

# Funding Proposal

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## **FP041: Simiyu Climate Resilience Project**

Tanzania | Kreditanstalt für Wiederaufbau (KfW) | Decision B.16/23

14 April 2017





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# Funding Proposal

Version 1.1

**The Green Climate Fund (GCF) is seeking high-quality funding proposals.**

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

Project Title: Simiyu Climate Resilience Project

Country/Region: Tanzania

Accredited Entity: KfW

Date of Submission: \_\_\_\_\_

Assumed exchange rates: 1 EUR = 2,484 TZS    1 EUR = 1.135 USD

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### *Note to accredited entities on the use of the funding proposal template*

- Sections **A, B, D, E** and **H** of the funding proposal require detailed inputs from the accredited entity. For all other sections, including the Appraisal Summary in section F, accredited entities have discretion in how they wish to present the information. Accredited entities can either directly incorporate information into this proposal, or provide summary information in the proposal with cross-reference to other project documents such as project appraisal document.
- The total number of pages for the funding proposal (excluding annexes) is expected not to exceed 50.

**Please submit the completed form to:**

[fundingproposal@gcfund.org](mailto:fundingproposal@gcfund.org)

Please use the following name convention for the file name:

“[FP]-[Agency Short Name]-[Date]-[Serial Number]”

A.1. Brief Project Information		
A.1.1. Project title	<b>Simiyu Climate Resilience Project</b>	
A.1.2. Project or programme	Project	
A.1.3. Country (ies) / region	<b>Tanzania</b>	
A.1.4. National designated authority (ies)	<b>The Office of the Vice President</b>	
A.1.5. Accredited entity	<b>KfW</b>	
A.1.5.a. Access modality	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> International	
A.1.6. Executing entity / beneficiary	Executing Entity: Ministry of Finance and Planning Beneficiary: Ministry of Water and Irrigation Regional Secretariat of the Simiyu Region	
A.1.7. Project size category (Total investment, million USD)	<input type="checkbox"/> Micro ( $\leq 10$ ) <input type="checkbox"/> Small ( $10 < x \leq 50$ ) <input checked="" type="checkbox"/> Medium ( $50 < x \leq 250$ ) <input type="checkbox"/> Large ( $> 250$ )	
A.1.8. Mitigation / adaptation focus	<input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> Adaptation <input type="checkbox"/> Cross-cutting	
A.1.9. Date of submission		
A.1.10. Project contact details	Contact person, position	Katrin Brandes, Senior Project Manager
	Organization	KfW Entwicklungsbank
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	Mailing address	Palmengartenstr. 5-9, 60325 Frankfurt, Germany

A.1.11. Results areas <i>(mark all that apply)</i>
<p><b>Reduced emissions from:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Energy access and power generation (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)</li> <li><input type="checkbox"/> Low emission transport (E.g. high-speed rail, rapid bus system, etc.)</li> <li><input type="checkbox"/> Buildings, cities and industries and appliances (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)</li> <li><input type="checkbox"/> Forestry and land use (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)</li> </ul> <p><b>Increased resilience of:</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Most vulnerable people and communities (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)</li> <li><input checked="" type="checkbox"/> Health and well-being, and food and water security (E.g. climate-resilient crops, efficient irrigation systems, etc.)</li> <li><input checked="" type="checkbox"/> Infrastructure and built environment (E.g. sea walls, resilient road networks, etc.)</li> <li><input checked="" type="checkbox"/> Ecosystem and ecosystem services (E.g. ecosystem conservation and management, ecotourism, etc.)</li> </ul>

## A.2. Project Executive Summary (max 300 words)

The Project provides the remarkable opportunity to support a government of a least developed country that proves a strong commitment to introducing a paradigm shift in its climate adaptation policies. The Tanzanian Government intends to design an inter-sectoral approach in one of its regions most affected by climate change, the Simiyu Region. The holistic approach contributes to the two main drivers for the population's resilience: Sustainable provision of water and farming conditions. Simiyu is supposed to serve as a role model- with lessons learnt from the Project being adapted to the national level at a later stage.

The Simiyu Region is a high profile example for the urgent need to face multi-sectoral challenges of climate change in Tanzania. Impacts include profound changes in water availability, temperature stresses to people, livestock and crops, changes in public health, farming practices, income, food security and ecology. Climate models predict a further intensification of dry seasons, but also of unpredictable intense rains and floods, posing a significant threat to livelihoods, especially amongst the poor. For the population, and women are particularly negatively affected, these developments present increasing challenges for day-to-day life, with insufficient local water supply, worsening health conditions and deteriorating (subsistence) farming opportunities posing particular threats.

The objective of the Project is to increase the climate resilience of rural and urban households, particularly small scale farmers and women, living in the Simiyu Region and to improve policies and regulation for cross-sectoral action towards climate adaptation. It will contribute to the implementation of the Nationally Determined Contributions (NDCs) of Tanzania. More than 495,000 direct beneficiaries (out of them 257,000 women) and 2.5 m indirect beneficiaries are expected to increase their climate adaptive capacities through the Project. Fields of action include:

- improving the government's institutional and regulatory framework for cross sectoral and community based adaptation planning
- improving climate resilience of water supply infrastructure, sanitation services and agricultural practices in the Simiyu Region
- pursuing a community driven approach to ensure targeting of the most vulnerable
- enhancing adaptive capacities of vulnerable urban and rural population, as well as implementing capacities of local and central government structures

## A.3. Project Milestone

Expected approval from accredited entity's Board (if applicable)	Not applicable
Expected financial close (if applicable)	01/01/2017
Estimated implementation start and end date	Start: <u>01/03/2017</u> End: <u>28/02/2022</u>
Project lifespan	5 years 0 months

## B.1. Description of Financial Elements of the Project

The estimated total costs of the Project amount to 143.4 m EUR. The Government of Tanzania earmarked 13.1 m EUR as its own contribution, which is a remarkably high amount for a LDC and which shows the exceptional government commitment. In addition, the Project is expected to receive 1.5 m EUR cash and in-kind contributions from local communities. During Project preparation, the government already made available EUR 600,000 for studies from the Water Sector Development Project. Furthermore, funding from the GCF leverages 26.1 m EUR grant funding from KfW provided by the German Government. The co-funding commitment by the German Government through KfW has been earmarked in the Government Negotiations between Tanzania and Germany.

The Government of Tanzania (GoT) seeks 102.7 m EUR of grant funding from the GCF. Maximum concessionality is proposed since the Project is urgently needed to reduce climate induced stress of particularly poor and vulnerable population groups like subsistence farmers and women in a Least Developed and post- Highly Indebted Poor Country (LDC and post-HIPC). The Project is needed to cover basic needs and fulfil human rights to drinking water, health and food security, in a region strongly affected by climate change. The GCF funds are used to overcome barriers that constrain the ability of the Government of Tanzania to implement an advanced and integrated approach to climate adaptation. None of the Project's components generates sufficient revenue to pay back investment costs and/or interest, despite the fact that revenues shall cover at least maintenance costs wherever possible. Grant financing allows Tanzania to undertake the proposed adaptation measures without reducing funding for other priority development needs or increasing its risks of debt distress. Tanzania is taking part in the Policy Support Instrument (PSI) of the International Monetary Fund (IMF) and shows continued strong efforts for fiscal consolidation and strengthening revenue mobilization, public financial management and debt management. Despite the fact that sovereign repayment capacity is not expected to be called into question in the near future, it should be considered that financing this climate adaptation Project with debt would be an additional stress factor for the country by either increasing the risk of debt distress or leading to reduced funding for other priority development needs. This should be avoided especially in light of Tanzania's low own emission profile. Grants match local financial and in-kind contributions to the maximum possible extent.

As can be seen from the table below, funding from the Green Climate Fund is used for those costs of the Project that are solely attributed to increasing climate resilience, which are

- transfer of lessons learnt during implementation of the multi-sectoral Project into improved procedures and regulatory framework: strategic consultancy for establishing a holistic inter-sectoral policy implementation mechanism;
- those components of the water supply system which are needed because local water sources are not available and reliable anymore and water has to be transferred from the Lake Victoria to the region (particularly the water intake and the transmission main including reservoirs);
- rural distribution networks needed to ensure that the piped water reaches the beneficiaries, and that the water supply system covers operation cost as soon as possible;
- parts of the costs for consultancy to strengthen the implementation capacities at regional and district level and to supervise construction works;
- climate smart agriculture.

Germany finances investments for development, which would have also been necessary without climate change, namely the water treatment plant, urban distribution networks, rural and urban public taps and parts of the consultancy costs. The Tanzanian contribution is used for staffing and compensation payments.

Component	Sub-component (if applicable)	Amount (for entire programme) in million EUR	GCF funding amount	KfW	GoT	Beneficiaries
Bulk Water Supply	1.1 water treatment	5.8		5.8		
	1.2 intake, pumping stations, main pipe, reservoirs	52.8	52.8			
	1.3 operation subsidy year 1-3	0.5			0.5	
<b>1. Bulk Water Supply</b>		<b>59.1</b>	<b>52.8</b>	<b>5.8</b>	<b>0.5</b>	
Water Distribution	2.1 urban distribution incl. public water taps	6.9		6.9		
	2.2 rural distribution incl. public water taps	20.0	20.0			
	2.3 household connections	0.4		0.3	0.1	
<b>2. Water Distribution</b>		<b>27.3</b>	<b>20.0</b>	<b>7.2</b>	<b>0.1</b>	
3. Sanitation	3.1 wastewater treatment plant	2.0		2.0		
	3.2 exhauster trucks	0.5		0.5		
	3.3 public toilets	1.0		1.0		
<b>3. Sanitation</b>		<b>3.5</b>		<b>3.5</b>		
Agriculture	4.1 small earth dams and charco dams	3.1	2.9			0.2
	4.2 climate smart agriculture	1.2	1.0			0.2
	4.3 Ngtili and firewood	4.3	3.4			0.9
	4.4 training (Farmer Schools)	1.6	1.6			
<b>4. Agriculture</b>		<b>10.2</b>	<b>8.9</b>			<b>1.3</b>
Project Management	5.1 studies	1.7		1.1	0.6	
	5.2 supervision of water & sanitation & demand driven smart agriculture	6.1	4.2	1.9		
	5.3 mangement support through Strategic Consultant	1.2	1.2			
<b>5. Project Management</b>		<b>9.0</b>	<b>5.4</b>	<b>3.0</b>	<b>0.6</b>	
Strategic Support	6.1 paradigm shift facilitation through Strategic Consultant	0.8	0.8			
	6.2 capacity development to WSAs	3.0	1.0	1.7	0.3	
	6.3 PMU Smart Agriculture, community based planning & user associations	5.6	2.3	2.0	1.3	
	6.4 ICT Platform	0.1	0.1			
<b>6. Strategic Support</b>		<b>9.5</b>	<b>4.2</b>	<b>3.7</b>	<b>1.6</b>	
<b>7. Land Compensation and ESMP</b>		<b>8.8</b>			<b>8.8</b>	
<b>Total</b>		<b>127.4</b>	<b>91.3</b>	<b>23.2</b>	<b>11.6</b>	<b>1.3</b>
<b>Contingencies</b>	<b>12.5%</b>	<b>16.0</b>	<b>11.4</b>	<b>2.9</b>	<b>1.5</b>	<b>0.2</b>
<b>TOTAL PROGRAMME FINANCING</b>		<b>143.4</b>	<b>102.7</b>	<b>26.1</b>	<b>13.1</b>	<b>1.5</b>

Note: Contingencies include physical and price contingencies. 12.5% are in line with the usual value for KfW financed projects and reflect the quality of the feasibility study as well as experiences with price escalations in the region.

<b>B.2. Project Financing Information</b>							
	Financial Instrument	Amount	Currency	Tenor	Pricing		
<b>(a) Total project financing</b>	<b>(a) = (b) + (c)</b>	143.4	<u>million euro</u> (€)				
<b>(b) GCF co-financing</b>	Grants	102.7	<u>million euro</u> (€)				
<b>(c) Co-financing to recipient*</b>	Financial Instrument	Amount	Currency	Name of Institution	Tenor	Pricing	Seniority
	<u>Grant</u>	<u>26.1</u>	<u>million euro (€)</u>	KfW (Germany)			<u>pari passu</u>
	<u>Grant</u>	<u>0.6</u>	<u>million euro (€)</u>	GoT Water Basket			<u>upfront</u>
	<u>Budget</u>	<u>12.5</u>	<u>million euro (€)</u>	GoT			<u>pari passu</u>
	<u>Cash &amp; In Kind</u>	<u>1.5</u>	<u>million euro (€)</u>	Local User Groups			<u>upfront</u>
Lead financing institution: KfW							
<b>B.3. Financial Markets Overview (not applicable)</b>							

## C.1. Strategic Context

Over the past 30 to 60 years, Tanzania has experienced more frequent precipitation extremes such as droughts and heavy rainfall. The following changes have been observed between 1960 and 2006 (all statistically significant<sup>1</sup>):

- The average annual temperature has increased by 1°C, with the largest increase during January and February;
- the number of extremely hot days and nights has increased;
- rainfall has become more variable, showing a significant decrease in mean annual precipitation and in seasonal rainfall in the dry season (June-September) and in the rainy season (March-May);
- the number of '5-day maximum rainfall' events in March to May has increased.

Predictions foresee a stronger variability, but also an overall slight increase of the cumulative amount of rainfall in the Lake Victoria region. Temperature and extreme weather events such as droughts, heavy rains and flooding are predicted to increase further in both frequency and severity in the future. According to various studies including the feasibility studies for the presented Project, impacts are expected to include profound changes in water availability, temperature stresses to people, livestock and crops, changes in disease vectors and ranges, public health, farming practices, incomes and food security, ecological disruption, and many other related impacts. Tanzania's economic performance is highly sensitive to weather related shocks with food being the largest component of the Tanzanian consumer price index and a high dependency on hydropower (refer to section E.4.2). The Government of Tanzania (GoT) estimates the annual economic costs of addressing climate change impacts to be about 1% of the country's GDP. This figure could rise up to 2% by the year 2030 according to the Intended Nationally Determined Contributions of Tanzania (INDCs).

The negative impacts of climate change are perceived as a major obstacle for the country's efforts to achieve economic growth and to its poverty reduction targets to reach middle income developing country status in the future as defined in the country's Five Year Development Plan (FYDP II) and the Poverty Reduction Strategy (MKUKUTA II). Tanzania has therefore shown an active role in the international diplomatic processes related to climate change and is one of the countries that committed to Nationally Determined Contributions (NDCs) at the COP 21 in Paris in 2015. Furthermore, the country has developed its own National Climate Change Strategy (2012) and several sector climate strategies as outlined in section E 5.1. Tanzania currently gets support from the German Government through GIZ on the National Adaptation Planning (NAP) process.

The new Simiyu Region (see maps in Annex 2) in the north-west of Tanzania is one of the country's most prominent examples of how negative effects of climate change pose a burden for development. According to the results of the Population and Housing Census from 2012, the population of Simiyu Region was 1,584,000 of which 824,000 were female and 760,000 male. The population growth rate in the Region amounts to 1.8% per annum, meaning that by today there are around 1.7 million people. Whereas the growth rate is rather low compared to the national average of 2.7%, the household size with 6.9 persons per household is the largest in the country. This translates to a high migration rate and a low level of living conditions, especially in rural areas. The Simiyu Region's Gross Domestic Product (GDP) was estimated at USD 1.3 billion in 2010, which accounted for about 6% of the national GDP. Agriculture dominates the livelihood and economic performance of the region. The sector contributes about 75 percent to the regional economy and employs about 80 percent of the active population. Water supply is a major challenge in the Simiyu Region: only about 20% of the urban and 40 % of the rural population have access to clean drinking water. Industrial development comprises some scattered medium and small-scale industrial establishments like oil mills and ginneries, flour mills, tailors, carpenters, welders, garages, printing and rice processing industries. An international Nickel mining project in the village of Dutwa has been identified but is currently on hold. It is currently unknown if and when it will resume. Great distances to the economic centres of Arusha and Dar es Salaam and inadequate availability of road infrastructure to bridge these distances have hampered economic development and alleviation of poverty in the region.

The Government has taken action to overcome the deteriorating living conditions in the Simiyu Region. It extended the road network and improved the connectivity of the Region which will help to market agricultural products. For two years

<sup>1</sup> Source: [http://sdwebx.worldbank.org/climateportalb/home.cfm?page=country\\_profile&CCCode=TZA&ThisTab=ClimateBaseline](http://sdwebx.worldbank.org/climateportalb/home.cfm?page=country_profile&CCCode=TZA&ThisTab=ClimateBaseline)

now, Bariadi is reachable by a tarmac road from Mwanza that is partly built on a dam with increased drainage provisions, so that it is fully functional even during floods. Some attempts to improve water supply were made by the government, however, they were not successful since the new infrastructure was strongly affected by floods, increased land degradation and droughts as described in Section C.2. The electricity network in Bariadi is currently being upgraded and extended. For information on relevant initiatives of Development Partners in the Region and in Tanzania, please refer to section C.2.

To overcome the generally weak institutional capacities, the Simiyu Region was newly established in 2012 in the course of the countrywide decentralization process. With this, the Government of Tanzania sought to facilitate provision of urgently needed basic services in Simiyu. However, the newly established administration is not yet fully functional and overwhelmed by the challenges it faces. The lack of safe drinking water makes it difficult to find adequate staff. KfW has carried out a comprehensive assessment of the capacities of the regional administrative bodies, which is contained in Section C.7. In summary, despite weaknesses, capacities are sufficient to carry out the Project with consultancy support during implementation, and with extended capacity building to enhance sustainability during operation.

Looking at the recent climate trends and climate change predictions, the lack of reliable and secure water resources will pose a great threat to the population's health situation and will endanger food security in Simiyu: rainfall patterns have become more unpredictable and increasingly erratic. In addition, temperatures are rising and extreme events such as droughts and floods have become more frequent. Future climate projections predict a trend of rising mean annual and monthly temperatures of between 1 and 2°C for the Simiyu Region by the end of the century. Moreover Simiyu will experience more rainfall during the rainy seasons, a continuous shift in seasons and a higher occurrence of extreme events.

- According to researchers from Ukiriguru Research Station, in the districts of Meatu and Maswa the rainfall pattern is turning unimodal, obliterating the dry season of bimodal areas (January / February).
- According to data from local weather stations, Bariadi has experienced a rainfall increase of 45% over the years from 1900 to 2012 for the month of December, indicating the possibility of increased rainfall during the short rainy season (Oct-Dec)<sup>2</sup>.
- In a household survey conducted as part of the feasibility studies for the Project in the month of April, 2016, 70% of the interviewed communities confirmed to have noticed climate changes in their area and the majority identified droughts and heat waves as new climate trends that appeared during the last decade, followed by changes in rainfall patterns. Most people described changes in precipitation such as less rain and unpredictable amount of rainfalls. The interviewees reported that most rivers used to be permanent, but are now seasonal.

A shift in agro-ecological zones can already be observed. It is likely to further change the overall conditions for agricultural and livestock practices in Simiyu Region in the future. Because precipitation patterns are shifting and seasons become more variable, farmers cannot rely on the two (bimodal) rainy seasons anymore, which they used in the past to decide when to plant what type of crop. The predominantly poor population is highly dependent on subsistence farming which makes them especially vulnerable. Poor households normally do not have enough storage and adequate financial reserves to withstand climatic shocks. Pest and diseases, like Striga, fungi species and parasites, pose a serious problem and are expected to further increase with plants being under stress due to climate change. Currently, pesticides are only used in commercial farming of cotton and selected agricultural crops since farmers lack the financial means to buy them. Traditional plants like maize and cotton, both of which are very sensitive to climate changes, are not able to resist and adapt to future climate projections since they are not continuously modified through improved varieties. The same applies to the selection of tree species, where a decision to plant a particular tree species has to factor in the climate for at least the next 15 years. Despite the fact that statistics show a decreasing number of livestock over the past years, there is an increasing risk that livestock keepers and their pasture may migrate to neighbouring districts and restricted areas, such as Maswa Game Reserve and Serengeti National Park

<sup>2</sup> Source: Feasibility Study "Climate Smart Agriculture /Climate Change adaptation in Simiyu Region, Tanzania", GOPA, July 2016

in search of water, if soil and water resources will not be protected and managed in a more appropriate manner. Limited availability of pastures and water leads to conflicts over resources between farmers and pastoralists. Farmers often lack knowledge and training concerning climate change adaptation measures, they use outdated agricultural technologies and poor quality seeds. Agricultural extension services are weak, leading to a low adaptive capacity of the region.

