Anadarko Moçambique Área 1, Lda

Annex G

Baseline Support Material

CONTENTS

G1 SOCIAL BASELINE

G1.1 INTRODUCTION AND STRUCTURE

This annex provides additional socioeconomic information to support *Chapter 9* of the EIA Report. It is structured into three sections as follows:

- *Section G1.2: Background of Administrative and Political Organization in Palma District*
- *Section G1.3: Fisheries Sector Policy and Strategies*
- *Section G1.4: Additional Socioeconomic Data*

G1.2 BACKGROUND OF ADMINISTRATIVE AND POLITICAL ORGANIZATION IN PALMA DISTRICT

G1.2.1 *Administrative Organisation in Palma District*

After the Peace Agreements of 1992 in Mozambique, the State started the process of decentralising the competencies and operations of State bodies to the local level and reinforcing their links with the community authorities.

This process was implemented after 2000, when the State defined the principles and standards of organisation, competencies and operations of the State bodies at local level, recognising traditional leaders as community authorities as well as recognising other parties from modern and traditional society as community authorities. For example "*Secretaries of the districts and villages and other legitimised leaders … who play some economic, social, religious, or cultural role as accepted by the social groups to which they belong*" (1). Community authorities may be of 1st, 2nd or 3rd level, depending on the geographical area of intervention (2).

Other parties have been incorporated into the decentralisation process, assuming delegated responsibilities, including:

- Local Forums (structure of the civil society at the District or Administrative Post level);
- Consulting Councils (at the District, Administrative Post, and Locality level); and

(1) The three main instruments are (1) Decree No. 15/2000, which defines the integration between the local State bodies and the community authorities, (2) the Ministerial Diploma 107-A/2000, which establishes the respective regulation, and (3) the Guião das Instituições de Participação e Consulta Comunitária (IPCCs: Guide for Community Participation and Consulting Institutions) published by the Diploma dated October 13, 2003 by Ministro da Administração Estatal e do Plano e Finanças (Minister of State Administration and Planning and Finances), BR No. 42, I Series, October 15, 2003.
(2) The first level is occupied by community leaders whose responsibility is within a wider area of the district (sometimes more than the area of a locality or of an administrative post), while the third level refer to leaders acting at the lowest level of a village or a neighbourhood).

- Community Councils or Committees (generally at the level of a village or groups of villages).

The term 'community' is often used to designate a village or a group of villages. At community level, authority is exercised by 'community authorities', which may be the Village Secretary, Neighbourhood Secretary or for a group of ten houses, the Village Leader, the Régulo (traditional leader), or his or her representatives

In Palma District, the position of traditional leader (the Régulo) is no longer in existence or observed. The position of the Régulo dates back to the customary society, where the position was acquired through heredity and belonging to a specific lineage and clan. Thus, position of the Régulo is conferred upon by a blood link with the group recognised as the traditional leadership and descendant from a person acknowledged as being the founder of the lineage or clan.

Today, village leadership within the Palma District is assumed by a Village Leader elected by the community of the respective village and endorsed by an Assistant and a Notary (registrar), recognized and legitimised by State bodies at District level (1). This dates back to the recent historical events in Mozambique and Palma District in particular, as described below (2).

G1.2.2 Political Organisation and Historical Context

The war of independence led by the Frente de Libertação de Moçambique (Frelimo Mozambique Liberation Front (referred to as Frelimo)) against the Portuguese army and its colonial rule began in the Cabo Delgado and Niassa provinces. Strongly supported by the rural population, Frelimo established in parts of the Cabo Delgado Province, installing its own administration inspired by the ideals of socialism, referring to these areas as 'liberated areas'.

After Independence, the Frelimo-led government chose socialism inspired by Marxist-Leninist ideology, with an economy based on central planning. Within the project of building a 'modern' post-colonial State, the government radically opposed the power of traditional society represented by the régulos, which were considered an appendix of the colonial system.

The 'liberated areas' of Cabo Delgado and Niassa provinces were presented as a 'laboratory or model' where the socialist ideals had proved that it was possible to build a 'new society'. One of the examples was the creation of community villages following independence, which had a strong deployment in the Cabo Delgado Province. Another example was the election of the people's assemblies in 1977, by means of which deputies were elected at national, provincial, and locality levels (3). These assemblies were rooted "*in*

(1) They are recognized as 3rd level community authorities because they act at village level.
(2) During the field survey for the socioeconomic assessment, the Consultant investigated why the village leader is recognised as the community authority at a village level and why traditional leaders are absent. Information obtained revealed that village leaders were installed after independence.
(3) Law No. 1/77 for the Election of the Assemblies of the People in the People's Republic of Mozambique in 1977.

the tradition of democratic life created during the People's War for Independence...", [1] with the candidates for deputies of the people's assemblies at the locality level being proposed by the political structures of the respective level and sanctioned by universal suffrage in popular public meetings.

Today, the District of Palma follows the organisational model that is applied throughout the country. This is based on the administrative division of the country into provinces, municipalities, districts, administrative posts, localities, and villages. Except for the Mayors of the Municipalities, who are elected, the other bodies of local government are appointed in accordance with the rules of the State. These are considered positions of political trust, and therefore, there is a strong link and connection (formal but not defined in legal terms) between the party in power and these four levels of formal local State government.

G1.3 FISHERIES SECTOR POLICY AND STRATEGIES

G1.3.1 Introduction

The Fisheries Law (*Lei de Pescas*) No. 3/90 of 26 September classifies fishing activities according to the purpose of the fishery (eg subsistence, for market etc) and is based on thetype of fishing gear used as follows:

a) *Subsistence fishing* - undertaken by fishers who fish for household consumption.

b) *Artisanal fishing* - carried out by communities along the coast and around inland water bodies. Catches are for both subsistence and for market.

c) *Semi-industrial fishing* - undertaken by locally owned companies employing mid-size (<20m) boats, mainly involved in shallow-water shrimp fisheries at the Sofala Bank, Limpopo river mouth and Maputo bay and linefishing inshore southern Mozambique. This sector also targets the small pelagic fish; Kapenta, on Cahora Bassa Dam in Tete Province. Catches are used for both local consumption and regional export.

d) *Industrial fishing* - undertaken on larger vessels (longer than 20 m) and fish for shallow water shrimps at Sofala Bank, deep water shrimps offshore central Mozambique and fish species (mainly tuna) in deeper waters of the northern Economic Exclusive Zone. Catches are used mainly for export.

e) *Scientific research and experimental fishing* – includes fishing authorized by the State Fishing Secretary (*Secretaria de Estado das Pescas*) in coordination with the Fisheries Research Institute (IIP) for research purposes.

f) *Recreational and sports fishing* – non-profit fishing activities within fishing contests (sports fishing) or outside fishing contests (recreational).

(1) Ibid.

More recently, in 2009, the *Ministério das Pescas* (MdP: Mozambican Ministry of Fishing) identified six subsectors with important roles in the development of fisheries in Mozambique in a '*Master Plan for the Fisheries Sector for the period 2010-2019*'. These are:

(1) Small-Scale Fishing;
(2) Semi-Industrial Fishing;
(3) Industrial Fishing;
(4) Industrial Aquaculture;
(5) Small scale Aquaculture; and
(6) Processing.

This Master Plan established the following objectives for the industry for the period from 2010 to 2019:

1. To enhance the contribution of the sector in improving food security and nutrition for the population.
2. To improve the living conditions of fishing communities and those associated with small scale fish farms.
3. To increase the contribution of fisheries and aquaculture to achieve national goals of economic and social development.
4. To increase the net financial contribution of the sector in the country.

The main written guidelines for the strategy of the Mozambican fisheries sector and its subsectors are:

- The *Lei de Pescas* (Fisheries Law) No. 3/90, which provides the legal framework for fishing in the country;

- The *Política Pesqueira e Estratégias de Implementação* (Fishing Policy and Implementation Strategies), Resolution No. 11/96;

- The *Regulamento Geral da Pesca Marítima* (General Regulation of Offshore Fishing), Decree No. 43/2003, which regulates fishing activities at sea;

- The *Regulamento da Pesca nas Águas Interiores* (Regulation of Fishing in Inland Waters), Decree No. 57/2008;

- The *Regulamento de Funcionamento dos Comités de Co-gestão da Pesca* (Regulation of Operation of the Fishing Co-Management Committees), Ministerial Diploma No. 147/2007;

- The *Plano Director das Pescas 2010-2019* (PDPII) (Fisheries Masterplan 2010-2019 (PDP 2010-219)), which defines the long-term vision and the development goals of the sector, the target group and other indirect beneficiaries, the contribution of the six fishing subsectors to the PDD II goals and even the transversal aspects which impact and have an effect on the development and promotion of fishing activities (MP a).

- The *Plano Estratégico do Subsector da Pesca Artesanal* (PESPA) (Strategic Plan of the Small-Scale Fishing Subsector), prepared in 2007, which defines a vision for small-scale fishing with a ten-year horizon and a period of implementation of 5 years, to be implemented by the *Instituto de Desenvolvimento da Pesca de Pequena Escala* (IDPPE): Mozambican Institute for the Development of Small-Scale Fishing).

- The *Plano Estratégico de Desenvolvimento da Pescaria de Atum em Moçambique* (PEDPA) (Strategic Development Plan for Tuna Fisheries), approved on July 2013 (1), has been aligned with the 2010-2019 Fisheries Master Plan, as well as other relevant policies and strategies. The Strategic Plan aims at maximizing the benefits of the tuna industry to the economy of Mozambique, through better use and control of the tuna fisheries in the Exclusive Economic Zone (EEZ) and participation in the strenghtening of the management of tuna in the Indian Ocean. This Strategic Plan defines priority actions as well as general actions for the management of tuna fisheries, small scale fisheries and industrial fishing activities. The Ministry of Fisheries is responsible for the implementation of this strategy at a national level.

It is estimated that, between 2009 and 2010, in Mozambique, the fishing sector contributed 2 percent to the GDP, whereas the fishing production in offshore and inland waters reached 151,000 tonnes, representing 452 million USD (Ministério das Pescas, (a)).

The sector significantly contributes to the countries domestic and export markets, although the significance of the latter is declining due to a reduction in demand by international markets. During the period from 2008 through 2009, for example, the export of prawns dropped by 64 to 24 million USD and, in 2009, only represented 1.3 percent of exports, after losing importance compared with the export of other primary products such as cotton (1.4 percent), sugar (3.1 percent), and tobacco (8.3 percent), according to the *Instituto de Promoção das Exportações* (IPEX: Mozambican Institute for the Promotion of Exports). Production for the domestic market is very significant insofar as it ensures the supply of the coastal regions and areas in the interior. Most of the fish is processed as dry or smoked fish.

The subsector of **small-scale fishing** contributes significantly to food security for communities residing along the coast and within the Afungi Project Site and Surrounds (including Senga and Maganja). Whether artisanal fishermen are directly involved in fishing activities or not, the yields from small-scale fishing provide nutrition for household consumption by families involved in fisheries or for those buying fish in the internal market that is supplied by the sale of surplus, or even production for sale by the more market orientated small-scale fishing sector. In 2009, the subsector of small-scale fishing produced 86 percent of the 151,000 tonnes of the production volume that year (MP a).

(1) At the 22nd Ordinary Session of the Council of Ministers.

PESPA 2007 defines the target group of the small-scale fishing development goal, as the poorest strata of the Mozambican population who receives a part of the income generated by the fishing administration and who is supplied with fish of a higher quantity and quality. At the level of the immediate goal target groups, the PESPA defines two groups (MP b):

- "households of more impoverished communities depending on small-scale subsistence fishing activities"; and

- "small-scale fishers engaged in commercial fishing activities, including at open sea".

As a result of the definition of the development goal and of the immediate goal target groups, the PESPA 2007 also included a revised definition of the two types of small-scale fishing, in particular subsistence fishing and small-scale commercial fishing. These are detailed below:

- **Subsistence fishing** previously included the poorest families who engaged in fishing, with more rudimentary equipment and without using vessels, salaried fishers, collectors, processors, and small traders. This group now includes fishers with vessels such as canoes or rowing or sailing boats which use a variety of fishing gear. This group is incipiently and poorly linked with the market.

- **Small-scale commercial fishing** uses more complex fishing techniques and motor boats with support of other equipment such as winches and pullers and is specifically market oriented. Based on a vision of development by stages, the small-scale commercial fishing may use more traditional techniques such as propulsion by sail. Its close link with the market is the factor that makes the difference between these two types of fishing.

The five main pillars of the PESPA 2007 summarise the strategic approach of the small-scale fishing subsector for the period from 2007 through 2012, and include:

- improved social conditions in the fishing communities;

- growing income for small-scale fishers;

- marketing of the fish catches brings more favourable results for small-scale fishers;

- financial services aimed at the small-scale fisheries are accessible to and easier to obtain by a larger number of fishers; and

- institutions that are dedicated to the development and management of small-scale fishing are strengthened and improved.

G1.4 ADDITIONAL SOCIO-ECONOMIC DATA

Table 1.1 Types of Roads (in kilometres) in Cabo Delgado Province

Class	Paved (km)	Compacted (km)	Earth (km)	Total (km)	%
Primary	414			414	14.6
Secondary	259	133		392	13.9
Tertiary	374	884	361	1619	57.2
Feeder Road		16	387	403	14.3
Total (km)	1047	1033	748	2828	
%	37.0	36.5	26.4		

Source: National Roads Administration, 2011

Table 1.2 Economic sectors in Cabo Delgado Province in 2010 (MZN/USD) and its contribution to the Province Global Production

Sectors of Activity	MZN	USD @36 as of October 31, 2010	%
Agriculture and Livestock	3.762.240.500	104.506.681	52.1
Fishing	461.111.000	12.808.639	6.4
Transforming Industry	663.410.423	18.428.067	9.2
Agro-Industry	482.809.250	13.411.368	6.7
Electric Power	116.515.645	3.236.546	1.6
Construction	19.348.696	537.464	0.3
Transportation	1.208.844.467	33.579.013	16.8
Tourism	500.049.774	13.890.272	6.9
Total	7.214.329.755	200.398.049	100.0

Source: Government of the Province of Cabo Delgado (a) 2010

Table 1.3 Small Scale Fisheries Sub-Sector Catches, Fish Effort and Rates in Cabo Delgado Province and Palma District (2009-2011)

Cabo Delgado Province									
FISHING GEARS	**Catches (tonnes)**			**Effort (days)**			**CPUE* (kg/fishing gear. Day)**		
	2009	**2010**	**2011**	**2009**	**2010**	**2011**	**2009**	**2010**	**2011**
Beach seine	5,909	6,057	7,033	90,076	101,487	80,539	66	60	87
Hand line	2,541	2,524	2,414	204,880	223,589	187,166	12	11	13
Drifting gill net	2,582	2,645	3,586	92,461	101,561	86,270	28	26	42
Set net (anchored)	527	675	664	66,670	21,491	13,232	8	31	50
Spear fishing	-	-	609	-	-	52,970	-	-	11
Encircling gill net/ surrounding pursing net	-	-	3,754	-	-	26,082	-	-	144
Total	**11,558**	**11,902**	**18,059**	-	-	-	-	-	-
Palma District									
Beach seine	1,024	481	1,197	10,710	6,306	10,646	36	76	-
Hand line	666	420	382	36,717	30,368	33,068	18	14	-
Drifting gill net	284	336	322	10,867	12,107	6,194	26	28	-
Set net (anchored)	27	69	-	14,534	930		42	74	-
Spear fishing	-	-	37	-	-	3,658	-	-	-
Encircling gill net/ surrounding pursing net	-	-	-	-	-	-	-	-	-
Total	**2001**	**1306**	**1,939**	-	-	-	-	-	-

*CPUE: Catch per Unit Effort

Source: Mozambique National Fisheries Research Institute (IIP)

Table 1.4 Structure of Palma District Government (2012)

Services	**Composition/Structure**	**Number of Technicians**	**Comments**
District Planning and Infrastructure Services (SDPI)	Department of Planning, Territorial Organization, and Urbanization Department of Environmental Management Department of Public Works, Infrastructures, and Equipment Department of Administration, Planning, and Human Resources		Has been under the long-term stewardship of the District Administration, and only recently separated from this function. Currently includes a Director, a Human Resources Department, Accounting, and a General Secretary.

