

AFRICAN DEVELOPMENT BANK GROUP



PROJECT: LAKE TANGANYIKA DEVELOPMENT PROJECT

COUNTRY : ZAMBIA

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AFRICAN DEVELOPMENT BANK GROUP



ZAMBIA

LAKE TANGANYIKA DEVELOPMENT PROJECT

APPRAISAL REPORT

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CURRENCY AND MEASURES

Currency unit	:	Zambian Kwacha (ZMW)
1 UA	:	ZMW9.28229
1 UA	:	USD 1.48258
1 USD	:	ZMW 6.282175

Effective rate in October 2014

FISCAL YEAR

January 1 – December 31

WEIGHTS AND MEASURES

1 metric tonne	=	1,000 kilograms
1 hectare (ha)	=	2.471 acres
1 acre	=	0.405 ha
1 square kilometre (km ²)	=	100 ha

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ACRONYMS AND ABBREVIATIONS

CAADP	:	Comprehensive Africa Agriculture Development Programme
CC	:	Climate Change
DFID	:	Department for International Development
DANIDA	:	Danish International Development Agency
ECZ	:	Environmental Council of Zambia
ERR	:	Economic Rate of Return
GPN	:	General Procurement Notice
GRZ	:	Government of Republic of Zambia
IPR	:	Implementation Progress Results
INRM	:	Integrated Natural Resources Management
JASZ	:	Joint Assistance Strategy for Zambia
JICA	:	Japan International Cooperation Agency
LTDP	:	Lake Tanganyika Development Project
MCDMCH	:	Ministry of Community Development, Mother and Child Health
MLGH	:	Ministry of Local Government and Housing
MMEWD	:	Ministry of Mines, Energy and Water Development
MACO	:	Ministry of Agriculture and Cooperatives
MOE	:	Ministry of Education
MOH	:	Ministry of Health
MIS	:	Management Information System
MFNP	:	Ministry of Finance and National Planning
MGCD	:	Ministry of Gender and Child Development
MWS	:	Ministry of Works and Supply
MTR	:	Mid-Term Review
NAP	:	National Agriculture Policy
NCU	:	National Coordination Unit
ORQR	:	Quality Assurance and Results
PCR	:	Project Completion Report
RBCSP	:	Result Based Country Strategy Paper
PRODAP	:	Lake Tanganyika Integrated Regional Development Program
R-SNDP	:	Revised Sixth National Development Plan
SEA	:	Strategic Environmental Assessment
SESA	:	Strategic Environmental and Social Assessment
SIDA	:	Swedish International Development Agency
UA	:	Unit of Account
WFP	:	World Food Programme
WASHE	:	Water, Sanitation and Hygiene Education
WSS	:	Water Supply and Sanitation
WSCPG	:	Water Sector Cooperating Partner Group
ZAWA	:	Zambia Wildlife Authority
ZEMA	:	Zambia Environmental Management Agency
ZCC	:	Zambia CAADP Compact
ZMW	:	Zambian Kwacha
ZFO	:	Zambia Field Office
ZPPA	:	Zambia Public Procurement Agency

LOAN INFORMATION

Client's Information

BORROWER:	Republic of Zambia
EXECUTING AGENCY:	The Ministry of Lands, Natural Resources & Environmental Protection

Financing plan

Source	Amount (USD)	Instrument
ADB	22.49 million	Loan
GEF	7.00 million	Grant
GRZ	0.13 million	Counterpart funds
TOTAL COST	29.62 million	

ADB's key financing information

Loan currency	US Dollars
Loan Type	Enhanced variable spread type
Interest rate	Base Rate + Funding Cost Margin + Lending Margin
Base Rate	Floating Base Rate based on 6 month LIBOR with free option to fix the Base Rate.
Funding cost margin	The six months adjusted average of the difference between: (i) the refinancing rate of the Bank as to the borrowings linked to 6-month LIBOR and allocated to all its floating interest loans denominated in USD and (ii) 6-month LIBOR ending on 30 June and on 31 December. This spread shall apply to the 6-month LIBOR which resets on 1 February and on 1 August. The Funding Cost Margin shall be determined twice per year on 1 January for the semester ending on 31 December and on 1 July for the semester ending on 30 June.
Lending Margin	60 basis point (0.60%)
Commitment Fee	Not Applicable
Tenor	20 years maximum
Grace period	5 years maximum
IRR, NPV (base case)	20.60%, ZMW 339.26 billion
ERR, NPV (base case)	21.24 %; ZMW 350.32 billion

Timeframe - Main Milestones (expected)

Concept Note approval	30 September, 2014
Project approval	18 December, 2014
Effectiveness	31 March, 2015
Completion	31 December, 2019
Last Disbursement	June, 2020
Last repayment	31 December 2040

PROJECT SUMMARY

1. Project Overview:

1.1 The Lake Tanganyika Development Project (LTDP) is formulated within the framework of the Zambian Long Term Vision (known as Vision 2030) with which the country aims at becoming “*A Prosperous Middle Income Nation by 2030*”. In order to realise the Vision 2030, the project will contribute to the overall goal of the revised Sixth National Development Plan (R-SNDP) 2013-2016 by facilitating and accelerating “*People-Centred Economic Growth and Development*” that will add value to employment creation, stimulate rural development and thereby fostering inclusive growth. Specifically, the project will promote sustainable and equitable management and use of the Lake’s natural resources; improving livelihoods of communities (within its catchment area) by supporting economic infrastructure, human resources development, market linkages and value chain development for natural resources products.

1.2 The project will be implemented over a five-year period in two Districts, namely, ***Mpulungu*** and ***Nsama*** which are within the Lake’s catchment area and zone of influence of its basin. With a total population of 157,830 people, ***Mpulungu*** and ***Nsama*** districts are characterized by poor and deteriorating socio-economic conditions, protracted land degradation, lake water pollution, fish stocks depletion, and high vulnerability of communities to the deleterious effects of climate change. As a result, the incidence of poverty in this area is much higher when compared to other districts of Zambia, (with an annual income per capita USD 285 way below the national average of USD 1,400).

1.3 The project will improve the fish (catch) supply in ***weight and value*** by up to 20-25% for the beneficiaries including fisher-folks (women and men) and small and medium enterprises (SME) along the fish value chain. The project will promote wider adoption of sustainable land, forest, and water management practices and technologies to reduce land degradation, deforestation and increase agricultural production. In addition, the project will facilitate the conservation and preservation of both wildlife and the unique heritage resources in the area specially the national park which has the potential to contribute to economic development in terms of among others, foreign exchange earnings, employment and income generation, government’s revenues and promotion of rural development as well as entrepreneurship. It is envisaged that the Project would lead to increase in the per capita incomes of the target population by an average of 50% (with estimates ranging between 22-77%). In particular a greater percentage (65%) of the economic infrastructures and services delivery of the project would specifically ***target women and youth*** whose incomes are expected to increase by an average of 60%; thus enhancing their socio economic status through improved standard of living.

1.4 The estimated total project cost is **USD 29.62 million**, comprising an AfDB loan of USD 22.49 million, a co-financing GEF grant of USD 7.00 million and contribution’s Government of Zambia estimated at UA 0.13 million. The Bank’s intervention will be coordinated within GRZ’s ambitious infrastructure development program that includes investments in various sectors such as transport, energy, tourism, education and health that would help to release the potentials of the Lake’s resources which in turn will help to raise the incomes of rural households through priority growth areas. The implementation of the project will be guided by participatory approach for local ownership and sustainability.

2. Needs Assessment:

2.1 The Government of Zambia identified the project as a flagship sustainable development and value chain improvement operation, which will contribute to its National Vision 2030 and R-SNDP 2013-2016. The Project will support a safe and secure environment for sustainable economic growth and development in Lake Tanganyika catchment area of Zambia; especially for fish products for the growing domestic and

regional export markets which hitherto is severely constrained by: a) biological bottlenecks (i.e. depletion of catches whereby maximum sustainable yields are exceeded for main species); b) regulatory constraints (open access to fishing zones, uncontrolled mesh size making it unsustainable); and c) inefficiencies throughout the value chain-to the extent that there are severe losses experienced in the management of the catches due to lack of appropriate value-chain infrastructures. This intervention will help to increase the supply-side of fish catch through the introduction of good governance in fisheries management as well as all natural resources in the Lake's basin. Moreover, the project is expected to provide technical skills in conservation and other farming practices that promote environmental management and thus increasing agricultural productivity in the proposed project area. It will also assist in the formulation and implementation of measures that reduce deforestation and promote commercial woodlots and agro-forestry.

3. Bank's Added Value:

3.1 The proposed project is anchored on Pillar I of the Results Based Country Strategy Paper (2011-2015), which is "Support to Infrastructure Development" as it essentially supports many economic infrastructure that would keep the beneficiaries fully engaged rather than undertake activities that would further deplete the fragile natural resources endowment of the Lake. The Project is in furtherance of the Bank assisted Lake Tanganyika Development Program (PRODAP), which was an integrated multidisciplinary and multi-partners operation for the four riparian countries (Burundi, Democratic Republic of Congo, Tanzania and Zambia). The Bank thus has a comparative advantage based on the lessons it learned from the completed Project. In addition, the Bank's added value to undertake this project emanates from the necessity to consolidate natural resources management effort undertaken at local, national and regional level and to sustain local development actions for poverty alleviation especially amongst the teeming youth and women in the vicinity of the Lake. Also, the project will provide a useful base for proposed Lake Tanganyika Transport corridor project (under preparation) and thus develop synergies and complementarities in designs and implementation.

4. Knowledge Management:

4.1 The project will contribute to knowledge management through the proposed baseline studies, lake wide and regionally coordinated fish surveys and also progress reports which will inform the stakeholders on how to use the acquired knowledge and skills for better result-oriented achievements and benefits. Moreover, the value chain analysis and development that would be undertaken by the Project, will allow women and youth to design and manage sustainable SMEs. Co-management results will generate knowledge for better natural resource management. Knowledge generated through implementation of the project will be instrumental in designing and managing future projects. Furthermore, the project would facilitate exchange of knowledge and experiences across the Riparian countries on innovations and best practices in watershed management that would be promoted by its implementation.

RESULTS-BASED PROJECT MATRIX

(*): Actual baseline indicators will be captured, upon completion of the baseline study

COUNTRY AND PROJECT NAME:		Zambia - Lake Tanganyika Basin Development Project (LTDP)				
PURPOSE OF THE PROJECT:		To improve the quality of livelihood of populations in depending on the Lake Tanganyika and to protect the ecological integrity of the lake basin				
RESULTS CHAIN		PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
		Indicator (including CSI)	Baseline	Target		
IMPACT	Long-Term		2014	Beyond 2019		
	Reduced poverty in Lake Tanganyika Basin (LTB), by inducing sustainable economic growth in an inclusive manner	Communities at risk in LTB whose livelihoods have improved (change in %)	5%	≥ 55%	Zambia poverty assessment report	
		Per capita Income (USD/year)	285	427.5	Annual economic report of MOF	
		Months of food scarcity in male/female-headed households per year	04/05	02/02	Annual production statistical report	
Medium-Term		2014	2019			
OUTCOMES	1. Increase in the area of degraded landscape rehabilitated and under sustainable land and water management practices	Average yields of cereal crops (kg/ha)	≤ 500	≥ 1200	Annual project M&E reports and PCR	Risk: • Inherent challenges of implementing a multi-sectorial participatory project in a highly sectorial and centralized Government Mitigation Measures: • A permanent National Climate Change inter-ministerial Secretariat has been established & staffed with personnel from key climate sensitive sectors. • Project is designed to include capacity building and awareness raising activities; and IBRD is supporting a specific component on capacity building of the Secretariat.
		Average productivity of small ruminants (heads/unit/year)	≤ 1.2	≥ 4		
		Number of months of full observation of the fisheries biological rest period	2	5		
		Ratio of fish production from aquaculture out of the total production	0.05	0.30		
	2. Established market linkage and value chain of production	Reduction of post-catch losses through value-chain	≥35%	≤ 15%		
		% value-added to agriculture and non-timber forest products	0%	≥32%		
	3. Improved access to social infrastructure and diversified economic activities	% Access to social infrastructure by men/women	≤ 10/5%	≥ 60/60%		
		Shift in ratio of non-traditional / traditional economic activities	0/2	3/2		
4. Protected ecological integrity of the LTB	Implementation rate (%) of the lake catchment area management plans	≤10%	≥ 75%			
OUTPUTS	Short-Term		2014	Before 2019		
	I. INTEGRATED NATURAL RESOURCES MANAGEMENT	Hectares of forest plantations & woodlots of exotic species to establish	0	60	Project Reports District Reports Contract Documents	
		Number of sedimentation, siltation & erosion control structures	0	15		
	1. Forest and Land Management	Awareness creation and SLM information dissemination campaigns intended to men / women	0/0	2/2		
		Number of the ESMP mitigation measures implemented for men/women	0/0	4/3		
		2. Fisheries Management and Value Chain Development	Number of landing sites constructed/rehabilitated	0/0		2/2
		Number of VCDCs with established co-management structures	0	20		
		Operational monitoring, Control & Surveillance (MCS) system established	0	2		
	Number of demonstration floating cages for community fish farming	0	10			