Secure drinking water supply in Simiyu Region has to rely on surface water since the amount of available groundwater resources is not sufficient. Also, a high concentration of fluoride in the groundwater causes stained teeth and deformed bones of children, which inhibits its use for drinking purposes. Therefore, local surface water has been traditionally used as drinking water, but as a result of climate change, it now falls dry periodically. Private water suppliers charge high water tariffs of more than 8 EUR/m<sup>3</sup> in the dry season. Since rainfalls have become more and more intensive and concentrated to shorter periods of time, water drains off faster into Lake Victoria with negative erosion effects and reduced water availability. In addition, temperature increase leads to higher evapotranspiration. For example, the Simiyu River used to be permanent but now turned into a seasonal river despite the fact that it is originated in the highly protected Maswa game reserve and the Serengeti Ecosystem and benefits from very little upstream human interference. Especially women have to walk longer and longer distances to fetch water for domestic use. Waterborne diseases spread due to the use of unsafe water. These problems are expected to further increase in the future. Ecosystem services have to be improved and water sources for agricultural uses need to be increased through dams and measures to retain run-off water, while at the same time harnessing Lake Victoria as the only suitable solution to ensure safe drinking water supply in a more and more unreliable climate.

The sanitation supply infrastructure in Simiyu Region is very poor or even non-existent. Especially in rural areas, but also in urban centres traditional pit latrines are the main toilet facility. Once the pit is full, a new one is dug and the old one is covered. Heavy erratic rains and floods cause pits to overflow and to contaminate surface water. Currently, there is no stormwater management system and hardly any related structures exist in the Project region. This poses a major threat to people's health. With an increasing number of floods and heavy rains the number of cases of water-borne diseases, e.g. cholera, is expected to rise accordingly. The Simiyu Region is one of the most endangered regions for cholera outbreaks. Additionally pits are a breeding ground for flies and mosquitoes, which transmit diseases. There is no system of discharge, transport and treatment of sludge. The only existing sludge extraction truck is in Mwanza – about 130 km away.

## C.2. Project Objective against Baseline

The objective of the Project is to increase the climate resilience of rural and urban households, particularly small scale farmers and women living in the Simiyu Region and to improve policies and regulation for cross-sectoral action towards climate adaptation.

The Project contains a comprehensive approach that addresses the most prominent needs for climate change adaptation at the national planning level and in the Simiyu Region, which is supposed to serve as a role model:

### **Challenge 1: Vulnerable people, communities and regions suffer most from limited experiences in cross-sectoral planning and implementation of climate adaptation projects**

While strategies and objectives for climate adaptation already exist in Tanzania, their implementation still lags behind. Transfer of those strategies into concrete action is required urgently to improve climate resilience, but the country faces considerable institutional, financial and technical barriers. The reasons for this are

- (a) the cross- sectoral nature of adaptation needs in Tanzania;
- (b) the need for interventions that effectively target the most prominent adaptation needs of the vulnerable.

Adaptation needs in Tanzania often call for interventions that touch several sectors. In the Simiyu Region for example, the main drivers of climate vulnerability are unsecure supply of drinking water and sanitation services, and the fact that agricultural practices are not adapted to the changing climate. About 50% of the rural population in Simiyu is affected by both adaptation challenges at the same time. As a consequence, the livelihoods particularly of the most vulnerable people will only become climate resilient if interventions are implemented in both sectors. This particularly applies e.g. for low-income or female headed households. The Project embraces on the two major resilience drivers in Simiyu.

Tackling them in one approach prevents replication of efforts or even mutual impediment. On the contrary, it increases effectiveness. As an example in Simiyu, secured income from agriculture will help especially the poorest farmers to pay for their water bills even during dry spells. This, in turn, improves effectiveness and sustainability of the water supply system. Such gains will only materialize if the adaptation actions of the involved sector line ministries are well coordinated. The Project seeks to improve and establish adequate cross-sectoral planning and implementation mechanisms. They shall become day to day work routine, be targeted towards joint objectives and entail clear deliverables.

To ensure that the Project really addresses the most prominent adaptation challenges, it has to seriously take into account the needs of the most vulnerable and it has to empower them. Such approach requires holistic technical and organizational solutions that are fostered at the highest political level, but initiated, implemented and pursued by the most vulnerable communities themselves. The Project introduces a community driven, demand oriented approach. It offers communities a menu of measures in agriculture, water supply and sanitation. The competitive nature of this approach ensures that the communities choose those measures, that best fit to their adaptation needs (instead of just agreeing to “the one measure” that is proposed by the next project). Transparent selection criteria, that target at the maximum possible involvement of poor and vulnerable households and women, and that ask for sound operational concepts, increase effectiveness and sustainability. Since the programmatic and community driven approach requires intense extension services at local level, including travel to remote areas, awareness campaigns and also establishment of access modalities, combining all most relevant sectors in one Project bears efficiency gains.

With the Project, the high-profile example of the Simiyu Region serves as a role model for the establishment and refinement of the institutional setup for multi-sectoral, community driven climate adaptation action and facilitates upscaling and replication throughout the country. Experiences from the Project feed into improved rules and regulations and shall be replicated throughout Tanzania.

**Challenge 2: Increased vulnerability of health and well-being, and food and water security due to diminishing water availability, inappropriate agricultural practices and inadequate sanitation**

The climatic trends described in section C.1 have severe effects on the daily life of people in Simiyu, who are suffering from unsafe drinking water supply and are highly dependent on rain-fed agriculture, pasture for their cattle, and fuelwood for domestic energy. For the second year in a row, the region received food aid in 2016. Precipitation patterns are shifting and farmers cannot rely on the two rainy seasons anymore. Due to limited availability, water prices now go up to 8 EUR/m<sup>3</sup> during dry seasons. The predominantly poor population is highly dependent on subsistence farming which makes them especially vulnerable. The newly established Region lacks the adaptive capacities required to cope with the changing climate.

The Project responds to these challenges by enhancing the resilience of 495,000 people in one of the most vulnerable areas in Tanzania. Livelihoods will improve significantly by securing climate resilient water supply, improving sanitation services and introducing climate smart agricultural practices. This significantly improves the resilience to climate related shocks.

**Challenge 3: Increased exposure of Infrastructure and built environment to climate risks**

The water supply infrastructure in Bariadi was partly renewed in the year of 2003 but has already become non-functional. It was initially supposed to be fed through local dams but never entered into operation because dams dried out (just like many agricultural dams in the region) and the water treatment plant was flooded. While the existing water supply infrastructure in Simiyu is extremely prone to climate hazards, the infrastructure newly constructed under the Project is adapted to climate change. Using water from Lake Victoria is the only reliable solution to provide the Region with safe and reliable drinking water. The specific action is the construction of a drought- and flood resilient water supply system and the expected outcome is secured water supply in a changing climate.

**Challenge 4: Disruption of ecosystem and ecosystem services**

Ecosystem Services are core to regulating water resources and to ensuring the provisioning of water for household and agriculture purposes. Since rainfalls are becoming more and more intensive and concentrated to shorter periods of

time, water drains off faster into Lake Victoria with negative erosion effects and reduced availability of water for agriculture. In order to address the challenge of increasing water scarcity, unpredictable floods, erosion and diminishing soil fertility, eco-system services should be maintained.

Climate- smart agriculture helps to maintain the water storage capacity of the soil in a scenario of increased run-off and erosions though intensified rains and droughts by building contour lines and forestation. Planting of adapted species and push-pull technology strengthens the ecosystem's resilience to plant diseases, which are expected to increase with climate change. Introduction of species with a broader genetic variability increases the resilience of the ecosystem against climatic stress. Sanitation measures preserve surface and groundwater from pollution.

### **Initiatives of Development Partners that are relevant to the Project**

A study carried out in 2013 by ODI and the University of Dar Es Salaam identified 78 programmes across 15 ministries that are climate change relevant. However, only a small share of these projects (5-13%) has a specific climate change focus. Most projects carry a climate change component along, but have limited relevance to climate change. UNDP facilitated a stakeholder workshop on National Adaptation Planning (NAP) and Germany through GIZ supports the NAP process of the country through advisory services. In Simiyu Region, with financing from the World Bank, the Ministry of Water and Irrigation and the Lake Victoria Basin Commission implement the Lake Victoria Environmental Management Programme (LVEMP). The Simiyu River was identified as a focal area of the programme, and in the last decades, a number of measures have been implemented to protect the river banks like gazettement and enforcing a protection corridor on the river banks, introducing alternative sources of income like beekeeping and providing alternative sources of water for cattle. A number of lessons learnt have been drawn from the LVEMP programme, e.g. the importance to pursue a community driven approach and the need for dams and irrigation systems to take into account both agricultural uses and cattle. Experiences from various water supply projects financed by KfW and other development partners are being taken into account for the design of the Project, e.g. experiences in the establishment and sustainable operations of Community Owned Water Supply Organizations in the Hai Water Project, and on capacity development, sustainable operation and tariff setting in various regional urban centres in Tanzania, including e.g. Tanga, Mwanza and Iringa. To tackle increased and uncoordinated abstraction of raw water and pollution of Lake Victoria, a programme to address this issue on a transnational level, combined with strategic investments is currently under preparation by East African Community, Lake Victoria Basin Commission and Member States with financial support from Germany (KfW) and potentially the European Union. It includes investments in sanitation infrastructure for riparian towns and polluters, as well as enhanced monitoring systems for the water quality of the lake and strengthening of corresponding institutional structures.

## **C.3. Project Description**

The Project responds to the four challenges and areas of impact as described in Section C.2 through the following components:

1. Refining mechanisms for implementation of adaptation activities
2. Improving water supply infrastructure, agricultural practices and sanitation services
3. Pursuing a community driven approach
4. Capacity development

Implementation of the Project follows the national structures for planning and implementation. Using these structures, learning from them and feeding experiences into an improvement of this system is an important part of the Project and prerequisite for paradigm shift and sustainability. A Strategic Consultant and an Implementing Consultant deliver capacity development measures and support the government of Tanzania in implementing the Project as described in section C.7.2.

### **1. Refining mechanisms for implementation of adaptation activities**

The Project will be the role model to establish mechanisms for implementation of multi-sectoral programmes on climate adaptation in Tanzania. For this purpose, a high level **Steering Committee** for cross-sectoral implementation is tasked to review lessons learnt from the Project, monitor targeting of the most vulnerable and equal participation of women, propose legal and regulatory changes as needed and initiate the replication of similar cross-sectoral adaptation

projects. The Steering Committee comprises of high level representatives (Permanent Secretaries or Directors) of the different Ministries that take part in Project implementation, the regulator “Energy and Water Utilities Regulatory Authority” (EWURA) as well as the Regional Secretary. The District Administrative Secretaries, Directors of the urban water utilities, a representative of the local user groups, civil society representatives and KfW are observers of the Steering Committee. More information on the institutions involved in Project implementation is described in sections C.4 (ministerial level) and C.7 (regional level).

The Steering Committee is expected to propose and initiate new sets of rules and regulations for climate adaptation, which will be identified in the course of implementation on the basis of experiences made in the Project. New rules and regulations shall focus on facilitating cross-sectoral and multi-level implementation, on improving sustainability and on ensuring equal participation of women. The implementation arrangements of the Project as described in section C7.2 shall be further refined in the course of the Project and shall serve as a blueprint for other adaptation projects. A Steering Committee like this has proven to be a powerful forum in the Tanzanian context to escalate cross sectoral challenges during implementation of the Water Sector Development Programme, e.g. to improve the flow of funds or to better monitor achievements on rural water supply through local administrative structures. It is therefore regarded as an important prerequisite for facilitating paradigm shift towards cross-sectoral implementation of climate change adaptation measures. With the new structures and procedures, it is expected that Tanzania will be able to accelerate the implementation of complex, multi-stakeholder climate change adaptation projects.

Furthermore, the Project creates an ICT platform on climate change to increase generation and use of climate information in decision making. The online based system facilitates information and interaction between experts, researchers, training institutions and extension officers. It is an important basis for future climate adaptation policy making.

## **2. Improving climate resilience of water supply infrastructure, agricultural practices and sanitation services**

A set of measures will be implemented in the Simiyu Region to improve climate resilience of those with the most pressing adaptation needs. As described below, a community driven and demand-based approach is pursued, where communities can decide on measures on the basis of climate adaptation planning. While some beneficiaries may take part in only one area of action, others may benefit from several Project components (please refer to Section E.1).

### **2.1 Water supply:**

The Project reliably supplies urban and rural households (about 395,000 people) of the three districts Busega, Bariadi and Itilima in the Simiyu Region with clean and safe drinking water. Water supply from Lake Victoria is the only sustainable and climate adapted solution as described in section C.1. A water intake and treatment plant is installed at Nyashimo town, located in the vicinity of Lake Victoria. The treated water is then pumped over 15 km through a DN 500 pipeline to a command reservoir. From that reservoir water flows by gravity to the urban centres of Bariadi and Lagangabillili. The pipeline is constructed in a manner that allows a further expansion to southern Districts that are also affected by climate change at a later stage. The infrastructure is designed to withstand the extreme weather events and climate conditions that are expected to increase in Simiyu, like floods, heavy winds and increased heat.

In the three towns, distribution networks are rehabilitated and expanded. Villages within a 24 km corridor of the main pipeline are supplied with water via secondary reservoirs, secondary pipe systems and public taps. More than 1,000 rural and peri-urban settlements within a corridor of roughly 24 km along the water pipeline have been identified. Important aspects for this pre-selection have been the per-capita cost for rural water distribution and the available budget. Settlements that are extremely scattered or distant from the pipeline routing are not part of the Project, since per-capita and unit costs would be too high. Each secondary reservoir along the pipeline is equipped with a tanker filling station. The bulk water supplier operates water tankers that temporarily and selectively supply the most affected, areas scattered far from the transmission main during dry spells. Among the pre-selected communities, the demand-based, community driven approach is pursued, as further described below. This ensures that the needs of women and the most vulnerable in accessing water points are considered in the selection and design, e.g. in terms of number, types, location and child safety.

As a general principle, the Project concentrates on the provision of public taps in low-income areas, to ensure cost-

efficiency and targeting of the poor and vulnerable. However, as an exception, in the initial phase, the Project partly subsidises 4,000 house connections in Bariadi to accelerate achievement of the critical minimum demand for the water supply system. The off-taker tariff of SIMWASA and the retailer tariff of the urban utilities are approved by the national regulator EWURA. They are based on the financial model showing coverage of operating costs from the third year of operation onwards for the four utilities. They are also in line with the ability and willingness to pay of the population according to the household survey (please refer to section F.1). Block tariffs ensure that the poor and most vulnerable benefit from reduced water tariffs that are in line with their financial capacities.

### 2.2 Public sanitation and hygiene:

The Project improves sanitation supply for at least 300,000 people in the three districts of Simiyu Region and thereby prevents the outbreak of water-borne diseases and improves peoples' health situation. It includes the whole cycle of wastewater, from improved latrines to faecal sludge transport through vacuum trucks and sludge treatment plants, where the sludge is treated through anaerobic ponds and constructed wetlands and finally used as fertilizer for agricultural purposes. Procedures and tariffs for sludge management are defined in a MoU between the Local Government Authorities (LGAs) and the Water and Sanitation Authorities (WSAs) before start of construction.

Public sanitation facilities are established at schools, market places and bus stands. Locations for public toilets are selected by communities following climate adaptation planning in the demand based approach. Women are involved in the whole process, including planning and the decisions on the design of the public sanitation facilities e.g. the prioritization of locations that consider women's need for privacy, safety, security and dignity.

Hygiene awareness campaigns and the installation of demonstration facilities such as Urine Diversion De-Hydrating Toilets and Double-Ventilated Improved Pit Latrines (UDDTs and DVIPs) are also part of the Project. Schools establish "sanitation clubs" to raise awareness of hygiene behaviour. The improvement of individual household latrines is promoted through the distribution of subsidized construction material (concrete slabs and ventilation pipes).

### 2.3 Climate- smart agricultural practices:

These activities target an improvement of the economic situation of about 200,000 people living in Simiyu Region by supporting several climate- smart agricultural practices in a programmatic approach that contains:

- construction/rehabilitation/finalization of small dams for rain water harvesting and water storage,
- small-scale irrigation systems (e.g. drip irrigation). Through community based planning, it is ensured that irrigation technologies match the preferences of users. This includes adaptations to ensure inclusion of women, like sprinklers, putting steps in irrigation structures and aligning irrigation schedules with time available for access for livestock or household needs, or avoiding night irrigation schedules because of women's increased risk of harassment after dark.
- support to the provision of climate resilient seeds for horticulture, maize and rice,
- expansion of forests and areas under Ngitili management. Ngitili is a traditional form of community-owned or private land management aimed at having sufficient fodder until the end of the dry season, and at producing fuelwood. The Project promotes the extension of the area under Ngitili and the improvement of existing Ngitili. It introduces a mix of tree and grass species better adapted to changing environmental conditions and with a broader genetic variance to sustainably retain an increased adaptive capacity of the system.

The Project introduces adapted farming technologies which improve the farmers' climate resilience and increase participating farm households' incomes. Additionally, food security is improved. The entire population in Simiyu active in agriculture is the target group. As an open program it is demand driven and participatory. Selection criteria make sure that vulnerable and poor people as well as women participate in decision making and implementation. For example, a minimum percentage of women headed households among the Project's participants is defined. Annex 3 shows a list of possible interventions that can be financed by the Project.

## 3. **Community driven approach**

The Project follows a community driven approach for all adaptation activities at local level (e.g. rural water supply, Ngitili, public toilets), as proposed by the National Climate Change Strategy. By supporting all prominent adaptation

needs of the Simiyu Region in the programmatic approach and by letting communities decide on specific actions to pursue, it is secured that the Project addresses the most pressing adaptation needs. Since the demand-based approach requires intense capacity development and presence at local level, the fact that the Project covers several sectors bears efficiency gains. These cost savings are expected to be replicated in similar adaptation projects throughout Tanzania

An Operational Manual will be set up for the community driven approach, including a user guide for communities. As a starting point, community liaison officers and extension workers of the Local Government Authorities (LGAs) discuss climate change with the communities and facilitate development of community adaptation plans. Contests and awards are carried out to further mobilise the communities and develop ideas. The community adaptation plans include proposals for activities to be supported by the Project. These proposals are consolidated and approved by the Regional Secretariat and sent to KfW for no-objection. Annex 4 contains an overview flow chart of the demand driven approach. It is expected that about 29 Community Based Water and Sanitation Organisations, and several further community based user associations will be established as part of the Project. To ensure their ownership, as a prerequisite for the commencement of works for all activities on local level, they must deliver proof of a holistic concept for operation and maintenance and show the gazette note of establishment of their user association.

Defined upfront community contributions are mandatory and a strict pre-condition. To ensure that poor and vulnerable can participate in the Project, they can be delivered in-kind, e.g. by digging of trenches, provision of construction material or labour for construction. The list in Annex 3 shows specifications and restrictions related to operation of agricultural investments. User fees that cover operational cost shall be applied whenever possible. Some installations like school toilets do not generate income at all and inclusion of sufficient funding for maintenance needs to be secured in the LGA's budgets. Others like toilets at public bus stands involve private service providers and shall be designed in a manner to cover operational costs.

As is typical for demand driven approaches, highest quality of project preparation and consequent planning for proper operation already from the beginning on is decisive for sustainability. The LGAs sensitize communities and provide comprehensive support in community driven selection and structuring of proposals. The Implementing Consultant supports this process.

