Public Disclosure Authorized

Public Disclosure Authorized

Document of
The World Bank

FOR OFFICIAL USE ONLY

Report No: 80546-TZ

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT
FROM THE GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF US$5.98 MILLION

TO THE

UNITED REPUBLIC OF TANZANIA

FOR THE

KIHANSI CATCHMENT CONSERVATION AND MANAGEMENT PROJECT

September 4, 2013

Environment, Water Resources and
Disaster Risk Management Unit (AFTN3)
Sustainable Development Department
Africa Region

This document is being made publicly available prior to Board consideration. This does not imply a presumed outcome. This document may be updated following Board consideration and the updated document will be made publicly available in accordance with the Bank's policy on Access to Information.

CURRENCY EQUIVALENTS

(Exchange Rate Effective August 30, 2013)

Currency Unit	=	Tanzanian Shilling (TZS)
TZS 1616.99	=	US$1
US$1	=	0.0006

TANZANIA GOVERNMENT FISCAL YEAR
July 1 - June 30

ABBREVIATIONS AND ACRONYMS

AG	-	Auditor General
ASP	-	Africa Stockpile Project
CAS	-	Country Assistance Strategy
CSOs	-	Civil Society Organizations
WCS	-	Wildlife Conservation Society
DANIDA	-	Danish International Development Agency
DFID	-	Department for International Development
DG	-	Director General
EAMCEF	-	Eastern Arc Mountains Conservation Endowment Fund
EMA	-	Environmental Management Act, 2004
EWURA	-	Energy and Water Utilities Regulatory Authority
GDP	-	Growth Domestic Product
GEF	-	Global Environment Facility
GoT	-	Government of Tanzania
IDA	-	International Development Association
IREM	-	Immediate Rescue and Emergency Measures Project
IUCN	-	International Union for Conservation of Nature
IWRM	-	Integrated Water Resource Management
IWRDMP	-	Integrated Water Resource Development and Management Plans
KST	-	Kihansi Spray Toad
LGAs	-	Local Government Authorities
LKEMP	-	Lower Kihansi Environmental Management Project
LKHP	-	Lower Kihansi Hydropower Plant
MAFS	-	Ministry of Agriculture and Food Security
M&E	-	Monitoring and Evaluation
MNRT	-	Ministry of Natural Resources and Tourism
MEM	-	Ministry of Energy and Minerals
MOW	-	Ministry of Water
NAPA	-	National Adaptation Plan of Action
NEECS	-	National Environment Education Communication Strategy
NEMC	-	National Environment Management Council
NEP	-	National Environmental Policy
NSGRP	-	National Strategy for Growth and Poverty Reduction
ORAF	-	Operational Risk Assessment Framework
PDO	-	Project Development Objective

PES	-	Payment for Ecosystems Services
PIM	-	Project Implementation Manual
RBWB	-	Rufiji Basin Water Board
SSC	-	Species Survival Commission
SUA	-	Sokoine University of Agriculture
TAC	-	Technical Advisory Committee
TANESCO	-	Tanzania National Electric Supply Company
TAWIRI	-	Tanzania Wildlife Research Institute
TEDAP	-	Tanzania Energy Development and Access Project
TFS	-	Tanzania Forest Services
ToR	-	Terms of Reference
UDSM	-	University of Dar es Salaam
VPO	-	Vice President's Office
WSDP	-	Water Sector Development Project

Regional Vice President:	Makhtar Diop
Country Director:	Philippe Dongier
Sector Director:	Jamal Saghir
Sector Manager:	Magda Lovei
Task Team Leader:	Jane Kibbassa

TANZANIA

Kihansi Catchment Conservation and Management Project

TABLE OF CONTENTS

1. STRATEGIC CONTEXT 1
   - **A. Country Context** 1
   - **B. Sectoral and Institutional Context** 1
   - **C. Higher Level Objectives to Which the Project Contributes** 4
   - **D. Link with the GEF Biodiversity Conservation Objectives** 5

II. PROPOSED PROJECT DEVELOPMENT OBJECTIVES 5
   - **A. PDO** 5
   - **B. Project Beneficiaries** 5
   - **C. PDO Level Results Indicators** 6

III. PROJECT DESCRIPTION 6
   - **A. Project Components** 6
   - **B. Project Financing** 8
   - **C. Lessons Learned and Reflected in the Project Design** 9

IV. IMPLEMENTATION 10
   - **A. Institutional and Implementation Arrangements** 10
   - **B. Results Monitoring and Evaluation** 12
   - **C. Sustainability** 12

V. KEY RISKS AND MITIGATION MEASURES 13
   - **A. Risks Rating Summary Table** 13
   - **B. Overall Risk Rating Explanation** 14

VI. APPRAISAL SUMMARY 14
   - **A. Economic and Financial Analyses** 14
   - **B. Technical** 15
   - **C. Financial Management** 15
   - **D. Procurement** 15
   - **E. Social (including Safeguards)** 16
   - **F. Environment (including Safeguards)** 16
   - **G. Safeguard Instruments** 17

Annex 1: Results Framework and Monitoring **19**

Annex 2: Detailed Description of Project Activities **22**

Annex 3: Implementation Arrangements **32**

Annex 4: Operational Risk Assessment Framework (ORAF) **49**

Annex 5: Implementation Support Plan **55**

Annex 6: Incremental /Additional cost reasoning **56**

Annex 7: Maps of Project Area **64**

PAD DATA SHEET

Tanzania

Kihansi Catchment Conservation and Management Project (P126361)

PROJECT APPRAISAL DOCUMENT

AFRICA

AFTN3

Report No.:

Basic Information			
Project ID	Lending Instrument	EA Category	Team Leader
P126361	Investment Project Financing	B – Partial Assessment	Jane A. N. Kibbassa
Project Implementation Start Date		Project Implementation End Date	
26-Sept-2013		31-Dec-2018	
Expected Effectiveness Date		Expected Closing Date	
1-Nov-2013		31-Dec-2018	
Joint IFC			
No			
Sector Manager	Sector Director	Country Director	Regional Vice President
Magda Lovei	Jamal Saghir	Philippe Dongier	Makhtar Diop

Borrower: MINISTRY OF FINANCE			
Responsible Agency: National Environment Management Council			
Contact:	Dr. Fadhila Khatibu	Title:	Director, Environmental Research & Planning
Telephone No.:	255 (022) 2774852	Email:	nemc@nemctan.org

Project Financing Data(US$M)					
[ ]	Loan	[X]	Grant	[ ]	Other
[ ]	Credit	[ ]	Guarantee		

For Loans/Credits/Others	
Total Project Cost (US$M):	5.98
Total Bank Financing (US$M):	0.00

Financing Source	**Amount(US$M)**
BORROWER/RECIPIENT	
Global Environment Facility (GEF)	5.98

Total	

Expected Disbursements (in USD Million)								
Fiscal Year		2014	2015	2016	2017	2018	2019	0000	0000
Annual		2.77	1.21	0.80	0.70	0.50	0.00	0.00	0.00
Cumulative		2.77	3.98	4.78	5.48	5.98	5.98	0.00	0.00

Global Environmental Objective(s)

The Project Development Objective (PDO) is to enhance biodiversity conservation in the Kihansi catchment.

Components

Component Name	**Cost (USD Millions)**
Institutional capacity building for the management of Kihansi catchment	1.07
Conserve endangered species in the Kihansi catchment	4.61
Project management	0.30

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04	X	
Forests OP/BP 4.36	X	
Pest Management OP 4.09	X	
Physical Cultural Resources OP/BP 4.11		X
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

Legal Covenants			
Name	**Recurrent**	**Due Date**	**Frequency**
Description of Covenant			

Conditions	
Name	**Type**
Description of Condition	

Team Composition

Bank Staff

Name	Title	Specialization	Unit
Rafik Fatehali Hirji	Senior Water Resources Specialist	Water Resources	AFTN2
Mercy Mataro Sabai	Senior Financial Management Specialist	Financial Management	AFTME
Yesmeana N. Butler	Program Assistant	Program Assistance	AFTN3
Ann Jeannette Glauber	Senior Environmental Specialist	Environmental Management	AFTN3
Helen Shahriari	Senior Social Scientist	Social Science	AFTCS
Donald Paul Mneney	Senior Procurement Specialist	Procurement Management	AFTPE
Jane A. N. Kibbassa	Senior Environmental Specialist	Team Lead	AFTN3
Ana Maria G. Velosa	Consultant	Consultant	AFTN3
Faustina Chande	Team Assistant	Team Assistance	AFCE1
Luis M. Schwarz	Senior Finance Officer	Finance	CTRLA
Mei Wang	Senior Counsel	Legal	LEGAM
Henri Joel Nkuepo	Associate Counsel	Legal	LEGAM

Non Bank Staff

Name	Title	Office Phone	City
William D. Newmark	Consultant – Conservation Biologist	801-587-5738	Salt Lake City

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments

Institutional Data

Sector Board

Environment

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Agriculture, fishing, and forestry	Forestry	50	90	10
Water, sanitation and flood protection	General water, sanitation and flood protection sector	40	80	20
Agriculture, fishing, and forestry	General agriculture, fishing and forestry sector	10	70	30
Total		100		

☐ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Environment and natural resources management	Biodiversity	40
Environment and natural resources management	Water resource management	30
Environment and natural resources management	Other environment and natural resources management	20
Environment and natural resources management	Environmental policies and institutions	10
Total		100

1. STRATEGIC CONTEXT

A. Country Context

1. Over the past decade, Tanzania has experienced high levels of economic growth, around 7%, and has shown resilience to shocks. The main drivers of growth are manufacturing which grew at around 9% between 2003 to 2008, with exports – mainly regional – having grown by 17% annually since 2005; the service sector, including trade, transportation, and tourism, having grown at 8% over the past decade; and agriculture having grown at around 4% per year since 2000. The growth outlook for Tanzania continues to remain positive, although there are risks. The economy was estimated to have grown by 6.4% in 2012, slightly lower than the previous year, mainly due to the energy crisis and high fuel prices. The ongoing drought has had a significant impact on energy and food security. The medium-term growth outlook remains positive with the growth rate projected to return to 7% over the next 3 to 4 years.

2. Despite the stable macroeconomic situation, poverty remains prevalent in the country. The proportion of the population living below the poverty line has stagnated at around 30% since 2001, and the average household reports an income 40% lower than the average for sub-Saharan Africa. To address prevalent poverty, the Government of Tanzania (GoT) finalized a five-year (2010/11–2014/15) national growth and poverty reduction strategy, MKUKUTA II[1] in November 2010. MKUKUTA II is a medium-term plan that aims to achieve the goals of Tanzania's Development Vision 2025 (TDV 2025) and the Millennium Development Goals (MDGs). The TDV 2025 proposes to make Tanzania a middle income country characterized by high quality livelihoods; peace, stability, and unity; good governance; a well-educated and learning society; and a strong and competitive economy by 2025.

B. Sectoral and Institutional Context

3. With a surface area of 947,300 km^2 Tanzania is endowed with large areas of forests and woodlands, a great diversity of flora and fauna, and a variety of ecosystems including the highest mountain and three of the largest freshwater lakes in Africa, as well as globally important wetlands, coastal, and marine ecosystems. It is also home to multiple globally threatened and endangered plant and animal species. Tanzania's natural resources contribute substantially to its economy including agriculture, wildlife, fisheries, forestry, tourism and mining.

4. However, the use of natural resources in Tanzania is characterized by low productivity, unsustainable resource management, and uncoordinated management. In addition, the wealth from natural resources has not translated into improved economic well-being for the majority of citizens, rather it has benefitted a small minority. Equity remains a huge challenge.

---

[1] Mkakati wa Kukuza Uchumi na Kupunguza Umaskini or national growth and poverty reduction strategy. Concurrently, the Revolutionary Government of Zanzibar finalized the Zanzibar Strategy for Growth and Reduction of Poverty (Kiswahili acronym MKUZA II), covering the same period.

5. Among the many highly biologically rich ecosystems in Tanzania, freshwater ecosystems are of particular importance. Tanzania contains the highest diversity of endangered aquatic-dependent organisms of any East African nation, and twice that of any of its neighbors. Within Tanzania, the Kihansi catchment located in south central Tanzania within the Rufiji River basin is of particular global importance because of the unusually high numbers of critically endangered and highly endemic plant and animal species which occur here.

6. The design of the Kihansi Catchment Conservation and Management Project (KCCMP) builds substantially on the knowledge and experience gained under the Lower Kihansi Environmental Management Project (LKEMP) which closed on June 30, 2011. In 1994, the Government of Tanzania approved the construction of the Lower Kihansi Hydropower Plant (LKHP). The cost of this 180MW facility was US$272 million financed by the Government of Tanzania, the World Bank and the European Investment Bank, with significant contributions from the governments of Norway, Sweden and Germany through their respective development agencies: the Norwegian Agency for Development Cooperation (NORAD), the Swedish International Development Cooperation Agency (SIDA), and the German Federal Institute (KfW). In 1996 detailed ecological impact assessment studies carried out as construction was underway, led to the discovery of five endemic plant and animal species, including the Kihansi Spray Toad (KST). The KST, a globally unique species from the Nectophrynoides genus and which is live-bearing is restricted to four spray wetlands, which total less than 2 hectares in size and are maintained by spray generated from waterfalls in the Kihansi Gorge immediately below the dam. In order to reduce the adverse environmental impacts downstream of the Lower Kihansi Hydropower Plant and to help restore the Kihansi Gorge ecosystem, the World Bank's Board of Executive Directors approved LKEMP in 2001. The rationale for Bank support was to balance biodiversity conservation and development including water needs for power generation and environmental flows for ensuring ecosystem functions and to promote closer coordination in implementing national, water, energy and environmental policies.

7. LKEMP made important contributions by putting in place a foundation for a policy and regulatory framework for allocating water for the environment; key lessons were learnt from the highly contested process of granting water rights for operating the LKHP and allocating water for the ecosystem. The water use conflict at Kihansi as well as other multi-sectoral water use conflicts in the Pangani and Rufiji basins influenced the 2002 National Water Policy (NAWAPO) of Tanzania to adopt the concept of integrated water resource management which recognizes multi-sectoral uses of water and promotes water planning and development at a river basin level[2] rather than at an administrative or political boundary level as was done in the past. According to IUCN and the Bank, NAWAPO included innovative provisions recognizing environment as a legal use of water in the allocation priority and decision making process and the 2009 Water Resources Management Act supported implementation of NAWAPO. LKEMP provided support for preparing an Environmental Management Act, enacted in 2004, along with a series of important regulations, including the Environmental Impact Assessment and Audit Regulation (2005); Strategic Environmental Assessments regulation; and the Environmental Experts and Guidelines Regulation. Four environmental flow assessments have been carried out

[2] In this PAD, the terms river basin, catchment, sub-catchment and watershed all refer to the natural hydrological units but at different scales. Tanzania is divided into 9 river and lake basins. Each basin has sub-basins and catchments. Each catchment has sub-catchments. Each sub-catchment has watersheds.

following passage of NAWAPO. A sound water policy is now in place in Tanzania to integrate environmental flow requirements in decisions related to water allocation. Coordination between the environmental and water resources management agencies has improved with the recognition of the environment as a user of water.

8. Under LKEMP Phases1 and 2 and subsequent bridging support the following key results related to biodiversity conservation were achieved: (i) establishment of a healthy and reproducing Kihansi Spray Toad (KST) captive population – the largest captive population (> 6000) of any critically endangered or extinct-in-the-wild species, worldwide; (ii) the establishment of two amphibian captive breeding facilities in Tanzania and the training of staff, the first such facilities in Africa; (iii) restoration and maintenance of the spray wetland habitats through an artificial spray irrigation system; (iv) establishment and enforcement of a Final Water Right which legally guarantees a minimum flow of 1.5 – 2.0 m^3/s to sustain biodiversity within the Kihansi Gorge. Jointly, this minimum bypass flows in combination with the artificial sprinkler system provided adequate environmental flows for the restoration of the Kihansi spray wetland so as to enable the reintroduction of the KST back to the gorge; (v) expansion and strengthening of the spray irrigation system to maintain the spray wetland habitat; (vi) development of an Updated Environmental Management Plan (EMP) for the Lower Kihansi Hydropower Plant; (vii) development and passage of the 2004 Environmental Management Act (EMA) and 10 implementing regulations; (viii) establishment of a new curriculum in Conservation Biology at the University of Dar es Salaam; (ix) training of 2 PhD and 2 MSc students in conservation biology; (x) development with support from IUCN/SSC of reintroduction guidelines for the KST; and (xi) initiation of the first reintroduction of an extinct-in-the-wild amphibian species worldwide. However, despite all the successes, there is still a need for continued actions in order to sustain biodiversity conservation in the Kihansi catchment.

9. As a result of the above achievements gained under LKEMP and the Bank's expertise and past support of environmental flow issues and biodiversity conservation in general and with the Kihansi catchment in particular, the Government of Tanzania has requested that the World Bank serve as the GEF Implementing Agency for KCCMP.

10. The activities proposed under the GEF financing will extend and enhance the sustainability of the achievements of the LKEMP in mainstreaming conservation of critically endangered species and their habitat in the Kihansi catchment and in integrating downstream environmental flow assessment into river basin planning in Tanzania. Specifically, GEF financing will support enhancing environmental dimensions into the integrated water resource management and development framework under the Water Sector Development Project (WSDP). The WSDP is a multi-phased long-term program to implement the NWAPO. It aims to strengthen water sector institutions across nine river basins in Tanzania for integrated water resource management and improving access to water supply. Phase one of WSDP is a $1.2 billion sector wide program supported by the GOT and numerous agencies, including $200 million IDA credit. WSDP also supports the preparation of IWRM plans in nine river basins and the preparation of priority high risk water resources development projects. The KCCMP will be piloting the integration of biodiversity conservation at both an operational and planning level into the WSDP. As part of this effort, KCCMP will continue the first reintroduction of an extinct-in-the-wild amphibian species worldwide following best scientific practices, and will be

pioneering the *in-situ* control and mitigation of chytrid fungus, an exotic disease which has contributed to the extinction of more than 90 amphibian species worldwide. KCCMP will also support the development of uniform methods and procedures for conducting environmental flow assessments to inform river basin planning and water resources development. It will also support the preparation and implementation of the Kihansi Catchment Management Plan (KCMP).

C. Higher Level Objectives to Which the Project Contributes

11. Tanzania has ratified the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD), and the United Nations Framework Convention on Climate Change (UNFCCC). The KCCMP is aligned under the CBD with five major Aichi Biodiversity Strategic Goals for 2011 – 2020: Strategic Goal A – Mainstreaming biodiversity across government and society; Strategic Goal B – Reduce direct pressures on biodiversity and promote sustainable use; Strategic Goal C – Improve the status of biodiversity by safeguarding ecosystems, species, and genetic diversity; Strategic Goal D – Enhance the benefits to all from biodiversity and ecosystem series; and Strategic Goal E – Enhance implementation through participatory planning, knowledge management, and capacity building.

12. At the national level this project is also aligned with the National Environmental Policy (NEP, 1997) and its enabling legislation, Environmental Management Act (EMA) Cap 191, as well as the National Strategy for Growth and Poverty Reduction (NSGRP), the National Five Year Development Plan (2011/12-2015/16), Tanzania Development Vision (2025), and the various Multilateral Environmental Agreements to which Tanzania is party. NSGRP aims at accelerating economic growth, reducing poverty, improving the standard of living and social welfare of the people of Tanzania, as well as good governance and accountability. The proposed project will contribute to the fourth goal under the Growth for Reduction of Income Poverty Cluster, which aims at "ensuring food and nutrition security and environmental sustainability and climate change adaptation and mitigation."

13. Tanzania's growth is inextricably linked with its environment with the three key growth sectors – mining, tourism, and fisheries – being all natural resource based. Consistent with the Country Assistance Strategy (CAS), and in cooperation with the Government, the Bank is working on mainstreaming environmental considerations into the country portfolio, through efforts to promote environmental capacity building in most sectors, including most notably water, agriculture, energy and transport. In parallel, the Bank is leveraging national and regional IDA funds, using GEF and other trust funds, to maximize the environmental benefits of national development efforts. The World Bank Group's CAS, which provides a framework for World Bank Group support for five years (FY12-15) is aligned with Tanzania's Growth and Poverty Reduction Strategy for mainland Tanzania (MKUKUTA II) and Zanzibar (MKUZA II) and with the Africa Strategy. The CAS focuses on four strategic objectives and eleven outcomes. The proposed project is consistent with the first strategy – *Promote Inclusive and Sustainable Private Sector-Led Growth*, with a specific outcome on enhanced sustainability and improved management of natural resources.