Services	Composition/Structure	Number of Technicians	Comments
District Education, Youth, and Technology Services (SDSMAS)	Department of General Education	1 MT	
	Department of Technical-Professional Education and Technology	1 MT	
	Department of Culture, Youth, and Sports	1 BT	
	Department of Administration and Planning	1 MT	
	Department of Human Resources	1 MT	
District Health, Women, and Social Affairs Services (SDMAS)	Department of Disease Control and Health Promotion	1 MT	Currently only the Department of Disease control
	Department of Medical Assistance		
	Department of Women's Affairs and Social Action	1 MT	
	Department of Administration and Planning	1 BT of Accounting	
	Department of Human Resources	2 MT	
	Department of Public Health	1 Public Health MT	
	Department of SMI	1SMI MT – Maternal-Children Health	
	Department of General Nursery	1 District Nursery Supervisor 1 District Health Chief 1 MT	
District Economic Activity Services (SDAE)	Department of Agriculture and Fishing *INCAJU *Forests and Wildlife *Agrarian Extension *Fisheries	1BT and MT of Incaju 4 Forestry and Game Inspectors 2 Agricultural Extension technicians; IDPP extension technicians; 2 Fishery Inspectors	The four Forestry and Wildlife Inspector roles depend on maintaining provincial level service support.
	Department of Promotion and Development of Entrepreneurship		

Services	Composition/Structure	Number of Technicians	Comments
	Department of Licensing and Monitoring of Economic Activities		
	Department of Administration, Planning, and Human Resources	1 MT of Human Resources and 1 BT of Administration 2 service agents (1 Driver, 1 guard)	The two service agents have been engaged using PROAGRI funds and are not permanent members of the SDAE team.

Legend: MT: Medium skilled technician and BT: Basic skilled technician.

Source:Impacto, 2012

Table 1.5 Profile of Non-Governmental Organisations (NGOs) Operating in Palma District (2012)

Organization	National/International	Geographical Scope		Funding	Area of Intervention and Target Group	Partners (Province, District)	Timeframe of the Project	Contact Persons
		Country, Province	District					
NGO Elizabeth Glazier	International	Maputo; Gaza; Cabo Delgado	Entire District of Palma	Centres for Disease Control and Prevention/ (USA Government)	Technical assistance and funding of SDSMAS activities in the field of HIV/AIDS.	Province: DPS; DPA; DPOPH; Solidar Man, Pathfinder, Vilas Reis (NGOs). District: District Health, Women and Social Action Services.	1st phase; 2006 – 2011 2nd phase: 2012 -2013	Dr, Gregório – Coordinator cell:827691846 Dr Cláudio – Clinical Advisor cell: 827324400 cmachalela@ceds ads.org.mz cmachalela@gm ail.com

Organization	National/International	Geographical Scope		Funding	Area of Intervention and Target Group	Partners (Province, District)	Timeframe of the Project	Contact Persons
		Country, Province	District					
NGO FH Food for the Hungry	International	Sofala; Cabo Delgado (Palma, Mocimboa, Nangade)	15 communities (all Administrative Posts)	United States Agency for International Development (USAID)	Multi Year Assistance Program with the following lines of action: Creation of capacities within the community (CCB). Health and nutrition (water and sanitation). Agriculture. Saving and credit groups.	DPA; DPS; DPOPH; SDAE; SDSMAS; SDPI	2008 – 2011 1st phase 2012 – 2013 2nd phase	Alaíce Omolo: Project Director Cabo Delgado Province; Jordão Choé (Project Team Leader, Palma) José Sunça – 829896440 & 27221737 – Manager of the Community Training Program, Palma
Private company Cowater	International	Nampula; Cabo Delgado (Palma, Mecufi, Metunge, Mocímboa, Nangade; Chiure)	30 communities (all Administrative Posts)	Millennium Challenge Account Mozambique (MCA – Mozambique)	Water and sanitation in rural communities	DPOPH; SDPI	2009 – 2013	Lino – Field Technician - 825318326
NGO JAM	International	Sofala; Cabo Delgado (Palma, Mocímboa da Praia, Nangade)	15 communities (all Administrative Posts)	FH	Water and sanitation in rural communities	DPOPH; SDPI	2010 - 2012	Paulo – Coordinator Field Activities – 843080880

Table 1.6 Level of Education Completed by the Population 15 Years and Older in Palma District (2007)

Level of Education Completed	Level of Education Completed		Province (%)
	Number of Residents	%	
Total	24,418	100.0	100.0
No Level	21,520	88.1	81.3
Literacy Level	190	0.8	0.3
Primary Education Degree 1 (EP1)	1,693	6.9	10.9
Primary Education Degree 2 (EP2)	589	2.4	2.5
General Secondary Education Cycle 1 (ESG1)	280	1.2	3.3
General Secondary Education Cycle 2 (ESG2)	92	0.4	1.3
Elementary Technical Education (ETE)	1	0.0	0.0
Basic Technical Education (ETB)	11	0.0	0.1
Secondary Technical Education (ETM)	3	0.0	0.1
Instructor Training	37	0.2	0.1
Superior Education	2	0.0	0.1
Unknown	100	0.4	0.4

Source: National Institute of Statistics (Palma District Census Data), 2010.

Table 1.7 Main Professional Activity of the Head of Surveyed Household in Afungi Project Site and Surrounds by Percent

Professional Activity	Quitupo %	Quitupo Settlements (*production zones*) %	Coastal Zone %	Senga %	Maganja %
Works for Others	3.8	-	9.1	-	6.7
Self Employed/small industry	7.7	6.3	-	5.0	-
Self Employed/food preparation	3.8	-	-	-	3.3
Self Employed/construction materials	5.8	6.3	9.1	-	-
Self Employed/commerce	3.8	-	22.7	-	16.7
Farmer	50.0	68.8	13.6	95.0	36.7
Fisher with boat/net	21.2	6.3	31.8	-	36.7
Fisher without boat/net	3.8	12.5	-	-	-
Other	-	-	5.6	-	-

Source: Impacto, 2012.

Table 1.8 Main Crops Grown by Surveyed Households in Afungi Project Site and Surrounds

Main Crops	% Producing Family Units	Coastal Zone	Maganja	Quitupo	Quitupo Settlements (*production zones*)	Senga
Corn	28.6	4.5	13.3	26.9	43.8	70.0
Sorghum	21.4	4.5	16.7	21.2	31.3	40.0
Cassava	88.6	72.7	96.7	86.5	93.8	95.0
Cowpea	20.0	4.5	16.7	23.1	18.8	35.0
Bambara Nuts	31.4	18.2	23.3	40.4	31.3	35.0
Rice	42.9	54.5	50.0	28.8	56.3	45.0

Source: Impacto, 2012.

Table 1.9 Marketed Crops by Surveyed Households in Afungi Project Site and Surrounds

Main Crops	Sold by % of HH	Coastal Zone	Maganja	Quitupo	Quitupo Settlements (*production zones*)	Senga
Corn	35.9	-	50.0	35.7	42.9	30.8
Sorghum	30.0	-	20.0	45.5	40.0	12.5
Cassava	13.6	12.5	17.2	15.2	13.3	5.3
Cowpea	35.7	-	20.0	41.7	33.3	42.9
Bambara Nuts	40.0	25.0	28.6	45.5	80.0	14.3
Rice	25.0	41.7	20.0	26.7	50.0	11.1

Source: Impacto, 2012.

Table 1.10 Types and Numbers of Trees Owned by Surveyed Households in Afungi Project Site and Surrounds

F	Total Households (n=140)	Coastal Zone	Maganja	Quitupo	Quitupo Settlements (*production zones*)	Senga
Cashew Nut Tree						
% Households	63.6	46	53.3	78.8	68.8	55.0
Average Number of Trees	94	171	64	83	123	79.0

F	Total Households (n=140)	Coastal Zone	Maganja	Quitupo	Quitupo Settlements (*production zones*)	Senga
Range of Variation	2 – 600	9 – 600	5 – 200	2 – 410	4 – 500	7 – 300
Coconut Tree						
% Households	46.4	45.5	56.7	46.2	56.3	40.0
Average Number of Trees	59	196	33	24	76	5.
Range of Variation	1-1000	10-1000	2-280	1-110	1-460	1-24
Mango Tree						
% Households	45.0	40.9	33.3	51.9	56.3	25.0
Average Number of Trees	7	7	6	7	8	10
Range of Variation	1-50	1-30	1-10	1-50	1-20	1-20

Source: Impacto, 2012.

Table 1.11 Processing and Marketing of Fruit and Income Obtained by Surveyed Households in Afungi Project Site and Surrounds

	Total HH	Coastal Zone	Maganja	Quitupo	Quitupo Settlements (*production zones*)	Senga
Cashew Nut Tree						
Owned by %	63.6	45.5	53.3	78.8	68.8	55.0
Sold by %	18.0	30.0	12.5	24.4	9.1	-
Processed by %	2.2	-	-	2.4	9.1	-
Average Income Most Recent 12 Months in meticais (MZN)	2,750	2,433	4,000	2,771	1,000	-
Coconut Tree						
Owned by %	46.4	45.5	56.7	46.2	56.3	40.0
Sold by %	50.8	70.0	70.6	25.0	55.6	60.0
Processed by %	4.6	-	-	-	-	60.0
Average Income Most Recent 12 Months in MZN	3,032	5,821	2,100	1,933	3,160	2,233

Source: Impacto, 2012.

Table 1.12 Use of the Commercial Network by Surveyed Households According to Area of Residence

Area of Residence	Coastal Zone	Maganja	Quitupo	Quitupo Settlements (*production zones*)	Senga
Milling (%)					
In the village	-	-	-	-	60
Palma Town	90.9	90.9	100	100	40
Neighbouring Village	9.1	9.1	-	-	-
Other Administrative Post	-	-	-	-	-
Other District	-	-	-	-	-
Shop (%)					
In the village	9.1	9.1	1.9	-	20
Palma Town	90.9	90.1	98.1	100	80
Neighbouring Village	-	-	-	-	-
Other Administrative Post	-	-	-	-	-
Other District	-	-	-	-	-
Informal Stand (%)					
In the village	59.1	59.1	90.4	50	60
Palma Town	22.7	22.7	9.6	50	40
Neighbouring Village	18.7	18.7	-	-	-
Other Administrative Post	-	-	-	-	-
Other District	-	-	-	-	-
Store buying farm products (%)					
In the village	-	-	1,9	-	-
Palma Town	100	100	98,1	100	100
Neighbouring Village	-	-	-	-	-
Other Administrative Post	-	-	-	-	-
Other District	-	-	-	-	-

Source: Impacto, 2012.

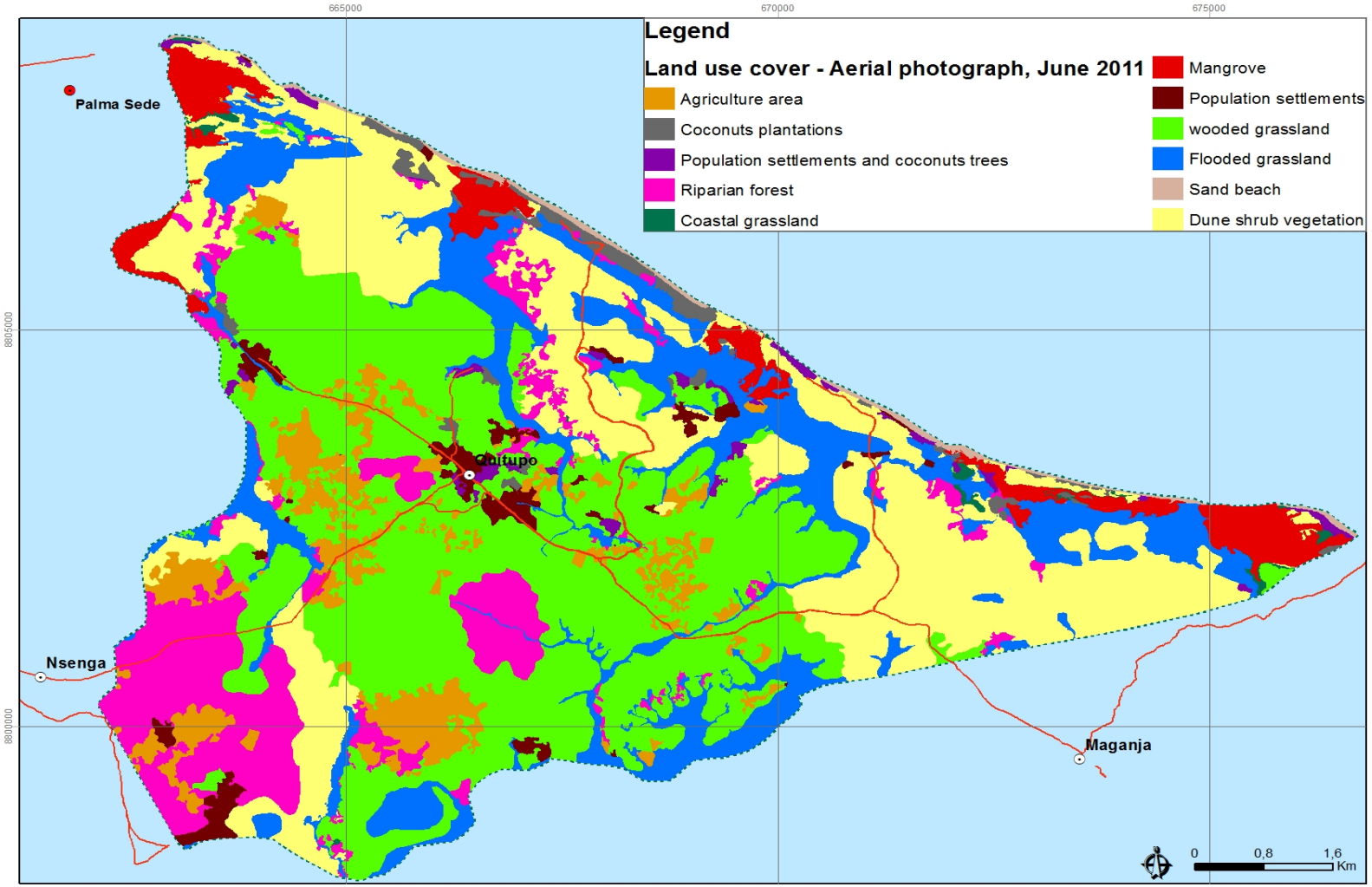
Table 1.13 Location of Plots 1 and 2 According to Ownership by Surveyed Households in Afungi Project Site and Surrounds

