regions make use of traditional medicine. There are a number of traditional healers practising in the vicinity of the proposed development area.

- Water and sanitation.
  There is little potable water in Inhambane Province's urban areas. Sanitation facilities in the province are also poor. There are no water borne sewerage reticulation or treatment plants in the area and households either make use of septic tank systems or pit latrines. However, groundwater levels are high making the construction and operation of pit latrines problematic.

5.1.2.4 Community development initiatives

Development in the three districts is co-ordinated by the GOM. Due to resource constraints, there are a number of NGOs operational in the area, with a focus on emergency provisions (mainly food supply given the current drought conditions), water supply, agricultural production, social infrastructure development and de-mining programmes.

5.2 Pipeline

The pipeline in Mozambique extends 520 km from Ressano Garcia (Chainage 0 km) to Temane (Chainage 520 km) virtually in a straight line. It traverses three provinces, viz. Maputo, Gaza and Inhambane.

5.2.1 Biophysical environment

5.2.1.1 Geology

Five geological forms have been identified along the route:

- Chainage 0 – 10 km - Umbeluzi Rhyolite. Silica rich lava forming the Lebombo Mountains that are resistant to weathering. Give rise to shallow sandy soils with shallow bedrock.
- Chainage 10 – 41 km - Movene basalt. Basaltic lava that gives rise to expansive clayey soils.
- Chainage 41 – 48 km - Grudja Formation. Fine glauconitic/calcareous and fossiliferous sandstone with layers of calcareous marl that gives rise to sandy calcareous soils with marine fossil remains.
- Chainage 48 – 420 - Undifferentiated Tertiary and interspersed Quaternary fluvial and marine sediments giving rise to sandy and silty soils of alluvial, lacustrine and marine origin.
- Chainage 420 – 520 - Tertiary fossiliferous calcarenite of the Sancul/Cogune Formation (calcareous silt/sandstone with marine fossils).

In general, apart from the mountainous system of the Lebombo Mountains, the route traverses sediments that are related to various cycles of marine transgression and regression, with few rocky outcrops.

5.2.1.2 Landform, soils and terrain

Four major landforms typify the pipeline route, viz. mountainous system of the Lebombo Mountains and associated steep and deeply incised valleys, denuded basaltic undulating plains, depositional littoral sandy plain, and alluvial plains associated with the Incomati, Sabie, Mazimchope, Limpopo and Changane River Systems.

Eight soil units occur along the 520 km pipeline route:

- Soils of the Lebombo Range.
  1.55% of the route occurring in the Lebombo Mountain Range.
- Soils derived from Basalt.
  5.2% of the route occurring between the Lebombo Mountain Range and the Incomati and Sabie River valleys.
- Moderately stony to stony soils.
  0.05% of the route occurring in the Moamba District, Maputo Province.
- Soils derived from sedimentary rocks.
  17.9% of the route occurring in the Moamba and Magude Districts, Maputo Province, and the Govuro District, Inhambane Province.
- Post-Managa soils.
  2.6% of the route occurring in the Moamba and Magude Districts, Maputo Province, and Inhassoro District, Inhambane Province.
- Soils derived from Managa deposits.
  47.1% of the route occurring as a dominant feature of the inland plains, valley bottoms and circular depressions and drainage lines.
- Alluvial soils.
  2.9% of the route occurring on the terraces and floodplains of major river systems (Incomati, Sabie, Mazimchope, Limpopo and Changane).
- Sandy soils of level plains.
  1.09% of the route occurring on the inland flat sandy plains.

The area traversed by the pipeline shows small variations in terrain. The highest point of the route is Ressano Garcia (240 m above sea level) at the foothills of the Lebombo Mountains. *En route* from Ressano Garcia to Temane, the route is flat excepting for river valleys.

5.2.1.3 Climate

The area traversed by the pipeline experiences hot summers and mild dry winters (with daily average temperatures ranging from 12^{o}C (winter temperature for Ressano Garcia) to 28^{o}C (summer temperature for Inhambane). It is characterised by a predominantly dry (annual rainfall = 400 mm or less) tropical climate except towards the coast and the Lebombo Mountains where higher rainfall (annual rainfall = 800 – 1,000 mm and 800 mm, respectively) occurs, with most rain falling during a well-defined rainy season between October and April.

5.2.1.4 *Hydrology*

Major surface hydrological features are the following 13 rivers: Incomati, Sanduine, Sabie, Massintonto, Fussane, Uanetze, Cimbe, Mazimchopes, Limpopo, Chichacuane, Sangutane, Machachane and Changane.

There are five categories characterising ground water along the pipeline route:

- Ressano Garcia to Incomati River.
  High relief and moderately steep slopes resulting in high runoff. Relatively deep water table.
- Incomati River to Sabie River.
  Parallel drainage pattern with evidence of a shallow water table. Wide floodplain at the Sabie River.
- Sabie River to Limpopo River.
  Flat topography with signs of relatively high water table, particularly in scattered pans. The number of pans increases towards the Limpopo River, with occasional large wetlands indicating a shallower or perched water table.
- Limpopo River to Changane River.
  A 4 km wide seasonal alluvial floodplain at the Limpopo River. Duplex soils and flat terrain result in a perched water table. Seasonally flooded low lands dry reasonable rapidly after the rains.
- Changane River to Temane.
  Initially, duplex soils and flat terrain result in a perched water table. Further north, wet areas and pans become less, suggesting deeper, better-drained soils and a deeper water table.

5.2.1.5 *Flora and fauna*

Eight vegetation types predominate along the pipeline route:

- Extratropical Lowland Grassland.
  Chainage 0 – 80 km comprising grassland with scattered trees and shrubs. Common species include *Themeda triandra, Turbina oblongata, Acacia nigrescens, Lonchocarpus capassa, Combretum imberbe* and *Ziziphus mucronata*.
- Tree Savanna of Medium Altitudes and River Valleys.
  Chainage 80 – 280 km comprising tree or shrub woodland dominated by *Acacia* species.
- Vegetation on Alluviums.
  Chainage 120 – 140 km comprising a sub-arid tree shrub savanna dominated by *Panicum* and *Acacia* species.
- Mopane Woodland.
  Chainage 170 – 190 km comprising mopane woodland accompanied by a variety of tree savanna species. This is the second-most dominant vegetation type along the pipeline route.

- Deciduous Miombo Tree Savanna with Gregarious Dense Dry Woodland.
  Chainage 280 – 424 km comprising woodland. Common species include *Julbernardia globiflora, Pterocarpus angolensis, Burkea Africana, Albizia versicolor* and *Strychnos* ssp.
- Vegetation on the Saline Soils (Changane Valley).
  Chainage 310 – 330 km found in the valley of the Changane River. Soil salinity is high and, therefore, flora is halophytic (*Arthronemum, Chenolea, Salicornia, Atriplex* and *Suaeda* species).
- Dry Deciduous Miombo.
  Chainage 424 – 475 km comprising woodland. Common species include *Brachystegia spiciformis, Julbernardia globiflora, Afzelia* sp., *Sideroxylon* sp. and *Balanites* sp.
- Miombo Woodland on the Sul de Save Sands.
  Chainage 475 – 520 km comprising secondary evergreen forest of dense *Brachystegia spiciformis*. Other species include *Albizia adianthifolia, Garcinia livingstonei, Afzelia quanzensis* and *Pterocarpus angolensis.*

With regard to fauna, there are few large mammals, probably as a result of years of war during which time large mammals were hunted for food and/or income. Fauna generally comprises small- to medium-sized herbivores, bats, rodents, snakes, reptiles, amphibians, small carnivores and a variety of birds.

5.2.2 Social and socio-economic environment

The area traversed by the pipeline covers three provinces and eleven districts as follows:

- Maputo Province.
  - Moamba District.
  - Magude District.
- Gaza Province.
  - Chokwe District.
  - Guija District.
  - Chibuto District.
  - Chigubo District.
  - Inhambane District.
- Inhambane Province.
  - Funhalouro District.
  - Massinga District.
  - Vilankulo District.
  - Inhassoro District.

As can be expected, the social and socio-economic environment along the 520 km of the pipeline route varies greatly. As a consequence, this description of the environment is reasonably general in nature.

5.2.2.1 *Demographics*

Key demographic indicators for districts traversed by the pipeline are provided for each of the three provinces in Tables 4, 5 and 6. Population densities are uniformly low (< 20 people/km^2) for the entire length of the pipeline route excepting for Chokwe and Guija Districts (Gaza Province) and Massinga District (Inhambane Province).

For Chokwe and Guija, this is attributable to the rich and fertile Limpopo River valley and floodplain where agricultural activities are intense, and for Massinga, higher population densities are attributable to the coastal town of Massinga where much of the population resides. By implication, apart from settlements and towns, the population is scattered and rural in nature.

