GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

October 14, 2016

Dear Council Member:

AfDB as the Implementing Agency for the project entitled: ***Zambia: Zambia Lake Tanganyika Basin Sustainable Development Project***, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with AfDB procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by Council in June 2015 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by AfDB satisfactorily details how Council's comments and those of the STAP have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.TheGEF.org. If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

Naoko Ishii
Chief Executive Officer and Chairperson

Attachment: GEFSEC Project Review Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee

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GEF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND:GEF Trust Fund

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Zambia Lake Tanganyika Basin Sustainable Development Project			
Country(ies):	Zambia	GEF Project ID:[1]	8021
GEF Agency(ies):	AfDB (select) (select)	GEF Agency Project ID:	P-ZM-AA0-024
Other Executing Partner(s):	Ministry of Lands, Natural Resources and Environmental Protection (MLNREP)	Submission Date:	30.08.2016
GEF Focal Area (s):	Multifocal areas	Project Duration (Months)	60
Integrated Approach Pilot	IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐	Corporate Program: SGP ☐	
Name of Parent Program	[if applicable]	Agency Fee ($)	**696,753**

A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES[2]

Focal Area Objectives/Programs	Focal Area Outcomes	Trust Fund	(in $) GEF Project Financing	(in $) Co-financing
LD1-Program 1	Outcome 1.1: Improved agricultural, rangeland and pastoral management Outcome 1.3: Increased investments in SLM	GEFTF	1,242,642	6,747,000
LD2-Program 3	Outcome 2.1: Support mechanisms for forest landscape management and restoration established Outcome 2.2: Improved forest management and/or restoration	GEFTF	1,242,642	3,148,600
CCM-2 Program 4	Outcome A. Accelerated adoption of innovative technologies and management practices for GHG emission reduction and carbon sequestration	GEFTF	1,357,936	3,148,600
BD-4 Program 9	Outcome 9.2: Sector policies and regulatory frameworks incorporate biodiversity considerations.	GEFTF	1,046,218	2,698,800
SFM-2	Outcome 3: Increased application of good management practices in all forests by relevant government, local community (both women and men) and private sector actors.	GEFTF	2,444,809	6,747,000
	Total project costs		7,334,247	22,490,000

[1] Project ID number remains the same as the assigned PIF number.
[2] When completing Table A, refer to the excerpts on *GEF 6 Results Frameworks for GETF, LDCF and SCCF*.

B. PROJECT DESCRIPTION SUMMARY

Project Objective: To improve natural resources management and the livelihoods of communities in Zambia's Lake Tanganyika Basin through the sustainable and integrated use of lake resources						
Project Components/ Programs	**Financing Type[3]**	**Project Outcomes**	**Project Outputs**	**Trust Fund**	**(in $)**	
					GEF Project Financing	**Confirmed Co-financing**
Component 1. Development of capacities (skills, information) and investments for landscape approach to Integrated Natural Resources Management (INRM)	Inv	Outcome 1.1- Improved landscape planning in Zambia's Lake Tanganyika basin, through 2 district land management plans and guidelines	1.1.1 Comprehensive landscape management plans and associated guidelines developed in the two districts of Mpulungu and Nsama and validated by key stakeholders 1.1.2 Biodiversity and forestry monitoring plans formulated, implemented, and reported on in annual project reports (5 total)	GEFTF	3,438,690	11,245,000
		Outcome 1.2 - Improved capacity of technical institutions and community groups to implement landscape approach to INRM	1.2.1 Sustainable Forest Management (SFM) schemes - e.g. Joint Forest management (JFM), Community Forest (CF), Private forest, partnership parks - established in the two districts, leading to a reduction in forest degradation status from "low/moderate" to "very low" in a 12,000ha area 1.2.2 Soils and agricultural production improved in 7500ha, through application of climate smart conservation agriculture techniques 1.2.3 Nsumbu National Park and associated GMAs (Tondwa) clearly demarcated and sustainably managed, resulting in 40% reduction in poaching-related wildlife deaths compared, and 30% decrease in reported			

[3] Financing type can be either investment or technical assistance.

			animal/human conflicts, as compared to baseline (reported by Department of National Parks and Wildlife (DNPW), formerly ZAWA)			
		Outcome 1.3 - Increased capacities and investments supporting land rehabilitation and decreased deforestation (15 erosion control infrastructure systems established; at least 24 sustainable charcoal and brick production units established)	1.3.1 Soil erosion stopped and land rehabiliated in 15 critical sites around Lake Tanganyika 1.3.2 Sustainable charcoal production schemes disseminated and implemented, leading to the establishment and operation of at least 10 energy efficient charcoal kilns and 4 green charcoal production units 1.3.3 Sustainable brick production schemes disseminated and implemented, leading to the establishment and operation of at least 10 sustainable brick production units			
Component 2. Reduction of pressure on natural resources through diversification of livelihoods	Inv	Outcome 2.1 Increased contribution of agro and forest ecosystem services to national economy and local livelihoods (an additional 1000 households involved in alternative livelihood activities)	2.1.1 Improved service delivery from cooperatives, unions and microfinance institutions, resulting in 30% increase of households benefitting from such services as compared to the project baseline 2.1.2 Alternative income generating activities identified and implemented with 30 community groups, resulting in a 30% increase in income for participating households 2.1.3 Increased food production from agriculture through	GEFTF	2,424,340	6,747,000

			small scale irrigation, leading to a 30% increase in agriculture-based revenues for participating households 2.1.4 Community fish farms developed and tested in at least 4 communities, reducing pressure on Lake resources 2.1.5 Tourism development plans supporting biodiversity conservation formulated and implemented, leading to 50% increase in NP entry revenues, as compared to baseline (2015).			
Component 3. Policy enforcement and coordination of INRM interventions, monitoring and outreach activities	Inv	Outcome 3.1 Enhanced policy and institutional coordination for better service delivery and enforcement of the landscape management plans and livelihood initiatives (coordination bodies for sustainable natural resources management present in each district and at the regional level)	3.1.1 Policy implementation strengthened through harmonization and enforcement of key legislations in the 2 target districts, including 4 bi-laws forbidding unsustainable natural resource exploitation 3.1.2 Effective INRM coordination platforms in place at national, regional, district and community levels, involving 80% of local groups operating in project areas 3.1.3 At least 5 NGOs and 15 community groups reached by campaigns aiming to increase their awareness of natural resource management and improve their capacity to engage in effective natural resource governance	GEFTF	1,121,967	3,373,500

		Outcome 3.2 Project implementation based on results based management and application of project lessons learned in future operations facilitated (5 satisfactory PIR reports, 5 project-related knowledge products)	3.2.1 Adequate socio-economic and environmental data collected (gender disaggregated), monitored and used as outreach/training material, including on status of biodiversity 3.2.2 Project-related best practice guidelines for SLFM developed and lessons learned published 3.2.3 Simplified and participatory M&E system established, providing systematic information on progress in meeting project outcome and output targets			
				Subtotal		6,984,997	21,365,500
				Project Management Cost (PMC)[4]	GEFTF	349,250	1,124,500
				Total project costs		**7,334,247**	**22,490,000**

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Amount ($)
Recipient Government	African Development Bank	Loans	22,490,000
Total Co-financing			**22,490,000**

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee[a] (b)[2]	Total (c)=a+b
AfDB	GEFTF	Zambia	Land Degradation	(select as applicable)	2,486,215	236,190	2,722,405
AfDB	GEFTF	Zambia	Climate Change	(select as applicable)	1,357,004	128,915	1,485,919
AfDB	GEFTF	Zambia	Biodiversity	(select as applicable)	1,046,279	99,397	1,145,676
AfDB	GEFTF	Zambia	Multi-focal Areas	SFM	2,444,749	232,251	2,677,000
Total Grant Resources					**7,334,247**	**696,753**	**8,031,000**

[4] For GEF Project Financing up to $2 million, PMC could be up to10% of the subtotal; above $2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS[5]

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	*260,000 hectares*[6]
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	*20,000 hectares*[7]
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	*Number of freshwater basins*
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	*Percent of fisheries, by volume*
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO_{2e} mitigated (include both direct and indirect)	*Direct: 2.6 million TCO2eq*[8] *Indirect: 8.8 million TCO2eq*
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	*metric tons*
	Reduction of 1000 tons of Mercury	*metric tons*
	Phase-out of 303.44 tons of ODP (HCFC)	*ODP tons*
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	*Number of Countries:*
	Functional environmental information systems are established to support decision-making in at least 10 countries	*Number of Countries:*

F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? NO

(If non-grant instruments are used, provide an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund) in Annex D.

[5] Update the applicable indicators provided at PIF stage. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the *GEF-6 Programming Directions*, will be aggregated and reported during mid-term and at the conclusion of the replenishment period.

[6] Nsumbu National Park + Tondwa GMA

[7] Includes targets of min. 12,000ha under SFM and min. 7500ha under conservation agriculture

[8] Using Ex-ACT tool (See annex 4). Most of this result comes from SFM, avoiding forest degradation, over 20 years.

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF

1. This section provides additional structured information and details on the project design, complementing the PIF. The main changes lie in the identification of three key barriers to the adoption of a landscape approach to INRM, and, as a consequence, in the formulation of project components and outcomes.
2. As explained in section A1-1 below, resolving the challenges in the Zambia part of Lake Tanganyika basin requires the adoption of a landscape approach, involving the active participation of all relevant stakeholders, promoting natural resource governance systems and using cutting edge knowledge and indicators for resilience in socio-ecological production landscapes to support adaptive management. This landscape approach to INRM was not properly reflected in the project components and outcomes as defined in the PIF. The way it was built, component 1 was mostly focusing on agriculture, component 2 on forestry and component 3 on biodiversity. Notwithstanding the relatively weak coverage of the climate change mitigation aspect, this structure did not reflect the principles of INRM, where natural resources must be managed in a systematic way. In addition, the relation between the defined outputs, outcomes and components also lacked coherence and clarity in the earlier document.
3. Therefore, during the project design phase a reconstruction of the Theory of Change was completed in order to properly address the three key barriers to the adoption of the required landscape approach to INRM as defined in section A1-1. This resulted in the re-organization of project outputs and outcomes and the re-phrasing of some components, outcomes and outputs. While the main objectives of each component and the overall contents of the project remain the same, outcomes and outputs have been reorganized, some have been added and others clarified/more precisely defined (in particular those dealing with climate change mitigation and biodiversity conservation) in order to ensure that they collectively achieve the expected results within each component, and reflect the intended landscape approach to INRM.
4. Component 1 of the project relates to necessary capacities for the adoption of a landscape approach to INRM. The project design process enabled to identify capacity gaps in terms of landscape planning, which was not captured in the PIF. In addition, the capacities of technical institutions and resource user groups are currently not adequate to INRM practice, and need to be strengthened through specific interventions to organize INRM implementation in the forest sector (SFM), the agriculture sector (farmers field schools for climate smart conservation agriculture) and the biodiversity sector (in particular in the Nsumbu NP and Tondwa GMA). Additionally, some investments are necessary to support INRM, in particular regarding land degradation in highly eroded areas, and the introduction of new capacities to reduce wood uses and forest degradation.
5. As was the case in the PIF, Component 2 of the project aims to reduce pressure on ecosystems through diversification of livelihoods. Indeed, the growing population increases pressure on the natural resources, and there is a need to intensify food production and to develop new sources of income, building on the ecosystem services available in the region (non-timber forest products, tourism). Aspects of forest management and restoration have been removed from this component, which now really focuses on different options of livelihood diversification. In particular, tourism development has been highlighted as an important aspect during consultation of wildlife institutions and civil society organisations, and was completely absent in the PIF. Not only tourism is a potential source of income for the local population, but it can play a major role in biodiversity conservation, as was demonstrated in other regions of Zambia, as for example in North Luangwa NP, which conservation has been a huge success.
6. Component 3 of the PIF included a number of activities relating to biodiversity conservation, with no evident link to the component title. Those have been removed (and distributed in components 1 and 2). Instead, the component was enlarged to policy enforcement and coordination of INRM interventions, which sits together with knowledge management and project monitoring and evaluation. Harmonization and enforcement of key legislations and the coordinated implementation of the project activities by the various sectoral partners (national, regional, district GRZ services, civil society groups) are key elements of success for INRM in the Lake Tanganyika basin, and relate to effective project management, monitoring, evaluation and reporting.
7. The new proposed structure is described in section A1-3 below.

A.1. Project Description

1) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed

Natural resources of national and global significance

8. The proposed project focuses on the two districts of Mpulungu and Nsama, in the Northern Province of Zambia. Those two districts cover the Lake Tanganyika basin section pertaining to Zambia and illustrated in Map 2. Located in the Albertine Rift[9], the lake was formed about 12 million years ago, making it ecologically different from modern lakes formed by glaciers within the last 12,000 years. Its early species have undergone spectacular evolutionary productions during the long period of existence. The lake has many distinctions which give it a global significance (in addition to the local significance): its maximum depth of 1,470 meters (4,820 feet) makes it the deepest lake in Africa, reaching 642 meters (2,106 feet) below sea level. This also makes it the second deepest lake in the world (after Lake Baikal); it is the second largest lake in Africa by surface area (after Lake Victoria), but the largest lake in Africa by volume. Holding 18,900 cubic kilometers (4,500 cubic miles) of freshwater, it accounts for approximately 18% of the entire world's unfrozen surface freshwater. It is the world's longest lake, stretching over 673 kilometres (418 miles). The lake is shared by four countries: Tanzania (46%), Democratic Republic of the Congo (40%); Zambia and Burundi each have 7% of the lake.

9. As described in the PIF, Zambia's Lake Tanganyika Basin is endowed with exceptionally vast and highly diverse flora and fauna. The lake is recognized as a global biodiversity hotspot and a valuable aquatic habitat.

Lake Biodiversity

10. The lake is valuable not only for the presence of unique, endemic species, but also as a microcosm in which to study the processes of evolution. Indeed the lake contains amongst the greatest biodiversity of any lake in the world, with more than 1,500 species of fish, invertebrates and plants recorded in the basin; out of which about 600 are endemic[10]. They include 245 morphologically diverse and colourful cichlid fish species[11]. Lake Tanganyika is unique in harbouring endemic species clusters of bagrids, cyprinids, mastacembelids, and mochokids[12]. Moreover, a large diversity of endemic ostracods, gastropods, shrimp, crabs as well as many other taxa can be found in the lake[13].

11. As detailed in the Lake Tanganyika Transboundary Diagnostics Analysis (TDA) report[14], the Zambian zone of the Lake is bio-diverse and rich in endemic fish and mollusc species: 37% of all fish species known to inhabit Lake Tanganyika were identified in the littoral lake zone of Nsumbu National Park which includes 80 km of shore line; the fourteen mollusc species identified in the Park represent 20% of the total number that have been recorded in Lake Tanganyika; and, all the 14 species are endemic to the Lake. The Zambian littoral zone and river mouths and associated wetlands provide important breeding grounds for economically important fish species.

Forests and terrestrial biodiversity

12. The lake catchment basin is rich in forests, woodlands, and terrestrial biodiversity. Like most of the rest of the country, Mpulungu and Nsama districts have over 60% forest cover and are host to several national and local forests. They include Mpulungu local forest (18,579 ha), Lunzua Extension National forest (1,785 ha) and Lunzua National forest 22,986 ha), Chinakila National forest (27,031 ha), Kambashi local forest (22,825 ha), Mwenze National forest (39,400 ha) and Nsumbu National Park Forest (206,000 ha)[15]. The western boundary of Nsumbu National Park, or Sumbu as it is called locally, is buffered by Tondwa Game Management Area (GMA), an IUCN Category VIII Multiple Use

[9] Albertine rift is the Western section of the East African Rift.
[10] UNDP 2011: Lake Tanganyika Transboundary Diagnostics Analysis Report.
[11] Snoeks, 2000; Genner et al., 2004
[12] Amcoff et al. 2013. Evolution of egg dummies in Tanganyikan cichlid fishes: the roles of parental care and sexual selection. Journal of Evolutionary Biology 26 (2369-2382)
[13] Fryer, G. & Iles, T.D. 1972. The Cichlid Fishes of the Great Lakes of Africa: Their Biology and Evolution. Oliver & Boyd, Edinburgh
[14] UNDP 2011: Lake Tanganyika Transboundary Diagnostics Analysis Report.
[15] GRZ 2012. Status of forest reserves as at 31st December 2012, Ministry of Lands, Natural Resources and Environmental Protection, Forestry Department.

Management Area of 54,000 ha. The much larger Kaputa Game Management Area (360,000 ha) is also contiguous with the National Park to the north-west and south-west. Nsumbu National Park and the two Game Management Areas thus form important parts of a network of Protected Areas (PAs) in Zambia[16] (see Map 1).

Map 1. National parks of Zambia

13. The two districts are host to several rivers draining into Lake Tanganyika. The Lufubu River dissects Nsumbu National Park from west to east, forming the eastern boundary of the Park. Nkamba and Chisala Rivers are ephemeral and smaller than the Lufubu, draining Tondwa Swamp into Nkamba and Nsumbu Bays respectively, the former through an attractive valley with abundant wildlife.

14. Forest species in Nsama and Mpulungu districts: Zambia's vegetation is dominated by miombo, which is characterized by open woodland dominated by Caesalpinioideae tree species including Brachystegia, Julbernardia and Isoberlinia, often associated with a dense grass sward[17]. The Northern Province (including Mpulungu and Nsama districts) is however covered by the dry evergreen miombo forests, which are part of the transition of forest types from Guineo-Congolian rainforest to Zambian dry woodlands. Dry evergreen forests cover less than 3–5% of the country's land area and are restricted to Northwestern and Western provinces in Zambia[18]. These forest types have three stories with a

[16] http://www.zambiatourism.com/destinations/national-parks/nsumbu-national-park
[17] Chidumayo EN. 2012a. Classification of Zambian Forests: Final Draft Report. Rome: Food and Agriculture Organization of the United Nations
[18] Siampale A. 2008. The potential of carbon sequestration in the terrestrial ecosystems for Zambia. Carbon and communities in tropical woodlands. Edinburgh: Edinburgh School of Geosciences. 46–51.

canopy up to 27 m high, a dense shrub layer of 1.5– 6.0 m high and often an understory of 0.3–1.3 m high. Dominant tree species include Cryptosepalum exfoliatum, Guibourtia coleosperma, Marquesia acuminata, Marquesia macroura, Parinari excelsa, Syzygium guineense, and Anisophyllea pomifera[19].

15. Part of Nsumbu National Park is covered by the Itigi-Nsumbu thicket, which is endemic to this region, occurring only between Lakes Mweru Wantipa and Tanganyika in Zambia, and around Itigi town in Tanzania[20]. The Itigi-Nsumbu ticket ecoregion is unique due to the presence of strictly endemic species[21]. The ecoregion is considered as endangered, with 50 percent of the Tanzanian portion already cleared[22], and as much as 71 percent of the Zambian portion cleared[23]. Although large parts of the ecoregion are conserved in Zambia, it appears that thicket clearing takes place even within protected areas. It is considered that the Itigi-Sumbu Thicket in Zambia is reduced by 3 percent each year. Specific information on the thicket is however largely unavailable due to inadequate resources assessment and mapping.

16. The forests have rich grasses in the understory. Notable grass genera include Andropogon, Brachiaria, Digitaria, Heteropogon, Hyparrhenia, Hyperthelia, Panicum, Pogonarthria, Tristachya and Urochloa.

17. Rich wildlife: Although wildlife numbers have declined, there is still a wide range of species present, especially in the 206,000 hectares Nsumbu National Park and the Game Management Areas. They include elephants, buffalo, roan, sable, eland, hartebeest, zebra, lion and leopards. Bushbuck, warthog and puku often frequent the beaches. The rare blue duiker, a small forest antelope, is one of the Park's specialities along with the shy swamp dwelling sitatunga[24]. Nsumbu National Park represents one of the last remaining populations of elephants in the lake basin. The others in nearby Mweru, Southern Democratic Republic of the Congo (DRC), Lusenga plains and migrant populations between DRC and Zambia have all been exterminated[25]. Other species seen in the area are the spotted hyena, side-striped jackal, impala, waterbuck and reedbuck.

18. Nsumbu National Park borders the 54,000 hectares Tondwa Game Management Area to the west, an IUCN Category VIII Multiple Use Management Area. The much larger Kaputa Game Management Area (360,000 ha) is also contiguous with the National Park to the north-west and south-west. Nsumbu National Park and the two Game Management Areas thus form important parts of a network of Protected Areas in Zambia. The National Park includes 80 km of some of the most pristine shores of Lake Tanganyika, including the four bays of Kasaba, Kala, Nkamba and Nsumbu, and Nundo Head Peninsula. The lake bordering on the park is teeming with crocodiles and hippos.

19. Birdlife: The Lake and the catchment are hosts to prolific birdlife including many migrants from East Africa and South African regions. They include flamingos, African skimmer and spoonbill, fish eagle, whiskered tern along with many different storks, ducks and herons. Other species commonly encountered around the lake include the grey-headed gull, lesser black-backed gull, white-winged black tern and the whiskered tern. The palmnut vulture and Pel's fishing owl are also occasionally seen.

Carbon

20. The forests and forested landscapes of Mpulungu and Nsama districts are also important stores of carbon, both above and below ground carbon. A recent study by the Centre for International Forestry (CIFOR)[26] reported that miombo woodlands yield 32–52 tons per hectare ($t.ha^{-1}$) of biomass in Miombo woodlands, storing 15–24 tons of carbon

[19] Ibid.

[20] http://www.worldwildlife.org/ecoregions/at0708

[21] Kideghesho 2001, National Forestry Programme, undated

[22] Kideghesho, J.R. 2001. The status of wildlife habitats in Tanzania and its implications to biodiversity. Tanzania Wildlife 21: 9-17.

[23] Almond, S. 2000. Itigi thicket monitoring using Landsat ™ Imagery. MSc. Remote sensing dissertation. University College, London

[24] Day M, Gumbo D, Moombe KB, Wijaya A and Sunderland T. 2014. Zambia country profile: Monitoring, reporting and verification for REDD+. Occasional Paper 113. Bogor, Indonesia: CIFOR

[25] Lake Tanganyika Conservation Organization -- http://conservationtanganyika.org/elephants-of-nsumbu/

[26] Day M, Gumbo D, Moombe KB, Wijaya A and Sunderland T. 2014. Zambia country profile: Monitoring, reporting and verification for REDD+. Occasional Paper 113. Bogor, Indonesia: CIFOR

equivalent[27]. The study[28] reported higher figures for wet miombo forests at 76 tons per hectare of biomass and carbon values of 35.72 t.ha^{-1}of carbon equivalent. The report gave even higher figures for Average above ground biomass for old-growth mixed age stands in the wet miombo belt of 90 t.ha^{-1} of biomass and carbon stocks of 42.3 tons of carbon equivalent. For Kasama, a 1985 study gave more specific figures for plots with different levels of disturbance. The study found that above-ground fresh biomass of a miombo stand, undisturbed for 16 years, was 108 t ha^{-1}, equivalent to 48 t ha^{-1} dry matter 22.70 tons of carbon equivalent[29].

21. Using the highest and the lowest average figures, the forests in Mpulungu and Nsama districts are holding between 12-33 million tons of carbon equivalent.

Threats to the resources

22. Over 157,830 inhabitants (Source: CSO-2010 Census of Population and Housing; UNDP Zambia Human Development Report, 2007) directly rely on the ecosystem services related to water, food, and energy provided by Lake Tanganyika basin in the two districts of Mpulungu and Nsama. Fisheries and agriculture form the main sources of living for the majority of communities in the lake basin. However, environmental degradation resulting mainly from human induced activities poses a serious threat to the biodiversity and ecological integrity of the lake and surrounding landscape, as well as to carbon stocks. The main threats on these resources are:

23. Increasing needs of the local people due to a rapidly growing population: the generally poor population of the area heavily relies on the resources and ecosystem services of their natural environment. As a result of population increase, the global need for energy, food and income sources is fast increasing in the area. This translates into high pressure on the ecosystem:

- over exploitation of fish resources, with excessive and uncontrolled fishing in the pelagic and littoral zones;
- over exploitation of forest resources, in particular wood for fire, income (through the commercial production of charcoal) and timber;
- extension of agricultural areas/human encroachment: widespread practice of “chitemene” (slash and burn), cultivation on steep hills or mountainous terrain.
- Increasing pressure on the specific biodiversity of the Lake basin. Threats to biodiversity include:
- Deforestation and habitat destruction. Protected areas such as Nsumbu National Park are often located in mixed-use landscapes where natural resources are managed or exploited for human needs related to food, water, wood, energy, and minerals;
- Wildfires: common phenomenon in catchment ecosystems causing hydrological imbalance
- Land Use Conflicts: fragmentation of ecosystems due to Human encroachment, logging, mining and agriculture. According to the fourth report to the UNCBD30, those conflicts are more prevalent in GMAs than National Parks;

[27] These methods produced carbon estimates within AGB ranging from 15 t per hectare to 24 t per hectare (using the IPCC conversion rate of 0.47 for biomass to carbon). BGB estimates were made equivalent to Tier 1, using a below- to aboveground biomass fraction of 0.28. Total above- and below-ground biomass was estimated to be in the range of 960–1561 Mt of carbon. With total carbon stock (including biomass, deadwood, litter and soil) estimated at 2652–3323 Mt of carbon. Due to its greater prevalence, the majority of biomass was calculated to be in semi-evergreen forests (mainly comprising miombo woodlands) with a significant proportion of biomass found in deciduous woodlands (Kamelarczyk 2009).

[28] The study used four different above-ground biomass (AGB) estimates using Integrated Land Use Assessment (ILUA) data; two biomass conversion and expansion factors (BCEFs) and two allometric equations.

[29] Stromgaard P. 1985. Biomass, growth and burning of woodland in a shifting cultivation area of south central Africa. Forest Ecology and Management 12:163–78

[30] GRZ, 2009. United National Convention on Biological Diversity, Fourth National report

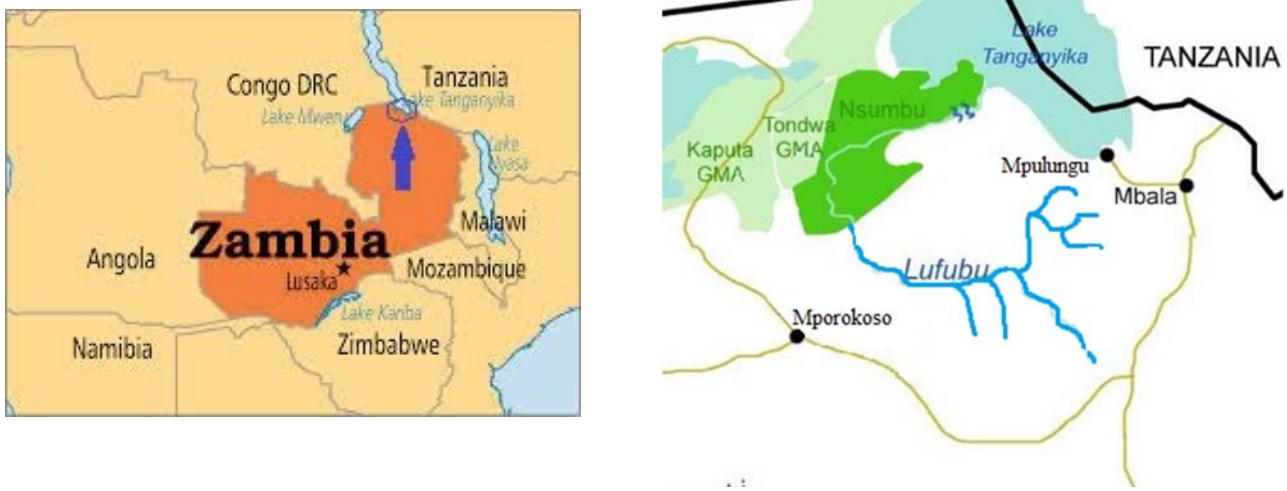
- Introduced Species: introduced species of plants, fish or any other animal can become very invasive and pose threats to ecosystems and the indigenous species;
- Pollution (siltation, agricultural inputs, chemicals, waste water from cities and growing villages), in particular of the Lake waters.
- Increased climate variability is additional threat to the ecosystems, with increased frequency of drought or dry-spells, heavy rains and floods, extreme heat and shorter rainy seasons[31]. In addition, climate change trends might result in more rain in the region (in average), and warmer temperature, impacting directly the lake ecosystem.

Impacts on natural resources

24. The resulting impacts on natural resources can be summarized as follows:
    - Wood extraction results in continuous forest degradation, opening the land to degradation, affecting wildlife habitat and decreasing actual carbon stocks;
    - Extension of agriculture results in deforestation and land degradation, with strong erosion patterns resulting in lake siltation (which affects lake biodiversity and fish stocks);
    - Heavy fishing activity, including in recognised breeding sites and during breeding periods, strongly impacts fish stocks (and in turn fishers' revenues and communities' diets), and threatens the specific biodiversity of the lake;
    - Resulting poor fish catches encourage fishers to start farming, including on improper locations such as steep hills, with resulting land degradation and impact on lake siltation and carbon stocks;
    - Land cover change (forest degradation, conversion of forest into agricultural areas), usually have an impact on the local climate, affecting crops and people.
25. In addition, Northern province communities are experiencing abject poverty due to various factors such as poor water supply and sanitation, decreasing smallholder productivity, poor feeder road network, inadequate transport and communication coverage, poor market infrastructure, high HIV/AIDS prevalence, high levels of unemployment, high levels of mortality due to preventable diseases, weak institutional capacity and facilities, inadequate and erratic power supply, and low nutrition, food and income security.
26. Rural populations in the two districts of Mpulungu and Nsama in particular lack the capacity, resources and technical expertise to adapt and overcome worsening environmental and socio-economic conditions.

[31] GRZ 2007. Formulation of the National Adaptation Programme of Action (NAPA) on climate change. Ministry of Tourism, Environment and Natural Resources

Map 2. Lake Tanganyika Basin – Zambia



27. The Lake Tanganyika basin presents a clear case for an integrated landscape approach to natural resources management, due to the interdependence of the ecosystems and the livelihoods. The health of the forest ecosystem is dependent on the activities in the agro-ecosystem (agriculture land); the deterioration of both the forest and agro-ecosystem directly impact the health of the lake and its biodiversity, with consequences on economic development and livelihoods. This reinforces several important facts that influence the design of the proposed project: i) that healthy, bio-diverse environments play a vital role in maintaining the resilience of ecological processes/ecosystems which reduces vulnerability of communities and economies, and boosts the ability of society to adapt to climate change: ii) that communities are key to creating and maintaining bio-diverse climate resilient landscapes, and can do so effectively if empowered and provided with the right incentives, governance systems and appropriate capacities.