Total of Lots/Location	Total Family Units of the Sample	Quitupo	Quitupo Settlements (*production zones*)	Coastal Zone	Maganja	Senga
% Family Units with Plot 1	**98.6**	**100.0**	**100.0**	**90.9**	**100.0**	**100.0**

High Zone	65.2	78.8	43.8	40.0	56.7	85.0
Low Zone	34.8	21.2	56.3	60.0	43.3	15.0
% Family Units with Plot 2	**55.0**	**59.1**	**12.5**	**59.1**	**43.3**	**70.0**
High Zone	61.0	74.3	100.0	23.1	46.2	71.4
Low Zone	39.0	25.7	-	76.9	53.8	28.6

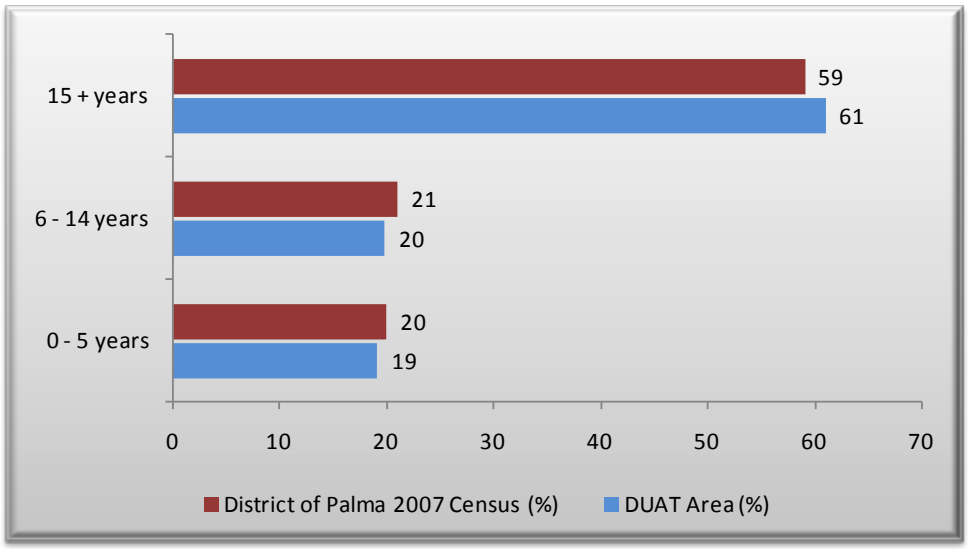
Source: Impacto, 2012.

Figure 1.1 Land Cover in Afungi Project Site



Source: Impacto, 2012.

Figure 1.2 *Age Distribution of Surveyed Households in Afungi Project Site Compared to Palma District*



Source: Impacto, 2012 and National Institute of Statistics, 2010.

G2.1.1 Pumping Rates and Schedules

The portion of the total Project water demand for domestic use that needs to be supplied by borehole water is between 80 and 600m³/d. The peak demand of 600m³/d is needed in Year 2 from Project inception for 12 months, where after the desalination plant will be operational and supplying most of the Project water demand for domestic use.

This section details the modelling results in terms of pumping rates and schedules.

Scenario 1 – Recommended Maximum Pumping Rates

A steady-state scenario was run to determine the recommended maximum pumping rates in order to maintain a dynamic groundwater level of ≥ 3mamsl. This safety buffer of 3m water column above sea level is considered sufficient to avoid saline intrusion, given the maximum permissible pumping rates determined are not exceeded.

Table 2.1 presents the recommended maximum pumping rates, which vary from 2 to 14m³/hour (1 to 4L/s) on a 24-hour pumping schedule per day. Each of the recommended pumping rates is lower than the corresponding permissible pumping rate with regards to upconing of saline groundwater.

However, for the borehole LNG-W003 the installed 4½" OD casing will be limiting the capacity of a submersible pump that can be installed in the borehole (5.4m³/hour or 1.5L/s) as described above. An alternative pump system can, however, be installed to deliver the recommended pumping rate for this borehole.

Table 2.1 Recommended Maximum Pumping Rates (24-Hour Pumping Rates)

Borehole ID	Casing Outer Diameter (inch)	Available Drawdown (m)	Modelled Drawdown (m)	Permissible Pumping Rates Upconing (m³/hour)	Recommended Maximum Pumping Rates (m³/hour)
LNG-W001	4½	2.1	2.0	20	5
LNG-W002	5	3.5	3.3	70	4
LNG-W003	4½	10.4	10.2	3 460	14
LNG-W004	5	9.4	9.1	10	5
LNG-W005	4½	8.5	8.1	30	2
LNG-W006	6½	8.7	8.5	310	7

Scenario 2 – Least Number of Boreholes to Meet Borehole Water Demand

This scenario determined the smallest number of boreholes required to meet the peak demand of 600m³/d and quantified associated impacts using

transient modelling. It was further assumed that the water is needed at the planned *Pioneer Camp* and therefore only boreholes located in the vicinity of the camp were considered. This also presents the safer option with regard to possible saline intrusion *viz.* pumping inland further away from the coast decreases the potential for saline intrusion to occur.

Based on the maximum pumping rates from *Scenario 1*, the demand can be met by pumping solely from borehole LNG-W006 in Year 1 and 3 to 35 (end of operation). In order to meet the peak demand in Year 2, it is recommended to pump from additional two boreholes, LNG-W003 and LNG-W004, all of which are located in proximity of the planned *Pioneer Camp*. The borehole locations are depicted in *Annex C*.

Recommended pumping schedule and rates are detailed in *Table 2.2* and range from 2.5 to 12.9m^3/hour (0.7 – 3.6L/s). However, for borehole LNG-W003 the installed 4½" OD casing will be limiting the capacity of a submersible pump that can be installed in the borehole (5.4m^3/hour or 1.5L/s) as described above. Therefore, *Scenario 3* was modelled to determine the smallest number of boreholes only using feasible pumping rates with regards to the installed casing assuming submersible pumps will be used.

Table 2.2 Recommended Pumping Schedule (24-Hour Pumping Rates) - Scenario 2

Years	Months	Project Phase	Water Demand (m^3/d)	Water Demand (m^3/hour)	LNG-W006 (m^3/hour)	LNG-W003 (m^3/hour)	LNG-W004 (m^3/hour)
1	0 – 6	Construction	80	3.3	3.3	-	-
1	6 – 12	Construction	150	6.3	6.3	-	-
2	12 – 24	Construction	600	25.0	6.7	12.9	5.4
3 – 6	24 – 72	Construction and Operation	60	2.5	2.5	-	-
7 - 34	72 - 408	Operation	150	2.5	6.3	-	-

Scenario 3 – Meet Borehole Water Demand, Feasible Pumping Rates (Submersible Pumps)

For this scenario it was assumed that submersible pumps installed in boreholes equipped with 4½" OD casing can deliver a maximum of approximately 5.4m^3/hour (1.5L/s), whereas pumps that fit in larger diameter boreholes with 5-6½" OD casing can deliver up to approximately 14.4m^3/hour (4L/s).

Based on the maximum pumping rates from *Scenario 1*, the demand can be met by pumping solely from borehole LNG-W006 in Year 1 and 3 to 35 (end of operation). In order to meet the peak demand in Year 2, it is recommended to pump from additional four boreholes, LNG-W003 and LNG-W004, which are located in proximity of the planned *Pioneer Camp* and LNG-W001 and LNG-W002, located in the LNG Processing Area closer to the coast. The borehole locations are depicted in *Annex C*.

Recommended pumping schedule and rates are detailed in *Table 2.3* and range from 2.5 to 6.7m^3/hour (0.7 – 1.9L/s).

Scenario 4 and 5 – Aquifer Capacity to Sustain Total Domestic Water Demand

These two scenarios represent theoretical scenarios to investigate whether the entire domestic water demand can be provided by borehole water. The results of these scenarios provide an indication of the overall aquifer capacity in the Project area.

The total Project water demand for domestic use is between 80 and 3 000m^3/d. The peak demands of 1 500 - 3 000m^3/d would be needed in Years 3 - 4 and 5 – 6 respectively.

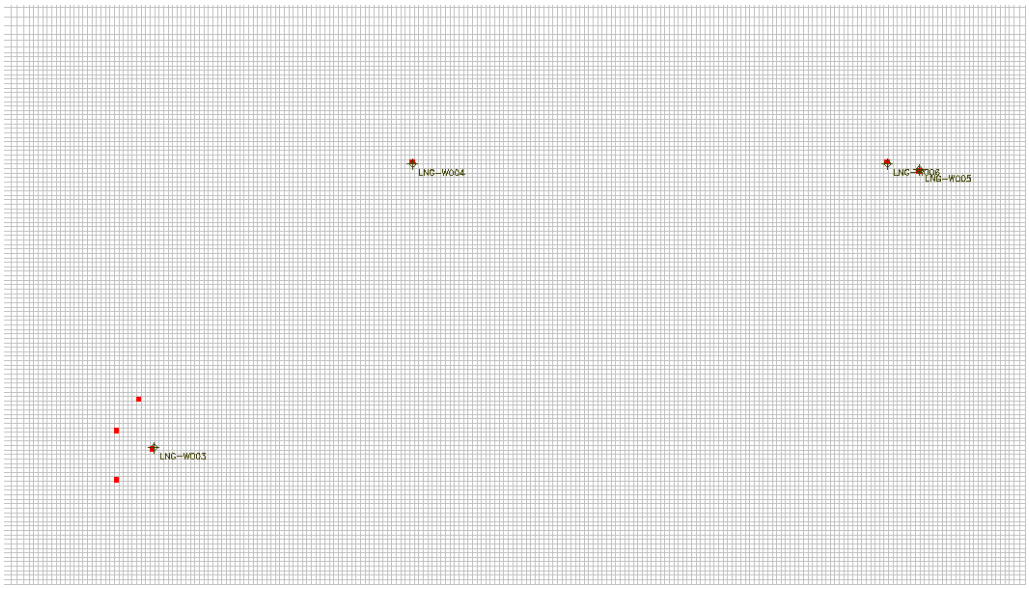
Scenario 4 was run, pumping the entire demand from borehole LNG-W006, to assess the theoretical maximum possible impact in terms of drawdown (*Section G2.1.2*). However, realistically borehole LNG-W006 cannot deliver the pumping rate of 63 - 125m^3/d required to achieve 1 500 - 3 000m^3/d (the borehole would go dry).

Therefore, *Scenario 5* was modelled subsequently, investigating the potential of delivering the peak demand sustainably using each of the existing boreholes (LNG-W001 to LNG-W006) at their maximum pumping rate determined in *Scenario 1* and additional boreholes. The existing boreholes can deliver up to 880m^3/d sustainably. The remaining 620 – 2 120m^3/d would have to be delivered by additional boreholes.

Assuming average pumping rates of 5 – 9.2m^3/hour (1.4 – 2.6L/s), additional 3 to 11 boreholes would be needed to deliver the total demand sustainably. For the purpose of this scenario modelling the additional boreholes were placed in the vicinity of borehole LNG-W003 and LNG-W006, that yielded the highest transmissivities in the aquifer tests indicating increased aquifer capacity. The location of the additional boreholes is depicted in *Figure 2.1*. The pumping schedule modelled in S*cenario 5* is detailed in *Table 2.4*.

Figure 2.1 Location of Additional and Existing Boreholes (Red Dots)

Additional Boreholes Year 3 & 4



Additional Boreholes Year 5 & 6

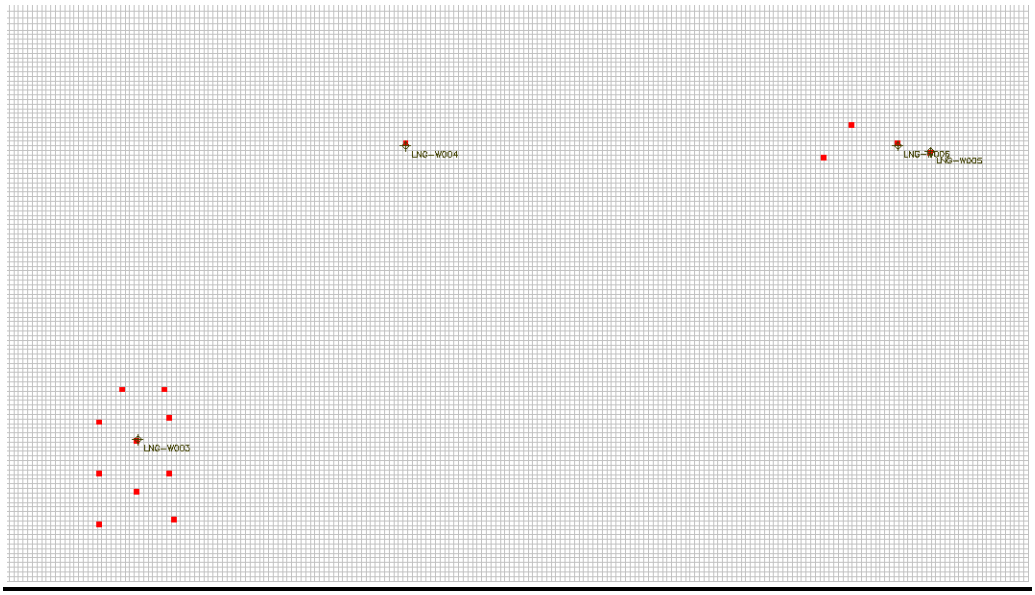


Table 2.3 Recommended Pumping Schedule (24-Hour Pumping Rates) - Scenario 3

Years	Months	Project Phase	Water Demand (m^3/d)	Water Demand (m^3/hour)	LNG-W006 (m^3/hour)	LNG-W001 (m^3/hour)	LNG-W002 (m^3/hour)	LNG-W003 (m^3/hour)	LNG-W004 (m^3/hour)
1	0 – 6	Construction	80	3.3	3.3	-	-	-	-
1	6 – 12	Construction	150	6.3	6.3	-	-	-	-
2	12 – 24	Construction	600	25.0	6.7	4.2	3.3	5.4	5.4
3 – 6	24 – 72	Construction and Operation	60	2.5	2.5	-	-	-	-
7 - 34	72 - 408	Operation	150	2.5	6.3	-	-	-	-

Table 2.4 Pumping Schedule Existing Boreholes (24-Hour Pumping Rates) - Scenario 5

Years	Months	Project Phase	Total Water Demand (m^3/d)	Water Demand (m^3/hour)	LNG-W001 (m^3/hour)	LNG-W002 (m^3/hour)	LNG-W003 (m^3/hour)	LNG-W004 (m^3/hour)	LNG-W005 (m^3/hour)	LNG-W006 (m^3/hour)
1	0 – 6	Construction	80	3.3	-	-	-	-	-	3.3
1	6 – 12	Construction	150	6.3	-	-	-	-	-	6.3
2	12 – 24	Construction	600	25.0	-	-	12.9	5.4	-	6.7
3 – 4	24 – 48	Construction and Operation	1 500	62.5	4.2	3.3	13.8	5.4	2.1	6.7
5 – 6	48 - 72	Construction and Operation	3 000	125.0	4.2	3.3	13.8	5.4	2.1	6.7
7 - 34	72 - 408	Operation	150	2.5	-	-	-	-	-	6.3

Notes: Year 3 & 4: Additional two (2) boreholes pumped at 8.3m^3/d and one (1) borehole at 9.2m^3/d in the vicinity of LNG-W003.
Year 5 & 6: Additional nine (9) boreholes pumped at 8.3m^3/d in the vicinity of LNG-W003 and two borehole in the vicinity of LNG-W003at 5.0m^3/d and 8.3 m^3/d respectively.