For all districts under consideration, the population profile is female dominated. This gender ratio in favour of females can be attributed to the loss of males during the war years as well as present migration of males in search of employment, both within Mozambique, for example, Maputo City, and external to the country, for example, South Africa. A slight majority (55%) of the population is over age 16 and considered economically active. However, literacy rates are low (< 50%) indicative of an unskilled labour force.

Average household size has been determined at 5.21 people with 76% of households being native to their areas of residence. This is indicative of a relatively stable population. However, population displacement across the pipeline route did occur during the devastating 2000 floods.

5.2.2.2 *Socio-economics*

In the absence of formal employment opportunities, subsistence agriculture serves as an extremely important survival strategy amongst most people along the pipeline route. Common food crops include maize, cowpeas, groundnuts, cassava and sweet potatoes. Most of the produce is used for home consumption. However, when available, surplus crops are sold to generate an income. Although there is little to no commercial agricultural activity[19], some commercial agricultural crops are grown as family sector crops, for example, sugar cane, and are used to generate a cash income, for example, by selling sugar cane stalks or using the cane for the production of alcoholic beverages that are sold.

Livestock (goats, sheep and poultry) is an important source of food and income. Furthermore, game meat is an important source of protein. Given the low socio-economic status of the population, there is still a high reliance on natural resources. In terms of the use of plants by local people, the natural vegetation of the area plays a very important role in the home economy, health, subsistence and cash earning potential of the local people (Section 5.1.2.2).

[19] This is excepting the recently rehabilitated Xinavane Sugar Estate near Magude and agricultural lands in the Limpopo River valley that are presently being rehabilitated for commercial purposes.

Table 4 **Key demographic indicators and health-care and educational facilities for the Districts of Maputo Province traversed by the pipeline.**

District	Total Population	Population Density (People/km^2)	Health-care Facilities		Education Facilities	
Moamba	43,424	17	Rural Hospital	0	Secondary	1
			Primary Health-care	2	Upper Primary	3
			Health Centre	0	Lower Primary	67
			Health Post	3	Average Pupil:Teacher Ratio	54:1
Magude	42,844	11	Rural Hospital	***	Secondary	1
			Primary Health-care	***	Upper Primary	5
			Health Centre	***	Lower Primary	17
			Health Post	***	Average Pupil:Teacher Ratio	***

*** Unknown

Table 5 **Key demographic indicators and health-care and educational facilities for the Districts of Gaza Province traversed by the pipeline.**

District	Total Population	Population Density (People/km^2)	Health-care Facilities		Education Facilities	
Chokwe	173,544	126	Rural Hospital	1	Secondary	1
			Primary Health-care	***	Upper Primary	5
			Health Centre	3	Lower Primary	71
			Health Post	11	Average Pupil:Teacher Ratio	91:1
Guija	57,217	30.6	Rural Hospital	0	Secondary	0
			Primary Health-care	1	Upper Primary	1
			Health Centre	1	Lower Primary	5
			Health Post	0	Average Pupil:Teacher Ratio	91:1
Mabalane	25,472	2.68	Rural Hospital	0	Secondary	1
			Primary Health-care	***	Upper Primary	1
			Health Centre	1	Lower Primary	17
			Health Post	7	Average Pupil:Teacher Ratio	***
Chigubo	13,405	3	Rural Hospital	0	Secondary	0
			Primary Health-care	0	Upper Primary	0
			Health Centre	0	Lower Primary	13
			Health Post	2	Average Pupil:Teacher Ratio	***
Mabote	39,667	3	Rural Hospital	0	Secondary	0
			Primary Health-care	0	Upper Primary	1
			Health Centre	2	Lower Primary	6
			Health Post	0	Average Pupil:Teacher Ratio	48:1

*** Unknown

Table 6 Key demographic indicators and health-care and educational facilities for the Districts of Inhambane Province traversed by the pipeline.

District	Total Population	Population Density (People/km^2)	Health-care Facilities		Education Facilities	
Funhalouro	30,321	3	Rural Hospital	0	Secondary	0
			Primary Health-care	***	Upper Primary	1
			Health Centre	1	Lower Primary	5
			Health Post	2	Average Pupil:Teacher Ratio	47:1
Massinga	186,700	44	Rural Hospital	0	Secondary	0
			Primary Health-care	***	Upper Primary	1
			Health Centre	1	Lower Primary	5
			Health Post	6	Average Pupil:Teacher Ratio	64:1
Vilankulo	113,303	23	Rural Hospital	1	Secondary	2
			Primary Health-care	***	Upper Primary	3
			Health Centre	3	Lower Primary	3
			Health Post	5	Average Pupil:Teacher Ratio	56:1
Inhassoro	43,406	3	Rural Hospital	0	Secondary	0
			Primary Health-care	***	Upper Primary	1
			Health Centre	3	Lower Primary	1
			Health Post	1	Average Pupil:Teacher Ratio	46:1

*** Unknown

5.2.2.3 *Social infrastructure and services*

Social infrastructure and services varies significantly between districts and provinces along the route traversed by the pipeline. Health-care and educational facilities for districts traversed by the pipeline are provided for each of the three provinces in Tables 4, 5 and 6. The main transport routes south to north are the EN1 and the railway.

Primary, secondary and rural roads feed off the EN1, primarily to towns, villages, areas of economic activity, for example, the Xinavane Sugar Estate, and important infrastructure of national importance, for example, Massingir Dam. While primary roads are black-top and in reasonable condition, secondary and rural roads are gravel or sand tracks, the condition of which is variable and dependent on prevailing weather conditions.

Air transport links Maputo City to Inhambane and Vilanculo (although limited private airstrips for smaller aircraft do exist, for example, at Xinavane Sugar Estate).

Telecommunications throughout the area traversed by the pipeline route are variable. In some instances, landline and cellular telecommunications do exist. In other cases, there are no means of telecommunication save for the use of satellite telecommunications.

Water and sanitation provision is also extremely variable in the area traversed by the pipeline route. In district centres, for example, Magude, Chokwe and Vilanculo, there is piped water supply and water borne sewage of variable frequency and efficiency. In rural areas, communal fountains provide safe drinking water and use is generally made of pit latrines. However, the use of pit latrines is hampered by the generally high water table throughout the area. Currently, the Department of Water Affairs is investigating a complete rehabilitation and upgrading of water supply and sanitation facilities in major district centres.

In summary, and in general, the eastern districts are more developed than those in the west, primarily due to a concentration of the population in the east and good agricultural conditions. However, the extent of land use throughout the area is low and existing infrastructure and services are in a poor condition (reflective of the poor socio-economic status of the country following prolonged conflict).

5.2.2.4 *Community development initiatives*

Development in the three provinces is co-ordinated by the GOM. Due to resource constraints, NGO activity is intensive and diverse, covering most sectors such as health-care, education, water supply and agricultural development. Following the 2000 floods, there was a significant focus on flood relief and the repair and replacement of social and community infrastructure. More recently, a major agricultural rehabilitation programme has commenced for the area commanded by the Limpopo River and Massingir Dam.

6 COMPENSATION

6.1 Compensation principles

The following general principles, consistent with the provisions of Operational Policy 4.12: Involuntary Resettlement and Bank Procedure 4.12: Involuntary Resettlement apply:

- Replacement of homesteads.
  Homesteads will be replaced by a new brick house (or as otherwise indicated by and agreed with the affected homestead owner).
- Land for resettlement.
  New land will be identified by the Authorities and Sasol, developed and made available to the parties to be resettled.
- Alternative machambas.
  If total or partial loss of land-use opportunities and rights occurs, alternative machambas will be identified, surveyed and developed, and made available to those losing land.
- Transitional support.
  This will be provided to those moved off their land as a result of resettlement or during construction, and during the period of re-establishment.
- Crop losses.
  Compensation for loss of crops and trees will be determined at the time of resettlement or construction and paid as soon as possible thereafter.
- Graves.
  The exhumation and reburial of graves will be treated in accordance with the wishes of the next of kin. All expenses will be covered.

These principles have been approved as fair and equitable, and signed-off by the Joint Task Team.

6.2 Eligibility

Only people resident in the areas demarcated for exploration, the gas field development (all components) and the pipeline “right of way” prior to the commencement of survey activities are eligible for material compensation arising from their resettlement[20], and then only in so far as their rights have been affected or infringed upon due to project related activities.

6.3 Compensation methodologies and processes

The approach and methodology utilised for resettlement and compensation activities varies according to the entity impacted upon, and can be summarised as follows:

- At the earliest opportunity, areas that will be impacted are identified and annotated on maps and aerial photographs. After issuance of the land-use authorisation, these areas are demarcated on the ground.

[20] Considering the application of the term “resettlement” in its broadest context (Section 1.3).

- Thereafter, baseline surveys are undertaken to:
  - Identify affected persons, parties or homesteads and to register names and record details.
  - Identify local community leaders/representatives to assist in this process.
  - Estimate the magnitude of the impacts relative to the need for resettlement and/or compensation.
- Compile a land register.
- Value compensatable assets.
- As soon as possible thereafter, compensation offers are formulated and agreements signed with affected people.
- Sasol provides alternative land (if applicable), inclusive of ancillary support services, for example, transport for physical resettlement, the provision of housing, the provision of crop starter packs and replacement trees, and food support.
- Resettlement after-care and assistance are also provided to those people physically resettled.
- Following resettlement, Sasol will monitor and evaluate the resettlement process as well as the re-establishment of sustainable livelihoods by those affected by resettlement.