#### **4. Capacity Development**

Comprehensive capacity development measures are an essential part of the Project. The Regional Secretariat and the Local Government Authorities (LGAs) of the Districts are supported and trained in all their functions to efficiently support the community based approaches in planning, implementation and operation. This includes training in preparing the framework for community-driven planning for climate adaptation measures, promoting the establishment of Community Owned User Associations, procurement, contract management, supervision and approval of construction works as well as supporting Community Owned User Associations in sustainable operation and maintenance of their schemes.

The water utilities are trained and supported in establishing a proper system for sustainable operation and management of the water supply systems. They receive support in financial, commercial, technical and administrative aspects. Training measures are aimed at improved financial viability of the utilities through optimisation of operational costs, improvement of revenues through effective collection systems, tariff setting and conducive household connection policies. Special focus is given to the supply of vulnerable areas with public taps and sanitation infrastructure. MoWI is supported and trained in overall coordination and in taking required management action to ensure high quality of all aspects of the Project, including methods for upscaling and replicating lessons learnt as well as advice on needed changes to the institutional and regulatory framework for climate adaptation. To support capacity development, long- and short-term experts are deployed on specific topics.

Communities are encouraged to establish Farmer Field Schools with support through the Project. The basic principles of Farmer Field Schools are: a) learning by doing, based on seasonal work; b) the field is the classroom; c) the aim is the acquisition of skills and knowhow, not of information; d) experimental, reflective learning; e) the principle of discovery. Farmers' groups (including women and youth groups) are guided in the selection of appropriate measures to

implement on their farms. The focus is on integrated approaches that increase yields through soil protection practices, plant and seed variety selection, fertilization, weed control, integrated plant protection and climate-adapted harvesting techniques. The plots of the Farmer Field Schools allow a comparison of production of the treated soils with traditionally cultivated soils. Evaluations of the approach show that especially female-headed smallholder households benefit above average from participation. At the same time, Farmer Field Schools which have been initiated and influenced by women tend to work sustainably and longer. Farmer Field Schools are designed specifically for women with several measures as described in sections E.3 and F.3.

#### C.4. Background Information on Project Sponsor (Executing Entity)

##### **The Office of the Vice President (VPO)**

The Office of the Vice President (VPO) is the Designated National Authority for the Green Climate Fund.

##### **Ministry of Finance and Planning (MoFP)**

KfW signs the Financing Agreement for the funded activity with the United Republic of Tanzania (recipient), represented by the Ministry of Finance and Planning (MoFP). MoFP is the executing entity for the Project. It ensures that the agreed financial counterpart contributions are made available to the Project through the different line ministries.

##### **Ministry of Water and Irrigation (MoWI)**

The implementing entity for the Project is the Ministry of Water and Irrigation (MoWI) on behalf of the United Republic of Tanzania. MoWI leads all required interactions and interlinkages with different Tanzanian partners related to the Project, including coordinating the process of replication and paradigm shift, and chairing the Steering Committee. It tenders and assigns contractors and consultants and is responsible for ensuring the due execution of works and services.

MoWI's vision is to ensure sustainable management and development of water resources for the social and economic development of the country. Since 2007, it has continuously strengthened its planning and implementation capacity through implementing the Water Sector Development Programme, one of the largest sector wide transformation reform programmes in Sub-Saharan Africa. Staff numbers have been increased to 2.300 people (FY 15/16) and a comprehensive capacity development plan has been implemented. The approved budget for the FY 2014/2015 compiled by MoWI was about 200 m EUR including the administrative budget and the development activities. MoWI initiated the Climate Change Dialogue Forum in 2012 to provide a platform for stakeholders to exchange experiences and best practices. Since then the ministry has successfully initiated 11 forums with great participation of stakeholders from various backgrounds, including different Ministries, local government institutions, NGOs, universities, the private sector and development partners. Accordingly, MoWI already plays a coordinating role concerning climate change-related activities and dialogue in multi-sectoral settings.

MoWI is experienced in the implementation of large scale projects, thus well prepared to guide the Project in a holistic manner. The Water Sector Investment Programme Phase I implemented by MoWI between the years of 2009 and 2016 contained Projects worth more than 1.5 Mio. USD in total. For example, it implemented the water supply project from Lake Victoria to the towns of Kahama and Shinyanga (KASHWASA) and 54 villages along the pipeline. The total project cost was about 150 million Euro, it was commissioned in 2009. The project production capacity is 80,000 m<sup>3</sup>/day. Lessons learned from WSDP including the KASHWASA project have been integrated in the Project e.g. with regards to the design of the intake, the choice of a staged approach and the central role of decision making and capacity building at local level.

KfW and MoWI have an excellent and close working relationship due to the long-term engagement of German Development Cooperation in the Tanzanian water sector. The employees of the responsible Urban Water Supply and Sanitation Division show a great commitment to the Project and are highly motivated. Despite these strengths, it has to be considered that staffing levels are still low and there is room for improvement in terms of training efforts and empowerment especially of young professionals. This shall be addressed by delivering capacity building on specific topics and on overall management as well as support through the Strategic Support Consultant.

### **Ministry of Agriculture, Livestock and Fisheries (MALF)**

The Ministry of Agriculture, Livestock and Fisheries (MALF) gives strategic direction to the Project through the Steering Committee. It seconded staff for the implementation of the Project to the Regional Secretariat and to the LGAs. Its seconded officers will approve the due execution of works and services including capacity building with regards to climate resilient agriculture.

MALF has the responsibility to provide a conducive environment for the various stakeholders in Tanzania's agricultural sector. This includes building capacities of LGAs in delivering agricultural services, training and technology, as well as facilitating the role of the private sector in agricultural production. MALF is a strong stakeholder of the Tanzanian climate adaptation agenda. The corresponding strategies and action plans are contained in the Agriculture Climate Resilience Plan, 2014-2019 and the Tanzania Climate Smart Agriculture Programme (TCSAP), 2015-2025.

### **President's Office, Regional Administration and Local Government (PO-RALG)**

PO-RALG supervises the Regional Secretariat of the Simiyu Region. It is responsible for transferring funds to the Regional Secretariat, to the LGAs and to the District Town Urban Water and Sanitation Authorities in Lagangabilli and Nyashimo. Additionally, it is responsible for payment of salaries and operational costs. This includes funds for activities of line ministries that are implemented through the Regional Secretariat and LGAs in the fields of education, health, water supply, rural roads, agriculture and livestock.

### **Ministry of Health, Community Development, Gender, Elderly and Children (MHCDGEC)**

MHCDGEC's preventive health section is responsible for hygiene and sanitation, and the Ministry is also responsible for developing and overseeing the implementation of policies and programmes for community development. Non-Governmental Organisations (NGOs) are registered, coordinated and monitored by MHCDGEC. It supports women empowerment initiatives and collects, processes and stores gender related data and statistics. A representative from MHCDGEC will participate in the Project's Steering Committee.

For further information on the implementing entities on the local level and the Steering Committee, please refer to Section C.7.

## **C.5. Market Overview (if applicable)**

Household surveys have been carried out as part of the feasibility studies of the Project, to attain reliable information on markets, prices and demand. According to these surveys, people see the lack of safe and year round water supply as one of the biggest challenges and therefore as a priority they are willing to pay for. Average water tariffs required to cover operational costs are in the order of 50-80 ct/m<sup>3</sup>, which is in the range of average price for drinking water in Tanzania, though at the higher end. Tariffs will be approved by the national Energy and Water Utilities Regulatory Authority (EWURA). EWURA has gradually increased water tariffs throughout the country over the last years and is planning to continue doing so in line with its policy to ensure that tariffs cover operation and maintenance costs. To date, many water utilities in the country still do not cover their operational costs. According to the survey in Simiyu, people are willing to pay higher tariffs if water is provided reliably and at good quality. During dry seasons, the price of water tends to escalate to up to 8 EUR per m<sup>3</sup>, for water supplied from private providers at poor quality and reliability. People see this as a major and unfair burden for the large proportion of poor in the region. Prices for this informal water supply are expected to rise even more as intensity and duration of droughts increase. The Project promotes block tariffs, so that poor and vulnerable households benefit from lower prices. Since the major part of the population in Simiyu is poor and water is a basic need and human right, the revenue collection from tariffs covers only operational and maintenance costs, but not the investment costs. This underlines the need for grant financing as further described in section E.4.2.

To date, there is no considerable market for sanitation activities in Simiyu. Like elsewhere in Tanzania, the population is not used to appropriate hygiene behaviour and knowledge about the importance of sanitation and waste management for health is still low. The Project includes components to raise awareness on the importance of hygiene, especially during floods. This serves to increase the demand for sanitation services. The use of treated sludge, and in rural areas where appropriate also the use of separated urine, also forms a part of the awareness campaigns.

Rain-fed agriculture is the main economic activity in the region, generally with paddy as food crop and cotton as cash

crop. There is a strong competition amongst producers of food and cash crops and good quality rice fetches higher prices. Pricing structures are generally based on market principles but are guided by the government. The government provides subsidies in farm inputs, particularly fertilizers, in the case of the Simiyu Region. Changes in precipitation patterns increase the risk of crop-failures and an overall decline in productivity in the region in the long term. This will be catastrophic for the majority of people who depend on subsistence farming. Simiyu has been receiving food aid for two years in a row.

### C.6. Regulation, Taxation and Insurance (if applicable)

The Project is implemented in line with the policies and regulations of the United Republic of Tanzania and in line with KfW's financial, procurement and environmental and social safeguards. A number of licenses need to be obtained for implementing and operating the Project, among them

- National Environment Management Council (NEMC) approval of Environmental and Social Impact Assessment, Environmental and Social Management Plan, Resettlement Action Plan: prior to commencement of construction;
- Evidence on consent from riparian states of Lake Victoria and from the Lake Victoria Basin Commission on extraction of water from Lake Victoria for domestic supply of the Simiyu Region in line with the Protocol for the Sustainable Development of Lake Victoria Basin signed on November 29<sup>th</sup> by the United Republic of Tanzania, the Republic of Kenya and the Republic of Uganda: before beginning of construction;
- Gazette of Managing Board of Simiyu Bulk Water Supply Authority (SIMWASA) and of the UWSAs in Nyashimo and Lagangabilili: before commissioning of the water supply system;
- Gazette on establishment of Community Owned User Organisations (COWSOs): before start of groundworks;
- EWURA approval of business plans and water tariffs for Bariadi Urban Water and Sanitation Authority (BARUWASA), Nyashimo and Lagangabilili utilities and SIMWASA: at the time of commissioning;
- Offtaker agreement between the three urban utilities and SIMWASA: at the time of commissioning;

An Implementing Consultant will be tasked to support MoWI in ensuring that all relevant licenses and permits are obtained for the Project in due time. The general conditions of the works contracts ensure that the contractors provide the required guarantees and insurances. No additional insurance arrangement or policy is related to this Project.

No public charges and taxes shall be financed from the GCF contribution. According to a MoU between the United Republic of Tanzania and Development Partners, the government exempts all expenditures for goods, works and services financed under the Water Sector Development Programme (of which the Simiyu Climate Resilience Project is part) from all taxes imposed directly by the Government of Tanzania. In 2014, the government launched a new VAT act that caused delays of some development projects by changing the exemption procedure into a reimbursement procedure. KfW's engagement in the Water Sector Development Programme has not been affected so far. The government is currently reviewing the VAT act and committed to accommodate these administrative problems.

### C.7. Institutional / Implementation Arrangements

KfW will take over responsibility for the overall Project as Accredited Entity as defined in the Accredited Master Agreement between GCF and KfW. It will open a separate trust account for the funds from GCF and will administer the funds on behalf of GCF. For an overview of how GCF proceeds will flow from GCF to the Funded Activity and the contractual and legal arrangements that facilitate the flow of funds, please refer to the diagrams provided in Annexes 5 and 6. Further details on financial management and procurement are provided in section F.4.

#### C.7.1. Institutions involved at regional and local level

KfW has carried out a comprehensive assessment of the institutions that are involved in Project implementation and operation. As a result, local government and community based organisations are expected to be capable of implementing their tasks under the Project if supported by an international consultancy firm. For information on the roles and responsibilities of the relevant Ministries, please refer to section C.4. This section C.7.1. describes the assessment of institutions involved on the local level: the regional administrative bodies, Water and Sanitation Utilities and

community owned user associations. A more detailed description of institutions involved is provided in Annex 7.

### **Local Administration**

The **Local Government Authorities (LGAs)** are responsible for local service delivery in education, health, water supply, rural roads, agriculture and livestock. They are authorized to levy charges, fees and local taxes. However, grants from the central Government constitute the bulk of their financial resources. LGAs advise communities on the creation of Community Development Plans. Based on the Community Development Plans, the LGAs prepare District Development plans and create annual work, procurement, and financing plans which are then submitted to the Regional Secretariat. Communities are organised in so-called **Wards**, which consist of a whole small village, or parts of larger villages or towns. In towns, the area of the Wards usually follows the roads. LGA officers are responsible for ensuring that the planning on ward level is done as close to the target group as possible, in a participatory manner. They are also important key staff to ensure that the needs and interests of women and marginalised groups are taken into account, e.g. by encouraging equal representation of women in the Ward Development Committees as described in section C.7.1. LGAs also advise Community Owned User Associations on the development of a sound concept for operation and maintenance of their schemes. They also oversee the Water and Sanitation Authorities (WSAs) of the District towns.

The **Regional Secretariat** of the Simiyu Region oversees and supervises the operations of LGAs and advises them. It receives the annual work, procurement and financing plans from LGAs and feeds them in the national planning and budgeting process. The Regional Secretariat also accounts for the expenditures of LGAs, and it reports to PO-RALG and sector Ministries. The Regional Secretariat of the Simiyu Region is located in Bariadi town. It was set up in the year 2012, following the establishment of the new Region.

In summary, all local administration structures in Simiyu have only recently been set up, or have been upgraded from District to Regional level following the establishment of the new Region in 2012. Today, the existing bodies overall execute their functions. However, it has to be considered that they are still developing, and that skills are still low. Experiences in overseeing larger projects are very little. Finding adequate staff is a significant challenge also due to poor basic services, like lack of clean and reliable drinking water. While the capacity of the Regional Secretariat is considered to be satisfactory in the Tanzanian context, the capacities of the LGAs are still relatively low. About 50% of the staff posts are vacant and there is a lack of basic prerequisites for successful extension work like transport, printed materials, or inputs for demonstration plots. Strengthening LGAs will be critical to improve the currently limited adaptive capacities and to build community resilience in a sustainable and gender-sensitive manner. The Project takes this into consideration by giving high attention to capacity building and training of LGAs and the Regional Secretariat through the Implementing Consultant.

### **Water and Sanitation Authorities (WSA)**

**WSAs** are independent Authorities under Tanzanian law that operate to their own accounts, generate revenues, can take commercial loans, sue and be sued. The WSAs own, run, operate and maintain water distribution infrastructure, sludge digesters and sludge exhauster trucks. They are responsible for supplying clean drinking water to all people in Regional and District towns, as well as for sludge transport and treatment. They may involve private or other public service providers for sludge transport. Currently, all WSAs in Tanzania receive subsidies from the central government at least for larger infrastructure investments. They are regulated by the Electricity and Water Utilities Regulatory Authority (EWURA). EWURA approves the tariffs of the WSAs.

**Bariadi Urban Water and Sanitation Authority (BARUWASA)** was originally a district utility under PO-RALG and became a regional WSA under MoWI with effect from January 1<sup>st</sup>, 2013. Revenues of BARUWASA are low, mainly due to missing water supply infrastructure. According to EWURA standards, BARUWASA is a category "C" WSA. This means that it serves less than 65% of the population in Bariadi, and that electricity and salary bills are subsidised by MoWI. BARUWASA has recently been staffed with a new and qualified Managing Director, but the utility is confronted with several interrelated factors inhibiting its capacity to perform better. This includes a low coverage rate, poor quality of water, low revenues and difficulties to fill open posts with capable staff due to the inadequate working environment. There are no WSAs in the **District capitals of Nyashimo and Lagangabilili**. MoWI will set up autonomous WSAs for

these two District towns in line with the Tanzanian rules and regulations. BARUWASA intends to deliver services to the two district utilities in the fields of legal advice, personal management as well as finance and accounting.

The **Simiyu Bulk Water Supply Authority (SIMWASA)** will be established as provided for under the Water Supply and Sanitation Act 2009. It owns, operates and maintains the water treatment plant, pumping stations, transmission mains, the command reservoir and secondary reservoirs along the pipeline. It is responsible for extracting water from Lake Victoria, treating it, supplying it at good quality to the urban utilities and the COWSOs, and collecting revenues accordingly. SIMWASA enters into off-taker agreements with the three urban utilities and with COWSOs.

All WSAs will receive comprehensive training and capacity building measures through the Project. Capacity building, the provision of adequate infrastructure and sound water tariffs are expected to put them in a position to adequately operate the water supply system. Experiences in Tanzania show that utilities efficiently operate their business once these prerequisites have been put in place (like Tanga, Iringa or Mbeya WSAs with support through KfW).

### **Community Owned User Associations**

These are organisations established by communities, like farmer associations, irrigator's organisations or water user associations. They are established following agreed actions defined as part of the Community Development Plans. There are different options for the legal structure of community owned user associations under Tanzanian law. They can be registered trusts, a water consumer association, a cooperative society, a non-governmental organization, or any other body or organization established under written law of Tanzania. In all of these possible legal structures, the communities are the legal owners of the organisation and its assets. Wherever required, e.g. for drinking water supply schemes or Irrigator's Organizations, the community selects a local operator that is responsible for revenue collection, operation and maintenance of the scheme. The operator is assigned with a performance agreement elaborating on tariff setting, revenue collection and payment procedures. It collects user fees and submits them to the bank account maintained by the board. Selected board members oversee all these activities. Community Owned Water Supply Organisations (COWSOs) that will connect to the bulk water supplier will be encouraged to establish themselves in a clustered form, covering 3-5 villages. This has shown to ease operation and maintenance and to enhance sustainability of such schemes. However, this only proved to be successful if fully supported by the communities. As per September 2016 data, there are 1,086 COWSOs in the country. The Ministry of Water and Irrigation is currently preparing guidelines for performance criteria and tariff setting of the COWSO. Various programmes on capacity development and performance improvement of the COWSO are underway supported by the Department for International Development (DfID) of the United Kingdom. The KASHWASA project connects 61 COWSOs that supply water from a bulk water system to villages in the Kahama Shinyanga Region. The general performance of these COWSOs is satisfactory and they are able to pay their current bills. Most of the COWSOs in KASHWASA supply more than one village with the biggest Mwamashimba COWSO supplying water to 14 villages.

Today, there are only a few COWSOs in the Simiyu Region. While some of them are doing well, others lack a proper legal and institutional setup and/or an agreed operational concept. No efforts have been taken so far to establish community based structures at a larger scale in the region. Experiences from other regions in Tanzania like the Hai Water Supply Project show that community based user associations function well if set up appropriately.

### **C.7.2. Implementation Arrangements**

#### **Steering Committee and paradigm shift**

The Steering Committee as described in section C.2 reviews annual reports as well as audits of the Project and provides feedback on them, particularly on aspects like targeting of the most vulnerable, gender balance, and sustainability. It is responsible to ensure that experiences from the Project are used to improve the institutional, regulatory and legal framework for climate adaptation. It is tasked to initiate the establishment of new sets of laws and regulations. Another important task of the Steering Committee is to solve challenges that materialize at the interlinkages between the different line ministries or between the different levels (local, regional, national actors) and to clarify roles and responsibilities of stakeholders as required.

#### **Urban water supply, sludge management and bulk water supply systems**

MoWI is fully responsible for procurement, contract management and construction supervision of the urban water supply, sludge management and bulk water supply systems during the initial Project phases. While capacities of the

WSAs are enhanced during implementation, MoWI will gradually delegate parts of its tasks, like the supervision of works, to the respective WSAs by signing delegation agreements. This proved to be a practical and doable approach in Tanzania.