28. Resolving the challenges in the Zambia part of Lake Tanganyika basin will require the adoption of a landscape approach to planning, an approach that has been proven to effectively integrate solutions that connect environmental, social and economic dimensions of sustainable development. The landscape approach needs to: i) involve the active participation of all relevant stakeholders, including land users, local, national and regional governments, conservation managers, civil society and the private sector; ii) promote natural resource governance systems and incentivize community participation in climate smart land use practices and conservation of forests, biodiversity and carbon pools; iii) be based on the use of cutting edge knowledge and indicators for resilience in socio-ecological production landscapes to support adaptive management.

29. The majority of the stakeholders (local and national governments, development partners and local communities) have strong political will and interest in adopting a landscape approach to integrate land use with biodiversity and ecosystem management to enhance resilient economic development and livelihoods. However, the adoption of these strategies is hampered by three key barriers: i) inadequate technical skills and experience for landscape/ecosystems approach to natural resources management to enhance socio-economic benefits while restoring ecosystem functionality; ii) limited access to alternative sources of livelihoods and economic development; and iii) policy and institutional weaknesses caused by inadequate resources lead to poor enforcement of environmental laws and policies. These barriers are described below[32].

30. *Barrier 1*: Inadequate technical skills and experience for landscape/ecosystems approach to natural resources management to enhance socio-economic benefits while restoring ecosystem functionality. The core concept of the landscape approach to natural resources management is that, all land users and people who make decisions about land and use of natural resources need to be aware of spatial ecosystems and ecosystems services in the landscape,

[32] For further details, please refer to Baseline report 3: Barriers for sustainable integrated management of natural resources and adoption of a landscape approach.

biodiversity priorities and threats to both, including risks from uncertain climate regimes and climate change, and to take these into account in planning and decision-making processes related to land use and livelihood activities[33]. This is so that they can identify ecological constraints and opportunities within a landscape, and use these to locate developments and land-use types most appropriately. Effective adoption of a landscape approach in the Zambia part of the Lake Tanganyika basin will therefore require: i) the use of knowledge to guide management and land use choices, and ii) the ability of stakeholders and partnerships to fulfil the different roles and responsibilities necessary to ensure effective participation and sustainability of the initiative. These conditions are not all in place, as described in Baseline report 3, which identifies the following four issues:

- Inadequate skills and capacities of technical institutions;
- Inadequate information for planning;
- Inadequate technical and financial resources for extension service;
- Inadequate capacity for monitoring, information management and hence weak adaptive management.

31. *Barrier 2: Limited access to alternative sources of livelihoods and economic development*. Like the rest of the country, the Lake Tanganyika basin has great economic potential closely associated to its rich endowment of natural resources. Yet, more than 85% of the population of the two districts targeted by the project live below the one dollar a day poverty line, which is higher than the national figure of about 65%. The high level of poverty is explained by the fact that more than 95% of the population lives in rural areas engaged in either subsistence farming (including livestock rearing) or fisheries. Their livelihoods are therefore highly dependent on natural resources. Expanding livelihood and economic activities outside natural resources is hampered by a complex set of barriers that often compound each other to lock the population into a vicious cycle of high dependence on natural resources and poverty and further resource degradation. They include:

    - poor infrastructure (poor feeder road network, inadequate transport and communication coverage, lack of electricity outside urban centres and inadequate and erratic power supply in the urban centres, poor agro/fish processing facilities, and poor market infrastructure being addressed by the co-finance via the baseline project);
    - low levels of awareness of economic opportunities outside of the natural resources sector;
    - low levels of literacy compounded by inadequate opportunities for lifelong continuation of education, and inadequate access to health facilities;
    - weak cooperatives movement and inadequate services (and interest in) financial services.

32. *Barrier 3*: Policy and institutional weaknesses caused by inadequate resources lead to poor enforcement of environmental laws and policies. Uptake of a landscape approach to integrated natural resources management requires a relatively strong policy environment and well-functioning institutions, especially those with the mandate of enforcing environmental law at the local level. Zambia has an impressive set of policies for natural resources management[34] and elaborate institutional arrangement for policy formulation and implementation. These present clear opportunities for integrating biodiversity conservation and disaster risk reduction in land use and climate change adaptation at the landscape level. Although the country has registered significant achievements in decentralization, there are two sets of policy and institutional failures that challenge the effectiveness of stakeholders' efforts to integrated natural resources management:

    - On the policy side there is policy disharmony, lack of appropriate regulations, uncertain land tenure and poor enforcement of existing regulations;
    - On the institution side there is weak local natural resource management institutions, limited and weak community institutions (such as Community Resource Boards) and an under resourced extension service (limited staffing

[33] Cadman, M., Petersen, C., Driver, A., Sekhran, N., Maze, K. and Munzhedzi, S. 2010. Biodiversity for Development: South Africa's landscape approach to conserving biodiversity and promoting ecosystem resilience. South African National Biodiversity Institute, Pretoria.
[34] See Baseline report 1: Institutional review and stakeholder analysis

levels, limited operational budgets and inadequate coordination between institutions in extension service delivery).

33. This leads to policy disharmony with poor inter-agency coordination, and weak enforcement of existing policies.

2) Baseline scenario or any associated baseline projects,

34. As thoroughly described in the PIF, the project entitled the Lake Tanganyika Development Project (LTDP), financed from a USD 23 million loan from the African Development Bank (AfDB), will serve as the baseline and co-funding source to the proposed GEF project. The LTDP adopts an integrated approach which aims to protect the ecological integrity of the Lake Tanganyika Zambia Basin and improve the quality of life for basin populations through the provision of essential economic infrastructure and support for sustainable livelihoods development.

35. The objectives of the baseline project are to: i) Achieve sustainable management and use of natural resources in Zambia's Lake Tanganyika catchment area; (ii) Improve livelihoods of Lake Basin communities through social infrastructure development and diversification of economic activities; and (iii) Promote market linkages and value chain development of natural resource products and services.

36. The LTDP implementation officially started on 12 December 2015 and will run over a five-year period in the same two districts of the Northern Province, namely, Mpulungu and Nsama.

37. The baseline project comprises activities under three components (more information is available in the PIF and in the Project Appraisal Report[35] of the LTDP):

1. Integrated Natural Resources Management

- Fishery co-management, small scale aquaculture, and value chain sub component. This includes in particular the establishment/reinforcement of 20 fisheries co-management committees, training on fish processing, design of appropriate small-size floating cages for tilapia and support to the fisheries department to conduct research on the use of endemic species for commercial aquaculture
- Sustainable forest, wildlife, and land management subcomponent, which includes, among other activities, a forestry resource inventory, Woodlots of exotic species, Capacity building for district foresters to monitor and prevent illegal timber activities, Improve access roads to the National Park and GMAs
- Capacity building and supporting measures on NRM (with focus on women and youth) subcomponent. For example, activities such as the expansion of community radios coverage and broadcasting of gender sensitive information on NRM, the establishment of a 100 student Skills Training Centre, the organisation of study tours and exchange visits to similar projects, and the mainstreaming of gender and HIV/AIDS in NRM activities will be implemented.

2. Improvement of Livelihoods and Socio-Economic Infrastructure

- Development and provision of economic infrastructures subcomponent, including the Completion of all incomplete buildings under PRODAP (see below), and the construction of demand-driven community micro projects such as feeder roads, sanitation, solar energy and market sheds.
- Alternative livelihoods subcomponent, including activities such as the construction of a food processing plant to link resource conservation and market incentives and the distribution of small ruminants and seeds through pass-on scheme

3. Project Management and Coordination

- Project management
- Capacity building activities
- Project monitoring and evaluation activities

38. The baseline scenario builds on and completes previous interventions of significance in the Zambian part of Lake Tanganyika Basin, in particular:

[35] African Development Bank Group, Lake Tanganyika Development Project, Project Appraisal Report, 28 October, 2014

- The Zambian component of the ADF/GEF –supported Lake Tanganyika Integrated Management Programme, which focused on sedimentation control and was supported by UNDP. This project ended in 2013.
- The UNDP/GEF Project on Partnership Interventions for the Implementation of the Strategic Action Programme for Lake Tanganyika, implemented over the four countries of Lake Tanganyika basin, which ended in 2013 as well.
- The AfDB supported Lake Tanganyika Integrated Regional Development Programme (PRODAP), terminated in 2014. This project aimed at rationalizing the exploitation of fishery resources, protecting the lake environment in a sustainable manner, reducing the poverty of the Lake basin communities, and diversifying sources of income and creating jobs.

3) Proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project

Alternative scenario

39. While the baseline project will focus primarily on the fisheries sector and on economic and social infrastructure development, the GEF component will complement the activities by following a landscape approach for improving the capacity of local communities and other stakeholders to sustainably manage all of the Basin's natural resources. The project will integrate and complement planned infrastructure and fisheries interventions by focusing on the removal of key barriers that have prevented a wider adoption of INRM technologies and practices (e.g. knowledge, skills, capital, etc.), and reinforcing harmonization and coordination between planned activities and stakeholders.

40. The main activities will focus on enabling the adoption of sustainable land, fishery and forestry management practices in a concerted and coordinated manner, while enhancing the ecosystem services provided by a restored land and forest landscape, including soil stabilization, food security, and biodiversity conservation. Targeted reduction of the drivers of unsustainable practices and the promotion of the sustainable use of biodiversity will also help secure the protected areas in proximity to the lake, while contributing to the sustainable management and resilience of the surrounding landscapes, as well as the stabilisation of carbon stocks.

41. GEF financing will thus build on the baseline project to address gaps and supplement efforts to protect the Basin through a truly integrated landscape approach that would otherwise remain incomplete. By promoting a more holistic, programmatic approach to address lake conservation, the project will contribute to the positive impact of interventions and achieve greater economies of scale at the micro and macro levels.

GEF focal area strategies

Table 1: Consistency with GEF focal areas strategies, objectives and programs and international commitments of the GRZ

GEF focal areas	**Project description**
Biodiversity	Through its interventions in increasing the protection of protected areas and their management, reducing human-animal conflicts and protecting biodiversity resources to ensure their sustainable use (in particular fish stocks), the project is consistent with objectives 1 (Improve sustainability of protected area systems), 2 (Reduce threats to globally significant biodiversity), 3 (Sustainable use biodiversity) and 4 (Mainstream biodiversity conservation and sustainable use into production landscapes and seascapes and sectors) of the GEF-6 biodiversity focal area[36] and a number of its programs, in particular program 9 (Managing the Human-Biodiversity Interface). Regarding the AICHI targets[37], the project interventions are consistent with the following strategic goals and targets: • Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society (targets 1, 2, 4) through capacity building, law enforcement, land use planning and sustainable fishing practices that will be put in place; • Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use (targets 5, 6, 7, 8) through its interventions in sustainable forest and land management, preventing further deforestation and siltation of the lake, protection of fish breeding sites and fisheries managements; • Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity (target 11) through interventions targeting the

[36] GEF-6 focal areas strategies, objectives and programs, Global Environment Facility, undated
[37] https://www.cbd.int/sp/targets/

	protection of inland water areas of particular importance for biodiversity and ecosystem services; • Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services (targets 14, 15): project interventions will target the restoration of ecosystem services in areas where they are degraded, thus increasing carbon stocks; • Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building (targets 18, 19): the project approach to land use planning will be highly participatory and will take consideration of the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity. The project will also promote better knowledge of the Itigi-Sumbu Thicket in Zambia and its protection. Finally, the project interventions will contribute to the implementation of Zambia's second National Biodiversity Strategy and Action Plan (NBSAP -2) 2015-2025, in particular *Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use* and *Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services*.
Land degradation	The project interventions are fully consistent with objective LD-1: Agriculture and Rangeland Systems: maintaining or improving flow of agro-ecosystem services to sustain food production and livelihoods is an important objective of this project and the baseline project, and important budgets are dedicated to agroecological intensification and climate smart agriculture through conservation farming, erosion control, irrigation and regular onsite advises from extension services. Given the role of forests in sustaining local livelihoods, the project puts a strong focus on sustainable forest management, in particular through the gazetting of SFM area through different schemes (JFM, CF, etc.). This is in line with objective LD-2: Forest Landscapes: Generate sustainable flows of forest ecosystem services, including sustaining livelihoods of forest dependent people. Zambia has no specific framework to deal with Land degradation, but land degradation is recognized as a major issue in different documents, including the new Climate change Policy for example.
Climate change mitigation	In line with the GEF-6 climate change mitigation strategy, the project will work on sustainable forest management that includes biodiversity priorities, and mitigation actions targeting forest depletion drivers, in order to provide carbon benefits as well as other social and environmental benefits that forest can provide as an ecosystem. The project will also include interventions on agricultural practices that respond to land degradation issues and enhance soil quality while reducing agro-based GHG emissions. The project will therefore contribute to Objective CCM2 (Demonstrate Systemic Impacts of Mitigation Options) and Program 4 (Promote conservation and enhancement of carbon stocks in forest and other than use, and support climate smart agriculture[38]). The project will also contribute to the implementation of the mitigation section of Zambia's INDC, in particular Program 1 (Sustainable Forest Management: natural regeneration, Sustainable charcoal production, Participatory forest management, etc.) and Program 2 (Sustainable Agriculture: Conservation/ Smart agriculture).

[38] https://www.thegef.org/gef/CC_mitigation_strategy

Sustainable Forest Management	By supporting an integrated approach to managing forest ecosystems, the project will achieve multiple global environmental benefits, including those related to the protection and sustainable use of biodiversity, climate change mitigation and adaptation, and combating land degradation. This is in line with GEF-6 strategy regarding SFM. In particular, the project interventions are consistent with Program 1 (Integrated land use planning), Program 5 (Capacity development for SFM within local communities) and Program 6 (Supporting sustainable finance mechanisms for SFM).

Expected outcomes and components of the project

Component 1- Development of capacities (skills, information) and investments for landscape approach to Integrated Natural Resources Management (INRM)

- Outcome 1.1- Improved Landscape planning in Zambia's Lake Tanganyika basin
- Outcome 1.2 - Improved capacity of technical institutions and community groups to implement landscape approach to INRM
- Outcome 1.3 - Increased capacities and investments supporting land rehabilitation and decreased deforestation

42. As explained in section A1-1, there is a lack of technical skills and experience for landscape/ecosystems approach to natural resources management that needs to be addressed to enhance socio-economic benefits while restoring ecosystem functionality. Under this component, landscape management plans will be developed in the two districts in order for stakeholders to spatially identify and agree on important areas of terrestrial and fisheries biodiversity conservation, areas of forest protection and management, agricultural areas and inhabited areas. Stakeholder consultations confirmed there is specific demand for land-use planning tools from the different resource user groups, for example the Community resource Board (CRB) in charge of the Tondwa GMA, as there is a recognized ignorance of GMA/Nsumbu NP boundaries and what is allowed/no allowed and what can /cannot be developed in each specific area. The same applies to agricultural and forest land, which need to be more clearly defined to enable better management, for example through community SFM schemes in local forests and customary land[39], for which there is high interest among forest users. Specific guidelines for management of the various units will be developed: SFM schemes adopted, GMAs, sustainable land management practices (conservation agriculture, agroforestry), and community based fisheries, incorporating climate risks. Biodiversity and forestry monitoring plans will also be formulated, and informed by resource inventories (especially forests and carbon), which will provide useful information for adaptive management. Those plans will be duly coordinated with any current or future catchment management plans developed under the Water Resource Management Act and others relevant policies.

43. Field visits in Nsama and Mpulungu revealed that most people recognise and understand that current fishing, forestry and agricultural practices are unsustainable, but mostly don't know how to do differently. Therefore, technical institutions, community groups (CRB and community associations) and resource users need to be provided with skills and operational capacities to implement a number of INRM interventions, in particular Sustainable Forest Management schemes (including Joint Forest Management – JFM; Community Forest – CF; Private Forest; Partnership Parks) to be developed in and around the two local forests of Mpulungu and Kambashi (see Map 3 below), fisheries co-management units to protect fish breeding grounds (under the baseline project), climate smart conservation agriculture, agroforestry (fruit trees) and afforestation.

44. Moreover, the Nsumbu National Park needs to be clearly demarcated, with visible buoys in the lake parts of the Park and beacons on the land parts. This is also an opportunity to rationalise the Park boundaries, in particular aiming to re-integrate the Inangu peninsula/GMA into the Nsumbu National Park and lock the entire Nkamba bay into the Park as a major fish breeding site (see map 3). Addressing deforestation also entails interventions relating to wood extraction

[39] Target sites for JFM/CF are: Mbete and Kambole (Mpulungu Local Forest); Kalongola, Musakanya and Kalambwe (Kambashi Local Forest); Kabyolwe, Chitimbwa, Chinakila, Chibote (Customary Land)

and use, in particular charcoal production (engaging in sustainable charcoal production through efficient kilns and green charcoal[40] pilots[41]) and brick moulding (introduction of improved brick kilns and stabilized blocks), which can strongly impact on carbon stocks/climate change mitigation. Finally, sedimentation, siltation and erosion control structures will also be installed for better water and land management.

Component 2- Livelihood diversification enhances sustainable agro and forest ecosystem development and reduces pressure on natural resources

- Outcome 2.1 Increased contribution of agro and forest ecosystem services to national economy and local livelihoods

45. Interventions for alternative income generation and livelihood diversification will be supported by both the baseline project and the GEF project, and some of the outputs included in this component will be partially supported by the baseline project[42]. In this component, the work will first deal with access to credit (e.g. through support to and development of microfinance institutions) and capacity building of cooperatives and unions (farmers, fisheries, producers). This will add to (i) the development of education opportunities outside of formal schooling through the delivery of courses in areas that support livelihood expansion such as crafts, masonry, and others (Student Skills Training Centre supported by the baseline project); and (ii) improvement of infrastructure (roads, airport, fish processing plant, buildings), both funded by the baseline project to support the local economy and in particular agro-processing value chains.

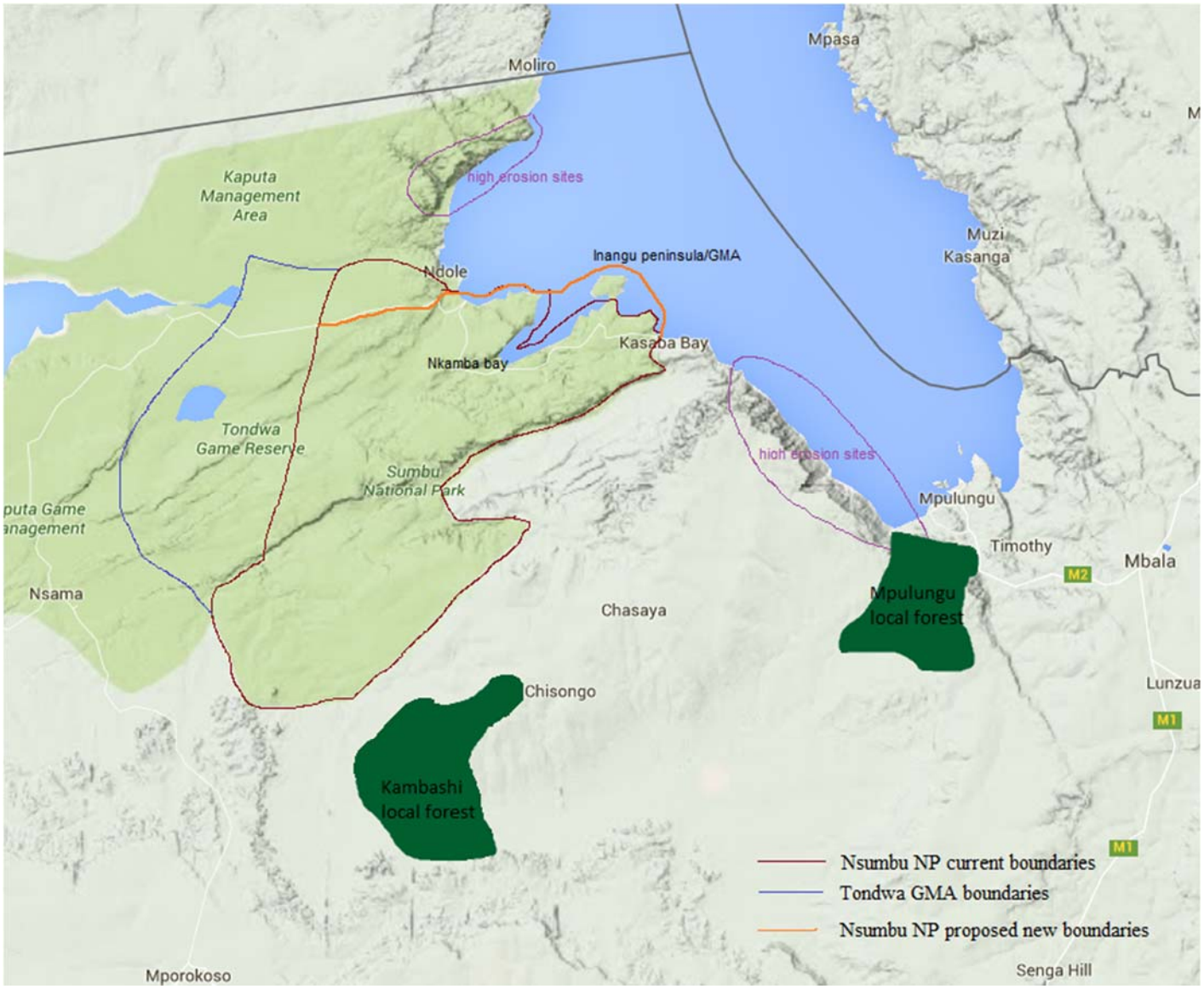
    Consultations conducted during project preparation also highlighted a high interest of local communities for a limited number of Income Generating Activities (IGAs), in particular honey production, small-scale irrigation, and fruit production for processing (the construction of a processing plant is supported by the baseline project). Alternative livelihood interventions will therefore include smallholder irrigation schemes established by communities, Non Timber Forest Products (NTPF) harvesting groups established and empowered in the SFM areas (e.g. honey, mushrooms) and other alternative IGAs, such as those linked to tourism development, through a Tourism Development Strategy to be developed over the entire Lake Tanganyika region and the actual implementation of Kasaba bay tourism integrated development plan (which was produced some years ago already). Specific work with the Ministry of Tourism and Arts and the Department of National Parks and Wildlife management will aim to unblock the situation. Tourism is actually seen by some civil society groups as the only real chance to conserve biodiversity in the area (Nsumbu NP, GMAs, lake Tanganyika). Indeed, not only can tourism provide much needed financial means to support law enforcement and wildlife protection, but by providing jobs and economic activities, it gives a value to biodiversity conservation that is not always perceived currently by local resource users. Given the high level of pressure on the lake and on the land, and the increased frequency of climate hazards, local communities do understand the need to diversify their means of living and look for support in doing so.

[40] Green charcoal refers here to the production of charcoal briquettes from non-wood biomass, like crop residues or grasses, a technology that is developing in various regions of Africa and Asia. It seems particularly suited to Nsama and Mpulungu districts which are endowed with huge amounts of tall grass that could serve as a renewable biomass source.

[41] Note that the adoption of improved cook stoves has not been retained as a relevant activity in the project since these are already widely used in the two districts. In contrast, a lot of work is needed on charcoal production, which is a widespread revenue source and a major driver of deforestation in the region.

[42] In particular, the LTDP will cover partially Output 2.1.2 (Alternative income generating activities identified and implemented with 30 community groups) and 2.1.3 (Increased food production from agriculture through small scale irrigation)

Map 3. Nsumbu National park, locating Nkamba bay and Inangu Peninsular/GMA



Component 3 - Policy enforcement and coordination of INRM interventions, monitoring and outreach activities

- Outcome 3.1 Enhanced policy and institutional coordination for better service delivery and enforcement of the landscape management plans and livelihood initiatives
- Outcome 3.2 Project implementation based on results based management and application of project lessons learned in future operations facilitated

46. Outcome 3.1 had not been clearly captured in the PIF, although this is a key factor of success of both the LTDP baseline project and this GEF project. Indeed, uptake of a landscape approach to INRM requires a relatively strong policy environment and well-functioning institutions, especially those with the mandate of enforcing environmental law at the local level. Given the weaknesses identified in section A1-1, the project interventions will aim to reduce policy disharmony and reinforce local natural resource management institutions. This will be done through an in-depth review of areas of disharmony and challenges of on-the-ground policy implementation and recommendations for harmonization and strengthening (including, but not limited to, the Forestry policy (2015) and the Water Resource Management Act (2011). There are several coordination platforms for implementing INRM in the country such as the Community Based Natural Resource Management Forum (CBNRMF); Natural Resources Consultative Forum (NRCF); the Agricultural Consultative Forum (ACF). These fora will be assessed and depending on their respective comparative advantage, they will be strengthened, bringing together all relevant institutions of natural resources that

will implement activities of the proposed project. Coordiantion with the Lake Tanganyika Catchment Management Organization and water users associations in order to coordinate activities relating to the catchment management plan will be essential. Overall, the project will support the various elements of the INRM policies and their implementation at the local level. A sustainability strategy will also be developed to ensure continuity after project ends, feeding into an overall exit strategy to be produced under Outcome 3.2.

47. Stakeholders from all levels recognise that enforcement of existing laws and regulations is a major issue, which needs proper human and technical capacities to be addressed. Therefore, district and regional institutions responsible for policy enforcement will be provided with updated skills and operational capacity for enforcement. This includes the departments of fisheries, wildlife, lands, veterinary services, and agriculture, among others. Communities, resource user groups and community natural resource governance bodies (such as Village Conservation and Development Committees (VCDCs), Community Resource Board, and Village Action Groups) will also be empowered with skills, awareness and operational capacity to improve demand for better resource governance, natural resources governance, accountability and service delivery (governance bodies). Civil society groups will also be supported to assist community groups to demand service delivery and good governance from community natural resources management bodies. This include activities such as the regular review of policies to identify barriers to policy enforcement, the enactment of bi-laws that forbid the use of unsustainable natural resources exploitation methods (e.g. illegal fishing nets, poaching, etc.), upgrading of the operational capacities of relevant departments and awareness raising of relevant communities, among others.

48. Output 3.2 aims to establish sound monitoring and evaluation processes which will ensure proper implementation of the project as well as extraction of project lessons learned and recommendations that will serve as an important resource for future similar initiatives. Under this component, the coordination team will prepare and disseminate knowledge products at national and local levels, and set-up an operational project monitoring system providing systematic information on progress in meeting project outcome and output targets. This will include monitoring of socio-economic and environmental data generated by the first two components, which will feed into GRZ databases and contribute to the monitoring and knowledge base of the comprehensive lake ecosystem. For example, the project is already coordinating with The Nature Conservancy working in the Kafue Ecosystem, aiming to generate detailed maps of Lake Tanganyika ecosystem. This outcome also includes the preparation of an exit strategy to ensure project gains are maintained and replicated in the future, while non-yet-achieved results are fulfilled. Further, building stronger partnership with other specialised NGOs such as the Wildlife and Environmental Conservation Society of Zambia (WECSZ), and the Foundation for Wildlife and Habitat Conservation Zambia (FWHCZ) will add value to the successful implementation of the project through cross hybridization of ideas and innovations.

4) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

49. The project will be jointly financed by an AfDB loan (baseline project), the GEF, and the Government of Zambia (GRZ). The AfDB loan, representing over 75% of the total project cost, will focus on financing investments primarily related to fisheries, livelihood and agricultural production. The GEF component will provide a grant of USD 7.334 million to apply a more integrated landscape approach, adding activities in SLM, protected areas management and SFM in basin communities. The contribution from the Zambian Government is estimated at USD 0.127 million and will be mostly in-kind contributions. Regarding GRZ contribution, it should be added that:

    - During the PPG phase, strong emphasis has been put on the low human and technical capacities of district level services of the GRZ, in particular agriculture, forestry and wildlife services, given the large area to be covered and the local context. Whereas the project, through the GEF grant, will contribute to the increase of those capacities, the GRZ has assured that the staff dedicated to this project would be duly adapted in terms of numbers and profiles, in order to make sure the outputs and outcomes of the project are actually delivered.
    - The GRZ financial contribution estimate does not include the following elements: (i) the GRZ pays USD 500,000 annually to the Lake Tanganyika Authority (LTA), which amounts to USD 2.5 million over the project cycle, and (ii) the GRZ is actually investing in the long term through the AfDB loan/baseline project.

50. As described in the PIF, the key value-addition of the GEF contribution, in relation to the AfDB and GRZ co-financing, is therefore to shape the project into a land degradation, SFM, biodiversity and climate change multi-focal initiative,

ensuring environmental sustainability and benefits through conservation, adaptation and mitigation. The GEF incremental value will provide specific ecosystem protection and rehabilitation which will deliver global environmental benefits that would not normally have been the primary focus of a solely AfDB-financed project.

51. *Without GEF*: The risks of ever-increasing land and forest degradation in Zambia's Lake Tanganyika Basin are substantial. Current practices, from land-use planning to production, are failing to maintain ecosystem functions and cannot facilitate sustainable development. Without the GEF funds, the current unplanned, uncoordinated, unsustainable expansion of agriculture; overexploitation of fisheries; decrease of biodiversity and misuse of wood resources without adequate consideration for sustainability or adaptation will continue to have damaging impact on the state of biodiversity, carbon depletion and poverty conditions. Whereas the LTDP baseline project supports INRM through investments in sustainable fisheries and livelihood and social infrastructure, it does not propose a comprehensive landscape approach to INRM in the two districts.

52. *With GEF*: In the alternative scenario, barriers to the adoption of sustainability principles and practices will be removed by building capacity and support at all scales (local, national, regional) for upscaling SLM/SFM and biodiversity conservation into land use and planning. GEF activities will focus on improving knowledge, technologies, and enhancing agriculture and community level forestry. The GEF will build on the baseline scenario by financing the incremental costs associated with: (i) developing long-term integrated biodiversity conservation for the Zambia basin of Lake Tanganyika; (ii) strengthening the existing institutions to play a more effective role in sustainable management of the lake and relevant PAs; (iii) developing and implementing SLM/SFM practices that incorporate conservation measures; (vi) implementing mitigation measures designed to address socio-economic threats to the basin; and (vii) increasing public awareness of the importance of biodiversity on livelihoods. Both components (AfDB loan and GEF) are closely interlinked, implemented at the same time and by the same stakeholders, to achieve environmental benefits.

53. Component 1 of the GEF project will ensure that capacities and investments are sufficiently developed so that a landscape approach to Integrated Natural Resources Management is used in the two districts. The preparation of landscape development plans and guidelines will shape the interventions of both the GEF project and the baseline project in a concerted, organised and sustainable manner. The proposed initiatives and investments in SFM schemes, conservation agriculture, agroforestry, afforestation, National Park demarcation, wildlife management stakeholders capacity building, wood use reduction and efficiency and erosion control have the potential to dramatically change the development pattern of the region, boosting ecosystem services sustainability and resilience to climate change as well as transitioning into an innovative green economy that prioritises rural communities' well-being and the health of the environment. Those interventions complement in particular the baseline project interventions in fishery management and value chain development, including establishing fisheries co-management units.