D. Link with the GEF Biodiversity Conservation Objectives

14. The incremental GEF Biodiversity-funded activities will provide for the long-term conservation and management of globally critically endangered species and critical habitats in the Kihansi catchment. The Kihansi catchment, which is relatively small (580 km^2), brings to the fore the cross-sectoral challenges associated with water allocation for energy, environment and other uses of water. In this context, the Kihansi catchment is critical for both water resource management and the protection of biodiversity. The Kihansi River is a major source of national hydropower supply, contributing nearly 35% percent of the total hydropower generated nationally and about 15% of the total electricity generated from all sources; and the Kihansi ecosystem harbors critically endangered and highly endemic species of flora and fauna. Therefore, conserving and effectively managing the Kihansi catchment will help maintain a critical balance between water for hydropower generation and biodiversity conservation.

15. The proposed activities to be funded by GEF will contribute to the achievement of GEF-5 Biodiversity Strategy Objective 2 – mainstream biodiversity conservation and sustainable use into production landscapes/seascapes and sectors – by enhancing biodiversity conservation in the Kihansi catchment of which 48% is under agricultural production.

II. PROPOSED PROJECT DEVELOPMENT OBJECTIVES

A. PDO

16. The proposed Project Development Objective (PDO) *is to enhance biodiversity conservation in the Kihansi catchment.* "Enhance" in the context of this project is defined as following: to provide for long term sustainability of species and institutions. The project will complement as well as assist on-going efforts of key resource regulatory authorities to conserve critically endangered and highly endemic plant and animal species and their habitat in the Kihansi catchment.

B. Project Beneficiaries

17. ***Direct beneficiaries*** of this project will include communities and households living in the catchment who will benefit from the development and implementation of catchment management activities which are expected to result in improved land productivity and resilience to climate change. Upstream communities and households will in return be expected to participate in and practice good land and water use management that would improve reliability of water flows in Kihansi River and the quality of water entering Lower Kihansi hydropower dam. CSOs working on conservation in the area will also be direct beneficiaries as well as the scientific community working to conserve the critically endangered and endemic plant and animal species which occur in the project area. Finally, government extension and regulatory agencies that are responsible for conserving biodiversity and managing water resources will be

direct beneficiaries from improved river basin planning by incorporating and applying the operational guidelines for environmental flows developed under the project.

18. ***Indirect beneficiaries*** of this project will include the government at large and the global community. The government and the national power utility company (TANESCO) will benefit through improved long-term power supply from the Lower Kihansi Hydropower Plant. The global community will benefit from the protection of critically endangered and endemic plant and animal species and their habitats.

C. PDO Level Results Indicators

19. The key result areas will include the following:

(i) landscapes that incorporate biodiversity consideration as per IUNC classification criteria for protected areas are conserved;
(ii) operational guidelines for conducting environmental flow assessment and a sustainable financing plan for Kihansi catchment are developed and mainstreamed.

III. PROJECT DESCRIPTION

A Project Components

20. In order to achieve the PDO the following components will be implemented through: (a) Institutional capacity building for the management of the Kihansi catchment; (b) Conserving endangered species in the Kihansi catchment; and (c) Project management.

Component 1: Institutional capacity building for the management of the Kihansi catchment (US$ 1.07 million).

This component comprises of two subcomponents:

21. **Subcomponent 1.1: Operational guidelines for conducting Environmental Flow Assessment *(US$ 0.68 million).*** The focus of this subcomponent is the integration of environmental flow assessment into the Integrated Water Resource Development and Management Planning (IWRDMP) Framework and its pilot application in the Rufiji River basin to serve as a demonstration for WSDP. The key activities to be supported will be (i) developing operational guidelines and procedures to conduct Environmental Flow Assessment for purposes of addressing downstream impacts of water resource infrastructure in future EIAs and procedures for mainstreaming EFA into IWRDM plans; and (ii) developing and implementing a communication strategy for improving and broadening the understanding of water and environmental linkages and promoting their sustainable use in the Rufiji River basin.

22. **Subcomponent 1.2: Sustainable financing plan for the Kihansi catchment *(US$ 0.39 million).*** The focus of this subcomponent is to develop options for a sustainable financing mechanism for ensuring the long-term conservation and management of the Kihansi catchment. Two key activities will be supported under this subcomponent: (i) valuation of ecosystem services in the Kihansi catchment; and (ii) preparation of a financing plan for the Kihansi

catchment. The concepts of payment for ecosystem services and benefit sharing opportunities between upstream communities and TANESCO will be explored. As part of the valuation of ecosystem services, an economic analysis of water use of the Lower Kihansi Hydropower Plant will be conducted.

Component 2: Conserve endangered species in the Kihansi catchment (US$ 4.61 million)

23. This component focuses on operational level interventions in the Kihansi catchment to ensure that the natural habitats knowledge base for the ecosystems in Kihansi is improved, and that the catchment can be managed sustainably over the long term. Timely flow of water of sufficent quantity and quality is essential to the conservation of endangered plant and animal species in the catchment, the long-term economic sustainability of the Lower Kihansi Hydropower Plant, and providing water for other downstream users. This component comprises of two sub-components:

24. **Subcomponent 2.1: Species and Habitat Conservation *(US$ 3.12 million)*:** Key activities supported under this subcomponent will include: (i) supporting the continuation of the reintroduction and monitoring of the Kihansi Spray Toad (KST) in the Kihansi Gorge; (ii) mapping and monitoring of other endangered plant and animal species (wild coffee and 1-3 potentially new butterfly species) which are endemic to the Kihansi catchment; and (iii) development and implementation of the Kihansi Catchment Management Plan (KCMP) which will identify, map and prioritize biodiversity rich hotspots, important water source areas, destructive land use practices, and illegal water abstractions as well as gazette and protect biodiversity hotspots and important water source areas in the Kihansi catchment. This subcomponent will include ecological monitoring of key ecological indicators, conservation of critical habitat, an assessment of the population dynamics of the reintroduced KST in the Kihansi gorge, support for the maintenance of a captive assurance population, and the *in situ* control and mitigation of chytrid fungus and other diseases. A multi-pronged strategy will be adopted to control and mitigate chytrid fungus in the Kihansi Gorge which will include: (i) allowing natural selection to select for individuals that are resistant to chytrid fungus and other diseases; (ii) isolating bacteria on the KST which inhibit chytrid fungus and inoculating released animals with the bacteria; (iii) manipulating the density of the KST in enclosures; and (iv) treating individuals with anti-fungal agents. Information on the taxonomic status and geographic distribution of species as well as the population viability of endangered and endemic species will provide critical inputs to the KCCMP. Additional description of these activities is provided in Annex 2.

Subcomponent 2.2: Community Conservation and Livelihoods *(US$ 1.49 million)*: This subcomponent will focus on community conservation and livelihood activities to support the implementation of KCMP. These activities will include (i) implementing pilot investments through participatory planning in 14 upstream villages in Integrated Pest Management (IPM) and in land use practices which enhance water quality and quantity in the Kihansi catchment; and (ii) provision of training to local communities in IPM and appropriate land use practices, and to key staff in relevant sectors in ecological monitoring and assessment, valuation of ecological services, and the sharing of best practices in endangered species conservation among national and international CSO's, and water resources and environmental law enforcement. Pilotinvestments will include training in the use, timing, and application of pesticides, terracing,

mulching, intercropping, the planting of insect trap crops, soil stabilizing grasses and shrubs, native species woodlots, honey production, poultry keeping, fruit trees, and the marketing of fruit. These pilot activities will be promoted as alternatives to traditional valley-bottom cultivation and farming in or near critical water sources areas. Demonstration plots in the form of farm field schools will be established in the 14 upstream villages, where communities participate and learn both the theory and practice of soil and water conservation, IPM and appropriate agricultural practices. As part of the training provided to local communities the project will identify barriers to accessing larger economic markets and will identify activities for local community that can reduce these barriers. While the training of local communities is specifically targeted at households living in close proximity to important water source areas and biodiversity hotspots, the farm field schools will reach through demonstration plots a much larger population (approximately 3000 households) residing in the Kihansi catchment.

25. Community-based activities will be organized and directed by district and LGA authorities, Water Use Associations, and Village Environmental Committees. LGAs have a technical capability through their forestry, agriculture, water, community development, and environmental management extension officers; whereas WUAs receive training and guidance on sound water use practices from RBWO.

Component 3. Project Management (US$0.30 million)

26. This component focuses on project coordination at national, district and community levels. It will support the implementing entities including NEMC and the Ministries for Water, Energy, Rufiji Basin Water Board, and LGAs with day-to-day project implementation and provision of basic project management support including, procurement, financial and environmental management and monitoring and evaluation.

B. Project Financing

27. The project is a stand alone GEF project with a five-year implementation period, to be financed by the GEF Grant in the amount of US$ 5.98 million. Table 1 provides a summary breakdown of costs by project component.

Table 1: Summary of Project Cost

Project Component	GEF Financing (US$ million)	% of GEF Financing
1. Institutional capacity building for management of the Kihansi catchment	1.07*	18.0%
2. Conserve endangered species in the Kihansi catchment	4.61*	77.0%
3. Project Management	0.30 *	5.0%
Total Financing Required	**5.98**	

**The amounts include contingencies*

C. Lessons Learned and Reflected in the Project Design

28. This project has been designed based on the lessons learned from previous and ongoing World Bank-funded projects in the project area. It is expected to enhance positive impacts including (i) reduced soils erosion and reliable river flow in the Kihansi River from planned investments in catchment management; (ii) improved biodiversity conservation from identification and protection of critical biodiversity areas and water sources; and (iii) reduced water pollution and improved quality from integrated pest management practices and investments in catchment management. Key lessons learned from the recently completed LKEMP are:

a) *Preventing the potential extinction of an endangered species is an exceedingly complex task.* Considerable time is needed to respond to unexpected events such as diseases, mortality, and predators particularly in stressed ecosystems. Experimentation, disease diagnosis and control, ecological monitoring, and adaptive management proved to be a highly effective strategy under LKEMP in preventing the global extinction of the KST, restoring the spray wetlands, and initiating the reintroduction of the KST back to the wild. The KCCMP will continue to follow a collaborative experimentally-driven adaptive management approach to conserve critically endangered plant and animal species in the Kihansi catchment.

b) *Environmental Flows.* A proper environmental flow assessment and provisions for adequate environmental flows are essential for projects in sensitive ecosystems. Component 1 addresses this lesson.

c) *Consideration of upstream and downstream impact during Environmental Assessment.* In large development projects such as hydropower plants, an Environmental Assessment (EA) must fully address both upstream and downstream impacts of development and the design of such projects must conform to existing ecological constraints. Furthermore, the results of an EA need to be fully incorporated into project design, implementation and costs. This lesson is also reflected in Component 1.

d) *Enhancing the legal and institutional framework for environmental and water resource management*: The Bank needs to support the development of a policy foundation and improved EA legislation and capacity as part of the implementation of infrastructure or hydropower projects. When the alarm was raised during the midst of the construction of the Lower Kihansi Hydropower Plant about the environmental impacts of the dam on the Kihansi Spray Toad, a critically endangered species, the government was unprepared to address the situation. There was no policy, legal or procedural framework in place to incorporate biodiversity protection into water resource management, or a process for allocation of water for environmental conservation. A program of mitigation measures was the government's only option. The KCCMP builds on the legal and policy framework developed under LKEMP and extends it by supporting the development of operation guidelines and procedures for allocating water for the environment.

e) *Promoting partnerships to enhance effectiveness*: When environmental impacts include scientific uncertainty, it is important to involve experienced partners from the scientific

community early in the project cycle. These partnerships can yield multiple benefits, ranging from the provision of scientific knowledge and expertise, the transfer of skills to the client country, and reducing the risk that the project will fail to meet its goals. Very little was known initially about the KST, the cause of its decline and subsequent extinction in the wild, and its unique and fragile habitat. A globally recognized conservation biologist was engaged to advise the team. Partnerships mobilized with IUCN, the Wildlife Conservation Society, the Bronx, Toledo, and San Diego Zoos as well as multiple academic institutions provided much-needed technical and scientific support during critical periods in the project's implementation. These partnerships will continue under KCCMP.

f) *Internalization of environmental management plans within the developer's operating principles and framework*: The internalization of the Environmental Management Plan (EMP) which included the maintenance of conservation infrastructure and the support for re-introduction of the KST within TANESCO's operational program are very important outcomes of LKEMP as well as project sustainability. The project will continue to work closely with TANESCO in internalizing the management of infrastructure within the Kihansi Gorge and the monitoring of environmental flows in the Kihansi catchment.

g) *The need to build ownership for sustainability through active involvement of key stakeholders.* Ensuring that key stakeholders including local communities and traditional authorities are fully informed and involved in decision making, and understand and support conservation objectives along with community responsibilities and benefits are important. In addition, building human and technical capacity in key institutions to handle complex issues of ecosystem conservation are also important to project sustainability. Under KCCMP, all project components and subcomponents are designed to build ownership through the active involvement of key stakeholders.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

The institutional arrangements will build on the earlier successful arrangements under LKEMP over a 10 year period and are as follows:

29. ***Steering Committee***: Policy guidance and overall project oversight and supervision will be provided by the Steering Committee. The Steering Committee is comprised of the Permanent Secretaries from the Ministries responsible for: Environment, Natural Resources, Energy, Water, Agriculture, Finance and Regional Administrative Secretaries of Iringa and Morogoro.
Functions of the Steering Committee are to:

i) receive progress reports on the implementation of project components, in order to provide overall guidance on policy matters that relate to the Kihansi gorge; and
ii) ensure that activities of individual sectors are included in the annual work plans in order to facilitate the smooth handing over at the end of the project life.

30. The Steering Committee will be chaired by the Permanent Secretary (PS) from the ministry responsible for environment and will meet twice a year to facilitate smooth implementation of activities.

31. ***Technical Advisory Committee (TAC):*** Technical guidance for this multi-sectoral project will be provided by a Technical Advisory Committee (TAC). The TAC constitutes representatives from key implementers, including VPO (Division of Environment), NEMC, TANESCO, MOW, MAFS, MNRT, and institutions such as TANESCO, TAWIRI, RBWB, UDSM, SUA and the District Executive Directors of the riparian districts of Kilombero, Mufindi and Kilolo. Members of the TAC will also have key project implementation responsibilities, and will provide technical advice to support decision making at Steering Committee level. The Director General NEMC will be the Chairperson of the TAC. TAC will meet twice a year prior to the steering committee meeting

32. Functions of TAC are to:

a) advise NEMC in conducting its coordination function;
b) provide technical guidance and oversight in implementing project activities;
c) undertake sectoral and cross-sectoral coordination of project activities;
d) ensure that project activities are integrated in sector plans and budgets;
e) assess and recommend technical expertise needed to implement various project activities;
f) make a close follow up of activities to ensure compliance of EMP; and
g) oversee the reintroduction of the KST.

33. ***Project coordination***: Project coordination will remain at the ministerial level with the Vice President's Office (VPO). At implementation level, the National Environment Management Council (NEMC) will serve as the lead coordinating institution. NEMC has experience in the coordination of cross-sectoral activities as required for the proposed GEF project. A senior officer from its core staff will be appointed as Project Coordinator, who will report to the Director General of NEMC, through the Director of Environmental Planning and Research. Within each implementing institution, a focal person will be appointed to coordinate project activities within each sector. Additional details and implementation schematics are presented in Annex 3.

34. At the component level, implementation of key activities is summarized in Table 2.

Table 2. Implementation of key activities by responsible institutions

COMPONENT ACTIONS	LEAD and (SUPPORTING) IMPLEMENTERS
Component 1: Institutional capacity building for the management of the Kihansi catchment	
1.1 Develop operational guidelines and procedures for addressing downstream environmental flow requirements into EIA and river basin planning	**MoW** (RWBO)
1.2 Develop and implement a communication strategy for improving and broadening the understanding of water and environmental linkages in the Rufiji River basin	**NEMC** (MoW/RBWB/LGAs/ TANESCO)
1.3 Valuation of Kihansi watershed ecosystem services and the costs associated with conservation of the Kihansi catchment and a study of the economics of LKHP and compare with ecosystem conservation costs	**NEMC** (RBWB/LGAs/ TANESCO)

COMPONENT ACTIONS	LEAD and (SUPPORTING) IMPLEMENTERS
1.4 Preparation of a financing plan for the Kihansi catchment	**NEMC** (LGAs/RBWB/TANESCO)
Component 2: Conserve endangered species in the Kihansi catchment	
2.1 Support continuation of KST reintroduction and mapping and management of other endangered species and critical habitats in the Kihansi catchment	**MNRT** (NEMC/UDSM/SUA/TAWIRI)
2.2 Development and implementation of the Kihansi Catchment Management Plan	**RBWB** (MNRT/NEMC/LGA/UDSM/ TANESCO/ TAWIRI)
2.3 Implementation of pilot livelihoods investments in line with enhancing water quality and quantity in the Kihansi Catchment (to implement the KCMP).	**LGAs** (NEMC/RBWB/TPRI)
2.4 Support alternative livelihoods activities to traditional valley bottom cultivation; provision of training of local communities and key staff in relevant sectors in IPM and appropriate land use practicesecological monitoring and assements, and valuation of ecological services, and sharing of best practices in endangered species conservation among national and international CSO and water resources and environmental law enforcement	**LGAs** (NEMC/TAWIRI/ UDSM/TPRI/ RBWB)
Component 3: Project Management	**NEMC**

B. Results Monitoring and Evaluation

35. The lead coordinating institution (NEMC), under the Project Coordinator will be responsible for monitoring and evaluation (M&E) and will report on project performance to the Technical Advisory Committee (TAC) through the Director of Environmental Planning and Research - NEMC. A detailed results framework for individual components shown in Annex1 includes outcomes, indicators, and institutional arrangements for the data collection, analyses, and dissemination. The project will establish an appropriate M&E system to track progress against the set indicators to provide an overall assessment of project performance. Details of project components and proposed activity budget are provided in Annex 2. The overall monitoring of project progress will be achieved through quarterly reporting.

C. Sustainability

36. The VPO is the Ministry that is responsible for coordination of environmental issues whereas NEMC is both a regulatory and advisory body that deals with the compliance and enforcement as well as coordinating research on environmental issues. The RBWB is also a regulatory body with regards to water. To support this complex multi-sectoral project, a TAC will be established to ensure oversight and involvement of implementing institutions at various

stages of the project execution. The project will increase institutional and human resource capacity at the district and sectoral levels. This will be complemented by activities to build awareness and support for conservation among national and local level stakeholders, strengthen the policy framework, share best practices, and build capacity in the management of biodiversity-rich sites in country.

37. The project will address barriers and constraints at all levels to ensure long-term environmental sustainability. Mainstreaming biodiversity into river basin planning in Tanzania under WSDP will be supported via operational and planning level pilot activities in the Rufiji River basin. Catchment management activities in the Kihansi catchment are based on methodologies and approaches that have already proved successful and sustainable in other areas within the country. The enhanced capacity to carry out and monitor the reintroduction of the Kihansi Spray Toad will have important spin-off effects in conserving other amphibian species both in country and globally. Mapping and monitoring of other endangered plant and animal species and their critical habitats following best scientific practices will help chart proper conservation measures for these other species. Annual scientific workshops will be convened and which involve national and international scientists and institutions (NEMC, UDSM, SUA, TAWIRI, IUCN, and other international universities) to design and assess critical KST experiments, and to review population viability models/analyses for the coffee and butterfly host plant species. Important outputs of these workshops will be the design of critical experiments, establishment of time lines, and the development if required of necessary mitigation activities.

38. The project will facilitate full participation of communities within the catchment and support sustainable livelihoods alternatives that will be beneficial to the improvement of water quality and quantity. The Kihansi Catchment Management Plan will establish a road map and milestones, and close follow-up support will be provided to ensure achievement of management plan objectives. Activities supported under the Livelihoods Subcomponent will strengthen local community capacity and improve their economic status in a conservation linked manner, thereby further strengthening local community involvement in and support for conservation objectives. Specific livelihoods activities and catchment management practices should be able to provide longer terms benefits to the communities in terms of improved natural resource conditions and enhanced livelihoods. The project will promote the concept of payment for ecosystem services, which will allow for the benefit sharing opportunities between upstream communities and TANESCO.