G2.1.2 Drawdown

Maximum modelled (corrected) drawdowns in the different production boreholes are detailed in *Table 2.5* for each scenario and compared to the available drawdowns as detailed in *Annex C*. Calculated drawdowns were corrected using the formulas presented in *Annex C*.

Maximum drawdowns occur at the end of the peak demand period as follows:

- End of Year 2 for *Scenarios 2& 3*; and
- End of Year 6 for *Scenarios 4 & 5*.

Table 2.5 Modelled Drawdowns in Metres

Borehole ID	Available Drawdown (m)	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
LNG-W001	2.1	2.0	NP	1.6	NP	2.0
LNG-W002	3.5	3.3	NP	2.9	NP	3.3
LNG-W003	10.4	10.2	9.4	3.9	NP	11.1
LNG-W004	9.4	9.1	8.8	8.8	NP	9.2
LNG-W005	8.5	8.1	NP	NP	NP	8.2
LNG-W006	8.7	8.5	8.3	8.3	156.0	8.7

Notes: NP Not pumped

Modelled drawdowns are all smaller than the corresponding available drawdowns with two exceptions:

1. In *Scenario 5* the modelled drawdown for LNG-W003 exceeded the available drawdown by 0.7m. This is due to the cumulative impact of the additional pumping boreholes located in the vicinity of this borehole. However, the exceedance is more or less within the model accuracy of 0.5m; and
2. In *Scenario 4*, a maximum theoretical drawdown of 156m was calculated for LNG-W006.

Drawdown Extent

The extent of the modelled drawdowns in excess of 1m remains very localised around the pumping boreholes for all scenarios. Even for the theoretical maximum impact scenarios (*Senario 4 & 5*), the calculated maximum extent of the drawdown cone (> 1m) is less than 250m from LNG-W006 and LNG-W003 respectively.

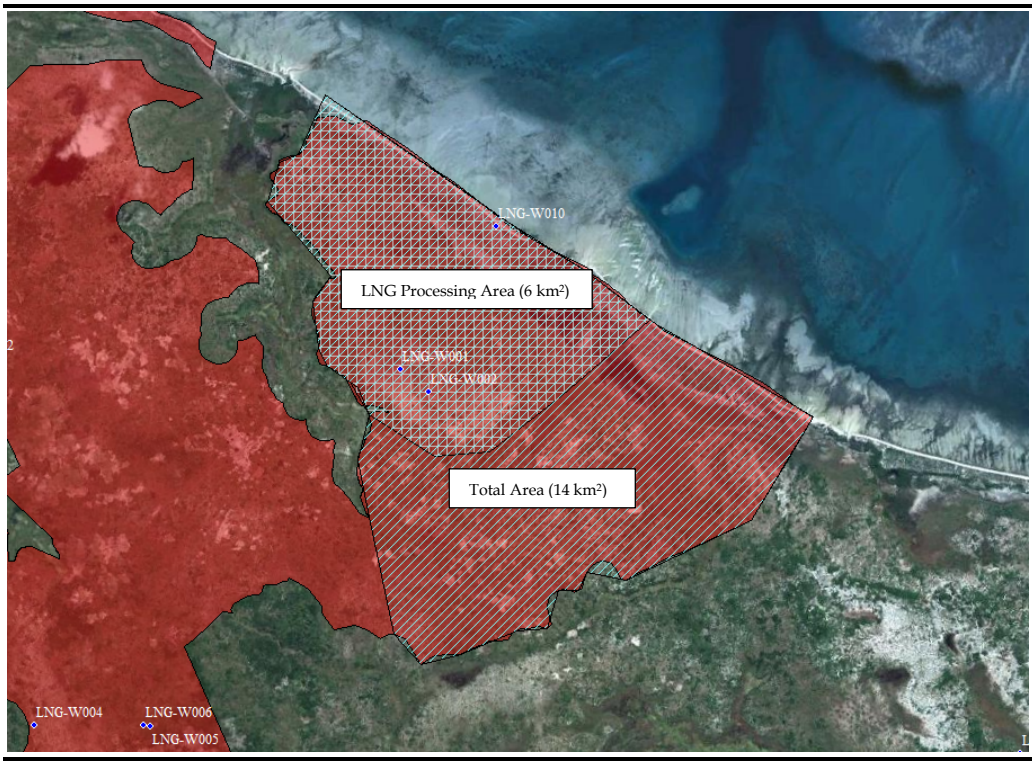
The closest private water users (community boreholes HC4 and HC5) are located just under 1km away from LNG-W001 and will therefore not be impacted by any of the planned and modelled extraction of groundwater.

G2.1.3 Surface Sealing Scenarios

The final footprint of the LNG Processing Area is currently not yet determined. Therefore, this assessment was based on two different surface areas (*Figure 2.2)*:

1. *Scenarios 6 & 7:* LNG Processing Area (6km²); and
2. *Scenarios 8 & 9:* Total Revised Footprint in the proposed LNG Processing Area (14km²).

Figure 2.2 Sealing Scenarios



Notes: The red area indicates the Revised Project Footprint

It was assumed that the entire area will be sealed and therefore no groundwater recharge occurs. For each surface area detailed above, the impacts of reduced groundwater recharge were quantified first (*Scenarios 6 & 8)* and then a in a second model run, the filling in of estuaries, wetlands and streams in the sealed areas was added (*Scenarios 7 & 9)*. This allowed for the separate interpretation of the induced impacts.

Constant Head and *Drain* cells representing estuaries, wetlands and streams in layer 1 were subsequently removed to simulate the filling in of these surface water features. These scenarios were modelled in steady-state to give an indication of the long-term impacts.

Impact on Groundwater Levels

Reduced groundwater recharge due to surface sealing results in groundwater level drawdowns in the order of tens of centimetres which is considered insignificant.
Combined with filling-in of estuaries, wetlands and streams the groundwater levels for both scenarios rise due to the decrease in groundwater discharge. Modelling results suggest that groundwater levels will rise between 1 and 1.3m for *Scenario 7 & 9* respectively.

Groundwater levels will exceed ground surface, based on the corrected topography (see *Annex C*), by up to 1m and this will result in flooding of the filled-in estuary and surroundings if the ground surface is not raised during construction (*Figure 2.3* and *Figure 2.4*).

Figure 2.3 ***Scenario 7 - Flooded Area in Blue***

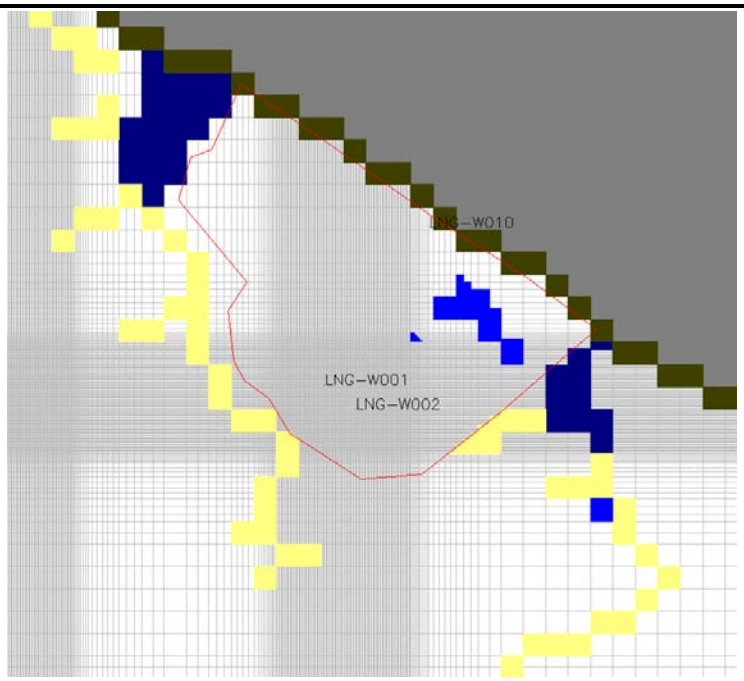
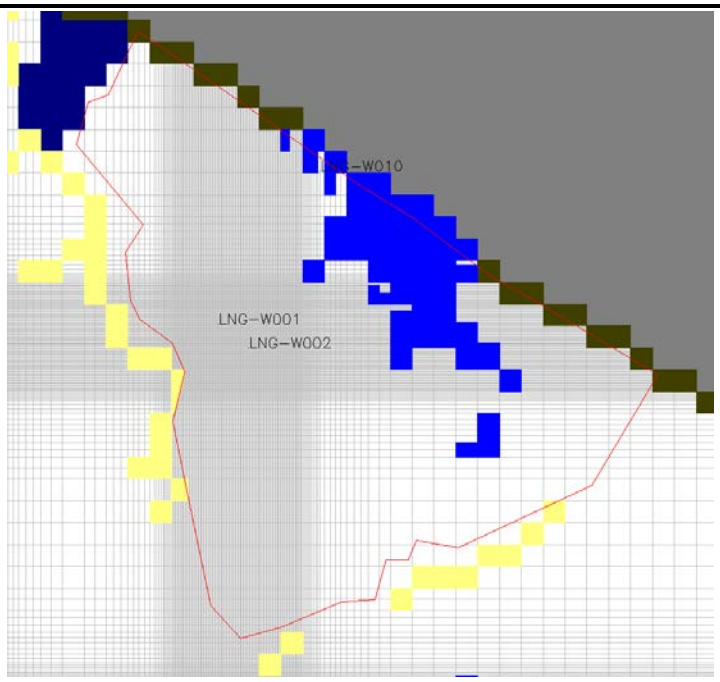


Figure 2.4 Scenario 9 - Flooded Area in Blue



G2.1.4 Groundwater Budget

Groundwater Abstraction Scenarios

First a steady-state simulation was run using the refined model (3 layers) in order to be able to compare the calculated fluxes. The different scenarios were then compared to this steady-state groundwater budget (*Table 2.6*).

Scenario 1 (steady-state) was used to determine recommended pumping rates. The model groundwater budget describes the long-term impact of the recommended pumping rates on the modelled groundwater flows. Pumping (total of 880m^3/d) leads to slight reductions in groundwater discharge to Palma Bay (-110m^3/d), to estuaries (-330m^3/d) and to wetlands and streams (-390m^3/d) and increases groundwater recharge from estuaries (+40m^3/d). However, compared to the total fluxes, these changes remain in the order of a few percent and are therefore insignificant.

The other scenarios, representing time-dependent impacts of groundwater extraction, were modelled in transient mode, which allowed monitoring the recovery of the groundwater system after the extraction had ceased. Budget snapshots were extracted at the end of the peak demand period as follows:

- End of Year 2 for *Scenarios 2& 3*; and
- End of Year 6 for *Scenarios 4 & 5*.

In all of these scenarios, most of the extracted water comes from groundwater storage (88 – 98%). This means that the extracted water is released by the formation within the cone of depression of the extraction boreholes as a result of the groundwater level lowering. Groundwater levels recovered within a

very short time (less than one month). Therefore, there is no long-term impact on the groundwater system.

Scenario 2 did not induce any change in flux to and from Palma Bay, estuaries, streams and wetlands. *Scenario 3* reduced the groundwater discharge to estuaries by 0.6% (-50m^3/d) and to wetlands and streams by 0.03% (-10m^3/d).

Scenario 4 reduced the outflow to Palma Bay by 0.1% (-20m^3/d), discharge to estuaries by 1.7% (-120m^3/d) and to wetlands and streams by 0.6% (-170m^3/d). The influx from estuaries was increased by 1.3% (+10m^3/d).

Scenario 5 reduced the outflow to Palma Bay by 0.1% (-20m^3/d), discharge to estuaries by 1.7% (-150m^3/d) and to wetlands and streams by 0.4% (-130m^3/d). The influx from estuaries was increased by 2.5% (+20m^3/d).

Table 2.6 Groundwater Budgets - Groundwater Extraction Scenarios (in m^3/d)

Boundary	Steady State 3 Layers		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5	
	In-Flux (m^3/d)	Out-Flux (m^3/d)	In-Flux (m^3/d)	Out-Flux (m^3/d)	In-Flux (m^3/d)	Out-Flux (m^3/d)	In-Flux (m^3/d)	Out-Flux (m^3/d)	In-Flux (m^3/d)	Out-Flux (m^3/d)	In-Flux (m^3/d)	Out-Flux (m^3/d)
Wells				880		600		600		3000		3000
Storage					590		530		2690		2680	
Palma Bay (Ocean)		22 450		22 340	0	22 450	0	22 450	0	22 430	0	22 430
Western Boundary	9 530		9 530		9 530		9 530		9 530		9 530	
Estuaries	800	8 640	840	8 310	800	8 640	800	8 590	810	8 530	820	8 490
Recharge	51 220		51 220		51 220		51 220		51 220		51 220	
Drains		30 460		30 070		30 460		30 450		30 290		30 340
Sums	**61 540**	**61 560**	**61 590**	**61 600**	**62 140**	**62 150**	**62 080**	**62 090**	**64 250**	**64 250**	**64 250**	**64 260**
Discrepancy		0.02%		0.02%		0.02%		0.02%		0.02%		0.02%

Notes: All values are in m^3/d

Surface Sealing Scenarios

The different scenarios are compared to the steady-state solution of the refined model with three layers in *Table 2.7*. The surface sealing scenarios were run in steady-state to quantify long-term impacts on the groundwater system.