54. Component 2 of the GEF project will foster diversification of livelihoods in order to reduce pressure on natural resources. It includes and complements the initiatives to be taken under the baseline project on livelihoods, in particular investments in infrastructure such as schools, health centers, roads, food processing facilities, among others. The reinforcement of cooperatives and unions, the rehabilitation/construction of infrastructure and the new offer on vocational education (through the baseline project) will create an enabling environment to economic development. On this basis, GEF interventions to reduce pressure on the ecosystem will be implemented: increased food production from agriculture through small scale irrigation (effects: reduced agricultural expansion on forest and marginal lands; reduced pressure on Lake fish resources), community fish farming (effect: reduced pressure on Lake fish resources), alternative income generating activities (effects: decreased need of revenues from fishing (less pressure on Lake resources), agriculture (less encroachment on forest/protected areas) and forest (reduced need of commercial charcoal production), tourism development (effects: alternative revenue sources; increased funding for biodiversity conservation and PA management).

55. Component 3 will enhance service delivery and enforcement of the landscape management plans and livelihood initiatives by ensuring that policies are coherent, and actually enforced on the ground in a coordinated manner, which the baseline project alone could not cover properly. At all levels (communities, resource user groups and community natural resource governance bodies; civil society groups and institutions responsible for policy enforcement), interventions under component 3 will ensure that a coherent and coordinated approach to landscape management is applied in the two districts' development, that project results are duly monitored and reported, and that lessons learned are shared. Overall, the policy frameworks will mainstream biodiversity conservation in the entire target area and the new planning approaches adopted will impact global biodiversity as described in section A1.1.

5) Global Environmental Benefits (GEBs)

56. As described in the PIF, the project will deliver multiple environmental benefits through integrated investments across the various dimensions of the global environment. Those include biodiversity benefits, land degradation benefits, climate change benefits and SFM benefits, in addition to food security and ecosystem resilience benefits.

Table 2. Global Environmental Benefits to the project, monitoring indicators and targets

GEBs	**Indicators**	**Target**
Biodiversity	*Existence of a General Management Plan for Nsumbu NP, including a Strategic Law Enforcement Plan;* *Existence of Land Use plan for the Tondwa GMA*	Management and land-use plans to cover 260,000ha (Nsumbu NP + Tondwa GMA)
Land Degradation	*Land area under effective management in production systems with improved vegetative cover* *Land area under sustainable forest management and/or restoration practices*	Restoration of degraded land over min 20,000ha through afforestation (60ha), erosion control structures, SFM (12,000ha) and conservation agriculture (7,500ha)
Climate Change Mitigation	*Number of low GHG technologies and practices deployed in the project area*	At least 3 technologies deployed (relating to charcoal production and brick making).
SFM	*Area of sustainably managed forest stratified by forest management actors*)	Sustainable Forest Management schemes covering 12,000ha[43], resulting in 2.6 million tCO2eq avoided over 20 years[44] (direct emissions reductions only)

57. In addition, the project is expected to generate direct benefits to around 70,000 people (both women and men), in particular the 65% of them who are reported to live below the poverty line in the target districts. Those are mainly members of the rural communities around Lake Tanganyika, primary users of lake, land, forest and biodiversity resources.

58. Although Zambia is not part of the GEF *Integrated Approach Pilot (IAP) program on Fostering Sustainability and Resilience for Food Security in Sub-Saharan Africa*, this project constitutes a good example of promotion of the sustainable management and resilience of ecosystems and their different services (land, water, biodiversity, forests) as a means to address food insecurity. Indeed, in the region of focus, the need to enhance food security is linked directly to opportunities for generating global environmental benefits, hence the importance of interventions targeting more sustainable and more resilient production systems and approaches.

59. Resilience in this project is understood as per the UNDP definition, that is "an inherent as well as acquired condition achieved by managing risks over time at individual, household, community and societal levels in ways that minimize costs, build capacity to manage and sustain development momentum, and maximize transformative potential."[45] Given

[43] Source: Forestry Department under the Ministry of the Lands, Natural Resources and Environmental Protection (per. comm., 9 June 2016).
[44] The Ex-ACT FAO carbon calculator has been used to reach this figure. Detailed calculation is available in Annex 4.
[45] UNDP (2013). Changing with the World: UNDP Strategic Plan 2014-2017. New York: UNDP.

the participatory nature of the project, it is proposed to measure resilience at the community level using the CoBRA[46] methodology, which attempts to identify the key building blocks or characteristics of resilience and assess the attribution of local interventions in attaining these resilience characteristics. This approach will help communities to prioritize a relatively short list of resilience characteristics, as compared with other models that attempt to map many more dimensions of resilience, which makes it more practical and feasible to implement. In addition, a CoBRA assessment provides a substantial amount of information in a relatively short period of time and at significantly less cost than equivalent quantitative approaches. This is due to the participatory approach, which involves collaboration with local government and non-governmental organizations, who also provide technical and logistical backstopping support. The CoBRA assessment will be implemented in a minimum of 4 communities in each district of the project area, making sure to cover the variety of situations and interventions within the project area.

6) Innovativeness, sustainability and potential for scaling up

60. *Innovativeness*: summarizing the PIF description, this project's innovativeness is due to the integrated landscape approach to INRM, and the intrinsic complementarity of the project with the baseline project, thus offering the target districts a unique opportunity to boost development and sustainable use and conservation of natural resources. While SLM and SFM strategies themselves are not innovative, projects integrating these with climate change mitigation and biodiversity activities with an alternative livelihood approach are not widely practiced. Given the transboundary nature of Lake Tanganyika, best practices and externalities are likely to benefit the other three riparian countries as well as other regions of Zambia. In addition, innovative technologies such as the production of green charcoal may have a very significant impact on wood extraction (and therefore on forest cover and protection, on biodiversity, NFTP availability, etc.), shall these pilots be replicated in the target districts as well as all over the country and Lake Tanganyika basin.

61. *Sustainability:* the PIF describes how the positive socio-economic impact expected from the project will strengthen the sustainability of the interventions. It must be added that all the project interventions are designed towards sustainability. The participatory approach to the identification, implementation and monitoring of the activities will contribute to a long-term engagement with the strategies and benefits of the project. In the first component, training and capacity building activities of both individuals and community groups, such as local NGOs, CRBs, and resource user groups, will contribute to the sustainability of the project. Sensitization will result in a pro-active and long-term engagement of beneficiaries with forest/lake/land resource conservation. The second component will equally contribute to the sustainability of the project, as the alternative livelihood investments will show good economic results that will commit people to favour resilience. This will contribute to the maintenance of an infrastructure that has long-term use, and can provide long-term benefits. The development of irrigation technologies, the acquisition of tools, and the provision of seeds will increase productivity and result in increased income at the same time that diversifies the source of income and increases the food security of local stakeholders. These benefits will demonstrate the advantages of maintaining the infrastructure and keeping resilient strategies. This applies as well to the conservation of ecosystems, given the services that they provide. Training, long-term plans and realization of benefits will all contribute to the sustainability of strategies that reduce vulnerability and increase resilience. In addition, the coordination between institutions and other stakeholders that is sought for, and the planned development of a sustainability and exit strategy, will be important elements for sustaining project benefits over the long term. The overall intervention in Lake Tanganyika region constitutes a major development effort of the GRZ, which aims to reduce poverty and unlock the development potential of the region on the long term (especially considering that most of the investment is funded by a loan).

62. *Potential for scaling up*: in addition to the PIF description which emphasizes the potential for scaling up of project interventions at the Lake Tanganyika basin level, the project will partner and exchange with other projects and programmes of relevance in the country (see section *A.6. Institutional Arrangement and Coordination*), which is a good opportunity for exchange and scaling up of the successful interventions and lessons learned at the national scale. This will be realized, in particular, through component 3 of the project: Outcome 3.1 is dedicated to capturing lessons and preparing and disseminating knowledge products based on project experience.

A.2. Child Project

[46] Community Based Resilience Analysis (CoBRA), Conceptual Framework and Methodology, UNDP Drylands Development Centre, undated.

N/A

A.3. Stakeholders

Overall, the stakeholders engaged in the project are:

1/ Government partners

63. The government partners will oversee and enforce project activities, and provide institutional support and receive capacity building training to support project implementation. They will also receive information on lessons learned during project implementation so that they may include this information in subsequent projects and activities. These include:

At the national level:

- Ministry of Lands Natural Resources and Environmental Protection;
- Ministry of Agriculture;
- Ministry of Fisheries and Livestock;
- Ministry of Tourism and Arts;
- Ministry of Local Government and Housing;
- Ministry of Finance;
- Ministry of National Development Planning;
- Ministry of Energy and Water Development;
- Ministry of Chiefs and Traditional Affairs.

At the provincial and district levels

64. At the provincial and district levels, the Northern Province Local government institutions, in particular those belonging to the ministries cited above, have been deeply involved in the project formulation process and will be the key project implementers of components 1, 2 and 3 of the project. They will benefit from various capacity building activities, and operate through a network of extension officers in order to implement the project activities.

2/ Local Stakeholders from the communities in Mpulungu and Nsama districts

65. These communities will be the beneficiaries of project interventions and contribute to the implementation of activities. The direct project beneficiaries will be mainly fishers and farmers, but given the wide range of activities supported by the project (and the highly rural profile of the local communities), most people from the two districts will benefit from the project. The project aims at reaching directly and indirectly 10,000 households, that is to say more than 70,000 beneficiaries, of which half are women. The project will ensure that women are consulted and derive the expected benefits from project implementation (see section *A.4. Gender Equality and Women's Empowerment*). Project results will be disaggregated by gender so as to measure the impact on women.

3/ Non-Governmental Organizations

66. Civil society organisations are very few and quasi-absent in many of the project area locations. During the project preparation phase, consulted communities and stakeholders highlighted the lack of such organisations to support them in any development initiative or social services. This is why plans have been made to map relevant civil society organisations and strengthen their capacities to deliver community services during the next phase of the project. One of the project's priorities is to expand the presence of NGOs in order to support the project objectives. In particular, national level NGOs with demonstrated experience and successes in INRM landscape approach and sectoral interventions relevant to the project activities will be contacted, as mentioned in section A8. Knowledge Management.

67. Conservation Lake Tanganyika (CLT) is the sole conservation NGO operating in the project area, and in and around Nsumbu NP and Tondwa GMA. CLT has limited financial capacities but an excellent knowledge of local challenges

regarding lake and terrestrial biodiversity conservation. CLT will therefore be closely associated with a number of project activities, in particular those relating to the delimitation and demarcation of Nsumbu NP boundaries, as well as the definition of NP and GMA management plans (outcome 1.2).

68. As noted in Baseline report 1[47], the merits of distributing responsibilities to local governments and communities are compelling. However, there remain substantial concerns surrounding the transfer of powers, the channelling of financial resources from the central to district level, and engaging in capacity building initiatives amongst local authorities and communities while ensuring that participatory and transparent processes are respected. To date, there is little systemic documentation on how the Zambian experience has been progressing in this regard. The Districts of Mpulungu and Nsama have had extremely limited and very mixed experiences in this area.

69. The local institutional and community capacity situation in the Lake Tanganyika area needs to be addressed fully in order to ensure the success of the project and the long-term conservation of the Lake's ecosystem. It is clear that previous efforts from past projects, including a GEF-sponsored initiative[48], have not yielded the desired outcomes towards establishing the desired sustainable decentralized natural resource management practices in the Lake Tanganyika water basin. This project will therefore put a very strong emphasis on the coordination of interventions between the different stakeholders at the different levels and building their respective capacities in INRM and, more generally, service delivery.

[47] Baseline Report 1: Legal and Policy Framework and Stakeholder Analysis Report

[48] Lake Tanganyika Integrated Regional Development Programme (PRODAP)

A.4. Gender Equality and Women's Empowerment

70. In the chiefdoms around Lake Tanganyika – Chinakila, Chitimbwa, Nsama, and other lesser chiefs' areas, women do not have the right to directly own and control productive resources such as land and/or other forms of property. Women are restricted to managing household chores and caring for the whole family. Very often they apply their energies walking long distances in search of firewood while at the same time undertaking other house chores such as cooking and fetching water for their families. Although slightly over 50% of the population in Nsama and Mpulungu districts is composed of females, an estimated 20% of all rural households are female headed, resulting in limited decision making power. Illiteracy levels for girls and women are also high compared to boys and men. These disparities in access to productive assets, division of labor, decision-making, and lack of participation of women in much more lucrative economic enterprises and services is one of the many reasons why women have been engulfed in perpetual poverty.

71. In recognition of the importance of equal participation and beneficiation by all gender groups, data collection during project preparation phase was carried out along four gender groups. Respondents in four villages in Mpulungu were divided into four groups, namely males under 35, males over 35, females under 35 and females over 35. Although there were often more males than females present at the meetings, the input into project formulation was informed by an extensive understanding of the socio-economic activities of the rural local communities by age and gender, which also formed the basis for identifying interventions specific to gender groups, and will in turn inform the monitoring of impacts along the same gender lines.

72. The assessments undertaken during the project preparation phase will be reinforced during project implementation. During the inception period, a gender strategy will be formulated for the entire project (baseline project + GEF component) to guide further gender mainstreaming into project initiatives and to promote appropriate targeting of activities to the right gender group, for improved efficiency and impacts. The strategy will be informed by an analysis of gender relations, especially the access to and control of resources that will be the subject of the project. This will be done to highlight how the current gender relations can be positively exploited to improve targeting and project impact, as well as how the proposed activities could be negatively impacted by prevailing gender relations. This gender strategy will align with the National Gender Policy of the Ministry of Gender and Child Development[49]. It will be annexed to the inception report and be an integral part of the project implementation.

73. Furthermore, the project will partner with UN Women to conduct a gender gap analysis in agriculture, to provide further focus on how to improve the effectiveness of women's' agriculture. Studies in Africa have revealed that there is often a real gender gap in agriculture, driven by inequitable power relations and access to productive assets between men and women, occurring as a result of institutional and policy environment that fails to provide adequate resources to implement the provisions of gender mainstreaming strategies in many countries[50]. Women often have less access to i) land, ii) productive assets, iii) finance, and iv) markets and green value chains. This is compounded by the fact that women bear a large part of unpaid care work, reducing further the effectiveness of their agriculture-based income generating activities. The project will undertake an in-depth analysis of these issues and formulate strategies to ensure that implementation of its activities is informed by the findings. This will strengthen the gender strategy, help target project activities and improve the overall effectiveness and sustainability of project impacts.

74. Guided by these strategies, the project will therefore ensure that gender is at the core of implementation. For example, it will ensure that the right training is provided for the group that is predominantly involved in a certain activity. It will ensure at least 50% involvement of women in the management of natural resources, sustainable agriculture, livestock, fisheries infrastructure, and other small scale economic ventures. For example, women can take a leading role in the promotion of the Community Markets for Conservation model which will engage beneficiaries to adopt better management practices and become the foundation for conservation rather than the cause of land and natural resources degradation[51]. In this manner, the women will learn the skills to transform their natural resources management practices into profitable and sustainable small scale economic ventures.

[49] National Gender Policy, Ministry of Gender and Child Development, republic of Zambia, 2014.

[50] UN Women, UNDP, UNEP, and the World Bank Group: 2015. The Cost of the in Agricultural Productivity: Costing the gender gap in Malawi, Tanzania and Uganda

[51] Dale Lewis. Community Markets for Conservation (COMACO): Scaling up Conservation Impact through Markets that Change Livelihoods. Wildlife Conservation Society, Lusaka, Zambia

75. Efforts will be made by the project to expand trainings that support gender sensitisation and awareness raising for all relevant stakeholders - direct beneficiaries, local leadership especially the traditional rulers and respective district council frontline officers. The project will also support women to have livestock such as small ruminants (goats) and poultry as a way of empowering them in owning livestock. Major efforts should be made by the project to strengthen the capacity at the district level to collect and analyze environmental data and other relevant information and disaggregated based on gender.

A.5 Risk

Table 3. Risks and Mitigation Measures

Description of risk	**Ranking**	**Mitigation measures**
The GEF guidelines during PIF review was to strengthen a landscape approach to project implementation, which is necessary for a Multi-Focal Area (MFA) project. But the capacity deficits in the two districts are a very serious risk to the effective implementation of a large MFA project in 5 years. This is despite the fact that the baseline project has a fulltime Project Coordination Unit (PCU), primarily because that PCU is handling a very large (over 20USD million) project which includes large infrastructure development works.	High	The PCU of the baseline project has a team of 6 main staff (Project Coordinator/NRM expert, Gender/Socio-economist, M&E Officer, Procurement Officer, Civil/ Rural Engineer and Accountant. Support staff is an Office Assistant, Coxswain and Driver). While this is a good arrangement for promoting mainstreaming of the project initiatives into the current government structure (which promotes sustainability), it will not be adequate for the implementation of the additional GEF MFA project. The project implementation section proposes to reinforce the LTDP/Baseline project team with additional staff having necessary expertise to compliment the project and address GEF complexities and provide relevant skills that will be required to support government departments in the landscape approach MFA project. These should consist of an Integrated Natural Resources Management specialist, an overall Chief Technical Advisor (CTA) on part-time basis and an assistant accountant. These teams can be recruited locally if available, regionally (SADC or COMESA) or internationally (CTA). The project also provides a budget for the hiring of several international consultants, to provide short term inputs. In particular, there will be a landscape planning expert, a gender strategy expert (needed during the inception period), a wildlife/PA management expert, fisheries and income generating/markets experts, and conservation agriculture and agroforestry experts, among others. Without these additional capacities, the project will struggle and may not deliver results effectively and/or on time.
The Lake fisheries are seriously depleted. The community conservation and development committees have in the past failed to enforce community agreements to ensure that members reduce fishing effort where and when needed and observe/implement protection of breeding areas. There are risks that returns from alternative income generating activities, including cage fishing, are not attractive enough or inadequately compensate the forgone profits from current detrimental fishing practices.	High	Identifying and rolling out economically viable and sustainable alternative income generating activities in the Lake Tanganyika region is difficult, given its low levels of infrastructure development and inadequate access to lucrative markets. The baseline project is focused on improving infrastructure, including constructing an airport and roads, building market centres and supporting small community-identified economic development projects. This will go a long way to improving access to productive resources and markets. The project also focuses on building the capacity of the community conservation and development committees and empowering them (by providing them skills and operational capabilities) to improve their effectiveness in enforcing and delivering benefits from improved community resource management. In addition, the project will implement an awareness campaign targeting natural resource users to highlight the additional benefits associated with improved natural resource management, such as: fisheries' recovery and, hence, better returns, and improved soil fertility and productivity from sustainable and conservation agriculture, which in the long term outperforms short-

The benefits for communities under SLM/conservation agriculture and Joint Forest Management/Community Forestry might be too few/limited or realized only in the long-term despite short term sacrifices to serve as an effective incentive for communities to invest in forest management. In line with the above, the households settled illegally in the Game Management Areas and ecologically sensitive areas may resist the adoption of the improved resource management practices and the new rules for access and use of the natural resources of GMAs, forests and lakeshores.		lived depleting practices. This is already well understood by community groups, as was revealed during focus group discussions: for example, community members mentioned several times the need to go back to the past practice of fishing seasons, where fishing is forbidden almost half of the year. During such periods, other project activities will be developed in agriculture, fish farming, sustainable charcoal production, IGAs, enabling community members to maintain food and income sources. The project will facilitate the formation of SFM units over 12,000ha and empower communities to implement and obtain benefits from better forest management. Community engagement by GRZ forestry services will start at an early stage of project implementation, jointly defining the most appropriate SFM scheme, the forest areas concerned and the benefit sharing rules that will be put in place. Failure to establish a JFM area in the region during a previous project was mostly due, according to the concerned community, to a lack of consensus on benefit sharing. The legal evolution of the proposed SFM schemes and lessons from the past will enable better results under this project. Both the visited communities (during project preparation phase) and the GRZ forestry services have demonstrated a high motivation to succeed in this intervention. Finally the project will strengthen the capacity of the relevant technical departments (Wildlife, Fisheries, and Agriculture) to enhance enforcement and extension service. Part of the empowerment strategy will involve the recruitment of additional support (by short-term consultants) to identify effective means of achieving project objectives, including an expert on income generating activities and value chains. Working in a cooperative manner with the concerned communities is the only way to limit their actual impact on the NP/GMA and enforce legislation, while improving their means of subsistence through activities outside of those areas, not relying on the resources of these areas. An important aspect, as shown during the consultations conducted in Nsumbu NP, is that the communities illegally settled in the NP (who have sometimes been there for decades) do not grow, and that young people tend to settle outside. Attracting those people outside of the NP will be done through IGAs and access to infrastructure (roads, schools) developed by the project and the baseline project.
Benefits from Sustainable Forest Management might be derailed or delayed due to long, bureaucratic and drawn out process for identifying, mapping and demarcating forests for JFM/CF or other SFM schemes, formulating management plans, finalizing agreements between communities and forestry department, and actually gazetting the forests under JFM/CF or other SFM schemes.	Medium	A previous project failed to take the JFM process for one JFM initiative to gazettement (official designation for protection by the State or other public authorities) in 5 years. This project proposes to have 12,000ha under SFM gazetted in 5 years, an ambitious undertaking. However, the new Community participation in Forestry policy has identified the slow process of gazettement as a critical barrier to community participation on forest management and issued specific guidelines to simplify, and hasten the process. However, these new guidelines have not been tested yet, so there is no track record for how effective they will be. Concerned stakeholders consider that the overall process could take up to 2 years, which is long but falls into the project duration very well. In order to expedite the process, additional staff to the baseline PMU (including short-term consultants) is planned, bearing in mind that community based institutions need to evolve slowly but steadily, if they are to gain capacities to facilitate improved resources on the ground. Rushing formation of institutions for the sake of meeting project deadlines can be counterproductive. In addition, the project will seek to utilize existing community natural resources management committees wherever possible (rather than form new ones) such as the Resource

		Management Board, the Village Action Groups, and the Village Conservation and Development Committees. The project will also formulate and mobilize the funding for implementation of sustainability strategies for empowering these community natural resources management bodies with the necessary skill set to ensure that project impact continues far into the future.
There is a risk that the ecological characteristics of the miombo woodlands will make forest regeneration too difficult and too expensive to make participatory SFM a viable option.	Low	The project will adopt the practice of protecting degraded areas from excessive wood collection, fires and overgrazing as a primary mode of forest regeneration. Experience elsewhere has shown that this is the optimum mode of forest regeneration as it restores much of the original biodiversity, especially for the miombo woodlands. In addition, previous afforestation experiences in the region obtained mitigated results, and, as a consequence, natural regeneration is pushed forward by the Department of Forestry.
Rural communities in the two districts are highly rural with strong adherence to traditional cultural practices, which often disadvantage women. There is a risk that, in striving to remain "good" members of the community, both men and women resist project gender-based interventions, defeating the gender mainstreaming objective and reducing project effectiveness and impacts	Medium	The project will formulate a gender strategy to inform project implementation, which will be done during the project inception period and become part of the inception report. It will also collaborate with UN Women to do an in-depth analysis of the gender gap in agriculture and to use its findings to design an awareness raising and education strategy to educate the communities on the importance of mainstreaming gender in improving the efficiency and effectiveness of development and conservation interventions. This will target all gender and age groups – adults, youth and the elderly, as well as children (for sustainability). The project will explore the possibility of using the school curriculum to disseminate the importance of gender mainstreaming into development, in order to reach a wider and younger audience, which will improve sustainability of the impacts well into the future.
The successful implementation of this project will depend highly on the effective coordination of the various technical departments and their ability to provide extension services and to enforce NRM rules and regulations. There is a risk that coordination across the departments is ineffectual due to unequal mandates and capacities.	Medium	The project will facilitate effective coordination between all the relevant technical departments. To make this possible, the project will hire additional PCU staff members, in particular a part-time Chief Technical Advisor and an Integrated Natural Resources Management specialist, supported by other short-term experts on relevant subjects. These experts will be absolutely necessary to boost project capacity in the two districts and to ensure a smooth delivery of project initiatives while also undertaking capacity development. Together with the existing staff of technical departments, the PCU will improve the delivery of extension services.
The diversity of local stakeholders is limited, with few service delivery partners such as cooperatives and microfinance institutions, and very few NGOs with operational capacity in the project area. This may add difficulties on the ground to properly implement the planned activities	Medium	The project puts strong emphasis on building the capacities of service delivery partners (in particular under *Output 2.1.1 Improved service delivery from cooperatives, unions and microfinance institutions*) and will make sure to identify and reinforce relevant local NGOs, as presented in section *A3. Stakeholders* of this document. In addition, partnerships with similar initiatives in other parts of the country will enable knowledge and experience exchanges as well as the identification of relevant technical partners who may support project delivery (see section *A.6. Institutional Arrangement and Coordination* §86).

Given the location of the project site, which is far (>1000km) from Lusaka where many decision-makers are based, project management decisions, and in particular financing decisions, may be difficult to coordinate	Low	Procurement and Financial Management Arrangements are described in detail in the baseline project document. They will strictly follow the African Development Bank rules and procedures. The PCU, based in Mpulungu district, "will be accountable and responsible for the management of the procurement processes and accountability for implementation of all components. (…) The PCU will carry out major procurement activities and ensure oversight of all the procurement carried out during project implementation. (…) The Project's financial management will be managed within MLNREP's existing set-up, consistent with the Bank's commitment to use country systems." Experience from other AfDB projects in Zambia has enabled to build strong procedures and quick information flows that should mitigate residual risks in this regard.
Extreme climatic events associated with climate change may affect vegetation regeneration.	Low	The creation of empowered community managers with adaptive management capacities may be the best strategy for adapting to the possibility of extreme climate change events. It is the present conditions of uncontrolled, open access, and unsustainable use of fisheries, land and forests that makes them the most susceptible to climate change, which are being addressed by the present project. The planned interventions will increase the resilience of ecosystems to extreme events.
Potential risks of exotic/invasive species disseminated through afforestation	Low	The project will utilize existing guidelines on safeguarding against potential risks of exotic species becoming invasive species or having a negative impact on the environment. For example, the project will adhere to Guidelines on Biofuels and Invasives developed by IUCN (https://cmsdata.iucn.org/downloads/iucn_guidelines_on_biofuels_and_invasive_species_.pdf). This will ensure that only plants that do not have tendencies to become invasive or have negative impacts on the environment are selected and introduced to the project farms, in particular those already used in the region for a number of years with proven absence of negative impacts on the environment.

A.6. Institutional Arrangement and Coordination

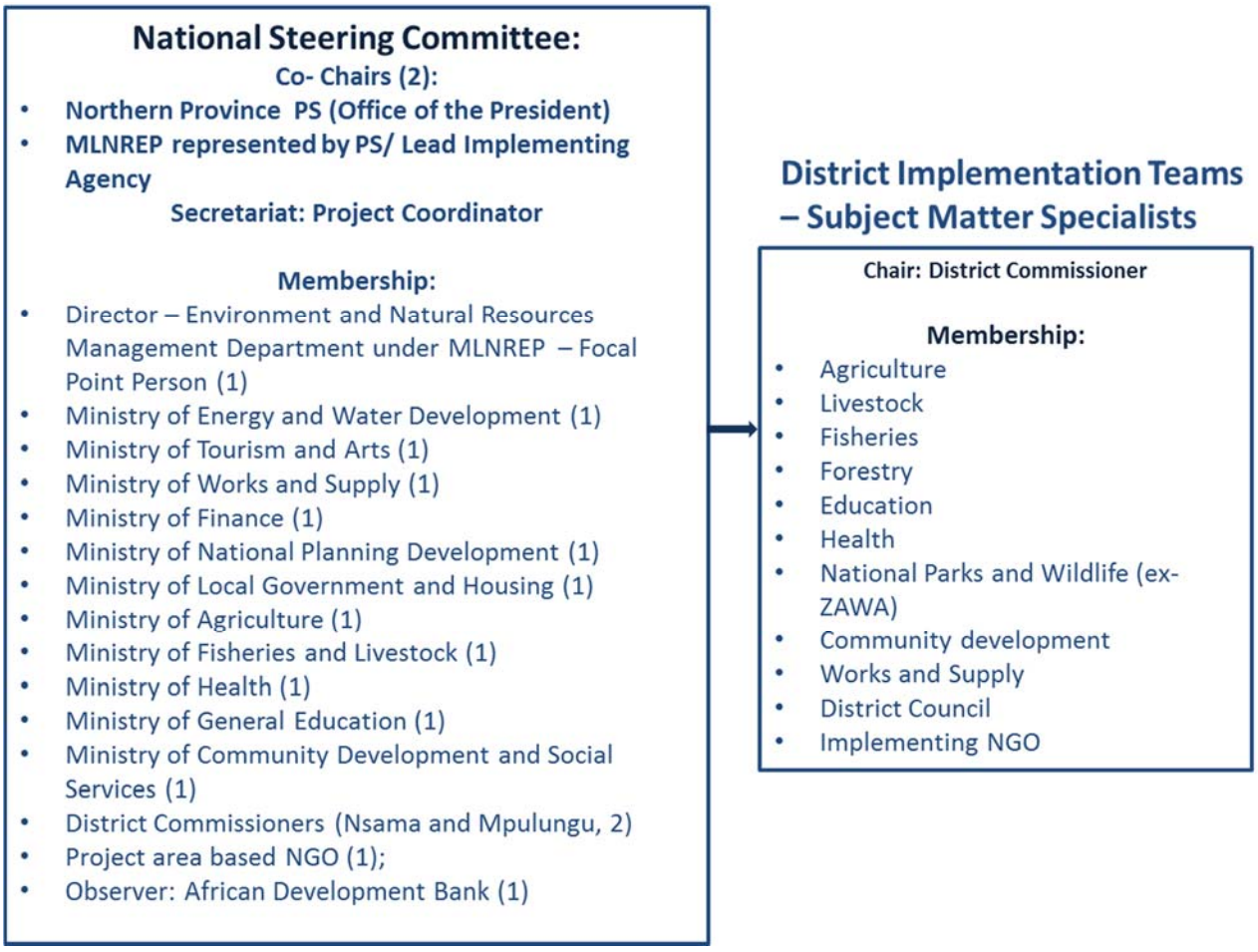
Institutional Arrangement

76. In order to enhance efficiency in the implementation of this project, a highly decentralised but efficient, and inclusive structure is being proposed. The lead implementing agency for the project will be the Ministry of Lands, Natural Resources and Environmental Protection (MLNREP), whose Chief Environmental Management Officer will act as the Project Focal Point (PFP). While MLNREP will act as the Executing Agency it is understood that unlike the other ministries implicated in the project, MLNREP does not have a ministerial presence at the District level. The Forestry Department that is under the auspices of MLNREP, however, is present at the District level.