All records arising from resettlement are compiled and maintained by Sasol, a copy of which will be made available to the GOM at the completion of the resettlement process.

Lastly, where possible, Sasol will participate in social investment initiatives.

For the purpose of this procedure, the following resettlement and compensation strategies are suggested for affected persons, households and homesteads:

- Permanently Affected.
  Those people who are losing all or some of their residences and/or agricultural land permanently. This is the most badly affected person because of the permanent nature of the losses, and compensation will involve full resettlement to an area within the relevant region, identified by the affected party and Sasol following approval by the GOM. Resettlers will have the land developed for their use, and accommodation will be rebuilt to a standard better than the original (or as otherwise indicated by and agreed with the affected homestead owner).
- Temporarily Affected.
  Those people who are temporarily losing some of their agricultural land. During construction, these people will be provided with cash compensation equivalent to the productive value of the land they cannot use. The land shall be rehabilitated after construction has been completed and given back to the affected people. Should more than one planting season pass prior to rehabilitation, the affected people will be entitled to receive a second round of cash compensation. This will continue from planting season to planting season as long as it takes to return the land to the affected people.

- All Affected.
  For all people affected by construction:
  - Crop starter packs, consisting of seeds and fertilizers, and replanting assistance may be provided to enable affected people to replant agricultural land as soon as the area has been rehabilitated. In addition, trees lost as a result of development activities will be replaced. The GOM and Sasol, via the Joint Task Team, will determine who qualifies for such crop starter packs and replacement trees. Progress with replanting will be monitored so that the correct methods are used.
  - In certain cases, food support might be required and will be provided. Food support shall be based on emergency food rations to meet protein, energy and micronutrient requirements, and will be supplied to affected people until such a time as the replanted crops are able to support the household. These cases will be identified and be dealt with on an individual basis. The GOM and Sasol, via the Joint Task Team, should determine when this is applicable and must monitor such support. If applicable, Sasol will utilise Non Government Organisations already active with this kind of support in the country to implement food support programmes.

6.4 Claims procedure

Affected people residing within a project affected area will be eligible for compensation once they suffer damage or have to be resettled. The procedure to deal with these matters will be the following:

- Registration.
  Sasol will identify and register all potential claimants (name, identity number and contact details).
- Details of claim.
  Sasol will interview claimants and document the nature and details of the claim. This will include as much information as possible on the basis of the claim, the nature of the claim (cash compensation, food, resettlement, etc), family members and neighbours.
- Investigation.
  Sasol, together with the local chief and a GOM representative, will investigate and make a recommendation regarding each claim by cross-referencing information obtained from the claimant with records obtained during the baseline surveys, local government records, traditional leaders and community elders.
- Decision.
  After considering the facts of each individual claim, Sasol shall award or decline the claim.
- Reporting.
  Sasol will keep a complete report of its decisions and shall continually keep the Joint Task Group informed of decisions.
- Appeal.
  If a decision by Sasol is challenged, an appeal should be lodged in accordance with the grievance procedure set out in Section 3.6.

6.4.1 Compensation processes

6.4.1.1 Homesteads

Following discussions and agreement with the affected individual, Sasol will rebuild the homestead and houses with conventional building material and any other affected structures, such as latrines, wells, etc. to a better standard than those being replaced, unless otherwise instructed by the affected individual. The same number of new houses will be built.

Accurate and realistic valuations shall be carried out on existing brick buildings so that such buildings are rebuilt to at least the same standard.

All actively utilized homesteads should be replaced irrespective of the condition of the existing homestead. The fact that the replacement house will be new, and will be built from materials that are better than those lost, means that households will be better off in terms of the quality of housing.

The procedure to be followed is as follows:

- Make a detailed inventory of all persons, possessions, assets (including housing, latrines, wells, kraals, etc) and stock requiring resettlement or where damage is envisaged.
- Rebuild houses in other locations agreed by parties concerned and all infrastructure existing on the land as determined during the compilation of the inventory.
- The occupants will be entitled to remove any materials they wish to salvage, within two weeks of vacating the dwelling. After the two-week period Sasol shall have the right to demolish old buildings to prevent unauthorized re-occupation.
- Provide transport (including packers and loaders) to physically move people and possessions to the new location.
- Provide temporary housing/shelter if necessary. However, there will be no destruction of existing dwellings before the affected households can move into the new home. In urgent situations, temporary housing may be supplied by Sasol in an area agreed upon by all the relevant parties, until such a time as the construction of new homes has been completed.

Replacement land for resettlement shall be identified in accordance with existing GOM procedures. Sasol will develop a plan for all resettlement areas, and these plans must be approved by the responsible GOM authorities.

All reasonable efforts should be made to resettle members of extended families close to one another.

Using house designs approved by the GOM, consultation will occur with the affected households regarding which of the approved designs they prefer. Typical designs of a certain amount of housing types, depending on the area, will be offered to affected households.

Sasol is responsible for the construction of new housing. The replacement housing shall, if possible, be subcontracted to a local contractor, if available. If established contractors are used they shall be required to make use of local labour to the fullest extent possible.

It will be necessary to develop a land-use plan for the new settlement area that should be submitted to, and approval obtained from, the relevant GOM departments. Specific information detailing people whose homes have had to be physically moved, including associated infrastructure such as latrines, wells and stock pens will be documented in Volume 2 of the RPIP (the Land Settlement Plan for replacement housing).

6.4.1.2 Machambas

Compensation for machambas will take into account the loss of land, trees and annual crops. The procedure for determining cash compensation involves the determination of affected areas, the registration of the property users, the compiling of an inventory of crops and the assignation of monetary value to crops. Crop valuation is undertaken in accordance with a baseline of established crop values negotiated with the GOM.

Consideration will also be given to transitional support in the form of food support, conforming to protein, energy and micronutrient requirements until such a time as the relevant machambas can support the affected households.

Sasol shall monitor the replanting of crops so that affected households resume their normal farming activities, and that such resumption is not deliberately delayed, and also to render transitional support only during the time it takes for the crops to re-establish. This will be done as part of the implementation of the RPIP and does not form part of the four-year M&E Programme.

Replacement trees/perennial crops will be provided within the parameters and time frame of the implementation of the RPIP. Using guidelines provided by the Ministry of Agriculture and Rural Development, tree/perennial crops will be compensated on the basis of loss of production and the consequent loss of income accumulated over the period required for the new trees to be productive. These data are provided in Tables 7a (economic crops) and b (indigenous crops). The manner in which these values were derived is provided in Appendix 7.

Annual crops will be compensated according to the loss of one season's production. The options are:

- Machambas cultivated with only one type of crop will be compensated for the loss of that particular crop only, using the formula agreed upon with the GOM.
- As is generally the case, a machamba is cultivated with a number of different crops. Compensation will be paid according to the mixed crop method or for the actual crops affected, using formulae agreed upon with the GOM.

In terms of replacement machambas, the following resettlement processes and procedures will be applied. The eligibility of people to receive a replacement machamba should be determined via the following:

- Determine that a particular individual did, indeed, originally farm a machamba in the affected area. This will be achieved by examining the individual=s registration card, identity number and photograph.
- Evaluate the individual=s knowledge of previously cultivated area and crop types against baseline data.

Table 7a Perennial[21] and annual crop valuation data (economic crops).

Crop	Crop (English)	Recommended value (US$)	Unit of measurement (per)
Cajueiro	Cashew	60.50	Plant
Mangueira	Mango	159.50	Plant
Mafureira	Natal Mahogany	66.00	Plant
Laranjeira	Orange	90.00	Plant
Limoeiro	Lemon/Lime	45.00	Plant
Eucalipto	Eucalyptus	50.00	Plant
Abacateira	Avocado	57.00	Plant
Casuarina	Casuarina	7.50	Plant
Papaeira	Paw paw	1.00	Plant
Coqueiro	Coconut	60.50	Plant
Cahuneiro	Marula	21.50	Plant
Milho	Maize	89.00	Hectare
Amendoim	Peanuts	317.00	Hectare
Feijao nhemba	Cowpeas	112.00	Hectare
Mandioca	Cassava	218.00	Hectare
Arroz	Rice	267.00	Hectare
Batata-doce	Sweet potato	133.50	Hectare
Mapira	Sorghum	42.50	Hectare
Mexoeira	Sorghum	40.00	Hectare
Ananazeira	Pineapple	533.50	Hectare
Ananazeira	Pineapple	0.50	Plant*
Cana-doce	Sugarcane	0.50	Stalk
Bananeira	Banana	6.00	Hand
Pacote de culturas	Basket of crops	222.50	Hectare
Hortcula	Horticultural plants	0.50	m^2
Alho	Garlic	1.50	m^2

*Assuming 35 750 plants per hectare.