V. KEY RISKS AND MITIGATION MEASURES

A. Risks Rating Summary Table

Risk	Rating
Stakeholder Risk	Moderate
Implementing Agency Risk	
- Capacity	Moderate
- Governance	Moderate
Project Risk	
- Design	Moderate

- Social and Environmental	Moderate
- Program and Donor	Moderate
- Delivery Monitoring and Sustainability	Substantial
- (Other risks) – Exogenous Factors	Substantial
Overall Implementation Risk	Substantial

B. Overall Risk Rating Explanation

39. The overall risk during implementation is Substantial because of multiple exogenous factors which may impact on project implementation. These include the reluctance of TANESCO to maintain minimum environmental flows during severe droughts when there are intense political pressures to maintain electrical generation and/or to maintain and repair damaged artificial sprinkler system during and after floods and mudslides; the proposed financing plan might take time to fully materialize; and the successful reintroduction of any species is scientifically challenging and is not assured and in the case of the KST the project will be pioneering the *in situ* control and mitigation of chytrid fungus. The project will address the above risks under relevant activities. To enhance the probability of successfully reintroducing the KST back to the gorge, the project will adopt a collaborative experimentally-driven adaptive management approach combined with close supervisory oversight. As part of species and habitat conservation, the project will work closely with TANESCO to ensure that a substantial number of sprinkler spare parts are procured in a timely manner to respond to emergency situations. During the project duration, Rufiji Water Basin Office will continue to monitor TANESCO's compliance on minimum environmental flow releases from the operations of the Lower Kihansi hydropower plant.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analyses

40. The economic and financial significance of investment in the conservation and management of catchments cannot be over emphasized. Sound natural resources management, particularly maintenance of the health of ecological systems underpins many other economic sectors and the employment that these provide. Community participation or investment programs that enhance natural capital also enhance the natural resilience of the ecosystems to the impacts of climate change and protect livelihoods in sectors such as agriculture that depend on ecosystem services provided by healthy ecosystems. Based on the nature of the project, it may not be possible to rigorously estimate the monetary value benefits of its local impacts, and even less so those at country or global level. Consequently, an incremental Cost Analysis following GEF guidelines, and not an Economic and Financial Analysis, has been prepared and included in Annex 6. The impact evaluation or beneficiary assessment to be conducted during the project's duration will provide economic figures to quantify some of the benefits gained.

41. The project will closely examine and explore the feasibility and modalities of 'Payment for Ecosystems Services (PES)' and 'Benefit Sharing' in the Kihansi catchment. PES could play

a key role in conserving biodiversity and sustaining ecosystem health. This mechanism though not yet established is expected to involve payments to communities through their village governments for well-defined ecosystem services delivered by landscapes they manage or for land uses that are likely to secure ecosystem services.

B. Technical

42. The project is designed to improve natural resource and environmental sustainability in the Rufiji River basin, with particular attention to the Kihansi catchment. Preparation of operational guidelines for EFA will support improved river basin planning and water resource development throughout Tanzania. The design of KCCMP builds substantially on the knowledge and experience gained under LKEMP to balance biodiversity conservation and development including water needs for power generation and environmental flows to ecosystem functioning in the Kihansi Gorge. The preparation of a Kihansi Catchment Management Plan will involve stakeholder participation and integrate priorities identified by established Water Users Associations as well as identify and protect biodiversity hotspots and important water source areas. The mapping and management of endangered species and their critical habitats and the enhancement of water quality and quantity in the Kihansi basin will not only promote the long-term conservation of biodiversity in the Kihansi catchment but also enhance the livelihoods of riparian communities. Water and land management practices will follow the principles of integrated pest management (IPM) using biological and natural mechanisms as far as possible. IPM and appropriate land use practices will lead to improved plant productivity.

C. Financial Management

43. The overall financial management residual risk rating for the project is Moderate. NEMC will be the overall implementing agency for the KCCMP and be responsible for the financial management of the project. As part of project preparation, a full financial management assessment was carried out for NEMC in accordance with the Financial Management Practices Manual issued by the Financial Management sector Board in March 2010. The assessment indicates that there are adequate financial management arrangements in NEMC to manage KCCMP financial operations. NEMC has long experience in implementing other IDA projects namely; Lower Kihansi Environmental Management Project (LKEMP) and GEF grant for Africa Stockpiles Project (ASP). Unaudited Interim Financial Reports (IFRs) have been submitted on time, reviewed and found to be satisfactory. Unqualified (Clean) audit opinions have been issued for these projects for the years ended June 30, 2010, 2011, and 2012. The project will use the SOE/traditional method of disbursement. The project accounts will be audited by Tanzania National Audit Office. Accounting and audits will be conducted in accordance with sound and internationally recognized accounting and auditing principles and practices satisfactory to IDA. The audit reports and related project accounts will be submitted to IDA within six (6) months after the end of the fiscal year.

D. Procurement

44. Procurement will be carried out in accordance with the World Bank's *"Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and World Bank Credits & Grants" by World Bank Borrowers* dated January 2011; *"Guidelines: Selection and*

Employment of Consultants under IBRD Loan and IDA Credits by World Bank Borrowers" dated January 2011; "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants dated October 15, 2006 and revised January 2011 and provisions stipulated in the Legal Agreement.

45. Procurement functions will be mainstreamed within NEMC's management structure. NEMC has experience in carrying out procurement under World Bank financing through the completed Lower Kihansi Environmental Management Project (LKEMP) and the ongoing Africa Stockpiles Project (ASP). NEMC has a Procurement Management Unit in place with four procurement officers and two of them have experience in implementing World Bank funded projects and have received training on the Bank's procurement procedures. NEMC will be responsible for the procurement of services and goods under all components implemented at both national and project implementing entity levels. The overall risk for procurement is high.

E. Social (including Safeguards)

46. The project is expected to generate positive social benefits through catchment management investments that improve agricultural practices in the catchment and reduce degradation of the natural resources base. The project will propose the formation of a Kihansi Sub-Catchment Committees (KSCC) and support existing Water Users Associations (WUA) to oversee implementation of the Kihansi Catchment Management Plan, including the promotion of alternative livelihoods activities among riparian communities which will benefit from improved water quality and quantity. Given the fact that women play a dominant role in subsistence farming and food production for the household, the project will promote the female participation in each of the activities to be financed. Communities from 14 upstream villages upstream in the Mufindi and Kilolo districts will be the main project implementers and beneficiaries of livelihoods investments. However, the project may entail restriction of access to some selected biodiversity and water source hotspots. Overall impacts are yet to be determined as locations and boundaries to specific areas need to be established during project implementation. Therefore, consistent with OP 4.12, a Process Framework has been prepared, approved and disclosed on August 5, 2013 in the Bank InfoShop and in Tanzania.

F. Environment (including Safeguards)

47. The project is expected to have significant positive impacts including (i) reduced soil erosion and reliable flows in the Kihansi River from planned investments in catchment management; (ii) improved biodiversity conservation from identification and protection of critical biodiversity areas and water sources; and (iii) reduced water pollution and improved quality from integrated pest management practices in livelihoods activities and planned investments in catchment management. However, given the continuation of reintroduction of the endemic Kihansi Spray Toad (KST) back to its natural habitat, the small works on soil and water conservation measures envisioned under component 2 to implement catchment management activities and alternative community livelihoods interventions, the project has been assigned Environmental Assessment Category B – Partial Assessment. The following safeguards policies are triggered by the project: Environmental Assessment (OP/BP 4.01); Natural Habitats (OP/BP 4.04); Pest Management (OP 4.09); Forests (OP/BP 4.36); and Involuntary Resettlement (OP/BP 4.12).

G. Safeguard Instruments

48. Appropriate mitigation measures will be undertaken to address environmental impacts. An Environmental and Social Impact Assessment (ESIA) has been carried out prior to project appraisal to highlight likely environmental issues and assess compliance with all triggered Safeguard Policies. Among other issues, the ESIA includes an assessment to determine current pesticide use in the catchment. The results of the ESIA have been incorporated into an Environmental and Social Management Plan (ESMP) outlining specific mitigation measures to address any identified impacts that may be generated by the project's investments and activities during project implementation. An environmental and social screening form and mitigation checklist has been prepared as part of the ESIA to assist in the evaluation of the project activities related to protection of water sources and biodiversity hotspots so that unforeseen adverse impacts can be avoided, reduced and/or properly mitigated in a timely manner and in line with the requirements of OP 4.01 and OP 4.04. Since the proposed community conservation and livelihood interventions may include subsistence agriculture, which might be associated with the use agrochemicals, an Integrated Pest Management Plan (IPMP) has been prepared. The IPMP also addresses potential impacts from the use of antifungal drugs for treatment of chytrid fungus on the reintroduced populations of KST. The project will promote the use of integrated pest management approaches and promote measures to reduce reliance on synthetic chemical pesticides and fungicides. In accordance with the requirements of OP 4.12, a Process Framework has been prepared to address sustainable livelihoods issues and implications for the envisioned protection of critical biodiversity and water source areas in the catchment. All the safeguard instruments for this project were disclosed on August 5, 2013 in the Bank InfoShop and in Tanzania.

49. The main implementing agency, NEMC has adequate in-house capacity to supervise, monitor, and guide the implementation of safeguard policies among the other implementing sectors and departments. NEMC will work closely with and provide oversight of the LGAs and particularly the Village Environmental Committees, as per requirement of the Environmental Management Act (2004).

A. Safeguards Policies Triggered

Safeguards Policies	Yes	Reasons for Triggers &Proposed Mitigation Measures	No
Environmental Assessment (OP/BP 4.01)	X	The project is envisioned to support investments of small infrastructure, implementation of sub-catchment conservation management plans and the reintroduction plan for Kihansi Spray Toad. An Environmental and Social Assessment (ESIA) has been prepared to address potential impacts. The ESIA includes an Environmental and Social Management Plan (ESMP) outlining specific mitigation and management measures that will be implemented to offset any identified impacts. A screening form and checklist have been prepared as part of the ESIA to assist in the evaluation of the project activities related to protection of water sources and biodiversity hotspots so that unforeseen adverse impacts can be avoided, reduced and/or properly mitigated in a timely manner and in line with the requirements of OP 4.01.	

Natural Habitats (OP/BP 4.04)	X	The project will support: continuation of the reintroduction and monitoring of the Kihansi Spray Toad (KST); an assessment of other endemic species in their natural habitat in Kihansi Gorge; monitoring of a new coffee and potentially 1-3 new butterfly species; and identification and conservation of biodiversity hotspots. The ESIA and the ESMP outline measures in order to ensure all adverse impacts are addressed appropriately and in line with the requirements of OP 4.01 and OP 4.04.	
Pest Management (OP 4.09)	X	Community conservation and livelihoods interventions may include subsistence agriculture. The project will promote the use of integrated pest management approaches and promote measures to reduce reliance on synthetic chemical pesticides. An Integrated Pest Management Plan (IPMP) has been prepared. The IPMP will also address potential impacts from the use of antifungal drugs for the treatment of chytrid fungus on the reintroduced populations of KST.	
Physical Cultural Resources (OP/BP 4.11)			X
Involuntary Resettlement (OP/BP 4.12)	X	The project may entail restriction of livelihoods and other activities to selected critical habitats and water sources. Therefore, consistent with OP 4.12, a Process Framework has been prepared to manage any implications for communities relying on resources in these areas.	
Indigenous Peoples (OP/BP 4.10)			X
Forests (OP/BP 4.36)	X	Activities under the catchment management plan may involve planting of indigenous plants in woodlots as catchment protection measures for erosion control. The ESIA and ESMP provide the analysis of potential impacts and define mitigation measures to address any such adverse impacts.	
Safety of Dams (OP/BP 4.37)			X
Projects in Disputed Areas (OP/BP 7.60)			X
Projects on International Waterways (OP/BP 7.50)			X

Annex 1: Results Framework and Monitoring
TANZANIA: Kihansi Catchment Conservation and Management Project

Indicator Name	Core	Unit of Measure	Baseline (as of Nov 2013)	Cumulative Target Values*					Fre-quency	Data Source/ Methodology	Responsi-bility for Data Collection
				2014	2015	2016	2017	2018			
PDO: Global Environmental Objective Indicators											
Landscapes that incorporate biodiversity considerations as per IUCN classification criteria for protected areas are conserved.		Ha	0	0	0	0	5500	5500	Annual	Use of Biodiversity tracking tools and project records, supplemented by beneficiary verification	NEMC/ MNRT/ TAWIRI
Operational guidelines for conducting environmental flow assessment and a sustainable financing plan for the Kihansi catchment are developed and mainstreamed.		Yes/No	No	No	No	Yes	Yes	Yes	Annual	River basin and annual workplans, and supplemented by beneficiary verification	NEMC/ RBWB/ MoW
Intermediate Results (Component 1.1: Develop operational guidelines for conducting Environmental Flow Assessment):											
Global environmental issues mainstreamed into the Integrated Water Resource Development and Management Planning framework for the Rufiji River basin.		Yes/No	No	No	No	Yes	Yes	Yes	Annual	River basin plans supplemented by beneficiary verification	NEMC/ RBWB/ MoW
Intermediate Results (Component 1.2: Develop a sustainable financing plan for the management of the Kihansi catchment):											
Sustainable financing plan developed and		Yes/No	No	No	No	Yes	Yes	Yes	Annual	Annual workplans	NEMC/ TAWIRI/

options for implementation agreed										supplemented by beneficiary verification	MNRT
Intermediate Results (Component 2.1: Species and habitat conservation):											
Factors limiting survival of the reintroduced KST and the new coffee and butterfly species are identified and controlled.		Population survival rate of endangered species	Survival rate for 3 KST; 0 coffee; 0 butterfly subpopulations are currently being monitored	Individual plants and animals "marked" and survival monitored	Factors limiting survival assessed	Manipulative experiments completed to control limiting factors	Factors limiting survival controlled	Factors limiting survival controlled	Bi-annual	Project records, supplemented by beneficiary verification	NEMC/ MNRT/ TAWIRI
New areas outside of protected areas managed as biodiversity-friendly[1]	X	Ha	0	0	0	500	2,000	4,000	Annual	Use of Biodiversity tracking tools, and Project records, supplemented by beneficiary verification	NEMC/ MNRT/ RBWB/ MoW/ LGAs
Intermediate Results (Component 2.2: Community Conservation and Livelihoods):											
14 Integrated Pest Management Plans in the Kihansi catchment developed and adopted		Yes/No	No	No	No	No	No	Yes	Annual	Project records, and supplemented by beneficiary verification	NEMC/ RBWB/ LGAs
Direct project beneficiaries of which 50% are female[2]	X	Number Percentage female	0 0	250 50	1000 50	1500 50	2000 50	3000 households 50	Annual	Project records, supplemented by beneficiary verification	NEMC/ MNRT / MoW/ LGAs

Supplemental Table – Core Indicator Definitions

Project Development Objective Core Indicators	
Indicator Name	**Description (indicator definition etc.)**
1. New areas outside of protected areas managed as biodiversity-friendly	This indicator measures the number of terrestrial hectares outside protected areas where, as a result of the operation, the site is managed at least in part to obtain biodiversity gains. The baseline for this indicator is zero. Guidance on "biodiversity-friendly management": An area defined as biodiversity-friendly complies with social and environmental standards in a way that respects civil and indigenous rights, maintains or enhances social and environmental conservation values, prohibits highly hazardous pesticides and invasive planting, and harvesting must meet national laws and international treaties on biodiversity signed by the country in which the site is located.
2. Direct project beneficiaries (number) Direct project female beneficiaries (percentage)	The number of beneficiaries will be measured yearly. This will be done through a statistically significant rapid survey, which will determine the number of persons within target project sites that perceive they are benefitting from one or more of the project's interventions. The survey will also produce the percentage of female beneficiaries.

Annex 2: Detailed Description of Project Activities

UNITED REPUBLIC OF TANZANIA: Kihansi Catchment Conservation and Management Project

Project Development Objective (PDO)

1. The objective of the proposed GEF project is to enhance biodiversity conservation in the Kihansi catchment.

Project Components

Component 1: Institutional capacity building for the management of the Kihansi catchment

2. The objective of this subcomponent is to incorporate biodiversity conservation at a planning level into Integrated Water Resource Development and Management Planning (IWRDMP) under the WSDP. Under LKEMP support was provided for the development of the 2004 Environmental Management Act (EMA) and 10 implementing regulations. LKEMP also influenced the formulation of the 2002 National Water Policy (NAWAPO) and the 2009 Water Resources Management Act (WRMA) and Regulations. The NAWAPO, WRMA, EMA and associated regulations provided an important policy and legal framework for the integration of biodiversity conservation in river basin planning. However, to fully mainstream biodiversity conservation in river basin planning in Tanzania, an operational framework and guidelines relevant to river basin planning and EIA, which integrates environmental flow assessment, are required. Subcomponent 1.2 comprises of two activities:

Subcomponent 1.1: Develop operational guidelines for conducting Environmental Flow Assessment

3. The objective of this subcomponent is to incorporate biodiversity conservation at a planning level into Integrated Water Resource Development and Management Planning (IWRDMP) under the WSDP. Under LKEMP support was provided for the development of the 2004 Environmental Management Act (EMA) and 10 implementing regulations. LKEMP also influenced the formulation of the 2002 National Water Policy (NAWAPO) and the 2009 Water Resources Management Act (WRMA) and Regulations. The NAWAPO, WRMA, EMA and associated regulations provided an important policy and legal framework for the integration of biodiversity conservation in river basin planning. However, to fully mainstream biodiversity conservation in river basin planning in Tanzania, an operational framework and guidelines relevant to river basin planning and EIA, which integrates environmental flow assessment, are required.

Subcomponent 1.1 comprises of two activities:

4. **(i) Operational guidelines and procedures for conducting downstream Environmental Flow Assessment (EFA):**
The 1996 Environmental Policy requires that all developers both public and private conduct an EIA prior to any development project. This policy was codified in the 2004 Environmental

Management Act. However, operational guidelines and procedures for conducting Environmental Flow Assessment and assessing the downstream impacts of major development projects on environmental flows are absent or poorly defined. The project will provide support for the development of operational guidelines and procedures to conduct (1) Environmental Flow Assessment (EFA) for purposes of adequately addressing downstream impacts of water resource infrastructure in future EIAs; and (2) for mainstreaming environmental flow assessment in Rufiji river basin planning. This activity will serve as a pilot program for the broader WSDP which is working in nine river basins in Tanzania.

5. **(ii) Communication Strategy (CS) for improving the understanding of the water and environmental linkages:**
Central to ensuring the long-term sustainability of biodiversity conservation in the Rufiji River basin is improving the understanding among important stakeholders as to the importance of incorporating downstream environmental flows in river basin plans. The project will provide support for the development and implementation of a communication strategy related to the incorporation of environmental flows into river basin and catchment planning.

Subcomponent 1.2: Develop a sustainable financing plan for the management of the Kihansi catchment

6. The project will provide support for the development of a financing plan for the management of the Kihansi catchment. Under this subcomponent, support will be provided for two activities. First, the project will support an analysis of the valuation of ecosystem services within the Kihansi catchment along with a detailed examination of fixed and recurrent costs associated with catchment management. As part of this analysis, a detailed assessment will be conducted of the economics of the Lower Kihansi Hydro Power Plant (LKHP) including a valuation of the negotiated final water right for electrical generation. The economic analysis of the benefit of additional water for hydropower production is aimed at demonstrating to the GoT how much power and revenue is being generated as a result of the revised final water right which was achieved as a mitigation measure put in place under the previous project. Other ecosystem services which will be examined include carbon capture and sequestration and the genetic valuation of the wild coffee and other endemic species. The results of this analysis are expected to motivate TANESCO to contribute more to the long term conservation of natural resources in the Kihansi catchment, which are vital for energy production. Other potential buyers of these ecological services include the international market in the trading of carbon credits, private and public coffee research organization, and biotech firms.

7. Second, the project will develop a financing plan for the Kihansi catchment which identifies financing options for the long-term management of the Kihansi catchment including the maintenance of the reintroduced and assurance KST population and associated infrastructure in Kihansi Gorge as stipulated under the EMP for operating the Lower Kihansi Hydropower Plant (LKHP). The most probable buyer of ecosystem services would be TANESCO which operates the LKHP. However, PES is not the only mechanism for long term financing being explored. As part of the preparation of a financing plan, possibilities of linking one or more aspects of the long-term management of the Kihansi catchment to existing and potential Trust Funds including the Eastern Arc Mountains Conservation Endowment Fund (EAMCEF) and

Tanzania Wildlife Protection Fund (TWPF) as well as learning from these trust funds will be assessed. For example, the medium to long-term maintenance of the KST assurance population in Tanzania is a catchment management activity for which the EAMCEF and TWPF may be particularly well-suited. The primary beneficiaries of the financing plan are TANESCO, RBWB, and Tanzania Forest Services (TFS). These activities will be conducted by NEMC and LGA's and the project will provide support for required consultancies.