National Steering Committee (Oversight)

77. The multi-sectoral National Steering Committee (NSC) which was in place during the closed Lake Tanganyika Integrated Regional Development Programme (PRODAP project) will be re-activated. However, additional members will be proposed and the full NSC membership will be as follows:

Figure 1. National Steering Committee and District Implementation Teams



78. The NSC will be co-chaired by the Permanent Secretary - Northern Province and the MLNREP. The project coordinator will be the Secretary of NSC. The project will be implemented over a period of 60 months and technically will fall under the oversight Director of Environment and Natural Resources. The National Steering Committee (NSC) has a guidance and oversight role that needs to be managed at the Ministerial level (especially considering that the baseline project funds are in the form of a loan, which is followed by the Ministry of Finance with ministerial presence at the provincial level). It is proposed that the AfDB is represented on the NSC as an observer, as it is the main financing cooperating partner.

79. As there is a dearth of NGOs established and operating in the local area, it is proposed that Conservation Lake Tanganyika (CLT) which is currently operating in the Lake Tanganyika Basin be appointed to sit on the NSC. Improving CSO capacity in the project area will be prioritised. The first two years of the project will be used to identify and support the participation of Conservation Lake Tanganyika and when it is deemed appropriate, other NGOs may join in the NSC as part of the effort to expand the presence of NGOs in support of the objectives of the project. This will allow for an expanded committee with 15-17 members. It is proposed that in the first year the NSC meets quarterly and thereafter twice a year. Furthermore extraordinary NSC meetings may be called upon to immediate address any urgent issues. The NSC will have the main function of providing oversight and policy guidance on the project implementation on both the baseline LTDP project and the GEF component, including the following: overseeing the efficient management and coordination and ensuring the achievement of the expected results and project purpose; overseeing project compliance with sub-sector national policies and strategies; resolving any challenges (hindrances and/or bottlenecks) to project implementation; approving agreed project's annual work plans and budgets; and reviewing progress of project implementation to ensure that set targets and goals are met.

Day to day implementation

80. The day to day management of the project is the responsibility of the Project Coordination Unit (PCU), comprised of the persons already recruited for the implementation of the baseline project – a Project Coordinator who will also act as the Project's Natural Resource Management expert; a Gender/Socio-economist; a M&E Officer; a Procurement Officer; a Civil/ Rural Engineer and an Accountant. Support staff will be an Office Assistant, a Coxswain and a Driver. Given the complexity of the project, which comes in addition to the 26 million LTDP baseline project coordination needs for the PCU, it is proposed to reinforce the PCU with 3 additional staff to compliment the PCU:

- an Integrated Natural Resources Management specialist (1);
- an overall Chief Technical Advisor (CTA) with strong experience in GEF projects management on time-part basis (1);
- an assistant accountant and driver to compliment the support staff (2).

81. 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 the two districts, a District Coordinating Office will be established in the District Commissioner's office of Nsama. One of the criticisms of the PRODAP project was that the PCU members were implementing activities without involving properly the main stakeholders, in particular GZR decentralized staff. It was agreed at project formulation that in the future project approach, the PCU will merely play a facilitatory role, in that its members will oversee, coordinate and monitor the implementation of activities, which will be carried out by the relevant GRZ departments and associated partners, including civil society organisations. The Project Appraisal report of the LTDP baseline project mandates the DC Nsama to coordinate the implementation of project activities. Given the challenges faced by Nsama as a new District, the situation will be monitored to determine if additional measures are required to improve coordination capacity. It is proposed that one senior PCU member be based in Nsama to manage and coordinate the office in Nsama. In Mpulungu this role will be assumed by the project Coordinator. This arrangement will contribute to improving the implementation and monitoring of project activities in the target areas.

82. The ground level implementers will include district Subject Matter Specialist (SMS) as shown in Figure 1 above. Based on the approved annual work plan and budget by the NSC, these implementers will sign implementation agreements with the PCU (who will provide supervision functions to the NSC, either DC Nsama or DC Mpulungu). The PCU is supervised by the Director of the Environment and Natural Resources Management Department (ENRMD), but the two DCs will undertake monitoring and supervision of the implementers within the districts. The project will make it possible for community-based volunteers to mobilise communities to access project services for various SLM activities. The two District Commissioners (Nsama and Mpulungu) will provide day-to-day monitoring and supervision of the project to its implementers within their districts. The District Commissioners will undertake field supervision and facilitate the processes of audits and procurement.

83. The Ministry of Finance will provide financial oversight and Zambia's Reduce Emissions from Deforestation and Forest Degradation (REDD+) Secretariat that is housed in the Ministry will be called on periodically to provide technical guidance. Ministry of Agriculture will be responsible for promoting improved agricultural land Management and Integrated Landscape Management practices. Department of Fisheries will be responsible for improving fisheries practices within the Water Basin. The Department of National Parks and Wildlife will oversee assistance to the Nsumbu

National Park and improving practices related to Game Management Areas. The Forestry Department will be responsible for improving forestry management and the restoration of forest. The Department along with the Ministry of Agriculture will be expected to contribute to improvements in agro and forest ecosystem services. The Ministries of Health and General Education will be expected to guide activities in their respective fields. Given the project aims to build both local institutional and community level capacity to manage local natural resources, the Ministry of Local Government and Housing which has overall responsibility for the decentralisation process will be an important partner as the project progresses towards this objective..

84. As part of the decentralisation process in Zambia line ministries are expected to devolve authority and resources down to the district level. This includes human resources. In this regard, Ministries with previous GEF experience will be encouraged to assign staff with GEF project experience and other relevant backgrounds at the level of the two districts. Therefore, all ministries will have the same opportunity to ensure experienced people are in place. As staffing levels at the district levels are to increase this can be accomplished while retaining existing personal.

Coordination

85. The PIF outlines coordination of the project with other past and ongoing GEF and AfDB projects, in particular the UNDP/GEF project on Partnership Interventions for the Implementation of the Strategic Action Program for Lake Tanganyika (referring to the Convention for the Sustainable Management of the Lake Tanganyika) and the Lake Tanganyika Regional Development Program (PRODAP) funded by AfDB and other donors. It also highlights the need to coordinate with FAO regarding Farmer Field Schools (FFS) given its expertise in this field.

86. Three notable initiatives in close proximity to the project have been identified during project preparation:

1) The Decentralised Forest and other Natural Resources Management Programme (DFNRMP) funded by the Finnish Government. The DFNRMP is considered to be a "introduction project" of 3 years for the Finnish Department for International Development Cooperation but the intervention in Muchinga Province is actually considered a 12-year commitment. It supports the decentralisation of responsibilities, functions and resources covering the management and conservation of natural resources, from the central government through devolution to District Councils and on to communities and households. The focus of DFNRMP is essentially to devolve authority.

2) The five-year USAID-funded Community-based Forest-management Programme (CFP) in Eastern Province began in 2013. It aims to strengthen the national REDD+ process through the piloting of different approaches to participatory forest management, through both JFM and CF. The objective is to demonstrate drivers to lessen deforestation by involving local communities.

3) Through the BioCarbon Fund, the Zambia REDD+ Office has been implementing the Zambia Integrated Forest Landscape Programme for the Eastern Province (ZIFL-P).[52] The ZIFL-P covers agriculture and aims to improve livelihoods and wildlife management. The approach promoted by the ZIFL-P to community manage natural resources is very similar to USAID's approach that works with the local population and builds out to capacitate local institutions. All three of these projects are pioneering the actualisation of the new Forests Act No. 4 of 2015.

87. Preliminary discussions have been held with representatives of these three projects regarding coordination and cooperation and although it is still at a preliminary stage there is willingness from all three to see how cooperation might work. Given the physical proximity and shared thematic programming areas, the project stands to benefit from cooperation. In addition, the three projects have established working relations with Zambian partners including NGOs and technical experts. The project will consult with USAID, Finnish Development Assistance and the REDD+ Office to identify suitable national organisations and technical experts who could assist the project in meeting its own objectives. The projects of these other donors are more advance and this is very beneficial for this project in terms of being able to have a close look at what national partners are capable of before making critical strategic decisions on partnering with national entities.

88. As the project shares a large geographic area with the DFNRMP, CFP and the REDD+ interventions share a large geographic area, a coordinated and shared approach for the entire area could eventually emerge. In the short to medium-term there will be learning opportunities for the project from these and other projects related to building local

[52] http://www.biocarbonfund-isfl.org/sites/biocf/files/documents/Zambia%20Integrated%20Forest%20Landscape%20Program.pdf

community and institutional capacity to manage natural resources, game management areas, and introduce sustainable agriculture. The experiences of devolving authority and improving circumstances related to property rights are also possible areas for learning. Something that will be of special interest will be to learn from the experiences in signing agreements between governments and communities to manage community forests.

89. In addition, the Ministry of Agriculture, that will be a proactive institutional partner in the project, has had recent experience of direct relevancy. The head of the Kaputa District for the Ministry of Agriculture which is next to the project's implementing area has overseen activities in areas such as farmer participation, introducing new farming practices and specific issues like climate change. In this context, staff transfers arrangements should be considered with all institutional partners who have staff with direct GEF experience or relevant backgrounds and experiences.

90. Finally, the project will liaise with the *Water Resources Development Project for Republic of Zambia* (World Bank) that supports the implementation of an integrated framework for development and management of water resources in Zambia, as well as the *Water Sector Reform Programme*, funded by the German Federal Ministry for Economic Cooperation and Development. Both these programmes are being implemented by the Ministry of Mines, Energy and Water Development and are intended to provide added support in the implementation of the water reform in Zambia. Further as noted in Baseline report 153, the Water Resources Management Act No. 21 of 2011 prescribes for the establishment of climate-sensitive water resource management, functioning, and composition of catchment councils, sub-catchment councils and water users associations.The project will dwell on closer cooperation with organizations responsible for the resources management in order to ensure synergies and coherent efforts in sustainable water management and utilization in the Zambia's Lake Tanganyika catchment area

Additional Information not well elaborated at PIF Stage:

A.7 Benefits

Local/community level benefits

91. As mentioned earlier, the majority of the people in the lake basin are very dependent on the exploitation of natural resources (forests, wildlife, fisheries, and agriculture). All these sources of livelihoods are interlinked. Overexploitation and use of non-sustainable practices have however been the cause of land and natural resources degradation[54] including fragmentation of ecosystems.

92. As a consequence, there are several socio-economic benefits that are anticipated to be delivered by the project. Firstly, the project will galvanize and leverage its interventions for conservation in order to protect and conserve marine and terrestrial natural resources and guarantee co-benefits for the present and future generations, in particular: good forest conditions, delivering multiple ecosystem services; fertile agricultural land, demonstrating better resilience to climate hazards; important fish stocks and good lake water quality. Secondly, the project will enhance sustainable livelihoods through sustainable natural resources management, agriculture productivity growth and diversification. Thirdly, these efforts will lay a solid foundation for improved household food security and incomes at the local level.

93. In terms of adaptation benefits, the community will have a better understanding of climate-resilient pathways through increased awareness of the vulnerabilities associated with climate change. In agriculture systems for example the communities will begin to utilize short cycle varieties to mitigate against the shortening of the growing season. Small-scale irrigation investments will also enable residents to intensify agriculture production during the dry season and promote horticulture which is important for food and nutrition security as well as income generation.

94. Positive community behavior change will occur as new skills are inculcated among the communities to understand the connection between their activities on deforestation and the escalation of vulnerabilities as a result of adverse weather events such as floods and drought and adaptation measures required to improve their own livelihoods.

[53] Baseline Report 1: Legal and Policy Framework and Stakeholder Analysis Report

[54] Dale Lewis. Community Markets for Conservation (COMACO): Scaling up Conservation Impact through Markets that Change Livelihoods. Wildlife Conservation Society, Lusaka, Zambia

95. Further, it can be elaborated that mobilization accompanied by effective participation of the community in natural resource management should lead into effective community engagement. This engagement is in fact the means for transcending the delivery of economic benefits to the community.[55] Key to this is in the form of increased household incomes, alternative jobs creation away from relying on overexploitation of natural resources, and rural development. If well-managed and embraced, the community has intrinsic social capital that can lead to tangible access to biodiversity and sharing which is well enshrined in the Zambia Wildlife Act No. 15 of 2015, Forests Act No. 4 of 2015, Environmental Management Act No. 12 of 2011, and other relevant pieces of legislations and policies. The community resource boards (CRB) as they stand are powerful community-based management structures for advancing natural resource conservation and distribution of benefits to the membership as well as rural community development through expanded socioeconomic services and networks.

96. As demonstrated in the Community Markets for Conservation (COMACO) model (where communities are rewarded with financial incentives for adopting and adhering to friendly sustainable practices for conservation) economic activities introduced by the project and supported by the communities can serve as an incentive for compliance to good land planning and sustainable utilization of natural resources. As highlighted in the PIF, the project will encourage the communities to therefore effectively participate in small scale economic ventures to raise their income and empower them to seek ways for permanent and transformational change away from solely depending on the natural resources for their survival.

National Level Benefits

97. At the national level, conservation agriculture will boost the rural economy through agriculture production (crop diversification and agroforestry systems) and raise the contribution of the agriculture sector to improve a green and climate- resilient economy. These efforts will also contribute to the reduction of GHG emissions as clearly defined in the Zambia's Intended Nationally Determined Contribution (INDC) to meet a set target of 47% emission reduction target, with 2010 being the base year[56]. Furthermore, the project will set as a good example for pro-actively augmenting country's efforts to reduce poverty, attainment of low carbon climate resilient economy, sustainable development and become a high middle income and prosperous nation by 2030 in line with its R-SNDP and the country's Vision 2030.[57.] Value chain processes in various enterprises such as tourism will raise the economic profile of the country through a positive impact on the national treasury and help reduce downward spiral of poverty. The project will therefore have a positive effect on reducing poverty levels which has been recognized as being alarmingly and stubbornly high amongst the people in the rural areas despite the country's strong macro-economic indicators realized over the past decades.[58] Tourism in the Northern Province is still nascent but, if well developed, stands out to be a beacon for supporting significant economic growth and the promotion of rural development with greater potential for enhancing foreign exchange earnings, job and wealth creation, and income generation, as well as alternative livelihoods. The province will have the capacity to develop hospitality industry tourist infrastructure that capitalizes on Lake Tanganyika's wonderful beaches, beautiful panorama landscapes and scenery, as well as the Nsumbu National Park.

Achievement of Global Environmental Benefits (GEBs)

98. The environmental and socio-economic benefits described above will contribute to GEBs:

- SFM/CF areas shall improve the forest cover and density, and thus carbon sequestration in both districts;
- SLM and conservation agriculture increase carbon sequestration into soils;
- Land-use plans and in particular management plans developed in the Nsumbu NP and the Tondwa GMA, associated with capacitated wildlife services and wildlife tourism development will have a positive impact on the conservation of biodiversity;

[55] Ministry of Tourism, Environment and Natural Resources (2005) National Policy on Environment. Lusaka, Government of the Republic of Zambia

[56] Government of the Republic of Zambia. Zambia's Intended Nationally Determined Contribution (INDC) to the 2015 Agreement on Climate Change (Undated).

[57] The mitigation and adaptation programmes are defined in the R-SNDP but these efforts as outlined in the INDC will be well-integrated in the Seventh National Development Plan (SeNDP) currently being developed.

[58] Government of the Republic of Zambia. National Agriculture Investment Plan 2014-2018 - under the Comprehensive Africa Agriculture Development Programme, Final Draft, Ministry of Agriculture and Livestock. Lusaka, Zambia.

- Protection of Lake Tanganyika fish breeding areas (at least in the Nsumbu NP) and improvement of water quality expected from reduced siltation, in addition to activities on sustainable fishing practices will positively impact the Lake biodiversity;
- The various interventions on erosion control, afforestation, SLM and SFM will positively reduce land degradation.

A.8 Knowledge Management

99. From a knowledge management perspective, the project is well situated to benefit from a number of recent developments in the area of local natural resource management including both project activity and legislative changes. The new Forests Act No. 4 of 2015 has essentially enhanced the possibilities for community engagement in forestry activity by placing an emphasis on facilitating Joint Forestry Management (JFM) and Community Forestry (CF).[59] The objectives of the Forests Act of 2015 correspond with other legislative changes such as the Local Government (Amendment) Act No. 9 of 2004 and the National Decentralisation Plan of 2002[60] that collectively encourage and facilitate the management of natural resources at the local level by both communities and local governments. In anticipation of (or as a result of) the enactment of these legislative changes, an increase in project activities focused on the management of Natural Resources through local mechanisms has been noted in Zambia. Of particular interest is the fact that some of these initiatives are geographically aligned with the project since they are being implemented by districts and provinces involved in the project (see section *A.6. Institutional Arrangement and Coordination*/*Coordination*). This should facilitate learning opportunities and other synergies allowing the project to benefit from proven experience and expertise.

100. There are also other experiences and capacity building efforts across the country that could be reached out to. For example, the Nature Conservancy has been working in Game Management Areas promoting sustainable livelihoods within the boundaries of North Luangwa National Park. There is also the work of the *World Fish Center* managing to improve wild capture fishing activity in the trans-border context of the Zambezi River. These initiatives and others from national NGOs will provide very good learning platforms for the project.

101. Some of the project activities that can be anticipated related to Knowledge Management include:

- Establishing an ongoing dialogue to learn about best practices and lessons learned from projects such as DFNRMP, CFP and REDD+ and from other parts of the country. This could include dialogue and exchanges at a strategic level and more at the district to district level between projects. A focus will be placed on innovative approaches to managing fisheries stock. The PCU will take a lead role in contacting the relevant partners and oragnising exchanges, through meetings and site visits, in order to take stock of existing experiences.
- Exchanges such as study visits between community members and local authorities in the Lake Tanganyika Water Basin to areas with more advanced experiences in locally managing natural resources.
- Adaptation of practices established by projects such as the CFP and DFNRMP facilitated by technical support provided by local organisations and technical experts familiar with these projects.
- Introducing successful training modules developed by partners such as CFP, DFNRMP that are adapted to the circumstances of the Lake Tanganyika Water Basin area.
- Integrating technical experts with relevant experience such as those who have worked on previous GEF projects into the project.
- Explore the development of permanent arrangements to share information, establish best practices within the larger programming areas covered by the project in the Lake Tanganyika Water Basin, the DFNRMP in the Muchinga Province and CFP and REDD+ in the Eastern Province.

102. While importing lessons learned and best practices from other projects will be critical, at some point the project will progressively generate learning opportunities. The project team will be mindful of this and as solid experiences both positive and negative are established, channels to enable learning will be established. For example, the communities that are the initial focus of the project will be critical from a learning standpoint. For example a community that has negotiated with the Government an agreement to manage their local forest under a JFM scheme will inform other communities in the two districts regarding its experience. Given there is currently limited experience in the

[59] http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20Forest%20Act%202015.pdf
[60] http://www.parliament.gov.zm/sites/default/files/documents/acts/Local%20Government%20Act.pdf

project zone, communities and individuals learning from exchange visits to other projects such as the DFNRMP, will be expected to share their experience with other project stakeholders.

103. Some of the project activities that can be anticipated related to knowledge management within the project zone will include:

- The PCU will develop an internal strategy for coordinating the sharing of information between and within Districts and between communities on areas of common interest such as establishing JFM and CF agreements.
- Based on project experience for each activity the project team will eventually develop Best Practices guidelines for project activities that will be shared amongst project stakeholders.
- Exchange visits will be arranged for communities initiating new activities to communities that are further along in the implementation process of those same activities.
- Communities and individuals that visit or are trained outside of the project area will be given support and guidance to allow them to share their experiences with others within the project zone. This arrangement will also be made for internal learning as critical experience is gained.

B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1 Consistency with National Priorities

104. The key piece of legislation for the project is Zambia's National Vision 2030 that is the first long-term strategic plan for the country.[61] All major government acts and policies developed since its enactment are designed to contribute to the achievement of the objectives of Vision 2030 that provide for the establishment of a decentralised governance system with specific goals and targets for different sectors to achieve by end of 2030. In support of Vision 2030, the Government has implemented a five-year national development plan including the most recent that was revised in 2014 to cover the years 2013-2016.[62] The objectives of this project are fully aligned with the national priorities expressed in Vision 2030 in particular the global objective of "maintaining a safe, sustainable and secure environment for sustainable economic growth and development.[63]" In fact, the project is consistent with all the policies and strategies noted in this section.

105. The project is among a number of other current projects serving as a testing ground for new Government legislation focussed on devolving authority and resources to local governments and communities, with the aim of broadening the available approaches for achieving more effective management of natural resources. Notable in this regard are the Local Government (Amended) Act No. 9 of 2004 and the National Decentralisation Policy 2002[64] and the Urban and Regional Planning Act No. 3 of 2015.[65] The Decentralisation Policy aims to "devolve authority, functions and responsibilities to the district level in order to improve the quality of service delivery at the sub-national level, including management of natural resources." [66] The Urban and Regional Planning Act as mentioned above is designed to enable greater community involvement in local planning decisions and complements the policy on Decentralisation.[67]

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[61] http://unpan1.un.org/intradoc/groups/public/documents/cpsi/unpan040333.pdf

[62] http://www.gwp.org/Global/Activities/Impact%20Stories/Supporting%20documents/Revised%20Sixth%20National%20Development%20Plan.pdf

[63] http://unpan1.un.org/intradoc/groups/public/documents/cpsi/unpan040333.pdf pp.4

[64] http://www.parliament.gov.zm/sites/default/files/documents/acts/Local%20Government%20Act.pdf

[65] http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20Urban%20and%20Regional%20Planning%20%20Act,%202015.pdf

[66] http://www.parliament.gov.zm/sites/default/files/documents/acts/Local%20Government%20Act.pdf

[67] http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20Urban%20and%20Regional%20Planning%20%20Act,%202015.pdf

106. Also of direct relevance is the new Forests Act No. 4 of 2015[68] that, compared to the previous Act favours more varied approaches to achieving the objective of 13% forestry coverage across the country. This Act attempts to correct the shortcomings of the previous act in relation to Joint Forestry Management (JFM) and introduces new elements such as Community Forestry (CF). Overall the new Forests Act has provisions for the participation of local communities, local authorities, traditional institutions, NGOs and other stakeholders in the hopes of promoting sustainable forest management practices. In addition the Zambia Wildlife Act No. 15 of 2015[69] that has progressive statutes for the conservation and enhancement of wildlife eco-systems, biological diversity and measures related to National Parks. It describes the requirements for establishing control and co-management of Community Partnership Parks and has provisions to legislate the sustainable use of wildlife and the management of the wildlife habitat in Game Management Areas (GMA).

107. The Second National Biodiversity Strategy and Action Plan (NBSAP2)[70] is an example of new legislation that is expected to contribute to both long and medium-term national development objectives as expressed in the Vision 2030 and the five-year R-SNDP respectively. The NBSAP 2015-2025 is expected to assist with the domestication of Zambia's obligation under international agreements, conventions and agreements such as the Convention on Biological Diversity (UNCBD), and regional South African Development Community Countries (SADC) protocols on wildlife, water, fisheries, forestry, and others.[71] Some of the key objectives of the NBSAP 2015-2025 that are directly relevant to the project include: ensuring local communities values biodiversity and the steps they can take to conserve and use it sustainably; areas under agriculture, aquaculture and forestry (forest reserves, parks, Game Management Areas, forest concessions, open areas) are managed sustainably. The Lake Tanganyika Convention is of critical importance as the Lake is an international body of water. The Convention applies to Lake Tanganyika and its Basin. It is applicable to all human activities, aircraft and vessels under the control of a "Contracting State" on how to respond to any unwanted impacts. The Convention's overall objective is to "ensure the protection and conservation of the biological diversity and sustainable use of the natural resources of Lake Tanganyika and its basin".[72]

108. The National Agriculture Policy (NAP) 2011-2030 replaces the previous National policy covering the period of 2004-2015. It is designed to address a number of weaknesses impeding progress including low agricultural productivity among small scale farmers. In 2007, the Government passed the Fisheries (Amendment) Act of 2007 to Amend the Fisheries Act of 1974.[73] The Fisheries Act of 2007 introduced a number of practical considerations including the goal of engaging surrounding communities in fisheries management. Further the amended Fisheries Act No. 22 of 2011 provides for sustainable fisheries and aqua-cultural development and management. Under the new Act, each fishery will be designated a Fisheries Management Area, and run by a Fisheries Management Committee.

109. The National Climate Change Response Strategy (NCCRS) of Zambia was developed to support and facilitate a coordinated response to climate change. The Strategy is meant to enable Zambia to address the issues related to climate change faced by the country while meeting international obligations.[74] A new Draft National Policy on Climate Change (NPCC 2016) has been developed to support and facilitate a coordinated response to climate change complexities in the country. It will enable Zambia to re-align its climate-sensitive sectors of the economy and its society in order to meet its development goals through adaptation and mitigation interventions.[75] The policy will also contribute to the achievement of the overall objective of the United Nations Framework Convention on Climate Change (UNFCCC) which is "*stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system"*. These efforts are designed to support the achievement of Zambia's development priorities as articulated in its long-term strategic plan – the Vision 2030. In addition, in line with Zambia's obligations towards the UNFCCC, this project will directly support the implementation of Zambia's INDC.

[68] http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20Forest%20Act%202015.pdf

[69] http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20%20Zambia%20Wildlife%20Act,%202015.pdf

[70] https://www.cbd.int/doc/world/zm/zm-nbsap-v2-en.pdf

[71] https://www.cbd.int/doc/world/zm/zm-nbsap-v2-en.pdf

[72] http://www.ecolex.org/server2.php/libcat/docs/TRE/Full/En/TRE-001482.pdf

[73] http://faolex.fao.org/docs/pdf/zam78316.pdf

[74] http://www.adaptation-undp.org/sites/default/files/downloads/zambia-climate_change_response_strategy.pdf

[75] Government Republic of Zambia. 2016. Draft National Policy on Climate Change

C- DESCRIBE THE BUDGETED M&E PLAN

110. The project will follow the African Development Bank's standard monitoring, reporting and evaluation processes and procedures, as well as the GEF monitoring and evaluation policies and guidelines. The M&E officer within the LTDP baseline project will undertake Monitoring and evaluation of the GEF project. Additional funds to what is already dedicated to M&E within the LTDP were provided for specific monitoring and evaluation of the GEF component (US$ 150,000) to ensure that the project monitoring system is operational and to conduct mid-term review as well as end of project evaluation. M&E activities are part of component 4 of the project, which also includes Knowledge management activities.

111. The project implementation will be planned over a period of 5 years, starting from the date of approval by the GEF. The PCU will be responsible for internal monitoring of the project and will establish quarterly and annual reports on the implementation progress according to the format recommended by the Bank and GEF's requirements. Monitoring and evaluation of progress in achieving project results and objectives will be done based on the targets and indicators established in the project Results Framework presented in Annex A of this document. The PCU will also provide the Bank with the necessary information to complete the annual implementation reports required by the GEF, as well as project evaluations. The National Steering Committee and the Bank will be responsible for external monitoring through supervision missions, which will be held on a biannual basis, and the Mid-Term Review (MTR) will be planned into the second half of the second year of the project, together with the MTR of the LTDP, if possible.

112. The project monitoring and evaluation approach will also facilitate learning and mainstreaming of project outcomes and lessons learned into international good practice as well as national and local policies, plans and practices.

113. A summary of the envisaged M&E activities is provided in the following table.

Table 4. Summary of M&E activities

Type of M&E activity	Responsible Parties	Budget US $ (Excluding project team staff time)	Time frame
Inception report, including a gender strategy	▪ PCU ▪ AfDB country office and project officer ▪ Consultants	USD 20,000 (as completed by PCU)	Within 3 month of project start
Surveys to determine CCM tracking tool, PMAT and BD tracking tool baseline values	▪ PCU ▪ AfDB country office and project officer ▪ Consultants	Indicative cost: 20,000	Within first year of project implementation
Project Progress Reports	▪ PCU, with inputs from implementation institutions, PSC members and other partners	USD 0 (as completed by CTA and PCU)	Semi-annual
Supervision visits and rating of progress in PPRs and PIRs	▪ PCU ▪ AfDB country office and project officer	Paid by GEF agency fee. Visits of the Project Focal Point and CTA paid from the project travel budget	Annual or as required
Project Implementation Review report	▪ PCU ▪ AfDB country office and project officer	Paid by GEF agency fee	Annual
Technical reports	▪ PCU ▪ AfDB country office and project officer	USD 20,000 (incl. report on best practices and lessons learned)	As appropriate

Type of M&E activity	Responsible Parties	Budget US $ (Excluding project team staff time)	Time frame
Mid-term Evaluation/Review	▪ AfDB /Government	USD 40,000 for independent consultants and associated costs	At mid-point of project implementation
Final evaluation	▪ AfDB /Government	USD 50,000 for external, independent consultants and associated costs.	At the end of project implementation
Terminal Report	▪ PCU ▪ AfDB country office and project officer	USD 0 (as completed by CTA and PCU)	At least two months before the end date of the Execution Agreement
TOTAL indicative COST		USD 150,000	

PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

A. GEF Agency(ies) certification

This request has been prepared in accordance with GEF policies[76] and procedures and meets the GEF criteria for CEO endorsement under GEF-6.