[21] Trees are valued on the basis that most were planted prior to independence and are, therefore, of similar determinable age.

Table 7b Indigenous species valuation data.

Local name	Botanical name	Common name	Classification	Value (Mts/m^3)	Value (US$/m^3)
Chafuta	*Afzelia quanzensis*	Pod mahogany	1[a]	65,000.00	2.95
Mecrusse, Cimbire	*Androstachys johnsanii*	Lebombo ironwood	1[a]	65,000.00	2.95
Messasa	*Brachystegia spiciformis*	Msasa	3[a]	30,000.00	1.36
Chacate	*Guibourtia conjugata*	Kleinbastermopanie	Precious	65,000.00	2.95
Nulo, Nunlu	*Balanites maughamii*	Torchwood, fakkelhout	1[a]	65,000.00	2.95
Pau preto, Chire	*Dalbergia melanoxylon*	Zebrawood, sebrahout	Precious	65,000.00	2.95
Lunhane	*Albizzia brevifolia*	Bergralsdoring	1[a]	65,000.00	2.95
Sandalo	*Spirostachys africana*	Tambotie	Precious	65,000.00	2.95
Mondzo	*Combretum imberbe*	Leadwood, hardekool	3[a]	30,000.00	1.36
Tingare	*Albizzia verzicolor*	Grootblaarvalsdoring	1[a]	65,000.00	2.95
Tsandjanhovo	*Pterocarpus lucens*	Doringkiat	1[a]	65,000.00	2.95
Mbila	*Pterocarpus angolensis*	Kiat	1[a]	65,000.00	2.95
Nala	*Albizzio forbesti*	Breepeulvalsdoring	1[a]	65,000.00	2.95

- Examine and verify compensation payment receipts issued when resettlers received cash compensation for lost crops.
- Confirm eligibility.

Only people eligible for replacement land will also automatically be eligible for a Crop Starter Pack. The distribution of Crop Starter Packs to individuals temporarily affected will be at the discretion of Sasol.

Following the identification of replacement land, it was demined and bush cleared. It will be necessary to develop a land-use plan for the new area, the same to be submitted to, and approved by, the relevant GOM authorities. Specific information detailing people whose machambas have had to be physically moved will be documented in Volume 3 of the RPIP (the Land Use Plan for replacement machambas).

Once eligibility has been confirmed and the land prepared:

- Allocate an individual a plot.
- Physically walk the boundaries of the plot with the individual.
- Indicate the allocation of the plot on the base map.
- Write the plot number on the reverse of the New Machamba Registration Card.

In terms of Crop Starter Packs:

- Issue an individual the appropriate quantity of seed.
- Issue each individual receiving a Crop Starter Pack a Seed Allocation Certificate.
- Maintain an inventory of seed issued and remaining seed.
- Make provision for the safe storage of seed.

With regards to land title registration, the boundaries of each new machamba need to be surveyed, marked with corner posts, and mapped. Each machamba should then be registered against an individual and lodged with DINAGECA. Ultimately, each machamba user should receive a formal Certificate of Land Title.

6.4.1.3 Graves and Holy Places

The compensation of next-of-kin for the re-interment of graves is a personal issue and of a sensitive nature and, therefore, costs will be negotiated and compensated on an individual basis. These costs must include exhumation, a re-burial ceremony (including a sacrificial beast) and physical re-interment.

The tombstone and other structures on the new graves will be at least of the same standard as that of the old grave.

The exhumation and re-interment will be carried out with all due ceremony and ritual as agreed upon with the surviving relatives and as ratified by the applicable authorities.

Typical steps to be followed would be:

- The affected grave is located, and next-of-kin are identified and informed that the grave needs to be moved.
- The relevant household will be asked to identify the deceased person and a preferred site and preferences around blanket/coffin etc, and customs to be adhered to relating to the reburial.
- If no next-of-kin can be located, permission to move the grave will be obtained from the local Chief/District Administrator.
- Sasol, on behalf of the representative of the household will formally request re-internment.
- If necessary, a professional undertaker will be commissioned to move the grave and will be formally introduced to the next-of-kin.
- Ritual requirements will be satisfied and the family compensated for associated expenses.
- Thereafter, re-interment will occur.

Typical costs associated with the exhumation and reburial ceremonies are provided in Table 8. These values were derived from families settled in a peri-urban environment. In practise in rural areas it has been found that re-internment costs range between 1,000,000 and 4,500,000 Meticais. Therefore, guidelines and base values have been established with local GOM leaders as to the requirements for reburial. These have been applied to negotiate with next-of-kin.

6.4.1.4 Other

- Natural vegetation.
  Many households depend on natural vegetation for fuel. If access to natural vegetation is impeded by construction, wood obtained from the construction area should be made available to affected households. Wood provisioning programs may also be used as a mitigatory measure.
- Impeded access.
  When a family or a community suffers significant impeded access and loss of communication due to the development and wishes to move to a new site, full entitlement to resettlement and compensation will be provided.
- Indigenous trees with economic value.
  The owners (individuals, companies, State or others) will be compensated for trees and timber with economic value situated in forestry-zoned areas, in accordance with the agreed formulae (Table 7b).
- Medicinal plants and herbs.
  Cash compensation will be paid to identified parties for medicinal plants and herbs destroyed during construction. Table 9 provides unit values (price/kg) for some of the most commonly used medicinal plants. These values will be used to calculate a compensatable value should loss of medicinal plants occur. Replacement plants and herbs will be provided, where possible and practical.

It is important to note that all the above factors do not relate specifically or solely to the potentially affected people currently residing and/or farming within the project area. This is because migratory people use natural resources within the project area. Hence, these people have also been taken into account when considering compensation.

Table 8 Typical costs associated with grave exhumation and reburial ceremonies.

Item	Price (Mts)	Item	Price (Mts)
Cabeça de Gado	7,000,000	Oleo (5 l)	100,000
Cabrito (2)	1,000,000	Amendoim (10 kg)	150,000
Ovelha (1)	700,000	Rajah (3 p)	15,000
Galinhas (5)	175,000	Chá (3 p)	30,000
Arroz (50 kg)	250,000	Caixas de Refrescos (10)	600,000
Farinha de Milho (50 kg)	200,000	Caixas de servejas (5)	390,000
Açucar (50 kg)	295,000	Vinho (10 l)	240,000
Batata (10 kg)	50,000	Caxâo (cada)	350,000
Cebola (10 kg)	45,000	Transport	200,000
Sal (5 kg)	25,000	Mâo de Obra	300,000
	Total	**12,115,000**	

Table 9 Medicinal plant values.

Common name	Scientific name	Unit price (US $ per kg)
Pepper bark tree	*Warburgia salutaris*	1.69
Wild ginger	*Siphonochilus aethiopicus*	14.05
Climbing lily	*Boweia volubilis*	1.47
Pineapple lily	*Eucomis autumnalis*	0.62
Black Stinkwood	*Ocotea bullata*	0.67
Giant Alepidea (Tinsel Flower)	*Alepidea amatymbica*	1.61
Assegai tree	*Curtisia dentata*	0.76
Blue squill	*Scilla natalensis*	0.68
File-leaf haworthia	*Haworthia limifolia*	3.08

6.5 Actual payment of compensation

The following methods of compensation payment have been identified and, where applicable up to the present, implemented.

6.5.1 Cash payments

Cash payments to the head of affected households have been made in-field, to the amount of compensation agreed upon, as soon as possible after damage was caused. The local Chief verifies the actual person receiving the compensation. This has proven to be the easiest way, but it creates an extremely high security risk and danger of being robbed or hijacked. This method is employed only when the affected individual(s) is remotely situated and no convenient, common pay point can be established.

6.5.2 Pay offices

This option entails the establishment of pay offices in the project area. These pay offices are established in close proximity to the effected individuals in order to facilitate easy access. Affected households gather at these pay offices in order to collect their compensation. Although this option poses a security risk, it is less than direct cash payments in the field.

6.5.3 Procedure of payments

Compensation is payable after actual damage has been caused. Payment of agreed compensation is handled in the following manner:

- The payment of compensation is effected by cash payment.
- The affected party signs for the cash and acknowledges that it is in full and final settlement of his/her claim and that no further claims may be submitted. This is in the form of an agreement with Sasol, pertaining to resettlement and compensation.
- Sasol and GOM verify the lists of payments to check that all affected parties receive the compensation due to them.
- A report is compiled in such a format that it reflects the consensus between all parties concerned.

Up to the drafting of the Final RPIP, payment of compensation to affected persons has been effected as soon as is practically possible. This relates to logistical arrangements along a linear development located, in part, in remote areas of the country. In some instances, affected persons have lodged complaints that the payment of compensation is too slow (Appendix 6). However, on most occasions it has been determined that affected persons could not be traced at the time of compensation payments and that, therefore, their payment of compensation had to stand over until the next payment session. At the time of drafting the Final RPIP, there are few outstanding compensation payments.