Sealing of the LNG Processing Area results in a reduction of groundwater recharge of 2 050m^3/d (- 4%), whereas sealing of the Total Footprint results in a reduction of 4 510m^3/d (- 8.8%). If the estuaries, wetlands and streams are left in place, there is a reduction of groundwater discharge into Palma Bay of 190 – 630m^3/d (- 0.8% to – 2.8%). Discharge into streams and wetlands are reduced by 240 – 810m^3/d and discharge into estuaries are reduced by 1 320 – 2 470m^3/d (- 15.3% to – 28.6%). Groundwater recharge from estuaries increases by 280 – 590m^3/d (+ 35% to + 73.8%).

The infilling of estuaries, wetlands and streams combined with surface sealing results in an increased groundwater discharge into Palma Bay of 170 – 810m^3/d (+ 0.8% to + 3.6%), which is a positive impact with regards to the potential threat of saline intrusion. However, the volumes are small and therefore the positive impact is insignificant.

Table 2.7 Groundwater Budgets - Surface Sealing Scenarios (in m^3/d)

Boundary	Steady State 3L		Scenario I		Scenario II		Scenario III		Scenario IV	
	In-Flux (m^3/d)	Out-Flux (m^3/d)	In-Flux (m^3/d)	Out-Flux (m^3/d)	In-Flux (m^3/d)	Out-Flux (m^3/d)	In-Flux (m^3/d)	Out-Flux (m^3/d)	In-Flux (m^3/d)	Out-Flux (m^3/d)
Palma Bay (Ocean)		22 450		22 620		22 260		23 260		21 820
Western Boundary	9 530		9 530		9 530		9 530		9 530	
Estuaries	800	8 640	290	6 010	1 080	7 320	190	3 480	1 390	6 170
Recharge	51 220		49 170		49 180		46 710		46 710	
Drains		30 460		30 380		30 220		29 690		29 650
Sums	**61 540**	**61 560**	**58 990**	**59 010**	**59 780**	**59 800**	**56 420**	**56 430**	**57 620**	**57 630**
Discrepancy		0.02%		0.02%		0.02%		0.02%		0.02%

Notes: All values are in m^3/d

Table 3.1 List of Plant Species used in Identification of Vegetation Units

Common Name	Scientific Name	Conservation Status*
White thorn	*Acacia seyal*	
Brooms and brushes	*Acalypha villicaulis*	
Orchid	*Acampe pachyglossa*	
Baobab	*Adansonia digitata*	
Pod mahogany	*Afzelia quanzensis*	Least Concern
Sisal	*Agave sisaliana*	(Alien plant species)
No Common Name	*Agelanthus zizyphifolius*	
Bitter false-thorn	*Albizia amara*	
Common false thorn	*Albizia harveyi*	
Pigweed	*Amaranthus hybridus*	
Cashew nut	*Anacardium occidentale*	(Alien plant species)
Hairy blue grass	*Andropogon chinensis*	
Snowflake grass	*Andropogon eucomus*	
Blue aneilema	*Aneilema dregeanum*	
Wild custard-apple	*Annona senegalensis*	
Madeira vine	*Anredera cordifolia*	
Spreading three-awn	*Aristida barbicollis*	
Broom asparagus	*Asparagus virgatus*	
Asystasia	*Asystasia gangetica*	
White mangrove	*Avicennia marina*	Least Concern
Needle bush	*Azima tertacantha*	
Small bush violet	*Barleria repens*	
Coffee neat's foot	*Bauhinia petersiana*	
Sand ivory	*Berchemia discolor*	
None	*Berlinia orientalis*	Vulnerable/ Endemic species
Sorel	*Biophytum umbraculum*	
Spiderling	*Boerhavia diffusa*	
Msasa	*Brachystegia spiciformis*	
None	*Brachystegia tamarindoides*	
Yellow peeling plane	*Brackenridgea zanguebarica*	
Black mangrove	*Bruguiera gymnorrhiza*	Least Concern
Sedge	*Bulbostylis burchellii*	
Sodom apple	*Calotropis gigantea*	
None	*Cassia afrofistula*	
Horsetail tree	*Casuarina cunninghamiana*	(Alien plant species)
Coast bone-apple	*Catunaregam spinosum*	
None	*Centimopsis gracilenta*	
Indian mangrove	*Ceriops tagal*	Least Concern
Fishbone dwarf cassia	*Chamaecrista mimosoides*	
Red milkweed	*Chamaesyce hirta*	
Creeping milkweed	*Chamaesyce inaequilatera*	
Bush tick-berry	*Chrysanthemoides monilifera*	
Grape vine	*Cissus phymatocarpa*	
Horsewood	*Clausena anisata*	
Coconut palm	*Cocos nucifera*	(Alien plant species)
Four-leaved bushwillow	*Combretum adenogonium*	
Flame creeper	*Combretum paniculatum*	
Large-fruited bushwillow	*Combretum zeyheri*	
Ecklon's blue commelina	*Commelina eckloniana*	
Blue commelina	*Commelina erecta*	Least Concern
None	*Commelina zambesiaca*	
Hairy corkwood	*Commiphora africana*	

Common Name	Scientific Name	Conservation Status*
Common corkwood	*Commiphora pyracanthoides*	
Forest corkwood	*Commiphora woodii*	
River lily	*Crinum macowanii*	
Moore's crinum	*Crinum moorei*	
Sand crown-berry	*Crossopteryx febrifuga*	
Sickle grass	*Ctenium concinnum*	
Wild cucumber	*Cucumis hirsutus*	
Dodder	*Cuscuta campestris*	(Alien plant species)
Octopus cabbage tree	*Cussonia aborea*	
Doll's powderpuff	*Cyanotis speciosa*	
None	*Cyperus crassipes*	
Winged sedge	*Cyperus denudatus*	
None	*Cyperus exaltatus*	
White sedge	*Cyperus hemisphaericus*	
White-flowered sedge	*Cyperus obtusiflorus*	
Dwarf papyrus	*Cyperus prolifer*	
Purple nut sedge	*Cyperus rotundus*	Least Concern
None	*Cyperus vestitus*	
Wild grape	*Cyphostemma cirrhosum*	
None	*Cyphostemma natalitium*	
Hairy grape bush	*Cyphostemma woodii*	
Common crowfoot	*Dactyloctenium aegyptium*	
Zebrawood	*Dalbergia arbutifolia*	Least Concern
Zebrawood flat-bean	*Dalbergia melanoxylon*	Near-Threatened
Dalechampia	*Dalechampia capensis*	
Devil's weed	*Datura stramomium*	(Alien plant species)
Marsh desmodium	*Desmodium dregeanum*	
Devil's-thorn	*Dicerocaryum zanguebaricum*	
Finger grass	*Digitaria eriantha*	
Wild yam	*Dioscorea cotinifolia*	
Wild yam	*Dioscorea sansibarensis*	
Green dipcadi	*Dipcadi longifolium*	
Swamp grass	*Diplacne fusca*	
Dissotis	*Dissotus debilis*	
Dwarf dissotis	*Dissotus phaeotricha*	
Wild pear	*Dombeya kirkii*	
None	*Dorstenia psilurus*	
Kei-apple	*Dovyalis hispidula*	
None	*Drimiopsis burkei*	
Sundew	*Drosera sp*	
Common saffron	*Elaeodendron croceum*	
Natal milkplum	*Englerophytum natalense*	
Sea-bean	*Entada wahlbergii*	
Natal guarri	*Euclea natalensis*	
Dune myrtle	*Eugenia capensis*	
None	*Eulophia livingstoneana*	
None	*Eulophia seleensis*	
None	*Eulophia speciosa*	
Rubber euphorbia	*Euphorbia tirucalli*	Least Concern
None	*Fimbristylis obtusifolia*	
None	*Fuirena hirsuta*	
African mangosteen	*Garcinia livingstonei*	
Wild gardenia	*Gardenia ternifolia*	
Flame lily	*Gloriosa superba*	
Batchelor's button	*Gomphrena celosioides*	
Coastal Raisin bush	*Grewia glandulosa*	
White cross-berry	*Grewia pachycalyx*	
Small copalwood	*Guibourtia conjugata*	
Copalwood	*Guibourtia schliebenii*	Vulnerable

Common Name	Scientific Name	Conservation Status*
Common spike-thorn	*Gymnosporia buxifolia*	
False gardenia	*Heinsia crinita*	
None	*Helixanthera kirkii*	
Common dwarf wild hibiscus	*Hibiscus aethiopicus*	
Prickly tree hibiscus	*Hibiscus diversifolius*	
Prickly wild hibiscus creeper	*Hibiscus surattensis*	
Bladder hibiscus	*Hibiscus trionum*	
Orange bird berry	*Hoslundia opposita*	
Perdekloutjies	*Hydrocotyle bonariensis*	
Red-heart tree	*Hymenocardia ulmoides*	
Gardenia	*Hypericanthus sp*	
Yellow thatching grass	*Hyperthelia dissoluta*	
Northern lala palm	*Hyphaene petersiana*	(Endemic plant species)
None	*Hyptis suaveolens*	
Cottonwool grass	*Imperata cylindrica*	
None	*Indigofera eriocarpa*	
None	*Indigofera schimperi*	
Water ipomoea	*Ipomoea aquatica*	
Small pink ipomoea	*Ipomoea magnusiana*	
Dune morning glory	*Ipomoea pes-caprae*	
Munondo	*Julbernardia globiflora*	
None	*Juncus rigidus*	
Climbing turkey-berry	*Keetia gueinzii*	
Sausage tree	*Kigelia africana*	
White button sedge	*Kyllinga alata*	
False marula	*Lannea schweinfurthii*	
Lantana	*Lantana camara*	(Alien plant species)
Common ledebouria	*Ledebouria revoluta*	
Sand nightstar	*Leptactina delagoensis*	
Tonga mangrove	*Lumnitzera racemosa*	Least Concern
Mango	*Mangifera indica*	(Alien plant species)
Zulu milkberry	*Manilkara concolor*	
Forest milkberry	*Manilkara discolor*	
Pepper and salt	*Manulea parviflora*	
None	*Maprounea africana*	
None	*Mariscus solidus*	
Natal red top	*Melinis repens*	
Miniature morning glory	*Merremia tridentata*	
Giant sensitive plant	*Mimosa pigra*	
Milkwood	*Mimusops obtusifolia*	
African cucumber	*Momordica trifoliolata*	
Dwaba-berry	*Monanthotaxis caffra*	
Cork bush	*Mundulea sericea*	
None	*Murdannia simplex*	
Murdunnia	*Murdannia simplex*	
Kooboo-berry	*Mystroxylon aethiopicum*	
None	*Nervilia bicarinata*	
Blue waterlily	*Nymphaea nouchali*	Least Concern
Cape plane	*Ochna aborea*	
Sand plane	*Ochna kirkii*	
Plane tree	*Ochna mossambicensis*	
Natal plane	*Ochna natalitia*	
None	*Oldenlandia herbacea*	Least Concern
Starstalk	*Oxygonum buchananii*	
African resin tree	*Ozoroa insignis*	
Broad-leaved resin tree	*Ozoroa obovata*	
White buffalo grass	*Panicum coloratum*	
Guinea grass	*Panicum maximum*	
Mobola plum	*Parinari curatellifolia*	

Common Name	Scientific Name	Conservation Status*
None	*Pentodon pentadrus*	
Cat's tail	*Perotis patens*	
Knotweed	*Persicaria madagascariensis*	
Knotweed	*Persicaria salicifolium*	
None	*Platycoryne buchananiana*	
None	*Plectranthus gracillimus*	
Kudu-berry	*Pseudolachnostylis maprouneifolia*	
Guajava	*Psidium guajava*	(Alien plant species)
None	*Psorospermum febrifugum*	
Black bird-berry	*Psychotria capensis*	
Quar	*Psydrax livida*	
Stink bushwillow	*Pteleopsis myrtifolia*	
Forest burr	*Pupalia lappacea*	
None	*Pycreus nitidus*	
None	*Pycreus polystachyos*	Least Concern
Red mangrove	*Rhizophora mucronata*	Least Concern
Bushman's grape	*Rhoicissus tridentata*	
None	*Rhynchosia caribaea*	
None	*Rhynchosia minima*	Least Concern
None	*Rourea orientalis*	
Glasswort	*Salicornia pachystachya*	
Mother-in-law's-tongue	*Sanseviera hyacinthoides*	
Spikey mother-in-law's-tongue	*Sansevieria canaliculata*	
Fire-ball lily	*Scadoxus multiflorus*	
Marula	*Sclerocarya birrea*	
Glossy currant	*Searcia lucida*	
Large-flowered sebaea	*Sebaea grandis*	
None	*Senna sangueana*	
Wing-seeded sesame	*Sesamum alatum*	
Flannel weed	*Sida cordifolia*	
White milkwood	*Sideroxylon inerme*	
Thorny rope	*Smilax anceps*	
Bitter apple	*Solanum incanum*	(Alien plant species)
Poison apple	*Solanum panduriforme*	
Star-apple mangrove	*Sonneratia alba*	Least Concern
None	*Stathmostelma pedunculatum*	
African star-chestnut	*Sterculia africana*	
Chestnut tree	*Sterculia appendiculata*	(Endemic plant species)
Large witchweed	*Striga elegans*	
Witchweed	*Striga junodii*	
Black monkey orange	*Strychnos madagascariensis*	
Green monkey-orange	*Strychnos spinosa*	
Snake bean	*Swartzia madagascariensis*	
None	*Synaptolepis kirkii*	
Woodland umdoni	*Syzygium guineense*	
Tall khaki weed	*Tagetes minuta*	(Alien plant species)
Mistletoe	*Tapinanthus gracilis*	
Mistletoe	*Tapinanthus kraussianus*	
Natal mistletoe	*Tapinanthus natalitius*	
Climbing tarenna	*Tarenna junodii*	
Red grass	*Themeda triandra*	
None	*Tetracera boiviniana*	
Lagoon tulip tree	*Thespesia populnea*	
Giant spear grass	*Trachypogon spicatus*	
Pigeonwood	*Trema orientalis*	
None	*Triainolepis africana*	

Common Name	Scientific Name	Conservation Status*
Devil's-thorn	*Tribulus terrestris*	
Jackal coffee	*Tricalysia coriacea*	
Narrow-leaved mahobohobo	*Uapaca nitida*	
Lesser mahobohobo	*Uapaca sansibarica*	
Wild medlar	*Vangueria infausta*	
White ironwood	*Vepris lanceolata*	
Lowveld bitter-tea	*Vernonia colorata*	
Narrow-leaved wild sweetpea	*Vigna vexillata*	
Black plum	*Vitex doniana*	
Plum finger-leaf	*Vitex ferruginea*	
Chocolate berry	*Vitex payos*	
Wing bean	*Xeroderris stuhlmannii*	
Sourplum	*Ximenia caffra*	
Mangrove mahogany	*Xylocarpus moluscensis*	
African-dogrose	*Xylotheca tettensis*	
Common xyris	*Xyris capensis*	Least Concern
Couch grass	*Cynodon dactylon*	
Old man's beard	*Usnea sp*	

* The conservation status is based on the IUCN Red List of Threatened Species (2012), unless given in brackets.