KEY ACTIVITIES	3. Capacity Building (gender responsive)	Number of student skills training Centres established	0	100		
		Number of supports to expand community radios coverage	0	2		
		Gender sensitive IEC materials on natural resources produced for radios	0	20		
		Capacity building activities benefiting men/women	0/0	100/100		
	II. IMPROVEMENT OF POPULATIONS LIVELIHOOD	Number of major infrastructures to be completed from the previous project	0	3	Project Reports District Reports Contract Documents	Risk: • Government's weak disbursement profile.
		Construction of teachers' houses for Basic School	0	2		
	4. Establishment of Local Development Fund for Social Infrastructure	Demand-driven & gender responsive community micro projects undertaken	0	25		Mitigation Measures: A comprehensive due diligence was carried out during project preparation on the fiduciary capacity of Districts. The project will select highly performing Units of the Districts
		COMACO-Type processing plant installed	0	1		
		Number of small ruminants distributed to women and youth groups	0	500		
		Number of smallholder irrigation schemes established	0	5		
	5. Alternative livelihoods	Number of women and youth groups benefiting seed distribution for crop diversification, and bee keeping kits	0	15,000		
III. PROJECT MANAGEMENT AND COORDINATION	Number of annual work plans and budget produced and implemented	0		Project Reports District Reports Contract Documents	Risk: • Possible delay in project implementation Mitigation Measures: Project staffing will be done on the basis experience of candidates in project implementation, in addition to staff training.	
	Number of quarterly progress / annual audit reports approved	0	20/5			
	Number of steering committee meetings organized	0	10			
	Number of liaison activities with LTA undertaken	0	5			
	Number of MTR / PCR produced	0/0	1/1			
COMPONENTS					INPUTS	
	<p>Component 1: Integrated Natural Resources Management (US\$ 15.50 Million)</p> <ol style="list-style-type: none"> Forest and Land Management Fishery Management and Value Chain Development Capacity Building (gender responsive) <p>Component 2: Improvement Of Populations Livelihood (US\$ 10.53million)</p> <ol style="list-style-type: none"> Development of Social Infrastructure Alternative Livelihoods <p>Project Management and Coordination (UA3.56)</p> <ol style="list-style-type: none"> Project M&E activities Project planning and coordination Project steering committee Liaison activities with LTA 					<p>Total Project Cost: USD 29.62 million</p> <p>ADB loan: USD 22.49 million (75.9%).</p> <p>GEF: USD 7.00 million (23.6%)</p> <p>GoZ: USD 0.13 million (0.4%).</p>

PROJECT TIMEFRAME

N°	ACTIVITES	PROJECT IMPLEMENTATION YEARS						
		2014	2015	2016	2017	2018	2019	2020
1.	Negotiations, Board Approval of SCF Loan and Grant	■						
2.	Signature of Grant Protocol and Loan Agreements		■					
3.	Preparation of 1 st annual budget		■					
4.	Authorization of 1 st Disbursement		■					
5.	Approval of 1 st Competitive Bidding & SL			■				
6.	Invitation to Bid		■					
7.	Reception and Evaluation of Bids		■					
8.	Forest and Land Management: JFM Committees		■	■	■	■	■	■
9.	Forest and Land Management: Development of Land Use Plan		■	■				
10.	Forest and Land Management: Conservation Farming & Agro-Forestry			■	■	■	■	■
11.	Forest and Land Management: ESMP Measures		■	■	■	■	■	■
12.	Fisheries & Value-Chain Development: Data Collection & Surveillance			■	■	■	■	■
13.	Fisheries & Value-Chain Development: Construction of Landing Sites			■	■			
14.	Fisheries & Value-Chain Development: Training and Fish Farming				■	■	■	■
15.	Capacity Building: Establishment of Skills Training Centre			■	■			
16.	Capacity Building: Development curricula for Skills and Training			■	■	■	■	■
	Development of Socio-economic Infrastructure			■	■	■	■	■
	Alternative Livelihoods: Installation of COMACO-model Plant			■	■			
17.	Project coordination		■	■	■	■	■	■
18.	Mid-term Review of Project				■			
19.	Project completion							■
20.	Completion Report of the Government							■
21.	Bank Completion Report							■
	Audits			■	■	■	■	■
	Last project disbursement							■

REPORT AND RECOMMENDATION OF THE MANAGEMENT OF THE ADB GROUP TO THE BOARDS OF DIRECTORS ON PROPOSED LOAN AND GEF TRUST FUND GRANT TO THE REPUBLIC OF ZAMBIA FOR THE IMPLEMENTATION OF LAKE TANGANYIKA DEVELOPMENT PROJECT

Management hereby submits this Report and Recommendation of an ADB loan of USD 22.49 million and Global Environmental Facility (GEF) grant of USD 7.00 million to the Government of Zambia for the financing requirement of the investment activities of Lake Tanganyika Development Project.

I. STRATEGIC THRUST & RATIONALE

1.1 Project linkages with country strategy and objectives

1.1 The revised sixth GRZ National Development Plan (R-SNDP) 2013-2016 aims to accelerate growth by focusing investment on priority sectors, which will in turn, boost employment creation, rural development all in line with the collective goal of attaining inclusive growth. Building on this, the Ministry of Lands, Natural Resources and Environmental Protection is refining its sector policies and strategies, based on the existing National Environment Policy and the National Policy on Climate Change (2012). The LTDP, specifically, will contribute to promote sustainable management and use of natural resources; improving resilience and livelihoods of communities through economic infrastructure, human resources development, market linkage and value chain of natural resources products.

1.1.2 The Results-Based Country Strategy Paper (CSP) covering 2011 - 2015 focuses on two pillars: (i) Support to Economic Diversification through Infrastructure Development and (ii) Support to Economic and Financial Governance. The strategy identifies and embraces sectors that are important for achieving broad-based growth including increasing fisheries, forestry and agricultural productivity and incomes for smallholder producers. The Project is also consistent with the Bank's Agriculture Sector Strategy (AgSS) 2010-2014 by supporting sustainable natural resource management, and rural infrastructure development. It is aligned with the Ten Year Strategy (2013-2022), which is hinged on inclusive growth and the gradual transition to green growth by supporting diversification activities that will promote jobs for women and rural youth as well as build resilience to climatic variability through investment in natural resource management (land, water, fish, forest). The project is further aligned with the Bank's Gender Strategy (2014-2018) by addressing gender equality and women's economic empowerment through promotion of alternative livelihoods activities and women-targeted socio-economic infrastructure and skills training.

1.2 Rationale for Bank's involvement

1.2.1 The Lake Tanganyika represents the second largest lake in Africa, and is shared by the Congo Democratic Republic with 45% of the surface area, Tanzania 41% of the area, with Burundi and Zambia having control of 8% and 6% respectively. The 150,000 people living on the Zambian side of the Lake's basin have a high level of poverty (75% compare to national 60.5%), attributed to pervasively subsistence agriculture, over-dependence and the attendant unsustainable management of the natural and ecological resources all leading to low productivity manifesting as low disposable incomes at household levels. The major natural resources such as fisheries, forestry, wildlife and land are intensely exploited in view of the growing needs of the riparian communities and the influx of refugees fleeing conflict zones in other adjoining countries. The strong human pressure constitutes a serious threat to the sustainability of natural resources, production areas and social conditions. Lake's ecosystem is experiencing loss of its biodiversity and a deterioration of water quality. Furthermore, poverty is exacerbated by poor access to socio-economic infrastructures, unsustainable fishing through over-fishing, increased sedimentation and siltation; water pollution; and habitat destruction. What more, accessibility is difficult with less than 15% of Lakes sites are accessible by all-weather roads; and processing facilities which should add value to the fish catch at the landing sites are at best poor, if not non-existent. This leads to high post-harvest

losses of the fish catch (almost 50%)

1.2.2 The LTDP is based on the needs expressed by the communities concerned. It has been formulated to better protect the lake environment and allow for the sustainable use of the natural resources in the two Districts. The LTDP is a natural continuation of the earlier project i.e. the Lake Tanganyika Integrated Development Program (PRODAP) which was also supported by the Bank. LTDP therefore, aims at consolidating the main achievements of the earlier project by drawing on its lessons, and reinvigorated the project implementation arrangements. LTDP will also build synergies and complementarities with the Lake Tanganyika transport corridor project under preparation, to boost the economic integration of the region through the transport services and communications on Lake Tanganyika between Burundi and Zambia, the development of trade and other economic activities, particularly for the processing and marketing of fisheries and agricultural products value chain. Bank's intervention will help GRZ attend to development challenges in the areas where poverty rate is as higher than the rest of the country. It will also complement the Government's development of the Northern Tourism Circuit and the Kasaba Bay Tourism Integrated Development Plan.

1.3 Donors coordination

The current CPs' activities are indicated in Appendix 3.

Table: 1.1 Donor Support to Agriculture, Environment and Natural Resources (2013)

Sector or subsector*	Size		
	GDP	Exports	Labour Force
Agriculture (including fisheries and forestry)	21	20	67
Players - Public Annual Expenditure (average) : 2012 Budget			
	Government	Donors	
UA m	UA 229.4 m	UA 70.0 m	AfDB 3.4% FAO 1.1% Finland 4.4%
%	70.0%	30.0%	WB 36.3% JICA 3.4% USAID 7.9%
			EU 4.7% WFP 9.3% Norway 7.0%
			DFID 5.1% IFAD 17.4%
Level of Donor Coordination			
Existence of Thematic Working Groups (this sector/sub-sector)			[Y]
Existence of SWAps or Integrated Sector Approaches			[N]
ADB's Involvement in Donors Coordination			[M]

Key: L: Leader. M: Member but not leader. N: No involvement. Y: Yes. N: No.

1.3.1 Donor coordination is underpinned by the Joint Assistance Strategy for Zambia (JASZ-2: 2011-2015) that was signed in 2011 by 15 of the donors providing aid to Zambia, signalling their intent to collaborate through an agreed division of labour to make donor assistance more effective by simplifying the management of aid. This was envisaged to reduce the transaction costs of aid delivery for GRZ. Cooperating Partners (CPs) developed a shared vision, agreed on priorities areas for support and aligned their strategies for supporting the National Development Plans. Since then the six and revised sixth national development plans have been supported through this JASZ framework. These were signs of greater acceptance of donor cooperation for aid effectiveness. Donor cooperation in agriculture, environment and natural resources had been coordinated through the Agriculture Cooperation Partner Group (Ag-CP) and the Environment and Natural Resources Cooperating Group (ENR-CP).

1.3.2 Based on joint analysis of challenges in the sector, specific issues shape the dialogue between GRZ and CPs and these include (i) increased funding to the sectors, improving productivity, greater market openness through infrastructure and promote access to domestic, regional and international markets. The current members of the Ag-CP Troika are Finland, European Union and Sweden with the first coordinating the group. Besides the troika, there are six active donors supporting agriculture – the Bank Group (AfDB), World Bank (WB), United Nations systems (IFAD and FAO), United States and Japanese International Cooperation Agency (JICA), and Norway. The ENR-CP troika is headed by

UNDP and active members are WB, Finland, AfDB, USAID, FAO, EU, JICA and Germany.

1.3.3 The number of projects funded by CPs increased significantly in the last decade and their budget and duration varied widely. The biggest donors are European Union (EU), Finland, AfDB, WB, the United States and Sweden.

Table 1.2: Commitment and Actual Disbursement by Donors in Agriculture, Environment and Natural Resources (1998-2014)

Cooperating Partner	Commitment (USD - to 2014)	Actual Disbursements (USD-2008 & 2009)	Projected Aid in USD (2010-2013)
Norway	53.90	3.70	2.10
USAID	48.63	2.88	51.24
SIDA	41.77	4.50	20.00
AfDB (The Bank Group)	41.10	3.51	17.50
World Bank	38.94	12.00	5.20
EU	33.25	12.28	33.53
IFAD	26.01	0	-
JICA	18.70	3.36	-
Finland	13.39	12.15	17.60
Netherlands	9.89	-	-
FAO	5.51	-	-
DFID	0.47	0.08	-
TOTAL	331.56	54.46	147.17

Source: MACO - Profile of Donor Funded Programmes/Projects under the MACO during the FNDP Period. Actual expenditure figures are based on External Aid Flows Database Compiled by the EU.