Component 2: Conserve endangered species in the Kihansi catchment

8. This component focuses on operational level interventions in the Kihansi catchment to ensure the conservation of critically endangered plant and animal species and their critical habitat are conserved and sustainably managed over the long-term. This component comprises of two subcomponents:

Subcomponent 2.1: Species and habitat conservation. There are three major activities within this sub-component:

9. **(i) Continued reintroduction and monitoring of the Kihansi Spray Toad:**
The project will provide support for the continued reintroduction of the Kihansi Spray Toad back to the wild which was began under TEDAP in June 2012. In November 2011, a reintroduction plan for the Kihansi Spray Toad was finalized based on the input and collaboration among more than 15 national and international institutions including NEMC, TAWIRI, UDSM, SUA State University of New York, Syracuse, Universities of Utah, Tennessee, Southern Illinois, California, Santa Cruz, and Georgia, North West University, IUCN Conservation Breeding Specialist Group, IUCN Amphibian Specialist Group, Wildlife Conservation Society (WCS), San Diego, Toledo, and Bronx Zoos, and Global Wildlife Conservation.

10. The reintroduction of the KST back to the wild is precedent setting and has global conservation significance for a number of reasons. First, it represents the first reintroduction of an extinct-in-the-wild amphibian species, worldwide. Secondly, it is the first reintroduction of an amphibian species in Africa; and thirdly, it is the first reintroduction of an amphibian species in the tropics where chytrid fungus is endemic. The continued reintroduction of the KST back to the Kihansi Gorge will be conducted by staff, students, and faculty from UDSM, SUA, and TAWIRI with technical backstopping from IUCN and other CSO's.

11. ***In-situ*** **control and mitigation of chytrid fungus and other diseases:** The reintroduction of the KST back to the wild will be pioneering new methodologies and techniques to control and/or mitigate the impact of chytrid fungus on amphibian species in the tropics. The project will support a multi-prong strategy to mitigate the impact of chytrid fungus on the KST which will include: (i) allowing natural selection to select for individuals that are resistant to chytrid fungus through the repeated release of large numbers of animals. It is known that many amphibian species have the ability to develop over time resistance to chytrid fungus. Because of the large captive KST population in breeding facilities in Tanzania and the United States -- the largest captive population of any extinct-in-the-wild or critically endangered species worldwide -- it will be possible to reintroduce back to the gorge 4,000 – 5,000 individuals annually; (ii) isolating bacteria on the skin of the KST which inhibits chytrid fungus and inoculating released

animals with this bacteria. Researchers in North America have been successful in isolating host-specific bacteria on amphibians which inhibit chytrid fungus; (iii) manipulating the density of the KST in experimental enclosures in the spray wetlands. Disease transmission rates are a function of animal density and thus controlling the density of KST in enclosures is a potential strategy for controlling disease transmission in the wild; and (iv) regularly treating selective animals with anti-fungal agents. There is a wide variety of drugs available to treat chytridmycosis. Thus selectively treating animals which are housed in experimental enclosures in the Kihansi Gorge is another strategy for controlling disease transmission rates in the wild. As a result of this innovative multi-pronged strategy, the probability of successfully controlling chytrid fungus and other diseases *in situ* should be quite high. In implementing the KST reintroduction plan, the project will adopt a collaborative experimentally-driven adaptive management approach, which under LKEMP proved to be highly effective. The project will provide support for annual consultations among project personnel, national and international researchers, and other important stakeholders for the purposes of defining the scope and boundaries of the required research and studies to establish a self-sustaining population. In addition, the project will provide support for several international workshops on *in situ* mitigation of chytrid fungus and other amphibian diseases. It is important that information and findings are freely and regularly exchanged among institutions, scientists, and project personnel involved in research, monitoring, and assessment in the Kihansi Gorge as well as between institutions and individuals involved in the *in situ* and *ex situ* conservation activities of the Kihansi Spray Toad.

12. **Conservation of spray wetland habitat:** Central to the long-term success of the reintroduction of the Kihansi Spray Toad back to the wild is maintaining the spray wetland habitat as well as stairways, bridges, and the research station in the Kihansi Gorge which permit researchers and staff to access and work in the spray wetlands. In 2001, under the Immediate Rescue and Emergency Measures Project (IREM), a highly innovative spray irrigation system was installed in the three largest spray wetlands along with stairways, steps, bridges, and a research station to reduce human impacts and to permit safe access. The spray irrigation system has proved highly successful in maintaining the spray wetland plant communities and as a result the plant communities and vegetation structure in the spray wetlands are now nearly identical to that prior to the commissioning of the LKHP. The project will provide support to conserve and manage the spray wetland habitat in the Kihansi Gorge and monitor essential environmental flows in the Kihansi Gorge.

13. **Ecological monitoring:** Ecological monitoring is essential to the KST reintroduction plan. The project will provide support for the monitoring of key ecological indicators following the established "Gibbs" protocols. The following Tier 1 ecological indicators will be monitored: the KST population and other spray wetland-dependent amphibian species, air temperature and humidity, water quality, wetland vegetation, wetland invertebrates, and catchment land use practices.

14. Ecological monitoring will be conducted by faculty and staff from UDSM, SUA, TAWIRI, with technical support from IUCN and other CSO's. All ecological data will be entered into an ecological database by the individuals who collect the data. Copies of the database will be held by UDSM, TAWIRI, and NEMC. A summary report detailing long-term trends in key ecological indicators will be produced every 18 months.

15. **Captive KST population.** Central to ensuring the long-term success of the reintroduction of the KST back to the wild is having a large healthy assurance population from which large numbers of individuals can be drawn for purposes of reintroduction and experimentation. The project will provide resources to retain specialist services needed to maintain the captive breeding program in captive breeding facilities in Tanzania and in the United States. The project will also provide resources to enable key staff to undertake monitoring and/or training visits to these captive breeding facilities.

16. **(ii) Mapping and management of other endangered species and critical habitats in the Kihansi catchment:**
As part of an overall strategy to conserve the critically endangered and endemic plant and animal in the Kihansi catchment, the project will provide support for the mapping, monitoring, and the development of management plans for the other critically endangered plant and animal species in the Kihansi catchment. These activities will be conducted by staff, students, and faculty from UDSM, SUA, and TAWIRI with technical backstopping from IUCN and other CSO's.

17. In 2004, a new species of coffee was described from the Kihansi Gorge. This species is known only from the gorge and thus was listed immediately as critically endangered. The most important economic value of the new coffee species is almost certainly as a genetic source for disease and insect resistance for domesticated cultivars. This genetic value of the wild species of coffee will be highlighted in the KCCMP communication strategy. Over the last decade, 1 – 3 new species of butterfly have also been tentatively identified from the Kihansi Gorge. However, the conservation status of these new species is poorly known as well as the taxonomic status of the butterfly species.

18. The project will provide support for: (i) the taxonomic identification and description of the new butterfly species; (ii) the identification of the host plant species for the butterflies; and (iii) a population viability analysis of the coffee and host plant species. If these latter analyses reveal a high risk of extinction in the near term for the coffee and butterfly host plant species, then the project will support the development and implementation of appropriate mitigation activities including the establishment of an *ex situ* population of the coffee in an appropriate botanical garden (e.g., Amani botanical garden); and the installation of a drip-irrigation system for the coffee and the host plant species. Support will be provided for necessary consultancies with the objective of developing national capacity.

19. **(iii) Kihansi Catchment Management Plan**:
The project will provide support for the development and implementation of a Kihansi Catchment Management Plan (KCMP). An important objective of this plan is to map the location of biodiversity rich sites (i.e., sites which contain unusually high numbers of plant and animal species rather than the individual locations of critically endangered species), important water source areas (i.e., springs, ground water recharge sites, and forest and grass covered sites), destructive land use practices, and illegal water abstractions in the Kihansi catchment. Information on the taxonomic status and geographic distribution of species as well as the population viability of endangered and endemic species will provide critical inputs to the KCMP. The KCMP will prioritize the protection of biodiversity hotspots and important water source areas in the Kihansi catchment and propose the appropriate protected area status and

management system for these sites. Protection of biodiversity hotspots will be focused on the Kihansi Gorge (5.5 km^2) and the Udzwungwa Scarp East Forest Reserve (91 km^2), areas which are uninhabited; while protection of important water source areas will focus on the non-cultivated areas of the Kihansi catchment where human population densities are low (~ 29 people/km^2).

20. The project will provide support for the legal gazettement and management of biodiversity hotspots and important water source areas. Protected area options for biodiversity hotspots in the Kihansi catchment include nature reserve, game reserve, environmental protection area, and/or catchment forest reserve which all can designated by ministerial decree. Similarly important water source areas in catchment basins in Tanzania can also be designated and protected by ministerial decree.

21. In collaboration with LGA's, Water User Associations, and village environmental committees, the KCMP will also develop a land use and agricultural practice zonation plan for the Kihansi catchment for purposes of enhancing water quality and quantity in the catchment. Development and implementation of the KCCMP will involve multiple governmental and CSO's including RBWB, NEMC, MNRT, LGAs, UDSM, and TANESCO. The project will provide support for a consultancy to assist in the development and implementation of the KCMP.

Subcomponent 2.2: Community Conservation and Livelihoods

22. The KCMP will help guide and prioritize community conservation activities within 14 upstream villages. Under LKEMP, an assessment was conducted of pesticide use in upstream villages and concentrations in LKHP reservoir soil sediments and water. Significant concentrations of pesticides were detected in reservoir sediments. However, fortunately toxicology experiments revealed that current pesticide concentrations in reservoir sediments are below the lethal limit for the Kihansi Spray Toad. Yet due to rapid human population growth and agricultural expansion in the Kihansi catchment pesticide use will almost certainly increase in the future unless an integrated pest management practice program is introduced in the catchment. In addition, a recent UDSM hydrological study in the Kihansi catchment has revealed declining trends over the last 20 years in dry season flows in the Kihansi River. This study noted that significant reductions of inflows are most likely a result of increased upstream water abstraction and climate change. Currently, TANESCO and the RBWB are identifying and mapping important water sources areas that would need protection.

23. **Community Conservation and Livelihoods Activities**: The project will support implementation of pilot investment through participatory planning in Integrated Pest Management (IPM) in 14 upstream villages in the Kihansi catchment. In 2002, the censused population of these 14 villages was 35,177. The project will also provide support for pilot investments in alternative livelihoods activities in the Kihansi catchment based on particpant consultation and preferences in the use, timing, and application of pesticides, terracing, contour bunds, mulching, intercropping, shelter crops, the planting of insect trap crops, soil stabilizing grasses and shrubs, native species woodlots, honey production, poultry keeping, fruit trees, and the marketing of fruit. Demonstration plots in the form of farm field schools will be established in the 14 upstream villages, where communities participate and learn both the theory and practice

of soil and water conservation, IPM and appropriate agricultural practices. These activities will be promoted as alternatives to traditional valley-bottom cultivation. These village level activities will be organized and implemented by district and LGA authorities, Water Use Associations, and Village Environmental Committees. LGAs have a technical capability through their forestry, agriculture, water, community development, and environmental management extension officers.

24. **Provision of training to local communities and key staff in relevant sectors:** To facilitate the implementation of the Kihansi Catchment Management Plan and the adoption of IPM and other livelihoods activities that enhance water quality and quantity, the project will provide training to local communities and key staff in IPM methods and appropriate land use practices. As part of the training provided to local communities the project will identify barriers to accessing larger economic markets and will identify activities for local community that can reduce these barriers. The training of local communities will be largely conducted through demonstration plots in farm field schools. While this training is specifically targeted for households which are located in close proximity to important water source areas and biodiversity hotspots, farm field schools will reach and train a much larger population, approximately 3000 households, in the Kihansi catchment.

25. In addition, training will be provided to key staff in population-level assessment, mapping, and monitoring of endangered plant and animal species and critical habitats, the valuation of catchment-wide ecological services, and enforcement of environmental and water regulations.

26. Training of key staff will be conducted through short courses and tutorials for purposes of enhancing national capacity and project sustainability in endangered species conservation and management and enforcement of water resources and environmental regulations.

Component 3: Project Management

27. NEMC will be responsible for project coordination at the national, regional, district and village levels. This will entail facilitating and coordinating the Steering and Technical Advisory Committees as well as providing overall multi-sectoral coordination among governmental sectors. In addition, under this component support will be provided for day-to-day project implementation and management including, procurement, and financial and environmental management. The component will provide support for office operating costs including annual audit costs.

Monitoring and Evaluation of Project Activities

29. For purposes of supervision and oversight, the project will focus on the intermediate Indicators as outlined in the Results Framework and Monitoring in Annex 1 to develop a detailed plan to regularly monitor and evaluate major project activities.

Annex 2: 5-year budget breakdown for implementation of activities

PROPOSED FIVE YEAR BUDGET							
Financing Item	**Component Actions**	**Cost in US$**					
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
COMPONENT ONE: Institutional capacity building for the management of Kihansi catchment							
Sub Component 1.1: Operational guidelines for conducting environmental flow assessment in the Rufiji River Basin							
Develop procedures for Environmental Flow Assessment (EFA)	Develop guidelines and procedures for EFA	120,000	120,000	80,000	-	-	320,000
	Publish and disseminate EFA	-	-	30,000	30,000	20,000	80,000
Develop and implement the Communication Strategy (CS)	Develop the CS	60,000	40,000	20,000			120,000
	Support implementation of the CS			50,000	40,000	40,000	130,000
Contingency (5%)		9,000	8,000	6,500	1,500	1,000	26,000
SUB TOTAL 1		189,000	168,000	186,500	71,500	61,000	676,000
Sub component 1.2: Sustainable Financing Plan for the Kihansi catchment							
Determine modalities for financing management of the Kihansi catchment	Conduct valuation of ecosystem services	60,000	40,000	-	-	-	100,000
	Carry out economic analysis of water use of LKHP	60,000	40,000	-	-	-	100,000
Prepare and implement a financing plan for the Kihansi catchment	Prepare a financing plan for Kihansi Catchment	-	75,000	40,000			115,000
	Implement a financing plan	-	-	30,000	20,000	10,000	60,000
Contingency (5%)		6,000	7,750	3,500	1,000	500	18,750
SUB TOTAL 2		126,000	162,750	73,500	21,000	10,500	393,750
COMPONENT TWO: CONSERVE ENDANGERED SPECIES IN KIHANSI CATCHMENT							
Sub Component 2.1: Species and habitat Conservation							
Support continuation of reintroduction and monitoring of KST	Monitor key ecological indicators	40,000	40,000	40,000	40,000	40,000	200,000
	Assess population dynamics of the reintroduced KST	70,000	50,000	20,000	15,000	15,000	170,000
	Conduct collaborative scientific workshops on disease and population viability of endangered species	50,000	50,000	40,000	40,000	40,000	220,000

	Control and mitigate chytrid fungus and other diseases (laboratory work)	70,000	70,000	50,000	50,000	20,000	260,000
	Manage captive assurance population of KST in Tanzania and USA	170,000	170,000	170,000	170,000	170,000	850,000
	Procure 1 field vehicle	90,000 [3]	-	-	-	-	90,000
	Procure field equipment for KST reintroduction and monitoring	50,000	-	21,755	-	-	71,755
Population level evaluation and monitoring of other endangered and endemic plant and animal species in Kihansi catchment	Conduct Population Viability Assessment (PVA) of wild coffee and other key species endemic to Kihansi Gorge	30,000	80,000	30,000	30,000	-	170,000
	Conduct taxonomic identification of butterfly and hosts plant species for butterflies	20,000	20,000				40,000
	Monitor wild coffee and other species endemic to Kihansi Gorge	25,000	25,000	25,000	25,000	25,000	125,000
	Procure lab and field equipment for PVA and monitoring exercise	30,000	-	30,000			60,000
Develop and implement the Kihansi catchment management plan (KCMP)	Identify and monitor important water source areas and biodiversity rich hotspots	70,000	50,000	30,000	20,000	10,000	180,000
	Develop KCMP	80,000	70,000	20,000	-	-	170,000
	Gazette important water source area and biodiversity rich hotspots	-	-	40,000	30,000	15,000	85,000
	Implement KCMP	-	-	70,000	60,000	50,000	180,000
	Procure 1 field vehicle	90,000[4]	-	-	-	-	90,000
Contingency (5%)		44,250	37,750	29,338	24,000	19,250	154,588
SUB TOTAL 3		929,250	662,750	616,093	504,000	404,250	3,116,343
Sub component 2.2: Community Conservation and Likelihoods							

[3] The amount is an estimate cost for a Toyota hard top prior to tax exemption, and it includes actual cost (US$58,500), tax and import duty (US$44,500), and local taxes (US$2,800).

Community pilot investment through participatory planning	Implement pilot community conservation investments to improve water quality and quantity	80,000	100,000	140,000	140,000	100,000	560,000
Training	Train communities and key staff from relevant sectors in IPM and other conservation approaches	120,000	120,000	100,000	60,000	40,000	440,000
Monitor and Evaluate	TAC and SC technical and policy oversight and field visits	85,000	85,000	85,000	85,000	85,000	425,000
Contingency (5%)		14,250	15,250	16,250	14,250	11,250	71,250
SUB TOTAL 4		299,250	320,250	341,250	299,250	236,250	1,496,250
COMPONENT THREE: PROJECT MANAGEMENT							
Project management and coordination	Procure 1 project vehicle	90,000[4]					90,000
	Procure office furniture	7,000					7,000
	Stationeries	2,000	2,000	2,000	2,000	2,000	10,000
	Procure office equipment	12,000					12,000
	Service and maintenance of motor vehicles	15,000	15,000	15,000	15,000	15,000	75,000
	Fuel and lubricants	10,000	10,000	10,000	10,000	10,000	50,000
	Tire and tubes	5,000	5,000	5,000	5,000	5,000	25,000
	Other office expenses	3,000	3,000	3,000	3,000	3,000	15,000
Contingency (5%)		7,200	1,750	1,750	1,750	1,750	14,200
SUB TOTAL 5		151,200	36,750	36,750	36,750	36,750	298,200
GRAND TOTAL		**1,726,200**	**1,449,000**	**1,172,593**	**934,500**	**698,250**	**5,980,543**

Annex 3: Implementation Arrangements

UNITED REPUBLIC OF TANZANIA: Kihansi Catchment Conservation and Management Project

Project Management

Details are provided below about the composition and functions of the Steering and Technical Advisory Committee and project reporting:

1. Composition and Functions of the Steering Committee: The Steering Committee is comprised of the Permanent Secretaries from the VPO, MNRT, MEM, MOW, MF, PMO, Regional Administration and LGA'S, and TANESCO's Managing Director.

Functions of the Steering Committee are to:

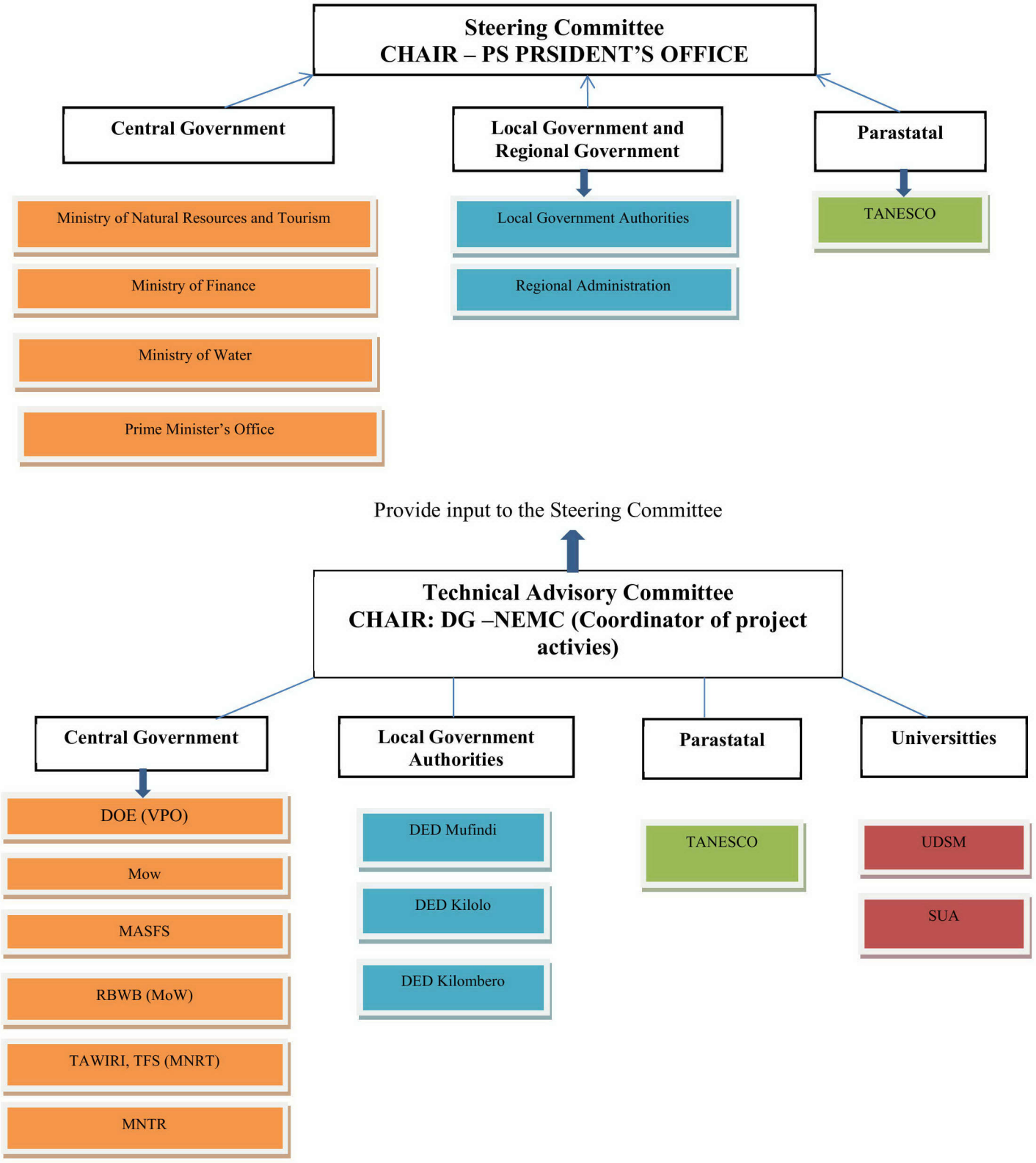
i. receive progress reports on the implementation of project components, in order to provide overall guidance on policy matters that relate to the Kihansi gorge; and
ii. ensure that activities of individual sectors are included in the annual work plans in order to facilitate the smooth handing over at the end of the project life.