Table 4.1 List of Expected Reptile Species

Common Name	Scientific Name	Conservation Status	Species Identified
Black-necked Tree Agama	*Acanthocercus cyanogaster / atricollis*	Least Concern	
Mozambique Agama	*Agama mossambica*		11
Katanga purple-glossed snake	*Amblyodipsas katangensis*		
Common purple-glossed snake	*Amblyodipsas polylepis*		
Lindi Sharp-snouted Worm Lizard	*Ancylocranium barkeri*		
Sharp-snouteded Worm Lizards	*Ancylocranium ionidesi*		
Cape centipede-eater	*Aparallactus capensis*	Least Concern	1
Black centipede-eater	*Aparallactus guentheri*		
Reticulated centipede-eater	*Aparallactus lunulatus*		
Usambara centipede-eater	*Aparallactus werneri*		
Bibron's burrowing asp	*Atractaspis bibronii*		
Puff adder	*Bitis arietans*		1
Gaboon vip	*Bitis gabonica*		
Loggerhead sea turtle	*Caretta caretta*	Endangered	
Snouted night adder	*Causus defilippi*		
Flap-necked Chameleon	*Chamaeleo dilepis*	Least Concern	4
Meller's Chameleon	*Chamaeleo melleri*		2
Green sea turtle	*Chelonia mydas*	Endangered	
Butler's two-headed snake	*Chilorhinophis butleri*		
Mbanja Worm Lizard	*Chirindia ewerbecki*		
Nchingidi Worm Lizard	*Chirindia rondoensis*		
Swynnerton's Worm Lizard	*Chirindia swynnertoni*		
Tropical Spinytail Lizard	*Cordylus tropidosternum*		
Nile crocodile	*Crocodylus niloticus*	Lower Risk/ Least Concern	4
Herald Snake	*Crotaphopeltis hotamboeia*		18
Tornier's cat snake	*Crotaphopeltis tornieri*		
Snake-eyed Skink	*Cryptoblepharus boutonii*	Data Deficient	5
Zambezi Soft-shelled Turtle	*Cycloderma frenatum*	Lower Risk/ Near Threatened	
East African Egg-eating Snake	*Dasypeltis medici*		2
Rhombic Egg Eating Snake	*Dasypeltis scabra*	Least Concern	
Common Mamba	*Dendroaspis angusticeps*		
Black Mamba	*Dendroaspis polylepis*	Least Concern	
Leatherback Sea Turtle	*Dermochelys coriacea*	Critically Endangered	
Court Tree Snake	*Dipsadoboa aulica*		
Cross-barred Tree Snake	*Dipsadoboa flavida*		
Shreve's Tree Snake	*Dipsadoboa shrevei*		
Boomslang	*Dispholidus typus*		
Boulenger's Garter Snake	*Elapsoidea boulengeri*		1
Hawksbill Sea Turtle	*Eretmochelys imbricata*	Critically Endangered	
Keelbelly Ground Lizard	*Gastropholis vittata*		
Leopard tortoise	*Geochelone pardalis (Stigmochelys pardalis)*		

Common Name	Scientific Name	Conservation Status	Species Identified
Rough-scaled Plated Lizard	*Gerrhosaurus major*		
Black-lined Plated Lizard	*Gerrhosaurus nigrolineatus/flavigullaris*		29
Wood Slave	*Hemidactylus mabouia*		6
Flathead Leaf-toed Gecko	*Hemidactylus platycephalus*		7
Bark Snake	*Hemirhagerrhis nototaenia*	Least Concern	
East African Fringe-Tailed Forest Lizard	*Holaspis guentheri / laevis*		
Common Rough-scaled Lizard	*Ichnotropis squamulosa*		
Bell's Hinged Tortoise	*Kinixys belliana*		
African House Snake	*Lamprophis fuliginosus (Boaedon capensis)*		2
Johnston's Long-tailed Lizard	*Latastia johnstoni*		
Emin Pasha's Worm Snake	*Leptotyphlops emini*		
Long-tailed thread snake	*Leptotyphlops longicaudus*		
Shielded Blind Snake	*Leptotyphlops scutifrons*		
Round-Snouted Worm Lizard	*Loveridgea ionidesi*		
Wolf Snake	*Lycophidion capense*	Least Concern	
Flat-snouted Wolf Snake	*Lycophidion depressirostre*		
Angola Dwarf Gecko	*Lygodactylus angolensis*		
Cape Yellow-headed Gecko	*Lygodactylus capensis*		9
Yellow-headed Dwarf Gecko	*Lygodactylus luteopicturatus*		21
Peters' Eyelid Skink	*Lygosoma afrum*		4
Sundevall's Writhing Skink	*Lygosoma sundevalli (Mochlus sundevalli)*	Least Concern	
Cape File Snake	*Mehelya capensis (Gonionotophis capensis)*	Least Concern	
Nyassa File Snake	*Mehelya nyassae (Gonionotophis nyassae)*	Least Concern	2
Semiornate snake	*Meizodon semiornatus*		
Loveridge's Limbless Skink	*Melanoseps loveridgei*		
Rondo Limbless Skink	*Melanoseps rondoensis*		
Forest Cobra	*Naja melanoleuca*		
Mozambique Spitting Cobra	*Naja mossambica*		1
Blackneck Spitting Cobra	*Naja nigricollis*		
Olive Marsh Snake	*Natriciteres olivacea*	Least Concern	
Forest Marsh Snake	*Natriciteres sylvatica*		
Uganda Savannah Lizard	*Nucras boulengeri*		
Ornate Scrub Lizard	*Nucras ornata*		
Zambezi Thick-toed Gecko	*Pachydactylus tetensis (Elasmodactylus tetensis)*	Least Concern	
Turner's Thick-toed Gecko	*Pachydactylus turneri (Chondrodactylus turneri)*		
Wahlberg's Snake-eyed Skink	*Panaspis wahlbergii (Afroablepharus wahlbergii)*		15
Yellow-bellied sea snake	*Pelamis platurus*	Least Concern	
Yellow-bellied mud turtle	*Pelusios castanoides*	Lower Risk/ Least Concern	
Serrated hinged terrapin	*Pelusios sinuatus*		
Angola green snake	*Philothamnus angolensis*		
Green water snake	*Philothamnus hoplogaster*		
Usambara Green Snake	*Philothamnus macrops*		
Spotted Green Snake	*Philothamnus punctatus*		7
Spotted Bush Snake	*Philothamnus semivariegatus*		

Common Name	Scientific Name	Conservation Status	Species Identified
Spotted Flat Lizard	*Platysaurus maculatus*		
Pitman's Shovelsnout Snake	*Prosymna pitmani*		
East African Shovel-Snout	*Prosymna stuhlmanni*		2
Dwarf Sand Snake	*Psammophis angolensis*		
Olive Grass Snake	*Psammophis mossambicus*		6
Eastern Stripe-Bellied Sand Snake	*Psammophis orientalis*		16
Striped Skaapsteker	*Psammophylax tritaeniatus*	Least Concern	
Southern African Python	*Python natalensis*		
Brahminy Blind Snake	*Ramphotyphlops braminus*		
Rufous Beaked Snake	*Rhamphiophis rostratus*		1
African Stumptail Chameleon	*Rhampholeon brachyurus*		
Bearded leaf chameleon	*Rhampholeon brevicaudatus*		
Schlegel's beaked blind snake	*Rhinotyphlops mucroso*		11
Litipo Sand Skink	*Scolecoseps litipoensis*		
Four-fingered Skink	*Sepsina tetradactyla*		
Tiger snake	*Telescopus semiannulatus*		
Eastern Twig	*Thelotornis mossambicanus*		2
Boulenger's Mabuya	*Mabuya boulengeri (Trachylepis boulengeri)*		1
Speckle-lipped Skink	*Mabuya maculilabris (Trachylepis maculilabris)*		11
African Rock Blue Tail Skink	*Mabuya mageritifer (Trachylepis mageritifer)*		
Striped Skink	*Mabuya striata (Trachylepis striata)*	Least Concern	1
Variable Skink	*Mabuya varia (Trachylepis varia)*		19
Rondo Worm Snake	*Typhlops rondoensis*		
None	*Typhlops tanganicus*		
None	*Typhlosaurus/Acontias spp. nov.*		4
White-throated Monitor	*Varanus albigularis*		4
Nile Monitor	*Varanus niloticus*		3
	Unidentified amphisbaenian		5
Total number of species identified during fieldwork			**36**
Total number of individuals identified during fieldwork			**238**

* The conservation status is based on the IUCN Red List of Threatened Species (2012).

Table 4.2 List of Expected Amphibian Species

Common Name	Scientific Name	Conservation Status *	Species Identified
Snoring Spiny Reed Frog	*Afrixalus crotalus*	Least Concern	1
Delicate Spiny Reed Frog	*Afrixalus delicatus*	Least Concern	5
Fornasini's Spiny Reed Frog	*Afrixalus fornasini*	Least Concern	5
Dwarf Squeaker Frog	*Arthrleptella xenodactyloides*		
Common Squeaker	*Arthroleptis stenodactylus*	Least Concern	21
Common Rain Frog	*Breviceps adspersus*	Least Concern	1
Mozambique rain frog	*Breviceps mossambicus*	Least Concern	4
Garman's toad	*Bufo garmani (Amietophrynus garmani)*	Least Concern	1
African Common Toad	*Bufo gutturalis (Amietophrynus gutturalis)*	Least Concern	
Dar es Salaam Toad	*Bufo lindneri (Mertensophryne lindneri)*	Least Concern	3
Hallowell's toad	*Bufo maculatus (Amietophrynus maculatus)*	Least Concern	24
Black-chested Dwarf Toad	*Bufo taitanus (Mertensophryne taitanus)*	Least Concern	1
Grey Foam-nest Treefrog	*Chiromantis xerampelina*	Least Concern	2
Guinea Snout-burrower	*Hemisus guineiensis*		
Marbled Snout-burrower	*Hemisus marmoratus*	Least Concern	55
Southern Ornate Frog	*Hildebrandtia ornata*	Least Concern	1
Galam White-lipped Frog	*Hylarana galamensis*	Least Concern	14
Sharp-nosed Reed Frog	*Hyperolius acuticeps*	Least Concern	1
Argus reed frog	*Hyperolius argus*	Least Concern	2
Painted reed fro	*Hyperolius marmoratus taeniatus*	Least Concern	5
Mitchell's Reed frog	*Hyperolius mitchelli*	Least Concern	
Parker's Reed Frog	*Hyperolius parkeri*	Least Concern	4
Spotted Reed Frog	*Hyperolius puncticulatus*	Endangered	
Translucent Tree Frog	*Hyperolius pusillus*	Least Concern	1
Five-lined Sedgefrog	*Hyperolius quinquevittatus*	Least Concern	
Green Reed Frog	*Hyperolius tuberilinguis*	Least Concern	4
Red-Legged Kassina	*Kassina maculata*	Least Concern	5
Senegal Running Frog	*Kassina senegalensis*	Least Concern	43
Bagamoyo Forest Tre	*Leptopelis argenteus*	Least Concern	
Bocage's Frog	*Leptopelis bocagii*	Least Concern	
Broadley's Forest Treefrog	*Leptopelis broadleyi*	Least Concern	7
Yellow-spotted Treefrog	*Leptopelis flavomaculatus*	Least Concern	
Loveridge's snouted toad	*Mertensophryne micranotis*	Least Concern	
Zanzibar puddle frog	*Phrynobatrachus acridoides*	Least Concern	13
Dwarf Puddle Frog	*Phrynobatrachus mababiensis*	Least Concern	1
Common puddle frog	*Phrynobatrachus natalensis*	Least Concern	14
Red-Banded Rubber Frog	*Phrynomantis bifasciatus*	Least Concern	9
Anchieta's Ridged Frog	*Ptychadena anchietae*	Least Concern	2
None	*Ptychadena guinea*		71
Mascarene Frog	*Ptychadena mascareniensis*	Least Concern	2
Mozambique Ridged Frog	*Ptychadena mossambica*	Least Concern	4
Sharp-nosed Frog	*Ptychadena oxyrhynchus*	Least Concern	4
Schilluk Ridged Frog	*Ptychadena schillukorum*	Least Concern	1
Small Ridged Frog	*Ptychadena taenioscelis*	Least Concern	2
Edible Bullfrog	*Pyxicephalus edulis*	Least Concern	6
African Red Toad	*Schismaderma carens*	Least Concern	
None	*Spaeleophryne methneri*		
Loveridge's forest toad	*Stephopaedes loveridgei*	Least Concern	
Muller's clawed frog	*Xenopus muelleri*	Least Concern	3

Common Name	Scientific Name	Conservation Status *	Species Identified
Total number of species identified during fieldwork			**36**
Total number of individuals identified during fieldwork			**342**

* The conservation status is based on the IUCN Red List of Threatened Species (2012).