### **Community Based Approach**

The Regional Secretariat reviews the adherence of measures proposed by communities to the agreed criteria of the Project. It checks the validity of the proposed concept and its suitability to address climate change e.g. by assessing criteria like the distance to an existing reliable source of water (well, river). It also ensures that the communities' proposals take into account the needs of and is accessible to the vulnerable people, e.g. through fair tariffs and their explicit inclusion in training and labour contribution. An important criterion for selection of activities is the concept for operation and maintenance prepared by the community. It must contain cost covering end-user tariffs wherever possible (e.g. for all water supply projects) and show how revenue is collected and stored in an account accessible for the purpose of operation, maintenance and small repair of the scheme as required. Also, a clear concept on how women's needs have been taken into account (refer to section E.3.1) has to be provided. Half of the board members of the Community Based User Associations must be women.

After review, the Regional Secretariat sends the proposed measures to KfW for no-objection. Following approval, the LGA procures goods and services in the field of agriculture in line with the procurement plan and supervises construction works together with the Community Based User Association and the Implementing Consultant. Water supply and sanitation are part of the large water supply works contracts, to enhance efficiency (please refer to section F.4), but communities still have the same important roles in establishing local user associations, planning, detailed design, construction supervision as well as operation and maintenance.

To support all these critical processes of local planning and implementation, the Regional Secretariat hosts a Project Management Unit (PMU). The PMU is staffed by the Regional Secretariat. It is comprised of a general manager, a procurement specialist, a financial manager and an accountant financed by PO-RALG as well as technical liaison officers, extension officers and social welfare officers seconded from and financed by MoWI, MALF and MCDGC, respectively. The PMU is responsible for ensuring

A) adherence of community driven activities to fiduciary safeguards:

- compile and endorse annual work plans, procurement plans and budgets prepared by the LGAs,
- monitor and report to MoWI and KfW on implementation of community driven activities on the basis of information provided by LGAs,
- be the holder of the Project's disposition fund for climate smart agriculture and rural sanitation, assign audits and send requests for disbursements to KfW for funding under the disposition fund.

B) a conducive framework for community-driven planning:

- coordinate capacity-building measures for LGAs including deploying short term experts on specific topics especially on community mobilisation and sensitization.
- ensure equal participation of women and men, and targeting of the most vulnerable
- facilitate upscaling and replication of lessons learnt on regional and local level e.g. by implementing the contest-award system.

The PMU is supported by an international consultancy firm (Implementing Consultant).

### **Roles of the consultants**

A Strategic Consultant supports MoWI and the Steering Committee in overall coordination and in taking required management action to ensure high quality of all aspects of the Project. This includes reviewing deliverables of the Implementing Consultant e.g. detailed design, procurement and supervision of works contract, and commenting on adherence to KfW and national standards, and international best practices. The Strategic Consultant also advises the Steering Committee on options to strengthen institutional and regulatory systems for climate-responsive planning and

implementation. It trains and strengthens MoWI staff in their coordinating role.

An Implementing Consultant supports day to day operations during Project implementation. It reviews the detailed design, prepares the tender documents, supports the tendering and supervises construction works for urban water supply, sludge management and bulk water supply. It countersigns all documentation submitted to KfW for no-objection on financial, procurement and contract management, proposals for support under the community based approach and withdrawal applications. It also prepares progress reports for MoWI, the Regional Secretariat, KfW and the Steering Committee. The Implementing Consultant also carries out capacity-building measures to strengthen WSAs and the LGAs. It also assists in the formation of community based user associations including their constitution, regulation, performance agreements and tariff setting.

Detailed ToR describing the tasks of the consultants in line with KfW's internal control systems are developed by MoWI with the support of a Tender Agent that is financed by the Government of Germany. The ToR are commented and need to be approved by KfW.

### C.8. Timetable of Project Implementation

The overall implementation period is five years. Construction activities start in the middle of the second year after selection of the consultants and the contractors. For the water supply and sanitation component, the construction period of two years is followed by an 18 months operation period which allows a close monitoring of performance and – if required – an adaptation of operational structures. For the agriculture component measures are implemented according to the annual investment plans over the first four years. Monitoring of operation will be done continuously and with a special focus in the second half of the last year. For further information on monitoring and reporting, please refer to section H.2.

Task	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	
<b>Improved procedures for implementation of adaptation activities</b>																					
<i>Establishing and improving mechanisms towards cross-sectoral planning and implementation</i>	establish Steering Committee	Tender Strategic Consultant	Steering Committee	Steering Committee	review lessons learnt	Steering Committee	propose structures, procedures, regulations	Steering Committee	review lessons learnt	Steering Committee	propose structures, procedures, regulations	Steering Committee	replicate	Steering Committee	review lessons learnt	Steering Committee	propose structures, procedures, regulations	Steering Committee	final review & replicate	Steering Committee	
<i>Capacity building to Regional Secretariat, Water utilities, COWSOs and LGAs</i>	Tender Implementing Consultant	CD SUPPORT TO RS, UWSSAs, COWSOs, LGAs																			
<b>Resilient water supply services</b>																					
<i>Bulk water supply system (intake, treatment, transmission)</i>	Tender Implementing Consultant	Review Detailed Design +PQ for Construction	Final RAP & Compensation	Tender Construction	CONSTRUCTION										OPERATION						
<i>Rural water distribution</i>					CONSTRUCTION / OPERATION BY USERS										OPERATION						
<i>Urban water distribution</i>					OPERATION																
<b>Preventive public sanitation and hygiene measures</b>																					
<i>Public toilets</i>	Tender Implementing Consultant	Detailed Design +PQ, RAP and compensation where applicable		Tender Construction	CONSTRUCTION									OPERATION							
<i>Faecal sludge treatment</i>																					
<i>Awareness campaign</i>		AWARENESS CAMPAIGN															Monitoring				
<i>Improved household latrines</i>		CONSTRUCTION / OPERATION BY USERS										OPERATION									
<b>Improved climate smart agriculture practices</b>																					
<i>Dam construction / rehabilitation</i>	Tender Implementing Consultant	Develop Operational Manuals, Selection of measures, Design, ESIA and Tender			CONSTRUCTION / SUPPLY	OPERATION	Selection design, ESIA & Tender	CONSTRUCTION / SUPPLY	OPERATION	Selection design, ESIA & Tender	CONSTRUCTION / SUPPLY	OPERATION	Selection design, ESIA & Tender	CONSTRUCTION / SUPPLY	OPERATION						
<i>Equipment and seeds</i>																					
<i>Ngitli Development</i>																					
<i>ICT platform</i>		Develop ICT PLATFORM					OPERATION AND REFINEMENT OF ICT PLATFORM														

### D.1. Value Added for GCF Involvement

Tanzania is a LDC and severely impacted by climate change. Despite strong efforts to put in place the necessary policies and strategies for climate adaptation, without GCF involvement to complement ongoing efforts and address gaps, Government of Tanzania is not in a position to translate these plans into cross-sectoral action.

Only with involvement of the Green Climate Fund it is possible to

- tackle climate challenges in the required holistic manner. Classic development partners usually focus on sectoral funding. A sectoral intervention however does not serve to achieve the ultimate goal of increased resilience of the most vulnerable people that are affected by various climate-related challenges, as described in section C.2. Implementing stand-alone sectoral interventions could certainly provide some relief, but does not lead to climate resilient livelihoods in most cases like in the Simiyu Region. For example, if the intervention focusses on climate smart agriculture, people still starve from shortage of drinking water during the increasing droughts. Furthermore, the classic parallel sectoral interventions miss efficiency gains especially when it comes to actions that need a high level of activities and presence on the local level. This applies to planning, awareness raising and educational measures or setting up sustainable water supply organisations for domestic and agricultural purposes;
- obtain the calling power needed to bring together stakeholders and knowledge from various sectors. This is crucial for success of the Project since it is a prerequisite to develop procedures and best practices for implementing the needed coordinated, streamlined interventions. With the GCF funding, the Project unlocks potential for replication and scaling up, thus facilitating paradigm shift;
- implement the unique programmatic community driven approach at sufficient scale and according to international standards, to facilitate the feeding of lessons learnt into the national and local planning systems. The GCF provides an unique opportunity to make use of the experiences and ownership of those most affected by climate change;
- use a proportion of funding for measures that facilitate achieving impacts beyond the Project itself like the strategic consultancy support for paradigm shift;
- leave locked-in development paths and use an innovative approach in the design for climate smart agriculture and an innovative, staged approach for the use of the country's big lakes for secure, sustainable and cost-covering water supply. The Project demonstrates that both irrigation and drinking water needs can be viably met and managed in a sustainable manner.

The GCF, as the central implementing entity of International Climate Finance, is in a unique position to provide all elements which are required for the successful implementation of the Project:

- strengthening highest ownership and country drivenness;
- providing sufficient volumes of grant funding from international climate finance sources;
- promoting cross-sectoral broad approaches which promote long lasting paradigm shift towards a climate resilient development path.

GCF Funding ensures that people in one of the most vulnerable areas in Tanzania significantly improve their resilience to climate related shocks and climate-induced diminishing of available water resources and that lessons learnt from the Project are replicated throughout the country.

## D.2. Exit Strategy

The Project has a strong focus on ensuring sustainable operation, scaling up and replication. The main features of this “exit strategy” are (1) knowledge building on the basis of lessons learnt from the implementation process of the Project (2) establishing conducive institutional structures and fair tariff setting, and (3) community based planning and operation processes. All three aspects are strengthened through comprehensive capacity development measures that are implemented through local structures.

### **Knowledge building on the basis of lessons learnt**

The Project establishes a collaborative and participatory process of institutional learning to enhance efficiency and effectiveness of planning and implementing cross-cutting climate adaptation interventions. It enhances acquiring specific knowledge and adapts state of the art coordination and implementing mechanisms to the local context. It further develops knowledge products including guidelines for inter-ministerial implementation of cross-sectoral projects, or the ICT Platform on climate change. These products complement and are integrated into existing policies and sectoral strategies like the Water Sector Development Programme and the Agricultural Sector Development Programme. They are owned by the government, well integrated into the Tanzanian budget and regulatory systems and will be sustainably pursued long beyond the implementing horizon of the proposed Project.

### **Institutional structures and tariff setting**

The Water Supply and Sanitation Authorities are expected to fully cover their operational costs from the water supply system’s revenues from year three of operation onwards. However, revenues only flow in once household connections and public taps are implemented. Speedy connection of new customers is therefore decisive for the financial performance and the sustainability of the water supply system (also refer to Section G.2). A number of measures are taken to incentivise speedy connection of customers: The urban utilities develop household connection strategies, showing how they intend to achieve the number of customers necessary to cover operational costs in the shortest possible time. The Project pre-finances household connections in urban centres to help urban utilities overcome this critical stage. Customers pay back the connection costs over a period of 3 to 5 years. This generates additional income for the utilities and allows them to invest in smaller network extensions in order to further increase the number of customers. Furthermore, BARUWASA will support the two district towns utilities of Nyashimo and Lagangabilili in fields like administration, accounting and legal services through service agreements. While the urban utilities have to take off a minimum amount of water from SIMWASA, there is no pre-defined amount of water to be sold to COWSOs. This is a strong incentive for urban utilities to increase customers, and for SIMWASA to engage in supporting the formulation of COWSOs in cooperation with the LGAs. Despite these efforts to connect customers as quickly as possible, SIMWASA and the urban utilities depend on financial support in the first two or three years after commissioning, since water connections need some time to be established. To ensure that the urban utilities and SIMWASA build up successfully from day one and have the power to install the needed connections, the Government of Tanzania provides them with the necessary financial support within this phase. This will be closely monitored through the annual financial statements of the Authorities, the financial model and the reporting. The Government of Tanzania commits to staff the urban utilities and SIMWASA sufficiently in line with Tanzanian standards and according to detailed staffing concepts. This staff benefits from capacity-development measures of the Project.

### **Community based planning**

The Project’s long term sustainability strategy in rural areas builds on experiences from the Hai water supply project in Kilimanjaro Region and from the traditional agro-pastoral system Ngitili. They show that there is a strong cohesion of communities and high ethics of compliance, if projects are planned in line with local structures right from the beginning. Community-based climate adaptation planning, efficient lines of official and casual communication, a long-term flexible work-plan and fair and equable community representation taking into account gender balance are critical (please also refer to section G.2). Communities are supported in their planning processes through local structures, i.e. the Regional Secretariat and the LGAs. High level technical capacity building helps to improve extension services up to the level required to achieve adequate adaptive capacities. Local Civil Society Organisations are involved to enhance sustainability of the efforts.

## E.1. Impact Potential

Potential of the Project to contribute to the achievement of the Fund's objectives and result areas

### E.1.1. Mitigation / adaptation impact potential

Adaptation impacts:

- At least 495,000 people, out of which half are women, are direct beneficiaries and are expected to adapt their livelihoods to be in a position to cope with climate impacts through improved water, sanitation and/or agricultural services. The total number of beneficiaries equals to about 1 % of the country's total population of around 50 million people. About 395,000 people (52% of them being women) profit from year-round access to reliable and safe drinking water supply despite climate shocks and stresses. About 300,000 people (60 % being women since girls particularly benefit from improved school sanitation) benefit from improved public sanitation facilities, and thus become less prone to climate-induced waterborne diseases. About 200,000 people (52% of them being women) increase food security and climate resilience of their livelihoods. Part of the beneficiaries may benefit from several Project measures. As presented in the table below, double counting of beneficiaries was avoided to the maximum possible extend. For more information on the calculation of the beneficiaries of climate- smart agriculture, please refer to the supporting documentation (Economic and Financial Analysis Agriculture)

Activity	component's beneficiaries	factor	calculated beneficiaries	Justification of calculation factor
urban water supply	95,000	1 x	95,000	
rural water supply	300,000	1 x	300,000	
sanitation	300,000	0 x	0	all beneficiaries also benefit from water supply
agriculture	200,000	0,5 x	100,000	half of the beneficiaries also benefit from rural water supply. This is assumed since the geographical scope of the water component follows the main pipeline from Lake Victoria to Langangabilili, and mainly includes a 24 km corridor in 3 out of the 5 districts of Simiyu.
<b>total beneficiaries</b>			<b>495,000</b>	

- About 85% of the Project activities avoid lock-in of long-lived infrastructure. In the past, many efforts have been taken and money has been spent in Simiyu by trying to use established, well known technologies like groundwater wells and dams for water supply. The majority of these dams and wells are abandoned today because they are not adequate to serve for reliable drinking water supply, and because community needs and dynamics and climate smart technologies have not been taken into account sufficiently for sustained agricultural use. A new, innovative staged approach is proposed, where a cost covering and financially viable Project secures people's right to water and create the environment needed to ensure basic services. At the same time income is generated and households increase their adaptive capacities by applying climate smart agriculture based on locally available water resources. Also some further small elements of the Project take new technology paths: Operation and maintenance of local pumping facilities with diesel pumps proved to be a major challenge to COWSOs, thus the Project opts for solar pumps wherever possible. Sanitation infrastructure uses locally adjusted on-site techniques that are economically and technically more viable than sewerage networks even in the urban areas of the smaller or middle-sized towns (please refer to section F.2). The use of improved or adapted inputs (e.g. seeds) in agriculture and agro-forestry, together with capacity building measures like Farmer Field Schools, increases climate resilience and at the same time improves beneficiaries' livelihoods. Implementing this holistic approach requires considerable capacity building and facilitation of a paradigm shift.
- Vulnerable population groups, especially women, experience significant relief from the daily burden of finding acceptable water. Women are expected to significantly increase their adaptive capacity in comparison to their situation today, where they are forced to spend up to 6 hours daily in search for water, leaving little time for

other adaptation activities e.g. improved agriculture. The adaptive know-how of farmers and communities is strengthened through sensitization campaigns and Farmer Field Schools. The Project also contributes to solving the increasing conflicts over scarce water resources from which vulnerable groups tend to suffer most. BARUWASA and the two newly established water utilities apply block tariffs with preferable water prices for the poor. Additionally, the Project gives preference to public taps in poor areas. Adequate representation of women and vulnerable people in the boards of COWSOs and local user groups ensures inclusion.

- The Project strengthens institutional systems for climate responsive planning and development on the central government, regional and district levels. On the national level, the Project's mechanisms for inter-ministerial coordination shall serve as a role model. They are needed to address the multi-sectoral nature of climate adaptation measures in Tanzania. The Steering Committee develops standard procedures, organizational structures and working guidelines on the basis of experiences made in the Project. The proposed structures have a clear focus on implementation. With the new structures, it is expected that Tanzania is expected to be able to accelerate implementation of climate change adaptation projects that could include all relevant sectors. On Regional and district level, LGAs and water utilities receive comprehensive capacity building and the necessary means (infrastructure, manpower) to be able to serve the people. The Vice President's Office has a critical role in overseeing the suitability of the proposed mechanisms for the achievement of the country's climate targets. Through the National Climate Change Steering Committee (NCCSC) and National Climate Change Technical Committee (NCCTC), they are responsible for continuously monitoring the new processes and for establishing feedback and review mechanisms for adjustments and fine-tuning as required. Performance of water utilities is annually assessed and ranked by EWURA. MoWI is currently setting up a COWSOs Competency Assessment Framework, that is used as part of the Project monitoring system to track performance of COWSOs.
- The Project increases generation and use of climate information in decision making by establishing an ICT network on climate change. This includes identifying available and needed data, developing a systematic data collection and management as well as capacity building. It is an online based system of communication and interaction for experts, researchers, training institutions and extension officers. The Steering Committee is tasked to ensure that it is integrated in climate related planning and implementation processes throughout the country.
- There is a high demand for the services offered by the Project. Actual usage of offered service by vulnerable households, communities and public service providers will be high due to the strongly felt adaptation needs of the beneficiaries. Community based planning and decision making takes into account traditional systems of land use and concertation.
- While awareness about climate risks is already present in Simiyu today (in the household survey, 70% of the population referred to climate change as a major threat to their livelihood), know-how about climate risk reduction is still low. All individuals and institutions involved in the Project, from the village level up to the Steering Committee, are expected to increase their awareness and knowledge on climate related risks and adaptation measures. They are expected to amount to more than 495,000 people altogether, more than half of them being women

In addition to these described mitigation impacts, the expected improvement of land or forest areas contributes to emission reductions amounting to 766,800 tons of CO<sub>2</sub> equivalent<sup>3</sup>. Irrigation systems, protection of soil and water resources and promotion of Ngitili and fuelwood plantations optimize crop production and productivity. This minimizes the need for more land to feed the population, thus reduces encroachment on natural vegetation, especially in the sensitive ecosystem of the nearby Serengeti Natural Heritage. It also enhances the capacity of the vegetation to act as carbon sink.

<sup>3</sup> Projected according to information from Barrow, E. and A. Shah (2011) TEEBcase: Traditional forest restoration in Tanzania. Available at: TEEBweb.org.

E.1.2. Key impact potential indicator			
GCF core indicators	Expected tonnes of carbon dioxide equivalent (t CO <sub>2</sub> eq) to be reduced or avoided (Mitigation only)	Annual	
		Lifetime	
	<ul style="list-style-type: none"> <li>Expected total number of direct and indirect beneficiaries, disaggregated by gender (reduced vulnerability or increased resilience);</li> <li>Number of beneficiaries relative to total population, disaggregated by gender (adaptation only)</li> </ul>	Total	495,000 direct beneficiaries, 257,000 of them being women, and 2.5 Mio. indirect beneficiaries
		Percentage (%)	1% of the Tanzanian population, 52% of them being women.
Other relevant indicators	<ul style="list-style-type: none"> <li>Please refer to E.1.1 and H.1</li> </ul>		

## E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project investment

### E.2.1. Potential for scaling up and replication (Provide a numerical multiple and supporting rationale)

Procedures for implementation of climate adaptation projects in Tanzania are established and refined in the course of the Project. In this way, the Project is expected to catalyse at least 5 further investments in infrastructure for climate resilience in the country leading to an expected number of indirect beneficiaries of up to 2.5 million (with an estimated target group of 500,000 people per project). The Project delivers hands-on experience in planning and implementing cross-sectoral climate adaptation projects. Community based climate adaptation planning is introduced and streamlined into the District Development Plans of LGAs and shall serve as a role model for future adaptation projects. Furthermore, the Project improves information available on climate effects and adaptation needs through the ICT Platform on climate change.