The Steering Committee will meet twice a year to facilitate smooth implementation of activities.

2. Composition and Functions of the Technical Advisory Committee: The TAC constitutes representatives from key implementers, including VPO (Division of Environment), NEMC, TANESCO, MOW, MAFS, MNRT, and the District Executive Directors of the riparian districts of Kilombero, Mufindi and Kilolo. Members of the TAC will also have key project implementation responsibilities, and the project will provide support for efficient communication.

The Director General NEMC will be the Chairperson of the TAC.

Figure 1. Organizational structure of the Steering and Technical Advisory Committees.



FUNCTIONS OF TAC ARE TO:

a. advise NEMC in conducting its coordination function;
b. provide technical guidance and oversight in implementing project activities;
c. undertake sectoral and cross-sectoral coordination of project activities;
d. ensure that project activities are integrated in sector annual plans and budgets;
e. ensure that project implementing entities jointly agree on annual work plans, which outline roles and responsibilities.
f. assess and recommend technical expertise needed to implement various project activities;
g. make a close follow up of activities to ensure compliance of EMP; and
h. oversee the reintroduction of the KST;

3. The responsibilities of NEMC will include the following: (a) the management of the designated account; (b) financial management and reporting on the overall project; (c) ensuring the execution of the audit of the project; (d) preparation of quarterly financial reports.

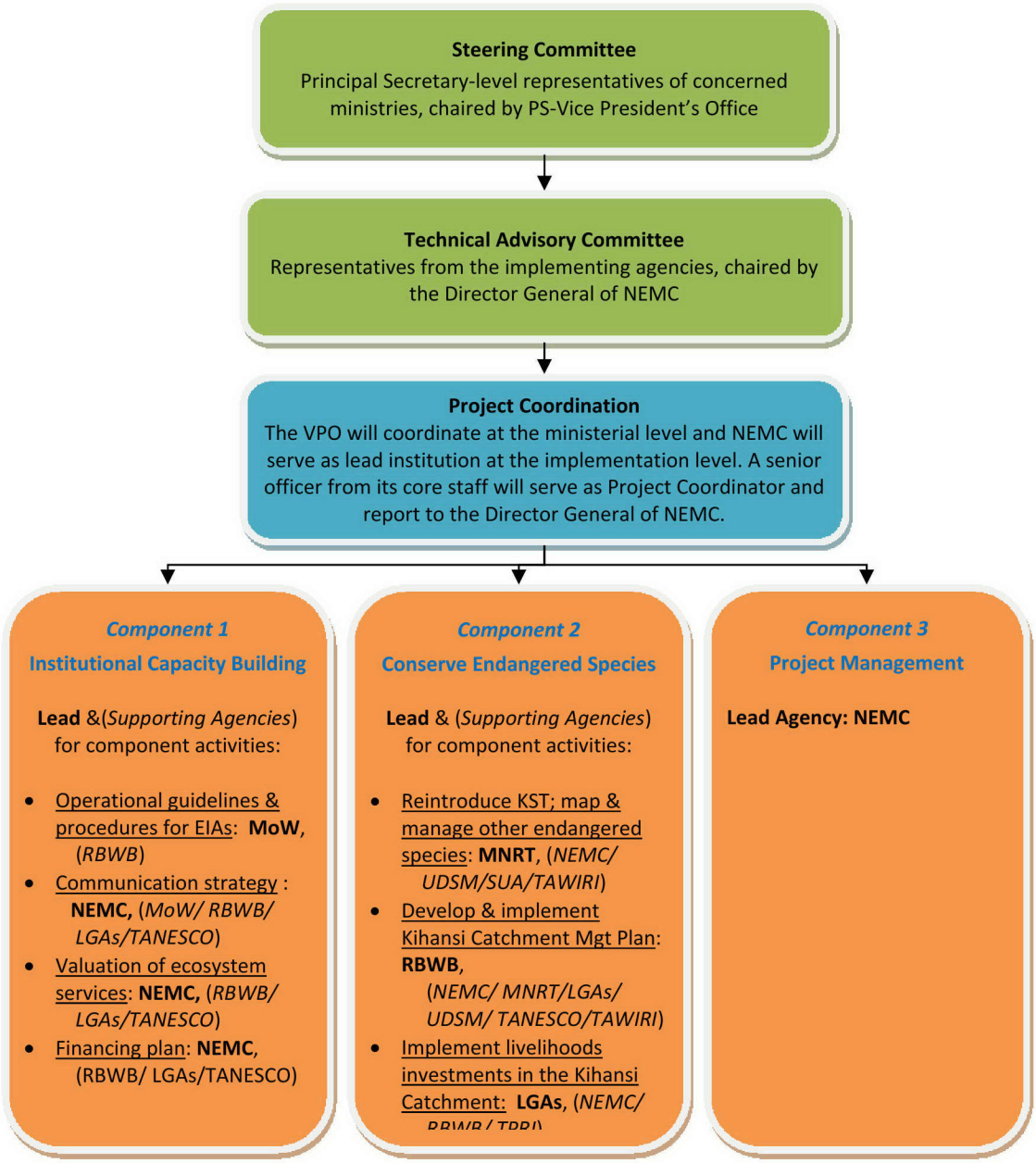
4. NEMC will oversee the project financial affairs of KCCMP. More specifically it will be fully responsible for overall project financial management, disbursement, reporting, and auditing under the supervision of the Director of the Finance & Administration. This directory has adequate qualified and experienced accountants with long experience in managing other IDA projects. In addition, NEMC has a well manned and experienced Internal Audit Unit. This unit will review project financial affairs as part of their regular internal audit reviews.

5. **Project reporting** - All implementers of activities are required to submit quarterly reports to the Project Focal Person at NEMC outlining the following in their reports:

- Type of activity undertaken
- Expected outputs
- Timeline of activities
- Allocated budget
- Actual expenditure

6. The Focal Person shall prepare a report at the end of each quarter to highlight achievements and challenges faced and future activities required to achieve the stated objectives. These reports shall be presented and discussed at quarterly review meetings.

Figure 2. Project implementation arrangements



Financial Management,Disbursement and Procurement

A. Financial Management

7. **Budgeting Arrangements:** Preparation of the Annual Work Plans and Budgets (AWPB) will be participatory and based on the Medium Term Expenditure Framework (MTEF). Budgets will be approved before the new financial year begins and monitored during project implementation using unaudited interim financial reports –IFRs. NEMC is staffed with competent persons to carry out the preparation, review and consolidation of the annual work program and budget.

8. **Accounting Arrangements:** The project shall maintain adequate financial records in accordance with accepted international accounting standards and practices and in accordance to NEMC Financial Management Manual which documents the accounting policies and procedures. This manual was reviewed and found satisfactory. It will use Navision version 5 computerized accounting systems to maintain projects books and accounts. The books of accounts to be maintained specifically for the project will include: a Cash Book, ledgers, journals, fixed asset register and a contracts register. A list of accounts codes (Chart of Accounts) for the project will be drawn and maintained. This will match with the classification of expenditures and sources and application of funds as indicated in the Financing Agreement.

9. **Staffing**: The accounting department is headed by the Director of Finance and Administration who will be overall in charge of the project financial affairs. The directorate has adequate qualified and experienced accountants who have long experience in managing other IDA projects namely; Lower Kihansi Environmental Management Project (LKEMP) and GEF grant for Africa Stockpiles Project (ASP). Several staff members who are Certified Public Accountants (CPA) holders and Masters in Business Administration (MBA). Overall the accounting arrangements including staffing are adequate to handle this project.

10. **Internal Control Arrangements**: Internal control systems of NEMC indicated satisfactory levels of segregation of duties and controls. The internal control systems are documented in the Finance Policies and Procedures Manual and they are adequate for use by this project in order to ensure funds are utilized for purposes intended. The manual describes the accounting system i.e. major transaction cycles of the project; funds flow processes; the accounting records, supporting documents, computer files, chart of accounts; the accounting processes from the initiation of a transaction to its inclusion in the financial statements; authorization procedures for transactions; the financial reporting process used to prepare the financial statements.

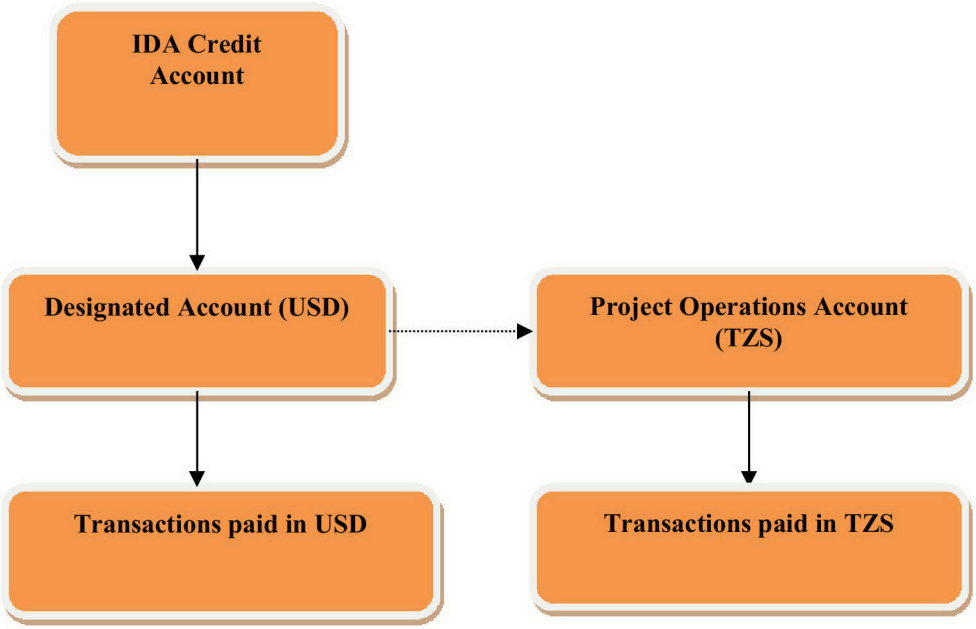
11. **Internal Audit Function**: The NEMC Internal Audit function is headed by Chief Internal Auditor who functionally reports to the Audit Committee and administratively to NEMC Director General. The unit is comprised of two staff, of which all have graduate accounting degree holders, and Internal Audit certification. The unit issues reports on a quarterly basis that are based on their review of the internal control system of the organization. The Audit Committee is in place and functioning; they review the internal audit reports, internal control systems and also follow up external audit report recommendations. Internal audit uses the risk

based audit approach to carry out its work. The audit function uses internal auditing standards as issued by the IIA.

Funds Flow Arrangements

12. The project will maintain two sets of bank accounts: (a) a US dollar Designated Account; and (b) a Tanzania Shilling (TZS) project bank account for the purposes of implementing the project. Transfers from IDA credit will be made into the Designated Account from where US dollars payments will be made. Transfers will also be made from the Designated Account to the TZS project account primarily to meet transactions in TZS. The diagram below shows the funds flow arrangements. The project will initially submit a cash flow forecast projection for six months to receive the initial deposit in the US dollar designated bank account.

Diagram showing Funds flow arrangements:



Disbursement Arrangements

13. The project will use the SOE disbursement method. It will initially submit a cash flow forecast projection for 6 months to receive the initial advance/deposit in the designated bank account. Subsequently, withdrawal requests will be made according to project need on monthly basis.

Apart from the **Advance method** of payment described above, **reimbursements** can be requested from the Bank for eligible costs incurred by NEMC. The third method is the **direct payment** that may be used for payments to contractors or service providers upon recommendations of their satisfactory performance by the project authorized officials. Payments may also be made to the commercial bank for expenditures against IDA special commitments covering the commercial bank's **Letter of Credit**. Details in relation to these disbursement

methods will be documented in the disbursement letter.

If ineligible expenditures are found to have been made from the designated and/or operating bank accounts, NEMC will be obligated to refund the same. If the designated account remains inactive for more than six months, the project may be requested to refund to IDA amounts advanced to the designated account.

Financial Reporting Arrangements

14. NEMC will submit quarterly unaudited interim financial reports (IFRs) to the Bank within 45 days after the end of the calendar reporting period. Reports will therefore be expected for the periods ending in March, June, September and December of every year of the project's life. The IFRs should provide quality and timely information to the World Bank, project management and other stakeholders on the project's financial performance. The format of the IFRs was agreed with NEMC team during appraisal.. The IFRs will include Sources and Uses of Funds Statement, Uses of Funds by Project Activity/Component, and category and Designated Account Activity Statement.

Annual Project Financial Statements

15. The financial statements should be prepared in accordance with International Public Sector Accounting Standards. The Financing Agreement will require the submission of audited financial statements to the Bank within six months after the financial year end. These Financial Statements will comprise of:

a. A **Statement of Sources and Uses of Funds / Cash Receipts and Payments** which recognizes all cash receipts, cash payments and cash balances controlled by the entity; and separately identify payments by third parties on behalf of the entity.

b. A **Statement of Affairs/ Balance Sheet** as at the end of the financial year showing all the assets and liabilities of the project.

c. The **Accounting Policies Adopted and Explanatory Notes.** The explanatory notes should be presented in a systematic manner with items on the Statement of Cash Receipts and Payments being cross referenced to any related information in the notes. Examples of this information include a summary of fixed assets by category of assets, and a summary of SOE Withdrawal Schedule, listing individual withdrawal applications; and

d. A **Management Assertion** that Bank funds have been expended in accordance with the intended purposes as specified in the relevant World Bank legal agreement.

External Audit Arrangements

16. The Controller and Auditor General (CAG) is primarily responsible for auditing of all government projects. In some cases, at the discretion of the CAG, the audit may be subcontracted

to a firm of private auditors, with the final report being issued by the Auditor General, based on the tests carried out by the subcontracted firm. The private firms to be sub-contracted should be among those that are acceptable to IDA. In case the audit is subcontracted to a firm of private auditors, IDA funding may be used to pay the cost of the audit. The audits will have to be done in accordance with International Standards on Auditing. The external audit terms of reference were discussed during appraisal mission and subsequently agreed upon during negotiations. The audit report together with the management letter will be submitted to the Bank not later than six months after the end of the financial year. NEMC is required to disclose the audited financial statements in a manner acceptable to the Bank. Following the Bank's formal receipt of the audit report from NEMC, the World Bank will make them available to the public in accordance with *The World Bank Policy on Access to Information.*

Supervision Arrangements

17. A financial management implementation support mission will be conducted at least once every year based on the current residual risk rating of the project. This will also include regular review of IFRs and annual audit reports. The mission objective will be to ensure that strong financial management systems are maintained throughout the duration of the project. The Implementation Status Report (ISR) will include a financial management rating, provided by the Country Financial Management Specialist after an appropriate review.

18. **The Financial Management** (FM) assessment for the project was conducted in accordance with the financial management manual for World Bank financed investment operations and revealed that the implementing agency (NEMC) has adequate accounting capacity to manage the project. NEMC has in place FM arrangements (budgeting, accounting, internal control, financial reporting and auditing systems), which meet the Bank's minimum requirements for project FM arrangement as per OP/BP 10.02. NEMC has previous experience managing World Bank supported projects including the previous IDA Credit for LKEMP and GEF grant for Africa Stockpiles Project (ASP). The project financial statements will be audited by the Controller and Auditor General (CAG). The audits will be conducted in accordance with International Standards on auditing. The audit reports will be submitted to IDA within six months after the end of the fiscal year.

B. Procurement

19. Procurement for the proposed project will be carried out in accordance with the World Bank's *"Guidelines:* Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants" by World Bank Borrowers dated January 2011; "Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers", dated January 2011; "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credit and Grants", dated October 15, 2006 and revised January 2011; and provisions stipulated in the Legal Agreement. The general description of various items under different expenditure categories are described below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank project team in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project

implementation needs and improvements in institutional capacity. The Borrower, as well as contractors, suppliers, and consultants, will observe the highest standards of ethics during procurement and execution of contracts financed under this project.

20. The Bank's Standard Bidding Documents will be used for procurement of works and goods under International Competitive Bidding (ICB); and the Standard Request for Proposals (SRFP) will be used for consultants' contracts estimated to cost US$200,000 and above equivalent per contract. In addition, the implementing agency will use Standard Bid Evaluation Forms for procurement of goods and works for ICB contracts, and the Sample Form of Evaluation Report for Selection of Consultants selected using the Bank's SRFP for consultants' contracts estimated to cost US$200,000 and above equivalent. It is foreseen that such high value contracts will be limited. However, National Bidding Documents acceptable to the Bank may be used for (i) procurement of works and goods under National Competitive Bidding (NCB) procedures, however there will be no preference accorded to domestic contractors and suppliers and (ii) consultants contracts estimated to cost less than US$200,000 equivalent per contract. Furthermore, in accordance with para.1.16 (e) of the Procurement Guidelines, each bidding document and contract financed out of the proceeds of the Financing shall provide that: (i) the bidders, suppliers, contractors and subcontractors shall permit the Association, at its request, to inspect their accounts and records relating to the bid submission and performance of the contract, and to have said accounts and records audited by auditors appointed by the Association; and (ii) the deliberate and material violation by the bidder, supplier, contractor or subcontractor, of such provision may amount to an obstructive practice as defined in paragraphs 1.16(a) (v) of the Procurement Guidelines.

21. **Risk Assessment:** The procurement functions will be mainstreamed within NEMC's management structure therefore the procurement activities will be carried out by Procurement Management Unit of the NEMC. According to the PPA 2004, every Procuring Entity is required to establish a Procurement Management Unit to manage all procurement and disposal activities except adjudication and award of contracts which are handled by Tender Board. The Procurement Management Unit has been established in accordance with the PPA 2004 has four procurement officers. NEMC has experience in carrying out procurement under World Bank financing through the completed Lower Kihansi Environmental Management Project (LKEMP) and the ongoing Africa Stockpiles Project (ASP).

22. Procurement capacity assessment of the capacity of the NEMC to implement procurement actions for the proposed project was carried out in March 2013 and updated during appraisal. The assessment reviewed the organizational structure, functions, staff skills and experiences, and adequacy for implementing the project.

23. Out of the four procurement officers, two have procurement experience in implementing World Bank funded projects. The other two officers have experience mainly in procurement of goods and small value consultancy services and are familiar with shopping procedures. The staff also lack experience in procurement of goods through International Competitive Bidding procedures as well as in selection of large value consultancy.

24. The key issues and risks concerning procurement for implementation of the project have

been identified and mitigation measures proposed. The assessment found out staff dealing procurement in the Procurement Management Unit have experience mainly in procurement of goods and small value consultancy services and are familiar with shopping procedures; and have inadequate knowledge on World Bank procurement procedures and process; lack of detailed and clear procurement procedures, and guidelines spelt out in a manual.

25. The overall project risk for procurement is high. Risk mitigation measures have been discussed and agreed with the NEMC. The measures include training of the two officers in World Bank procedures and processes for procurement of works, goods and selection of consultants. Other measures include preparation of project implementation manual, preparation of a procurement plan for the first 18 months, improvement of procurement data management/ filing and record keeping.