Table 5.1 List of Expected Protected Birds

Common Name	Scientific Name	Conservation Status*
Blue Quail	*Coturnix adansonii*	Locally Threatened
Southern Ground-Hornbill	*Bucorvus leadbeateri*	Vulnerable
Barn Owl	*Tyto alba*	Least Concern
Southern White-faced Scops-Owl	*Ptilopsus granti*	Least Concern
Spotted Eagle-Owl	*Bubo africanus*	Least Concern
Verreaux's Eagle-Owl	*Bubo lacteus*	Least Concern
African Wood-Owl	*Strix woodfordii*	Least Concern
African Barred Owlet	*Glaucidium capense*	Least Concern
Wattled Crane	*Grus carunculatus*	Vulnerable
Eurasian Curlew	*Numenius arquata*	Near Threatened
Madacascar Pratincole	*Glareola ocularis*	Vulnerable
African Skimmer	*Rynchops flavirostris*	Near Threatened
Caspian Tern	*Sterna caspia*	Least Concern
Lesser Crested Tern	*Sterna bengalensis*	Least Concern
Swift Tern	*Sterna bergii*	Least Concern
Common Tern	*Sterna hirundo*	Least Concern
Little Tern	*Sterna albifrons*	Least Concern
Osprey	*Pandion haliaetus*	Least Concern
African Cuckoo Hawk	*Aviceda cuculoides*	Least Concern
European Honey-Buzzard	*Pernis apivorus*	Least Concern
Black-shouldered Kite	*Elanus caeruleus*	Least Concern
Black Kite	*Milvus [migrans] migrans*	Least Concern
Yellow-billed Kite	*Milvus [migrans] parasitus*	
African Fish-Eagle	*Haliaeetus vocifer*	Least Concern
Palm-nut Vulture	*Gypohierax angolensis*	Least Concern
Black-chested Snake-Eagle	*Circaetus pectoralis*	Least Concern
Brown Snake-Eagle	*Circaetus cinereus*	Least Concern
Southern Banded Snake-Eagle	*Circaetus fasciolatus*	Near Threatened
Bateleur	*Terathopius ecaudatus*	Near Threatened
African Harrier-Hawk	*Polyboroides typus*	Least Concern
Lizard Buzzard	*Kaupifalco monogrammicus*	Least Concern
Dark Chanting Goshawk	*Melierax metabates*	Least Concern
African Goshawk	*Accipiter tachiro*	Least Concern
Shikra	*Accipiter badius*	Least Concern
Little Sparrowhawk	*Accipiter minullus*	Least Concern
Black Sparrowhawk	*Accipiter melanoleucus*	Least Concern
Steppe Buzzard	*Buteo vulpinus*	Least Concern
Steppe Eagle	*Aquila nipalensis*	Least Concern
Ayres's Hawk-Eagle	*Aquila ayresii*	
Wahlberg's Eagle	*Aquila wahlbergi*	Least Concern
Martial Eagle	*Polemaetus bellicosus*	Near-Threatened
Long-crested Eagle	*Lophaetus occipitalis*	Least Concern
Dickinson's Kestrel	*Falco dickinsoni*	Least Concern
Sooty Falcon	*Falco concolor*	Near Threatened
Eurasian Hobby	*Falco subbuteo*	Least Concern
Black Heron	*Egretta ardesiaca*	Least Concern
Little Egret	*Egretta garzetta*	Least Concern
Yellow-billed Egret	*Egretta intermedia*	
Great Egret	*Egretta alba*	
Western Reef Heron	*Egretta gularis*	Least Concern
Dimorphic Egret	*Egretta dimorpha*	

Common Name	Scientific Name	Conservation Status*
Grey Heron	*Ardea cinerea*	Least Concern
Black-headed Heron	*Ardea melanocephala*	Least Concern
Purple Heron	*Ardea purpurea*	Least Concern
Cattle Egret	*Bubulcus ibis*	Least Concern
Squacco Heron	*Ardeola ralloides*	Least Concern
Malagasy Pond-Heron	*Ardeola idae*	Endangered
Rufous-bellied Heron	*Ardeola rufiventris*	Least Concern
Green-backed Heron	*Butorides striata*	Least Concern
Black-crowned Night-Heron	*Nycticorax nycticorax*	Least Concern
Little Bittern	*Ixobrychus minutus*	Least Concern
Yellow-billed Stork	*Mycteria ibis*	Least Concern
African Openbill	*Anastomus lamelligerus*	Least Concern
Woolly-necked Stork	*Ciconia episcopus*	Least Concern
Saddle-billed Stork	*Ephippiorhynchus senegalensis*	Least Concern
Plain-backed Sunbird	*Anthreptes reichenowi*	Near-Threatened
Red-headed Quelea	*Quelea erythrops*	Least Concern (Locally Threatened)
Locustfinch	*Paludipasser locustella*	(Locally Threatened)

* The conservation status is based on the IUCN Red List of Threatened Species (2012), unless given in brackets.

Table 5.2 Biome Biome-restricted Species (according to Parker, 2001)

Common Name	Scientific Name	Biome Type	Habitat
Dickinson's Kestrel	*Falco dickinsoni*	Zambezian	Palm savannah
Southern Banded snake-eagle	*Circaetus fasciolatus*	East African Coast	Dense Berlinia orientalis woodland - limited by large trees
Brown-hooded Parrot	*Poicephalus cryptoxanthus*	East African Coast	Open woodland with fruit trees
Mangrove Kingfisher	*Halcyon senegaloides*	East African Coast	Mangrove forest and adjacent dense woodland
Brown-breasted Barbet	*Lybius melanopterus*	East African Coast	Most habitat types, and mangrove trees invested with mistletoes
Fischer's Greenbul	*Phyllastrephus fischeri*	East African Coast	Closed Berlinia orientalis woodland/forest
Gorgeous Bush Shrike	*Telophorus quadricolor*	East African Coast	Mainly coastal thicket and dense woodland
Chestnut-fronted Helmet-shrike	*Prionops scopifrons*	East African Coast	Mature broad-leaved woodland and Berlinia orientalis forest
Pale Batis	*Batis soror*	East African Coast	All woodland habitat types
Plain-backed Sunbird	*Anthreptes reichenowi*	East African Coast	Mature woodland
Grey Sunbird	*Cinnyris veroxii*	East African Coast	Closed woodland and mangrove forest
Lesser Seedcracker	*Pyrenestes minor*	East African Coast	Mature woodland and adjacent dambos
Zanzibar Red Bishop	*Euplectes nigroventris*	East African Coast	Wetlands
Black-bellied Starling	*Lamprotornis corruscus*	East African Coast	Closed woodland
Kurrichane Thrush	*Turdus libonyana*	Zambezian	Dense woodland

Common Name	Scientific Name	Biome Type	Habitat
Stierling's Barred Warbler	*Calamonastes stierlingi*	Zambezian	Open woodland
White-bellied Sunbird	*Cinnyris talatala*	Zambezian	Varied
Broad-tailed Paradise Whydah	*Vidua obtusa*	Zambezian	Broad-leaved woodland

Table 5.3 List of Bird Species Identified During Baseline Surveys (Conducted on 11-18 October 2011, 08-20 December 2011 and 29 March - 05 April 2012)

Family	Common Name	Scientific Name	Conservation Status *
Phasianide	Crested (Kirk's) Francolin	*Dendroperdix sephaena rovuma*	
	Natal Spurfowl	*Pternistis natalensis*	
	Red-necked Spurfowl	*Pternistis afer*	
	Harlequin Quail	*Coturnix delegorguei*	Least Concern
	Blue Quail	*Coturnix adansonii*	
Numididae	Crested Guineafowl	*Guttera edouardi*	
	Helmeted Guineafowl	*Numida meleagris*	Least Concern
Dendrocygnidae	White-faced Duck	*Dendrocygna viduata*	Least Concern
	White-backed Duck	*Thalassornis leuconotus*	Least Concern
Anatidae	Egyptian Goose	*Alopochen aegyptiaca*	Least Concern
	Spur-winged Goose	*Plectropterus gambensis*	Least Concern
	African Pygmy-goose	*Nettapus auritus*	Least Concern
	Red-billed Teal	*Anas erythrorhyncha*	Least Concern
Turnicidae	Kurrichane Buttonquail	*Turnix sylvaticus*	Least Concern
Indicatoridae	Scaly-throated Honeyguide	*Indicator variegatus*	Least Concern
	Greater Honeyguide	*Indicator indicator*	Least Concern
	Lesser Honeyguide	*Indicator minor*	Least Concern
Picidae	Speckle-throated Woodpecker	*Campethera scriptoricauda*	
	Golden-tailed Woodpecker	*Campethera abingoni*	Least Concern
	Green-backed Woodpecker	*Campethera cailliautii*	Least Concern
	Cardinal Woodpecker	*Dendropicos fuscescens*	Least Concern
Lybiidae	Yellow-rumped Tinkerbird	*Pogoniulus bilineatus*	Least Concern
	Yellow-fronted Tinkerbird	*Pogoniulus chrysoconus*	Least Concern
	Black-collared Barbet	*Lybius torquatus zombae*	
	Brown-breasted Barbet	*Lybius melanopterus*	Least Concern
Bucerotidae	Crowned Hornbill	*Tockus alboterminatus*	Least Concern
	African Grey Hornbill	*Tockus nasutus*	Least Concern
	Trumpeter Hornbill	*Bycanistes bucinator*	Least Concern
	Silvery-cheeked Hornbill	*Bycanistes brevis*	Least Concern
Bucorvidae	Southern Ground-Hornbill	*Bucorvus leadbeateri*	Vulnerable
Upupidae	African Hoopoe	*Upupa africana*	
Phoeniculidae	Green Wood-Hoopoe	*Phoeniculus purpureus*	Least Concern
Rhinopomastidae	Common Scimitarbill	*Rhinopomastus cyanomelas*	Least Concern
Trogonidae	Narina Trogon	*Apaloderma narina*	Least Concern
Coraciidae	Lilac-breasted Roller	*Coracias caudatus*	Least Concern
	Purple Roller	*Coracias naevius*	
	Broad-billed Roller	*Eurystomus glaucurus*	Least Concern
Alcedinidae	Malachite Kingfisher	*Alcedo cristata*	Least Concern
	African Pygmy-Kingfisher	*Ispidina picta*	Least Concern
Dacelonidae	Grey-headed Kingfisher	*Halcyon leucocephala*	Least Concern
	Woodland Kingfisher	*Halcyon senegalensis*	Least Concern
	Mangrove Kingfisher	*Halcyon senegaloides*	Least Concern
	Brown-hooded Kingfisher	*Halcyon albiventris*	Least Concern
	Striped Kingfisher	*Halcyon chelicuti*	Least Concern

Family	Common Name	Scientific Name	Conservation Status *
Cerylidae	Giant Kingfisher	*Megaceryle maximus*	
	Pied Kingfisher	*Ceryle rudis*	Least Concern
Meropidae	White-fronted Bee-eater	*Merops bullockoides*	Least Concern
	Little Bee-eater	*Merops pusillus*	Least Concern
	Swallow-tailed Bee-eater	*Merops hirundineus*	Least Concern
	Blue-cheeked Bee-eater	*Merops persicus*	Least Concern
	Madagascar Bee-eater	*Merops superciliosus*	Least Concern
	European Bee-eater	*Merops apiaster*	Least Concern
Coliidae	Red-faced Mousebird	*Urocolius indicus*	Least Concern
Cuculidae	Red-chested Cuckoo	*Cuculus solitarius*	Least Concern
	Black Cuckoo	*Cuculus clamosus*	Least Concern
	Common Cuckoo	*Cuculus canorus*	Least Concern
	African Cuckoo	*Cuculus gularis*	Least Concern
	Barred Long-tailed Cuckoo	*Cercococcyx montanus*	Least Concern
	Klaas's Cuckoo	*Chrysococcyx klaas*	Least Concern
	African Emerald Cuckoo	*Chrysococcyx cupreus*	Least Concern
	Diderick Cuckoo	*Chrysococcyx caprius*	Least Concern
Centropodidae	Green Malkoha	*Ceuthmochares aereus*	Least Concern
	Black Coucal	*Centropus grillii*	Least Concern
	Burchell's Coucal	*Centropus burchellii*	
Psittacidae	Brown-headed Parrot	*Poicephalus cryptoxanthus*	Least Concern
Apodidae	African Palm-Swift	*Cypsiurus parvus*	Least Concern
	Common Swift	*Apus apus*	Least Concern
	Little Swift	*Apus affinis*	Least Concern
	White-rumped Swift	*Apus caffer*	Least Concern
Musophagidae	Livingstone's Turaco	*Tauraco livingstonii*	Least Concern
	Purple-crested Turaco	*Gallirex porphyreolophus*	
	Grey Go-away-bird	*Corythaixoides concolor*	Least Concern
Tytonidae	Barn Owl	*Tyto alba*	Least Concern
Strigidae	Southern White-faced Scops-Owl	*Ptilopsus granti*	
	Spotted Eagle-Owl	*Bubo africanus*	Least Concern
	Verreaux's Eagle-Owl	*Bubo lacteus*	Least Concern
	African Wood-Owl	*Strix woodfordii*	Least Concern
	African Barred Owlet	*Glaucidium capense*	Least Concern
Caprimulgidae	Fiery-necked Nightjar	*Caprimulgus pectoralis*	Least Concern
	Square-tailed Nightjar	*Caprimulgus fossii*	Least Concern
	European Nightjar	*Caprimulgus europaeus*	Least Concern
Columbidae	Laughing Dove	*Streptopelia senegalensis*	
	Cape Turtle-Dove	*Streptopelia capicola*	Least Concern
	Red-eyed Dove	*Streptopelia semitorquata*	Least Concern
	Emerald-spotted Wood-Dove	*Turtur chalcospilos*	Least Concern
	Tambourine Dove	*Turtur tympanistria*	Least Concern
	African Green-Pigeon	*Treron calvus*	Least Concern
Oditidae	Red-crested Korhaan	*Lophotis ruficrista*	
	Black-bellied Bustard	*Lissotis melanogaster*	
Gruidae	Wattled Crane	*Grus carunculatus*	
Rallidae	Red-chested Flufftail	*Sarothrura rufa*	Least Concern
	African Rail	*Rallus caerulescens*	Least Concern
	African Crake	*Crecopsis egregia*	Least Concern
	Black Crake	*Amaurornis flavirostris*	
	African Purple Swamphen	*Porphyrio madagascariensis*	
	Allen's Gallinule	*Porphyrio alleni*	Least Concern
	Lesser Moorhen	*Gallinula angulata*	Least Concern
Scolopacidae	Bar-tailed Godwit	*Limosa lapponica*	Least Concern
	Common Whimbrel	*Numenius phaeopus*	
	Eurasian Curlew	*Numenius arquata*	
	Marsh Sandpiper	*Tringa stagnatilis*	