The investment underlying the Project entails a unique, new approach towards tackling the increasing competition for the country's water resources. It bears the potential to become an important future strategy for Tanzania: The country is scarce in groundwater resources. There is alarming data on the declining availability of renewable fresh water. It has reduced from 2,300 m<sup>3</sup> per capita in 2002 to 1,950 m<sup>3</sup> per capita in 2015 and it is projected to further decline to 1,500 m<sup>3</sup> per capita in 2025, if not managed well. Climate variability, resource degradation and pollution affect quantity and quality of water resources. They become threats to the sustainability of competing water-using sectors like urban and rural water supply, agriculture and irrigation, hydropower and the manufacturing industry. With increasing impacts of climate change, the country is no longer able to afford uncoordinated and low efficiency water use. At the same time, Tanzania is endowed with huge natural surface water reservoirs (Lakes Victoria, Tanganyika and Nyasa, Ruvuma River). The Project sets an example for using and preserving them for climate resilient drinking water supply, while also developing a strategy for satisfying competing sectors' demand for water at the same time. This does, among others, require to overcome a currently prevailing lock-in of applied infrastructure (refer to E.1). The presented approach sets an example by promoting economic development through usage of locally available water sources for agriculture. This promotes sustainability of multi-purpose water supply, protection of water resources and climate resilience for the people. The shared water resources are furthermore protected for future generations through improved sanitation and sludge treatment.

A Steering Committee takes up results and experiences from the Project and uses them for improved planning, monitoring and regulation of climate adaptation. Proposed improvements of rules and regulations are developed on the basis of experiences made under the Project. For examples for such regulations, please refer to section E.2.4. The Strategic Support Consultant advises and supports the Steering Committee in setting up the framework. The Vice

President's Office has a critical role in overseeing the suitability of the proposed mechanisms for the achievement of the country's climate targets.

#### E.2.2. Potential for knowledge and learning

Strong competences on district, regional and national level in implementing cross-cutting projects, as well as the inclusion of the most vulnerable are core to cope with the multitude of challenges associated with climate change. The Project improves the capacities to implement cross-sectoral adaptation projects of the various involved institutions and stakeholders at the different levels. For more information about capacity development included in the Project, please refer to section C.3.

Furthermore, the Steering Committee initiates new rules and regulations, standard procedures, organizational structures and working guidelines on the basis of experiences made in the Project. These new regulations are expected to unlock so-far unused expertise and structures, especially in the fields of inter-ministerial coordination and community based planning and implementation. Using these new capacities it is expected to put the government into a position to accelerate implementation of climate change adaptation projects that could include all relevant sectors.

#### E.2.3. Contribution to the creation of an enabling environment

As described in sections E.1 and E.2 the Project entails a holistic solution for climate adapted use of water resources for drinking and agricultural purposes. It is unusual and requires leaving well-known institutional paths. The proposed structure is complex and requires high level information of decision makers on effects of climate change, the nature of the Project, their interrelation and the needed corresponding commercial and regulatory framework. A whole series of financial models and assessments of technical and economic alternatives have been carried out as part of the feasibility studies. Results have been connected to regulatory questions right from the beginning and are the basis for beneficiary involvement, tariff setting and monitoring. The Project serves as a role model to show how challenges can be overcome and that appropriate tariff setting supported by detailed financial projections and wise use of subsidies create a conducive environment to effective and sustained resilience, also for future projects with similar challenges.

#### E.2.4. Contribution to regulatory framework and policies

As described in E.2.2, results of knowledge and learning are transferred into improved rules and regulations with the support of the Steering Committee. Details of such regulatory changes will be defined in the course of Project implementation on the basis of experiences and lessons learnt from the Project. A first idea of topics to be discussed by the Steering Committee could be:

- The Utility Performance Assessment carried out annually by the national regulator EWURA, could be enhanced to also consider climate change relevant indicators, e.g. sustainability and protection of water sources, measures to avoid wasting of water as well as energy efficiency and inclusion of the most vulnerable
- Strategies to improve management and availability of data on local water resources
- Some conventional design criteria as laid down design manual drive costs and could be revised. Also, phased approaches like the one taken are not yet proposed or promoted. This is of particular importance for piped water projects with long bulk mains, which have the potential to become an important future strategy for the country (refer to section E.2.1).
- Lessons from the community driven, multisectoral planning approach could be used as blueprint for future adaptation projects.

### E.3. Sustainable Development Potential

#### Wider benefits and priorities

##### E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

The Project contributes to the Sustainable Development Goals:

#### **SDG 1 End poverty in all its forms everywhere**

The Project increases the resilience of poor people and their assets towards extreme climate and natural hazards. Negative impacts of climate change mostly affect the poor population which does not have the (financial) means to deal with weather shocks. The Project strengthens the risk-reducing capacity of the poor. It also strengthens the poverty-orientation of adaptation strategies and applicable regulations through the paradigm shift component. It takes into account that gender inequality plays a large role in the perpetuation of poverty and its risks.

When provided with a reliable and secure source of drinking water, especially poor people are less dependent on informal and unsafe water resources or on buying water at excessive prices from private water vendors. This, together with better sanitation services, improves their economic situation by reducing time spent on fetching water, costs for medical treatments and unproductive days of illness. Climate-smart agriculture measures enhance soil productivity and stabilize income of farmers, leading to improved livelihoods and food security.

#### **SDG 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture**

The Project increases the productive capacity and climate resilience of small-scale farmers in a region where people regularly suffer from famine and have received food aid for two years in a row now.

#### **SDG 3 Ensure healthy lives and promote well-being for all at all ages**

Through the comprehensive sanitation component and by providing access to clean drinking water, the Project reduces water borne diseases and infant mortality.

#### **SDG 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**

By improving school toilets, the project removes a major barrier to education. This will especially benefit girls who often have to stay home from school during menstruation if the toilets offered are not appropriate. Farmer Field Schools and the community based approach bring high quality learning opportunities to poor and vulnerable communities.

#### **SDG 5 Achieve gender equality and empower all women and girls**

The Project improves living conditions, particularly for women, who are primary household caretakers and responsible for the availability of secure water and food. The Project strives to provide women and girls with equal access to education, health care, decent work, and representation in decision-making processes. The proposed measures are:

- women's needs in accessing water points are considered with regards to number and security of the location of the facilities and child safety. The design of the water taps is made women-friendly, i.e. allowing easy handling of buckets
- location choices for sanitation facilities consider women's needs for privacy, safety, security and dignity. The project involves women in decisions on the design of public sanitation facilities as part of the community based planning process
- equal training and employment opportunities are made available for women and men in water resource protection, water quality monitoring and testing, maintenance and repair of public/school toilets and water points, especially of the community-based operations system
- women and girls are provided an active role in awareness campaigns and are trained to become social change agents by taking on roles as house-to-house hygiene promoters, teaching about the prevention of water and

sanitation related disease transmission within their communities

- production systems in which women are particularly involved (e.g. poultry farming, horticulture) are supported
- gender-friendly design features are considered in the layout of improved irrigation facilities ensuring that they are safe and secure to use and socially acceptable. This includes drip irrigation, sprinklers, putting steps in irrigation structures and irrigation schedules that are aligned with time available for access for livestock or household needs, and avoid night irrigation because of the increased risk of women being harassed after dark
- the Project raises awareness for gender mainstreaming and empowerment within administrative structures. Participation of women in community based planning and decision-making is mandatory. Workshops will be organized to raise awareness among local authorities and the advisory services in order to strengthen their gender orientation
- Women traditionally do not have land ownership rights. The Project promotes women's participation in decision-making processes and introduction of property for the family rather than the (male) family head, to give them more power to influence long-term soil protection measures
- Where service providers are used, the Project ensures that a high number of services are offered by women (as well as requested by women). The Project ensures that women are paid equal wages for equal work. Contractors are tasked to provide separate toilets for women and provide shift child care facilities for working mothers on construction sites
- Schedules of Farmer Field Schools will be set up in a manner to minimize conflicts with other farming and non-farming daily activities of women. Women farmers enrolled in Farmer Field Schools will be provided with training on not only climate-smart agriculture, but also on financial and entrepreneurial skills
- Communication material and messages focused on women are disseminated. Since the literacy rate among women is low, posters, theatre performances and radio broadcasts are especially suitable for this purpose

**SDG 6 Ensure availability and sustainable management of water and sanitation for all**

The Project improves the access to clean drinking water and sanitation services and reduces fecal contamination for more than 395.000 people in the Simiyu Region.

**SDG 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**

The Project provides a number of work opportunities for the local population, including women and youth. During construction, local companies and/or local recruitment of labourers are given preference wherever applicable and delivery of a gender action plan will be required. The Project strengthens and creates several public, private and community-owned entities that create new jobs, e.g. at water utilities, public water taps, LGAs or public sanitation installations. This improves the region's economic development. Additionally, the Project generates alternative means of income for subsistence farmers, like selling firewood, which will make them less dependent on unpredictable weather conditions due to climate change.

**SDG 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation**

The Project improves access to basic sanitation and water supply infrastructure. Small scale enterprises in the region benefit from improved water supply. Farmers are encouraged to develop new, sustainable and climate adapted farming technologies. Resilient water and sanitation supply infrastructure is being built.

**SDG 11 Make cities and human settlements inclusive, safe, resilient and sustainable**

The Project protects urban poor and vulnerable people from climate induced water shortages and contaminated water resources. The holistic sanitation concept which includes water treatment facilities protects urban settlements from

pollution.

**SDG 13 Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy**

The Project's climate adaptation measures target the most vulnerable and poor in a least developed country.

**SDG 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss**

The Project improves ecosystem services through forestation and adapted farming systems and reduces encroaching into the Serengeti ecosystem during dry spells through promotion of sustainable grazing patterns (Ngitili). It reduces land degradation and soil erosion, implements sustainable land management practices, preserves water resources for future generations and reduces GHG emissions. The Project provides safe and clean drinking water to 395,000 people who would theoretically need to boil 1.2 million litres of drinking water daily, mostly with the locally available fuelwood, if they really strictly adhered to the requirement of safe drinking water, which would further accelerate deforestation and GHG emissions.

**SDG 16 Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels**

Through its capacity development and paradigm shift components, the Project contributes to the development of effective, responsible and transparent government institutions. Participation and inclusive development is promoted through community based planning and implementation. Potential conflicts between different types of land use, especially arable farming and pastoralism, are mitigated. The involvement of all users in the selection of and decision-making processes for climate adaptation measures further strengthens the development of communal structures and increases social cohesion. Local Government Authorities (LGAs) whose revenues mostly depend on agriculture benefit from more stable and less climate dependent revenue.

**E.4. Needs of the Recipient**

Vulnerability and financing needs of the beneficiary country and population

**E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)**

Climate change impacts are expected to affect all people in Tanzania to some degree. This includes reduced availability of water and increased temperature stresses to people, livestock and crops, ecological disruption as well as changes in disease vectors and ranges. In addition to diminishing sources, experts predict that heat stress will increase per capita water demand by about 7-10%. This particularly affects women who are the primary household caretakers and responsible for providing safe water and food as well as (newborn) children that are most affected by insufficient sanitation and hygiene as well as contaminated drinking water. Additionally, temperature stress estimated as 'perceived temperature' is likely to increase substantially over the next decades. Since the majority of the vulnerable population is working outdoors in the agricultural sector, severe heat stress will result in a loss of economic productivity.

These impacts on the people's day to day life will require a number of adaptive measures with regards to farming practices, water supply, sanitation, public health services provision, and ecosystem conservation. In Simiyu Region, people's adaptive capacity to cope with additional challenges is particularly limited. The income per capita is low, 90% of rural households and 80% of urban households earn less than 145 EUR per month). Seasonality has been a continuous stress factor and an important reason for the low overall productivity, high poverty rates and poor standard of living in the region, and now climate change brings along additional threats. Agricultural productivity, which used to be well-adapted to the local conditions, is under pressure due to climate change and resource degradation.

Furthermore, government services are still weak in the still developing administrative structure of the newly established region. The district's own resource collection (local taxes, charges) is almost entirely dependent on agriculture and in some cases mainly on one major crop (e.g. cotton). If the cotton crop is affected, the district's revenue collection will decrease considerably, jeopardizing the provision of public services like extension services. This again reduces knowledge and learning on adapted technologies and leaves farmers more and more prone to crop failures.

#### E.4.2. Financial, economic, social and institutional needs

The Tanzanian public budget allocated for the Financial Year 2016/17 is about 11.8 bn EUR. Real GDP growth was 7% for 2015/16, thus remained at the same level as the year before. Domestic revenue collection was 4.6 bn EUR and tax revenue amounted to 4 bn EUR from July 2015 to April 2016. The average inflation rate in 2015 was 5.6% and slightly decreased compared to 6.1% in 2014, mainly due to a decrease in petroleum prices. However, since food is the largest component in Tanzania's consumer price index (38.5%), the Economist Intelligence Unit sees a considerable risk that weather-related shocks to domestic food production will push inflation. Continued reliance on rain-fed agriculture and hydropower are seen as economic structure risks that perpetuate the economy's vulnerability to climate and weather events.

As of March 2016, the national debt amounts to 18.4 bn EUR, compared to 17.34 bn EUR in June 2015, which is an increase of 6.34%. The increase is mainly due to Government borrowings to finance development projects. Tanzania is a Least Developed Country (LDC) and a post HIPC (Heavily Indebted Poor Country). It has a Policy Support Instrument (PSI) of the International Monetary Fund (IMF) in place and shows continued strong efforts for fiscal consolidation and strengthening revenue mobilization, public financial management and debt management. Despite the fact that sovereign repayment capacity is not expected to be called into question in the near future, it should be considered that financing this climate adaptation Project with debt would be an additional stress factor for the country and should be avoided especially in the light of the low own emission profile of Tanzania.

The Project is urgently needed to reduce climate induced stress of particularly poor and vulnerable population groups in a LDC and it contributes to fulfilling their basic needs and human rights. Financial models (refer to supporting documentation) show that none of the components generates sufficient revenue to pay back investment costs and/or interest, despite the fact that revenues are used wherever possible to cover at least maintenance costs. For the detailed economic and financial analysis of the Project, including our assessment of the integrated financial model with detailed assumptions, rationale and a sensitivity analysis of critical elements, please refer to section F1.

We propose the Project to be financed on grant basis. Since Tanzania is a Least Developed Country (LDC) and post-HIPC (Heavily Indebted Poor) country, grant financing allows Tanzania to undertake the proposed adaptation measure without reducing funding for other priority development needs or increasing its risks of debt distress (refer to section C.4). Grants match local financial and in-kind contributions to the maximum possible extend.

For further information on institutional needs please refer to section C.7 and and for social needs please refer to section F.3.

### E.5. Country Ownership

Beneficiary country (ies) ownership of, and capacity to implement, a funded project or programme

#### E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs

Tanzania has developed and established a number of policies, strategies and programs which address climate change and climate change adaptation and which are in line with the Project's interventions:

- Tanzania's National Adaptation Programme of Action (NAPA) identifies immediate and urgent climate change adaptation actions and activities that reduce the risks to sustainable development imposed by a

changing climate. The agriculture and food security sector as well as the water sector are ranked as number one and two according to their importance for actions that have to be undertaken in order to strengthen adaptation to climate change. Proposed interventions that also fit in the context of the Project are amongst others: alternative farming systems, sustainable water management and irrigation measures such as drip irrigation. For the water sector, integrated water resource management and new infrastructure are mentioned.

- The process of formulating a National Adaptation Plan (NAP) was initiated in 2013 and is planned to be finalized after five years. The objective is to establish a process for formulating and implementing sectoral and national adaptation plans for Tanzania addressing medium and long-term adaptation needs.
- The Project coincides with the adaptation priorities highlighted in Tanzania's Intended Nationally Determined Contributions (INDCs). To reduce the impacts of frequent droughts and floods is number two of the adaptation priorities in Tanzania's INDCs, with a particular focus on the resilience of the agricultural sector, livestock and forestry. Improved efficient management of water resources and increasing access to clean and safe water is another important pillar for adaptation, highlighted in Tanzania's INDCs.
- The National Poverty Reduction Strategy (MKUKUTA from Swahili) and the National Strategy for Growth and Reduction of Poverty (MKUKUTA II) acknowledge climate change as externality that needs to be addressed to ensure food security, to reduce poverty and to achieve environmentally sustainable growth.
- The Project is in line with the National Climate Change Strategy (NCCS, 2012), which is the main planning instrument for climate change actions. Adaptation is clearly a priority in this strategy, due to Tanzania's low national emissions profile and high dependence on natural resources for livelihoods. Water and agriculture are core sectors that need to be attended to urgently according to this strategy.
- The Agriculture Climate Resilience Plan (ACRP, 2014 - 2019) and the Water Resources Management and Strategic Interventions and Action Plan for Climate Change Adaptation (2013) further outline actions in line with the proposed Project. Both propose to develop and operationalize an Information Management System and web portal for climate change.
- Climate change is addressed in the context of environmental management in the National Environmental Policy (1997). The Environmental Management Act (EMA 2004) is the legal framework for environmental management and covers climate change adaptation planning, including efforts undertaken within the National Environmental Policy.

#### E.5.2. Capacity of accredited entities and executing entities to deliver

There is a momentum of outstanding ownership and attention to the proposed Project among a wide variety of stakeholders from the Government of Tanzania. All relevant ministries are showing highest interest in and commitment to the Project. The Ministry of Water and Irrigation has initiated financing and started implementing the feasibility study for the Project from its own resources. Together with the Ministry of Finance and the Vice President's Office, it takes a strong lead in seeking considerable financing from own sources for its implementation, which proves the overall high political commitment of the Tanzanian authorities to the Project.

The Ministry of Water and Irrigation, the Executing Entity, is responsible for the implementation of the Project and for the coordination of the line ministries with respect to the Project. It is well prepared to implement the Project in collaboration with the other involved institutions on ministerial and regional level, as detailed in Sections C.4. and C.7.

KfW as Accredited Entity ensures the Executing Entity's compliance to GCF's fiduciary principles and standards including Anti Money-Laundering and Countering the Financing of Terrorism (AML-CFT) requirements, procurement regulations, environmental and social safeguards and financial management guidelines within all components of the Project, as detailed in the Accredited Master Agreement between GCF and KfW.

KfW is Germany's public Promotional Bank and with a balance sheet of 503 bn EUR and a funding volume of over 79,3 bn EUR (2015), one of the largest development banks in the world. On behalf of the German Government,

particularly the Federal Ministry of Economic Cooperation and Development (BMZ), KfW administers Germany's official Financial Cooperation in about 70 developing and transition countries in Africa, Asia, South and Central America, the Middle East and Eastern Europe. KfW has a long record of financial cooperation in Tanzania, with a portfolio extending from 1965. Currently, KfW has an ongoing portfolio in the water, health, natural resource management, energy and governance sectors in Tanzania with a total volume of about 500 m EUR.

The team from the local KfW-Office in Dar es Salaam has profound knowledge of the local institutional setting and procedures, which will facilitate smooth implementation. KfW Headquarters in Frankfurt provides oversight and backstopping services as well as technical advice through experienced engineers in water, sanitation and agriculture.

### E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

Tanzanian ownership has been high right from the beginning of Project preparation: The Government of Tanzania gives high priority to the development of the newly established Simiyu Region and the challenges the region is facing due to climate change.

During the Government to Government negotiations between the United Republic of Tanzania and the Federal Republic of Germany held in Dar es Salaam on August 12/13<sup>th</sup>, 2015, the German Government agreed to make available 25 m EUR for climate resilient water supply and sanitation in Simiyu upon request of the Tanzanian Government. At the same time, it was agreed that the Project shall be proposed for funding from the Green Climate Fund. On November 19<sup>th</sup>, 2015, KfW received a letter of commitment from the Vice President's Office (NDA) as the coordinating authority for climate adaptation projects in Tanzania. In this letter, it requested MoWI and KfW to prepare the Simiyu Climate Resilience Project, with the ultimate objective of submitting a Funding Proposal to the GCF. Germany, through KfW, made available 1.1 m EUR for preparatory studies, adding up to a total German commitment of 26.1 m EUR.