7 BASELINE DATA AND ENTITLEMENT MATRICES

To protect individual privacy, detailed baseline data are not presented in this document. However, on written request, the information can be obtained from Sasol.

7.1 Exploration

Exploration of the Temane and Pande Gas Fields as well as the Exploration Block was undertaken during the second half of 2001. All baseline data have been collected and all compensation has been paid[22]. As indicated in Table 10, seismic exploration impacts were categorised into four zones/sub-zones.

7.1.1 Graves (SE:G)

Despite precautions taken by the exploration team, there were instances where graves and gravesites were damaged by machinery. Fourteen next-of-kin received compensation to the total value of US $ 1,756.81 to facilitate exhumation, reburial and associated ceremonies. Compensation was negotiated on a family-by-family basis with the next-of-kin, due to the sensitive nature of, and customs surrounding, reburial. Physical exhumation and reburial was carried out by the next-of-kin within 15 days of receiving compensation. Table 11 provides details on grave compensation.

7.1.2 Machambas (SE:CL, LoA and NR(D))

At the completion of exploration, a total of 1,533 machambas had been registered and valued to the amount of US$ 265,570.64[23] (5,842,554,021.92 Meticais). Perennial or tree crops comprised 93.7% of the total value, annual crops 3.9%, with the balance (2.4%) comprising crops such as bananas, sugar cane and pineapples. Dossiers contain field registrations and payment receipts for each individual compensated for crop losses, loss of access to machamba lands and damaged natural resources (trees). In addition, registrations, payments and crops compensated are stored electronically on CD, along with photographic records. Thirty individuals have not collected their compensation monies[21]. A detailed listing of the contents of the Dossiers and CD is provided in Appendix 8. To protect individual privacy, detailed baseline data can be obtained from Sasol.

22 This is excepting cases where individuals have not come forward to claim their compensation.
23 For purposes of this RPIP, standard exchange rates have been applied (Refer to Definitions).

Table 10 Resettlement impacts arising from seismic exploration.

Project Element	RPIP Zone Allocation	RPIP Sub-Zone Allocation	Impact Description	Temporary/ Permanent
Seismic Exploration	SE	G	Exhumation and reburial of graves	Permanent
Seismic Exploration	SE	CL	Crop losses (annual and perennial)	Permanent
Seismic Exploration	SE	LoA	Loss of access to machamba lands	Temporary
Seismic Exploration	SE	H(D)	Damage to infrastructure	Temporary
Seismic Exploration	SE	L	Livestock death	Permanent

Table 11 Details on grave compensation paid during exploration of the Temane Gas Field.

Reference Number	Record Number	Registration Date	Value (US $)
9/1.1E grave	1	20.02.02	136.36
32/38 grave	2	07.08.01	68.18
34/01grave	3	06.09.01	120.45
36/01grave	4	06.09.01	128.64
44/1grave	5	01.11.01	181.82
44/8.1grave	6	16.10.01	184.09
47/10E grave	7	01.02.02	409.09
47/88.1grave	8	21.09.01	125.45
68/21grave	9	01.09.01	76.82
70/12A grave	10	04.12.01	22.73
70/26B grave	11	04.12.01	68.18
70/29A grave	12	04.12.01	90.91
70/2A grave	13	04.12.01	68.18
70/8.1grave	14	03.09.01	75.91

Damage caused to machambas was of a temporary nature and compensation was based on the loss of a single season's produce for annuals and the time required for tree crops to come into production following replanting. No replacement land was required as individuals were able to return to their land following the completion of seismic testing.

It must be noted that in September 2001, tree crop values were adjusted upwards (by 60% of the original value) by the Joint Task Group. Individuals who received compensation payments prior to this adjustment were notified and the additional amount paid to them. Thirty one individuals have not collected the 60% adjustments[21] (referred to as "back payments"). Table 12 lists the total number of trees compensated.

Outstanding at the time of drafting the Final RPIP is the provision of replacement trees to people who lost trees during seismic exploration[24]. As at the 6 May 2003, 247 individuals (24%) had received their replacement trees. Replacement trees will be provided to all people who registered loss of trees on a "one-for-one" basis. Tree seedlings will be handed over to individuals who will be able to plant the seedlings at a location of their own choice. People receiving seedlings will be responsible for planting and caring for the seedlings. To protect individual privacy, detailed baseline data can be obtained from Sasol.

7.1.3 Homesteads

No homesteads *per se* were impacted on by exploration activities. However, one individual registered damage caused to a structure erected for cooking, another individual reported cracks in his house and a third reported damage to a fence. In all three cases, the damage was evaluated, compensation agreed with the affected individuals, and compensation paid. There was also one incident of a goat being killed for which the owner was compensated. These *ad hoc* registrations were valued using the prevailing market rate of replacement goods, following negotiations with the affected individuals. To protect individual privacy, detailed baseline data can be obtained from Sasol.

7.1.4 Summary

In each case of the five types of resettlement impacts arising from seismic exploration, impacts have been enumerated and valued, and compensation (cash and in kind) has been paid or payment is planned.

7.2 Gas field development

Gas field activities are such that most areas of work have been finalised. Resettlement activities are, however, on-going.

Table 13 shows resettlement impacts, categorised into 10 zones/sub-zones, arising from the development of the gas field.

[24] Currently being undertaken.

Table 12 Compensation for trees removed as a result of seismic exploration activities.

Crop Name	Number (count)
Cashew	2,340
Mango	351
Natal Mahogany	177
Orange/Citrus	64
Lemon/Lime	22
Eucalyptus	0
Avocado	44
Cassuarina	60
Paw paw	862
Marula	50
Coconut	345
Banana (legs)	261
Sugar cane (legs)	12,512
Other (for example, pineapple fruit)	378

Table 13 Resettlement impacts arising from the development of the gas field.

Project Element	RPIP Zone Allocation	RPIP Sub-Zone Allocation	Impact Description	Temporary/ Permanent
Gas Field Development	PPZ	H	Displacement of homesteads	Permanent
Gas Field Development	PPZ	M	Displacement of machambas	Permanent
Gas Field Development	PPZ	CL	Crop losses (annual and perennial)	Permanent
Gas Field Development	AR	H	Displacement of homesteads	Permanent
Gas Field Development	AR	M	Displacement of machambas	Permanent
Gas Field Development	AR	CL	Crop losses (annual and perennial)	Permanent
Gas Field Development	FL	G	Exhumation and reburial of graves	Permanent
Gas Field Development	FL	H	Displacement of homesteads	Permanent
Gas Field Development	FL	M	Displacement of machambas	Permanent
Gas Field Development	FL	CL	Crop losses (annual and perennial)	Permanent
Gas Field Development	M	M	Loss of access to machamba lands	Temporary
Gas Field Development	M	CL	Crop losses (annual and perennial)	Permanent

7.2.1 *Graves (FL:G)*

Where possible, the resettlement of graves has been avoided. For example, at the request of the next-of-kin and local leaders, a gravesite comprising five individual graves was avoided by realigning the route of a flow line. The position of the gravesite has been noted on plans and, in addition, the area has been demarcated with barrier tape to prevent accidental damage.

Despite all attempts to align flow lines around obstacles, three gravesites were uncovered by machinery. The three next-of-kin received compensation to the total value of US $ 600.91 to facilitate exhumation, reburial and associated ceremonies. Compensation was negotiated on a family-by-family basis, due to the sensitive nature of, and customs surrounding, reburial. Physical exhumations and reburials were carried out by the next-of-kin within 15 days of receiving compensation.

No graves were encountered or impacted upon in any of the remaining zones/sub-zones.

7.2.2 *Machambas (PPZ:M, PPZ:CL, AR:M, AR:CL, FL:M, FL:CL, M:M, M:CL)*

As at the 6 May 2003, a total of 384 machambas had been registered and valued to the amount of US $ 154,223.03 (3,392,906,660.00 Meticais). Perennial or tree crops comprise 85% of the total value, annual crops 12%, with the balance (3%) comprising crops such as bananas, sugar cane and pineapples. Dossiers contain field registrations, payment receipts and replacement land sign-off certificates (as applicable) for each individual compensated (or to be compensated) for crop losses and loss of access to machamba lands. In addition, registrations, payments, replacement land sign-off and crops compensated (or to be compensated) are stored electronically and submitted to Sasol as updates are received (along with photographic records). To protect individual privacy, detailed baseline data can be obtained from Sasol.

Damage caused to machambas is both temporary and permanent in nature, depending on the land use requirements. In all cases, however, compensation was based on the loss of a single season's produce for annuals and the time required for tree crops to come into production following replanting (including valuable indigenous species utilised by local people for a variety of purposes). Tables 14 and 15 list the total number of perennials and trees and annual crops, respectively, registered as at the 6 May 2003.