Agency Coordinator, Agency Name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Mahamat ASSOUYOUTI AfDB		08/30/2016	Siham MOHAMED AHMED	+22520262259	S.MOHAMEDAHMED@AFDB.ORG

[76] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

ANNEX A: PROJECT RESULTS FRAMEWORK

Title and location of the project	Zambia Lake Tanganyika Basin Sustainable Development Project					
Program Objective	To improve natural resources management and the livelihoods of communities in Zambia's Lake Tanganyika Basin through sustainable and integrated use of lake resources					
Results chain		**Performance indicators**			**Means of verification**	**Risks/mitigation measures and assumptions**
		Indicators	**Baseline**	**Target**		
Impact	**Zambia Lake Tanganyika Basin natural resources are sustainably managed, delivering long term benefits to local communities**	Annual Income of beneficiary household Land area under effective management in production systems with improved vegetative cover	Mean annual income in Northern region Numerous examples of depletion of NR	An average increase of 25% in mean annual income in each district's project zones 20,000ha	Government statistics Project reports; SFM/CF gazettement evidence; agriculture services reports on conservation farming interventions	Risk: Insufficient human and institutional capacities Mitigation: the programme will have capacity building activities (land-use planning, INRM, sector-specific) at the district and regional levels Assumption: the project is funded and launched in 2016
Outcomes	**Component 1. Development of capacities (skills, information) and investments to support landscape approach to Integrated Natural Resources Management (INRM)**					
	Outcome 1.1- Improved Landscape planning in Zambia's Lake Tanganyika basin	District comprehensive land management plans and guidelines available	No comprehensive land management plans in place	2 plans (1 per district) and associated implementation guidelines	Plans	Risk: insufficient institutional capacities of national and local planners and implementers
	Outcome 1.2 - Improved capacity of technical institutions and community	Successful establishment of land use management agreements such as	No land use management agreements in place	12,000ha under SFM schemes (JFM/CF) Nsumbu NP General Management Plan in	Project reports JFM/CF gazettement proofs Management/land-use plans	Mitigation: the programme will provide training at all levels, including community planning

	groups to implement landscape approach to INRM	JFM/CF, and management/land-use plans for Nsumbu NP and Tondwa GMA	No specific management/land-use plans for Nsumbu NP and Tondwa GMA	place and implemented Tondwa GMA		
	Outcome 1.3 - Increased capacities and investments supporting land rehabilitation and decreased deforestation	Number of erosion control infrastructure built Number of sustainable charcoal and brick production units	None	At least 15 sites At least 30 units installed and operating sustainably	Project reports, on-site verification	Assumption: GRZ supports planning process and initiatives taken at all levels
	Component 2. Livelihood diversification enhances sustainable agro and forest ecosystem development and reduces pressure on natural resources					
	Outcome 2.1 Increased contribution of agro and forest ecosystem services to national economy and local livelihoods	Number of men and women running a successful alternative livelihood activity initiated by the project	N/A	At least 1000 families involved in alternative livelihood activities	Project reports and surveys and PIRs	Risks: uptake of alternative livelihood activities is low due to non-immediate returns and poor added value on markets Mitigation: the project will work on a limited number of value chains in order to ensure market value of the activities promoted. Baseline project will create marketing opportunities and improve necessary infrastructure Assumptions: Communities are interested to learn and engage in new activities.
	Component 3. Policy enforcement and coordination of INRM interventions, monitoring and outreach activities					

	Outcome 3.1 Enhanced policy and institutional coordination for better service delivery and enforcement of the landscape management plans and livelihood initiatives	Existence of sustainable Policy and institutional coordination bodies for Natural resources management	No specific, intersectoral body exists at district and regional level	At least 1 per district and 1 at regional level	Project reports, meeting minutes	<u>Risk:</u> low level of commitment of district and regional institutions/staff <u>Mitigation:</u> PCU will coordinate action and raise awareness on project activity coordination needs
	Outcome 3.2 Project implementation based on results based management and application of project lessons learned in future operations facilitated	Number of knowledge products developed Number of Project Implementation Review (PIR) rated as satisfactory	N/A N/A	At least 5 knowledge products developed 5	Knowledge products PIR reports	<u>Assumptions:</u> GRZ staff officially nominated and made available for project implementation and coordination

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Resp
Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

GEF Sec Comments	How the issue was addressed
1- Include science based evidences to justify the nature of interventions	Science based evidences have been included throu the document, in particular in section *A1-1 1) Glo environmental and/or adaptation problems, root and barriers that need to be addressed*
2- Include a stakeholder analysis before defining the project implementation arrangements	During project preparation, an Institutional Revie stakeholder Analysis has been conducted on the b literature and interviews/focus group discussions conducted in Lusaka and in the project area. At th local/community level, gender segregated data wa collected. The information collected is presented in detail in *4-baseline report 4*. The project implementation arrangements were initially built on the arrangem place for the baseline project, but were amended basis of the stakeholder analysis conducted and ex with main stakeholders during the 2 workshops co
3- Develop the coordination mechanisms with other initiatives and projects	Coordination mechanisms with other initiatives a projects are described in section *A.6. Institutional Arrangement and Coordination*
4- Include a comprehensive risk analysis	A comprehensive risk analysis is presented in sec *Risk*
5- Confirm the cofinancing. Identify other sources of parallel financing	Cofinancing from AfDB LTDP project is confirm (baseline project already going on). Other sources parallel financing have not been included as such project will cooperate closely with projects presen section *A.6. Institutional Arrangement and Coord*
6- Develop a Monitoring and Assessment Plan to measure the Global Environment Benefits	Section *A1-5) Global Environmental Benefits (GE* proposes a number of indicators and targets for th identified GEBs
7- Confirm the carbon value	Carbon value calculated with Ex-ACT tool. Anne provides details of calculations for direct and indi emissions reductions
8- Confirm the area under SLM and SFM	Target area for SFM is 12,000ha, confirmed durin stakeholder workshop with Forestry Department. Area under SLM is set at 20,000ha, which include of min. 12,000ha under SFM and min. 7500ha un conservation agriculture.
9- Provide mapped information	Done No detailed map of the region does exist, but the prepared a map locating main elements of the pro
STAP Comments	**How the issue was addressed**
1. STAP recommends detailing further how the GEF grant will complement the three components of the baseline project. As part of this information, STAP recommends defining how the project objective of the GEF grant will be linked to the wider AfDB loan, and how global environmental benefits will be achieved through the combination of both initiatives.	Section *A1.4) Incremental/additional cost reason expected contributions from the baseline, the GE LDCF, SCCF, and co-financing* does explain the contribution of the GEF project and how it compl the baseline project.
2. The proposal describes a number of environmental problems related to land degradation, biodiversity conservation, and climate change and the threats associated with each of these problems in the project justification section. STAP suggests strengthening	This has been addressed in section *A1-1) Global environmental and/or adaptation problems, root and barriers that need to be addressed*, through: i) references to the relevant literature;

these statements by citing references to scientific literature, and/or un-published and rigorous documentation based on local knowledge. Furthermore, STAP recommends development of a tighter linkage between the identified issues and the proposed interventions, and proposes that the project should focus on a narrower range of issues and interventions, to enhance the likelihood of sustained impact	ii) a detailed analysis on the threats to natural resources; iii) an analysis of the Impacts on natural resources; and iv) a detailed analysis of barriers to landscape approach to INRM, linking them closely to the threats Connectivity between these sections is important.
3. Poverty, limiting capacity to modify current slash and burn practices, and loss of productivity in Lake Tanganyika due to rising global temperatures, are identified as major challenges to this social-ecological system. It is not clear how the proposed interventions, focusing on encouragement of sustainable land management and sustainable forest management, will adequately address these challenges. To overcome this concern, STAP recommends that AfDB conducts a multi-stakeholder process to identify the key values, driving variables, and vulnerabilities in this social-ecological system, as part of the project development process. STAP suggests that AfDB consider applying the Resilience, Adaptation and Transformation Assessment Framework (link) to guide this multi-stakeholder assessment process. Please refer to the following link to learn more about the resilience framework: http://www.stapgef.org/the-resilience-adaptation-andtransformation-assessment-framework/ Application of the RATA procedure will assist the proponent to identify the multiple stressors influencing the sustainability of the lake ecosystem, and any linkages between the stressors. Furthermore, STAP suggests that it may be useful to draw a distinction between multiple stressors (chemicals, nutrients, temperature) and multiple sources of a single stressor (e.g. nutrients from multiple agricultural enterprises). This will contribute in addressing knowledge gaps on the multiple stressors affecting large ecosystems and how to manage their complex and interacting relationships. (See Servos, M. et al. "Science and management of transboundary lakes: Lessons learned from the global environment facility program". Application of the RATA framework will also assist in identifying the most effective interventions to improve basin management, the challenges to their implementation, and appropriate indicators for monitoring and assessment.	Project components and outcomes have been adjusted and outputs were reorganised, including new outputs, so that the mentioned challenges are more clearly addressed. This has been done in close consultation with project implementers, who directly contributed to the definition of the activities under each output. The RATA procedure seemed difficult to apply given the already advanced stage of the project, considering that the baseline project (AfDB loan) officially started on 12 December 2015.
4. Furthermore, STAP recommends conducting a stakeholder analysis so the project is rooted, and integrates local and scientific knowledge. STAP believes it is important for communities'/local stakeholders' knowledge to be used in the design and implementation of the proposal so they are in a better position to monitor and respond to the multiple challenges influencing their well-being and Lake Tanganyika's sustainability. Currently, the proposal outlines the intent to conduct stakeholder consultations, and STAP suggests specifying this further by describing: 1) how local stakeholders' understanding of land degradation, biodiversity loss, and climate change risks will be used to improve land management practices; and 2) how local knowledge will be used to complement and validate the monitoring and evaluation from scientific analyses, such as those being proposed in component. The project developers could refer to the following publications outlining the methodological steps necessary for stakeholder analysis: Reed, M. et al "Who's in and why? A typology of stakeholder analysis methods for natural resource management". Journal of Environmental Management 90 (2009) 1933â€“1949. Barrios, E. et al. "InPaC-S: Participatory	See GEF comment 2 on stakeholder analysis. References to stakeholders' knowledge and understanding of NR depletion has been added in section *A1-3) Proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project.* For example, local knowledge regarding fisheries shall be taken into account, as traditionally, local communities were using sustainable practice (such as a no fishing period of several months every year, as was expressed during community focus group discussions)

Knowledge Integration on Indicators of Soil Quality â€“ Methodological Guide". World Agroforestry Centre (2012)	
5. STAP suggests identifying the indicators for each of the proposed global environmental benefits. Currently, the proposal does not include indicators, or suggests possible indicators.	This is done in section *A1-5) Global Environmental Benefits (GEBs)*
6. STAP recommends strengthening the links between the three components. Generating data from ecosystem approaches (component 1 and 2) through suitable indicators will strengthen the monitoring and management of Lake Tanganyika. As M.R. Servos et al (2013) notes, baseline data in transboundary lake systems are often not available, or comparable. Therefore, it is important for the project developers to define how the monitoring of Lake Tanganyika in the northern province of Zambia will contribute to the monitoring and knowledge base of the comprehensive lake ecosystem. (See Servos, M.R. et al. "Science and management of transboundary lakes: lessons learned from the global environment facility program". Environmental Development 7 (2013) 17-31.)	This is mostly captured in section *A1-3) Proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project* The reorganization of the 3 components aims to clarify the structure and link the components between themselves, so that they respond to the 3 barriers to INRM identified
7. STAP recommends integrating an assessment of the trade-offs between the environmental and socioeconomic benefits and costs. Doing so will assist in developing actions that reflect the reality and capacities influencing local stakeholders' decisions on the management of multiple ecosystem services provided by the lake and its surrounding land resource	Section *A.7 Benefits* captures this.
GEF Council Comments	**How the issue was addressed**
Comments from Germany: 1/ It is recommended to clearly identify how the project will support GRZ in the implementation of relevant policies (i.e. Forestry policy 2015) and Acts (i.e. Water Resource Management Act 2011). The WRM Act prescribes the establishment of Catchment Management Organizations, Catchment management plans and Water Users Associations. For integrated water shed management, which is to be supported through this project, integration of plans of different of different sectors and harmonization and coordination of organizations will be essential. A close cooperation with organization responsible for water resources management is suggested. 2/ Furthermore, the Water Resources Development programme (World Bank loan) and the water sector reform programme (funded by German Cooperation), which are both implemented by the Ministry of Mines, Energy and Water Development, are supporting the implementation of the reforms in water resources management. Cooperation with these programmes is suggested.	1/ This aspect is captured under components 1 (Outcome 1.1- Improved Landscape planning in Zambia's Lake Tanganyika basin) and 3 (outcome 3.1- Enhanced policy and institutional coordination for better service delivery and enforcement of the landscape management plans and livelihood initiatives). Adjustments to §42 and §46 have been made in order to reinforce them. 2/ This is captured in section *A.6. Institutional Arrangement and Coordination* §90. Text modified accordingly to reflect this better.
Comments from the USA: 3/ The United States welcomes this project concept. That said, the PIF lacks specifics regarding outputs, impact, selection of participants, stakeholder engagement, and possible externalities resulting from interventions such as expanded agriculture, irrigation and livestock schemes. We were, however, pleased with the detailed comments we received from the AfDB in response to our technical concerns and comments and look forward to further details in the PPG phase.	3/ The Project document details further the outcomes and outputs of the project. A comprehensive stakeholder anlaysis has been conducted during the PPG process (Annex x). Based on this, the project document includes detailed information on stakhodelr engageenmt in sections A*.3. Stakeholders and A.6. Institutional Arrangement and Coordination*. Possible externalities of project interventions are captured in section *A.5 Risk* and *Annex 3: Barriers for Sustainable Integrated Management of Natural Resources and Adoption of a Landscape Approach Report*.

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[77]

A. Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: **$200,000**			
Project Preparation Activities Implemented	***GEF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent Todate***	***Amount Committed***
Inception Workshop with Stakeholders	20,000	10,000	20,000
Consultancy preparation contract	150,000	140,000	150,000
Site visit and consultations	15,000	20,000	15,000
Validation with Stakeholders workshop	15,000	10,000	15,000
Total	200,000	180,000	200,000

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used**)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF Trust Funds or to your Agency (and/or revolving fund that will be set up)

N/A

[77] If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities. Agencies should also report closing of PPG to Trustee in its Quarterly Report.

Preparation of Project Appraisal (CEO Endorsement) Document "Zambia Lake Tanganyika Basin Sustainable Development Project"

Annex1 - Baseline Report 1: Legal and Policy Framework and Stakeholder Analysis Report

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June 1 2016

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Table of Acronyms

Acronym	Definition
AfDB	African Development Bank
CAAC	Catchment Area Advisory Committees
CBD	Convention on Biodiversity
CBNRM	Community Based Natural Resources Management
CCAP	Adaptation to Effect of Climate Variability and Change in Agro Ecological Zones I & II in Zambia Project
CF	Community Forestry
CLT	Conservation Lake Tanganyika
CLTS	Community Led Total Sanitation
CRB	Community Resources Board
DIP	Decentralisation Implementation Plan
DNPW	Department of National Parks and Wildlife
DSP	District Strategic Plan
FAO	Food and Agricultural Organisation
FMA	Fisheries Management Areas
GDP	Gross Domestic Product
GEF	Global Environment Facility
GMA	Game Management Areas
IDPs	Integrated Development Plans
IFMIS	Integrated Financial Management Information Systems
IIMCCS	Interim Inter-Ministerial Climate Change Secretariat
IUCN	International Union for Conservation of Nature
JFM	Joint Forestry Management
LAPs	Local Area Plans
LAT	Lake Tanganyika Authority
LTBSDP	Lake Tanganyika Basin Sustainable Development Project
LTRIMP	Lake Tanganyika Regional Integrated Management Programme
MDGs	Millennium Development Goals
MGCD	Ministry of Gender and Child Development
MLGH	Ministry of Local Government and Housing
MLNREP	Ministry of Lands, Natural Resources and Environmental Protection
MMEWD	Ministry of Mines, Energy and Water Development
NAP	National Agriculture Policy
NBSAP	National Biodiversity Strategy Action Plan
NBSAP2	Second National Biodiversity Strategy and Action Plan
NCCRS	National Climate Change Response Strategy
NGO	Non Governmental Organisation
NJP	National Joint Programme
PA	Protected Area(s)
REA	Rural Electrification Authority
REDD+	National Strategy to Reduce Emissions from Deforestation and Forest Degradation
R-SNDP	Revised Sixth National Development Plan

SADC	South African Development Community Countries
SAP	Strategic Action Programme
SeNDP	Seventh National Development Plan
SLTS	School Led Total Sanitation
UNCCBD	United Nations Convention on Biological Diversity
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VAGs	Village Action Groups
VCDC	Village Conservation and Development Committees
WRMA	Water Resource Management Authority
WRUA	Water Resource User Associations
ZAWA	Zambia Wildlife Authority
ZCSD	Zambia Council for Social Development
ZEMA	Zambia Environmental Management Agency
ZNFU	Zambia National Farmers Union

1. Legal and Policy Framework

1.1 Overview

Zambia has made great strides in ushering in a new Constitution and introduction of a series of new Acts and policies which have a direct bearing on local governments, local communities, and the effective management of natural resources. These efforts in the long run will guarantee better and sustainable action for the protection of the natural resources and the involvement of the local communities in managing the resources equitably, inclusively, and in a more transparent manner than in the past. However, the ramifications of the changes are far from being fully comprehended. There are major implications on resource allocations, capacity building at various levels including local government, and nurturing different scenarios to effectively engage citizens in economic development that are not yet worked out and supported with enabling policies and programmes. There are expectations that the collective impact of these policy changes will be to permit more participatory and flexible approaches to managing natural resources at the local level.

In terms of the significant changes, the National Forestry Policy 2015 and Forests Act 2015 were recently revised to improve forest and land management. Further the new Forestry Policy intends to promote the working environment as supported by the new Urban and Regional Planning Act, and the Zambia Wildlife Act. These efforts are of great relevance to the Lake Tanganyika Basin Sustainable Development Project (LTBSDP). A new National Biodiversity Strategy is also in place to cover the 2015 to 2025 period. The National Agriculture Policy was revised in 2012 and aligned to the Vision Zambia 2030 that was developed in 2006. In addition a new REDD+ Strategy is also anticipated to be in place shortly to direct efforts on counteracting on greenhouse emissions.

In addition to the Zambia National Vision 2030, much of the updating of legislation responds to the Zambian Government's desire to transform governance in the country. This will require a new paradigm shift where by decision making is secured within three-tier governance which is upgraded at national, regional, and district levels. This shift will see more local level decision making and capabilities with the central governance concentrating in providing guidance, policy development, and technical support in the realization of government objectives. With a wide range of legislative pieces impacting on local governments, a challenge for the country will be coherence. In relation to natural resource management there can be multiple policies or legislative Act applicable to a single development initiative in some cases requiring approval from multiple government ministries or departments with all typically challenged by a lack of resources and technical capacity to implement the approval process.

A broad range of Zambian Policies and Acts are reviewed in this document and there is a considerable amount of overlap between them. While all have some degree relevance to the LTBSDP some are more pertinent. This would include Zambia's National Vision 2030 that has served to frame many current and policies and acts that will eventually influence the project. Providing operational guidance is the Revised Sixth National Development Plan (2013-2016). Two others that have direct practical implications across all government departments that will participate in the LTBSDP are the Local Government Act and Decentralisation Policy and the Urban and Regional Planning Act. One other aspect of direct importance is the Integrated Financial Management Information Systems (IFMIS) that aims to promote reforms to improve fiscal transparency and accountability in Ministries and government-aided spending agencies.[1] Due to its complexity this is not examined any further.

[1] http://www.ago.gov.zm/news/ifmis.html

1.2 Relevant Legislation, Policies, Strategies and Programmes

1.2.1 Zambia's National Vision 2030

The Vision 2030 is referred to as the first long-term strategic plan for the country. Vision 2030 establishes a number of objectives towards Zambia becoming "a prosperous middle-income nation" by the year 2030.[2] The Vision is being operationalized through a series of five-year national plans with the first that began in 2006. The Zambian Vision outlines three development scenarios: (1) the baseline; (2) the preferred; and (3) the optimistic scenario. The socio-economic development objectives of the preferred scenario sees annual economic growth rates increasing from 6 to 10% by 2030 with the expectation that it would reduce poverty levels and achieve education and access to health care for all. The Vision provides for the establishment of a decentralised governance system with a set of specific goals and targets for different sectors, e.g. for the Energy sector, the target is to reduce the use of wood fuel by 40% by end of 2030. Vision 2030 also emphasizes development based on "*sustainable environment and natural resource management principles*." All these pieces of the Vision have a direct relevance to the project.

1.2.2 Revised Sixth National Development Plan (2013-2016)

In support of Vision 2030 in 2014, the Government of Zambia released a revised Sixth National Development Plan (R-SNDP) to cover the years 2013-2016. This replaced an earlier Sixth National Development Plan (SNDP) covering 2011 to 2015.[3] The official reason for the revision was to allow the ruling government to align the Plan with the political election cycle and provide the ruling party the opportunity to integrate its own vision into the plan.

The R-SNDP focuses on public capital investments that favour rural development and job creation with the objective of achieving inclusive growth. The priority areas for the revised plan are several but include: Skills Development; Science and Technology; Agriculture; Livestock and Fisheries; Energy and Infrastructure Development particularly transport infrastructure; Water and Sanitation; Education and Health. Other recurrent priorities are prioritized through respective sector policies and accorded annual budgets allotments. The objective is to have the R-SNDP complement existing sector policies and plans. Discussions are currently underway to develop a new national development plan for the period 2017 to 2021.

1.2.3 Lake Tanganyika Convention

The Lake Tanganyika Convention was adopted in Dar es Salaam in 2003.[4] The Convention applies to Lake Tanganyika and its Basin. It is applicable to all human activities, aircraft and vessels under the control of a "Contracting State" on how to respond to any unwanted impacts. Four countries are signatories - Zambia, Tanzania, Burundi and the Democratic Republic of the Congo. The Convention's overall objective is to "ensure

[2] http://unpan1.un.org/intradoc/groups/public/documents/cpsi/unpan040333.pdf

[3] http://www.gwp.org/Global/Activities/Impact%20Stories/Supporting%20documents/Revised%20Sixth%20National%20Development%20Plan.pdf

[4] http://www.ecolex.org/server2.php/libcat/docs/TRE/Full/En/TRE-001482.pdf

the protection and conservation of the biological diversity and sustainable use of the natural resources of Lake Tanganyika and its basin".[5] The Conventions obliges all countries to act in a manner to ensure the overall well being of the entire water basin. The Convention provides the institutional and legal framework for regional cooperation, and for the Lake Tanganyika Authority (LTA), as the institutional management structure to coordinate the implementation of the convention. The LTA is based in Burundi.

To achieve the Convention's overall objective a Strategic Action Programme (SAP) was developed and endorsed by the four signatory countries. The key objectives of the SAP include the stable and efficient operations of the LTA, improvement of community infrastructure and water treatment capacity, development of stakeholders' capacity in sustainable management of fisheries resources, reduction of water pollution and sedimentation flows into the lake, and establishment of an integrated regional monitoring system.[6]

The Conference of Ministers is the governing body of the LTA. It is comprised of one minister from each country meeting once a year to evaluate the Convention's implementation, and may approve any new protocols, annexes, subsidiary bodies or amendments to the Convention. The Management Committee is the second organ of the LTA, whose purpose is to support, coordinate, and monitor the Convention's implementation, including the supervision of the LTA Secretariat. It is supported by four technical sub-committees, addressing socio-economic conditions, water quality and pollution, biological diversity, and fisheries management. The Secretariat is the executive organ of the Convention, responsible for carrying out tasks assigned to it by the Management Committee, the Conference of Ministers, or any other protocol, among others.[7]

The Convention provides the legal framework for the implementation of project activity and to date the most importantly in this regard is the Lake Tanganyika Regional Integrated Management Programme (LTRIMP) that began its implementation in 2008 which identified interventions in the SAP and the Framework Fisheries Management Plan for the lake. The LTRIMP has been supported by the African Development Bank (ADB), the United Nations Development Programme (UNDP), the GEF, the Nordic Development Fund, the Food and Agriculture Organisation (FAO), International Union for Conservation of Nature (IUCN) and the United Nations Environment Programme (UNDP). For Zambia component of the LTRIMP UNDP implemented the **"Catchment management through sedimentation control" (PIMS 1941).** Subsequently the UNDP and ADB collaborated on programme extensions. The programme finally terminated in 2013. Priority actions of the programme included development and capacity building of local and national stakeholders, establishment of sustainable fisheries, pollution control through improved wastewater management, sustainable catchment management demonstrations, and establishment of regional lake monitoring systems.

1.2.4 Local Government Act and National Decentralisation Policy of 2002

Since independence Zambia has initiated a number of efforts to promote decentralisation. This has been done to respond to what is considered to be a highly centralised system of Government that is a legacy of the country's colonial legacy.[8] Decentralisation of natural resources management in Zambia through local government reforms began as early as the 1990s at which point the state sought to devolve a range of functions and responsibilities to local governments. At more or less the same time the autonomy of local councils was being strengthened as a number of responsibilities in different sectors such as education were devolved.

[5] http://www.ecolex.org/server2.php/libcat/docs/TRE/Full/En/TRE-001482.pdf

[6] http://commissionoceanindien.org/fileadmin/projets/smartfish/Fiche/FICHE5ENGLISH.pdf

[7] http://www.internationalwatersgovernance.com/uploads/1/3/5/2/13524076/lake-tanganyika.pdf

[8] http://theredddesk.org/countries/policies/national-decentralisation-policy-2002-zambia

The Decentralisation Policy of 2002 [9] aims to "devolve authority, functions and responsibilities to the district level in order to improve the quality of service delivery at the sub-national level, including management of natural resources.' [10] Although since its enactment, the process of decentralisation has become stagnant for different periods, the current government is very supportive attempting to building on the Sixth National Development Plan (2011-2015) and a Revised Decentralisation Implementation Plan (DIP) of 2009-2013. The Zambia Council for Social Development (ZCSD) is one of organisation that claims that the DIP itself is constantly being revised as opposed to being enacted upon which is critical to ensuring the decentralisation process legal working environment.[11]

The long-term vision of the Policy is to achieve "a fully decentralised and democratically elected system of governance characterised by open, predictable and transparent policy making and implementation processes at all levels of the public service, effective local community participation in decision-making and development administration while maintaining sufficient linkages between central and local government". At the time of its development, the Policy projected that it would take ten years to see the decentralisation policy fully implemented with the required institutional changes in place. [12] While this ambition remains far from being realised, the desire to see its fulfilment remains strong amongst stakeholders such as cooperating partners like USAID and national organisations such as ZCSD.

1.2.5 National Strategy to Reduce Emissions from Deforestation and Forest Degradation (REDD+ 2015)

In 2010, Zambia was selected as one of the pilot countries for the UN-REDD Programme. The same year planning for REDD+ started and a National Joint Programme (NJP) was established between the Forestry Department, of the Ministry of Lands, Natural Resources and Environmental Protection (MLNREP), and the implementing bodies of the UN-REDD Programme - the FAO, UNDP, and UNEP.

Zambia has developed a draft National REDD+ Strategy that is expected to become official shortly. The objective of the strategy will be to "realize a prosperous climate change resilient economy by 2030, anchored upon sustainable management and utilization of Zambia's natural resources towards improved livelihoods". The proposed national REDD+ strategy has been conceptualised in the context of ongoing and growing decentralisation. The forestry sector, like other natural resource sectors, has historically been guided by strong central direction to forest management with little openness to community involvement. As noted below the new Forestry Act is attempting to address the lack of inclusiveness.

The goal of the new strategy is to contribute to national reductions in greenhouse gas emissions by improving forest and land management, and to ensure equitable sharing of both carbon and non-carbon benefits among stakeholders. The strategy is guided by seven core principles: effectiveness, efficiency, fairness, transparency, accountability, inclusiveness and sustainability. The strategic objectives of this strategy include:

1. By 2030, threatened and unsustainably managed national and local forests are effectively managed and protected to reduce emissions from deforestation and forest degradation and contribute with ecosystem services across selected landscapes;

2. By 2030, selected high value forests in open areas are effectively managed and monitored;

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[9] http://www.parliament.gov.zm/sites/default/files/documents/acts/Local%20Government%20Act.pdf

[10] http://www.parliament.gov.zm/sites/default/files/documents/acts/Local%20Government%20Act.pdf

[11] http://www.qfmzambia.com/2015/03/13/zcsd-bemoans-lack-of-decentralisation-implementation-plan/

[12] http://theredddesk.org/countries/policies/national-decentralisation-policy-2002-zambia

3. By 2030, all timber concession areas have management plans that are enforced and monitored with the full participation of local communities;

4. By 2030, good agricultural practices that mitigate carbon emissions adopted;

5. By 2030, regulated production of wood fuel (charcoal & firewood) and its improved utilization in place;

6. By 2020, appropriate and affordable alternative energy sources widely adopted;

7. By 2020, threatened and sensitive Protected Area (PA) legislated as "no-go areas" for mining and infrastructure development;[13]

8. By 2025, mining industry contributing to management of surrounding indigenous forests and establishment of forest plantations for own timber needs;

9. By 2025, land and resource rights on customary land legislated and secured; and

10. By 2020, relevant institutions capacitated to enable them to plan, manage, implement and monitor REDD+ programme activities. (It is noted that there are no REDD sites within the two districts of the projects.)

1.2.6 The Forestry Act of 2015

The new Forestry Act of 2015 replaces the Forestry Act of 1999.[14] The new Act has very different orientation favouring more varied approaches to achieving the objective of 13% forestry coverage across the country. The Act of 2015 provides for the establishment of National Forests, Local Forests, Joint Forestry Management (JFM) -which was a part of the previous Act but was considered to be highly flawed from an implementation standpoint- Community Forestry (CF) management areas, botanical reserves, and private forests. The new Act has provisions for the participation of local communities, local authorities, traditional institutions, Non Government Organisations (NGOs) and other stakeholders in the hopes of promoting sustainable forest management practices. The new Act is expected to guide the conservation and use of forests and trees to manage forests ecosystems and protect biological diversity. It has provisions to establish a Forest Development Fund and to facilitate the implementation and adherence to the United Nations Framework Convention on Climate Change (UNFCCC), Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Convention on Wetlands of International Importance, especially as Water Fowl Habitat, the Convention on Biological Diversity, the Convention to Combat Desertification and other international agreements.

According to experts in Zambia, through the new Forestry Act, JFM has better defined structures and milestones for the submission of documents and granting approval and introducing modifications. CF has also well defined criteria that will obligate both Government and applicants to respect specific responsibilities and timelines. Having these defined elements is considered to be a key improvement over the old act where individual processes would drag on before finally falling apart. Furthermore, community inclusiveness presents as defined in the Act presents a rare opportunity whereby a community is empowered and can apply for specific rights or look at achieving specific results such as the issue related to access to biodiversity and sharing. There is more community control in the CF system. The JFM on the other hand, is more encompassing. The situation will dictate which system is preferable. As an empowerment tool in an overall context where decentralisation and engagement are being encouraged, the CF model would appear to be preferable. These two elements need to be well harmonised in the project so that synergies are exploited for the communities and the ecosystems.

[13] Zambia National Strategy to Reduce Emissions from Deforestation and Forest Degradation.,(REDD+)(January 2015)

[14] http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20Forest%20Act%202015.pdf

1.2.7 Urban and Regional Planning Act of 2015

The Urban and Regional Planning Act of 2015[15] is expected to provide for greater community involvement in local planning decisions and in theory complements both the new Forestry Act and the Decentralisation Act.[16] This Act is seen by international organisations as a major step forward for Zambia for bringing more stakeholders into natural resource management schemes and in particular forest protection activities "whilst providing secure rights and access to benefits."[17] The legislation is seen by one donor as providing a "favourable and supportive policy and legal framework to support the implementation of their project on the management of forests and other natural resources."

The Ministry of Local Government and Housing (MLGH) is responsible for the Urban and Regional Planning Act. Upon its enactment, in theory it reshaped how planning was to be done in Zambia extending planning controls across customary and state land, and designating local authorities as planning authorities. This change means local authorities will need to prepare Integrated Development Plans (IDPs) and Local Area Plans (LAPs) for their districts. There is early evidence of this with the District Council of Mpulungu that has developed a very detailed District report for 2015 and a District Strategic Plan (DSP) for 2014-2016 already. However, this new requirement will oblige local government departments to develop more planning capacity and the ability and intuition to make use of participatory development practices to ensure communities are engaged.