II. PROJECT DESCRIPTION

2.1. Project Components

2.1.1 The Lake Tanganyika Development Project is an integrated project which aims at protecting the ecological integrity of the Lake Tanganyika basin and improve the quality lives of the basin population through provision of essential economic infrastructure and support to sustainable livelihoods of the people. The Project's development objective is : *To improve the quality of livelihood of populations depending on the Lake Tanganyika and to protect the ecological integrity of the lake basin.*" This project consists of three components as provided in the table 2.1 below. Detailed description of components is provided in Annex B1

Table 2.1 – Project Components

N°	COMPONENTS	(USD million)	COMPONENT DESCRIPTION
1	Integrated Natural Resources Management	15.50	<ul style="list-style-type: none"> ▪ Fishery co management, small scale aquaculture, and value chain sub component <ul style="list-style-type: none"> ▪ Collection and publication of fisheries statistical data ▪ Setting up and implementation of a Monitoring, Control and Surveillance including weather stations ▪ Setting-up and/or strengthening of 20 fisheries co-management committees ▪ Construction of landing sites and rehabilitating of existing jetties. ▪ Training on fish processing, fish preservation techniques and improved packaging. ▪ Study on fish processing and SEA ▪ Design of appropriate small-size floating cages for tilapia including construction of 10 pilot cages ▪ Technical and business training sessions for extension officers and farmers on tilapia cage farming, processing, and marketing

N°	COMPONENTS	(USD million)	COMPONENT DESCRIPTION
			<ul style="list-style-type: none"> ▪ Assistance to the fish farmer to apply for credit to build fish cages under the Citizens Economic Empowerment Commission program ▪ Support to the fisheries department to conduct research on the use of endemic species for commercial aquaculture ▪ Sustainable forest, wildlife, and land management subcomponent <ul style="list-style-type: none"> ▪ Forestry Resource Inventory in catchment areas and Gazette and establishment of Joint Forest Management (JFM) including development and implementation of Land Use Plans for JFM ▪ Establishment for committee for JFM (30% women) with special training for women in JFM ▪ Forest Plantations and Woodlots of exotic species (individual and communal seedlings) ▪ Establishment of improved and adapted varieties of economic trees (such as mango, banana, guava and avocado), commercial timber species, as well as agroforestry species ▪ Capacity building for district foresters to monitor and prevent illegal timber activities ▪ Provision of adequate equipment to monitor and enforce Nsumbu National Park boundary and surrounding GMAs ▪ Improve access roads to the National Park and GMAs ▪ Sedimentation, siltation, and erosion control structures ▪ Promotion of conservation farming and agro-forestry through demonstrations and basic input packages for farmers ▪ Promote and scale up bee keeping and processing as an economic enterprise ▪ Capacity building and supporting measures on NRM (with focus on women and youth) subcomponent <ul style="list-style-type: none"> ▪ Expand Community Radios coverage and broadcast gender sensitive information on NRM ▪ Establishment of a 100 student Skills Training Centre to Conduct functional literacy classes for school dropouts and women ▪ Study tours and exchange visits for staff to similar projects ▪ Facilitate linkages between fishers, fish traders and farmers with finance institutions and between women fish traders and other traders ▪ Mainstream Gender and HIV/AIDS in all NRM activities
2	Improvement of Livelihoods and Socio-Economic Infrastructure	10.53	<ul style="list-style-type: none"> ▪ Development and provision of economic infrastructures subcomponent <ul style="list-style-type: none"> ▪ Completion of all incomplete buildings under PRODAP including: Nsumbu Mini Hospital, Mushi Health Post, Kasaba Bay School, and health staff and teachers houses. ▪ Construction of demand-driven community micro projects such as feeder roads, sanitation, solar energy and market sheds ▪ Alternative Livelihoods subcomponent <ul style="list-style-type: none"> ▪ Install a Processing Plant to link resource conservation and market incentives ▪ Distribute Small ruminants (goat and sheep) and seeds through pass-on scheme ▪ Construct five (05) Smallholder Irrigation Schemes using river diversion weirs and gravity fed systems to cover 100-ha
3	Project Management and coordination	3.56	<ul style="list-style-type: none"> ▪ Project Management include project staffing ▪ Office Equipment and Furniture ▪ Monitoring and Evaluation ▪ Project Auditing ▪ Regional coordination with LTA
	TOTAL (USD)	29.62	

2.2. Technical solutions retained and other alternatives explored

2.2.1 Two alternative institutional options for managing LTDP were considered and rejected are as follows:

Table 2.2: project alternatives considered and reasons for rejection

Alternative Option	Brief Description	Reason for Rejection
i. Continue with the PRODAP Model of multi-layered institutional framework	National Coordination Unit staff reported and were paid from Lake Tanganyika Authority in Burundi, ignoring local institutional structures.	This arrangement weakened supervision and side-lined local government department role in the project. It also unnecessarily lengthened procedures for project implementation.
ii. Contract project implementation to UNDP	UNDP implemented the GEF financed component under PRODAP quite successfully. Discussions were opened to transfer the PRODAP under UNDP direct supervision	Some aspects of PRODAP and LTDP would not suit UNDP mandate such as infrastructure. Government wanted a stronger role in LTDP implementation

2.3. Project type

2.3.1 This intervention is designed in the form of a stand-alone Investment Project with the main aim of supporting livelihood and infrastructure development and capacity building activities which will lead to enhanced utilisation and management of natural resources, production and marketing of fisheries, forestry, wildlife and agricultural products.

2.4 Project Cost and Financing Arrangements

2.4.1 Project Costs: The total cost of the project is estimated at USD 29.62 million, net of taxes, and based on 2014 prices, comprising of USD 16.49 million or 56% of the total cost in foreign cost, and USD13.12 million or 44% in local costs. This cost is inclusive of physical and price contingencies estimated at average rates of 5% and 4 % respectively. The price contingencies were estimated on the basis of actual and projected levels of local and foreign inflation rates of about 5.5-6.0% and 2.2% per annum, respectively. The physical contingencies are estimated from 0 to 15%, based on common practices. A summary of the project cost estimates by components and expenditure accounts is shown in Tables 2.3, 2.4 and 2.5 below, while details are provided in section B2 of the Technical Annexes – Volume II of the appraisal report.

Table 2.3: Summary Project Cost by Component (ZMW/USD)

COMPONENTS	(ZMW '000)			(USD '000)			%FE	%BC
	Local	Foreign	Total	Local	Foreign	Total		
A. INTEGRATED NRM & VALUE CHAIN DEVPT	38 160.10	49 605.82	87 765.92	6 094.99	7 923.11	14 018.10	57	51
Forest & Land Management	14 177.28	11 937.40	26 114.68	2 264.42	1 906.66	4 171.07	46	15
Fisheries and Value-Chain Development	20 181.81	30 977.86	51 159.67	3 223.47	4 947.83	8 171.30	61	30
Capacity Building	3 801.01	6 690.56	10 491.57	607.10	1 068.63	1 675.73	64	6
B. COMMUNITIES LIVELIHOOD IMPROVEMENT	23 107.60	38 625.54	61 733.14	3 690.78	6 169.33	9 860.11	63	36
Community Infrastructure Development	15 607.60	24 408.40	40 016.00	2 492.87	3 898.54	6 391.41	61	23
Alternative livelihood	7 500.00	14 217.14	21 717.14	1 197.91	2 270.78	3 468.69	65	13
C. PROJECT MANAGEMENT & COORDINATION	12 869.99	8 169.54	21 039.53	2 055.61	1 304.85	3 360.46	39	12
Total BASELINE COSTS	74 137.69	96 400.90	170 538.58	11 841.38	15 397.29	27 238.67	57	100
Physical Contingencies	3 374.60	4 746.14	8 120.75	539.00	758.06	1 297.06	58	5
Price Contingencies	4 644.97	2 102.82	6 747.79	741.90	335.87	1 077.77	31	4
Total PROJECT COSTS	82 157.26	103 249.86	185 407.12	13 122.28	16 491.22	29 613.49	56	109

Table 2.4: Summary Project Cost by Expenditure Categories (ZMW/USD)

COMPONENTS	(ZMW '000)			(USD '000)			% FE	% BC
	Local	Foreign	Total	Local	Foreign	Total		
I. Investment Costs	71 403.61	93 713.14	165 116.76	11 404.69	14 968.00	26 372.69	57	97
A. WORKS	28 193.65	41 074.00	69 267.65	4 503.13	6 560.40	11 063.53	59	41
Construction & Rehabilitation	19 635.38	36 465.71	56 101.09	3 136.19	5 824.36	8 960.55	65	33
Field Works	8 558.26	4 608.30	13 166.56	1 366.94	736.04	2 102.98	35	8
B. GOODS	5 236.16	17 482.50	22 718.66	836.33	2 792.33	3 628.66	77	13
1. VEHICLES	696.57	3 863.74	4 560.31	111.26	617.12	728.38	85	3
Vehicles (FW)	665.26	3 769.80	4 435.06	106.26	602.12	708.37	85	3
Motorcycles	31.31	93.94	125.25	5.00	15.00	20.01	75	-
2. EQUIPMENTS & MATERIALS	4 539.59	13 618.76	18 158.35	725.07	2 175.21	2 900.28	75	11
Equipment	4 420.13	13 260.39	17 680.52	705.99	2 117.97	2 823.96	75	10
Furniture	119.46	358.37	477.83	19.08	57.24	76.32	75	-
C. SERVICES	29 173.81	21 956.64	51 130.45	4 659.68	3 506.95	8 166.63	43	30
Training, Sensitization, Workshops, Sem...	6 988.97	8 542.07	15 531.04	1 116.29	1 364.35	2 480.64	55	9
Technical Assistance & Consultancies	62.70	1 191.30	1 254.00	10.01	190.28	200.29	95	1
Studies	1 129.50	1 380.50	2 510.00	180.41	220.50	400.90	55	1
Contractual Services	20 706.89	10 493.51	31 200.41	3 307.33	1 676.04	4 983.37	34	18
Audit	285.75	349.25	635.00	45.64	55.78	101.42	55	-
D. MISCELLANEOUS	8 800.00	13 200.00	22 000.00	1 405.55	2 108.32	3 513.87	60	13
II. Recurrent Costs	2 734.07	2 687.75	5 421.83	436.69	429.29	865.98	50	3
A. PERSONEL	179.55	-	179.55	28.68	-	28.68	-	-
C. OPERATION & MAINTENANCE	1 495.39	2 233.84	3 729.23	238.85	356.79	595.64	60	2
Vehicles	1 462.11	2 193.16	3 655.27	233.53	350.30	583.83	60	2
Equipment	33.28	40.68	73.96	5.32	6.50	11.81	55	-
D. GENERAL OPERATING CHARGES	1 059.14	453.92	1 513.05	169.17	72.50	241.67	30	1
Total BASELINE COSTS	74 137.69	96 400.90	170 538.58	11 841.38	15 397.29	27 238.67	57	100
Physical Contingencies	3 374.60	4 746.14	8 120.75	539.00	758.06	1 297.06	58	5
Price Contingencies	4 644.97	2 102.82	6 747.79	741.90	335.87	1 077.77	31	4
Total PROJECT COSTS	82 157.26	103 249.86	185 407.12	13 122.28	16 491.22	29 613.49	56	109

Table 2.5: Summary Project Cost Schedule by Components (USD 000)

COMPONENTS	2015	2016	2017	2018	2019	Total
A. INTEGRATED NRM & VALUE CHAIN DEVPT	9 531.77	3 224.99	2 103.34	573.15	64.67	15 497.90
Forest & Land Management	1 174.81	1 287.19	1 786.24	543.18	33.83	4 825.24
Fisheries and Value-Chain Development	7 155.51	1 421.56	224.99	29.97	30.83	8 862.86
Capacity Building	1 201.45	516.24	92.11	-	-	1 809.80
B. COMMUNITIES LIVELIHOOD IMPROVEMENT	4 173.62	3 521.45	2 226.74	419.47	184.63	10 525.92
Community Infrastructure Development	2 279.41	2 997.44	1 405.55	-	-	6 682.39
Alternative livelihood	1 894.22	524.02	821.19	419.47	184.63	3 843.53
C. PROJECT MANAGEMENT & COORDINATION	1 170.45	593.55	611.23	624.83	589.61	3 589.67
Total PROJECT COSTS	14 875.84	7 339.98	4 941.32	1 617.45	838.91	29 613.49

2.4.2 Project Financing Arrangement: The project will be jointly financed by an AfDB Loan, GEF and the Government of Zambia (Tables 2.6)). The ADB will provide financial assistance to the tune of USD 22.49 million, representing 75.90 % of the project cost, excluding taxes and customs duties. The GEF will provide a financing of USD 7.00 million, in form of grant. The contribution from the Zambian Government is estimated at USD 0.127 million and will be cash financing or in-kind contribution, such as provision of office space and staff secondment. In addition to this direct contribution the project, the county pays USD 500,000 annually as contribution to Lake Tanganyika Authority, which amounts to USD 2.5 million over project life. This important financial effort from the Government of Zambia, justifies the low direct contribution to the project, in accordance with the capacity of the Government to mobilize additional financial resources. The breakdown of financing for the project is presented in the Table 2.6.

Table 2.6: Project Costs by Financing Sources (ZMW/USD)

FINANCING SOURCES	(ZMW '000)			(USD '000)			%
	Local	Foreign	Total	Local	Foreign	Total	
ADB Loan	57 803.30	81 431.05	139 234.35	9 431.80	13 055.06	22 486.86	75.1
GEF	22 312.90	21 513.40	43 826.30	3 563.85	3 436.15	7 000.00	23.6
Republic of Zambia	2 041.07	305.40	2 346.47	126.63	-0.00	126.63	1.3
Total	82 157.26	103 249.86	185 407.12	13 122.28	16 491.22	29 613.49	100.0

2.5. Project's target area and population

2.5.1 Project Areas: The project will be implemented in two districts, namely, Mpulungu and Nsama which are on the Zambian side of the Lake Tanganyika basin. The 2 districts have a total population of 157,830 people (50% male and 50% female) who are predominantly fisher folks, subsistence farmers and fish traders. The main criteria for the selection of these districts include: (i) lake basin districts in line with the Lake Tanganyika Convention, (ii) poverty, food insecurity and malnutrition prevalence, (iii) vulnerability to climate change. The communities around Lake Tanganyika are very poor and under-developed. The annual average income is estimated at USD 285 per capita below the national average of USD1, 400. The incidence of poverty in the areas is higher than the national average.

2.5.2 Project Beneficiaries: The estimated total number of direct beneficiaries is 70,000 people, 50% of which are women who are engaged in value addition/ marketing of fish catches. In addition, about 30,000 people will indirectly benefit from the Project along the commodity value chain development. About 1,000 rural youths, who presently lack employment opportunities, will be targeted by the Project through training and income generating activities. The Project is expected to create at least 1000 full-time skilled/semi-skilled and 1,200 part-time unskilled jobs in production, processing and marketing which will benefit both men and women.