Following this, a high level stakeholder meeting took place on January 15<sup>th</sup>, 2016, where the way forward for this challenging Project was defined including an agreed proactive action plan to bring the Project proposal to the GCF Board as soon as possible. Since then, monthly stakeholder meetings and preparatory meetings have been taking place to monitor achievements against the set schedule and to continuously involve all the stakeholders. Consent has been achieved on a revised Concept Note on the Simiyu Project that has been submitted to the GCF on May 3<sup>rd</sup>, 2016 and on the draft Funding Proposal. The high number of participants during the appraisal mission, amongst others from MoWI, the Ministry of Agriculture, Livestock and Fisheries (MALF), the Vice President's Office (VPO), the National Environment Management Council (NEMC), the Lake Victoria Basin Water Board (LVBWB), and – at the regional and district level – with the Regional Administration of the Simiyu Region, the District Administrations of Busega, Bariadi, and Itilima, the Town Council of Bariadi, BARUWASA and Mwanza Urban Water and Sanitation Authority (MWAUWASA), and the lively and fruitful discussions proved again the importance and great involvement of various stakeholders in Project preparation.

The Ministry of Water and Irrigation consulted Civil Society Organizations during Project preparation. At the national level, the project was discussed with CSO at the climate change forum at the Ministry of Water and Irrigation. At the regional level, CSO were consulted during the planning following the baseline survey. Feasibility studies were carried out in close consultation with the beneficiaries. A list of participating NGO and CSO are appended in the social economic report of the Feasibility Study. CSO's ideas have been incorporated into the project concept. They particularly highlighted the importance of awareness campaigns on sanitation and hygiene already during preparation of the implementation phase. Training on sanitation and hygiene awareness and integration with the community is going to be facilitated by CSO in cooperation with the community development officers in the respective district councils. Please also refer to the stakeholder engagement plan of the Resettlement Management Framework. Project implementation will be carried out in close cooperation with CSO. They will be involved in awareness raising and in community driven activities. Concepts and experiences from the Project will feed into strategies and action plans at national level. Under the guidance of the Steering Committee and MoWI, structures, targets and actions for

replication are established. These review processes will include CSO that are taking part in the Steering Committee as observers.

## E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the Project

### E.6.1. Cost-effectiveness and efficiency

The Project includes an optimised mix of using water from the shared resources of Lake Victoria for drinking purposes only, while promoting agricultural development on the basis of locally available water resources and protecting soil and water resources through improved, climate-adapted land management. The solutions adopted are least cost solutions to ensure climate resilience of the urban and rural population in Simiyu, particularly women and farmers. For example, an alternative solution to the loss of productivity and increased climate risks in agriculture is to use water from Lake Victoria for cattle troughs and for large scale irrigation. This would come at higher costs and would bear considerable additional environmental risks. The Project uses locally available water resources and increases the efficiency of the existing irrigation infrastructure by introducing water-saving technologies (drip irrigation) and other systems more suitable for being integrated into the schedules and livelihoods of the most vulnerable and women.

The pre-feasibility and feasibility studies investigated all possible alternative solutions including using groundwater resources through boreholes and using surface water resources through dams for drinking water supply. All these options have proven to be either much more costly and bear substantial health risks (wells), or not feasible at all due to the changing climate. For the improved water supply, the selected solution is a “two pipe solution” with the first pipe being installed during the first phase as part of the proposed Project, and the possibility to install a second parallel pipe and to extend the supply scheme later in a second phase. From an economic and technical point of view, it is the most suitable solution. This Project considers the water supply by bulk pipelines to the urban and peri-urban parts of the corridor, where per capita cost for water distribution are lower, and at the same time stress on water availability and demand as well as willingness-to-pay are higher. The per capita investment costs for drinking water supply are comparatively high with 309 EUR per capita for 395,000 people up to the current design horizon of 2025. This reflects the additional efforts necessary for Tanzania to ensure safe drinking water in a changing climate in Simiyu. Connections are expected to expand further after commissioning: Additional 82,000 people can be connected to the bulk system’s first phase, leading to 477,000 connected people and investment costs of 297 EUR per capita by 2035. Per capita costs also include consultancy services, a sanitation component, capacity development measures for urban utilities and for Community Based User Associations, land acquisition and contingencies. Compared to similar bulk water supply projects for rural and urban areas the costs are in a reasonable and acceptable range.

International competitive bidding, and national competitive bidding for some small-scale applications, ensures that selection of companies to deliver works and services is quality and cost based, and that funds are spent in an economical way. Small contracts under the community based approach combine as many measures as possible in the same or neighbouring areas. The effectiveness of the proposed measures has been tested in a number of projects at varying scale as described in the feasibility studies. Costs of the infrastructure investments have been estimated using comparable benchmarks from other projects. Technical information that was used as basis for the financial model was obtained from experiences in the region (Kenya) and in the country (e.g. LVEMP, 7 Towns Urban Upgrading Programme).

The demand-driven, community based approach ensures cost-effectiveness of the investments at local level. To ensure highest ownership of involved communities, labour is volunteered as an upfront contribution. The communities manage rural projects, thereby reducing the operation and maintenance costs for the government in the long term. Water supply in rural and scattered settlements is ensured through public standpipes avoiding the laying of long, underutilised and expensive distribution pipes. For urban settlements, the use of private house connections is promoted through a pre-financing of connection costs for about 4,000 connections by the Project. Customers repay

the connection fees in instalments over the following years. Water utilities can use the repayments to invest in network extension where required. This cost-effective approach avoids investments in areas where the distribution network will be underutilised. Cost covering user fees are being applied wherever applicable and possible. Since all operations are highly co-financed and dependent on subsidies during the investment phase, there is no risk for crowding out private investment.

**E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)**

Not applicable. For the financing plan, please refer to B.2.

**E.6.3. Financial viability**

For the detailed economic and financial analysis, please refer to section F.1. While the Project bears significant economic benefits, none of the Project's outputs entails full cost recovery including investment costs and interest. Benefits generated by the Project are used to cover operational costs wherever possible, particularly at the water supply system. However, no operational surpluses that could be channelled back to the national level are expected to occur.

**E.6.4. Application of best practices**

As part of the feasibility studies, the consultants were tasked with proposing best available technologies and practices, analysing lessons learnt and describing how they are used in the Project. The Project is in line with industry best practices. The proposed technologies for water production and distribution are reliable and appropriate for the Project's environment. The operation of the installations is simple and cost-optimized.

In terms of adaptation of lessons learnt it should be mentioned that the community based planning and decision making process chosen for the Project proved to be decisive for successful interventions in rural areas, e.g. in the Hai water supply project financed by KfW and in the case of Ngitili forest-pastoralist systems. For more details on the application of best practices, please refer to section F.2 and to the feasibility studies included as supporting documents.

**E.6.5. Key efficiency and effectiveness indicators**

<i>GCF core indicators</i>	Estimated cost per t CO <sub>2</sub> eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)
	Not applicable
	Expected volume of finance to be leveraged by the proposed Project and as a result of the Fund's financing, disaggregated by public and private sources (mitigation only)
	Not applicable

Other relevant indicators (e.g. estimated cost per co-benefit generated as a result of the Project)

## F.1. Economic and Financial Analysis

### F.1.1 Economic Benefits

#### Water Supply and Sanitation

For the water supply and sanitation component, the Economic Internal Rate of Return (EIRR) is 10.9%. Due to the lack of locally available, reliable surface or groundwater resources, the alternative concept foresees that households are supplied by tanker trucks that carry drinking water from Lake Victoria. The end user tariff for this solution is estimated at 14.80 EUR per m<sup>3</sup>. In this scenario, the trucks each transport 30 m<sup>3</sup> of water over a distance of 80 km from Lake Victoria to Bariadi, resulting in specific costs (payload) of EUR 2.55 per km or EUR 6.80 per m<sup>3</sup> (according to Teravaninthorn, Supee, Raballand, Gaël: Transport Prices and Costs in Africa: A Review of the Main International Corridors, AICD, July 2008, <https://openknowledge.worldbank.org/handle/10986/6610>). In addition to this, distribution by smaller tankers to households is calculated with EUR 8 per m<sup>3</sup>, according to prevailing rates in Dar es Salaam and other cities in Tanzania. It is assumed that households would only consume the absolute minimum of water demand for drinking and cooking of 7.5 l per capita per day according to WHO estimates ([www.who.int/water\\_sanitation\\_health/emergencies/qa/emergencies\\_qa5/en/](http://www.who.int/water_sanitation_health/emergencies/qa/emergencies_qa5/en/)). Personal hygiene, laundry and other applications requiring water of a lesser quality are estimated to be sourced from local, unsafe sources free of costs. Assuming tanker supply exceeds 7.50 l/c/d, the minimum demand according to WHO, this would result in higher benefits and correspondingly in a higher EIRR. Furthermore, this calculation neglects cost of treatment at the lake and storage in Bariadi. These estimates, however, do not consider the trucks' CO<sub>2</sub> emissions. Despite this, a net benefit of EUR 40 per capita per year has been calculated combined with shadow-pricing of cost with a factor 0.9. This value of EUR 40/c/a is in line with the results from alternative methodologies, i.e. the calculation of benefits, like:

- Time savings while fetching water, mainly for women and children (Hutton, Guy; Haller, Laurence: "Evaluation of the Costs and Benefits of Water and Sanitation Improvements at the Global Level", WHO, 2004, [www.who.int/water\\_sanitation\\_health/wsh0404/en/](http://www.who.int/water_sanitation_health/wsh0404/en/)).
- Increase of productive working days by reducing incidence and fatalities from water related diseases.
- Increased income through the creation of temporary and permanent jobs and through the development of service sector activities.
- Reduced costs for migration to other regions, on individual level and on national level.

#### Climate-Smart Agriculture

It is expected that about 200,000 people will benefit directly and indirectly from the climate-smart agriculture component. Double counting of beneficiaries has been excluded with a conservative approach to the highest possible degree. Taking into account all cost and expected (economic) benefits accruing over a period of 20 years, the expected ENPV at a discount rate of 10% is 11.6 m EUR, the corresponding EIRR is 19%. The economic viability of the Project is good due to a number of factors:

- the construction costs are limited because the storage reservoirs are based on low-cost technologies and the main irrigation system will be gravity flow;
- the operation and maintenance costs are low as the type of irrigation is planned as a wholly farmer managed scheme, implying that no major government management structure will be required for managing the schemes after project completion;
- the benefits are relatively high given that a substantial amount of vegetables and rice for the local market is expected to be produced;
- the benefit foregone (opportunity costs of land) is low as the project aims primarily at areas that are presently under rainfed crops where very low yields are obtained at present.

The following economic benefits have been taken into account for this analysis:

- increased and secured agricultural production by upgrading rain fed agricultural land into irrigated land on

- 1,500 ha, and by introducing adapted species and varieties on an estimated 5,500 ha;
- secured and enhanced agricultural production (staple crops, cash crops, horticulture, fruit) by upgrading baseline techniques to climate-smart agriculture techniques through Farmer Field Schools (8,800 ha directly targeted), with increased opportunities of income generation for women;
- increased production of forest products, especially timber and fuelwood, by converting fallow land to wood lots (3,700 ha);
- increased production of fuelwood and of cattle fodder by converting rain fed agriculture land to Ngitili land (3,500 ha);
- increased and climate resilient agricultural production by multiplying results through spreading of techniques among farmers (estimated 94,200 ha).

All these benefits contribute to increase the income of rural beneficiaries' households. Further benefits, which have not been accounted for in the economic analysis as they are difficult to measure financially, are:

- increased resilience and adaptive capacities of a region challenged by climate change;
- improved food and nutrition security of rural households (and thus the country as a whole);
- secured water and fodder for livestock;
- reduced pressure on land and water resources by reduced pastoralist migration due to better feed and water supply (in addition, travel time saved);
- empowerment of women;
- improved ecosystem services of water catchment areas in the Project region, through restoring or preserving soil and water resources that would otherwise be under pressure due to climate change;
- strengthened early warning, forecasting and water management systems as a result of improved climate advisory services;
- strengthened research-extension linkages, established platform for regular contacts between researchers and stakeholders of the sector, availability information packages and dissemination through ICT, and enhanced extension and climate information services.
- introduced mechanisms, rules and regulations that improve fund allocation, multi-sectoral steering and regulation of actions related to climate adaptation while at the same time strengthening capacities and responsiveness of climate affected, poor households.

A sensitivity analysis has been carried out and the following scenarios have been tested:

- maize prices 20% higher than the current prices, since maize outputs are at risk to significantly decline due to climate change;
- increased costs;
- number of households that are expected to adopt improved technologies with the Project's assistance funding reduced from 15% to 10% annually from PY7 onwards.

As a result, the sensitivity analysis shows sufficient robustness, as can be seen from the table below:

	EIRR	ENPV (EUR)
baseline	19%	11,595,932
increased maize prices	21%	14,181,783
project cost +5%	19%	11,000,835
decreased adoption rate	17%	7,957,444

## F.1.2. Financial Analysis

### Water Supply and Sanitation

#### 1. Definition of the base-case

The investment costs for water supply and sanitation including consultancy, land compensation, operation subsidies and 12.5% contingencies amount to EUR 122.2 m. Capital investment costs are calculated on the basis of a hydraulic calculation, a simplified bill of quantity and adjusted unit prices for pipes, treatment, pumping stations and reservoirs based on recent bids in Tanzania. Construction is implemented by international lead contractors, largely with imported materials and equipment. The financial calculations are therefore made in Euro and at constant prices of 2016. Since bulk and retail water operators are local government authorities and not subject to corporate income tax, taxes have not been included in this calculation. Costs during operation are calculated according to the projected water production. They mainly include chemicals, energy for pumping and personnel and incur in local currency.

The planned investment horizon is the year 2025 for the current first phase of the Project. The schedule assumes commissioning of bulk and distribution schemes during 2020, achieving 82% capacity utilisation at the end of 2021 and from then gradually increasing to 100%. The population forecasts, assumed per capita consumptions and willingness of consumers to pay for water are the determining factors for the dimensioning of the water supply system and therefore also a major driver of investment costs. The design manual of the Tanzanian Water Sector Development Project defines minimum capacities of the system, for example 150 l/cd for low density residual areas and 50 l/cd for yard taps. Population figures are calculated based on the results of the 2012 census. Rural water distribution concentrates on rural conglomerations that have been identified using a complex GIS-database and a marginal cost function (inputs: settlement area, density, and distance to nearest main reservoir). Urban water distribution costs are estimated with respect to similar projects in the Mwanza region. A detailed survey to assess willingness and ability to pay has been carried out as part of the feasibility study with the result that the suggested tariffs between 0.62 EUR/m<sup>3</sup> for rural areas and 0.80 EUR/m<sup>3</sup> for urban areas will have the broad acceptance required for financial sustainability of the water supply system. However, the expected per capita consumption is assumed slightly below the design capacity for the financial analysis because actual consumption in Tanzania is still below the design parameters. The same applies to rural areas where the design manual indicates 25 l/cd. The following population figures and reduced specific demand figures are taken into account while proving the financial viability and calculating required tariffs for the base scenario:

	Population	Demand	Consumption
Urban	95,000	5,300 m <sup>3</sup> /d	75 l/c/d
Rural	300,000	6,000 m <sup>3</sup> /d	20 l/c/d

#### 2. Major results of the base case

While the financial analysis shows that the water supply system is able to cover operation and maintenance costs from own revenues, it is not possible to apply cost covering tariffs that include investment costs. If investment costs were included, tariffs would remain way below total unit costs per m<sup>3</sup> and the resulting Financial Internal Rate of Return (FIRR) would even be negative with -1.45%. Thus, the Project depends on subsidies for the investment. The financial analysis takes into account a scenario where the bulk water supplier, the urban water utilities and the Community Owned Water and Sanitation Organizations receive grant subsidies to cover investment cost for construction and to support the initial phase of operation.

The national regulator EWURA and KfW financing standards require bulk and retail water operators to achieve full

recovery of operation and maintenance cost as well as a modest self-financing capability for capital development once fully operational. The Project achieves this after the third operative year, with planned and decreasing deficits during network extension and capacity building. Proposed tariff rates accept initial operational deficits, but in the mid and long-term perspective shall achieve full O&M cost recovery with a 1.10 safety factor.

The financial model is based on constant tariff rates even though the large part of fixed cost with an initially small customer base would require initially high and then decreasing tariff rates to cover operational costs at every point in time. However, as this may discourage customers to connect as early adopters, government subsidies amounting to 500,000 EUR are required for the first three years. The proposed and required retail water tariffs of 0.50 to 0.65 EUR per m<sup>3</sup> for rural settlements are in the range of prevailing water tariffs in Tanzania. The Project focuses on urban and peri-urban areas that currently show the highest stress on existing, local and free water resources and high willingness to pay.

The proposed retail tariffs are affordable in line with the OECD suggestion that a maximum of 3% to 5% of household income should be spent on water and sanitation services, and according to the results of the household survey. Rural and poorer urban households are assumed to use public taps and to consume 20 l per capita per day. The proposed tariffs lead to monthly expenditures of EUR 2.70 for rural households, and of EUR 3.51 for poor urban households with 9 persons. Assuming that the aforementioned figures correspond to 5% of income, we can calculate a theoretical income of urban households to 70 EUR/month and of rural households to 54 EUR/month. These figures would still allow for expenditures for sanitation services and even for slightly increased tariffs.

Richer urban households having a house connection with an average of 6 persons per household should, according to the same calculation, dispose of a theoretical income of at least 175 EUR/month; this corresponds to the results of the household survey and proves the affordability of the proposed set of tariffs.

The existing water operator in the Project area, BARUWASA, operates inefficiently and at a very small-scale (250 m<sup>3</sup> per day) with a current annual deficit of EUR 70,000. During investment and prior to commissioning of the Simiyu water supply scheme, with concurrent capacity building and recruitment of additional key personnel, this deficit is reduced to EUR 40,000 in the first year and EUR 10,000 in the second year. After the bulk water schemes' third operational year, existing and new water operators are planned to fully cover operational costs. By 2025 the proposed tariff rates will achieve the 10% surplus and from then growing surplus over O&M cost. Urban and rural water supplier can invest smaller amounts in the extension of distribution networks which allows for increasing the number of connected customers. It is assumed that during operation water utilities will regularly adjust tariffs to domestic inflation. For more information on the capacities of the water utilities and the COWSOs, please refer to section C.7.

### 3. Sensitivity analysis

For various reasons, actual water demand and sales may fall below expectations: lack of awareness and regular disposable cash income, competition with free water in particular during the rainy season, delays in implementation of yet non-existent urban and rural distribution schemes. The cash flow model tests sensitivity to an overall reduction of sales by 20% and a 50%, as well as sales decrease by 50 % for rural areas only.

General inflation in Tanzania was and likely remains in the range of 5% to 7% p.a., with an inherent risk of inflation shocks caused by extreme climate events (refer to section E.4.2). Vice versa the Tanzanian Shilling devaluates against international key currencies with lower inflation, i.e. 0-2% p.a. in the Euro zone. This puts water operators under constant pressure to economise or to apply for tariff adjustment. The national energy mix comprises imported crude oil, natural gas and hydropower which are sensitive to fluctuations in commodity and forex markets as well as to climate change. Hence the model tests a 5% p.a. increase of electricity tariffs.

In any sensitivity case, the operational margin of a 1.10 safety factor will not be maintained. While tariffs would still cover operational costs for the electricity cost increase scenario, the sensitivity analysis shows that there is a high vulnerability towards delayed connection of customers. The scenario “-50%”, meaning an overall reduction of sales by

50%, would require heavy complementary operational subsidies to prevent a further decrease of sales and even of revenue. For a general decrease on sales of 20% and for the 50% delay scenario for rural households only, the financial model shows significant stress. This is taken into account in the design by emphasising a quick urban connection and strong capacity development to promote the establishment of COWSOS (refer to risk analysis in section G). For urban settlements, the use of private house connections is promoted through a pre-financing of connection costs for about 4,000 connections. These households are selected on a first-come, first-served basis for those areas where a critical minimum number of households/ha has submitted an application and paid a defined upfront contribution to connection costs.