1.2.8 The Zambia Wildlife Act 2 (2015)

The Zambia Wildlife Act 2 of 2015 updates the previous Act from 1998.[18] This Act provided the framework for the abolishment of the Zambia Wildlife Authority (ZAWA) and to establish the Department of National Parks and Wildlife in the Ministry of Tourism and Art. ZAWA had been facing a number of operational challenges and authorities deemed a change was necessary. At the same time however, most of ZAWA's former staff have moved over to the new department. The Zambia Wildlife Act 2 provides statutes to establish and operate National Parks, bird and wildlife sanctuaries and for the conservation and enhancement of wildlife eco-systems, biological diversity and objects of aesthetic, pre-historic, historical, geological, archeological and scientific interest in National Parks. It describes the requirements for establishing control and co-management of Community Partnership Parks. It also has provisions to legislate for the sustainable use of wildlife and the effective management of the wildlife habitat in Game Management Areas (GMA). It also champions the direct access and sharing of benefits from GMAs to local communities and to engage these communities in the management of GMA.

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[15] http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20Urban%20and%20Regional%20Planning%20%20Act,%202015.pdf

[16] The Act provides for "development, planning and administration principles, standards and requirements for urban and regional planning processes and systems; focuses on establishing democratic, accountable, transparent, participatory and inclusive process for urban and regional planning for engagement of communities, private sector, interest groups and other stakeholders. This is a devolved system of governance that ensures multi-sector cooperation, coordination and involvement of different levels of ministries, provincial administration, local authorities, traditional leaders and other stakeholders in urban and regional planning

[17] Summary Review of Finish Cooperation Development Priorities 2015 to2016 Page 2.

[18] http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20%20Zambia%20Wildlife%20Act,%202015.pdf

Also in relation to GMAs, the Act covers the role of management plans, regulation of game ranching; licensing of hunting and control of the processing, sale, import and export of wild animals and trophies. It provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on Wetlands of International Importance especially as Waterfowl Habitat, the Convention on Biological Diversity, the Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora and other international instruments to which Zambia is party. This Act applies to the two GMAs present in Nsama District, around Nsumu National Park, namely Tondwa and Kaputa GMAs.

1.2.9 National Biodiversity Strategy and Action Plan 2015–2025

The Second National Biodiversity Strategy and Action Plan (NBSAP2)[19]were designed to contribute to both the long-term and medium-term national development objectives as expressed in the Vision 2030 and Revised Sixth National Development Plan respectively. It replaces the previous National Biodiversity Strategy Action Plan (NBSAP) from 1999 that had grown out of sync with many major government policy pronouncements. The NBSAP 2015-2025 was also expected to assist with the domestication of Zambia's obligation under international agreements, conventions and agreements such as the Convention on Biological Diversity (UNCCBD), the UNFCCC, the Ramsar Convention on Wetlands including regional South African Development Community Countries (SADC) protocols on wildlife, water, fisheries, forestry, biosafety, energy, mining, gender and others.[20] The strategy is also set as a blueprint for Zambia to regularly report on progress towards the Aichi Biodiversity Targets towards the Convention of Biodiversity (CBD) Parties commitments.

Some of the key objectives of the NBSAP 2015-2025 and the 20 Aichi Biodiversity Targets support that are directly relevant to the Lake Tanganyika Basin Sustainable Project are:

- By 2020, Zambians, especially local communities, are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

- By 2020, biodiversity values have been integrated into the Seventh National Development Plan (SeNDP), provincial and district development plans and planning processes as well as reporting systems are being incorporated into national accounting, as appropriate.

- By 2025, areas under agriculture, aquaculture and forestry (forest reserves, parks, Game Management Areas, forest concessions, open areas) are managed sustainably, ensuring conservation of biodiversity.

- By 2020, pollution, including excess nutrients from industry (mining, agriculture, etc.), has been brought to levels that are not detrimental to ecosystem function and biodiversity.

- By 2020, invasive alien species (*Mimosa pigra, Hyacinth, crayfish, and Lantana camara*) and their spreading pathways are identified and prioritized, controlled or eradicated, and measures are in place to manage pathways to prevent their spread and establishment.

- By 2020, Zambia's PA network is rationalized to achieve representativeness and ecological connectivity at landscape level.

- By 2020, the traditional knowledge, innovations and practices of local communities relevant for the conservation and sustainable use of biodiversity are respected, fully integrated and reflected in the implementation of the Convention with the full and effective participation of local communities, at all relevant levels.

[19] https://www.cbd.int/doc/world/zm/zm-nbsap-v2-en.pdf
[20] https://www.cbd.int/doc/world/zm/zm-nbsap-v2-en.pdf

In achieving the objectives of the NBSAP Zambia will call upon multiple Government departments, civil society and the private sector to articulate its implementation at all levels.

1.2.10 National Agricultural Policy (2012)

The National Agriculture Policy (NAP) 2012-2030 replaces the previous National policy covering the period of 2004-2015. At the time of the enactment of the new policy Zambia was seen as being on the verge of "agriculture prosperity". The new National Agriculture Policy addresses a number of weaknesses impeding progress which include:

(i) Low agricultural productivity among small scale farmers;

(ii) Inefficient input and output agricultural markets;

(iii) Decreasing rate of growth of agricultural exports;

(iv) Poor small scale farmer access to productive agricultural resources and services to increase production; and

(v) the weak public and private sector capacity to facilitate planning, resource mobilisation, implementation, monitoring and evaluation of agricultural policy and regulatory provisions. [21]

The mission of the agricultural sector is to facilitate the development of a competitive, diversified, equitable and sustainable agriculture sector and the specific goals are:

(i) To increase the annual growth rate of the real Gross Domestic Product (GDP);

(ii) To increase the value and growth rate of crop exports;

(iii) To contribute to reduction of poverty and food insecurity in rural and urban areas.[22]

The objectives of NAP 2012–2030 are to:

(i) Promote sustainable increase in agricultural productivity of major crops with comparative advantage;

(ii) Continuously improve agricultural input and product markets so as to reduce marketing costs of agribusiness, including small-scale farmers and farmer groups;

(iii) Increase agricultural exports to preferential markets at regional and international levels;

(iv) Improve access to productive resources and services for small-scale farmers, especially women and young farmers, in outlying areas to enable them to increase production of staple foods, including fruits and vegetables, for own consumption and the surplus for income generation;

(v) Continuously strengthen public and private sector institutional capabilities to improve agricultural policy implementation, resource mobilisation, agriculture research, technology dissemination, and implementation of regulatory services[23].

[21] Republic of Zambia (Final Draft) Ministry of Agriculture and Co-operatives: The National Agriculture Policy 2012-2030 August, 2011.

[22] Ibid.,

The revised NAP 2012-2030 is expected to facilitate stronger partnership between farmers, agribusiness, public sector, civil society, and development partners. Each partner is expected to integrate the implications of the revised NAP 2012-2030 objectives in their own strategic plans and work plans.

1.2.11 Property Rights

The issue of property rights in Zambia can be very convoluted. Zambia is considered to be the mid range of African countries in terms of having property rights respected.[24] A mixture of local traditions, the country's constitution and various laws contribute to assuring property rights.

In the mid 1990's, the Government of Zambia began to encourage investment to improve agricultural productivity. Some of this involved a focus on rural lands. The 1995 Land Act enabled the conversion of customary land into long-term leases of state land. This was taken advantage by a variety of interest groups but not small scale farmers. About 10% of land has been converted for investment purposes.

The Final Draft Constitution of the Republic of Zambia (2014) is expected to declare that land in Zambia is held by the President in trust for the people and that customary land – traditionally held dwelling places, agricultural areas, communal forests, grazing areas, shrines, etc. – is land delineated as such by the Parliament. The new Constitution would establish a Lands Commission with offices in all provinces and responsibility to "administer, manage and alienate land" on behalf of the President. The draft constitution provides for: (1) equitable access to land and associated resources; (2) equitable access to and ownership of land by women; (3) land tenure security; (4) sustainable and productive management of land resources; (5) transparent and cost-effective management of land; (6) conservation and protection of ecologically sensitive areas; and (7) cost-effective and efficient settlement of land disputes. In addition, the draft constitution provides for the continuation of the customary and private (leasehold) tenure systems and calls for revisions to legislation to be enacted to: revise existing land laws; prohibit land speculation; address imbalances in land alienation; provide for periodic land audits; provide means for securing customary land tenure; provide equitable access to state land; enable settlement of landless people; and establish minimum and maximum holdings in arable lands.[25] "In line with the amended Constitution of Zambia, a draft Land Policy Document is also advocating for equitable access to land, security of tenure and recognition of cultural rights.

The Ministry of Lands, Natural Resources and Environmental Protection is the main governing body for land surveying, identification, processing applications for leasehold tenure, registering of title and land dispute resolution. Leasehold land titles are available to Zambian nationals on the President's discretion. According to the Lands Act, leasehold titles can be issued on customary lands, but not without taking into account customary laws and obtaining the approval of the Chief and then the approval and support of the relevant district council. In the case of GMAs the Department of National Parks and Wildlife of the Ministry of Tourism and Art must be consulted and approved.

According to various laws the right to wildlife and trees, including all forest produce, is vested in the President. There is currently no legal framework in place for recognising carbon tenure and carbon rights. [26] However, since "ownership", in the absolute sense of the term, of all trees is vested in the President this is also likely to

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[23] Ibid.,

[24] http://www.globalpropertyguide.com/Africa/Zambia/property-rights-index

[25] http://www.usaidlandtenure.net/sites/default/files/country-profiles/full-reports/USAID_Land_Tenure_Zambia_Profile.pdf

[26] Chundama, M. 2009. Preparing for REDD in Dryland Forests: Investigating the options and potential synergy for REDD payments in the miombo eco-region, Zambia Country Study. IIED, London.

include carbon. The right to use and benefit from natural resources (subsistence use) for the general population are enshrined in the national Constitution and are bestowed in both statutory and customary law[27].The right to commercial exploitation of forest resources is subject to permits and licenses from the forestry department.

1.2.12 Water Resources Management Act and Water Resource Management Authority

The Water Resources Management Act of 2011 repeals the Water Act of 1949.[28] It was enacted by the Parliament of Zambia to establish the Water Resource Management Authority (WRMA) under delegated authority to the local government and, amongst other responsibilities, to provide for the management and protection of water resources and its eco-systems and to create an enabling environment for adaptation to climate change and to avert environmental degradation, including deforestation.

The Act enables the WRMA to provide for the management, development, conservation, protection and preservation of water resource and their ecosystems; provide for the equitable, reasonable and sustainable utilisation of the water resource; ensure the right to draw or take water for domestic and non-commercial purposes. Through the Act the WRMA is expected to ensure that the poor and vulnerable members of the society have an adequate and sustainable source of water free from any charge; create an enabling environment for adaptation to climate change; provide for the constitution, functions and composition of catchment councils; sub-catchment councils and water users associations.[29] The Act also recognises international and regional cooperation in, and equitable and sustainable utilisation of, shared water resources; and the domestication of international law relating to the environment and shared water resources as specified in the treaties, conventions and agreements to which Zambia is a State Party.

In order for WRMA to undertake its stipulated responsibilities, the Act provides for decentralized and stakeholder involvement. This will be implemented through regional offices of the Authority based on drainage basins (catchment areas) assisted by Catchment Area Advisory Committees (CAACs). At the grassroots level, stakeholder engagement will be through Water Resource User Associations (WRUAs).

1.2.13 Environmental Management Act (2011) and the National Policy on Environment of 2005

The Environmental Management Act of 2011[30] was enacted by the Parliament of Zambia to:

i) Establish the Zambia Environmental Management Agency (ZEMA former Environmental Council)

ii) Provide for integrated environmental management and the sustainable use and management of natural resources; and

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[27] Chundama, M. 2009. Preparing for REDD in Dryland Forests: Investigating the options and potential synergy for REDD payments in the miombo eco-region, Zambia Country Study. IIED, London.

[28] http://faolex.fao.org/docs/pdf/zam117433.pdf

[29] Ibid.

[30] http://theredddesk.org/sites/default/files/ema.pdf

iii) To address emerging environmental issues and challenges such as climate change and pollution from persistent organic pollutants and electronic waste.

The Act addresses the need to implement environmental safeguards in the environment and natural resource management sector, by setting out the requirements for carrying out Environmental Impact Assessments and Strategic Environmental Assessments.[31] The National Policy on Environment of 2005 is expected to act as an overriding government policy that ensures coordination towards sustainable development. It has a strong focus on economic matters. The policy aims to promote alternative energy sources to fuel-wood and technologies to reduce the use of fuel-wood and enhance carbon-sinks. The Policy focuses on the Forestry sector, the promotion of the sustainable use of forest resources and promotes the importance of building local capacities.[32] While the National Policy on Environment was considered to be comprehensive at the time of its development involving a broad range of stakeholders, the policy is now considered given the number of other Government policies that have been enacted in recent times, a bit outdated. The Government announced its intention to commence its review in 2015.

1.2.14 Fisheries (Amendment) Act of 2007

In 2007, the Government passed the Fisheries (Amendment) Act of 2007 to Amend the Fisheries Act of 1974.[33]One of the objectives was to introduce the concept of Fisheries Management Areas (FMA). While fishing activity is covered by other policies identified here such as the Lake Tanganyika Convention that is of critical importance as the Lake is an international body of water, the Amendment Act of 2007 introduced a number of practical considerations including the goal of engaging surrounding communities in fisheries management, promoting the aquaculture sector, and establishing a Fisheries Development Fund. Under the new Act, each fishery will be designated a Fisheries Management Area, and run by a Fisheries Management Committee. The Committee will oversee the development and implementation of a FMA plans at the level of the fishery and are expected to manage financial resources in such a manner as to bring benefits to surrounding communities. The Fisheries Act is considered a key element in the Zambian policies relied upon to protect biodiversity.

1.2.15 National Climate Change Response Strategy

The National Climate Change Response Strategy (NCCRS) of Zambia was developed to support and facilitate a coordinated response to climate change. The Strategy is meant to enable Zambia to address the issue in country while meeting international obligations. [34] The NCCRS is designed to support the achievement of Zambia's development priorities as articulated in key Government plans and strategies such as Vision 2030 and the revised Sixth National Development Plan. The NCCRS targets the financial sector and planning as entry point to ensure that climate change as a development priority is effectively mainstreamed in the Sixth National Development Plan. The Government of Zambia is currently in the process of developing a comprehensive National Policy on Climate Change which has been formulated and is awaiting Cabinet approval.

[31] http://theredddesk.org/countries/laws/environmental-management-act-2011-zambia

[32] http://theredddesk.org/countries/policies/national-policy-environment-zambia

[33] http://faolex.fao.org/docs/pdf/zam78316.pdf

[34] http://www.adaptation-undp.org/sites/default/files/downloads/zambia-climate_change_response_strategy.pdf

1.2.16 Energy Policy

Policy and planning guidance in Zambia on the issue of renewable energy can be found in a number of Government documents. Most important are the National Energy Policy of 2008 the Sixth National Development Plan (2011 - 2016) and Zambia VISION 2030. These documents form the basis for Government policy and by extension determine the legal, regulatory and institutional frameworks for energy. In terms of Vision 2030 the objective is to have universal access to clean, reliable and affordable energy by 2030. This would mean 51% rural energy access and 90% urban access through environmentally sustainable means. In Zambia, there are a broad number of energy stakeholders in the country starting with the Ministry of Mines, Energy, and Water Development (MMEWD). Beyond the MMEWD there are number with mandates more aligned with the project such as the Rural Electrification Authority (REA) that has responsibility for the solar energy.

1.2.17 National Gender Policy 2014

The Nation Gender policy of 2014 is a revised version of the National Gender Policy of 2000. At the time of the elaboration of the 2014 Policy although progress in certain areas was acknowledged, many concerns remained and new challenges were emerging. Some of the concerns targeted by the new Gender policy include changing socio-economic landscape, Persistence of feminisation of poverty, Rising gender dynamics in the HIV and AIDS pandemic, increased incidences of gender based violence, human trafficking, negative impact of Climate change on women and children, and increased involvement of women in drug trafficking.

The Gender Policy of 2014 was developed to reflect the guiding priorities of Zambia Vision 2030, the Revised Sixth National Development Plan, Millennium Development Goals (MDGs) and SADC Protocol on Gender and Development. The priority areas of action of the Policy are:

i) Gender audits and plans of action based on the issues identified;

ii) Revision of policies, programmes and legislations;

iii) Awareness campaigns on gender issues in communities;

iv) Empowerment of women by facilitating participation in education and economic activities;

v) Addressing issues that hinder women's rights such as Gender Based Violence, forced early-

child marriages and child-teenage pregnancies;

vi) Tackling gender-related land issues; and

vii) Adherence to reproductive health rights especially for women and girls.[35]

The Ministry of Gender and Child Development (MGCD) as the Government Agency responsible for administering the Act is also responsible for coordinating and[36] guiding all Government departments in putting mechanisms and operational instruments in place to ensure its implementation.

[35] http://www.mgcd.gov.zm/images/publications/MGCD%20eStrategic%20Plan%202014%202016.pdf
[36] http://www.mgcd.gov.zm/images/publications/MGCD%20eStrategic%20Plan%202014%202016.pdf

2. Institutional Review and Stakeholder Analysis

2.1 Overview of Government Structure

The institutional arrangements to ensure effective government in Zambia are broadly categorised as Central Government and Local Government. There are presently ten provinces in Zambia, which are further sub-divided into 105 districts[37]. The current system is largely the same as during the colonial rule. The Provincial and District Administration are expected to provide extension services for central government coordination and monitoring at the sub-national level. The District Councils are headed by elected officials and are responsible for the delivery of social services to local communities.[38] The Councils are the Central Government responsibility of the Ministry of Local Government and Housing. They are expected to be the conduit for implementation of the various policies and Act guiding Zambia. At the sub-district level Area Development Committees have been set-up to provide a link from the village level to local government, and these report local community concerns to the Council through ward councillors.[39]

2.2 Stakeholder analysis

2.2.1 Ministry of Lands Natural Resources and Environmental Protection & ZEMA

The Ministry of Lands Natural Resources and Environmental Protection will act as the lead agency for the Lake Tanganyika Project. The Ministry also serves as the Global Environment Facility (GEF) institutional focal point for Zambia. It does not have district level staff available for the project except through its forestry department. It is at the centre of major environmental initiatives with responsibilities that include the domestication of international agreements and overseeing Zambia's participation in international processes. Domestically, Ministry of Lands Natural Resources and Environmental Protection is responsible for the protection, conservation and making improvements to the environment of Zambia.

The Forestry Department of the MLNREP oversees the management of the county's forest resources. Previously it was a part of the Ministry of Tourism, Environment and Natural Resources but through restructuring in 2012, it was integrated into the Ministry of Tourism and Arts and the MLNREP.[40] It is the main implementing body of the REDD+ and participated in developing the draft of the REDD+ strategy for Zambia. The Forestry Department is present in all provinces and at the district level. The MLNREP oversaw the drafting of the new land policy for Zambia. It has been in draft form since 2015.

The ministry is expected to work in close collaboration with other Ministries, Governments department and agencies etc. to introduce and mainstream environmental practices. Beyond the Forestry Department, it does not have much capacity to implement project activity. The Ministry is understaffed and is challenged in its attempts to manage a number of portfolios including leading in the domestications of a number of important

[37] Until 2013, Zambia had 72 districts. After this year, government created new more districts to bring the total to 105.
[38] Chikulo, B. 2009. "Local governance reforms in Zambia: A review". Commentary, Commonwealth Journal of Local Governance. Issue 2 January 2009.
[39] http://theredddesk.org/countries/zambia
[40] http://theredddesk.org/countries/actors/forestry-department-zambia

international conventions and protocols.

Zambia Environmental Management Agency is an independent environmental regulator and coordinating agency. It was established through the Environmental Management Act. [41] Among its many responsibilities, ZEMA is expected to review the environmental performance of policies and assist in their development. It also oversees Environment Impact Assessments and Strategic Environment Assessments.

2.2.2 Ministry of Agriculture

The Ministry of Agriculture and Livestock is responsible for providing agriculture extension services to promote adoption of improved farming technology for farmers to achieve high production, productivity, maintain and improve the agriculture resource base. The department is mandated to:

- Disseminating technical and other information to the farming community;
- Providing technical services in irrigation, farm power, mechanization and land husbandry;
- Providing technical information and extension services in crop production, horticultural production, nutrition, crop protection and soil fertility

It has three operational branches: Technical Services, Agricultural Advisory Service Branch and Crops Production Branch. It has a number of departments and institutes such as the following: Veterinary Services, Livestock, Fisheries, Seed Control and Certification Institute, Cooperatives, Zambia Agricultural Research Institute, National Agricultural Information Services, Agribusiness and Marketing, Agricultural Training Institutes, Department of Policy and Planning. However, early 2016 this scenario changed and the following changes were announced:

- The Ministry of Agriculture, which comprises of Agriculture, Agri – business, and National Agricultural Information Services, NAIS
- The Ministry of Fisheries and Livestock, which comprises Fisheries, Livestock production and Veterinary Services
- The Department of Cooperatives has been moved to Ministry of Commerce, Trade and Industry.

The rational for the split of the ministry into two and the move of the Department of Cooperatives to the Ministry of Commerce and Trade was to meet the desire of small scale farmers in the country to have more direct support on entrepreneurial matters.[42] The idea was to see cooperatives benefit from resources intended for small scale enterprises.

The Ministry of Agriculture has had recent experience with GEF projects both as the focus of assistance and as a project implementer. This includes the UNDP administered Adaptation to Effect of Climate Variability and Change in Agro Ecological Zones I & II in Zambia (CCAP) which was considered to be a successful project. The project focused on the integration of adaptation outcomes into agricultural planning at national, district and community levels in order to protect and improve agricultural incomes from the adverse effects of climate change.

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[41] http://www.zema.org.zm/

[42] http://zambiadailynation.com/2015/09/21/farmers-happy-with-agri-ministry-split/

2.2.3 Department of Fisheries

The main function of the Department of Fisheries is to oversee the implementation of the national fisheries programmes in capture fisheries and aquaculture development. The department is also responsible for the enforcement and regulation of the Fisheries Act of Zambia. It carries out research in fisheries and aquaculture towards achieving a sustainable fishing industry providing economic benefits. The Department of Fisheries coordinates and implements its functions through two Branches: (1) Capture Fisheries Management; and (2) Development and Aquaculture Development. Specific responsibilities are outlined below:

- Coordination of Research and Management of Capture Fisheries resources;
- Administration of fisheries legislation in relation to fisheries resources in natural lakes, rivers, swamps and flood plains;
- Coordinating aquaculture research and development with respect to the systems development for best aquaculture practices for fish and other aquatic organisms in dams, ponds, weirs and cages;
- Building capacities for fisheries training institutions, departmental staff, fish farmers, private and local communities in order to improve the performance of the sub-sector; and
- Development of a comprehensive fisheries and aquaculture information management system that enhances the storage, retrieval and dissemination of information for the benefit of all stakeholders in the fisheries sub-sector. [43]

2.2.4 Ministry of Tourism and Arts

The Ministry of Tourism and Art was created on 10th July, 2011 through a realignment of Government Ministries. This brought together the portfolio functions of tourism from former Ministry of Foreign Affairs and Tourism and the portfolio functions of Culture from the Ministry of Chiefs and Traditional Affairs. This was done in order to streamline and rationalise the functions and operations of both the tourism and cultural sector.

The Vision statement of the Ministry is to work towards Zambia becoming "a destination of choice with unique features thriving on well conserved natural resources, cultural heritage, and creative industries that significantly contribute to employment creation, sustainable economic growth and poverty reduction by 2030". Of relevance to the project the Ministry has responsibilities related to:

- National Parks and Wildlife;
- Safari Operations
- Tourism Policy.

The Ministry is also responsible for the Zambia Tourism Board. ZAWA that was abolished late November 2014 and its wildlife management functions were transferred to the newly created Department of National Parks and Wildlife under the Ministry of Tourism and Arts. As note earlier the Department of National Parks and Wildlife

[43] http://www.agriculture.gov.zm/index.php?option=com_content&view=category&layout=blog&id=93&Itemid=1557

replaces ZAWA that was disbanded when it ran into problems most notably financial issues. Given that the entire staff of ZAWA was transferred into the new Department what can be expected? The changeover occurred not too long ago. What can be said is that the Department of National Parks and Wildlife has responsibility for important areas including GMAs. The change comes at a time with both a new Forestry Act and the new Wildlife Act.

From the tourism perspective the Ministry has demonstrated considerable interest in the north in developing tourism circuit that comprises Luapula, Muchinga, Eastern and Northern provinces, where some of the tourist attractions inside the Lake Tanganyika's Project's programming area. The proposal strategy for the Circuit was recently updated awaiting a funding source. There is also the Kasaba Bay Development Plan which was started in 2008. However the project was almost permanently delayed. A restart was announced for 2014 but in reality there has been no progress since 2011. The proposed project includes many sites securely within the park boundaries.

2.2.5 Ministry of Local Government and Housing

The Ministry of Local Government and Housing (MLGH) is charged with the administration of the local government system and ensuring that the people of Zambia are provided with the necessary municipal services.[44] The Ministry has a number of responsibilities such as the coordination and implementation of the National Decentralisation Policy. The MLGH oversees the 72 District Councils of Zambia. The MLGH is currently overseeing funds provided by DANIDA for rural access and mobility. The MLGH is responsible for providing local grants, managing certain statutory bodies and institutions, auditing local financial reports as well as overseeing the Local Government Service Commission which is mandated to hire, fire, promote, demote and otherwise discipline district council officials. Local governance is a single tiered system, where the districts serve as the main level of service delivery to citizens.

The national decentralization policy requires sub-district structures to be developed in order to meet its mission of enhancing civic engagement in local decision-making governance and this is the responsibility of the MLGH. Some issues to highlight (must find source):

Capacity Building Institutions

- The Local Government Association of Zambia is a voluntary national association with no legal or constitutional recognition whose mission is to protect and promote the interests of local government. All the 105 district councils are expected to be members of the association.

Key Initiatives for Participatory Local Governance

- The1991 Local Government Act restructured the local government agency to become the MLGH as well as introduced a dual system of district administration and election systems.
- In 1995 Zambia established coordinating committees to coordinate development activities.
- In 2000 the government introduced the position of District Administrator who is responsible for field administration and is appointed by and reports to the President.

[44] http://www.mlgh.gov.zm/

- In 2010 the government piloted its medium-term expenditure framework/activity-based budget guidelines in seven councils as a way of strengthening the tracking system on the use of public funds.

- In 2010 Zambia implemented a formula-based grant system in order to enhance local level accountability when using public funds.

Challenges for Participatory Local Governance

- The law currently does not recognize any sub-district structures, and most Ward development committees are ad hoc and established by one or two representatives.

- Election turnouts are around 12% due to citizens' mistrust of local governments' limited transparency and accountability in management of public resources.

- The Central government does not enforce a system or formula for revenue sharing with local governments, nor do local governments have an effective system for collecting taxes and other revenue. Therefore there is a low capacity of the civil service to implement government programs and the need for wide-ranging civil service reform.

2.2.6 Ministry of Financing and National Planning

The mission statement for the Ministry of Finance and National Planning is to;

"To effectively and efficiently coordinate National Planning and Economic Management, mobilise and manage public financial and economic resources in a transparent and accountable manner for sustainable National Development and the well being of the people of Zambia" [45]

The Ministry of Finance and National Planning (former Ministry of Finance and Economic Development) is in charge of the national budget and economic affairs and financial management and administration, including the development of national development plans. The Ministry also houses the Interim Climate Change Secretariat,[46] which is intended to become an independent and permanent structure for coordinating climate change activities in Zambia. It also houses the national REDD+ Office.

Having the REDD+ Office and the Interim Inter-Ministerial Climate Change Secretariat (IIMCCS) attached to the Ministry of Finance – which is also responsible for national development planning in Zambia - represents an opportunity to harmonise and integrate these agendas. There may be other options that could be explored with the Ministry at the level of Financing with project possibly serving as testing ground for a financial initiative in the context of decentralisation.

2.2.7 Ministry of Mines Energy and Water Development and WRMA

The Ministry of Energy and Water Development has been merged with the Ministry of Mines to form a new Ministry of Mines, Energy and Water Development. The Departments under this new Ministry are six as follows:

[45] http://www.cabinet.gov.zm/index.php/about-us/how-government-works/government-ministries

[46] There are however some disagreement s of whether this Secretariat is going to assume that autonomy and in what form this will eventually be established as discussions have not been concluded with relevant stakeholder bodies

- Department of Geological Survey

- Department of Mine Safety

- Department of Energy

- Department of Water Affairs

- Department of Planning and Information

- Department of Human Resource and Administration

The integration of the mining into the Ministry was done to improve co-ordination and implementation of sector programmes and to align the ministry with the ruling government's objectives. What would appear to be a more natural fit for the project would be WRMA. WRMA is the lead agency in Zambia for water management and has a more directed mandate for working with partners in a multi-stakeholder setting. It is currently cooperating with GIZ to implement build and employ an Integrated Water Resource Management Information System (IWRMIS) to inform decision making on water allocation and sustainable water management. [47]

2.2.8 Ministry of Chiefs and Traditional Affairs

The Ministry of Chiefs and Traditional Affairs was set up in 2011 for the purpose of administering and promoting chief's affairs, traditional governance systems, conservation and preservation of Zambia's heritage, culture and arts. The Ministry has as a vision to conserve Zambia's heritage and preserve the cultural diversity of the country's chiefdoms, national heritage sites and arts. During the initial years of its establishment the Ministry of Chiefs and Traditional Affairs will focus on infrastructure development in five priority public sector institutions, namely the House of Chiefs, Cultural Affairs, National Museums Board, National Arts Council of Zambia and National Heritage Conservation Commission.[48]

2.3 Lake Tanganyika Basin Sustainable Development Project Level Capabilities

2.3.1 Overview of District Circumstances

The merits of devolving responsibilities to local governments and communities are compelling. However, there remain substantial concerns surrounding the transferring of powers, channeling financial resources from the central to district level, building the capacities of local authorities and communities and ensuring participatory and transparent processes are respected. To date, there is little systemic documentation on how the Zambian experience has been progressing. The Districts of Mpulungu and Nsama have had extremely limited and very mixed experiences in this regard.

The situation in the Lake Tanganyika in terms of local institutional and community capabilities requires to be

[47] http://www.gfa-group.de/601404/Factsheet-Africa-Zambia_Integrating-Climate-Change-in-Water-RM_E.pdf

[48] http://www.parliament.gov.zm/sites/default/files/images/publication_docs/Ministerial%20Statement%20by%20the%20Minister%20of%20Chiefs%20and%20Traditio.pdf

addressed fully to ensure success of the project and long-term conservation of the Lake's ecosystem. It is clear that previous efforts from previous projects including a GEF sponsored initiatives have not yielded the desired outcomes towards establishing the desired sustainable decentralized natural resource management practices in the Lake Tanganyika water basin. A study on illegal fishing in the Lake revealed how the economic gains are high and the task of convincing people into stronger compliance and sustainable fishing practices would be challenging.[49] This is just one of many specific obstacles facing the communities in the Water basin. Subsequent actions such will have limited margins of error and must be as positively impactful as possible.