2.6 Participatory process for project identification, design and implementation

2.6.1 The Project was identified as a follow up to the Lake Tanganyika Integrated Regional Development Programme (PRODAP) that closed in September 2013. In spite of some challenges faced during the implementation of PRODAP, Government noted the need to further consolidate the intervention by having a follow-up project so as to urgently address environmental challenges of the Lake including sedimentation, invasive species, habitat destruction, pollution, overexploitation of natural resources, and the effects of global climate change. The national project for Zambia has been designed within the context of a basin wide regional dimension and to reflect the framework of priorities of the Strategic Action Program (SAP) and Lake Tanganyika Convention.

2.6.2 The project activities were selected through an extensive participatory process which was initiated during the Bank's identification /preparation missions and continued throughout the appraisal of the project. The extensive consultations culminated into stakeholders' workshops which were held in Mpulungu in February 2014 and in Nsama in September 2014. In the stakeholders' consultations, women indicated the following challenges: low profits from fish trade, rising competition from new entrants in fish trade such as farmers and men, venturing into selling fish, reduction in the fish stocks, and lack of capital to buy more fish and store it, and lack of cold storage and organized drying sites. These concerns and recommendations have informed the activities in the design of this project.

2.6.3 Consultations were also held with relevant ministries at national level such as Ministry of Education (MOE), Ministry of Community Development, Mother and Child Health (MCDMCH), Ministry of Health (MOH), Ministry of Gender and Child Development (MGCD), Cooperating Partners and other relevant institutions.

2.6.4 During the implementation, consultation will continue through the involvement of the Village Development Committees (VDCs), Community Resource Boards (CRBs), and the Village Conservation Development Committees (VCDCs). Each of these committees are democratically elected, to look at natural resources management, financial management, infrastructure development, etc. are formed. About 10 to 15 members of the communities are in each committee and sub-committee (women constitution currently about 30% and the number will be augmented at implementation). The project will support the effective functioning of these committees by providing technical assistance to enhance the capacity of the members of these committees.

2.7 Bank Group experience, lessons reflected in project design

2.7.1 The Bank has gained development experience during design and implementation of projects in Zambia, namely, SIP, ASIP and PRODAP as well as other similar AfDB-funded projects in other countries. The lessons learnt and actions taken during LTDP design are tabulated below:

No	LESSONS LEARNT	ACTIONS INCORPORATED IN THE PROJECT DESIGN
1.	Role played by proper implementation unit in expediting project execution after a delay in start-up	Government's project implementation capacity will be enhanced through recruitment of Technical Assistance, use of local experts (Project Coordinator, Procurement Specialist and Project Accountant) who will be part of PIU.
2.	Lack of drawings and designs at project start-up resulted in delay in implementation.	Preliminary studies and designs will be undertaken before the project approval. Detailed engineering designs will be commissioned through advance procurement
3.	Inadequate consultation with stakeholders in selection of sites results in poor siting of the infrastructure.	Extensive consultations with local stakeholders, including beneficiaries, were undertaken during identification and preparation stages, which will continue during implementation. This will continue through VCDCs and CRBs.
4.	Weak M&E system and complicated institutional arrangements delayed implementation progress	A simpler project management structure and dedicated M&E unit with adequate financial allocation has been included in Project design.

2.8. Key performance indicators

2.8.1 The output, outcome and impact indicators as shown in the Logframe will be measured in 2019, 2020 and 2022, respectively. The said indicators will be monitored using the LTDP M&E system. The key impact indicators include average household income (USD/year) and percentage number of communities at risk. The outcome indicators include fish harvest (mt/ha), agriculture crop production per year (tonnes) and fish value addition (% and ZMW). Major output indicators include developed area under crops and fruits, aquaculture (fish) production, crop diversification and intensification, and value addition. Progress towards achieving project outcomes will be measured on a regular basis through a variety of means including bi-annual Bank supervision missions, quarterly progress reports, and annual technical and financial audit reports.

III. PROJECT FEASIBILITY

3.1. Economic and financial performance

Table 3.1: key economic and financial figures

IRR, NPV (base case)	20.60%; ZMW 339.26 billion	
ERR (base case)	21.24%; ZMW 350.32 billion.	

NB: detailed calculations are available in Annex B6

3.1.1 The financial and economic assessment is based on income diversification, rather than fisheries as the only source of income, and as such, on the assumptions that the project is expected to be fully implemented and in a timely manner, and to generate direct benefits for about 70,000 people who are reported to live below current poverty line out of 157,000 people. In that respect, the project is designed to support the sustainable management of fisheries resources, by protecting fish breeding areas and ensuring control and observation of biological rest period of fisheries resources. In this context, the project provides alternatives to overexploitation of the fisheries resources, by putting in place natural resources management systems that reduce pressure of fisheries resources, as an essential asset, create conditions for better management of other natural resources (forest, soil and water), and thereby provide alternative livelihood to fishing, through value-chain benefits (cropping and agricultural production processing), livestock activities, no-timber forest products, aquaculture and sustainable fisheries.

3.1.2 In addition, the number of possible farm households is 14,000, on the basis of 5 family members, with a potential farmland of 21,000 ha, on the basis of an average farm size of 1.5 ha, of which 9,870 ha or 47% of the potential farmland can be cropped. The remaining 53% of the potential farmland (11,130 ha) is for future development and ecological balance, in line with good practices regarding cropping pattern in production scale. The full size cropland is actually considered for cropping. Furthermore, 25-year analysis period was considered, in accordance with the cropping cycle patterns and the duration of the farm and project investments. An average opportunity cost of capital estimated at 12 %, as reflected in preview analyses, was used for discounting, as the project resources are fungible and can be used for other alternative uses, including in areas other than natural resources management. Finally, the assessment of the project's worth was carried with respect to the overall project cost, as opposed to a component-by-component approach analysis, because components are not implemented on a stand-alone basis.

3.1.3 On the basis of the above-captured assumptions, the project is expected generate the following benefits: (i) development of fish farming in floating cages; (ii) improved fish production from the restocking body and sustainable management of the lake (surveillance, co-management structures, protection of fish breeding areas, training of beneficiaries, etc.) ; (iii) improved production of *non-timber forest products* from the natural tree cover, forest plantation woodlots, such as, honey, mushrooms, medicinal plants, edible fruits, grains and plants; (iv) Improved crop production from 9,870 ha, including groundnuts, maize, soybeans, and mangoes; (v) improved livestock products, as a result of poultry and small ruminants (goats and sheep) pass-on scheme, and increased crop production generating more crop residues, serving as animal feeds or inputs of animal feeds; and (vi) processed agricultural products (honey, beeswax, maize flour for porridge, peanut butter, soy chunks, fruit juice, etc.).

3.1.3 **Financial Performance:** the financial analysis was carried with Farmod approach based on: (i) crop and activity models using prevailing 2014 market prices of productions and inputs (investment and operating inputs, including planting materials, fertilizers, irrigation, small equipment, and labor); (ii) area/family household models or farm models; and (iii) farm distribution. In this condition, the analysis generated NPV, IRR and B/C ratio equal to ZMW 339.26 million, 20.60 % and 2.09, respectively, as captured in the technical annexes (B6).

3.1.4 **Economic Performance:** The economic analysis was conducted using the same approach as the financial analysis, on the basis of shadow prices (prices in conditions of the efficient market operation) of tradable goods such as fish, crops, livestock products, and processed products (0 or parity prices at farm gate (farm gate prices). In addition, other indirect benefits were also expected, such as, benefits from development of infrastructure for fish trade, alternative livelihoods, and access to social services benefits (reduction in the medical bill) and the reduction of women's households' chores (increased productivity). However, these additional benefits whose computation required dose responses, could not be adequately captured in the analysis. In these conditions, the economic analysis yielded an NPV, ERR and B/C ratio equal to ZMW 350.32 billion, 21.24% and 2.17, respectively, as captured in the technical

annexes.

3.1.5 **Sensitivity Analysis:** The sensitivity analysis was undertaken, to test the robustness of the above-captured project worth. In that respect, the volatility of commodity prices was considered to be the most sensitive endogenous variable of the economic model, due to the fact that it was one of the most critical variables that were beyond project management and control. In these conditions, we noticed using scenario analysis (scenario management under What-If-Analysis), with successive price decreases from -2.5% to -25%, ERR value also dropped from 20.60% to 13.54%, but slower than the price drops. This is also translated into graph with a smooth slope close to zero. By pushing the scenario analysis to the extent to breakeven at IRR equals to opportunity cost of capital of 12 % (goal-seek under What-If-Analysis), the price drops to a switching value of 30.10 % (see detailed scenario analysis in annexes). Therefore, the economic performance of the project in this model is robust.

3.2. Environmental and Social impacts

3.2.1 **Environment:** LTDP was classified under Category 2, according to the Bank's Environmental and Social Assessment Procedures (ESAP) which was validated by the Quality Assurance and Results Department (ORQR) on April 24, 2014. LTDP is aimed and designed to have significant positive environmental and social impacts through promotion of ecological integrity of Lake Tanganyika natural resources and ensuring sustainable livelihoods, however, some of the project activities may pose localized, and mostly temporary, negative impacts. Nevertheless, none of the potential negative impacts are expected to be significant, irreversible since measures for effective environmental and social management will be taken under the Project. An Environmental and Social Management Plan (ESMP) was prepared which provides guidelines for the management of potential environmental and social aspects at all possible project sites.

3.2.2 ESMP proposed several mitigation measures which include re-vegetating cleared land, restoration of borrow-pits, use of gabions and appropriate drainage systems to control erosion, installation of systems for solid waste and effluent management will be adopted to counteract the aforementioned potential negative environmental and social impacts. These proposed mitigation measures have been assessed and deemed practical and cost effective and will ensure realization of project benefits whilst mitigating potential adverse environmental and social impacts of LTDP. The total cost of mitigation measures is estimated at UA 338,000. The ESMP requirements will be incorporated into contracts and (See Technical Annex B7). The potential positive impacts of the project include (i) reduced erosion and sedimentation, (ii) improved forest cover (iii) reduced overfishing and improved fish stocking (iv) improving the micro climate through afforestation, and (vi) catchment/watershed management.

3.2.3 **Climate Change:** Water temperatures in Lake Tanganyika have warmed 0.1 degrees Celsius (0.18 degrees Fahrenheit) per decade or 1 degree Celsius (1.8 degrees Fahrenheit) over for the past 100 years. Not only is this affecting the ecological stability of the lake, it has resulted in a 20 percent reduction in biological productivity in the lake. The Project area has recently experienced a wide range of climate risks like flooding and heavy rains and high temperatures. These risks have negatively affected fishing and agricultural production, water quantity, human health and wood fuel energy. LTDP activities will facilitate climate change adaptation in order to improve resilience to climate variability through measures that will improve fisheries, forestry and crop production, household income, food security, and nutrition security. This will be done through support to (i) sustainable management of forests, rangeland and pasture, (ii) watershed management, and (iii) conservation agriculture, and (iv) fish farming. Also, the project infrastructure are planned to be made more climate resilient in order to prolong the lives of such infrastructure.

3.2.4 **Gender:** women constitute 51 % of the population in both districts. HIV/AIDS prevalence among women is 10%; dropout of girls is 50% at primary level and 80% at secondary school level. The division of labour in the fish business is very distinct. Men usually do the fishing while women engage

more in the processing and marketing side in the market. Access to markets is limited and requires mobility, mainly using water transport. The fish markets are in poor condition in terms of facilities pertaining to business, hygiene and gender conducive environment. Post-harvest losses are high. Stakeholders' consultations revealed the need to train women in various livelihood activities to be able to diversify their business activities rather than just depend on processing fishing and selling it. The latter makes them dependable on fishermen and male family members. Furthermore, the long distances to access to the markets requires them to be away from the safety of their home for a long time and increases their vulnerability. The Government does have a vision of achieving full participation of both women and men in the development process at all levels in order to ensure sustainable development and attainment of equality and equity between sexes.

3.2.5 The project therefore looked at a variety of activities that support women's economic empowerment and increase their financial independence to help themselves, their families and communities. The Project will support training of women in various skills, provide women with seed money to start small business including raising small ruminants, beekeeping, irrigation, financial literacy, introduction of gender friendly technologies in particular labour saving technologies, and prepare women to participate in the diffident community committees dealing with natural resources e.g. Community Resource Boards, Community Conservation Development Committees. It aims at least 60% involvement of women in management of fisheries, agriculture, irrigation infrastructure and at least 80% involvement sub-projects for small ruminants, and fish marketing and processing.. As it was recommended by the Fishing Department, women need to be organized to voice their concerns and run their business. The Project will make deliberate efforts to increase of women presence and empowering them to effectively participate in fish trading association. In addition, the project will improve market places which will respond to women's need with requisite infrastructure facility. Budget has been allocated for all the mentioned activities referring to the annex on the costing, totalling amount of US 372,487.54. Moreover, implementation unit will include at least a gender/socio- economist to ensure the full monitoring of the gender dimension of the project.