Scenario	Subsidies required with base case tariff		Break even with base case tariff	Adjusted tariff	
	2018-19	2020-2025		after	rural
Base Case	€0.2m	€0.5m	3 years	€0.50/m <sup>3</sup>	€0.65/m <sup>3</sup>
“power tariff +5% p.a.”	€0.2m	€0.8m	4 years	€0.56/m <sup>3</sup>	€0.73/m <sup>3</sup>
“water sales -20%”	€0.2m	€2.2m	>10 years	€0.62/m <sup>3</sup>	€0.80/m <sup>3</sup>
“water sales -50%”	€0.2m	€5.8m	>15 years	€0.96/m <sup>3</sup>	€1.25/m <sup>3</sup>
“water sales -50% rural”	€0.2m	€2.5m	>15 years	€0.64/m <sup>3</sup>	€0.84/m <sup>3</sup>

#### 4. Adjusted base case

There is a considerable risk that the actual per capita consumption may fall below the design capacity of the WSDP design manual in the initial phase. The “minus 20%” scenario is therefore being discussed with EWURA right from the beginning. The approved tariff is designed in a manner to allow for quick adaption of the 20% delay scenario if the need arises. The resulting tariffs are currently estimated at about 0.62 EUR/m<sup>3</sup> for rural areas and 0.80 EUR/m<sup>3</sup> for urban areas. Customers would still be willing and able to pay this tariff according to the survey and market study.

A further reduction of the rural design population increases overall per capita investment costs and per m<sup>3</sup> cost of bulk water supply (reduced economies of scale), but also reduces per capita investment cost of rural water distribution. The adjusted, further downscaled scenario remains vulnerable to cost or demand variations. The even stronger focus on concentrated, rural or rather peri-urban settlements with higher stress on existing water resources reduces the risk of an overestimated demand. However, since this approach would significantly reduce the number of beneficiaries, it has not been pursued further.

	Population	Demand	Consumption
Urban	95,000	5,300 m <sup>3</sup> /d	75 l/c/d
Rural	150,000	3,000 m <sup>3</sup> /d	20 l/c/d

#### 5. Conclusion

Planning involved multiple stages with revised, up and downscaled options. The Project’s obvious cost drivers and challenges are distance from source to relatively small and dispersed urban or peri-urban settlements combined with a substantial overall pumping head. The proposed base and adjusted case represent a “sweet spot” where cost per

capita and affordability or willingness-to-pay per capita meet.

### Climate-smart Agriculture

Agricultural measures are implemented following an open approach. All measures under the agricultural component help to improve climate change resilience and adaptiveness as well as the income situation of rural households, particularly women. As a prerequisite for funding from the Project, they have to result in a positive cash flow for the participating communities and/or households. Eligible project applications have to include a state of the art concept for the operation of the dams, fields or forest lots, which is technically viable and shows sufficient profitability and cash flow on the household level. A consultant supports communities together with the LGAs and ensures that financial viability is taken into account from the planning of the investment, including dimensioning and other technical aspects.

Financial analyses were carried out to assess the net benefit to households participating in the Project. Several typical (rainfed and irrigated) crop models and Ngitili models were developed using detailed technical input and output prices as well as investment and running cost assumptions. The purpose of elaborating typical crop and farm models is to ensure that the proposed activities and associated risks are viable and that they are likely to attract the interest of beneficiaries. They have to secure enough additional income for the beneficiaries, and costs and risks must be bearable. The models show good profitability outcomes and attractive net incomes. However, they also show that upfront costs for adapted practices “with project” are higher than without in any case. To ensure that vulnerable parts of the population (which often have lower incomes) are participating in the Project, a number of measures are taken. This includes intensive awareness raising, subsidies, field schools and demonstration plots that are specifically targeted to the vulnerable. Finally, early adopters are expected to show that Project measures lead to viable financial benefits and more secured income.

**As a conclusion of the economic and financial analyses, while the Project bears significant economic and sufficient financial benefits, none of the Project’s outputs entails significant revenue generation or cost recovery through fees or taxes from the Project’s beneficiaries to the Government. Any loan repayment from benefits generated by the Project and channelled back to the national level is therefore assumed to be impossible.**

## F.2. Technical Evaluation

The Project comprises inter-related technical solutions in the fields of climate resilient water supply, sanitation and agriculture. The technical concept is a flexible approach which allows responding to changes in demand and requirements due to unpredictable developments like climate change, population growth and economics. The capacity of the water supply system can easily be increased by extending the modular-built treatment plant and by adding twin pipes to meet future demand. This open approach applies also to the climate-smart agriculture component which is based on a set of proposed investment measures to be chosen by Community Based User Associations, according to their respective adaptation needs and local technical (geographical, agro-ecological, agro-economic) potential. According to the demand and requirements of each community, appropriate measures are outlined in the detailed designs. It is the idea of the Project to combine water supply, sanitation and agricultural measures on village level through creating responsibility for prioritization, decision-making and operation of new infrastructures by the users. The technical solutions are selected based on cost-effectiveness, sustainability and optimization of operation costs. They are simple, well known and corresponding experiences are available in Tanzania. However, the combination of these technologies within one expandable water supply system and the combination of several sectors in one community driven approach has pilot character.

The water supply system is designed to serve 300,000 rural and 95,000 urban beneficiaries at the planning horizon of the year 2025. The overall capacity of the system is 15,000 m<sup>3</sup> per day and would even allow to cover the water demand of 477,000 people in 2035 without major extension. It mainly consists of the following technical elements:

- water intake at Lake Victoria in 3 m depth with an inlet pipe of 250m length,

- water treatment plant with coagulation, flocculation and filtration,
- pumping station and raising main of 15 km length up to the command reservoir at Shigala Hill or one of the neighbouring hills,
- gravity main with 80 km length from Shigala command reservoir to the towns of Bariadi and Lagangabilili,
- secondary reservoirs along the transmission main allowing the water supply of rural settlements which are located within a corridor of 12 km from both sides of the pipeline,
- urban distribution networks in Nyashimo, Bariadi and Lagangabilili,

The inlet pipe at the water intake is laid in a depth of 5 meters. It could still be used even if the water level of Lake Victoria decreased by 2 meters. This would be about 3.5 meters below the average water level over the last 100 years and about 2 meters below the historic minimum level and is therefore regarded to be sufficiently resilient to changes in the lake level due to changing climate and future uses. Furthermore, the inlet pipe could be extended if the need arises. For more information on the projected future development of the level of Lake Victoria, please refer to Section F.2.

The treatment process through coagulation, flocculation, sedimentation and filtration can easily and timely be adjusted as a function of the raw water quality which depends on climate change and future uses of Lake Victoria. As a result of the treatment process with aluminium sulphate, the quantity of sludge is reduced to only 200 kg per day on average. Residing sludge from the water treatment process is digested and dried on-site at a sludge drying plant. The dried sludge is discharged on the existing land fill site of the municipality of Mwanza Town.

Pumps and pipe diameters are dimensioned and designed to optimize energy consumption and pump costs. Ductile iron as material for the main transmission pipe is adequate in view of costs, soil conditions and operational aspects. Water is pumped up to the command reservoir over the first 15 km only. From there, it flows by gravity over the main part of the transmission main into the supply areas. Hence, the system is optimized regarding the reduction of friction losses and energy supply.

Rural settlements along the pipeline are supplied through secondary reservoirs and secondary networks by gravity. This reduces the number of connections on the main pipe and is critical to reduce water losses and to minimize the operation costs for the secondary networks. For more remote areas where the pressure in the secondary reservoirs is not sufficient, smaller booster stations powered by solar energy are installed. Solar technology is well known in Tanzanian rural areas and increasingly used for wells and individual households.

For the distribution networks, uPVC and HDPE pipes are used. This is in line with international and national standards and allows the construction of house connections and further extensions. The urban networks are designed in a way to avoid long or doubled house connection pipes (known as “spaghetti pipes”). Community driven planning and implementation leads to an optimization of investment and operating costs. Isolated rural settlements located far from the transmission main are not connected since wells with pumps are technically feasible and economically more viable for such small settlements. However, the Project foresees tanker filling stations at each secondary reservoir to supply remote communities by tanker during dry spells. Gender-sensitive criteria are taken into account when planning the location and design of water taps as described in Section E.3.

The Project brings water to settlements that currently barely have any sanitation infrastructure. Therefore, a comprehensive sanitation component is a prominent part of the Project. It includes the whole cycle of wastewater, from the construction of public and school toilets and the improvement of household latrines up to faecal sludge transport, a sludge treatment plant and hygiene awareness campaigns.

In view of the increasing scarcity of water resources for the region, low actual water consumption and intense management requirements of piped sewerage systems, the Project promotes locally adapted on-site sanitation rather than water toilets and high water usage, which would be a prerequisite to make a sewerage system viable. Volume of water consumed per household is comparatively low in Simiyu since the majority of the urban population cannot

afford to use water to flush toilets. Only about 62,000 people in the three towns will have house connections within the investment horizon of 2025, and only a small fraction of those with a house tap will have in-house plumbing, bathrooms, showers, water toilets and would qualify for piped sewerage or for a septic tank. At least 100-350 connected users (not people) per hectare would be required to make a conventional sewerage system economically viable.

The Project promotes smart dry toilets that have a removable superstructure or use dual pits, and either do not need trucking at all or only rarely. Since it cannot be completely avoided that infiltration even from dry latrines modestly reaches the groundwater, the government usually enforces closure of all shallow wells in urban areas. This has not been done in Bariadi and the other towns in Simiyu so far, since the government is currently not able to provide alternative water to the people. Shallow wells are currently used to a large extent in Bariadi and are a dangerous health hazard to people. The government will enforce closing of these shallow wells as soon as it succeeds to deliver appropriate water to the people. With bulk water rather than urban groundwater for direct human consumption, improved toilets will not cause health and hygiene risks for the urban population.

The future quantity of sludge from the five urban centres in Simiyu is estimated at 38.000 m<sup>3</sup>/a. If a truck does about 4-8 trips per day, one or two vacuum trucks equipped with a 30 m long hosepipe to access urban settlements are needed to handle this quantity. The sludge is treated at sludge treatment plants through anaerobic ponds and constructed wetlands and then used as fertilizer for agricultural purposes. Sludge treatment plants are foreseen in Bariadi, Lagangabilili and Nyashimo. Three decentralized locations are required to facilitate local marketing and usage of the fertilizer and to reduce the risk of fraudulent dumping of the sludge.

Another aspect of utmost importance is the hygiene campaigns on why and how to improve traditional pit latrines, appropriate hygiene behaviour and the reuse of stabilized faecal sludge. They are integrated as part of the community mobilisation and planning process. The Project raises awareness that climate resilience is only possible if it goes along with improved health conditions. Women are important change agents and a crucial target group for hygiene sensitization measures, since they are the principal caretakers for new-borns and children. Improved school toilets and so-called sanitation clubs in schools are a promising approach to improve the awareness and needed behaviour changes that are crucial according to impact studies on sanitation initiatives in Tanzania.

The climate-smart agriculture component improves the climate resilience of 300,000 beneficiaries through water supply for agricultural (irrigation of food and cash crops, horticulture) and livestock watering purposes, climate-smart agricultural practices (support to provision of adapted seeds and seedlings, Farmer Field Schools) and improved natural resource management (Ngitili, fuelwood plantations). The set of interventions comprises technically appropriate and locally known measures as well as the introduction of new or innovative approaches, namely

- construction/rehabilitation of small earth dams (max. 8 meters high) and so-called charco dams (max. 5 meters high),
- support to the provision of irrigation equipment (e.g. drip irrigation kits, solar pumps),
- support to the provision of improved/adapted seeds and seedlings (food and cash crops, locally adapted tree varieties),
- support to the implementation of Farmer Field Schools through LGAs,
- Ngitili development and establishment of fuel wood plantations with adapted tree varieties, incl. land registration,
- ICT knowledge platform for information and dissemination purposes,
- provision of funds for a system of contests and awards.

Small earth and charco dams provide water mainly for irrigation and livestock watering purposes. This is a suitable approach to reduce the vulnerability of the beneficiaries who are exposed to volatility of rainfall and who depend on the availability of water at crucial times during the cropping. Availability of water for off-season horticulture secures

income, especially for women, who are often involved in horticulture. It also secures the availability of vegetables on local markets and improves diets and nutrition security for all local consumers. Women are involved in planning and selection of technologies to ensure that their specific needs are met. The irrigation equipment and technologies used by the Project greatly improve water use efficiency (“more crop per drop”), thus they potentially reduce water stress for crops over longer periods. The use of solar pumps is fostered since they are more environmentally friendly, economically viable and reduce operation and maintenance costs. In addition to small scale irrigation, dams will provide water for livestock. This alleviates pressure on pastoralists who now migrate as far as even to the shores of Lake Victoria and contributes to reduce conflict potential between pastoralists and arable farmers along migration routes. Existing small dams in the region were mostly designed solely for cattle uses, even though a big proportion of the communities and of the individual farmers are involved in both cattle herding and farming. As a result, at those dams where the initial concept did not cater for small scale irrigation, informal micro irrigation systems were often established only a few meters away from the cattle troughs, which unavoidably lead to conflicts. Communities will be encouraged during community based planning to select dams that accommodate for both uses. This includes advice and support for the establishment of an appropriate operational concept. The technical design shall facilitate both uses without interference. This shall serve as a role model.

Adapted seeds and seedlings help to increase the overall amount and reliability of yields. Collaboration with national and regional research organisations ensures that adequate, adapted species and varieties are being used.

The Farmer Field Schools help farmers make best use of improved and adapted inputs. They are a powerful measure to introduce good agricultural practice, environmentally sound farming and build up resilience to climate change. They also have the potential to become the basis for upscaling climate smart agriculture within neighbouring, agro-ecologically similar regions. Additionally, Farmer Field Schools are breeding grounds for enhanced participation in civil society organisations, thus contributing to an enabling environment.

Ngitili provides additional fodder resources for livestock during dry seasons. Both Fuelwood plantations and Ngitili have the double benefit of acting as a carbon sink (if managed properly) and of minimising encroachment into natural vegetation and habitats, especially the neighbouring Serengeti area. Project activities are contingent on proper land registration, especially for women. The concepts of sustainable forest and Ngitili management increase awareness of the importance of land rights and related regulatory aspects among local communities and administrative entities. They reduce pressure on vegetation and soil and improve ecosystem services.

The ICT knowledge platform is an information hub for researchers, regional administrative bodies, local communities, individuals and decision makers. It informs its users about current weather facts, future projected climate trends and adaptation potentials, thereby acting as a catalyst for learning, change and knowledge management. It includes features like text messaging to mobile phones to ensure that people in remote areas benefit from and participate in the platform.

Experiences with contest and award systems all over the world show that they incite people to develop and implement ideas on how to improve their environment, livelihoods and well-being. However, it is a new approach for the Simiyu Region and not yet established in Tanzania. They are a particularly promising tool for climate adaptation activities since ideas may cover and merge a broad variety of topics from sanitation to health, agriculture, soil and water conservation, storage and processing up to ideas for the management of public water taps. Locally organised juries help to keep the contests and awards transparent, and media coverage makes ideas and results accessible to a broader public. This may initiate changes even beyond the Project region.

### F.3. Environmental, Social Assessment, including Gender Considerations

#### 1. Environmental and Social Risk Category (A)

The Project entails significant social and health benefits. There is a high demand for access to reliable and safe water supply as well as climate-smart agricultural techniques, and the Project is expected to greatly increase climate resilience in the serviced areas. However, the Environmental and Social Impact Assessment (ESIA) recognizes that some of the potential impacts are considered significant, particularly the resettlement of households and commercial establishments, impacts on cultural heritage, and potentially cumulative impacts from other projects in the area if implemented. Due to the large size of the planned infrastructure, the water extraction from Lake Victoria and the necessary resettlements and loss of livelihoods which is likely to affect more than 200 people, the Project was screened and designated as environmental and social risk **Category A**. MoWI rated the Project accordingly. However, the anticipated impacts are seen as localized and within the Project's influence area, largely reversible, and can be mitigated through the Environmental and Social Management Plan (ESMP). The ESIA report presents a project-level grievance and redress mechanism that utilizes a traditional conflict resolution process.

#### 2. Applicable Performance Standards (PS) for the Project.

Performance Standards of IFC		Justification of PS Applicability
<b>PS 1:</b> Assessment and Management of Environmental and Social Risks and Impacts	X	An ESIA incl. an ESMP and a Resettlement Policy Framework (RPF) have been prepared for the water supply scheme for the management of environmental and social performance during the planning, construction and operation phase. For the climate-smart agriculture component an ESMF has been prepared.
<b>PS 2:</b> Labor and Working Conditions	X	Safe and appropriate working conditions will be assured during construction and maintenance. The ESIA has reviewed the applicable policies and legislation, and included labor and working condition requirements in the ESMP.
<b>PS 3:</b> Resource Efficiency and Pollution Prevention	X	The ESIA has evaluated the existing levels and sources of pollution within the Project. Resource efficiency and pollution prevention have been addressed as part of the ESMP based on the World Bank Group's EHS Guidelines for Water and Sanitation.
<b>PS 4:</b> Community Health, Safety, and Security	X	During construction, community H&S may be an issue. Contractors are obliged to protect community H&S, especially through HIV prevention and awareness campaigns which are an integral part of construction contracts.
<b>PS 5:</b> Land Acquisition and Involuntary Resettlement	X	Necessary resettlements and land acquisition will be determined with the final design of the pipeline. The detailed design will adopt recommendations from the ESIA to minimize resettlement impacts. A Resettlement Action Plan (RAP) is currently being prepared and will be implemented prior to the beginning of the construction works. Planning and implementation of the RAP will be guided by the RPF that is developed in accordance with IFC's PS 5 and by national legislation.
<b>PS 6:</b> Biodiversity Conservation and Sustainable Management of Living Natural Resources	X	A baseline inventory of biodiversity and living natural resources has been established as a result of field investigation and secondary information sources.
<b>PS 7:</b> Indigenous Peoples	n/a	There are no indigenous peoples in the Project area. The Hadzabe people, who identify themselves as indigenous peoples, predominantly live around Lake Eyasi, southeast of the Project area. Therefore, PS 7 is not applicable to the water supply scheme.
<b>PS 8:</b> Cultural Heritage	X	One potential reservoir site is on a sacred hill that is worshipped by the local community. Whether this site will be used is still under evaluation.

The Project is in compliance with IFC Environmental and Social Standards. Overall, the reviewed ESIA, ESMP and RPF provide a good overview of the risks and impacts associated with the water and sanitation supply measures and propose adequate mitigation measures. The ESMF for the agricultural component was published in September 2016. It includes references to the water component. Since the ESIA and ESMP for the water component and the ESMF for

the agricultural component are now both in place, possible cumulative impacts in these studies are being evaluated before their finalization. Currently, the environmental studies are under review by national authorities who will disclose the documents after approval. The first draft of the ESIA was disclosed by KfW on 23<sup>rd</sup> of June 2016. The ESIA provides mitigation measures to address identified key negative impacts and to enhance positive impacts. These will be further detailed in each phase of the Project, e.g. during construction (Construction ES Management Plan), operations (Operational ES Management Plan) and similarly for decommissioning. For more details, please refer to Annex 8: Summary of the Environment and Social Impact Assessment and the supporting documents delivered.

### 3. Consideration of gender aspect in the Project

The Tanzanian National Strategy on Gender and Climate Change recognizes a strong interlinkage between gender issues and climate change and states that climate change may worsen gender inequalities. Men and women are differently affected by and able to adapt to impacts of climate change due to their specific socio-economic roles and responsibilities. Therefore, contributing to gender equality is a significant objective of the Project and a gender-sensitive approach is conducted in each component. The Project has set out six fundamental principles on gender consideration:

- 1) commitment to gender equality and equity;
- 2) inclusiveness in terms of access and applicability to all the activities;
- 3) accountability for gender and climate change results and impacts;
- 4) improvement of national policies and priorities, and inclusive stakeholder participation;
- 5) equal competencies throughout the institutional framework; and
- 6) equitable resource allocation so that women and men benefit equitably from the adaptation measures.