Where machamba land is lost permanently, affected individuals are provided with replacement land of at least the same area (hectares). This land is/will be bush cleared and demined. Also, each land-user will be provided with a Crop Starter Pack. At this stage, 140 individuals (55%) have received replacement land (61.0725 ha) that has been demined and cleared. The provision of replacement land to affected individuals is on-going and attended to as land is lost. The Land-use Plan (Volume 3) provides further detail with regard to physical resettlement of machamba land users.

Table 14 Perennials and trees for which compensation was paid as a result of gas field activities.

Crop name	Number (count)
Cashew	640
Mango	299
Natal Mahogany	294
Orange/Citrus	67
Lemon/Lime	13
Eucalyptus	1
Avocado	134
Cassuarina	0
Paw paw	798
Marula	211
Coconut	102
Banana (legs)	259
Sugar cane (legs)	2,112
Pineapple	1,735

Table 15 Annuals for which compensation was paid as a result of gas field activities.

Crop name	Number of registrations (count)	Number of registrations (%)
Maize	42	10.29
Amendoim	37	9.07
Cowpeas	12	2.94
Cassava	122	29.90
Sweet potato	9	2.21
Sorghum (Mapira)	6	1.47
Horticultural plants/vegetables	1	0.25
Packet/Basket of crops	179	43.87
Total cropped area (ha)	86.5937	

In cases where the use of machamba land is temporarily lost, affected individuals received (or will receive) compensation for each season that access to the land is inhibited.

Outstanding at the time of drafting the Final RPIP is the provision of replacement trees to people who lost trees as a result of gas field activities[23]. Replacement trees will be provided to all people who registered loss of trees on a "one-for-one" basis. Tree seedlings will be handed over to individuals who will be able to plant the seedlings at a location of their own choice. People receiving seedlings will be responsible for planting and caring for the seedlings. To protect individual privacy, detailed baseline data can be obtained from Sasol.

7.2.3 Homesteads (PPZ:H, AR:H, FL:H)

Where possible resettlement of homesteads has been avoided through realignment of access road and flow line routes and the repositioning of ancillary works associated with the gas field. However, complete avoidance has not been possible.

At the time of drafting the Final RPIP, 11 homesteads had been registered for resettlement, five within the PPZ, four along the access road to the CPF, one along the flow line from wellhead Temane 13 to the CPF and one at a borrow pit site. Table 16 provides details with regard to homestead resettlement. To protect individual privacy, detailed baseline data can be obtained from Sasol. A Land Settlement Plan (Volume 2) provides further detail with regard to the physical resettlement of these homesteads.

In each case, compensation was negotiated and agreed with the affected household head. All household heads elected to receive the following:

- A new site selected by the affected person and approved by the local GOM representative.
- New site cleared and demined.
- Site prepared for house construction.
- New brick house constructed according to plans approved by the Joint Task Group (one bedroom and one living room structure)[25].
- Provision of a pit latrine at the new site.
- Provision of access to the new site.
- Provision of assistance for the physical move, for example, packers and transport.

In the case of ten of the homesteads (those from the PPZ, access road and borrow pit), as at 6 May 2003, alternative homestead sites had been demined and cleared, and new houses constructed (although pit latrines must still be added). The eleventh homestead was only recently identified as needing to be resettled and the affected homeowner is in the process of identifying alternative land.

[25] It should be noted that replacement houses are closer to existing water sources than original homes from which resettlers were moved. Therefore, the provision of water supply is not included within the RPIP.

Table 16 Homestead resettlement data.

No.	Reference	RPIP Zone Allocation
1	ACCH1	GF:AR
2	ACCH2	GF:AR
3	ACCH3	GF:AR
4	ACCH4	GF:AR
5	PPZ1	GF:PPZ
6	PPZ2	GF:PPZ
7	PPZ3	GF:PPZ
8	PPZ4	GF:PPZ
9	PPZ5	GF:PPZ
10	CMCH1	GF:FL
11	GF270	GF:FL

Dossiers contain field registrations, sign-off and other documentation pertaining to homestead resettlement. In addition, registrations, replacement land sign-off etc., are stored electronically and submitted to Sasol as updates are received (along with photographic records).

7.2.4 Summary

In each case of the 12 types of resettlement impacts arising from the development of the gas field, impacts have been enumerated and valued, and compensation (cash and in kind) has been paid or payment is planned. However, cognisance must be taken of the on-going nature of this work.

7.3 Pipeline

Activities pertaining to the construction and operation of the pipeline commenced in April 2002. Prior to this, however, a pre-registration exercise was carried out along most sections of the route. Individuals potentially affected were registered and issued with an unique “blue card” (Appendix 3). Registration and compensation of affected individuals is largely complete, but as construction activities are still continuing, *ad hoc* registrations may be necessary. Table 17 provides resettlement impacts, categorised into five zones/sub-zones, arising from the construction and operation of the pipeline.

7.3.1 Graves (P:G)

Where feasible, graves and gravesites have been avoided. However, complete avoidance through realignment has not been possible and, therefore, six gravesites have been affected. Six next-of-kin received compensation to the total value of US $ 781.10 (17,184,200.00 Mts) to facilitate exhumation, reburial and associated ceremonies. Compensation was negotiated on a family-by-family basis, due to the sensitive nature of, and customs surrounding, reburial. Physical exhumation and reburial was carried out by the next-of-kin within 15 days of receiving compensation. Table 18 provides details on grave compensation.

Table 17 Resettlement impacts arising from the construction of the pipeline.

Project Element	RPIP Zone Allocation	RPIP Sub-Zone Allocation	Impact Description	Temporary/ Permanent
Pipeline	P	CL	Crop losses (annual and perennial) – subsistence and commercial	Permanent
Pipeline	P	LoA	Loss of access to machamba and commercial farm lands	Temporary
Pipeline	P	G	Exhumation and reburial of graves	Permanent
Pipeline	P	H	Displacement of homesteads	Permanent
Pipeline	P	T	Timber crop losses	Permanent

Table 18 Details on grave compensation paid during pipeline construction.

Reference Number	Record Number	Registration Date	Value (US $)
PL33 Team 1	1	05.06.02	159.09
PL66.2 Team 1	2	29.08.02	177.27
PL15.2 Team 2	3	11.09.02	181.82
PL16 Team 2	4	14.05.02	181.82
PL61 Relief Team 2	5	07.06.02	35.65
PL91TT	6	08.05.03	45.45

7.3.2 *Machambas (P:CL, P:M, P:T)*

As at the end the 6 May 2003, a total of 164 machambas had been registered and valued to the amount of US $ 29,886.21. Perennial or tree crops comprise 76% of the total value, annual crops 12%, crops such as bananas, sugar cane and pineapples comprise 2%, with commercial agriculture comprising 7% (only one commercial farm was encountered). The remaining 3% is allotted to agricultural infrastructure damaged. To protect individual privacy, detailed baseline data can be obtained from Sasol. For the most part, affected people have been paid compensation due to them. However, there are three individuals who have not collected their compensation despite attempts to make the payments in the field.

Damage caused to machambas was of a temporary nature and compensation was based on the loss of a single season's produce for annuals and the time required for tree crops to come into production following replanting. Furthermore, affected individuals received (or will receive) compensation for each season that access to the land is inhibited.

No replacement land was required as individuals will be able to return to their land following the completion of pipeline construction. Tables 19 and 20 list the total number of trees and annual crops, respectively, registered as at the 6 May 2003.

Outstanding at the time of drafting the Final RPIP is the provision of replacement trees to people who lost trees as a result of the construction of the pipeline[23]. Replacement trees will be provided to all people who registered loss of trees on a "one-for-one" basis. Tree seedlings will be handed over to individuals who will be able to plant the seedlings at a location of their own choice. People receiving seedlings will be responsible for planting and caring for the seedlings. To protect individual privacy, detailed baseline data can be obtained from Sasol.

Forty registrations have been made for damage to timber trees (9,445.273m^3). These timber stands are owned by the GOM and compensation, to the value of US $ 31,742.13, will be paid to the State Treasury (Table 21). To date, compensation to the value of US $ 1,141.36 (25,110,000.00 Mts) has been paid to the Ministry of Finance, Maputo Province, for the damage to timber trees in the Magude District. To protect privacy, detailed baseline data can be obtained from Sasol.

Dossiers contain field registrations and payment receipts for each individual compensated (or to be compensated) for crop losses, loss of access to machamba lands and damaged natural resources. In addition, registrations, payments and crops compensated (or to be compensated) are stored electronically and submitted to Sasol as updates are received (along with photographic records).

Table 19 Perennials and trees for which compensation was paid as a result of pipeline construction.

Crop name	Number (count)
Cashew	75
Mango	17
Natal Mahogany	34
Orange/Citrus	2
Lemon/Lime	0
Eucalyptus	9
Avocado	0
Cassuarina	0
Paw paw	131
Marula	583
Coconut	0
Banana (legs)	92
Sugar cane (legs)	67
Pineapple	20

Table 20 Annuals for which compensation was paid as a result of pipeline construction.