3.2.6 **Social:** Seventy- seven (77%) of the population in the project area live below the poverty line. The communities around Lake Tanganyika are very poor and under-developed. The annual average per capita income is are estimated at USD 285 per household below the national average of USD1, 400. The incidence of poverty in the areas is higher than the national average. Major occupation is fishing complemented with small scale farming for subsistence. Major disease is Malaria; however, there are occurrences of annually cholera outbreaks notably in Sumbu (Nsama District). The health systems services are very limited in Nsama while it is relatively better in Mpulungu with 7 health centres and 4 health posts. HIV/AIDS prevalence is high in both districts, 6% in Nsama and 12% in Mpulungu. The high rate of immigration and inflow of visitors and traders makes the population in the project area vulnerable to HIV-AIDS. There is a high level of mobility among the fish traders. Nutrition of under five children is a major concern due to the limited variety of food. The population depends mainly on fish and cassava. For example the severe malnutrition case fatality rate (1-5years) in Mpulungu District in 2012 was 375/1000. (District Health Record). Nsama, being a new district, has only 4 primary schools and no high school for a population of 60,000. School drop-out is very high in both districts and the drop-out children (boys and girls) contribute to the high rate of unskilled youth with the only option to engage in fishing. The following table provides selected socio-economic indicators for the two districts:

Table 3.2 Socio-Economic Characteristics of the Target Area

Demographic Indicators	Nsama	Mpulungu	Northern Province	National
Population (2010)	59,757	98,073	1,105,827	13,092,666
Land mass (km ²)	6,004	10,170	77,650	752,612
Population growth rate (%) (2000-2010)	3.2	3.8	3.2	2.8
Population density per km ²	9.2	9.6	14.2	17.4
Percent share of provincial population	5.4	8.9	100	-

Males (%)	49.6	49.6	49.5	49.3
Females (%)	50.4	50.4	50.5	50.7
Total Households	9,541	19,651	138,783	2,513,768
Female Heads	2,385	3,599	29,930	
Percent population with access to safe water	5.0	72.0	65	42.8
Percent population with access to health services	12.0	7.0	18.0	9.0
Outcome Indicators				
Per capita income (USD)	253.5	316.2	265.7	1400
HIV Prevalence (2004)	5.2	12.6	8.0	14.4
Life Expectancy with AIDS	47.0	47.6	45.5	52.4
Literacy rate	54.5	53.4	59.1	66.0
Infant Mortality rate	171	150	130	110
Under five children who are stunted (%)	51.0	58.9	55.8	49.8
Extreme poverty (%)	76	58	69	
Food insecure	56	60	71	

Source: CSO-2010 Census of Population and Housing; UNDP Zambia Human Development Report (2007)

3.2.7 The options for alternative livelihoods are very limited in the both districts because the skills are lacking to venture into different business opportunities to earn an alternative income. Both districts have some potential to develop crop farming, bee keeping, small ruminants, fruit tree and vegetable production. The project is designed to optimise skills and provide market opportunities in these areas to the communities (youth, men and women) enabling the make use of these resources and at the same time preserve the natural resources.

3.2.8 **Benefit / impact:** The social impact of the LTDP will be positive since it will provide income and better livelihoods to beneficiaries and assist to diversify agricultural and fisheries output. Other positive effects will include an improvement in nutritional and food safety status. Rehabilitation of landing sites and markets will facilitate fish and crop trading which will generally add value and improve trade. The increased economic activities will significantly boost local development. Value addition training will improve skills and provide employment to women and youth. The anticipated economic well-being resulting from higher family incomes will generate positive multiplier effects on social stability which will help curb rural exodus by retaining local population especially skilled youth within the participating Districts.

3.2.9 **Green Growth:** Zambian society, economy and environment are interlinked in that the majority of rural people are dependent on agriculture and the larger society is dependent on rural people to properly manage land and water resources for sustained food and water supply. By investing in social and economic infrastructure, LTDP will enhance crop, fish and livestock production and marketing potential by minimizing the supply constraints, lowering production costs, enhancing agro-processing and market linkages. The Project will contribute to economic growth of youth and women by utilizing resources in a sustainable manner and thereby mitigating the adverse impacts to environmental change, resource constraints and through watershed management, promotion of pasture development and rangeland management. The Project has incorporated solutions to the negative impact on environmental changes such as land degradation, natural resource depletion and climate change which will result in improved well-being of participating beneficiaries and also social equity.

3.2.10 **Involuntary Resettlement:** There will be no resettlement as the project will focus on rehabilitating existing infrastructure. Any proposed new structures have been located in areas which have no land disputes. It is anticipated that Project activities will not lead to land acquisition of access to sources of livelihood since sub-projects, especially construction of fish storage and processing facilities will be carried out on land that already belongs to the Government or the beneficiary groups. Should the scope of the activities change in such a way that result in land acquisition, the Bank's involuntary resettlement policies and procedures will be followed.

IV. IMPLEMENTATION

4.1. Implementation arrangements

4.1.1 Executing and Implementing Agencies: In order to enhance efficiency in the implementation of this project, a highly decentralized but efficient, inclusive and less cumbersome structure has been proposed. The Project will be implemented by the Ministry of Lands, Natural Resources and Environmental Protection (MLNREP), which will be the Executing Agency, using the existing structures. The existing multi-sectoral National Steering Committee (NSC) which was in place during the closed PRODAP project will be re-activated with a maximum of 12 members comprising Permanent Secretaries or their nominated representatives from the Ministries responsible for Northern Province, Finance, Environment, Agriculture, Mines and Energy, Works and Supply, Health and Local Government. The two District Commissioners for Nsama and Mpulungu and a Civil Society Organisation (CSO) will also sit on the NSC which will have oversight responsibility and oversee project compliance with sub-sector National Policies and Strategies. The NSC will be co-chaired by the Permanent Secretary - Northern Province and the MLNREP. The PC will be the Secretary of NSC. LTDP will be implemented over a period of 5 years under the Director of Environment and Natural Resources.

4.1.2 The day to day management of the Project will be entrusted to the Project Coordination Unit (PCU) which will be manned by six full-time professional locally and competitively recruited including: Project Coordinator who doubles as the NRM expert, a Gender/Socio-economist, M&E Officer, Procurement Officer, a Civil/ Rural Engineer and Accountant. Support staff will be an Office Assistant, Coxswain and Driver. The project team will be based at the project office in Mpulungu and will be domiciled in the new office complex being constructed in Mpulungu. Due to the geography of the basin and the long distance between districts, a District Coordinating Office would be established under the District Commissioner's office in Nsama for effective implementation and monitoring of project activities. The role of PCU team will be to mobilise, manage and ensure the flow of resources and accountable and quality management by the implementing government line ministries. The project implementers will include district SMS from agriculture and fisheries, forestry, education, health, community development and ZAWA. Based on the approved annual work plan and budget, these implementers will sign implementation agreements with the PCU. The project will provide for community-based volunteers to mobilise communities to access project services for various NRM activities. The two District Commissioners (Nsama and Mpulungu) will provide day-to-day monitoring and supervision of project implementers and the PCU. They will also undertake field supervision and facilitate the processes of audits and procurement. Detailed implementation arrangements are described in Appendix 8.

4.2 Procurement and Financial Management Arrangements:

4.2.1 Procurement Arrangements

All procurement of goods, works and acquisition of consulting services financed by the Bank will be in accordance with the Bank's Rules and Procedures: "Rules and Procedures for Procurement of Goods and Works", dated May 2008, revised July 2012; and "Rules and Procedures for the Use of Consultants", dated May 2008, revised July 2012, using the relevant Bank Standard Bidding Documents, and the provisions stipulated in the Financing Agreement. However all procurements within the thresholds for **National Competitive Bidding (NCB)** and **Shopping** for goods and works will be procured using the **National Procurement Procedures** applying the appropriate national standard bidding documents in conformity with the provisions stipulated in the financing agreements.

Table 4.1: Procurement Arrangement (AfDB Loan Resources)

(US\$ '000)

PROCUREMENT ACCOUNTS	PROCUREMENT METHODS				CPP	N.B.F.	TOTAL
	NCB	QCBS	Shopping	Direct c.			
A. WORKS							
Construction and Rehabilitations	[8 778.45] 8 778.45	-	-	-	-	1 082.77	[8 778.45] 9 861.22
Community Infrastructure	-	-	-	-	-	-	-
Field Works	-	-	-	-	-	2 572.21	2 572.21
B. GOODS							
1. VEHICLES							
Vehicles (FWD)	[735.87] 735.87	-	-	-	-	-	[735.87] 735.87
Motorcycles	-	-	[20.82] 20.82	-	-	-	[20.82] 20.82
2. EQUIPMENT & MATERIALS							
Equipment	-	-	[2 387.30] 2 387.30	-	-	642.70	[2 387.30] 3 029.99
Furniture	-	-	[80.31] 80.31	-	-	-	[80.31] 80.31
C. SERVICES							
1. TRAINING							
	-	-	-	[1 123.97] 1 995.53	-	755.88	[1 123.97] 2 751.41
2. TECHNICAL ASSISTANCE							
	-	[206.71] 206.71	-	-	-	-	[206.71] 206.71
3. CONTRACTUAL SERVICES							
Contractual Support from Technical Departments	-	-	-	[4 529.61] 4 529.61	-	1 201.51	[4 529.61] 5 731.13
Funds Manager - Local Development Funds	-	-	-	-	-	-	-
4. AUDIT							
	-	[111.41] 111.41	-	-	-	-	[111.41] 111.41
D. MISCELLANEOUS							
Local Development Funds	-	-	-	-	[3 513.87] 3 513.87	-	[3 513.87] 3 513.87
E. OPERATING COSTS							
	-	-	[199.71] 199.71	[798.83] 798.83	-	-	[998.54] 998.54
TOTAL	[9 514.32] 9 514.32	[318.12] 318.12	[2 688.13] 2 688.13	[6 452.42] 7 323.98	[3 513.87] 3 513.87	6 255.07	[22 486.86] 29 613.49

Note: Figures in parenthesis are the respective amounts financed by ADB Loan

Table 4.2: Procurement Arrangement (GEF Grant Resources)

(US\$ '000)

PROCUREMENT ACCOUNTS	PROCUREMENT METHODS			N.B.F.	TOTAL
	NCB	Shopping	Direct C		
A. WORKS					
Construction and Rehabilitations	[1 082.77] 9 861.22			-	[1 082.77] 9 861.22
Field Works		[2 572.21] 2 572.21		-	[2 572.21] 2 572.21
B. GOODS					
1. VEHICLES				756.69	756.69
EQUIPMENT & MATERIALS					
Equipment		[642.70] 3 029.99		80.31	80.31
C. SERVICES					
1. TRAINING					
	-		[1 500.81] 2 751.41		
2. TECHNICAL ASSISTANCE				206.71	206.71
3. CONTRACTUAL SERVICES					
Contractual Support from Technical Depts			[1 201.51] 5 731.13		
4. AUDIT				111.41	111.41
D. MISCELLANEOUS (LDF)				3 513.87	3 513.87
E. OPERATING COST				998.54	998.54
TOTAL	[1 082.77] 9 514.32	[3 214.91] 5 602.20	[2 702.32] 8 482.54	5 667.54	[7 000] 29 613.50

Note: Figures in parenthesis are the respective amounts financed by the GEF Grant

The Project Coordination Unit (PCU) based in Mpulungu under the Ministry of Lands and Natural Resources and Environmental Protection will be the Executing Agency. The PCU will be accountable and responsible for the management of the procurement processes and accountability for implementation of all components. PCU will be supported by specialized project implementers who will include district

SMS from agriculture and fisheries, forestry, education, health, community development and ZAWA who will provide specifications and supervision of activities. The activities to be financed under the Local Development Fund which are Community Demand Driven micro projects will involve community prioritized infrastructure sub-projects to be procured using modalities for procurement under Community–Driven Development procedures as outlined in the Local Development Fund (LDF) Manual.

The PCU will carry out major procurement activities and ensure oversight of all the procurement carried out during project implementation including those assigned under the various implementers and the demand driven interventions at community level under the Local Development Fund. The two District Commissioners (Nsama and Mpulungu) will provide day-to-day monitoring and supervision of project implementers and the PCU. They will also undertake field supervision and facilitate the processes of audits and procurement. The various items under different expenditure categories and related procurement arrangements are summarized in Table B.5.1a and B.5.1b, in the Procurement Technical Annex.

4.2.2 Financial Management: The Project’s financial management will be managed within MLNREP’s existing set-up, consistent with the Bank’s commitment to use country systems. The MLNREP has prior experience and there are on-going donor-funded projects being implemented under the overall FM coordination of the Ministry. The Financial Management (FM) capacity assessment of MLNREP concluded the existing capacity would satisfy the Bank’s minimum requirements to manage project resources in an efficient, effective and economic manner, if all the agreed actions are appropriately implemented. The FM residual risk for the Project is assessed as “Moderate”. The overall FM responsibility (including accountability over funds disbursed to all other local implementing partners will rest with the MLNREP’s Chief Accountant (as the head of the Finance Department) who will provide oversight responsibility to the dedicated project accountant and a team of Finance and Accounting Officers to ensure proper accountability exist over project transactions throughout project implementation period.

4.2.3 Disbursement Arrangement: Disbursements under the Project will be in accordance with Rules and Procedures as set out in the Bank’s disbursement handbook. Disbursement methods including (i) Direct Payment, (ii) Special Account (SA) and (iii) Reimbursement will be available for use by the Project. Two (2) separate Special Account in foreign currency and their respective Kwacha sub-accounts would be opened at the Bank of Zambia (BoZ) to receive the AfDB and GEF Grant proceeds respectively to be managed by MLNREP. In line with GRZ treasury rules, and to facilitate payment of eligible project expenditures (including transfer of funds to other implementing partners and the decentralized levels), two (2) mirror local account with zero balance linked to the sub-account at BoZ, will be opened at local commercial bank in Mpulungu acceptable to the AfDB. The flow of funds to all other local implementing partners would be based on approved work programs and budgets and the implementation of the recommendations of the Technical Steering Committee. To facilitate financial reporting and ease of accountability, all approved invoices/payment certificates for larger (goods, works and services) contracts (if any) will be submitted by the respective implementing partners to MLNREP for processing using the direct payment method. Detailed financial management, disbursement and auditing arrangements are included in the Appraisal Report Volume II (Technical Annex B.4).