26. **Frequency of Procurement Supervision:** In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency recommends one supervision mission every six months to visit the field to carry out post review of procurement actions.

Procurement of Works and Goods and Non-Consulting Services

27. Goods and works and non-consulting services will be procured by using the Bank's Standard Bidding Document (SBD) for all International Competitive Bidding (ICB). National Bidding Documents acceptable to the Bank may be used for (i) procurement of works and goods under National Competitive Bidding (NCB) procedures, however there will be no preference accorded to domestic contractors and suppliers. Goods procured under this project would be: Field vehicles, office equipment's, office furniture and laboratory chemicals and equipment,. Contracts for goods and non-consulting services estimated to cost US$ 500,000 equivalent and above and contracts for works estimated to cost US$5 million equivalent may be procured using ICB and contracts estimated to cost US$ 50,000 and below will use the Shopping method. However, a specified number of NCB contracts may be specified in the Procurement Plan. Works will include rehabilitation of paths and trails, soil and water conservation infrastructures; goods will comprise motor vehicles, laboratory chemicals and equipment; office furniture, office equipment and stationaries; and non-consulting services cover printing and publication/ production of the Regulations, National operational procedures and Guidelines for conducting Environmental flow assessment; valuation of critical habitats for other endemic and threatened species in the Kihansi catchment area; mapping of critical habitats for other endemic and threatened species in the Kihansi catchment area; and management plan for critical habitats and other endemic and threatened species in the Kihansi catchment area.

Selection of Consultants

28. Consulting contracts will as far as possible be awarded under Quality and Cost Based selection (QCBS) procedures. Other methods of selection will be determined for each assignment depending on the type of assignment and the provisions of the Consultant Guidelines, and will be indicated in the procurement plan. Main consulting services to be financed by the project include: (i) developing guidelines for mainstreaming biodiversity conservation into river basin planning; (ii) preparation of operational procedures and guideline for conducting

Environmental Flow Assessment; (iii) assessing the population dynamics of the reintroduced KST; (iv) developing a strategy for the *in situ* control and mitigation of chytrid fungus; (v) conducting taxonomic identification of new butterfly and host plant species; (vi) conducting a population viability analysis of the new coffee species and the butterfly host plant species; (vii) identifying and mapping the biodiversity hotspots in the Kihansi catchment; and (viii) identifying and mapping important water source areas in the Kihansi catchment.

29. Individual Consultants will be selected on the basis of their qualifications in accordance with Section V of the *Consultant's Guidelines*. Single Source may be used where it can be justified and after consultation with the Bank. Short lists of Consultants estimated to cost less than US$ 200,000 may be composed entirely of National Consultants in accordance with the provisions of paragraph 2.7 of the Consultants Guidelines.

30. Consultancy services estimated to cost above US$ 200,000 equivalent per contract and single source selection of consultants (firms) will be subject to prior review by the Bank. Consultancy services estimated to cost above US$ 100,000 equivalent per contract for individual consultants will be subject to prior review by the Bank. Short lists composed entirely of national consultants for services estimated to cost less than US$ 200,000 equivalent per contract, may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

Training and Workshops

31. Detailed training plans and workshop activities will be developed during project implementation and included in the project annual work plan and budget for Bank's review and approval

Operating Costs

32. Incremental operating costs will include expenditures for maintenance of goods equipment such as vehicles and computers; fuel; office supplies; consumables, communication costs; workshop venues and materials; authorized travel costs of officials of the Government including per diems, travel costs, and accommodation for staff when travelling on duty during implementation of this project, but excluding salaries of civil/public servants. These will be procured using the Government's administrative procedures, acceptable to the Bank and the administrative procedures in accordance with the Public Procurement Act (PPA) no 21 of 2004.

Thresholds for Procurement Methods and Prior Review

33. Thresholds for procurement methods and for prior review are presented below:

Expenditure Category	Contract Value Threshold (US$)	Procurement/ Selection Method	Contracts Subject to Prior Review
Works	> 5,000,000	ICB	All
	< 5,000,000	NCB	None (Post review) unless

			specified in the PP
	< 50,000	Shopping	None (Post review)
	All values	Direct Contracting	All
Goods and Non-Consulting Services	> 500,000	ICB	All
	< 500,000	NCB	None (Post review) unless specified in the PP
	< 50,000	Shopping	None (Post review)
	All values	Direct Contracting	All
Consulting Services - Firms	> 300,000	QCBS/ Other (QBS/FBS/ LCS)	All
	≤ 300,000 ≥ 200,000	CQS/ Other (QCBS/QBS/ FBS/LCS)	All
	< 200,000	CQS/ Other (QCBS/QBS/ FBS/LCS)	None (Post Review)
	All values	SSS	All
Consulting Services – Individuals (IC)	> 100,000	IC – Qualification	All
	< 100,000	IC – Qualification	None (Post review)
	All Values	IC – SSS	All

Record Keeping

34. The implementing agency will be responsible for record keeping and filing of procurement records for ease of retrieval of procurement information. In this respect, each contract shall have its own file and should contain all documents on the procurement process.

Monitoring

35. Monitoring and evaluation of procurement performance will be carried out through Bank supervision and post procurement review missions

Procurement Plan

The Borrower has developed a procurement plan for project implementation which provides the basis for specifying the required procurement methods. The final plan was submitted to the Bank and made available at NEMC offices. The procurement plan will also be available in the project's database and in the Bank's external website. The procurement plan will be updated in agreement with the project team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. Details of Contract Packages to be procured under the project have been finalized.

Goods and Non consulting Services

	Item Description	Est. Cost US $ "000"	Proc. Method	P-Q	Domestic Preference (yes/no)	Review by Bank Prior/ Post	Expected Bid Opening Date	Comments
1	Motor vehicles	270.00	NCB	NO	NO	Post	29/01/2014	
2	Office furniture and equipment	19.00	S	NO	NO	Post	20/02/2014	
3	Field equipment for KST reintroduction and monitoring	50.00	NCB	NO	NO	Post	10/03/2014	
4	Laboratory and field equipment for PVA and monitoring exercise	30.00	S	NO	NO	post	10/03/2014	

Consulting Services

	Description of Assignment	Est. Cost US $ "000"	Selection Method	Review by Bank (Prior/ Post)	Expected Proposal Submission Date	Comments
1	Develop guidelines and procedures for EFA	240.00	CQS	Prior	07/03/2014	
2	Development of the Communication Strategy	210.00	CQS	Prior	14/02/2014	
3	Assess population dynamics of the reintroduced KST	120.00	SSS[1]	Prior	13/10/2014	
4	Conduct Population Viability Assessment (PVA) of wild coffee and other key species endemic to Kihansi Gorge	210.00	CQS	Prior	28/11/2013	
5	Conduct taxonomic identification of butterfly and hosts plant species for butterflies	40.00	IC	Post	10/06/2014	
6	Conduct valuation of ecosystem services	200.00	IC	Prior	09/07/2014	
7	Carry out economic analysis of water use of LKHP	180.00	CQS	Post	18/06/2014	
8	Identify important water source areas and biodiversity rich hotspots	70.00	IC	Post	20/03/2014	
9	Prepare a financing plan for Kihansi Catchment	115.00	IC	Prior	15/07/2014	

[1] **Subject to justification**

Environmental and Social (including Safeguards)

36. NEMC will be responsible for overseeing the utilization and compliance with the ESIA and the Process Framework. The project is expected to generate positive social benefits through catchment management investments that improve agricultural practices in the catchment and reduce degradation of the natural resources base. The project will propose the formation of a Sub-catchment Management Committees and support existing Water Users Associations to oversee project implementation in the Kihansi Catchment including the promotion of alternative livelihoods activities among riparian communities which will benefit from improved water quality and quantity. Communities from 14 upstream villages upstream in the Mufindi and Kilolo districts will be the main project implementers and beneficiaries of livelihoods investments. However, the project may entail restriction of access to some selected biodiversity

and water source hotspots.

37. NEMC has adequate in-house capacity to supervise, monitor, and guide the implementation of safeguard policies among the other implementing sectors and departments. NEMC will work closely with and provide oversight of the LGAs and particularly the Village Environmental Committees, as per requirement of the Environmental Management Act (2004).

38. The project envisages strengthening the project implementing entities by providing training for its operation officers mainly at LGA and community levels to ensure systematic implementation and monitoring of environmental and social issues. Monitoring of the implementation of mitigation plan will be integrated with the project's overall design, budget, and M&E. The ESMP will become part of the M&E manual of the Project Implementation Manual (PIM) and annual work plans.

39. Key stakeholders are found at national, district and catchment levels, including Water User Associations, Village Environmental Committees, farmers, local government authorities, ministries of environment, water, agriculture, natural resources and energy, civil society, academic institutions and others. Consultations with key stakeholders were carried out during the preparation of the ESIA, IPMP and Process Framework. Interviews and meetings were arranged with officials and representatives of various stakeholders groups including ministries, departments and agencies at the national and district levels, civil society organizations, academic institutions and community representatives mainly from villages with potential protected areas. Field visits were made to Kihansi catchment, surrounding areas and districts headquarters aiming at having direct interviews with selected stakeholders and consultative meetings with some community members.

40. The project will encompass the Kihansi ecosystem comprising of the Kihansi River, its catchment and the Kihansi Gorge. The catchment covers a total area of 1,551 km2 with a population of 80,000 people, spreading in three districts namely Kilombero (Morogoro region), Mufindi and Kilolo (Iringa region). The project area is located in the Eastern Arc Mountains, which due to the extensive threats facing the Eastern Arc forests and their exceptionally high concentration of endemic species, has been identified as one of the 34 most threatened ecosystems worldwide - one of the so-called global biodiversity hot spots.

41. Overall project impact will be positive since the GEF incremental investments will be directed towards improving the conservation of biological diversity in the Kihansi catchment. Currently, many sensitive areas in the catchment are used on a seasonal basis by local communities for subsistence agriculture (e.g. maize, vegetables), resulting in significant negative impacts to the quality of water in the Kihansi Gorge. In order to address this impact, the proposed project will include sub-catchment management plans intended to improve soil and water conservation and crop husbandry practices in the catchment. These activities may include: promotion of best agricultural practices, such as terracing on communities own farms, contour bands, mulching, planting of soil stabilizing grass, shrubs and indigenous species

woodlots, honey production, poultry keeping, and fruit trees. As part of efforts to reduce existing sources of pollution and degradation to the watershed, the project will promote integrated pest management approaches and measures to reduce reliance on synthetic chemical pesticides. Pilot activities (including demonstration plots) on integrated pest management plan will also be implemented.

42. However, through support to identification of priority biodiversity hotspots and important water source areas for protection within the catchment, there is potential for negative socio-economic impacts associated with improved levels of management of selected critical micro habitat and important water sources. The management strategies may entail reduced access and levels of exploitation and increased areas off-limits to hunting, farming, harvesting, and other uses. Therefore, as per OP 4.12 on Involuntary Resettlement a Process Framework has been prepared, approved and disclosed in InfoShopon August 5, 2013.. The Process Framework establishes the process for how to involve potentially affected communities in planning and implementation of the project while at the same time it identifies how the affected communities will be assisted in restoring their livelihood.

43. The project also provides support to the conservation of endemic species in the watershed. The project supports the ongoing reintroduction of, captive-bred Kihansi Spray Toads (KST) back to the species' natural habitat. These KST have been bred in captive breeding facilities in zoos in the US (Toledo, Ohio, and New York), at the University of Dar es Salaam, and at the Kihansi research facility. Reintroduction back into their native habitat at Kihansi Gorge is being done using a combination of enclosures and free release. (To-date about 4,000 individuals have been released into the wild). Following several test trials, researchers have found that the chyrtid fungus which is has spread worldwide resulting in steep declines in local amphibian populations, is present in Kihansi Gorge and poses a threat to the ongoing reintroduction activities.

44. As such, the KST program includes trials of different methods for controlling the impact of chytrid fungus, including biological controls and treating individuals with antifungal agents (in line with the national IPM framework). The ESIA that was carried out to evaluate potential impacts to non-target species in the catchment of the reintroduction program has established that since only selected animals in the enclosure will be bathed in a small container containing an antifungal compound and the bathing solution will be transported out of the gorge after animals are treated the impact of fungicides on the environment in the gorge ecosystem will be negligible.

45. Additionally, the project supports conservation of wild coffee and butterfly species and host plants in other portions of the watershed. Specifically, these coffee and new butterfly species are located in the montane forests on the slopes of the Gorge (and not found in the spray

wetlands that are home to KST). Thus the potential impact of proposed interventions related to the KST impacting the coffee or butterfly species is unlikely.

46. Impacts from these activities with their mitigation measures, have been defined in the Process Framework, IPMP together with Environmental and Social Impact Assessment report, which were disclosed in Tanzania and InfoShop on August 5, 2013.

Safeguard Policies Triggered

47. The following are the safeguards policies that were triggered by the project.

Safeguard Policies Triggered	Yes	No	TBD
Environmental Assessment (OP/BP 4.01)	X		
Natural Habitats (OP/BP 4.04)	X		
Forests (OP/BP 4.36)	X		
Pest Management (OP 4.09)	X		
Physical Cultural Resources (OP/BP 4.11)		X	
Indigenous Peoples (OP/BP 4.10)		X	
Involuntary Resettlement (OP/BP 4.12)	X		
Safety of Dams (OP/BP 4.37)		X	
Projects on International Waterways (OP/BP 7.50)		X	
Projects in Disputed Areas (OP/BP 7.60)		X	

48. **Environmental Assessment (OP/BP 4.01)** applies as the project is envisioned to support investments of small infrastructure, implementation of sub-catchment conservation management plans and the reintroduction plan for Kihansi Spray Toad. An Environmental and Social Assessment (ESIA) has been carried out to address potential impacts. The ESIA has been consulted upon and publicly disclosed in Tanzania on NEMC site on July 31, 2013 and in the Bank InfoShop on August 5, 2013.

49. **Natural Habitats (OP/BP) 4**.04 - the project will support continuation of the reintroduction and monitoring of Kihansi Spray Toad (KST) an endemic species in its natural habitat in the Kihansi Gorge; monitoring of the new coffee and potentially 1-3 new butterfly species; and identification and conservation of biodiversity hotspots.

50. **Forests (OP/BP 4.36) -** activities under the catchment management plan may involve planting of indigenous plants as catchment protection measure in woodlots for erosion control.

51. **Pest Management (OP/BP 4.09)** - community conservation and livelihoods interventions may include subsistence agriculture. The project will promote the use of integrated pest management approaches and promote measures to reduce reliance on synthetic chemical pesticides. An Integrated Pest Management Plan has been prepared. The IPMP has also addressed potential impacts from the use of antifungal drugs for treatment of Chytrid fungus on the reintroduced populations of KST. IPMP has been publicly disclosed in-country and in the Bank InfoShop on August 5, 2013.

52. **Involuntary Resettlement (OP/BP 4.12)** - the project may entail restriction of livelihoods and other activities to selected critical habitats and water sources. Therefore, consistent with OP 4.12, a Process Framework has been prepared to manage any implications for communities relying on resources in these areas. Process Framework was disclosed, following public consultations in the Bank InfoShop and in Tanzania on August 5, 2013.

Annex 4

Operational Risk Assessment Framework (ORAF)

Tanzania: Kihansi Catchment Conservation and Management Project (P126361)

<table>
<tr><td colspan="7">Project Stakeholder Risks</td></tr>
<tr><td>Stakeholder Risk</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td rowspan="3">Risk Description:

1. Management of components of catchment falls under mandates of several sectors and departments, the general public and Non-Governmental actors. Mistrust between the government and civil society could be a potential issue. Thus the management of general environmental issues may become diffuse and affect project implementation.</td><td colspan="6">Risk Management:

The National Environment Management Act (NEMC) will be assigned the project coordination role, building on 10 years of experience of the previous IDA-supported projects, where a lot of effort has been made over the recent past including educating and involving get civil society. During project implementation all stakeholders will be consulted to avoid duplication and seek synergies through, Environment Sector Group; formal Development Partner Group (DPG); and the Informal Discussion Group on Environment (IDGE)</td></tr>
<tr><td>Resp:</td><td>Status:</td><td>Stage:</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td>Client</td><td>In Progress</td><td>Implementation</td><td>☑</td><td></td><td>Quarterly</td></tr>
<tr><td colspan="7">Implementing Agency (IA) Risks (including Fiduciary Risks)</td></tr>
<tr><td>Capacity</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td rowspan="4">Risk Description:

Description :
1. Apart from NEMC, capacity of different sectors and agencies on environmental management is inadequate, particularly with reduced numbers of staff at lower levels of Government. Preliminary assessment indicates that experience in ecosystem management exists but in fragmented manner.

2. The current FM record for NEMC for implementing WB projects is Satisfactory. Internal systems for FM and Procurement are in place and to the required standard</td><td colspan="6">Risk Management:

Capacity enhancement among stakeholders will be carried out according to the required human resource or key persons to support the project. Coordination capacity for key implementing entities including DoE, RBWB and LGAs will be strengthened during project implementation.</td></tr>
<tr><td>Resp:</td><td>Status:</td><td>Stage:</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td></td><td></td><td></td><td>☐</td><td></td><td></td></tr>
<tr><td colspan="6">Risk Management:

During implementation, FM and Procurement capacity enhancement on Bank FM and Procurement procedures will be conducted for all implementing sectors and at LGA level as necessary. External audits will be carried out regularly by qualified auditors</td></tr>
</table>

<table>
<tr><td></td><td colspan="6">acceptable to the Bank.</td></tr>
<tr><td></td><td>Resp:
Both</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Yearly</td></tr>
<tr><td>Governance</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td rowspan="4">Risk Description:

Effective collaboration from implementing sectors and agencies will depend on continued commitment from the leadership. Steering Committee meetings if not held regularly and without consistency of sector representation, could affect project implementation.</td><td colspan="6">Risk Management:

NEMC has a demonstrated commitment based on 10 years of experience under LKEMP to play a coordination role.

Roles of stakeholders have been clearly defined in the project document and implementation manual.

Progress implementation report will be elaborate enough to inform and guide decisions of the Steering Committee</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td colspan="6">Risk Management:

A wide stakeholder consultation has been carried out during project preparation and the project will prepare a communication strategy to keep stakeholders informed on the progress and receive comments on project implementation.</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td colspan="7">Project Risks</td></tr>
<tr><td>Design</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td rowspan="2">Risk Description:

1. The project can be conceived as complex in design. Although geographically limited to one catchment area, the project encompasses complex issues of biodiversity</td><td colspan="6">Risk Management:

The project will benefit from the experience of managing a similar small but complex IDA Credit, the LKEMP project, (which addressed environmental impacts related with the energy sector) the lessons of which have been central to the design of this project.</td></tr>
<tr><td>Resp:</td><td>Status:</td><td>Stage:</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
</table>

<table>
<tr><td rowspan="11">conservation, water management, and environmental flows

2. Failure of communities in the catchment and implementing institutions to give expected level of cooperation

3. Inadequate flexibility and resources to support the catchment conservation including conserving endangered and endemic species and the reintroduction process.