There are increasing experiences in assisting local communities and corresponding local authorities to manage local natural resources in an integrated manner. Slow processes are being built towards shared consensus and ongoing dialogue between communities and local government. This experience is increasingly found in areas bordering the project's implementation zone mostly towards the eastern part of Zambia.

It is important to note there are distinct differences between the two districts. Nsama District only recently became a District and is facing considerable challenges. It is much more isolated and by Zambian standards is poor. Much of the assistance that had been expected to flow into the District upon its creation has yet to occur. It has very poor transportation infrastructure. In recent times it has known some serious setbacks. In 2014, Nsama District found itself without basic drugs due to an unforeseen shortage. Nsama was struck by a significant cholera outbreak in 2016 and that same year saw a large number of houses collapse due to severe rains. Nsama has seen a good part of its wildlife stock disappear that could serve as the basis to develop a tourist trade.

Mpulungu District on the other hand, is seen as a District with considerable promise. It has the country's only port that is anticipating a major investment project that will be financed in part by the ADB. Its transportation infrastructure has been substantially improved in recent years through Government investments. While there are major environmental concerns in Mpulungu District, especially the depleting fish stock in Lake Tanganyika, it still has more abundant wildlife compared to Nsama District and much better tourism potential. A District hospital was recently constructed and a fish canning operation is expected to be operational shortly. In comparison to Nsama District, Mpulungu District has a relatively good stock of schools with the number expected to increase in the very near future.

2.3.2 Cooperatives

With the movement of the Department of Cooperatives to the Ministry of Commerce, there are expectations that cooperatives will act as more dedicated business entities and at the same time will receive stronger support from Government in this regard. However, local cooperatives are required to be operating as strong business entities and operating with high-level management system which is transparent and focused. This aspect is a yawning challenge which can affect the success of the project in the Lake basin. Table 1describes the presence of cooperatives in Mpulungu District and their level of activity. There are in fact 245 cooperatives in Mpulungu claiming some level of activity.

Table 1. Cooperatives in Mpulungu District

[49] Co-management driven enforcement of rules and regulations on Lake Tanganyika, Zambia Lloyd Haambiya, Emmanuel Kaunda, Jeremy Likongwe, Daimon Kambewa, Lackson Chama,. International Journal of Fisheries and Aquatic Studies 2015; 2(6): 73-80

Name of Block	Name of Camps	No. of Cooperatives		Membership		
		Active	Inactive	Female	Male	Total
Mpulungu central	Kaizya	36	32	885	1081	1,966
	Kasimango	10	00	207	285	492
	Isoko	17	00	531	646	1,177
	Vyamba	28	00	781	802	1,583
Chitimbwa	Chitimbwa	38	00	733	956	1,689
	Iyendwe	16	02	343	389	732
	Kalongola	20	00	358	535	893
	Chibote	13	00	373	497	870
Chinakila	Chinakila	24	00	570	710	1,280
	Kavumbu	16	00	402	436	838
Kopeka	Kopeka	10	00	217	316	533
	Kalonda	07	00	217	301	518
	Kabamba	10	00	261	288	549
TOTAL		**245**	**34**	**5858**	**7221**	**13,079**

Source: Mpulungu District Report 201

2.3.3 Community Resources Boards and Village Action Groups

Community Resources Boards (CRB) develop and implement management plans for GMA's in consultation with the Department of National Parks and Wildlife that are meant to reconcile different land uses within the CRB's jurisdiction. They are comprised of between seven to ten representatives from the local community who are to be elected by the local community, a representative from local authorities and an individual selected to represents the chief in the area where the GMA is located. The chief serves as patron of the board and authorises those who can serve on the CRB. The CRB's are responsible for negotiating together with the Department of National Parks and Wildlife in the Ministry of Tourism and Art agreements with hunting outfitters and photographic tour operators. CRB's manage wildlife under their jurisdiction in accordance with specified quotas. They also appoint village scouts who act as wildlife police officers. Any person who settles or lives in a GMA should conform to provisions of the agreed to management plan. Each CRB have ongoing relations with Village Action Groups (VAG's) which are made up of members of a community and are democratically elected.

The VAG's assist the CRB's in performing some Community Based Natural Resources Management (CBNRM) functions within the GMAs. In the Lake Tanganyika project area the VAGs are considered to be the more pro-active of the two organisations. The CRBs are seen as being more at a level suited for coordination of activities rather than implementation. The VAGs on the other can undertake assessments to prioritize community need and subsequently facilitate the development of actions such as building classroom, health post, or digging boreholes. Generally speaking, in Zambia there are concerns regarding the degree to which wealthier and educated members of the community and those closer to the traditional leadership that are able to dominate the CRBs.[50] Such a concern in the project implementing area was not expressed during the implementation period. H

The Nsama CRB oversees natural resources of the Lake Tanganyika, Nsumbu National Park (including the small Inangu GMA) and the Tondwa GMA, as well as a small portion of the Kaputa GMA that extends into Nsama district. The Government wants CRBs to sign agreements with local companies to have the taxes from

[50] http://essaymonster.net/science/40579-community-based-wildlife-management-in-zambia.html

tourism/safari hunting go directly to the community.

2.3.4 Village Conservation Development Committees

Co-management was seen as a means to control fishing practices by establishing property rights for the Village Conservation and Development Committees (VCDCs). The VCDCs were established in fishing communities across the country for this purpose including in the Lake Tanganyika water basin. A study was conducted along the shores of Lake Tanganyika Fishery in Mpulungu District to assess the extent of participation in co-management in conserving fish stocks. Using simple random sampling method, a total of 110 respondents (60 fishers and 50 non-fishers) were questioned. Eleven VCDCs that were established through the LTRIMP were found not to be working and three of them were based at Chipwa, Chitili and Kapata PAs. In all, there were 77 VCDCs at the time co-management was introduced in the 1990s.[51] The study also revealed that the Resource users' actions undermined the VCDCs' and the entire co-management activities resulting in an unsustainable management of the Lake resources. The VCDCs also lacked skills and legal power for operating savings and credit services and for implementing the agreed goals and objectives of the institution. The resource users also lacked the much needed information and extension education and services in fisheries management. There was no significant change in the users' attitudes, perceptions and cultures so as to contribute significantly in the management of the Lake. The co-management approach apparently was ineffective in conserving fish resources in Lake Tanganyika. It was concluded that there was a need to build VCDCs' capacity by providing relevant extension education, equipment, legal empowerment and sustainable financial means or resources.[52]

2.3.5 Nsumbu National Park Capacity

One of the key variables in establishing stable and predictable conditions in the Lake Tanganyika Water basin will be to ensure the viability of the Nsumbu National Park. While the Park has considerable attributes and enormous potential as a tourist destination, the Park is actually sorely under resourced in terms of human and technical resources and infrastructure such as proper housing for staff that have no choice but to live on-site. According to current staff, the Park should be staffed by around 45 people as opposed to the dozen currently employed. As a result of this lack of capacity within the boundaries of the park what has emerged is a situation that has been described by Park staff as a battle field. People enter into the Park area and fish and hunt illegally moving around into areas where it is more lucrative to do so. There is only one fisheries officer who has no budget. A more reasonable situation would be four to five officers equipped with two boats. At the same time there is not enough tourism industry to ensure the necessary financial support the park requires. This results in neglect which in turns is a disincentive to tourism.

2.3.6 Zambia National Farmers Union

Zambia National Farmers Union (ZNFU) is a national membership-based organization that represents the agriculture industry including both small and large scale farmers; and agribusinesses. Members of ZNFU fall in

[51] Extent of Participation in Co-management on Lake Tanganyika, Zambia Davies C. Banda1, Confred G. Musuka2, Lloyd Haambiya11Lake Tanganyika Fisheries Research Unit, Mpulungu, Zambia 2School of Natural Resources, the Copperbelt University, Kitwe, Zambia International Journal of Agriculture, Forestry and Fisheries 2015; 3(5): 167-174 Published online September 22, 2015 (http://www.openscienceonline.com/journal/ijaff)

[52] Ibid.,

the following broad categories:

- District Famers' Association
- Commodity specialized associations
- Corporate Farming businesses
- The Agribusiness chamber and
- Association members.

NFU lobbies and advocates on behalf of its; members and supports information dissemination and communication with members. In addition ZNFU also carries out activities related to:

- Supporting development of agriculture by organizing members into association to create an effective voice on concerns in the agriculture industry.
- Making representations on behalf of members to government or to any competent authority with regard to matters affecting agriculture whether directly or indirectly.
- Collecting and distributes to members, in print and electronic form, information on agriculture and agricultural marketing. It's also prints and distributes information of material interest to members and other stakeholders in form of periodical, magazine, position and research papers.
- Facilitating and creates institutional linkages by subscribing to any association or body having objects or interests similar to or complimentary to those of the union. [53]

ZNFU has been carrying out the ZNFU's Climate Change Mitigation and Adaptation Initiative that is designed to improve access to climate change mitigation and adaptation information and climate smart and productivity-enhancing agricultural production technologies and practices, through training and hands-on practice. In terms of its presence in the project zone ZNFU's "Asset financing solutions" to their members has been operational in Mpulungu, attempting to improve crop production, the agro- equipment would also ease the farmers' work, which was usually labour intensive. Beneficiaries of the project came from different places in Mpulungu district which included Mwanamboko, Kapoko, Kasakalawe and Vyamba. A farmers' representative Wigan Kabwe said the agro-equipment given would help the farmers to improve on their yields and alleviate poverty levels in their households. When the LTIMP ended there was a void.

2.4. Local Institutions (Experience, strengths and weaknesses)

2.4.1 Overview of Local Government

In the context of decentralisation where the expectations for improved performance of local government departments is increasing it is worth noting some of the issues that are being reported from the district level in Mpulungu:

[53] http://www.znfu.org.zm/about_us

- Erratic and untimely funding of planned projects in the different sectors in the district.

- The planning preparation process for the District Development Plan 2011-2015 was not participatory and did not include some stakeholders and was hurriedly done. Participatory planning is expected to be the cornerstone of local governance.

- Where an attempt was made to implement planned projects, funds were not sufficient. Bureaucracy on releasing funds resulting in not completing the project as per programme (Time frame.) e.g. the District Hospital

- Failure to align activities/projects in the annual budget to the strategic plan at National level

The only way forward is to increasingly enable local actors to gain more control over their local circumstances with the means and ability to make improvements. But as Mpulungu exemplifies, current circumstances are far from this. There is no reason not to believe that the situation in Nsama is any better. In fact as a District that is only beginning to build its institutional capacities it can be expected that it is worse off. There are many telling signs about the challenges being faced in Nsama. As the number of civil servants deployed to the District has been increasing which should be a good sign, it actually has revealed new challenges. District level civil servants are facing a severe housing crisis in the Nsama. Civil being forced to find housing 65 kilometres away in Mporokoso.[54]

Encouragingly, local Authorities in Mpulungu District retain faith in the Decentralisation process and that their expectations regarding an increased ability to make decisions and act upon them and expand staffing will be realized. The wide spread consensus on the need and advantages to devolve responsibilities and resources to local government levels is echoed vigorously by District level authorities.

2.4.2 Mpulungu District

There is considerable more information available on Mpulungu District which may reflect its development situation. The Ministries represented in the district are Ministry of Agriculture and Livestock, Ministry of Health (MOH), Ministry of Lands Environment and Natural resources, Ministry of Education, Science, Vocational training and Early Education, Ministry of Transport, Works, Supply and Communication, Ministry of Community Development and Mother and Child Health, Ministry of Information and Broadcasting, Ministry of Local Government and Housing, and Ministry of Home Affairs. There are six traditional chief leaders.

From information drawn from the 2015 District Report: The department of Agriculture has seen an improvement in data collection capabilities, reporting and implementation of planned activities. It is now possible for the District to produce some reliable crop statistics. Monitoring and backstopping field activities and promoting irrigation agriculture related activities were supported. Conducting training in post-harvest management, pest and disease management, and marketing and value addition and training farmers in aquaculture production was also completed.

Road Construction was completed and the District was cholera free year in 2013 due in large part to promoting hygiene in school and communities through School Led Total Sanitation (SLTS) and Community Led Total Sanitation (CLTS) programmes even though complete awareness across the District was not realised. As well, the District was able to produce a reasonably comprehensive DSP-2014-2016".

[54] https://www.daily-mail.co.zm/?p=35576

The lack of funding for certain activities and the ability to properly monitoring to ensure proper implementation across the district were major concerns. Feedback through the field work in support of this project's design indicated that District Services were not found to be very effective according to people interviewed. People found the Government departments at the District level in Mpulungu to be generally weak and unable to provide services. Table 2 details the financial resources required to implement the Mpulungu District Plan for 2014-2016. The proposed budget is aspirational as opposed to secured financing.

Table 2. Summary of financial requirements for Mpulungu District

No.	PROGRAMME	YEAR -K			TOTAL End Of Plan
		2014	2015	2016	
1	Agriculture, Livestock and Fisheries	4,678,600.00	5,246,360.00	5,661,106.00	15,586,066
2	Lands and Natural Resources	K136,000	K156,000	K173,000	K465,000
3	Tourism	1,825,100	2,650,000	6,801,580	11,276,680
4	Transport Infrastructure	10,120,000	17540,000	32,730,000	60,390,000
5	Local Government and Decentralisation	420,000	3,808,760	1,404,848	5,633608
6	Water and Sanitation	60575766	60475000	71858000	192,908,766
7	Health	2039154	2315297	6944936	1129387
8	Education	562,000	1,338,000	3,025,000	4,925,000
9	Youth, Social Protection and Disability	207,550	207,550	207,550	622,650
10	Industrialisation	465,765	40,254	546,369	1,052,388
	TOTAL	**80822385**	**93569671**	**129144839**	**304,159,545**

Source: Mpulungu District Strategic Plan 2014-2016: Republic of Zambia

2.4.3 Nsama District

With the Ministry of Agriculture and Livestock in Nsama District there are 24 members of staff at both district and camp level. However, the district has continued to experience several challenges which include; delayed and inadequate funding, poor and inadequate transport to camp level, inadequate support staff and poor state of camp houses for ministry staff. There are sixteen agricultural camps in total.

The departments that are staffed at district level include Human Resources, agriculture, livestock development, Veterinary and Tsetse control services, NAIS, cooperatives, and Marketing development. The major economic activities supported through the Ministry are fishing, farming and tourism which is not fully managed and developed. One improvement that the Ministry has been able to achieve has been to make gains in diversifying agricultural production.

2.4.4 Non Government Organisations

The involvement of non-governmental organizations in Nsama District associated with the natural resources of the lake and in providing various forms of support is very limited. A notable NGO is the Conservation Lake Tanganyika (CLT) with a mission to promote and preserve the biodiversity of Lake Tanganyika for the sustainable benefit of its inhabitants through partnership with the community and government. CLT has modest means. It has been helping the CRB's scouts with operational logistics like fuel, food rations, and camping equipment. These scouts complement efforts of the Department of National Parks and Wildlife (DNPW) officers in protecting wildlife resources. They have also supported the training of Scouts.

2.4.5 Chiefdoms (Chinakila, Chitimbwa and Nsama)

There was participation in the workshops by local chiefs. Buy-in from the Chiefs in the project area will be critical. They appear to be aware of the need to resolve some of the more difficult issues that the project will attempt to address such as illegal fishing and hunting. There is a history in Zambia of working with traditional authorities on environmental issues. In the past ZAWA worked with tradition chiefs to have used land use plans and the courts to control illegal settlement in areas zoned for protection by relocating new settlers to development zones. As noted earlier traditional Chiefs have some control over how property right and land use patterns. The proposed REDD+ Strategy recognizes Traditional and Political Structures and the need to adapt all REDD+ activities to this reality.

Preparation of Project Appraisal (CEO Endorsement) Document "Zambia Lake Tanganyika Basin Sustainable Development Project"

Annex 2 - Baseline Report 2:

Socio-economic and Environmental Analysis Report

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June 1, 2016

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Table of Acronyms

Acronym	Definition
CIFOR	Centre for International Forestry
DRC	Democratic Republic of the Congo
FRA	Food Reserve Agency
GHG	Greenhouse Gas
IUCN	International Union for Conservation of Nature
LTBSDP	Lake Tanganyika Basin Sustainable Development Project
MTP	Multi-purpose Tree
NAPA	National Adaptation Programme of Action
NP	National Park
PPG	Project Preparation Grant
TDA	Transboundary Diagnostics Analysis

1 Overview and Context Setting

This section is intended to provide the baseline scenario of the socio-economic and environmental setting of the Lake Tanganyika Basin with special focus to Mpulungu and Nsama districts – the two districts in Northern Province, Zambia. These two districts are targeted by the Lake Tanganyika Basin Sustainable Development Project (LTBSDP). Information was gathered by examining the existing strategies and the constraints faced by the local communities living in and around the basin in pursuit of their economic activities for sustaining their livelihoods and enhancing income opportunities.

Information was collected from multiple sources: (1) Desk literature review; (2) First stakeholder consultation workshop in Kasama; and (3) Discussions with individual and focused groups from selected project sites in Nsama and Mpulungu districts with communities living in the Lake Tanganyika's catchment and along its shoreline. This stage was also used to verify information gathered during stakeholder consultation in Kasama and triangulate it on-spot with the local people on the ground. The data collected is qualitative; in Mpulungu, the villages were selected using multiple criteria such as accessibility and the extent to which the Chiefs were actively engaged in the project discussions. Once in the village, a questionnaire was administered to gender segregated by age-group as follows: males under 35; females under 35; males over 35; and females over 35 years. These processes reinforce broad-based understanding of the socio-economic activities of the rural local communities. This gives some insights into the intuitive reasoning on how communities exploit the natural resources and the ways in which these (economic activities and natural resources) are mutually combined seasonally and by circumstances to meet the prevailing needs within households and the community at large.

2 Geographical Location and Natural Resources

Nsama is a newly created district council in Northern Province, formerly was an agricultural block under Kaputa District. The township, Nsama, is situated 244 km north of Kasama provincial headquarters. The District shares the boundary with Kaputa in the north; Mporokoso in the south; Mpulungu in the west and Mununga district in the east. Its geographical coordinates are 8° 54' 0" South, 29° 58' 0" East. The total land area of the district stands at 6,004 km^2. The main township - Nsama falls within the Tondwa Game Management Area. Recently the District has received funding from government to undergo major road construction linking it to Mporokoso and Kasama. Nsama has an estimated population of 80,456[1] of which the majority are engaged in subsistence farming as their main source of livelihood and nutrition (see Table 1for population information for selected districts adjacent to the targeted districts). The district is divided into 5 agricultural blocks (Chishela, Kakoma, Munyele, Nsama, and Nsumbu) which are further divided into 16 agricultural camps[2]. The area falls within the category of high rainfall belts of the country – agro-ecological zone (regions) III which receives an annual rainfall of above 1,000 mm) with altitudes ranging between 1100 -1500mm. In the 2015/2016 season, the district received annual rainfall totalling 1134 mm.

Table 1. Population by District and Gender. Northern Province, 2010

Selected Districts	Total Population	Male	Female
Northen Provice Total	1,105,824	546,851	558,973
Mbala	203,129	100,703	102,426
kaputa††	119,514	59,312	60,202

[1] Nsama District Agriculture – 1st Quarterly Report 2016 -

[2] The 16 agricultural camps are: Chishela, Kakoma, Kampinda, Mununu, Kapisha, Katele, Katwatwa, Mukotwe, Munjela, Munyele, Mupandi, Mwewe, Nsama, Mwangala, Nsumbu and Shimusanse

Kasama	231,824	114,208	117,616
Nsama	59,757	29,639	30,118
Mpulungu	98,073	48,651	49,422
Mporokoso	98,842	49,161	49,681

Source: Estimates from 2010 Census Final Population and Electorate Information, Central Statistical Office, Zambia; ††Nsama is a newly created district council in Northern Province, formerly was an agricultural block under Kaputa District. Thus this information also includes population information for Nsama District

Mpulungu district, is one of the 9 districts in Northern Province of Zambia and has a total area of about 10,017km^2 (1,001,700 ha). It lies about 206km from Kasama with a population of 98,073 (Census 2010). Mpulungu District shares boundaries with Mbala District in the east, Mporokoso District in the southwest and Nsama District in the northwest. The district also shares international boundaries with Tanzania. The district is demarcated into 4 agricultural blocks and these blocks are further divided into a total of 14 agricultural camps (1 block, namely Kopeka, has been proposed).

The majority of the communities engage in farming activities for rain-fed subsistence farming. The major crops that are cultivated are cassava, maize, beans, rice, groundnuts and finger millet. Horticultural crops such as vegetables and fruits are also grown.

2.1 Natural resources and biodiversity of global and national significance

The two districts form the Zambia part of the Lake Tanganyika basin, one of the African Great Lakes. Located in the Albertine Rift[3] the lake was formed about 12 million years ago, making it ecologically different from modern lakes formed by glaciers within the last 12,000 years. Its early colonisers have undergone spectacular evolutionary productions during the long period of existence. The lake has many distinctions which give it a global significance (in addition to the local significance): its maximum depth of 1,470 meters (4,820 feet) makes it the deepest lake in Africa, reaching 642 meters (2,106 feet) below sea level. This also makes it the second deepest lake in the world (after Lake Baikal); it is the second largest lake in Africa by surface area (after Lake Victoria), but the largest lake in Africa by volume. Holding 18,900 cubic kilometers (4,500 cubic miles) of freshwater, it accounts for approximately 18% of the entire world's unfrozen surface freshwater. It is the world's longest lake, stretching over 673 kilometres (418 miles). The lake is shared by four countries: Tanzania (46%), Democratic Republic of the Congo (40%); Zambia and Burundi each have 7% of the lake.

The lake is valuable not only for the presence of unique, endemic species, but also as a microcosm in which to study the processes of evolution. Indeed the lake contains amongst the greatest biodiversity of any lake in the world, with more than 1,500 species of fish, invertebrates and plants recorded in the basin; out of which about 600 are endemic[4]. They include 245 morphologically diverse and colourful cichlid fish species[5]. Lake Tanganyika is unique in harbouring endemic species clusters of bagrids, cyprinids, mastacembelids, and mochokids[6]. Moreover, a large diversity of endemic ostracods, gastropods, shrimp, crabs as well as many other taxa can be found in the lake[7].

As detailed in the Lake Tanganyika Transboundary Diagnostics Analysis (TDA) report[8], the Zambian zone of the Lake is bio-diverse and rich in endemic fish and mollusc species: 37% of all fish species

[3] Albertine rift is the Western section of the East African Rift.
[4] UNDP 2011: Lake Tanganyika Transboundary Diagnostics Analysis Report.
[5] Snoeks, 2000; Genner et al., 2004
[6] Amcoff et al. 2013. Evolution of egg dummies in Tanganyikan cichlid fishes: the roles of parental care and sexual selection. Journal of Evolutionary Biology 26 (2369-2382)
[7] Fryer, G. & Iles, T.D. 1972. The Cichlid Fishes of the Great Lakes of Africa: Their Biology and Evolution. Oliver & Boyd, Edinburgh
[8] UNDP 2011: Lake Tanganyika Transboundary Diagnostics Analysis Report.

known to inhabit Lake Tanganyika were identified in the littoral lake zone of Nsumbu National Park which includes 80 km of shore line; the fourteen mollusc species identified in the Park represent 20% of the total number that have been recorded in Lake Tanganyika; and, all the 14 species are endemic to the Lake. The Zambian littoral zone and river mouths and associated wetlands provide important breeding grounds for economically important fish species.

2.1.1 Forests and terrestrial biodiversity

The lake catchment is rich in forests, woodlands, and terrestrial biodiversity. Like the rest of the country, Mpulungu and Nsama districts have over 60% forest cover and are host to several national and communal forests. They include Mpulungu local forest (18,579 ha), Lunzua Extension National forest (1,785 ha) and Lunzua National forest (22,986 ha), Chinakila National forest (27,031 ha), Kambashi local forest (22,825 ha), Mwenze National forest (39,400 ha) and Nsumbu National Park Forest (200,000 ha)[9]. The latter is bordered by Tondwa and Kaputa Game Management Areas, covering 54,000 ha and 360,000 respectively. The two districts are host to several rivers draining into Lake Tanganyika. The Lufubu River dissects Nsumbu National Park from west to east, forming the eastern boundary of the Park. Nkamba and Chisala Rivers are ephemeral and smaller than the Lufubu, draining Tondwa Swamp into Nkamba and Nsumbu Bays respectively, the former through an attractive valley with abundant wildlife.

Forest species in Nsama and Mpulungu districts: Zambia's vegetation is dominated by miombo, which is characterized by open woodland dominated by Caesalpinioideae tree species including Brachystegia, Julbernardia and Isoberlinia, often associated with a dense grass sward[10] . The Northern Province (including Mpulungu and Nsama districts) is however covered by the dry evergreen miombo forests, which are part of the transition of forest types from Guineo-Congolian rainforest to Zambian dry woodlands. Dry evergreen forests cover less than 3–5% of the country's land area and are restricted to North-Western and Western provinces in Zambia[11]. These forest types have three stories with a canopy up to 27 m high, a dense shrub layer of 1.5– 6.0 m high and often an understory of 0.3–1.3 m high[12]. Dominant tree species include Cryptosepalum exfoliatum, Guibourtia coleosperma, Marquesia acuminata, Marquesia macroura, Parinari excelsa, Syzygium guineense, and Anisophyllea pomifera[13].

Part of Nsumbu National Park is covered by the Itigi-Nsumbu thicket, which is endemic to this region, occurring only between Lakes Mweru Wantipa and Tanganyika in Zambia, and around Itigi town in Tanzania.[14]. The Itigi-Nsumbu ticket ecoregion is unique due to the presence of strictly endemic species[15]. Specific information on the thicket is largely unavailable due to inadequate resources assessment and mapping.

The forests have rich grasses in the understory. Notable grass genera include Andropogon, Brachiaria, Digitaria, Heteropogon, Hyparrhenia, Hyperthelia, Panicum, Pogonarthria, Tristachya and Urochloa.

Rich wildlife: Although wildlife numbers have declined, there is still a wide range of species present, especially in the 200,000 hectares Nsumbu National Park and the Game Management Areas. They include elephants, buffalo, roan, sable, eland, hartebeest, zebra, lion and leopards. Bushbuck, warthog and puku often frequent the beaches. The rare blue duiker, a small forest antelope, is one of the

[9] GRZ 2012. Status of forest reserves as at 31st December 2012, Ministry of Lands, Natural Resources and Environmental Protection, Forestry Department.

10 Chidumayo EN. 2012a. Classification of Zambian Forests: Final Draft Report. Rome: Food and Agriculture Organization of the United Nations

11 Siampale A. 2008. The potential of carbon sequestration in the terrestrial ecosystems for Zambia. Carbon and communities in tropical woodlands. Edinburgh: Edinburgh School of Geosciences. 46–51.

12 Chidumayo EN. 2012a. Classification of Zambian Forests: Final Draft Report. Rome: Food and Agriculture Organization of the United Nations.

13 Chidumayo EN. 2012a. Classification of Zambian Forests: Final Draft Report. Rome: Food and Agriculture Organization of the United Nations.

14 http://www.worldwildlife.org/ecoregions/at0708

15 Kideghesho 2001, National Forestry Programme, undated

Park's specialities along with the shy swamp dwelling sitatunga[16]. Nsumbu National Park (NP) represents one of the last remaining populations of elephants in the lake basin. The others in nearby Mweru, Southern Democratic Republic of the Congo (DRC), Lusenga plains and migrant populations between DRC and Zambia have all been exterminated[17]. Other species seen in the area are the spotted hyena, side-striped jackal, impala, waterbuck and reedbuck.

Nsumbu National Park borders the 54,000 hectares Tondwa Game Management Area to the west, an IUCN Category VIII Multiple Use Management Area. The much larger Kaputa Game Management Area (360,000 ha) is also contiguous with the National Park to the north-west and south-west. Nsumbu National Park and the two Game Management Areas thus form important parts of a network of Protected Areas in Zambia. The National Park includes 80 km of some of the most pristine shores of Lake Tanganyika, including the four bays of Kasaba, Kala, Nkamba and Nsumbu, and Nundo Head Peninsula. The lake bordering on the park is teeming with crocodiles and Hippo.

Birdlife: The Lake and the catchment are hosts to prolific birdlife including many migrants from East Africa and South African regions. They include flamingos, African skimmer and spoonbill, fish eagle, whiskered tern along with many different storks, ducks and herons. Other species commonly encountered around the lake include the grey-headed gull, lesser black-backed gull, white-winged black tern and the whiskered tern. The palm-nut vulture and Pel's fishing owl are also occasionally seen.

2.1.2 Carbon

The forests and forested landscapes of Mpulungu and Nsama districts are also important stores of carbon, both above and below ground carbon. A recent study by the Centre for International Forestry (CIFOR)[18] reported that miombo woodlands yield 32–52 tons per hectare (t/ha) of biomass in Miombo woodlands, storing 15–24 tons of carbon equivalent[19]. The study[20] reported higher figures for wet miombo forests at 76 tons per hectare of biomass and carbon values of 35.72 tons per hectare of carbon equivalent. The report gave even higher figures for Average above ground biomass for old-growth mixed age stands in the wet miombo belt of 90t/ha of biomass and carbon stocks of 42.3 tons of carbon equivalent. For Kasama, a 1985 study gave more specific figures for plots with different levels of disturbance (ranging from complete clearance, sixteen years previously to harvesting and six years previously and sixteen-year undisturbed stand as 48.28 t/ha biomass with 22.70 tons of carbon equivalent[21].

Using the highest and the lowest average figures, the forests in Mpulungu and Nsama districts are holding between 12-33 million tons of carbon equivalent.

2.2 The Northern Circuit for Development of Tourism

The two districts fall within the Northern Circuit for the development of tourism. The Northern Circuit designed by the government, has the potential to significantly contribute to national economy and poverty reduction. The circuit has also inherent capacity to conserve and preserve both wildlife and Lake Tanganyika's ecosystem integrity. As a candidate of the Northern Circuit for Development of Tourism, Nsama District is home to a number of interesting natural resources sites comprising

[16] Day M, Gumbo D, Moombe KB, Wijaya A and Sunderland T. 2014. Zambia country profile: Monitoring, reporting and verification for REDD+. Occasional Paper 113. Bogor, Indonesia: CIFOR

[17] Lake Tanganyika Conservation Organization -- http://conservationtanganyika.org/elephants-of-nsumbu/

[18] Day M, Gumbo D, Moombe KB, Wijaya A and Sunderland T. 2014. Zambia country profile: Monitoring, reporting and verification for REDD+. Occasional Paper 113. Bogor, Indonesia: CIFOR

[19] These methods produced carbon estimates within AGB ranging from 15 t per hectare to 24 t per hectare (using the IPCC conversion rate of 0.47 for biomass to carbon). BGB estimates were made equivalent to Tier 1, using a below- to aboveground biomass fraction of 0.28. Total above- and below-ground biomass was estimated to be in the range of 960–1561 Mt of carbon. With total carbon stock (including biomass, deadwood, litter and soil) estimated at 2652–3323 Mt of carbon. Due to its greater prevalence, the majority of biomass was calculated to be in semi-evergreen forests (mainly comprising miombo woodlands) with a significant proportion of biomass found in deciduous woodlands (Kamelarczyk 2009).