Family	Common Name	Scientific Name	Conservation Status *
	Common Greenshank	*Tringa nebularia*	
	Green Sandpiper	*Tringa ochropus*	
	Wood Sandpiper	*Tringa glareola*	
	Terek Sandpiper	*Xenus cinereus*	
	Common Sandpiper	*Actitis hypoleucos*	
	Ruddy Turnstone	*Arenaria interpres*	
	Sanderling	*Calidris alba*	
	Little Stint	*Calidris minuta*	
	Curlew Sandpiper	*Calidris ferruginea*	
	Ruff	*Philomachus pugnax*	
Jacanidae	African Jacana	*Actophilornis africanus*	
	Lesser Jacana	*Microparra capensis*	
Burhinidae	Water Thick-knee	*Burhinus vermiculatus*	
Recurvirostridae	Black-winged Stilt	*Himantopus himantopus*	
Charadriidae	Grey Plover	*Pluvialis squatarola*	
	Common Ringed Plover	*Charadrius hiaticula*	
	Kittlitz's Plover	*Charadrius pecuarius*	
	Three-banded Plover	*Charadrius tricollaris*	
	White-fronted Plover	*Charadrius marginatus*	
	Lesser Sand Plover	*Charadrius mongolus*	
	Greater Sand Plover	*Charadrius leschenaultii*	
	Blacksmith Lapwing	*Vanellus armatus*	
	Senegal Lapwing	*Vanellus lugubris*	
	Crowned Lapwing	*Vanellus coronatus*	
Dromadidae	Crab Plover	*Dromas ardeola*	
Glareolidae	Bronze-winged Courser	*Rhinoptilus chalcopterus*	
	Collared Pratincole	*Glareola pratincola*	
	Madacascar Pratincole	*Glareola ocularis*	
Rhynchopidae	African Skimmer	*Rynchops flavirostris*	
Laridae	Caspian Tern	*Sterna caspia*	
	Lesser Crested Tern	*Sterna bengalensis*	
	Swift Tern	*Sterna bergii*	
	Common Tern	*Sterna hirundo*	
	Little Tern	*Sterna albifrons*	
Accipitridae	Osprey	*Pandion haliaetus*	
	African Cuckoo Hawk	*Aviceda cuculoides*	
	European Honey-Buzzard	*Pernis apivorus*	
	Black-shouldered Kite	*Elanus caeruleus*	
	Black Kite	*Milvus [migrans] migrans*	
	Yellow-billed Kite	*Milvus [migrans] parasitus*	
	African Fish-Eagle	*Haliaeetus vocifer*	
	Palm-nut Vulture	*Gypohierax angolensis*	
	Black-chested Snake-Eagle	*Circaetus pectoralis*	
	Brown Snake-Eagle	*Circaetus cinereus*	
	Southern Banded Snake-Eagle	*Circaetus fasciolatus*	
	Bateleur	*Terathopius ecaudatus*	
	African Harrier-Hawk	*Polyboroides typus*	
	Lizard Buzzard	*Kaupifalco monogrammicus*	
	Dark Chanting Goshawk	*Melierax metabates*	
	African Goshawk	*Accipiter tachiro*	
	Shikra	*Accipiter badius*	
	Little Sparrowhawk	*Accipiter minullus*	
	Black Sparrowhawk	*Accipiter melanoleucus*	
	Steppe Buzzard	*Buteo vulpinus*	
	Steppe Eagle	*Aquila nipalensis*	
	Ayres's Hawk-Eagle	*Aquila ayresii*	
	Wahlberg's Eagle	*Aquila wahlbergi*	
	Martial Eagle	*Polemaetus bellicosus*	

Family	Common Name	Scientific Name	Conservation Status *
	Long-crested Eagle	*Lophaetus occipitalis*	
Falconidae	Dickinson's Kestrel	*Falco dickinsoni*	
	Sooty Falcon	*Falco concolor*	
	Eurasian Hobby	*Falco subbuteo*	
Podicipedidae	Little Grebe	*Tachybaptus ruficollis*	
Sulidae	Red-footed Booby	*Sula sula*	
Phalacrocoracidae	Reed Cormorant	*Phalacrocorax africanus*	
Ardeidae	Black Heron	*Egretta ardesiaca*	
	Little Egret	*Egretta garzetta*	
	Yellow-billed Egret	*Egretta intermedia*	
	Great Egret	*Egretta alba*	
	Western Reef Heron	*Egretta gularis*	
	Dimorphic Egret	*Egretta dimorpha*	
	Grey Heron	*Ardea cinerea*	
	Black-headed Heron	*Ardea melanocephala*	
	Purple Heron	*Ardea purpurea*	
	Cattle Egret	*Bubulcus ibis*	
	Squacco Heron	*Ardeola ralloides*	
	Malagasy Pond-Heron	*Ardeola idae*	
	Rufous-bellied Heron	*Ardeola rufiventris*	
	Green-backed Heron	*Butorides striata*	
	Black-crowned Night-Heron	*Nycticorax nycticorax*	
	Little Bittern	*Ixobrychus minutus*	
Scopidae	Hamerkop	*Scopus umbretta*	
Treshkiornithidae	Hadeda Ibis	*Bostrychia hagedash*	
	African Sacred Ibis	*Threskiornis aethiopicus*	
Plataleidae	African Spoonbill	*Platalea alba*	
Ciconidae	Yellow-billed Stork	*Mycteria ibis*	
	African Openbill	*Anastomus lamelligerus*	
	Woolly-necked Stork	*Ciconia episcopus*	
	Saddle-billed Stork	*Ephippiorhynchus senegalensis*	
Fregatidae	Greater Frigatebird	*Fregata minor*	
Erylaimidae	African Broadbill	*Smithornis capensis*	
Oriolidae	Eurasian Golden Oriole	*Oriolus oriolus*	
	African Golden Oriole	*Oriolus auratus*	
	Black-headed Oriole	*Oriolus larvatus*	
Dicruridae	Square-tailed Drongo	*Dicrurus ludwigii*	
	Fork-tailed Drongo	*Dicrurus adsimilis*	
Monarchidae	Blue-mantled Crested Flycatcher	*Trochocercus cyanomelas*	
	African Paradise-Flycatcher	*Terpsiphone viridis*	
Malaconotidae	Brubru	*Nilaus afer*	
	Black-backed Puffback	*Dryoscopus cubla*	
	Black-crowned Tchagra	*Tchagra senegalus*	
	Brown-crowned Tchagra	*Tchagra australis*	
	Tropical Boubou	*Laniarius aethiopicus*	
	Orange-breasted Bush-Shrike	*Telophorus sulfureopectus*	
	Gorgeous Bush-Shrike	*Telophorus quadricolor*	
	Grey-headed Bush-Shrike	*Malaconotus blanchoti*	
	White-crested Helmet-Shrike	*Prionops plumatus*	
	Retz's Helmet-Shrike	*Prionops retzii*	
	Chestnut-fronted Helmet-Shrike	*Prionops scopifrons*	
	Black-and-white Flycatcher	*Bias musicus*	
	Chinspot Batis	*Batis molitor*	

Family	Common Name	Scientific Name	Conservation Status *
	Pale Batis	*Batis soror*	
	Short-tailed Batis	*Batis sp. nr. B. mixta reichnowi*	
	Eastern Black-headed Batis	*Batis minor*	
	Black-throated Wattle-eye	*Platysteira peltata*	
Corvidae	Pied Crow	*Corvus albus*	
Laniidae	Red-backed Shrike	*Lanius collurio*	
Campephagidae	White-breasted Cuckooshrike	*Coracina pectoralis*	
	Black Cuckooshrike	*Campephaga flava*	
Paridae	Grey Penduline-Tit	*Anthoscopus caroli*	
	Southern Black Tit	*Parus niger*	
Hirundinidae	Brown-throated Martin	*Riparia paludicola*	
	Barn Swallow	*Hirundo rustica*	
	Wire-tailed Swallow	*Hirundo smithii*	
	Greater Striped Swallow	*Hirundo cucullata*	
	Lesser Striped Swallow	*Hirundo abyssinica*	
	Mosque Swallow	*Hirundo senegalensis*	
	Common House-Martin	*Delichon urbicum*	
	Eastern Saw-wing	*Psalidoprocne orientalis*	
Pycnonotidae	Dark-capped Bulbul	*Pycnonotus tricolor*	
	Sombre Greenbul	*Andropadus importunus*	
	Yellow-bellied Greenbul	*Chlorocichla flaviventris*	
	Terrestrial Brownbul	*Phyllastrephus terrestris*	
	Fischer's Greenbul	*Phyllastrephus fischeri*	
	Eastern Nicator	*Nicator gularis*	
Sylviidae	Livingstone's Flycatcher	*Erythrocercus livingstonei*	
	Eurasian Reed-Warbler	*Acrocephalus scirpaceus*	
	Marsh Warbler	*Acrocephalus palustris*	
	Lesser Swamp-Warbler	*Acrocephalus gracilirostris*	
	Yellow-bellied Eremomela	*Eremomela icteropygialis*	
	Green-capped Eremomela	*Eremomela scotops*	
	Red-faced Crombec	*Sylvietta whytii*	
	Willow Warbler	*Phylloscopus trochilus*	
	Arrow-marked Babbler	*Turdoides jardineii*	
Zosteropidae	African Yellow White-eye	*Zosterops senegalensis*	
Cisticolidae	Red-faced Cisticola	*Cisticola erythrops*	
	Singing Cisticola	*Cisticola cantans*	
	Rattling Cisticola	*Cisticola chiniana*	
	Croaking Cisticola	*Cisticola natalensis*	
	Neddicky	*Cisticola fulvicapilla*	
	Short-winged Cisticola	*Cisticola brachypterus*	
	Zitting Cisticola	*Cisticola juncidis*	
	Tawny-flanked Prinia	*Prinia subflava*	
	Red-winged Warbler	*Heliolais erythropterus*	
	Yellow-breasted Apalis	*Apalis flavida*	
	Green-backed Camaroptera	*Camaroptera brachyura*	
	Stierling's Wren-Warbler	*Calamonastes stierlingi*	
Alaudidae	Flappet Lark	*Mirafra rufocinnamomea*	
Muscicapidae	Kurrichane Thrush	*Turdus libonyanus*	
	Pale Flycatcher	*Bradornis pallidus*	
	Southern Black Flycatcher	*Melaenornis pammelaina*	
	Spotted Flycatcher	*Muscicapa striata*	
	Ashy Flycatcher	*Muscicapa caerulescens*	
	Grey Tit-Flycatcher	*Myioparus plumbeus*	
	White-browed Robin-Chat	*Cossypha heuglini*	
	Red-capped Robin-Chat	*Cossypha natalensis*	
	Collared Palm-Thrush	*Cichladusa arquata*	
	Bearded Scrub-Robin	*Cercotrichas quadrivirgata*	

Family	Common Name	Scientific Name	Conservation Status *
	White-browed Scrub-Robin	*Cercotrichas leucophrys*	
Sturnidae	Black-bellied Starling	*Lamprotornis corruscus*	
	Violet-backed Starling	*Cinnyricinclus leucogaster*	
Nectariniidae	Plain-backed Sunbird	*Anthreptes reichenowi*	
	Western Violet-backed Sunbird	*Anthreptes longuemarei*	
	Olive Sunbird	*Cyanomitra olivacea*	
	Grey Sunbird	*Cyanomitra veroxii*	
	Amethyst Sunbird	*Chalcomitra amethystina*	
	Scarlet-chested Sunbird	*Chalcomitra senegalensis*	
	Collared Sunbird	*Hedydipna collaris*	
	Variable Sunbird	*Cinnyris venustus*	
	White-bellied Sunbird	*Cinnyris talatala*	
	Purple-banded Sunbird	*Cinnyris bifasciatus*	
Ploceidae	Spectacled Weaver	*Ploceus ocularis*	
	Yellow Weaver	*Ploceus subaureus*	
	Golden Weaver	*Ploceus xanthops*	
	Southern Brown-throated Weaver	*Ploceus xanthopterus*	
	Village Weaver	*Ploceus cucullatus*	
	Dark-backed Weaver	*Ploceus bicolor*	
	Red-headed Quelea	*Quelea erythrops*	
	Red-billed Quelea	*Quelea quelea*	
	Black-winged Bishop	*Euplectes hordeaceus*	
	Southern Red Bishop	*Euplectes orix*	
	Zanzibar Red Bishop	*Euplectes nigroventris*	
	Fan-tailed Widowbird	*Euplectes axillaris*	
	White-winged Widowbird	*Euplectes albonotatus*	
	Red-collared Widowbird	*Euplectes ardens*	
Estrildidae	Locustfinch	*Paludipasser locustella*	
	Orange-breasted Waxbill	*Amandava subflava*	
	African Quailfinch	*Ortygospiza atricollis*	
	Common Waxbill	*Estrilda astrild*	
	Lesser Seedcracker	*Pyrenestes minor*	
	Blue Waxbill	*Uraeginthus angolensis*	
	Red-throated Twinspot	*Hypargos niveoguttatus*	
	Orange-winged Pytilia	*Pytilia afra*	
	Red-billed Firefinch	*Lagonosticta senegala*	
	African Firefinch	*Lagonosticta rubricata*	
	Bronze Mannikin	*Spermestes cucullatus*	
	Red-backed Mannikin	*Spermestes bicolor*	
Viduidae	Village Indigobird	*Vidua chalybeata*	
	Dusky Indigobird	*Vidua funerea*	
	Pin-tailed Whydah	*Vidua macroura*	
	Long-tailed Paradise-Whydah	*Vidua paradisaea*	
	Broad-tailed Paradise-Whydah	*Vidua obtusa*	
Passeridae	House Sparrow	*Passer domesticus*	
	Northern Grey-headed Sparrow	*Passer griseus*	
	Yellow-throated Petronia	*Petronia superciliaris*	
Motacilidae	African Pied Wagtail	*Motacilla aguimp*	
	Yellow-throated Longclaw	*Macronyx croceus*	
	African Pipit	*Anthus cinnamomeus*	
Fringilidae	Yellow-fronted Canary	*Serinus mozambicus*	
	Brimstone Canary	*Serinus sulphuratus*	
	Reichard's Seedeater	*Serinus reichardi*	
	Golden-breasted Bunting	*Emberiza flaviventris*	

Family	Common Name	Scientific Name	Conservation Status *

* The conservation status is based on the IUCN Red List of Threatened Species (2012).

Table 6.1 List of Expected Red-Data Mammals and Conservation Status

Common Name	Scientific Name	Conservation Status*
CARNIVORA		
African wild dog	*Lycaon pictus*	Endangered
Brown hyaena	*Parahyaena brunnea*	Near Threatened
Cheetah	*Acionynx jubatus*	Vulnerable
Leopard	*Panthera pardus*	Near Threatened
Lion	*Panthera leo*	Vulnerable
PHOLIDOTA		
Pangolin	*Manis temminckii*	Least Concern
PERRISIDACTYLA		
White rhinoceros	*Ceratotherium simum*	Near Threatened
Black rhinoceros	*Diceros bicornis*	Critically Endangered
WHIPPOMORPHA		
Hippopotamus	*Hippopotamus amphibius*	Vulnerable
RODENTIA		
Vincent's bush squirrel	*Paraxerus vincenti*	Endangered
Checkered sengi	*Rhynchocyon cirnei*	Near Threatened
Delectable soft-furred mouse	*Praomys delectorum*	Least Concern
Malawi galago	*Galagoides nyasae*	Data Deficient
Dusky elephant shrew	*Elephantulus fuscus*	Data Deficient
Arend's golden mole	*Carpitalpa arendsi*	Vulnerable
RUMENANTIA		
Giraffe	*Giraffe camelopardalis*	Least Concern
Mountain reedbuck	*Redunca fulvorufula*	Least Concern
Roan antelope	*Hippotragus equinus*	Least Concern
Sitatunga	*Tragalephus speki*	Least Concern
Tsessebe	*Damaliscus lunatus*	Least Concern

* The conservation status is based on the IUCN Red List of Threatened Species (2012).