4.2.4 Financial Reporting and External Audit: The Project will be required to prepare and submit to the Bank a Consolidated Interim Quarterly Progress report (IQPR), covering all project activities including those being implemented by all other implementing partners, not later than 45 days after the end of each calendar quarter. Annual financial statement prepared and audited by the OAG, including the auditor’s opinion and management letter will be submitted to the Bank not later than six (6) months after the end of each fiscal year. The audit of the project can be subcontracted, as necessary, to private audit firm to be procured through LCS method, with the involvement of OAG, as per the Bank’s Rules and Procedures.

4.3 Monitoring

4.3.1 The M&E system will be developed and managed by the M&E Officer, within the framework of the project log frame and the SNDP integrated system. The M&E Officer will regularly track, document and report the LTDP results and progress, facilitate knowledge building, and share knowledge with key stakeholders. The monitoring and reporting plans will be developed based on the log frame which will have gender disaggregated indicators. It will be part of the obligation of all project implementers to provide reports in prescribed format on outputs and outcomes achieved within the implementation agreements. The Project will provide financial resources to facilitate training, proper data gathering, processing and reporting.

4.3.2 The Project's reports and key milestones are indicated in the table below. The Bank will supervise the implementation of the Project through regular Supervision Missions which will be undertaken at least twice a year. The Missions will verify implementation progress to ensure that key verifiable indicators, including gender specific indicators, related to the outputs, outcomes and impacts are being monitored. The M&E activities, including implementation progress and expenditure will therefore be an integral part of the project implementing agency, as a regular management function through the PCU's M&E Specialist. The DCs will ensure that quality and verifiable reports are produced and presented to the District and Provincial Development Coordination Committees and to the NSC. The PCU will submit to the Bank progress reports, annual work plans and budgets, and annual procurement plans using Bank's format. The quarterly progress report will be submitted to the Bank within forty five days (45) after the end of the reporting period, whilst the annual progress report will be submitted within three months after the end of reporting period.

Time-Frame	Milestones	Monitoring Process (Feedback Loop)
Year 1	Baseline Survey	PCU and Consultant.
Years 1 to 5	Project Implementation	Communities, project implementers and PCU.
	Financial Audit Reports	PCU, External Audit Firm (Annually).
Year 3	Mid-Term Review	Communities, MLNREP, PCU and Consultant.
	Gender Audit	Communities, MLNREP, PCU and Consultants.
Year 4	Beneficiary Impact Assessment	Beneficiaries, PCU and Consultant.
Year 5	Project Completion Review (PCR)	Communities, MLNREP, PCU and Consultant.

4.4 Governance

4.4.1 Zambia has improved its governance rating since 2000, especially in the category of participation and human rights which measures the protection of human rights, civil and political participation, and gender issues. Zambia has also significantly improved its accountability and transparency ratings and indicators of governance including corruption control, rule of law, regulatory quality and Government effectiveness. The 2013 Ibrahim Index of African Governance (IIAG) ranked Zambia 12th out of 52 African countries. The 2013 IIAG provided Zambia's performance across four categories of governance namely (a) Safety & Rule of Law (10th out of 52), (b) National Security (1st out of 52), (c) Gender (30th out of 52), and (d) Human Development (21st out of 52). Zambia's average score was 59.6 out of 100 which was higher than the continental average of 51.6. Using the World Bank Institute's 2012 Worldwide Governance Indicators, the Zambia's rating (0 = low and 1 = high) per category is as follows: (a) voice and accountability = 0.44; (b) political stability and absence of violence = 0.65; (c) Government effectiveness = 0.38; (d) regulatory quality = 0.36; (e) rule of law = 0.42; and (f) control of corruption = 0.46.

4.4.2 However, the weaknesses that persist are in budget management, weak compliance with internal control regulations, timely follow-up and implementation of both internal and external audit recommendations and suspected corruption and delays in public procurement. Mitigation measures to

address these issues include: (i) recruitment of a finance officer (ii) provision of a financial management manual to guide Project staff; (iii) utilisation of Internal Audit capacity to identify pre-audit transaction challenges; and (iv) provision of an off-the-shelf accounting package for financial transactions, possibly with interface with IFMIS, (v) regular submission of progress reports, and (vi) recruitment of qualified and experience procurement and accounting experts.

4.5 Sustainability

4.5.1 The participatory approach adopted during the Project planning will be extended during implementation in order to enhance ownership by beneficiaries thus ensuring sustainability. Implementation through government line ministries will ensure that project activities are in line with broader government programmes. The Project’s participatory approach will have clear exit strategy which will be developed after mid-term review (PY3) through the same line ministries. The management of some infrastructure has been entrusted to beneficiary organizations and private sector operators to ensure continuity of operations after the Project. The development of value chains will enhance the development of Public Private Partnership (PPP) and focus on market oriented system for sustainability of investments. Communities are more likely to take better care of facilities that they selected and contributed to the capital costs and responsibility for their O&M. Implementation will be based on a demand responsive approach whereby all the stakeholders, including the communities (women, youth, vulnerable groups such as people with HIV/AIDS, and disabled people) are involved to ensure a sense of ownership and commitment towards the project.

4.6 Risk management

4.6.1 The potential risks identified as threat to smooth implementation of LTDP and mitigation measures are indicated in the Table below.

Potential Risks and Mitigation Measures

No	Potential Risks	Rating	Mitigation Measures
1.	Weak contractors	Medium	The Project will (i) hire local contractors in contract management for LDF micro-projects (ii) hire reputable contractors from national level for big works (iii) pre-qualify contractors based on past performance, (iv) use stringent evaluation methods and contractors will be scrutinised through contacting the previous employers and physical verifications, (v) train contractors on management (vi) strictly follow-up contract execution.
2.	Environmental degradation and climate change	Medium	The Project will (i) promote sustainable management of forests, fisheries, pastures and rangelands, (ii) implement climate resilient investments such as conservation farming and establishment of fish farming
3.	Poor sustainability of infrastructure	Medium	The Project will establish management entities for the socio-economic infrastructure developed based on PPP arrangements

4.7 Knowledge building

4.7.1 LTDP will generate a lot of knowledge that will be valuable for application to the design and management of similar Bank projects in the broader Lake Basin area and for the future. The innovations of LTDP in institutional management, community participation, integrated social infrastructure, services and livelihood improvement, private sector involvement, value chain linkages will provide useful lessons for the sustainable management of Lake Basin resources and interventions. The Project will demonstrate that rural communities can ably manage rural infrastructure, if mentored. LTDP will enhance the capacity of communities and staff to remain fully involved in all planned activities. The direct beneficiaries will be targeted for special Project-related training. The Project will mount demonstrations on pasture development and rangeland management. LTDP will invite and involve beneficiaries and staff in progress review meetings.

V. LEGAL INSTRUMENTS AND AUTHORITY

5.1 *Legal instrument*

5.1.1 The legal instruments for the Project will be: (i) a loan agreement between the Republic of Zambia and the Bank for an ADB loan; and (ii) a protocol of agreement between the Republic of Zambia and the Bank as the Executing Agencies for the Global Environment Facility (GEF) Trust Fund for a GEF grant.

5.2 **Conditions associated with Bank Group's intervention**

5.2.1 Conditions Precedent to Entry into Force of the Loan Agreement and the Protocol of Agreement: The Loan Agreement will enter into force upon fulfillment by the Borrower of the provisions of Section 12.01 of the General Conditions Applicable to the African Development Bank Loan Agreements and Guarantee Agreements. The GEF Protocol of Agreement will enter into force upon signature by the Recipient and the Bank.

5.2.2 Conditions Precedent to First Disbursement of the Loan Agreement and the Protocol of Agreement: The obligations of the Bank to make the first disbursement of the Loan and the Grant shall be conditional upon the entry into force of the Loan Agreement and the Protocol of Agreement, respectively, and the fulfillment, in form and substance satisfactory to the Bank, of the following conditions:

- (i) The opening of one (1) foreign currency denominated special account and one (1) local currency sub-account at the Bank of Zambia for the deposit of the proceeds of the Loan, and the opening of one (1) foreign currency denominated special account and one (1) local currency sub-account at the Bank of Zambia for the deposit of the proceeds of the Grant; and
- (ii) The receipt by the Bank Group of the signed Letter of Commitment of the GEF Trust Fund Trustee relating to the Project and committing the amount of the Grant in the form of Annex A to the Financial Procedures Agreement between the Bank Group and the GEF Trust Fund Trustee;

5.2.3 Other conditions: Not later than six months after the first disbursement of loan resources, the Borrower shall also provide the Bank with:

- (i) the establishment of the Project Coordination Unit (PCU) with terms of reference and composition acceptable to the Bank, and the recruitment of (a) a Project Coordinator / Natural Resources Management expert, (b) a Gender / Social Economist, (c) a Monitoring and Evaluation expert, (d) a Civil / Rural Engineer, (e) a Procurement Officer and (f) an Accountant, each with terms of reference, qualifications and experience acceptable to the Bank, to be staff of the PCU.

5.2.5 5.2.5 Compliance with Bank Group Policies. This project complies with all applicable Bank Group policies.

VI. RECOMMENDATION

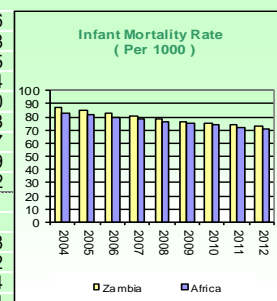
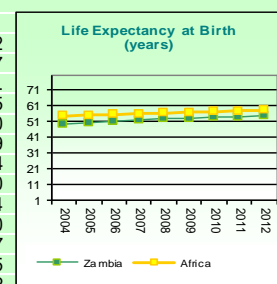
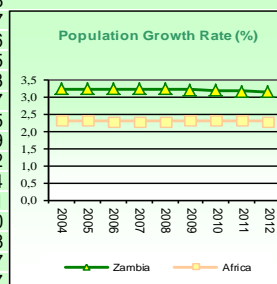
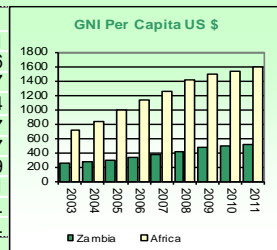
The Bank Management recommends that the Board of Directors approve the proposal to award an ADB loan of USD 22.49 million and GEF grant of USD 7.00 million to the Republic of Zambia for the above mentioned purpose and in accordance with the conditions specified in this report.

Appendix I. Country's comparative socio-economic indicators

Zambia

COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Zambia	Africa	Develo- ping Countries	Develo- ped Countries
Basic Indicators					
Area ('000 Km ²)	2011	753	30 323	98 458	35 811
Total Population (millions)	2012	13,9	1 070,1	5 807,6	1 244,6
Urban Population (% of Total)	2012	36,1	40,8	46,0	75,7
Population Density (per Km ²)	2012	17,9	34,5	70,0	23,4
GNI per Capita (US \$)	2011	1 160	1 609	3 304	38 657
Labor Force Participation - Total (%)	2012	40,0	37,8	68,7	71,7
Labor Force Participation - Female (%)	2012	45,7	42,5	39,1	43,9
Gender -Related Development Index Value	2007-2011	0,473	0,502	0,694	0,911
Human Develop. Index (Rank among 186 countries)	2012	163
Popul. Living Below \$ 1.25 a Day (% of Population)	2006-2011	68,5	40,0	22,4	...
Demographic Indicators					
Population Growth Rate - Total (%)	2012	3,0	2,3	1,3	0,3
Population Growth Rate - Urban (%)	2012	3,6	3,4	2,3	0,7
Population < 15 years (%)	2012	46,7	40,0	28,5	16,6
Population >= 65 years (%)	2012	3,1	3,6	6,0	16,5
Dependency Ratio (%)	2012	99,0	77,3	52,5	49,3
Sex Ratio (per 100 female)	2012	100,6	100,0	103,4	94,7
Female Population 15-49 years (% of total populatic	2012	22,1	49,8	53,2	45,5
Life Expectancy at Birth - Total (years)	2012	49,4	58,1	67,3	77,9
Life Expectancy at Birth - Female (years)	2012	49,8	59,1	69,2	81,2
Crude Birth Rate (per 1,000)	2012	46,3	33,3	20,9	11,4
Crude Death Rate (per 1,000)	2012	15,0	10,9	7,8	10,1
Infant Mortality Rate (per 1,000)	2012	82,6	71,4	46,4	6,0
Child Mortality Rate (per 1,000)	2012	133,4	111,3	66,7	7,8
Total Fertility Rate (per woman)	2012	6,3	4,2	2,6	1,7
Maternal Mortality Rate (per 100,000)	2010	440,0	417,8	230,0	13,7
Women Using Contraception (%)	2012	45,9	31,6	62,4	71,4
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2004-2010	5,5	49,2	112,2	276,2
Nurses (per 100,000 people)*	2004-2009	70,6	134,7	187,6	730,7
Births attended by Trained Health Personnel (%)	2007-2010	46,5	53,7	65,4	...
Access to Safe Water (% of Population)	2010	61,0	67,3	86,4	99,5
Access to Health Services (% of Population)	2004	90,2	65,2	80,0	100,0
Access to Sanitation (% of Population)	2010	48,0	39,8	56,2	99,9
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2011	12,5	4,6	0,9	0,4
Incidence of Tuberculosis (per 100,000)	2011	444,0	234,6	146,0	14,0
Child Immunization Against Tuberculosis (%)	2011	88,0	81,6	83,9	95,4
Child Immunization Against Measles (%)	2011	83,0	76,5	83,7	93,0
Underweight Children (% of children under 5 years)	2007-2011	14,9	19,8	17,4	1,7
Daily Calorie Supply per Capita	2009	1 879	2 481	2 675	3 285
Public Expenditure on Health (as % of GDP)	2010	5,9	5,9	2,9	8,2
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2010-2012	117,3	101,9	103,1	106,6
Primary School - Female	2010-2012	117,0	98,4	105,1	102,8
Secondary School - Total	2010-2012	...	42,3	66,3	101,5
Secondary School - Female	2010-2012	...	38,5	65,0	101,4
Primary School Female Teaching Staff (% of Total)	2011	51,2	43,2	58,6	80,0
Adult literacy Rate - Total (%)	2010	71,2	67,0	80,8	98,3
Adult literacy Rate - Male (%)	2010	80,7	75,8	86,4	98,7
Adult literacy Rate - Female (%)	2010	61,7	58,4	75,5	97,9
Percentage of GDP Spent on Education	2008	1,3	5,3	3,9	5,2
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2011	4,6	7,6	10,7	10,8
Annual Rate of Deforestation (%)	2000-2009	2,4	0,6	0,4	-0,2
Forest (As % of Land Area)	2011	66,3	23,0	28,7	40,4
Per Capita CO2 Emissions (metric tons)	2009	0,2	1,2	3,1	11,4



Sources : AfDB Statistics Department Databases; World Bank; World Development Indicators;

last update :

May 2013

UNAIDS; UNSD; WHO; UNICEF, WRI, UNDP; Country Reports.