Crop name	Number of registrations (count)	Number of registrations (%)
Maize	22	18
Amendoim	2	1
Cowpeas	10	8
Cassava	36	30
Sweet potato	8	7
Sorghum (Mapira)	2	1
Vegetables	8	7
Packet/Basket of crops	34	28
Total cropped area (ha)	10.9920	

Table 21 Timber trees for which compensation was paid as a result of pipeline construction.

Local name	Botanical name	Common name	Classification	Area damaged (m^3)
Mecrusse, Cimbire	*Androstachys johnsanii*	Lebombo ironwood	1[a]	8676.080
Chafuta	*Afzelia quanzensis*	Pod mahogany	1[a]	305.193
Messasa	*Brachystegia spiciformis*	Msasa	3[a]	339.000
Other (species not recorded)	-	-	-	125.000

7.3.3 Homesteads (P:H)

Where feasible, homesteads have been avoided. However, complete avoidance through realignment has not been possible and, therefore, some homestead resettlement has occurred.

At the time of drafting the Final RPIP, three homesteads had been registered for resettlement. Physical resettlement of all three homesteads is complete.

In each case, compensation was negotiated and agreed with the affected household head. Despite all affected household heads being offered brick houses as replacements, they all insisted on rebuilding their houses using natural materials. Furthermore, offers to have the houses built by a contractor were turned down and, again, household heads insisted that they themselves rebuild. Reasons cited by the affected people for their choices include the following:

- Household head wants to check the quality of the workmanship.
- Household head wants to check the quality of materials used.
- There will be a perception amongst their neighbours that they are now “well-off” and “above” the rest of the community.
- Household heads fear that maintenance of brick houses will be expensive.
- Perceptions amongst household heads that brick houses are not suitable for the hot climate.

Following a choice of site (made by the household head) compensation was paid in cash. Each household head quoted what was required to rebuild and effect resettlement. This amount was then paid over in instalments as progress was made with house construction. Details are provided in Table 22.

Dossiers contain field registrations, sign-off and other documentation pertaining to homestead resettlement. In addition, registrations, replacement land sign-off etc., are stored electronically and submitted to Sasol as updates are received (along with photographic records).

Table 22 Homestead resettlement as a result of pipeline construction.

Reference	Record Number	Amount requested (US $)	Amount paid (US $)	Resettlement complete (yes/no)
PLH1T1	1	454.55	454.55	Yes
PL54T1	2	568.18	568.18	Yes
PL51.2T2	3	409.09	409.09	Yes

8 RESETTLEMENT ASSISTANCE AND AFTER-CARE

The lifespan of the production wells is anticipated to be approximately 25 years. By implication, the lifespan of the Natural Gas Project is estimated at 25 years.

The CPF will be operational for 24 hours per day, seven days a week. Operations will be automated as much as possible to minimise operator intervention, to optimise production, and to attain maximum safety levels. As a consequence of the remote location of the gas fields, the 24-hour production cycle, and the lack of existing infrastructure in the area, Sasol intends for the facility to operate as independently as possible. Therefore, all equipment and facilities will be operated and maintained from the CPF. Maintenance and storage facilities will be on site, with anticipated spares, tools and chemical requirements available for use as needed. Supervisory and support staff will be permanently stationed at the CPF but there will be no permanently manned field activities. Infrastructure for electricity, water and sewage disposal will also be provided on site. In terms of the pipeline, once constructed, the "right of way" will be rehabilitated to its former state. All that will be visible are concrete markers. Apart from routine inspections and potential maintenance, Sasol will maintain a limited presence along the pipeline route.

It is in the context of this limited presence of Sasol that resettlement assistance and after-care need to be considered. In this regard, resettlement assistance can best be described as short-term, intensive operations involving the physical resettlement and immediate re-establishment of affected entities. This is described in detail in Section 6 and Appendix 2.

The Social Development Action Plan (SDAP) funded from the Social Development Fund (SDF) is applicable to all areas of influence of the Natural Gas Project in Mozambique, i.e. it addresses community needs amongst people along the pipeline route, in Vilanculo as well as people residing along the EN1 who have been affected by construction activities. The target communities include people affected by resettlement but the SDAP does not focus on these people exclusively, i.e. it is a wider community development initiative. Therefore, in order to coordinate interaction with communities, a Community Interface Forum (CIF) has been established. Its role is to ensure that community initiatives are not taken in isolation, but that a holistic and sustainable approach is followed.

However, it must be noted that the SDF and SDAP cannot replace the GOM's responsibility to provide infrastructure and services to its people.

Additional information can be found in Regional Environmental and Social Assessment that can be viewed on Sasol's Web Page (http://w3.sasol.com/natural gas//).

9 MONITORING, EVALUATION AND AUDITING

9.1 Compliance monitoring during construction

Compliance monitoring has been on-going since the commencement of resettlement activities and will occur for the duration of the implementation of the RPIP. This is the responsibility of the GOM and its purpose is to check compliance with the *Resettlement and Compensation Procedures for Temane/Pande Field Development Projects and the Mozambique/Secunda Pipeline* and the RPIP. At this stage, GOM officials are present in-field full-time to monitor compliance. The GOM officials submit compliance reports to the Joint Task Group for its consideration. Where necessary or applicable, remedial actions are conveyed to Sasol for attention. Furthermore, the Joint Task Group has undertaken direct in-field inspections and held personal interviews with affected individuals. Up to the present, no serious non-compliance has been observed or reported.

9.2 Auditing during construction

Auditing of compliance with the *Resettlement and Compensation Procedures for Temane/Pande Field Development Projects and the Mozambique/Secunda Pipeline* and the RPIP is undertaken by an independent environmental auditor twice yearly for the duration of the construction period. Audit reports are submitted to Sasol after each audit. Where necessary or applicable, remedial actions are conveyed to Sasol for attention.

9.3 On-going monitoring and evaluation of the re-establishment and sustaining of livelihood strategies

Sasol takes ultimate responsibility for on-going monitoring and evaluation post construction, Sasol is currently preparing a programme that will be implemented immediately following resettlement and which will continue for a four year period. This programme constitutes Volume 4 of this Resettlement Planning and Implementation Programme.

10 COST ESTIMATES

As part of the preparation of the RPIP, first order cost estimates have been calculated according to four compensatable entities, viz. homesteads, machambas, graves and replacement trees, and costs associated with implementation of the RPIP, viz. the preparation of host areas and fees for support services to Sasol. For all calculations the standard exchange rate has been applied, viz. 1 US Dollar = 22,000 Mozambican Meticais.

10.1 Homesteads

The total estimated number of homesteads to be resettled is 14. Replacement house designs have been approved by the Joint Task Team and it is estimated that each house will cost US $ 5,000 to construct. Therefore, the total financial provision for replacement house construction is US $ 70,000.

However, specifically, the US $ 5,000 does not include a financial provision for settlement planning, settlement preparation and the supply of infrastructure and services. These costs are detailed in Section 10.5.

10.2 Machambas

The total cost estimated for the compensation of machambas is US $ 518,717.59 (Table 23). This has been calculated using actual values of compensation already paid[26], actual values of compensation already calculated but where payment is outstanding[25], and an estimate of compensation still to be paid.

Importantly, these values do not include replacement machamba planning, preparation and implementation or the provision of Crop Starter Packs.

10.3 Graves

The total estimated number of graves to be exhumed and reburied is 23. Actual payments for exhumation, reburial and ceremonial costs amount to US $ 3,138.82 (an average of US $ 136.47 per grave).

On a cautionary note, the cost estimate for graves includes only known graves and does not make provision for unknown graves that may be uncovered. In the case of unknown graves, each should be treated sensitively and on its own merits. However, again, in view of the personal nature of re-internment and the compensation of descendants, and given the comparatively relatively small amounts involved, it is felt that the average unit cost per grave of US $ 136.47 is reasonable and should be accommodated easily within the 10% provision for contingencies (Section 10.6).

[26] Up to 6 May 2003.

Table 23 Details of machamba compensation costs.

Payments already made (US $)	Registrations complete but payments outstanding (US $)	Additional registrations (including a second round of compensation[27]) (US $)	Total (US $)
445,479.90	50,583.90	22,653.79	518,717.59

10.4 Replacement trees

Replacement trees arising from seismic exploration (4,323), gas field development (2,559) and pipeline construction (851), totalling 7,733 trees. The average cost per replacement tree is US $ 2.00. Average transport and administrative costs per replacement tree are estimated at US $ 1.10. Therefore, the total estimated cost for replacement trees is US $ 23,972.30. However, this figure specifically excludes any costs associated with replacement tree distribution. These costs are detailed in Section 10.6.

10.5 Host area preparation

The following aspects have been costed under host area preparation:

- Housing (7 ha).
  - Demining.
  - Bush clearing and land preparation.
  - Roads.
  - Sanitation facilities.
  - Solid waste disposal facilities.
  - Transport assistance.
  - Surveying.
  - House Title Certificates.
- Machambas (97.74 ha; 256 individuals).
  - Demining.
  - Bush clearing.
  - Crop Starter Packs.
  - Surveying.
  - Land Title Certificates.