[20] The study used four different above-ground biomass (AGB) estimates using Integrated Land Use Assessment (ILUA) data; two biomass conversion and expansion factors (BCEFs) and two allometric equations.

[21] Stromgaard P. 1985. Biomass, growth and burning of woodland in a shifting cultivation area of south central Africa. Forest Ecology and Management 12:163–78

water bodies such as Lakes – Chishi (3,175 ha), Mweru-wa-Ntipa (26,269 ha) and Tanganyika (45,000 ha); National Parks - Nsumbu (202,000 ha) and Mweru-wa-Ntipa (313,400 ha); and Game Management Areas - Tondwa (54,000 ha) and Inangu (4300 ha); and Bays – Nsumbu, Nkamba, Ndole, and Kasaba. Tourism in Nsama District is in its infancy stage but if well developed, stands out to be a beckon for supporting significant economic growth and the promotion of rural development with greater potential for enhancing foreign exchange earnings, job and wealth creation, income generation as well as alternative livelihoods. Similarly, Mpulungu is an old district which has potential for developing tourist infrastructure in terms of hospitality industry due to its proximity to Lake Tanganyika.

2.3 Socio-Economic Circumstances

Socio-economic circumstances outline the context which influences and, to a larger extent, defines the options and constraints faced by households and individuals in their livelihood strategies as regards the lake's ecosystem integrity. The relationship between natural resources conservation and sustainable socio-economic practices then becomes an important conduit for the sustenance of the Lake and its basin. Understanding the socio-economic circumstances of the communities living in and adjacent to the lake and its ecosystems is an essential pre-requisite for establishing a pivot link between long-term sustainability and biodiversity conservation with short-term socio-economic benefits and viability. This section attempts to provide an understanding of current livelihood strategies and socio-economic circumstances practices around the Lake and its catchment area in convergence with the natural resources exploitation and conservation. It tries to highlight some of the human activities that are exacerbating the depletion of natural resources

2.4 Socio-economic Characteristics of the Households

In the shoreline of the lake especially in Munshi and Kabyole villages, household size ranges from 8 to as many as 15 members per family. While in the mainland of Mpulungu District, Chitimbwa, Chinakila and Iyendwe villages, household sizes ranges from 7 to 10 members per family. The land holding size of the households varies across the different terrains from the hilly and mountainous areas to the upland. Smaller landholding sizes of less than 1 ha are commonly observed in the shorelines as compared to the uplands away from the lakeshore where households can have access up to more than 1 ha of arable land, especially in Mpulungu district where some farmers reported to have access to up to 25 ha of land. Most of the land is under customary land control of the traditional local leadership. Access to irrigated land is scarce and communities near rivers can access arable land up to a Lima (¼ ha) per household. In the shoreline, cultivation of marginal lands is a common practice as induced by increased food insecurity and population growth. Although most of the communities farm to increase food security, they also sale part of the harvest to gain some household income for purchases of essential goods and services.

2.5 Predominant Economic Activities

The predominant economic activities around the lake and within the vicinity of the shoreline are complex, diverse and dynamic. They comprise a combination of the following: (1) Agricultural Land Use and Livestock Rearing (farming); (2) Capture Fisheries; (3) Timber and forest extractions; (4) Charcoal production; (5) Bee keeping; and (6) moulding bricks. These activities are primarily wealth producing systems of the lake and its catchments although the degree of the exploitation varies from subsistence to solid/permanent sources of income. These communities can be broadly classified into different "domains" based on the prevailing livelihood systems, namely; agricultural land use and livestock; fisheries livelihoods and practices; wildlife exploitation and practices; and timber and forest activities. Table 2 and Table 3 below present the main economic activities of the rural communities within and around the Lake.

Table 2. Predominant Economic Activities of the Communities by Village Site around Lake Tanganyika and its Basin, Nsama District

Predominant Economic	Village Sites Visited for Field Data Collection, Nsama District

Activity	Chandwe	Dole	Chomba Wa Kasaba	Munshi	Kapinga "Turn off"
Farming (including livestock)	Yes	Yes	Yes	Yes	Yes
Capture Fisheries	Yes (Lake)	Yes (Lake)	Yes (River)	Yes (Lake)	Yes (Lake)
Timber Production and forest extractions	Yes	Yes	Not mentioned	Yes	Yes
Charcoal Production	Yes	Yes	Not mentioned	Yes	Yes
Brick Moulding	Yes	Not mentioned	Not mentioned	Not mentioned	Nor mentioned

Source: Project Preparation Grant (PPG) Baseline Assessment Missions, Nsama District, Zambia, April 9-15, 2016

Table 3. Predominant Economic Activities of the Communities by Village Site around Lake Tanganyika and its Basin, Mpulungu District

Predominant Economic Activity	Village Sites Visited for Field Data Collection, Mpulungu District			
	Chitimbwa	Iyendwa	Kabyolwe	Chinakila
Farming (including livestock)	Yes	Yes	Yes	Yes
Capture Fisheries	Yes (river)	Yes (river)	Yes (Lake)	Yes (river)
Timber Production and forest extractions	Yes	Yes	Not common	Yes
Charcoal Production	Yes	Yes	Yes	Yes
Bee keeping	Not mentioned	Not mentioned	Not mentioned	Yes

Source: Project Preparation Grant (PPG) Baseline Assessment Missions, Mpulungu District, Zambia, April 9-15, 2016

2.5.1 Agricultural Land Use and Livestock Rearing

Flat land suitable for agriculture is limited near the mountains along the river banks and the lakeshore villages (e.g. the Chomba Wa Kasaba on the river banks of the Lufubu River and Munshi Village on the shoreline as well as the swampy areas). Almost all the households are engaged in small scale farming activities (subsistence agriculture) with the most significant crops grown include maize, paddy rice, and cassava. Other crops include beans, finger millet, sorghum, sweet potato, groundnuts, and sugarcane Paddy rice is grown in the flooded swampy wetlands. Inhabitants in Munshi Village estimated the yield of rice to be around 10 bags in 90 kg bags per Lima (¼ ha)[22]. Yield of maize was estimated at around 4x50 kg per lima (¼ ha) which is equivalent to 0.8 ton ha^{-1}. Maize and or cassava are consumed as Ubwali or Nshima[23] while rice is consumed as whole grain. The crops are grown in all surrounding villages around Mpulungu and Nsama. These three crops generally constitute the main staple food around the lake. The staple foods are supplemented with poultry, fish, and game meat to boost the protein dietary requirements of the households. The principal cash crop is rice which is sold to Nsumbu market or the Food Reserve Agency (FRA) and some transported by boat to Mpulungu to be sold to the general public, or any other grain traders from other districts. Surpluses of maize are also sold to FRA in Nsumbu. The main constraints for rice production are the lack of processing equipment and limited markets and lower prices offered by traders. An interesting feature emerging is that fishing communities are also engaging more and more into farming due to lower fisheries catch. In terms of marketing, poor road access, the risks of water transport and poor access to social services are some of the constraints faced by the

[22] This reported figure is 3.6 ton ha^{-1} which is much higher and well above national average of around 1.5 ton ha^{-1} (see Zambia National Agriculture Investment Plan 2014-2018, Comprehensive Africa Agriculture Development Programme. 2013. Final Draft, Ministry of Agriculture and Livestock, p 24.

[23] Nshima is a staple food made from maize powder or mealie-meal (cornmeal), prepared as a thick porridge eaten together with cooked vegetables or other relishes.

communities to promote agricultural production and diversification of sustainable enterprises in the lake region.

Agriculture remains at the subsistence level due to lack of fertilizers and unsustainable land management practices - mono-cropping. Cultivation on steep hills or mountainous terrain and clearing of woodland in the steep mountainous areas to expand agricultural activities have resulted in rapid erosion and gully formation. In the shorelines competition for land is on the increase due to population pressure resulting in additional land on slopes being cleared and cultivated. Use of soil fertility restoration and soil conservation techniques are not known and subsequently main crops particularly maize yields of less than one metric ton per hectare are very common. Apart from using inorganic fertilizers, most households do not practice alternative soil-fertility improvement technologies such as green manure composts/crop and conservation farming and agro-forestry technologies to raise agriculture crop production. Inadequate awareness and information are some of the barriers for the promotion of these soil fertility improving technologies. Transformation of the agricultural-based income generating activities is further thwarted by limited availability and access to lucrative markets (poor market infrastructure) and value additions in trading.

Small livestock such as goats and pigs are common in most households in both districts. Poultry – chickens are the most prevalent livestock owned by communities in the uplands. In the shoreline, chickens and ducks are mostly owned. Livestock such as cattle are not commonly found both upland and along the lakeshore as the terrain is steep and tsetse flies are widespread adjacent to the Nsumbu National Park. Utilization of livestock for economic purposes is also limited across all the households in the two districts.

2.5.2 Capture Fisheries Livelihoods

Fishing is hard work and typically requires more than 8-12 hours night shift on the lake and this activity is exclusively conducted by young men. Women often get involved in the processing or selling of the catch. A number of different gadgets have been used for catching fish in the lake. At subsistence level, line fishing is commonly practiced propelled by locally made canoes. However, use of unsustainable practices for catching fish such as "mosquito nets" that have been rebranded as "fishing nets" have serious consequences of degrading/depleting the fish stock in the lake as even the smaller baby fish is not spared. The communities have acknowledged that sometime back, fishing used to be a very lucrative and profitable enterprise but now it is demising its economic value. The decline of fisheries as an important source of food and livelihood is attributed to over-exploited fisheries. The inhabitants indicated that "imposition of fishing bans to coincide with the breeding season from October to March every year can help improve the fish stock in the lake, and used to be applied in the past". In addition to fishing bans, the inhabitants are of the view that the community can also be involved in fish farming. This can be considered as a feasible option for reducing demand on the fish stock in the lake thereby making the fisheries become a viable, profitable, sustainable enterprise, although the development of community fish farming activities can be challenging.

2.5.3 Forest Products and Utilization

Timber Exploitation

Apart from using timber for the production of charcoal, it is an important natural resource in Chandwe, Munshi and Kapinga – Junction (for the construction purposes such as in building houses as well as boat building among the lacustrine communities in Munshi). Similarly, timber production in Mpulungu district is more predominant in Chinakila, Iyendwa and Chitimbwa villages. Timber is also a lucrative business when sold as planks (value additions) to making furniture. Commercial extraction and large exportation of timber into other districts or towns to be used in construction and building works are not mentioned. Promotion of multi-purposes trees (MPTs) which presented several benefits – trees that can provide firewood, timber for sell or for construction purposes – are preferable, in particular exotic species such as pine trees. The reason for this is that MTPs are much more of economic value than the eucalyptus species previously promoted by another project in the locality. In Mpulungu, commercial timber harvesting of tree species such as Pterocarpus angolensis

(Mukwa) and Pterocarpus chrysonthrix (Mukula) from open forest located in Chief Chinakila's area and other parts of the country has been halted by government in order to put control measures to curb the illegal trade of these valuable tree species.

Wood-Fuel and Charcoal Production

Almost all the communities from Munshi village (lakeshore) to Tondwa-Junction on the road to Nsama Center, Mpulungu, and those living adjacent to the Lake and Nsumbu National Park face challenges associated with obtaining fuel-wood due to fuel-wood demands for cooking, brewing traditional beer, producing charcoal, cooking and other energy domestic use. At a larger magnitude, illegal forest activities on top of mountains for charcoal production leaves the top of the mountain sparsely unprotected due to loss of tree cover. Charcoal is a lucrative business in Ndole, Tchandwe village as a pocket of 25 kg fetches between K20 and K25 (US $ 2.5 – 3.0) giving a total income of around K200 per month per household. Uncontrolled burning and overharvesting are some of the reasons cited as threats to the trees. Loss of tree cover has contributed to soil erosion thereby reducing the soil fertility and threatening the rivers and the Lake with soil siltation and sedimentation. Loss of trees can exacerbate the degeneration of the forests thereby adversely affecting the livelihoods of the community. Consequently, such phenomenon may have a negative effect on food security, energy, and clean water in rivers and the Lake. As adaptation measures, almost 100% women in Chandwe and Munshi have adopted efficient cooking stoves "chitofu" that require less firewood for cooking. Charcoal production remains however highly inefficient, with low yields and a serious contributor to greenhouse gas (GHG) emissions. This phenomenon is also similar in Mpulungu - Chitimbwa, Iyendwa, Kabyolwe, and Chinakila's area.

2.6 Brick Moulding and Bee keeping

The majority of communities are involved in moulding bricks from mud for the construction of houses. Some of the bricks are burnt to make them strong. Some bricks are sold within the localities to raise household income. Just like charcoal production, brick kilning requires a lot of fire wood to produce burnt bricks. The systems require biomass energy such as from fire wood and are a source of GHG emissions given low combustion efficiency of the wood. Such traditional kilns are recognized as potential drivers of deforestation, calling for better efficiency systems to be promoted. Further, depending on where these kilns are located and the method used for soil pit excavation, these can cause soil erosion and siltation in the rivers.

Bee keeping can be an alternative but valuable source of income and food. It is, however, one livelihood skill that is not practiced in Nsama district and even in Mpulungu except in one village – Chinakila. Bee keeping is an environment friendly livelihood system as it benefits the environment and crops being grown by farmers. Local communities met during the Project Preparation Grant (PPG) mission demonstrated high interest in bee farming.

2.7 Vulnerability to Climate Change

Zambia's natural ecosystems and livelihoods are being threatened by climate change[24]. The mean annual temperature has steadily been increasing in the last several decades averaging about 0.29°C degrees per decade such that all the agro-ecological regions[25] of the country are experiencing warmer winters and hotter summers[26]. The rainfall pattern has also shifted – decreasing by about 1.9mm per month annually at the rate of 2.3% per decade since 1960 primarily due to decreases from December to February. The National Adaptation Programme of Action (NAPA) of Zambia predicts an increase of rain in Northern Zambia encompassing region III. It projects impact on

[24] Zambia National Adaptation Programme of Action (2007).
[25] The Global agro-ecological zones (GAEZ) maps has indicated that Zambia consists of four agro-ecological zones: The First zone, AEZ I, comprises the low rainfall (semi-arid, 800mm) low altitude (400-900mm); AEZ IIa consists of a sub-region of the medium rainfall (800-1000mm) plateau with altitude ranges of between 900 and 1300m; AEZ IIb is differentiated by the Kalahari (Barotse) sand plateau and the Zambezi flood plains which relates to the sub-region with the medium rainfall); and finally AEZ III, comprises the high rainfall category with rainfall>1000mm in the northern plateau.
[26] NAPA 2007 Zambia.

fisheries with reduced breeding and even reduced biodiversity in the long-term. Floods – another occurrence of climate change are predicted to cause destruction of crops, destruction of infrastructure, siltation and sedimentation on rivers and streams with negative impacts on fisheries, displacement of people and increased incidence of epidemics such as malaria, dysentery, cholera, and respiratory infections. Climate change-induced occurrences - more frequent and intense droughts, floods, extreme heat, and erratic rainfall are expected to threaten biodiversity, economic development sustainability and food security. Aquatic ecosystems, wildlife habitats, forests growth and other socio-economic sectors have all being placed under turmoil as result of their vulnerability to climate change.

The impact of these changes on the rural communities' livelihoods and survival which is largely dependent largely on rain-fed agriculture and natural resources of the lake is already being felt. The rural communities' traditional farming systems and exploitation regimes of the ecosystems in both Mpulungu and Nsama districts have not kept pace with the climatic-induced trends such as of increasing frequency of floods alternating with droughts and shortening of the growing season. Dissemination of climate change induced impacts has not been domesticated at community level in the two districts.

Communities understanding of climate change is rudimentary and commonly associated with extreme weather events that affect crops or floods that destroy property and houses without realizing that loss of tree cover through human activities is the cause for global warming with far reaching negative consequences on their own livelihood systems and safety nets (agricultural productivity; food security and nutrition; fisheries and marine species; wildlife and their habitant; health; water and energy; infrastructure; and other relevant sectors). In agriculture systems for example in Nsama, use of short cycle varieties to mitigate against the shortening of the growing season are not applied or even investing in irrigation to promote horticulture which is important for food and nutrition security as well as income generation in the two districts. Conservation agriculture for soil fertility conservation and soil moisture conservation and use of agroforestry technologies for both soil and moisture conservation are hardly complimented. This demonstrates that mitigation and adaption measures are inadequately applied by the community to allow for the adoption of resilient and climate smart systems in case of climate change induced calamities.

2.8 Land Acquisition and Control

The land in Nsama's Chiefdom including much of the lakes catchment in Nsama and Mpulungu Districts is under Chief's customary law and this is administered through traditional headmen under delegated authority from His Royal Highness Senior Chief Nsama. During stakeholders' consultation, the Royal Highnesses acknowledged that they are empowered by customary Law to allocate land up to 250 hectares per person to anyone seeking land in their chiefdom. Land is an important ingredient for the capitalization of any investment associated with land use, and therefore lack of concrete investment in sustainable farming and biodiversity conservation as exhibited by many of the rural communities can be attributed to insecure land tenure and rights. It is also crucial to point out that in many of the chiefdoms around Lake Tanganyika, Chief Nsama's and other chiefs' area included, women do not have the right to directly own and have control over land. This disparity in the acquisition of land has engulfed the local communities in cyclic and perpetual poverty over generations.

2.9 Poverty Dimension of the Local Communities

Despite the many benefits accruing to the local communities through the exploitation of natural resources, access to biodiversity and benefit sharing, the majority of them are faced with extreme poverty of immense complexity. It needs to be pointed out that these benefits are short-term and long-term visioning through proper land use planning which recognises conservation in all its forms is what the community lack. The communities mostly likely live on less than a dollar a day per person

and may surpass the provincial figure of 79.7% population[27] considered to be living in poverty. Their livelihood systems are sorely dependant on the total exploitation of natural resources of the lake and the surrounding ecosystems. Poorer households tend to exhibit a higher dependence on forests' natural resources than those who are better off.[28] Diversification of sources of livelihoods is one of the best and most effective options for improving income-generating capabilities of local communities. This requires the shifting of the present scenarios and removing dependence on natural resources in favour of other competitive and lucrative enterprises and services.

[27] 2015 Living Conditions Monitoring Survey: key Findings, Central Statistical Office, Zambia
[28] Integrated Land Use Assessment, 2005-2008 Republic of Zambia.

AFRICAN DEVELOPMENT BANK
ADB/BD/WP/2014/201

AFRICAN DEVELOPMENT FUND
ADF/BD/WP/2014/144
3 December 2014
Prepared by: OSAN
Original: English

Probable Date of Board Presentation
18 December 2014

FOR CONSIDERATION

MEMORANDUM

TO : THE BOARDS OF DIRECTORS

FROM : Cecilia AKINTOMIDE
Secretary General

SUBJECT: ZAMBIA – LAKE TANGANYIKA DEVELOPMENT PROJECT *

ADB LOAN OF USD 22.49 MILLION

GEF GRANT OF USD 7 MILLION

Please find attached the Appraisal Report related to the above-mentioned Project.

The Technical Annexes will be distributed separately.

The Outcome of Negotiations and draft Resolutions will be submitted to you as an addendum.

Attach:

Cc: The President

*** Questions on this document should be referred to:**

Mr. C. OJUKWU	**Director**	**OSAN**	**Extension 2042**
Mr. K. MBEKEANI	**OIC**	**SARC**	**Extension 8403**
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Mr. F. KWESIGA	**Resident Representative**	**ZMFO**	**Extension 6400**
Mrs. S. MOHAMED AHMED	**Team Leader**	**OSAN.3**	**Extension 2259**

SCCD: K.M

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

OSAN DEPARTMENT
December 2014

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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

This Appraisal Report was prepared by a Bank team comprising Ms. Siham MOHAMED AHMED, Principal Natural Resources Management Specialist, Ms. Amel HAMZA, Gender Expert and Messrs. Olagoke OLADAPO, Chief Agro Economist, Léandre GBELI, Principal Agricultural Economist, Lewis BANGWE, Senior Agricultural Officer, Jean- Louis KROMER, Chief Natural Resources Mgt Officer, Agyei Mensah OWUSU, Principal Financial Management Specialist, Natan JERE, Procurement Specialist and Laouali GARBA, Senior Environmental Specialist. Enquiries should be addressed to Mr. Abdoulaye DAGAMAISSA, Division Manager, OSAN.3.

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 Vison 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 teaming 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 hat 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	
OUTCOMES	**Medium-Term**		**2014**	**2019**		**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.
	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	
		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**		**Risk:** • Government's weak disbursement profile **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
	I. INTEGRATED NATURAL RESOURCES MANAGEMENT 1. Forest and Land 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		
		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		

	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 4. Establishment of Local Development Fund for Social Infrastructure	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. **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
		Construction of teachers' houses for Basic School	0	2		
		Demand-driven & gender responsive community micro projects undertaken	0	25		
	5. Alternative livelihoods	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		
		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		
KEY ACTIVITIES	**COMPONENTS**				**INPUTS**	
	Component 1: Integrated Natural Resources Management (US$ 15.50 Million) 1. Forest and Land Management 2. Fishery Management and Value Chain Development 3. Capacity Building (gender responsive) **Component 2: Improvement Of Populations Livelihood (US$ 10.53million)** 1. Development of Social Infrastructure 2. Alternative Livelihoods **Project Management and Coordination (UA3.56)** 1. Project M&E activities 2. Project planning and coordination 3. Project steering committee **4.** Liaison activities with LTA				**Total Project Cost: USD 29.62 million** ADB loan: USD 22.49 million (75.9%). GEF: USD 7.00 million (23.6%) GoZ: USD 0.13 million (0.4%).	

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 1st annual budget	
4	Authorization of 1st Disbursement	
5	Approval of 1st 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**	AfDB 3.4%	FAO 1.1%	Finland 4.4%	
UA m	**UA 229.4 m**	**UA 70.0 m**	WB 36.3%	JICA 3.4%	USAID 7.9%	
%	**70.0%**	**30.0%**	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 openeness through infrastructure and promote access to domestic, regional and international markets. The current members of the Ag-CP Troika are Finland, European Unionand 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**	▪ **Fishery co management, small scale aquaculture, and value chain sub component** ▪ 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
			▪ 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** ▪ 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** ▪ 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**	▪ **Development and provision of economic infrastructures subcomponent** ▪ 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** ▪ 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**	▪ 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 that 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 provide 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/AID 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/AID 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 2 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 4.3.3 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

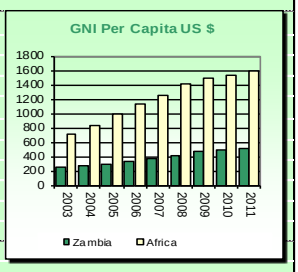
The Bank Management recommends that the Board of Directors approve the proposal to award an ADB loan of USD 22.49 million and GEF grant of USD 7.00 million to the Republic of Zambia for the above mentioned purpose and in accordance with the conditions specified in this report.

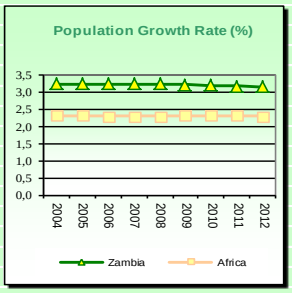
Appendix I. Country's comparative socio-economic indicators

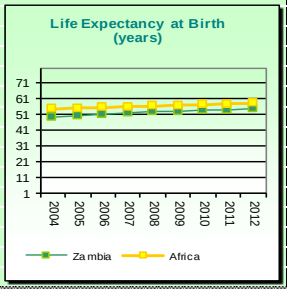
Zambia

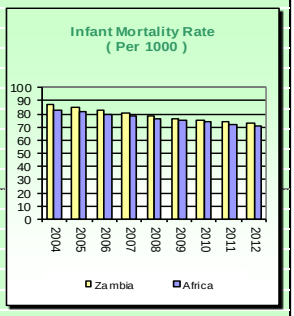
COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Zambia	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km²)	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 Km²)	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 Populatio	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/AID	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; UNAIDS; UNSD; WHO, UNICEF, WRI, UNDP; Country Reports. *last update : May 2013*

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

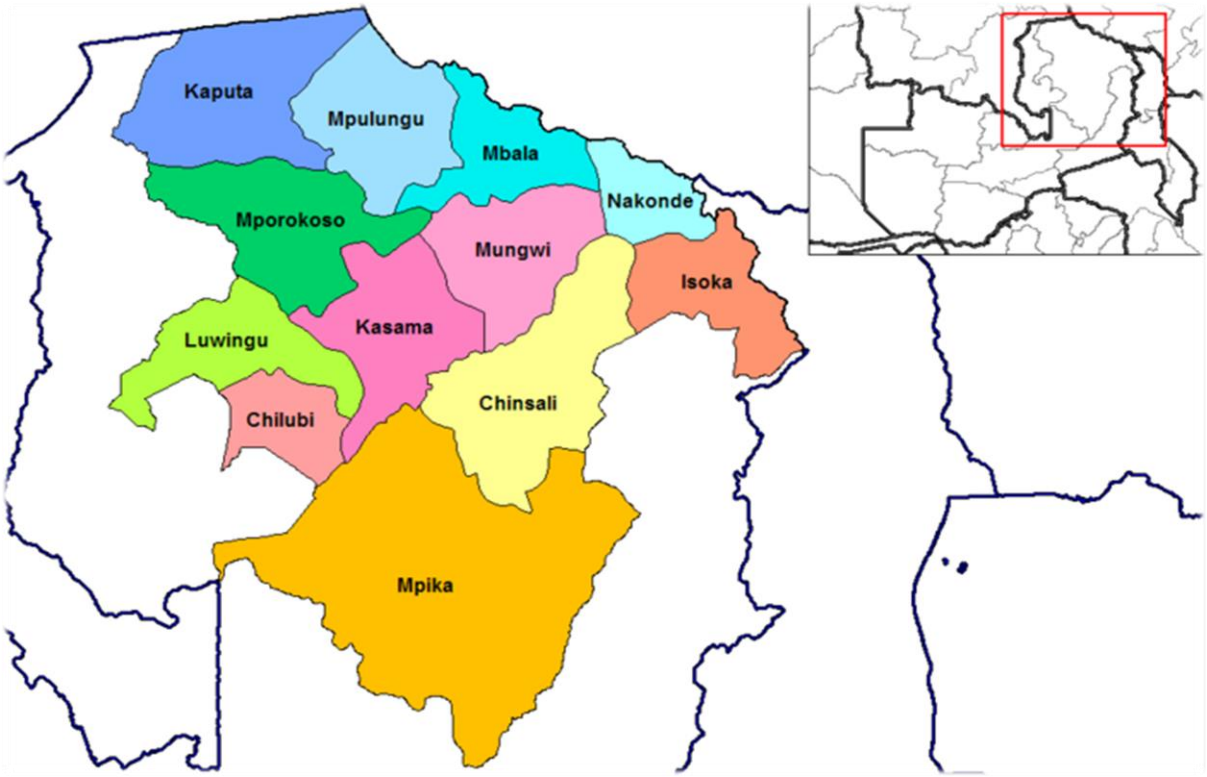
Appendix II. AfDB's Active Portfolio in Zambia (April 2014)

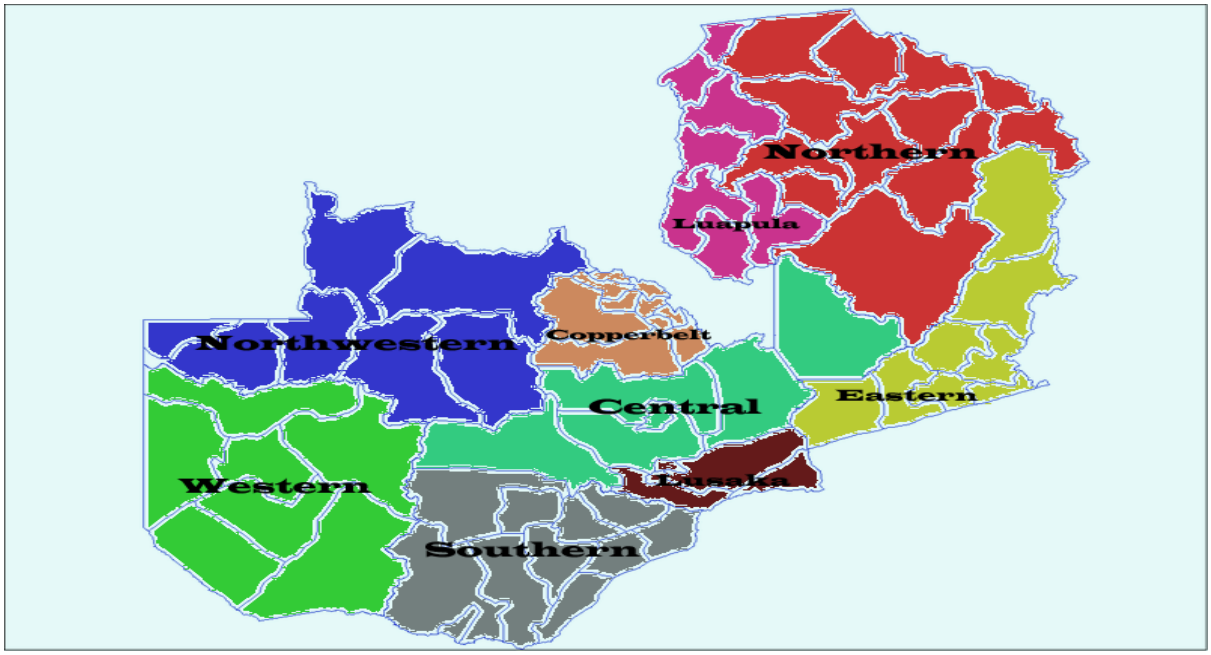
No	Sector	Long name	Finance Source	Loan Number	Approval Date	Signature Date	Effective Date	Closing Date	Approved Amt. (UA)	Disbursed Amt. (UA)	Disb. Ratio	IP	DO	PFI STATUS	Age (Yrs)
		National Operations (Public)													
1	Agriculture	Community Water Management Improvement	AWTF	5600155001751	12-Nov-09	23-Apr-10	23-Apr-10	31-Dec-13	659,218	527,769.66	80.1%	2.33	3.00	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%	2.29	2.75	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%	2.57	2.67	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%	2.50	3.00	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%	0.00	0.00	No Supervision	0.47
			NTF	2200160000989	13-Jun-12	TBD	TBD	31-Dec-18	6,400,000	0.00	0.0%	0.00	0.00	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%	2.50	2.33	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%	2.31	3.00	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%	0.00	0.00	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%	0.00	0.00	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%	0.00	0.00	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%***	***2.42***	***2.86***		***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

DISCOUTING 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
DISCOUTED 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
DISCOUTED 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
DISCOUTED 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