Note : n.a. : Not Applicable ; ... : Data Not Available.

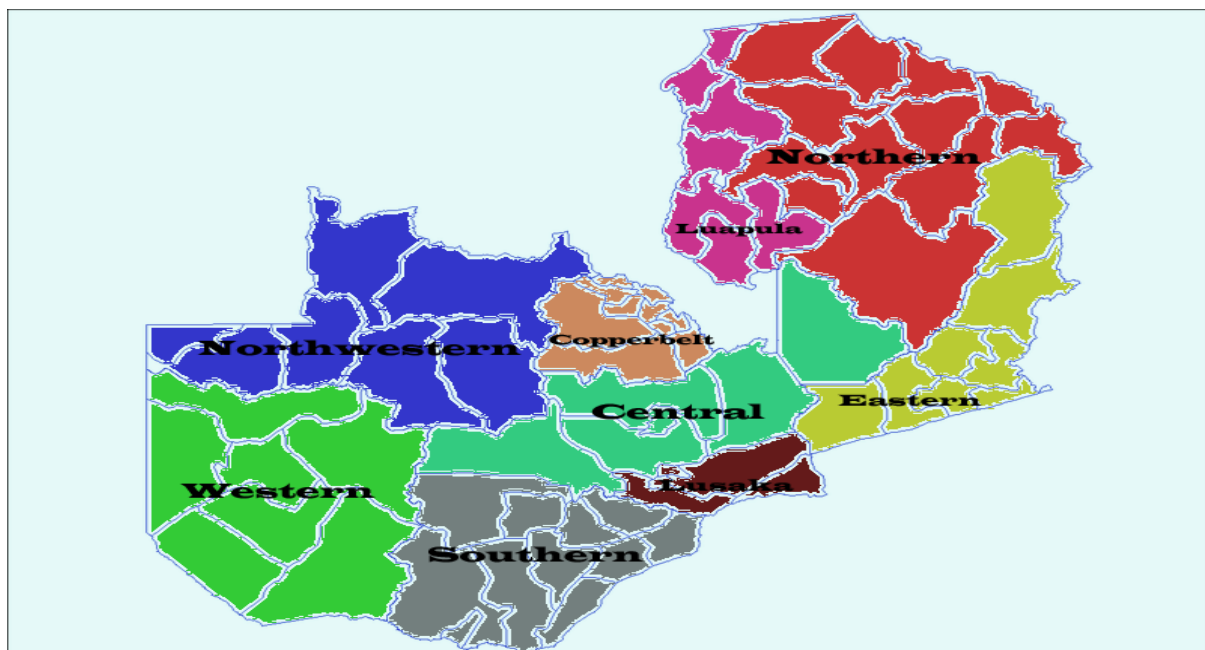
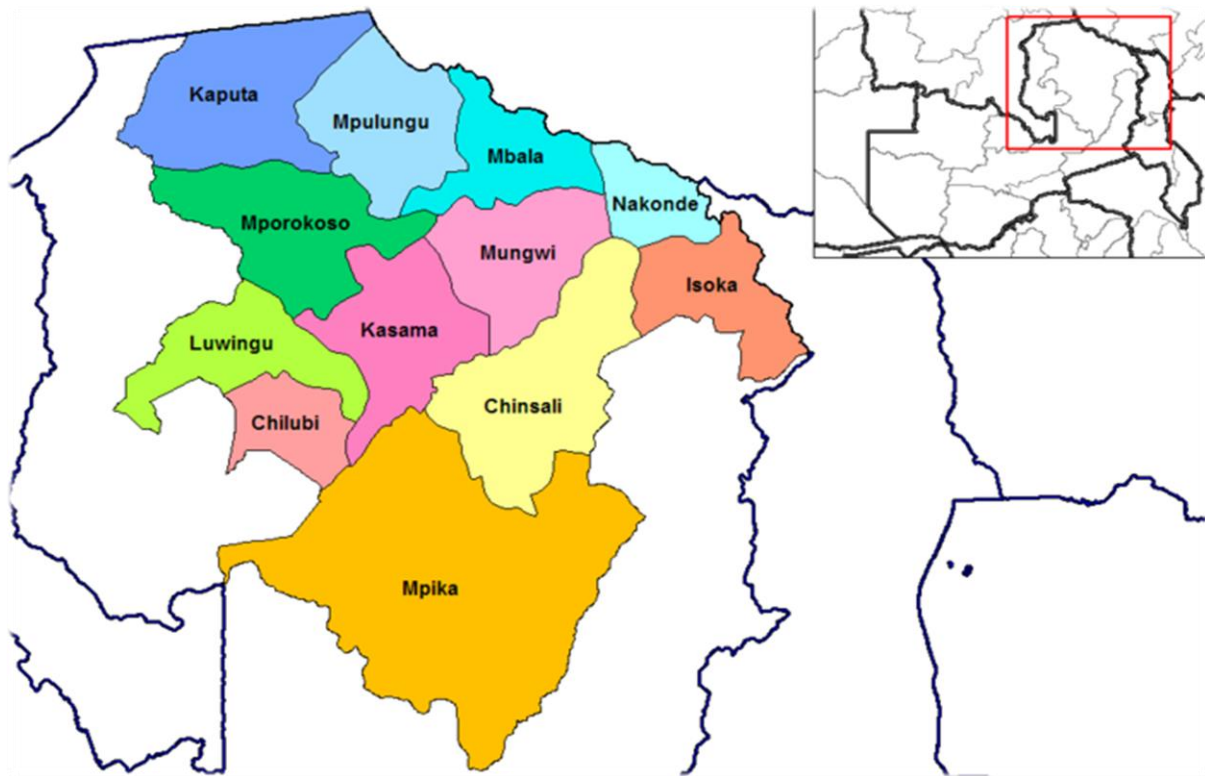
Appendix II. AfDB's Active Portfolio in Zambia (April 2014)

No	Sector	Long name	Finance Source	Loan Number	Approval Date	Signature Date	Effective Date		Closing Date	Approved Amt. (UA)	Disbursed Amt. (UA)	Disb. Ratio	IP	DO	PFI STATUS	Age (Yrs)
National Operations (Public)																
1	Agriculture	Community Water Management Improvement	AWTF	5600155001751	12-Nov-09	23-Apr-10	23-Apr-10		31-Dec-13	659,218	527,769.66	80.1%	2.3 3	3.0 0	NON PP / NON PPP	3.05
2	Agriculture	Finish Supported Small Scale Irrigation	Trust Fund	2100150001106	28-Dec-09	30-Oct-10	30-Oct-10		5/30/2014	8,137,881	3,857,355.79	47.4%	2.2 9	2.7 5	NON PP / NON PPP	2.93
3	Agriculture	Livestock Infrastructure Support Project	ADF	2100150029293	19-Jun-13	08-Aug-03	-		31-Dec-18	12,000,000	0	0	-	-	NON PP / NON PPP	
4	Agriculture	Strengthening Climate Resilience In The Kafue Sub-Basin	Trust Fund	5565155000501	19-Oct-13	-	-		31-Dec-19	25,810,000	0	0	-	-	NON PP / NON PPP	
5	Agriculture	Agriculture Productivity and Market Enhancement Project	Trust Fund		28-Mar-14				31-12-19	20,077,419	0	0	-	-	NON PP / NON PPP	
Sub-Total (Agriculture)										46,607,099	4,385,125	49.8%				
6	Water & Sanitation	Nkana Water Supply And Sanitation Project	ADF	2100150018345	27-Nov-08	22-Dec-08	12-Jun-09		31-Dec-13	35,000,000	11,130,000.00	31.8%	2.5 7	2.6 7	NON PP / NON PPP	4.01
7	Water & Sanitation	Rural Water Supply & Sanitation Program	ADF	2100150013198	31-Oct-06	17-May-07	15-Nov-07		30-Jun-13	15,000,000	4,543,500.00	30.3%	2.5 0	3.0 0	NON PP / NON PPP	6.09
8	Water & Sanitation	Small Dams Project	Trust Fund													
Sub-Total (Water & Sanitation)										50,000,000	15,673,500	31.3%				
7	Power	Itezhi-Tezhi Power Transmission Project	ADF	2100150027396	13-Jun-12	TBD	TBD		31-Dec-18	30,000,000	0.00	0.0%	0.0 0	0.0 0	No Supervision	0.47
			NTF	2200160000989	13-Jun-12	TBD	TBD		31-Dec-18	6,400,000	0.00	0.0%	0.0 0	0.0 0	No Supervision	0.47
Sub-Total (Power/Energy)										36,400,000	-	0.0%				
Multi-National Operations																
8	Multinational	Botswana/Zambia-Kazungula Bridge Project	ADF	2100150025694	7-Dec-11	10-Feb-12	3-Sep-12		31-Dec-18	51,000,000	0.00	0.0%	2.5 0	2.3 3	NON PP / NON PPP	0.99
9	Multinational	Nacala Corridor Project Phase II(Zambia)	ADF	2100150022945	27-Sep-10	20-Jan-11	10-Jun-11		31-Mar-15	69,369,000	194,233.20	0.3%	2.3 1	3.0 0	NON PP / NON PPP	2.18
Sub-Total (Transport)										123,629,000	1,264,491	1.0%				
10	Social	Support To Science And Technology Education Project	ADF		Nov-2013					22,220,000	0	0			NON PP / NON PPP	
Sub-Total (Social)										22,220,000						
Private Sector Operations																
11	Power	Itezhi-Tezhi Power Project	ADB	2000130008981	13-Jun-12	TBD	TBD		31-Dec-18	23,174,818	0.00	0.0%	0.0 0	0.0 0	No Supervision	0.47
12	Power	Itezhi-Tezhi Power Stand By Project	ADB	2000130009331	13-Jun-12	TBD	TBD		31-Dec-18	1,986,413	0.00	0.0%	0.0 0	0.0 0	No Supervision	0.47
13	Finance	PFSL- FAPA TA - ZAMBIA	FAPA	5700155000601	13-Jul-09	13-Jul-09	4-Sep-09		31-Dec-14	935,000	805,035.00	86.1%	0.0 0	0.0 0	NA	3.39
Sub-Total (Finance/Private Sector)										26,096,231	805,035	3.1%				
Portfolio Summary										304,952,330	22,128,152	9.0%	2.4 2	2.8 6		2.71