4. Increased human related activities that will impact the ecological balance of the moist spray wetland.

5. Reintroduction of species to the wild is inherently risky; the possibility exists that the reintroduced KST population will not persist.</td><td>Client</td><td>In Progress</td><td>Both</td><td>☑</td><td></td><td>Quarterly</td></tr>
<tr><td colspan="6">Risk Management:
Project activities will focus on long term conservation measures and ecosystem management, improvement of water quality and quantity, involvement of stakeholders in planning and implementation of activities and building capacity among riparian communities.</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td colspan="6">Risk Management:
The project will establish options for sustainable financing, which will aim at complementing sectoral budgets to ensure a continuity of support for catchment conservation in the long term.</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☐</td><td>Due Date:
31-Jul-2017</td><td>Frequency:</td></tr>
<tr><td colspan="6">Risk Management:
The project design will emphasize community awareness and involvement in conservation, catchment management activities, and alternative livelihoods initiatives</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td colspan="6">Risk Management:
The project will work closely with international institutions and experts having expertise in amphibian reintroductions and the mitigation of amphibian diseases. The project will also adopt a collaborative experimentally-drive adaptive management approach, which proved highly successful under LKEMP, in continuing the reintroduction of the KST</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Yearly</td></tr>
<tr><td>Social and Environmental</td><td>Rating</td><td colspan="4">Moderate</td></tr>
</table>

<table>
<tr><td rowspan="3">Risk Description:

The project design and activities are not anticipated to have undesirable environmental and social impacts. However, due to the envisioned investments in catchment management mainly on soil and water conservation measures (such as contour bunds and terraces); and continuation of the endemic Kihansi Spray Toad (KST) back to its natural habitat, the following environmental safeguard policies have been triggered: Environmental Assessment (OP/BP 4.01); Natural Habitat (OP/BP 4.04); Forests (OP/BP 4.36); Pest Management (OP/BP 4.09). Due to the envisioned protection of important water sources and biodiversity hotspot areas, it is likely that neighboring communities may be denied of full access to natural resources and services in these areas, hence triggering OP/BP 4.12 on Involuntary Resettlement.</td><td colspan="6">Risk Management:

The client has prepared environmental and social safeguards instruments to mitigate the likely risks. An Environmental and Social Assessment (ESIA) has been prepared to identify and propose management mitigation measures to address potential adverse impacts thatmay be generated by the project's investments and activities. The ESIA includes an Environmental and Social Management Plan (ESMP) outlining specific mitigation and management measures that will be implemented to offset any identified impacts. A screening form and checklist have been prepared to assist in the evaluation of the project activities related to protection of water sources and biodiversity hotspots so that unforeseen adverse impacts can be avoided, reduced and/or properly mitigated in a timely manner and in line with the requirements of OP 4.01. A Process Framework has also been prepared to guide the project in managing implications for communities relying on resources in these areas.</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td colspan="6">Risk Management:

The project will promote the use of integrated pest management approaches and promote measures to reduce reliance on synthetic chemical pesticides. The IPMP also addresses potential impacts from the use of anti-fungal drugs for treatment of chytrid fungus on the reintroduced populations of KST.</td></tr>
<tr><td></td><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td>Program and Donor</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td rowspan="2">Risk Description:

Despite the ongoing efforts to ensure that donor support for the environment is provided in a coordinated manner, in some cases, intervention is not well coordinated and could result in duplication of efforts.</td><td colspan="6">Risk Management:

Consultations with the donor community through the established Development Partner Group (DPG) on environment will be continued to ensure commitment and support during implementation. Progress reports on project activities will be shared with secretariat for theDPG.</td></tr>
<tr><td>Resp:
Both</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
</table>

<table>
<tr><td>Delivery Monitoring and Sustainability</td><td>Rating</td><td colspan="5">Substantial</td></tr>
<tr><td rowspan="2">Risk Description:

Due to competing demands, commitments from implementing sectors may decrease, affecting the performance of the project and timely delivery of outputs. In addition, assuring long-term financial sustainability for catchment and endangered species management after project closure may be challenging particularly given TANESCO’s financial challenges.</td><td colspan="6">Risk Management:

The project will establish participatory M&E including external performance assessments to ensure quality at all levels. Awareness and empowerment of project beneficiaries at the community level will be an important part of the project. Implementing sectors willestablish an environmental code to ensure budget allocation for environment activities. The project design envisages a strategy for ensuring the sustainability of impacts after the project completion through providing options for sustainable financing for conservation of the Kihansi catchment.</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td>Other (Optional)</td><td>Rating</td><td colspan="5">Substantial</td></tr>
<tr><td rowspan="3">Risk Description:

Exogenous factors including droughts and floods, coupled with delay or reluctance by TANESCO to repair the sprinkler system and maintain the minimum environmental flow.</td><td colspan="6">Risk Management:

Keep a substantial number of sprinkler spare parts in order for TANESCO to respond to emergencies in a timely manner.</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td colspan="6">Risk Management:

Regular monitoring by the Environmental agency and Basin water office to enforce and ensure that TANESCO is in compliance the minimum flow requirement for operating the Lower Kihansi Hydropower Plant.</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Implementation</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td>Other (Optional)</td><td>Rating</td><td colspan="5"></td></tr>
<tr><td rowspan="2">Risk Description:</td><td colspan="6">Risk Management:</td></tr>
<tr><td>Resp:</td><td>Status:</td><td>Stage:</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
</table>

Overall Risk		
Overall Implementation Risk:	**Rating**	**Substantial**

Risk Description:

As part of species and habitat conservation, the project will work closely with TANESCO to ensure that a substantial number of sprinkler spare parts are procured in a timely manner to respond to emergency situations. During the project duration, Rufiji Water Basin Office will continue to monitor TANESCO's compliance on minimum environmental flow releases from the operations of the Lower Kihansi hydropower plant.

Annex 5: Implementation Support Plan

UNITED REPUBLIC OF TANZANIA: Kihansi Catchment Conservation and Management Project

1. The Implementation Support Plan (ISP) for the proposed project is based on lessons learned from implementation of LKEMP under an IDA Credit and is based on the proposed project design, and identified challenges and risks. The ISP aims at ensuring an effective and timely implementation of project activities designed to ensure the achievement of the project development objective.

2. **Implementation support strategy**: The project implementation support strategy will be based on focused technical, financial and procurement reviews by the Bank implementation support teams, and close and continuous follow-up on issues highlighted during these implementation support missions. In order to put in place a continuous implementation support strategy, special attention will be given during the first two years of project implementation on project coordination and management and institutional arrangements for effective implementation of project activities.

3. **Team composition**: The implementation support team will consist of a Task Team Leader (TTL) based in the country office and a core supervision team consisting of two Head Quarters based staff, country based fiduciary staff (procurement, financial management) and environmental social safeguards staff. The task team members will participate as full team members and will be responsible for the implementation of project specific activities in their areas of expertise. International and local consultants will be engaged, as required to fill gaps, in due course of project implementation.

4. **Frequency of implementation support effort**: There will be at least two annual formal full supervision missions per year during which visits will be made to the project area to review and provide required support. Country based staff and consultants will monitor implementation progress on a continuous basis and will have at least bi-monthly quick implementation reviews of critical activities. They will conduct field visits to specific site(s) as needed.

5. **Implementation support budget**: To ensure a strong and continuous IS effort, especially during the first two full years of implementation, a minimum of US$114,000 per year supervision budget would be required to cover World Bank staff, consultants and travel expenses. An estimate of this annual supervision budget is provided in the Table 1 below:

Table 1: Estimated supervision budget (core task team).

Team member	Fixed costs	Variable costs
Task Team Leader	10,000	6,000
HQ base team members	30, 000	15,000
Country based procurement specialist	-	-
Country based FM specialist	-	-
Country-based environmental specialist	10,000	6,000
Conservation Biologist -consultant	-	25,000
Country-based program assistant	5,000	2,000
Headquarters-based program assistant	5,000	-
Total	**60**	**54**

6. The main IS activities to be covered by the IDA project team are as follows:

Implementation Support for procurement will include:

(a) providing on-going support to the National Project Coordination Team (NPCT),;
(b) providing on-going guidance and timely feedback to National Project Coordination Team (NPCT), on the Bank's Procurement Guidelines. Such support to be provided throughout during Project implementation ;
(c) in conjunction with the NPCT, the Bank will monitor procurement progress against the detailed Procurement Plan, and provide guidance in the updating of the Procurement Plan;
(d) providing procurement clinics to NPCT involved in procurement functions; and
(e) providing training in identifying Fraud and Corruption in procurement. The training will be provided by the Bank to project implementing entity staff.

7. **Implementation support for Financial Management**: During implementation support missions, the Bank team will review the project's financial management system, including but not limited to, accounting, reporting and internal controls. Supervision will also cover all implementing entities at national and community levels.

8. **Implementation support for Environmental Safeguards:** The Bank team will supervise the implementation of the agreed environmental management plan and provide guidance to NEMC and the districts to address any issues. Implementation support for safeguards management will also be provided at community level through Village Environmental Committees.

Annex 6: Incremental /Additional cost reasoning

UNITED REPUBLIC OF TANZANIA: Kihansi Catchment Conservation and Management Project

A. Background context

1. Tanzania is endowed with large areas of forests and woodlands, a great diversity of flora and fauna, and a variety of ecosystems including the highest mountain and three of the largest freshwater lakes in Africa, as well as globally important wetlands, coastal, and marine ecosystems. It is also home to multiple globally threatened and endangered plant and animal species. Among the many highly biologically rich ecosystems in Tanzania, freshwater ecosystems are of particular importance. Tanzania's natural resources contribute substantially to its economy including agriculture, wildlife, fisheries, forestry, tourism and mining. However, the country's use of its natural resources is characterized by low productivity, unsustainable resource management, and uncoordinated management. In addition, the wealth from natural resources has not translated into improved economic well-being for the majority of citizens, rather it has benefitted a small minority.

2. Within Tanzania, the Kihansi catchment located in the Rufiji River basin is of particular global importance because of the unusually high numbers of critically endangered and highly endemic plant and animal species that occur there. Increasing rural population densities and the cultivation on steep slopes and on valley bottoms are placing considerable pressure on natural resources (soil and water) in the Kihansi catchment. These activities are altering water quality and quantity within the catchment, which in turn threatens many of the area's highly endemic plant and animal species. Changes to the physical environment of the Kihansi catchment through erosion of the resource base, also accentuates its vulnerability to climate change. This in turn reduces the ability of the catchment to buffer extreme weather events and support climate-resilient livelihoods.

3. Competing interests and demands for water and other resources have challenged the conservation of the Kihansi ecosystem. However, with support from different agencies including the World Bank, important advances have been achieved to alleviate this challenge. Some of these are: the enactment of a sound water policy that integrates environmental considerations in water allocation decisions; improvement of coordination between the environmental and water resources management agencies; and, the adoption of the concept of integrated water resource management that recognizes the multi-sectoral uses of water. The World Bank support in this regard was particularly significant through the Lower Kihansi Environmental Management Project (LKEMP).

4. The main rationale for the LKEMP project, which closed in 2011, was ensuring long-term conservation of the Kihansi gorge ecosystem and upstream catchment. LKEMP was developed in response to the habitat loss caused by the construction of a hydroelectric dam in the region and promoted closer coordination between water, energy and national environmental policies. The proposed GEF project will build on the results and experience obtained during the implementation of the LKEMP in mainstreaming conservation of critically endangered species and their habitat in the Kihansi catchment and in integrating downstream environmental flow

assessment into river basin planning in Tanzania.

B. Baseline or Business as Usual (no GEF Scenario)

5. The baseline for the GEF project is the Water Sector Development Program (WSDP). The WSDP is a multi-phased long-term program to implement the National Water Policy (NAWAPO) established in 2002. It aims to strengthen water sector institutions across nine river basins in Tanzania for integrated water resource management (IWRM) and improving access to water supply and sanitation services. Phase one of WSDP (from 2007/8 to 2013/14) is a $1.2 billion sector wide program supported by the GOT and numerous agencies, including $200 million IDA credit. The WSDP focuses on establishing institutions, legislation, and regulations and putting in place integrated water resources development and management plans at the river basin level, including the Rufiji basin. The Rufiji basin covers 19 percent of the country and has an installed capacity of nearly 85 percent of the nation's hydropower generation capacity. The WSDP has three components but only the first one will be considered baseline for the GEF project:

6. Component 1: Basin Level – Strengthening of Water Resources Management Institutional Framework: The program supports strengthening of institutions for integrated water resources management through: (a) development of a sound water resources management and development framework in the nine river basins in mainland Tanzania; (b) promoting good governance of water resources through empowering the water users, encouraging participatory and transparent decision making, developing ownership to the user level, and granting secure water rights with responsibilities to the water users, community groups, local government, and Basin Boards; and (c) strengthening the capacity of basin offices to address transboundary water resource issues. Component 1 is divided into three subcomponents, of which the following two sub components provide synergistic and complimentary support to the proposed GEF financed activities.

7. Sub-Component 1A: Basin Level Water Resources Management: addresses policy, legal, and institutional reforms for promoting integrated water resources development and management. It is supporting the establishment of the National Water Board, an apex body, representative of all key sectors of the economy, establishment of nine basin water boards and nine basin water offices, and the formation of catchment committees, and water user associations. It is also supporting the formulation of the Water Resources Management Act and regulations for water resources management (WRM).

8. Sub-Component 1B: Integrated Water Resources Development and Management Plans that focuses on the preparation of integrated water resources development and management plans. These plans address multi-sectoral development and management needs for water and watersheds.

C. GEF Alternative

9. The GEF Alternative would build on and strengthen the baseline scenario in the Rufiji basin, in particular the Kihansi catchment, with the objective of enhancing biodiversity conservation in the region. The alternative will compliment as well as assist on-going efforts of

key resource regulatory authorities addressing soil and water management and conservation challenges at the operational level, including the specific needs for biodiversity and habitat conservation in the critical ecosystems in the Kihansi catchment. Best practice soil and water and habitat/species conservation management will be mainstreamed into other ecosystems within the rest of the Rufiji basin and other basins of conservation value. The project will contribute to laying the foundation for environmentally responsible GoT investments in river basin planning and management elsewhere in Tanzania.

10. The GEF Alternative will be piloting the integration of biodiversity conservation at both an operational and planning level into the WSDP. The project is divided in the following components:

11. Component 1: Institutional capacity building for the management of the Kihansi Catchment: This component also comprises of two subcomponents: (i) *Operational guidelines for conducting Environmental Flow Assessment* which aims to integrate the environmental flow assessment to be conducted into the basin's Integrated Water Resource Development and Management Planning (IWRDMP) Framework; (ii) *Sustainable financing plan for the Kihansi catchment* that will develop options for a sustainable financing mechanism for ensuring the long-term conservation and management of the Kihansi catchment.

12. Component 2: Conserve endangered species in the Kihansi catchment: This component focuses on operational level interventions in the Kihansi catchment to ensure that the natural habitats knowledge base for the ecosystems in Kihansi is improved, and that the catchment can be managed sustainably over the long term. This component comprises of two sub-components: (i) *Species and habitat conservation* including the continuation of the reintroduction and monitoring of the Kihansi Spray Toad; the mapping and monitoring of other endangered and endemic plant and animal species; and the development and implementation of the Kihansi Catchment Management Plan (KCMP); (ii) *Community conservation and livelihoods* which includes the implementation of pilot Integrated Pest Management (IPM) and land use investments in 14 upstream villages through participatory planning, and the training of local communities and key staff in several topics like IPM, appropriate land use practices, ecological monitoring and assements, valuation of ecological services, sharing of best practices, and water resources and environmental law enforcement.

13. Component 3: Project Management: This component focuses on project coordination at national, district and community levels.

D. Fit with GEF Strategic Priorities

14. The proposed activities to be funded will align to the GEF's Biodiversity Focal Area and particularly will contribute to the achievement of the Objective of *Mainstreaming Biodiversity Conservation and Sustainable Use into Production Landscapes, Seascapes and Sectors* (BD-2). The expected focal area outcome for this project is to increase sustainability managed landscapes that integrate biodiversity conservation (Outcome 2.1). This will be achieved by enhancing biodiversity conservation in the Kihansi catchment of which 48% is under agricultural production.

15. The incremental GEF Biodiversity-funded activities will provide for the long-term conservation and management of globally critically endangered species and critical habitats in the Kihansi catchment. The Kihansi catchment brings to the fore the cross-sectoral challenges associated with water allocation for energy and environment and other water uses. In this context, the Kihansi catchment is critical for both water resource management and the protection of biodiversity. The Kihansi River is a major source of national hydropower supply, contributing nearly 35% percent of the total hydropower generated nationally and about 15% of the total electricity generated from all sources; and the Kihansi ecosystem harbors critically endangered and highly endemic species of flora and fauna. Therefore, conserving and effectively managing the Kihansi catchment will help maintain a critical balance between water for hydropower generation and biodiversity conservation.

E. Incremental value added by GEF funding and Global Benefits

Global Environmental Benefits

16. Biodiversity in Tanzania is highly concentrated in the Eastern Arc Mountains, which extend from northeast through south central Tanzania. The Eastern Arc forests, which cover less than 0.2% of the country, contain 95% of the amphibian, 86% of the bird, 67% of the mammal, and 21% of the plant species that are endemic to Tanzania and over one-half of all of the globally threatened species in Tanzania. Due to unusually high concentrations of endemic plant and animal species and because more than 70% of the original forest have been lost, the Eastern Arc Mountains have been declared one of 34 global biodiversity hotspots. Of these 34 biodiversity hotspots, the Eastern Arc Mountains contain the highest ratio of endemic plant and animal species to area of any hotspot, worldwide.

17. The Kihansi catchment, which is part of the Rufiji River basin[4], is located in the Udzungwa Mountains, the largest of the 12 Eastern Arc Mountains in Tanzania. Terrestrial and aquatic ecosystems within the Kihansi catchment are of global significance because of the unusually high numbers of critically endangered and highly endemic plant and animal species that occur here. These include the Kihansi Spray Toad (KST), which has the smallest geographic range of any tetrapod worldwide, less than 2 ha, a new species of coffee, and 1 – 3 new species of butterfly.

18. Catchment management plans to be supported by the proposed GEF project will not only support water and soil conservation activities, but also be piloting a world leading initiative in tropical amphibian reintroduction – the first reintroduction of an extinct-in-the-wide amphibian species, worldwide, and the *in-situ* control and mitigation of chytrid fungus[5]. Incremental activities would complement and accelerate the first reintroduction of an amphibian species back into the wild in the tropics where chytrid fungus is endemic. The knowledge gained from

[4] The Rufiji River basin is the largest river basin in Tanzania and covers 19% of the country.

[5] Since 1980, chytrid fungus has contributed to the extinction more than 90 amphibian species worldwide, including the extinction in the wild of the Kihansi Spray Toad (KST), and another approximately 380 anuran (frog and toad) species have been identified as at extremely high risk of extinction from chytrid fungus due to their geographic range. Ecologists have raised alarm that chytrid fungus now poses the greatest threat to biodiversity of any known disease.

reintroducing the Kihansi Spray Toad (KST) back to the Kihansi Gorge will be of tremendous global value and should greatly assist in the conservation of amphibian species worldwide.

19. GEF supported incremental activities will also allow for the development of an expanded program of conservation and management for the other highly endemic and critically endangered plant and animal species including a newly described specie of coffee and 1 to 3 potentially new species of butterfly which are restricted to the Kihansi Gorge. Conserving species with highly restricted geographic ranges is a global challenge, as species having highly restricted geographic ranges are considered more extinction-prone than species having broad geographic ranges.

20. GEF incremental support will allow for the broader integration of biodiversity conservation activities and programs into the planning and management of river basins. The lessons that are learned from the Kihansi catchment with regard to managing downstream terrestrial and upstream critical habitats for endangered species in the ecosystems will be incorporated into the catchment management plans in eight other river basins in Tanzania and will provide worldwide valuable lessons. The development of operational tools for integrating environmental flow assessment into river basin planning and water development planning will fill an important operational gap in integrated water resources management in Tanzania and will contribute to knowledge in this global highly contested area of integrated water resources management.

21. Finally, GEF support will allow for testing and expanding the application of the emerging concept of payment for environmental services and benefit sharing that is increasingly being applied to the conservation of watersheds and other important conservation areas.

Incremental Cost Calculations

22. The GEF contribution of US$5.98 million will complement the baseline of the Water Sector Development Program (WSDP), which is a US$1.2 billion sector wide program supported by the GOT and numerous agencies, including US$200 million IDA credit. From the WSDP/IDA credit, US$14.67 million has been considered baseline for the proposed GEF project. In addition, the project will leverage a US$3.62 million in-kind contribution from the Government of Tanzania (Vice President's Office). This in-kind contribution will be in the form of the public agencies' staff time to manage the project and a provision of administrative expenses.

23. Overall, the total cost of the GEF alternative is estimated at US$24.28 million, with an incremental financing of US$9.6 million (from GEF and the GoT contribution) and a baseline support of US$14.67 million.