Unit values and extrapolated costs are provided in Table 24. The total estimated cost has been calculated at US $ 70,031.90.

[27] Annual crops only.

10.6 Support

Support for the period June 2000 to March 2004 has been estimated at US $ 750,000.00 comprising:

- Fees - US $ 400,000.00.
- Disbursements and Recoverable Costs - US $ 350,000.00.

These data are inclusive of costs associated with the preparation of this Resettlement Action Plan, the Land Settlement Plan, the Land Use Plan and the Monitoring and Evaluation System. Also included are the aerial videography flight, video production and data interpretation. Furthermore, the data include costs associated with Compliance Monitoring (*per diems*), Auditing and payroll bureau costs. Specifically excluded from these data are resettlement costs incurred by Sasol.

Table 24 Costs associated with the preparation of new homesteads and replacement machambas.

Type	Activity	Unit value (US $)	Area (ha)/ Number	Total (US $)
Housing	Demining	90	7	630.00
	Bush clearing and land preparation	195	7	1,365.00
	Roads	50	7	350.00
	Sanitation facilities	520	14	7,280.00
	Solid waste disposal facilities	90	14	1,260.00
	Transport Assistance	570	14	7,980.00
	Surveying	20	7	140.00
	House Title certificates	3.50	14	49.00
	Sub-total			19,054.00
Machambas	Demining	90	97.74	8,796.60
	Bush clearing	75	97.74	7,330.50
	Crop Starter Packs	125	256	32,000.00
	Surveying	20	97.74	1,954.80
	Land Title Certificates	3.50	256	896.00
	Sub-total			50,977.90
	Total			**70,031.90**

10.7 Summary

In summary, it is estimated that formulation and implementation of this RPIP will cost in the order of US $ 1,579,447 inclusive of a 10% contingency (Table 25).

Table 25 Summary of cost estimate for the formulation and implementation of the Resettlement Planning and Implementation Programme for the Natural Gas Project.

Category	US $
Homesteads	70,000*
Machambas	518,718*
Graves	3,139*
Replacement Trees	23,972*
Host Area Preparation	70,032*
Support	750,000**
Sub-total	1,435,861
Contingency (10%)	143,586
Total	**1,579,447**

*As at 6 May 2003.
**As at 31 March 2004.

11 PROGRAMMING AND SCHEDULING

Figure 5 illustrates the programming and scheduling of key activities associated with the formulation and implementation of the Resettlement Planning and Implementation Programme. A number of key features deserve highlighting:

- Significant resettlement activities have already been completed, for example, seismic exploration of the Temane and Pande Gas Fields, and the Exploration Block.
- Significant resources were expended during planning to avoid or minimise resettlement impacts where possible (as evidenced by preliminary work undertaken on the alignment of the pipeline).
- Throughout, resettlement planning has occurred in an orderly manner (as evidenced by earlier revisions of this RPIP).

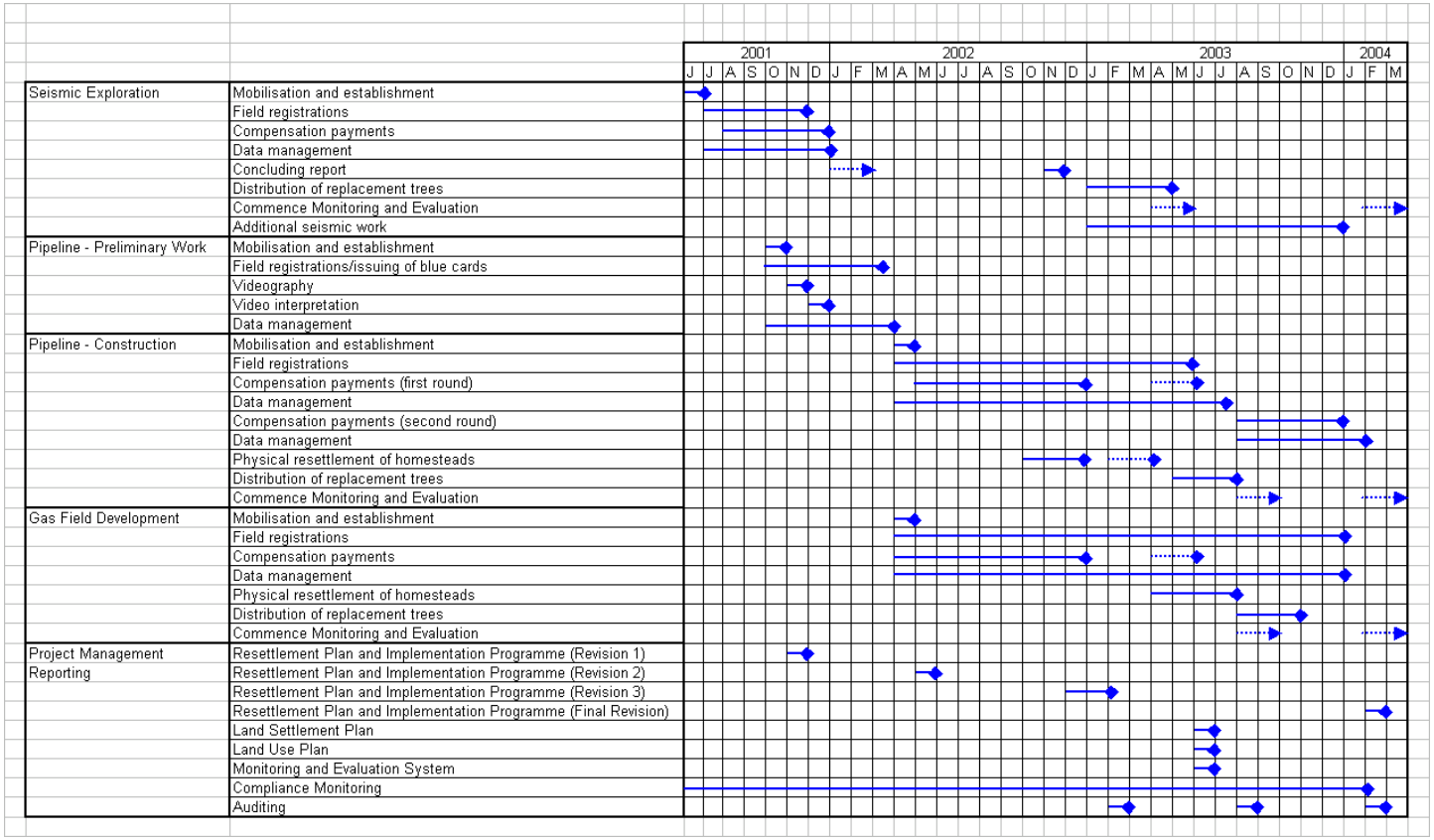
In terms of outstanding resettlement activities, key features are:

- Completion of the first round of pipeline compensation and completion of compensation payments for gas field impacts.
- A second round of pipeline compensation payments due to the Natural Gas Project requiring the “right of way” through to the end of 2003 (and thereby impacting on affected machamba users for a second growing season).
- Development of Land Settlement and Land Use Plans.
- Physical resettlement of homesteads in the gas field.
- Development of a Monitoring and Evaluation System, and commencement of M&E.

It must be noted that development of the Natural Gas Project is an evolving process and, therefore, additions and changes to the programme and schedule are anticipated.

In closing, as indicated in Figure 5, resettlement activities related to the Natural Gas Project are expected to be completed by March 2004, save for Monitoring and Evaluation that will be on-going for an estimated four years thereafter.

Figure 5 Programme and schedule for the Resettlement Planning and Implementation Programme of the Natural Gas Project.



12 CONCLUDING REMARKS

The development of the Natural Gas Project holds great potential for economic stimulation in Mozambique and South Africa. However, it is a significant undertaking comprising many and varied infrastructural elements spanning a large proportion of Central and Southern Mozambique. Although minimisation is possible, impacts on the social and socio-economic environments are unavoidable, the most serious of which are resettlement and compensation. In this regard, Sasol has recognised the importance of undertaking resettlement in a responsible manner and has committed itself to compliance with World Bank policies, processes and standards. In this regard, both completed and planned future resettlement activities are documented in this RPIP.

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APPENDIX 1

Resettlement aspects on the South African section of the pipeline

APPENDIX 2

Resettlement and Compensation Procedures for the Temane/Pande Field Development Projects and the Mozambique/Secunda Pipeline

APPENDIX 3

Blue Card (Registration Card)

APPENDIX 4

Consultation Record

APPENDIX 5

EPCM Contractor camp and lay down area land requirements and procurement procedure

APPENDIX 6

Community Complaints Register

APPENDIX 7

Methodology to derive annual and perennial crop values

APPENDIX 8

Detailed listing of the contents of the Dossiers and CD containing Seismic Exploration Resettlement Information