**Appendix III. Key related projects financed by the Bank and other development partners in the country
(October 2013)**

Donor Agency	Project Title	Project Coverage	Total Budget (USD)	Implementation Organisation
ADF	Community Water Management Improvement Project for traditional Farmers	Mkushi, Kapiri Mposhi, Masaiti and Chingola	942,140	Development Aid from People to people (DAPP)
	Livestock Infrastructure Support project	Muchinga & Northern provinces	18,000,000	Ministry of Agriculture and Liv
	Strengthening Climate Resilience in the Kafue sub-basin	Southern, Central and Lusaka provinces	38,700,00	Ministry of Finance
Finland	Small-scale Irrigation Project (SIP)	Chongwe, Mazabuka, Sinazongwe	12,600,000	Ministry of Agriculture and Livestock
Norway	Conservation Agricultural Program Phase II	AEZ 1&2	28,000,000	Conservation Farming Unit (CFU)
	Expanded Food Security Pack	AEZ 2	2,571,429	Min of Community Development. Mother and Child Health
	Community Markets for Conservation - COMACO	Eastern Province	8,600,000	Wildlife Conservation Society/COMACO
European Union	Agricultural Sector Performance Enhancement Programme	Nationwide	11,659,000	Ministry of Agriculture and Livestock
FAO	Integrated Land Use Assessment II	Nationwide	3,953,096	Ministry of Land, Natural Resources & Environmental Protection Forestry Department
	UN-REDD Programme – Zambia Quick Start Initiative	Nationwide	2,180,000	Ministry of Land, Natural Resources & Environmental Protection Forestry Department
IFAD	Smallholder Livestock Investment Project (SLIP)	North-Western, Western, Southern, Eastern and Northern	14,990,000	Ministry of Agriculture and Livestock
	Smallholder Agribusiness Promotion Programme (SAPP)	20-30 districts	24,500,000	Ministry of Agriculture and Livestock
	Smallholder Productivity Promotion Programme (S3P) (co-financed by Finland)	Luapula and Northern Provinces	39,900,000	Ministry of Agriculture and Livestock
JICA	Rural Extension Service Capacity Advancement Project (RESCAP)	Northern, Western and Lusaka provinces	9,000,000	Ministry of Agriculture and Livestock
	Rural and Agriculture Development Advisor	Nationwide	1,300,000	Ministry of Agriculture and Livestock
	Food Crop Diversification Support Project Focusing on Rice (FoDiS-R)	Muchinga, N/P& WP and follow up in EP, SP, WP & Lusaka P	3,100,000	Ministry of Agriculture and Livestock
	Technical Cooperation Project for Community based Smallholder Irrigation (T-COBSI)	Main Luapula, Northern and Muchinga, Copperbelt and North Western Provinces	5,800,000	Ministry of Agriculture and Livestock
USAID	Production, Finance & Technology (PROFIT)	Eastern Province	24,000,000	ACDI/VOCA
	Food Security Research Project (FSRP), Phase III	Nationwide	12,499,501	Michigan State University (MSU), Indaba Agricultural Policy Research Institute (IAPRI)
	Expanding Impact in USAID Supported Value Chains	Eastern Province	1,998,519	Action for Enterprise (AFE)
	Horticulture Global Development Alliance	Eastern Province and Peri-urban Lusaka	4,800,000	ASNAPP, Freshmark, Freshpikt, Stellenbosch University and CETZAM
	Zambia Agriculture Research and Development Project	Eastern province	18,000,000	CGIAR: IITA, CIMMYT, ICRISAT, CIP, CIAT, World Fish Center, Harvest Plus,
	Better Life Alliance Global Development Alliance (GDA)	Eastern Province	6,626,605	COMACO, General Mills and Cargill.
World Bank	Agriculture Development Support Programme	National	37,200,000	MAL
	Irrigation development and Support project	3 Sites	115,000,000	MAL
	Livestock Development and Animal health	Selected provinces	50,000,000	MAL
WFP	Home grown school feeding programme	Western, Southern, North-Western, Northern, Luapula, Muchinga, Central & Eastern	34,672,210	MoE, MAL
	Milk for schools	Nationwide	629,412	MAL
	Disaster Risk Management	Nationwide	780,000	DMMU, FAO
	Food Security for vulnerable groups	Nationwide	15,480,006	UNHCR,
DfID	Support to Musika - Making Agricultural Markets Work for Zambia	Nationwide	7,144,000	Musika
	Access to Finance (includes rural finance)	Nationwide	21,432,000	Bank of Zambia and FIs

Appendix IV. Map of the Project Area



APPENDIX V
PROJECT COST AND FINANCING IN UA
Table 2.3-a: Summary Project Cost by Component (ZMW/UA)

COMPONENTS	(ZMW '000)			(UA '000)			%FE	%BC
	Local	Foreign	Total	Local	Foreign	Total		
A. INTEGRATED NRM & VALUE CHAIN DEVPT	38 160,10	49 605,82	87 765,92	4 111,07	5 344,14	9 455,20	57	51
Forest & Land Management	14 177,28	11 937,40	26 114,68	1 527,35	1 286,04	2 813,39	46	15
Fisheries and Value-Chain Development	20 181,81	30 977,86	51 159,67	2 174,23	3 337,31	5 511,54	61	30
Capacity Building	3 801,01	6 690,56	10 491,57	409,49	720,79	1 130,28	64	6
B. COMMUNITIES LIVELIHOOD IMPROVEMENT	23 107,60	38 625,54	61 733,14	2 489,43	4 161,21	6 650,64	63	36
Community Infrastructure Development	15 607,60	24 408,40	40 016,00	1 681,44	2 629,57	4 311,01	61	23
Alternative livelihood	7 500,00	14 217,14	21 717,14	807,99	1 531,64	2 339,63	65	13
C. PROJECT MANAGEMENT & COORDINATION	12 869,99	8 169,54	21 039,53	1 386,51	880,12	2 266,63	39	12
Total BASELINE COSTS	74 137,69	96 400,90	170 538,58	7 987,00	10 385,46	18 372,47	57	100
Physical Contingencies	3 374,60	4 746,14	8 120,75	363,55	511,31	874,86	58	5
Price Contingencies	4 644,97	2 102,82	6 747,79	500,41	226,54	726,95	31	4
Total PROJECT COSTS	82 157,26	103 249,86	185 407,12	8 850,97	11 123,32	19 974,29	56	109

Table 2.4-a: Summary Project Cost by Expenditure Categories (ZMW/UA)

COMPONENTS	(ZMW '000)			(UA '000)			% FE	% BC
	Local	Foreign	Total	Local	Foreign	Total		
I. Investment Costs	71 403,61	93 713,14	165 116,76	7 692,46	10 095,91	17 788,36	57	97
A. WORKS	28 193,65	41 074,00	69 267,65	3 037,36	4 424,99	7 462,35	59	41
Construction & Rehabilitation	19 635,38	36 465,71	56 101,09	2 115,36	3 928,53	6 043,88	65	33
Field Works	8 558,26	4 608,30	13 166,56	922,00	496,46	1 418,46	35	8
B. GOODS	5 236,16	17 482,50	22 718,66	564,10	1 883,43	2 447,53	77	13
1. VEHICLES	696,57	3 863,74	4 560,31	75,04	416,25	491,29	85	3
Vehicles (FW)	665,26	3 769,80	4 435,06	71,67	406,13	477,80	85	3
Motorcycles	31,31	93,94	125,25	3,37	10,12	13,49	75	-
2. EQUIPMENTS & MATERIALS	4 539,59	13 618,76	18 158,35	489,06	1 467,18	1 956,24	75	11
Equipment	4 420,13	13 260,39	17 680,52	476,19	1 428,57	1 904,76	75	10
Furniture	119,46	358,37	477,83	12,87	38,61	51,48	75	-
C. SERVICES	29 173,81	21 956,64	51 130,45	3 142,95	2 365,43	5 508,39	43	30
Training, Sensitization, Wkps, Sem....	6 988,97	8 542,07	15 531,04	752,94	920,25	1 673,19	55	9
Technical Assistance & Consultancies	62,70	1 191,30	1 254,00	6,75	128,34	135,10	95	1
Studies	1 129,50	1 380,50	2 510,00	121,68	148,72	270,41	55	1
Contractual Services	20 706,89	10 493,51	31 200,41	2 230,80	1 130,49	3 361,28	34	18
Audit	285,75	349,25	635,00	30,78	37,63	68,41	55	-
D. MISCELLANEOUS	8 800,00	13 200,00	22 000,00	948,04	1 422,06	2 370,10	60	13
II. Recurrent Costs	2 734,07	2 687,75	5 421,83	294,55	289,56	584,10	50	3
A. PERSONEL	179,55	-	179,55	19,34	-	19,34	-	-
C. OPERATION & MAINTENANCE	1 495,39	2 233,84	3 729,23	161,10	240,66	401,76	60	2
Vehicles	1 462,11	2 193,16	3 655,27	157,52	236,27	393,79	60	2
Equipment	33,28	40,68	73,96	3,59	4,38	7,97	55	-
D. GENERAL OPERATING CHARGES	1 059,14	453,92	1 513,05	114,10	48,90	163,00	30	1
Total BASELINE COSTS	74 137,69	96 400,90	170 538,58	7 987,00	10 385,46	18 372,47	57	100
Physical Contingencies	3 374,60	4 746,14	8 120,75	363,55	511,31	874,86	58	5
Price Contingencies	4 644,97	2 102,82	6 747,79	500,41	226,54	726,95	31	4
Total PROJECT COSTS	82 157,26	103 249,86	185 407,12	8 850,97	11 123,32	19 974,29	56	109

Table 2.5: Summary Project Cost Schedule by Components (UA 000)

COMPONENTS	2015	2016	2017	2018	2019	Total
A. INTEGRATED NRM & VALUE CHAIN DEVPT	6 429,17	2 175,25	1 418,70	386,59	43,62	10 453,33
Forest & Land Management	792,41	868,21	1 204,82	366,37	22,82	3 254,63
Fisheries and Value-Chain Development	4 826,39	958,84	151,76	20,21	20,80	5 977,99
Capacity Building	810,38	348,20	62,13	-	-	1 220,71
B. COMMUNITIES LIVELIHOOD IMPROVEMENT	2 815,11	2 375,22	1 501,94	282,93	124,53	7 099,73
Community Infrastructure Development	1 537,46	2 021,77	948,04	-	-	4 507,27
Alternative livelihood	1 277,65	353,45	553,89	282,93	124,53	2 592,46
C. PROJECT MANAGEMENT & COORDINATION	789,46	400,35	412,28	421,45	397,69	2 421,23
Total PROJECT COSTS	10 033,74	4 950,81	3 332,91	1 090,97	565,84	19 974,29

Table 2.6-a: Project Costs by Financing Sources (ZMW/UA)

FINANCING SOURCES	(ZMW '000)			(UA '000)			%
	Local	Foreign	Total	Local	Foreign	Total	
ADB Loan	57 803,30	81 431,05	139 234,35	6 227,27	8 772,73	15 000,00	75,1
GEF	22 312,90	21 513,40	43 826,30	2 403,81	2 317,68	4 721,50	23,6
Government of Zambia	2 041,07	305,40	2 346,47	219,89	32,90	252,79	1,3
Total	82 157,26	103 249,86	185 407,12	8 850,97	11 123,32	19 974,29	100,0

**APPENDIX VI
SUMMARY OF ECONOMIC ANALYSIS**

DISCOUNTING TABLE	OCC (%)	PROJECT LIFE									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2039
Discount Factor @ 10%	10,0%	0,9091	0,8264	0,7513	0,6830	0,6209	0,5645	0,5132	0,4665	0,4241	0,0923
Discount Factor @ 11%	11,0%	0,9009	0,8116	0,7312	0,6587	0,5935	0,5346	0,4817	0,4339	0,3909	0,0736
Discount Factor @ 12%	12,0%	0,8929	0,7972	0,7118	0,6355	0,5674	0,5066	0,4523	0,4039	0,3606	0,0588

COST-BENEFIT ANALYSIS OUTCOME

AGRO-PROCESSING BENEFITS / COSTS	UNITS	PROJECT LIFE									
		1	2	3	4	5	6	7	8	9	25
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2039
NET BENEFITS	'000 ZMW	-120 970,90	-119 327,25	-117 852,81	-77 437,26	129 387 740,46	129 727 217,67	130 067 334,51	130 408 795,79	171 192 147,85	178 394 947,59
DISCOUNTED NET BENEFITS (@12% OCC)	'000 ZMW	-108 009,73	-95 126,95	-83 885,30	-49 212,78	73 418 078,74	65 723 845,74	58 835 856,71	52 669 925,40	61 733 604,71	10 493 780,69
COSTS	000 ZMW										
Production Costs	000 ZMW	-78 129,55	-44 129,11	88 945 506,23	140 299 519,98	85 494 957,74	33 700 751,71	33 790 073,57	33 876 709,42	34 025 837,35	35 343 438,52
Project Costs	000 ZMW	90 249,33	43 383,73	28 416,15	8 807,84	4 522,31					
NET COSTS	000 ZMW	12 119,78	-745,38	88 973 922,38	140 308 327,81	85 499 480,05	33 700 751,71	33 790 073,57	33 876 709,42	34 025 837,35	35 343 438,52
DISCOUNTED NET COSTS (@12% OCC)	000 ZMW	10 821,23	-594,21	63 329 880,52	89 168 478,88	48 514 701,13	17 073 849,62	15 284 913,27	13 682 234,75	12 270 058,06	2 079 017,92
DISCOUNTED NET BENEFITS	000 ZMW	-108 009,73	-95 126,95	-83 885,30	-49 212,78	73 418 078,74	65 723 845,74	58 835 856,71	52 669 925,40	61 733 604,71	10 493 780,69
DISCOUNTED NET COSTS	000 ZMW	10 821,23	-594,21	63 329 880,52	89 168 478,88	48 514 701,13	17 073 849,62	15 284 913,27	13 682 234,75	12 270 058,06	2 079 017,92
CASHFLOW (Flow of Benefits-Costs)	000 ZMW	-118 830,96	-94 532,74	-63 413 765,82	-89 217 691,65	24 903 377,61	48 649 996,11	43 550 943,44	38 987 690,65	49 463 546,66	
NPV (Sum of Cashflows)	000 ZMW	350 321 895,11									
IRR	%	21,24%									
B/C Ratio	-	2,17									

SENSITIVITY ANALYSIS

Scenarios Summary	Current Values :	Price Decrease: - 2,5%	Price Decrease: - 5%	Price Decrease: - 7,5%	Price Decrease: - 10%	Price Decrease: - 12,5%	Price Decrease: -15%	Price Decrease: -17,5%	Price Decrease: -20%	Price Decrease:
Variables Cells:										
Price Decreases	0,00%	2,50%	5,00%	7,50%	10,00%	12,50%	15,00%	17,50%	20,00%	22,50%
Results Cells:										
NPV	350 321 895,11	336 969 954,98	323 619 630,56	310 270 921,84	296 923 828,84	283 578 351,54	270 234 489,96	256 892 244,08	243 551 613,92	230 212 599,46
ERR	21,24%	20,54%	19,85%	19,14%	18,43%	17,72%	17,00%	16,27%	15,53%	14,79%
B/C Ratio	2,17	2,14	2,11	2,08	2,05	2,01	1,98	1,95	1,91	1,88