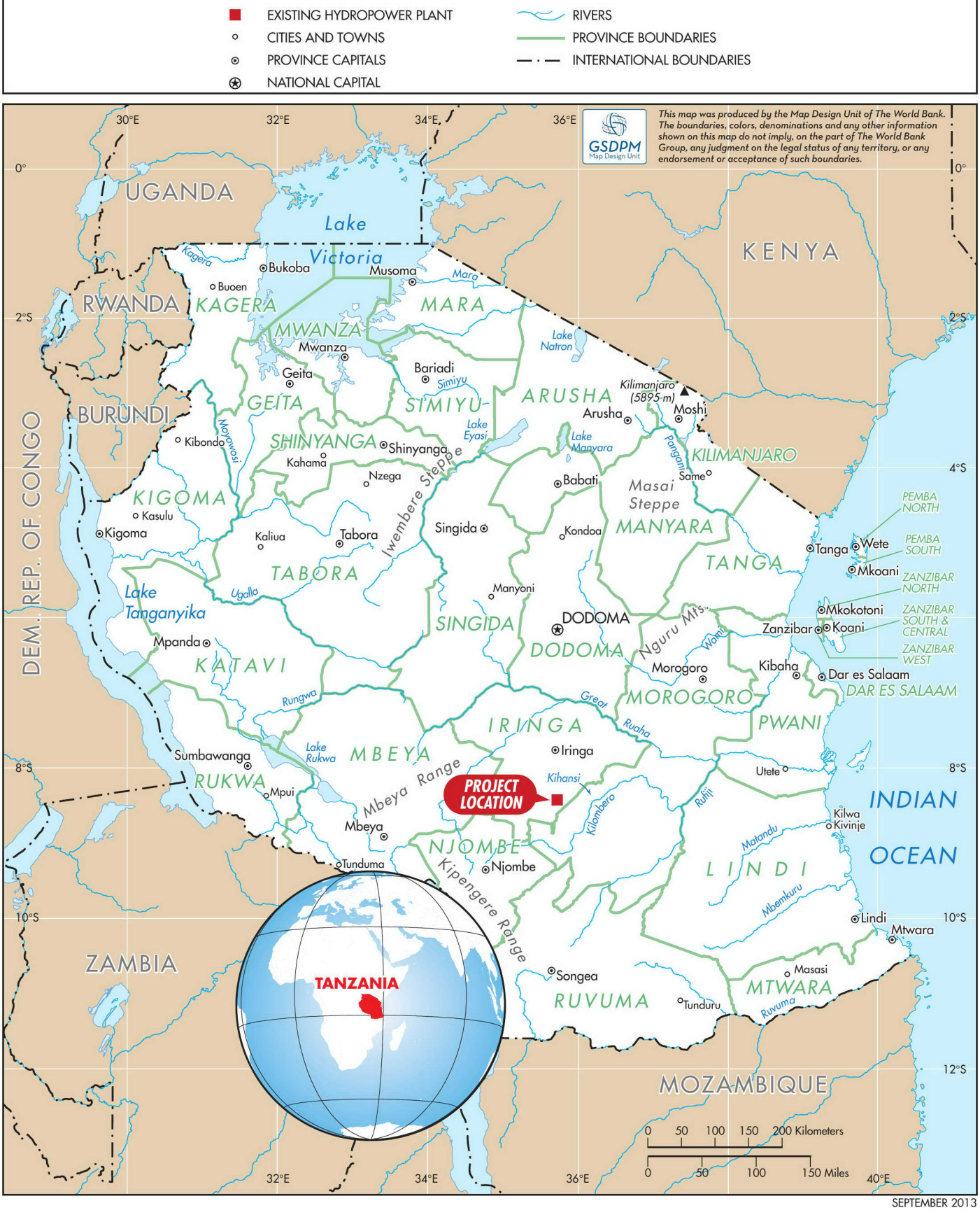
Matrix of GEF Incremental Costs

Component	Category	Estimated Expenditure (million US$)	National and local benefit	Global Environmental Benefit (GEB)
1. Institutional capacity building for the management of the Kihansi Catchment	Baseline	3.54	Development of a sound water resources management and development framework in the 9 river basins in mainland Tanzania Promoting good governance of water resources through empowering the water users, encouraging participatory and transparent decision making, developing ownership to the user level, and granting secure water rights Strengthening the capacity of basin offices to address transboundary water resource issues	No significant global environmental benefit
	With GEF alternative	4.61	Establishment of methods and procedures for Environmental Flow Assessment for the Rufiji river basin. Communication strategy for improving understanding of water and environmental linkages in the region. Valuation of the Kihansi watershed ecosystem Options for a financing mechanism for the long term management of the Kihansi catchment	Lessons learned and operational tools for integrating environmental flow assessments into integrated water resource development and management planning will assist similar experiences worldwide. Sustainable financing guidelines that can be adapted to similar circumstances in other regions.
	Incremental	1.07		
2. Conserve endangered species in the Kihansi	Baseline	13.41	Taxonomic description of two species: the Kihansi Spray Toad and an endemic wild coffee.	No significant global environmental benefit

catchment				
	With GEF alternative	18.02	Implementation of management action plans for at least 2 endangered species. Catchment management plan implemented Local livelihoods projects implemented in 14 upstream villages, enhancing water quality and quantity in the Kihansi catchment Local communities and agency's staff members trained in IPM, land management techniques, monitoring of endangered species and enforcement of relevant environment policies.	Conservation actions in one of the global hotspots, the one with the highest ratio of endemic plant and animal species to area. Lessons of global significance from the world leading initiative of amphibian reintroduction (the Kihansi Spray Toad). The knowledge will assist in the conservation of amphibian species worldwide.
	Incremental	4.61		
3. Project Management	Baseline	1.35	Improved project management, communications and monitoring of results for project's progress	No significant global environmental benefit
	With GEF alternative	1.65	Improved management and monitoring for key environmental indicators	Improved availability and access to information and lessons learned from the conservation of one of the global hotspots.
	Incremental	0.30		
TOTAL	Baseline	**18.3**		
	With GEF alternative	**24.28**		
	Incremental	**5.98**		

IBRD 40331

TANZANIA
KIHANSI CATCHMENT CONSERVATION AND MANAGEMENT PROJECT



SEPTEMBER 2013

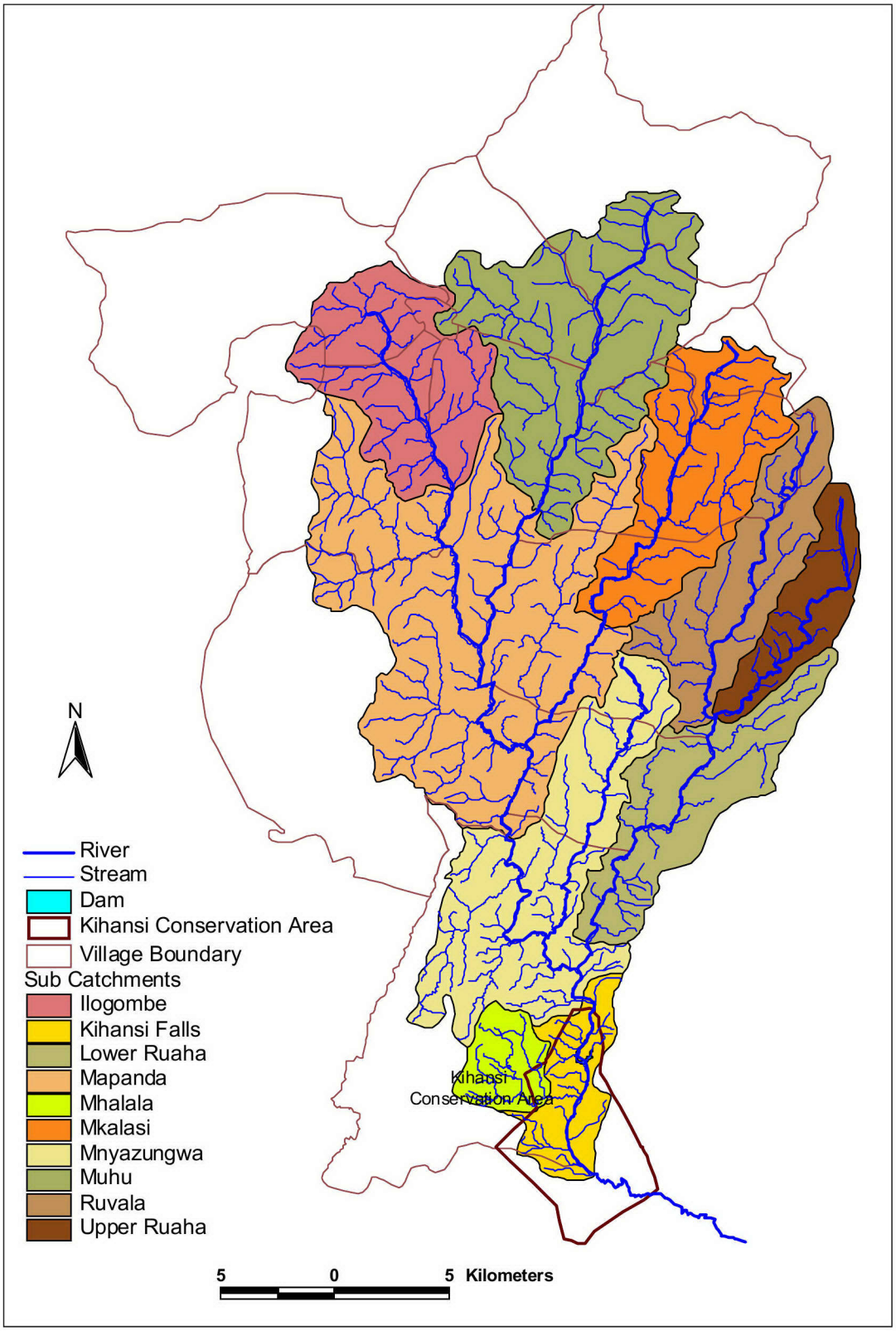


Figure 2. Rivers and streams in the Kihansi Catchment. (Source: SMEC International (2005) Landscape Wide Conservation Plan for the Upstream Kihansi Catchment).

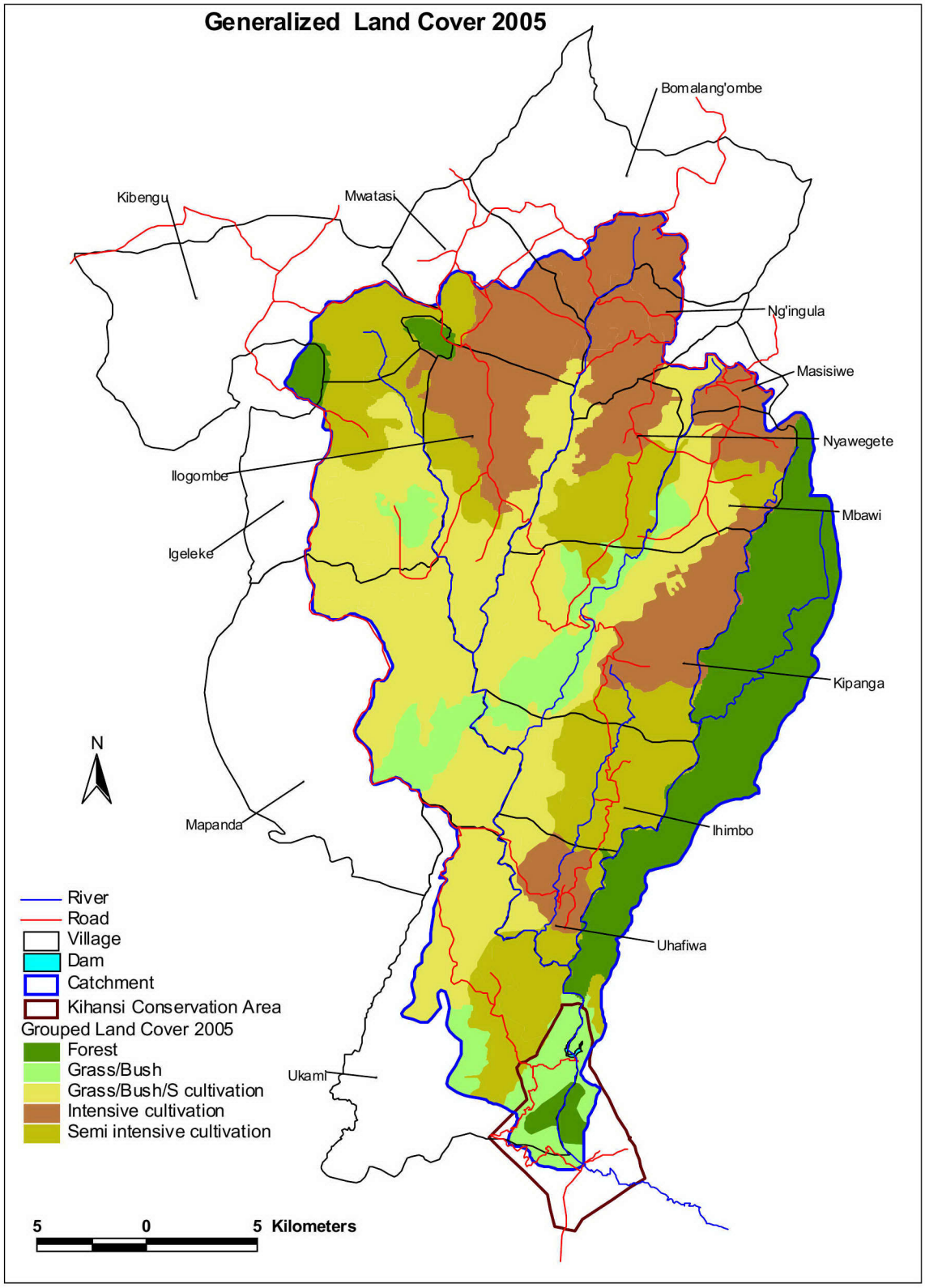


Figure 3. Land cover types as of 2005 in the Kihansi Catchment. (Source: SMEC International (2005) Landscape Wide Conservation Plan for the Upstream Kihansi Catchment).

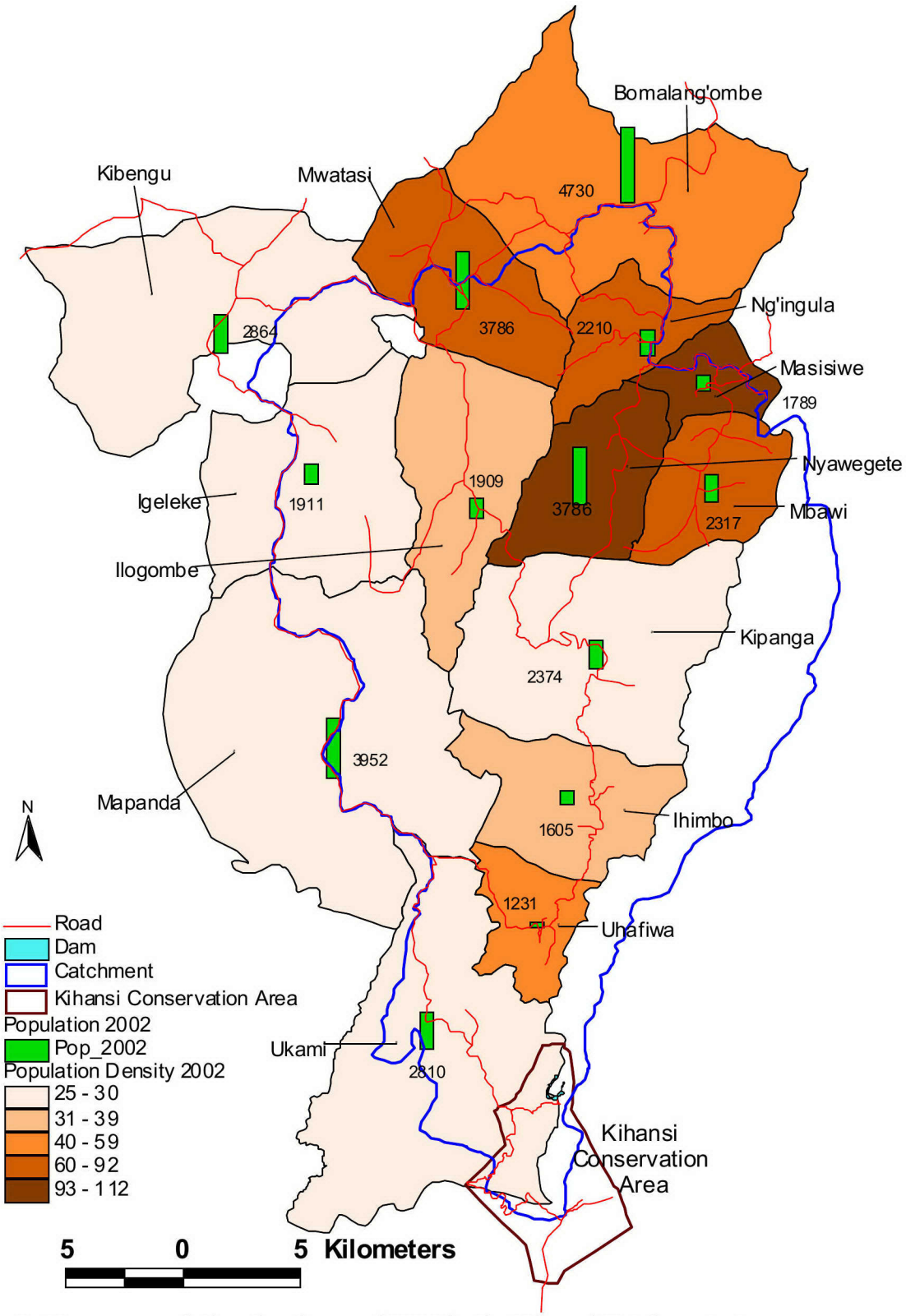


Figure 4. Human population density as of 2005 in the Kihansi Catchment. (Source: SMEC International (2005) Landscape Wide Conservation Plan for the Upstream Kihansi Catchment).

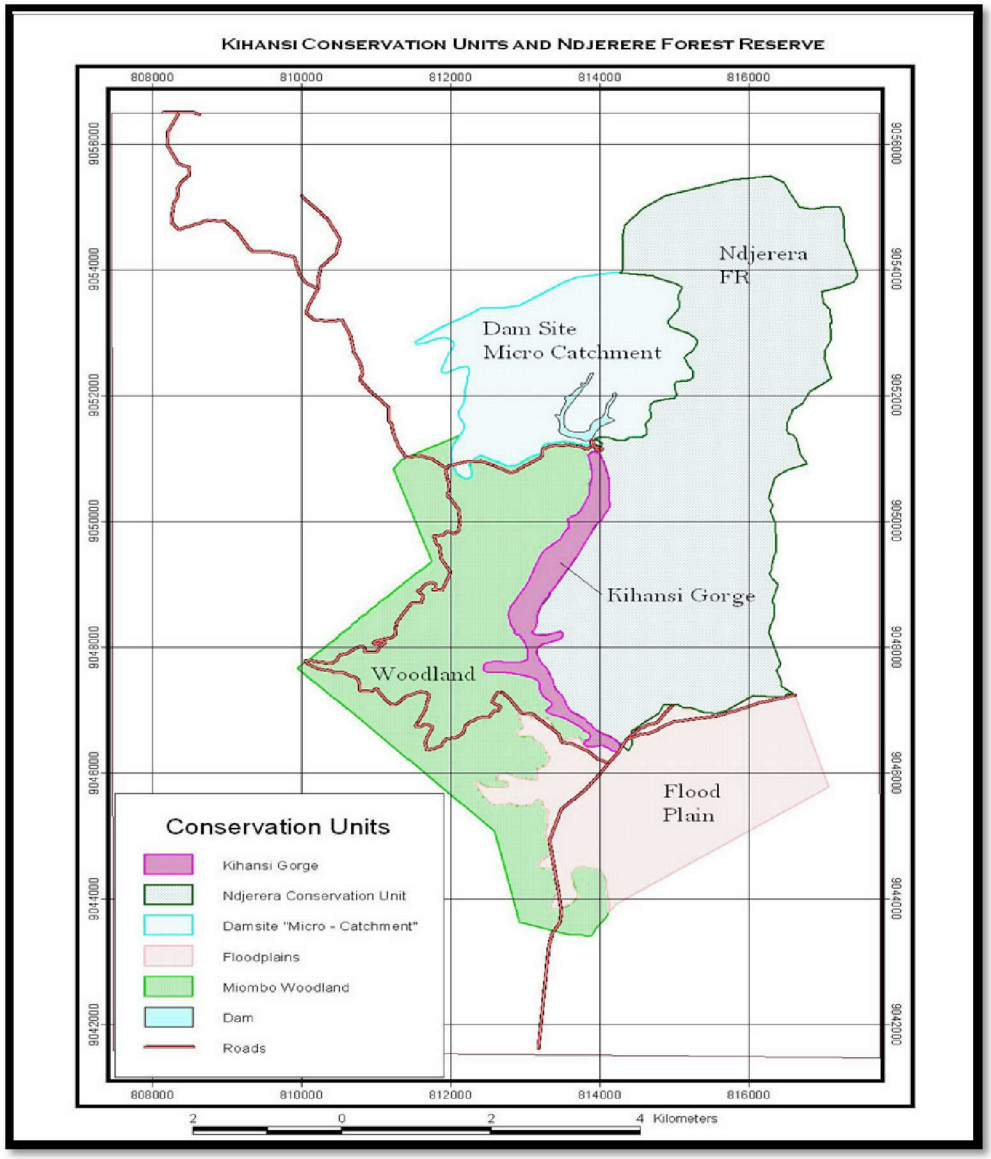


Figure 5. Land use adjacent to the Kihansi Gorge. (Source: Mwansasu, S. 2007. Ecological Monitoring Report: Land Cover.)