The following, mostly interlinked key issues on gender have been identified for the Simiyu Region:

(1) Female-headed households (FHH): About 38% of the households in the Simiyu region are female-headed households (Census 2012), a figure which exceeds the national average (33%) and is the second highest rate in the country. Since FHH are bigger than male-headed households (MHH) in Tanzania according to statistics, the high number of female headed households may partly explain the relatively big household size of 6.9 persons per household in Simiyu. The national average is 4.7 persons per household. Country-wide statistics show, that a majority of FHH in Tanzania are headed by widows (47%), followed by divorced or separated women. The common belief that FHH are more prone to poverty is not necessarily the case: Statistics show that rates of incidences of poverty are higher in male-headed households (MHH 40.2%, FHH 38.3%). However, looking at the depth of poverty, FFH often suffer more deeply. One reason may be, that members of FHH are generally less educated. Another, that FHH often do have less workforce. According to the Tanzanian National Gender Profile, FHH tend to suffer more from food-insecurity than MHH. The Project's components consider specific needs of FHH that are also related to the following points 2-4 (please also refer to section E.3.1.)

(2) Lack of education: 74% of the respondents of the baseline study conducted in the Simiyu region mention lack of education opportunities for women as one of three gender-related problems faced by a family. Low level of education among women is therefore considered during planning and implementation of awareness-raising and sensitisation campaigns.

(3) Lack of participation: Although women make up the majority of the labour force, especially in agriculture, they are not adequately involved in planning and decision-making. One problem making it particularly difficult to implement collective soil protection measures or farming systems by women groups is that women traditionally do not have land ownership rights. Customary practices that restrict a woman's property rights are still widespread although the 1999 Land Act gives Tanzanian women the right to obtain access to land, including the right to own, use and sell it, and mandates joint titling of land. Men are still seen as the natural head of a family and have control over the household budget. Additionally, women are still underrepresented in village councils that are often responsible for settling land conflicts. The Project promotes women's participation in decision-making, especially in the context of Community

Based User Associations. Property for the family rather than the family head is promoted. Women and women's groups are especially consulted during Project preparation and implementation to ensure that the needs of women and men are equally considered.

(4) Division of labour and gender-specific time budget: Economic empowerment of women is among the main objectives in the Tanzanian National Strategy for Gender Development. The baseline study shows that both men and women in the Simiyu region contribute almost equally to the household income. There are tasks that are still traditionally assigned to women - and more and more often to children - , e.g. fetching water. However, men start to participate which may be explained by a lack of reliable resources. While men on average spend around 11-20 minutes per trip to fetch water, women spend around 30 min and sometimes even up to one hour or more. Consultations with ward leadership and the communities reveal that in some areas, women spend up to 6 hours of their productive time in search for water – especially in the driest months. Apart from that they are responsible for a large number of high-frequency tasks such as child care, food preparation etc.. Clean and safe drinking water supply in a short walking distance or even via household connections in urban areas has a positive impact on food security and the health situation – especially of (new born) children. It saves time which can be used for other activities, for instance for educational purposes. This gives particularly girls the opportunity to increase their school attendance. Girls' school attendance will rise due to improved school toilets, since many girls do not go to school during menstruation, if no proper sanitation facilities are in place. The agricultural component considers women's gender specific time budget (due to their domestic obligations) to give them the opportunity to participate in the component's activities. The promotion of labour saving technologies is also considered.

For more information on gender considerations in the Project, please refer to Section E.3.

#### F.4. Financial Management and Procurement

In line with the general arrangements as described in section C.7 and Annexes 5 and 6, procurement and financial management will be implemented as follows:

##### **Procurement**

Goods and services are procured and assigned by the involved Tanzanian entities according to Tanzanian standards. However, as defined in the AMA between GCF and KfW, KfW procurement guidelines on international competitive bidding apply and in the event of any differences in policies, KfW's guidelines prevail. KfW assesses adherence of submitted documents with KfW procurement regulations at defined stages in the process. The procuring entity is required to receive prior no-objection from KfW before executing these steps, e.g. the signing of the final contract. KfW is not a contracting party for goods and services procured under the Project. For an overview of procurement arrangements, please refer to Annex 9.

Consultancy Services are procured by MoWI upon international competitive bidding in line with KfW's prior no-objection procedure. A Tender Agent financed by the German Government supports MoWI during the tendering process.

Works and Services above 350.000 EUR are procured upon international competitive bidding. KfW must issue prior no-objection at defined stages as described in the KfW procurement guidelines. For water and sanitation infrastructure, it is proposed to launch one tender that includes water supply works, the faecal sludge treatment plant, the vacuum truck and public toilets. To facilitate contract management, supervision and overall quality control, MoWI is the procuring entity for this lot. FIDIC Red Book standards are applied. However, the contract includes a FIDIC Yellow Book component for the construction of the water treatment plant. This allows for better controlling and if necessary correcting the requested outcome parameters, such as energy consumption, chemical costs, sludge quantities and water quality. Furthermore, as part of the programmatic approach on climate smart agriculture, LGAs are expected to procure 2 contracts for small dams above the threshold of 350.000 EUR.

A large number (> 100) of small contracts for Works and Services below 350,000 EUR in the field of climate-smart agriculture are procured by the LGAs upon national competitive bidding. National tenders are launched, which are open to regional bidders from the East African Community. The PMU at the Regional Secretariat prepares a procurement manual for these contracts on the basis of Tanzanian procurement rules and KfW procurement guidelines. The procurement manual is elaborated with the support of the Implementing Consultant and requires KfW's approval. It defines a procedure for post-approval for small contracts through KfW in the Project as follows: In principle, the PMU collects annual procurement plans developed by the LGAs on the basis of the communities' proposals, compiles them and submits them, countersigned by the Implementing Consultant, to KfW for no-objection. Following this, LGAs procure the goods and services in line with the plan. Annual procurement reports supported by independent procurement audits are submitted to KfW for review and post-approval.

### **Financial Management**

Recipient of the funds is the United Republic of Tanzania. The Ministry of Finance and Planning signs the Financing Agreement on behalf of the United Republic of Tanzania and is defined as the Executing Entity, whereas the implementing entity is the Ministry of Water and Irrigation. The details of procurement and financial management are defined in a Separate Agreement between MoWI, the Regional Secretariat and KfW. Annual financial audits of the Project in line with International Auditing Standards are performed by independent external auditors. The Management Consultant is tasked to assign independent auditors upon competitive selection. The audit is financed from the Management Consultant's reimbursable budget.

Proceeds from the GCF are kept at a separate trust account at KfW. As a general principle, KfW disburses funds to the recipients **in accordance with the progress of the project**. The Implementing Entity and the implementing consultant have to approve the proper use of funds and the defined progress as a prerequisite for any disbursement. In addition, KfW staff carries out regular on-site checks of the proper physical implementation and bookkeeping.

Disbursements for consultancy contracts and for works contracts above 350,000 EUR are done according to the KfW "direct disbursement procedure", meaning that KfW disburses funds directly to the contractors on request by the contracting entity. All disbursement requests for works contracts need to be countersigned by the Implementing Consultant.

For contracts up to 350,000 EUR, the Regional Secretariat sets up a special account for disposition funds in EUR with a corresponding sub-account in TZS. The Regional Secretariat requests KfW for down payments into the disposition fund on the basis of the annual investment and procurement plans and the actual use of funds. Together with each request for replenishment of the disposition fund, documentation on the evidence of the use of funds, reconciliation of accounts and statements of expenditures must be delivered to KfW. In line with KfW's financial management standards and to support the internal control system of the Regional Secretariat, all this documentation must be countersigned and all disbursements must be authorized by the Implementing Consultant. The Regional Secretariat also commissions independent annual audits of the disposition fund and submits them to KfW. Audits are financed out of the Disposition Fund.

### G.1. Risk Assessment Summary

The main risks of the Project relate to the need to create and significantly strengthen institutions on all levels, the sensitivity of the financial viability of the water supply system to the amount of water sales and the speed of connecting new customers, the introduction of a paradigm shift and the success of community driven planning. Overall, taking into account the mitigating measures as described below in G.2, the level of impacts of risks to the Project is medium with a medium probability.

### G.2. Risk Factors and Mitigation Measures

#### Institutional Challenges

Description	Risk category	Level of impact	Probability of risk occurring
A set of institutions at local level (urban utilities, SIMWASA, LGAs, COWSOS, local user groups for agricultural measures) needs to be newly established or strengthened considerably to ensure sustainability of the Project. They need to be staffed within the required time frame and with qualified personnel, to implement the Project as planned	Technical and operational	High (>20% of project value)	High

#### Mitigation Measure(s)

The Project contains comprehensive capacity building measures to strengthen the Regional Secretariat, Water Utilities, LGAs and local user groups. The Government commits to ensure inclusion of sufficient funding for staffing in line with staffing schedules and means of work in the government budget. If it turns out to be difficult to find adequate staff, topping up of salaries may need to be financed from contingencies. The involved institutions are furthermore supported by a consulting team during project implementation. It is expected that **these risks are reduced to medium** with the proposed measures.

#### Financial Sustainability

Description	Risk category	Level of impact	Probability of risk occurring
Reduction of the amount of water sales could lead to cash flow problems of the operators.	Financial	High (>20% of project value)	High

#### Mitigation Measure(s)

Thorough planning has been carried out during the feasibility stage and will be continued during detailed design to reduce the risk of cost increases. Sensitivity analyses of the cash-flow models show sufficient robustness for delays in water sales if appropriate measures are being taken. Those measures include increasing the speed of connecting especially urban areas and thorough planning of water tariffs. Regular follow up on the number of costumers and on the projected financial performance based on the financial model help to monitor the water providers' cash flow. According to sensitivity analyses, an increased tariff of 0.63 and 0.80 ct/m<sup>3</sup> may be necessary if demand turns out to be 20% below current projections. Applying this tariff would still be possible without overloading individual household expenditures, as described in Section F.1. In addition, the Project finances household connections in urban centres as well as public taps, to initiate water consumption. Capacity building is carried out for districts and local communities for the formation of COWSOS. With the mentioned measures we expect that positive cash flow is achieved from the third year on. Financing is contingent on the commitment of the government to subsidise operational costs until enough connections are in place to cover operational costs from revenue. With these mitigation measures, **the risk is reduced to medium**.

<b>Paradigm shift</b>			
Description	Risk category	Level of impact	Probability of risk occurring
The Project pursues new approaches in many regards, from the national level where cross-sectoral planning and implementation is introduced, to the local level where people will be required to change their daily habits and to form local user associations. Introducing these changes will be a major challenge.	Other	Medium (5.1-20% of project value)	High
Mitigation Measure(s)			
The high needs of the recipients at the local level and the broad ownership within the government will be a good basis to introduce the paradigm shift. Thorough planning and a participatory and holistic approach that ensures stakeholder engagement right from the beginning is expected to mitigate this risk. Furthermore, a Strategic Support Consultant will be assigned to support the MoWI and the Steering Committee in these aspects of the Project. <b>We expect to mitigate this risk to a medium level.</b>			
<b>Community driven planning may lead to unforeseen results</b>			
Description	Risk category	Level of impact	Probability of risk occurring
Community driven planning of measures related to climate-smart agriculture, rural water supply and rural sanitation may not take place as planned, resulting in not enough and even qualitatively unacceptable investment proposals.	Technical and operational	Medium (5.1-20% of project value)	Medium
Mitigation Measure(s)			
Household surveys show sufficient demand. Risks are mitigated by information campaigns about the Project, as well as support to local communities in project identification, to be delivered by the LGAs in collaboration with the Implementing Consultant. Thereby, we expect to <b>reduce this risk to a low to medium level.</b>			
<b>Other Potential Risks in the Horizon</b>			
<p>Increased and uncoordinated abstraction of raw water and pollution of Lake Victoria could impact the Project. A programme to address this issue on a transnational level, combined with strategic investments is currently under preparation by East African Community, Lake Victoria Basin Commission and Member States with financial support from Germany (KfW) and potentially the European Union. It includes investments in sanitation infrastructure for riparian towns and polluters, as well as enhanced monitoring systems for the water quality of the lake and strengthening of corresponding institutional structures.</p> <p>Regarding the long-term development of the level of Lake Victoria, predictions foresee a stronger variability, but also an overall slight increase of the cumulative amount of rainfall in the Lake Victoria region. According to projections of the Climate Service Centre of the Helmholtz Zentrum in Germany in 2013, the climatic water balance in Tanzania will increase by 18 percent by 2100. It also projects similar values for Uganda and Kenya. However, it has to be noted that the projected future climatic water balance shows a rather high bandwidth, because it is calculated by accumulating effects of the different precipitation and evaporation scenarios. Over the past 100 years, the level of Lake Victoria varied by about three meters. A rise of lake level by 2.5 meters in the 1960s was mostly assigned to climate effects. However, the current decrease of 2.5 meters, bringing the lake back into the range of its original level, is said to be correlated about half to human activities and about half to climate effects. In 1954, as part of the Owen's Fall hydropower project, Egypt and Uganda agreed to ensure that the releases from Lake Victoria will</p>			

correspond to the natural flow of the river before damming through the so-called “Agreed Curve”. Since then, Uganda has been controlling the outflow from Lake Victoria. However, the estimation of lake rainfall, tributary inflow and evaporation is not easy and there have been intensive discussions on whether Uganda left the “Agreed Curve” between the years of 2001 and 2006. With the commissioning of the Bujagali hydropower station in 2012, the Government of Uganda can now produce twice the quantity of power with the same amount of water released from Lake Victoria and has been able to significantly reduce pressure on their power system. The Bujagali hydropower station was financed by a consortium of international financiers, among them KfW. As described in Section F.2, the water intake has been designed to accommodate a potential drop in lake level of up to 2 meters. If the need arises, the intake can be modified at a later stage.

## H.1. Logic Framework

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level					
Paradigm shift objectives					
<i>Increased climate resilient sustainable development</i>	The objective of the Project is to increase climate resilience of rural and urban households, particularly small scale farmers and women living in the Simiyu Region, and to improve policies and regulation for cross-sectoral action towards climate adaptation.				
Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target	Assumptions
Fund-level impacts					
<i>A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions</i>	A1.2 Number of men and women benefiting from the adoption of diversified, climate resilient livelihood options	Household survey (mid-term and upon completion of the Project)	0 men 0 women	238,000 men 257,000 women	Institutions at regional, LGA and local level are strengthened sufficiently to plan, implement and complete the infrastructure and to manage it sustainably.
<i>A2.0 Increased resilience of health and well-being, and food and water security</i>	extracted from A2.1: Number of additional improved public sanitation facilities to prevent climate-induced waterborne diseases  A2.2 Number of people with year-round access to	Annual Reports on project status, household survey (mid-term and upon completion of the	0 public sanitation facilities  7,000 people	50 public sanitation facilities at market places, bus stops or schools  238,000 women,	Communities have been successfully mobilized. They demand the services as predicted on the baseline of the household survey and possible

	<p>reliable and safe water supply despite climate shocks and stresses</p> <p>A2.3 Number of additional food secure households in periods at risk of climate change impacts</p>	Project)	0	<p>257,000 men</p> <p>28,900 households</p>	<p>upcoming conflicts over water and soil sources have been prevented or mitigated.</p> <p>The population is willing to pay cost covering tariffs for climate adaption infrastructure.</p>
<p><i>A3.0 Increased resilience of infrastructure and the built environment to climate change</i></p>	<p>A3.1 Number and value of infrastructure or physical assets made more resilient to climate variability and change</p>	<p>Technical information contained in Annual Reports, ecosystem survey (mid-term and upon completion of the Project)</p>	<p>0</p> <p>0</p>	<p>1 water supply system worth 88.9 m EUR</p> <p>4 small dams and irrigation systems and 15 charco dams worth 3.1 m EUR</p>	
<p><i>A4.0 Improved resilience of ecosystems and ecosystem services</i></p>	<p>A4.1 Scale of additional ecosystems protected in response to climate change</p>	<p>Annual Reports, ecosystem survey (mid-term and upon completion of the Project)</p>	0	7.200 ha	

### H.1.2. Outcomes, Outputs, Activities and Inputs at Project level

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target	Assumptions
<b>Project outcomes</b>	<b>Outcomes that contribute to Fund-level impacts</b>				
A5.0 Strengthened institutional and regulatory systems for climate-responsive planning and development	<p>A5.1 Number of key targeted institutions with evidence of their strengthened capacity and coordination mechanisms to mainstream climate resilience</p> <p>A5.2 Number of effective regulations/policies introduced/adjusted to address climate change</p>	<p>Project reports, Annual utility performance assessment report by EWURA, COWSO Competency assessment Framework, Joint Supervision missions of Water Sector Development Programme and Agriculture Development Programme II</p>	<p>0</p> <p>0 regulations or policies adopted following recommendations of the Steering Committee</p>	<p>50 (including community based organisations)</p> <p>4 regulations or policies adopted following recommendations of the Steering Committee</p>	<p>Trained staff remain at related positions/posts.</p> <p>Targeted entities continue to commit themselves to multisectoral planning and implementation procedures as developed within the Project under SC supervision.</p>
A6.0 Increased generation and use of climate information in decision-making	<p>A6.1 Number of generated climate information products tailored to decision makers</p> <p>A6.2 Evidence showing that climate information products/services are used in decision making in climate sensitive sectors</p>	<p>Project reports, esp. reports of Steering Committee, user statistics on ICT network, household survey (mid-term and upon completion of the Project), see also results of A5.0</p>	<p>0</p>	<p>1 ICT network on climate change</p> <p>On national level qualitative, on household level 77,000 people (agriculture)</p>	<p>Interested parties actively participate in developing concepts and contents of ICT platform on climate change.</p> <p>Technical layout of platform allows for wide access of all identified user groups.</p>

<p>A7.0 Strengthened adaptive capacity and reduced exposure to climate risks</p>	<p>A7.1 Extent to which vulnerable households, communities, businesses and public sector services use improved, fund-supported tools, instruments, strategies and activities to respond to climate change and variability</p>	<p>Project reports, Annual utility assessment by EWURA, Budget performance analysis, Joint Supervision missions of Water Sector Development Programme, Steering Committee Reports, household survey (mid-term and upon completion of the Project)</p>		<p>On national level qualitative, on household level 495,000 people</p>	<p>Sufficient number and qualification of extension workers to disseminate climate-smart techniques and tools, wide accessibility of ICT platform on climate change and adaptivity.</p> <p>Farmers adopt disseminated techniques and practices.</p>
<p>A8.0 Strengthened awareness of climate threats and risk-reduction processes</p>	<p>A8.1 Number of women and men made aware of climate threats and related appropriate responses</p>	<p>Project reports, LGA reports on extension work</p>	<p>0</p>	<p>257,000 women, 238,000 men</p>	<p>Sufficient number and qualification of extension workers to disseminate climate-smart techniques, wide accessibility of ICT platform on climate change and adaptation</p>
<p>M9.0 Improved management of land or forest areas contributing to emissions reductions</p>	<p>M9.1 Additional hectares of forests or land under improved management contributing to emission reduction</p>	<p>Project reports, household and ecosystem surveys (mid-term and upon completion)</p>	<p>0</p>	<p>7,200 ha</p>	<p>Farmers are willing to convert land into Ngitili/woodlots, and accept the proposed deposit account scheme.</p>
<p><b>Project outputs</b></p>	<p><b>Outputs that contribute to outcomes</b></p>				
<p>1. Refined mechanisms for implementation of adaptation activities</p>	<p>The Project serves as a role model. A Steering Committee uses experiences from the Project to initiate improvement of procedures and regulations for cross-sectoral coordination and implementation of further climate adaptation activities</p>				
<p>2. Improved water supply infrastructure, agricultural practices and sanitation services</p>	<p>Reliable and safe drinking water for 395,000 people, reduced vulnerability to water borne diseases for 300,000 people, 60% (180,000) of them being women, improved food and income security for 200,000 people</p>				

3. Communities are engaged and operate and maintain their projects properly	Community Adaptation Plans formulated, contests and awards carried out, communities propose projects and establish Community Based User Associations, communities operate and maintain their projects		
4. Capacities enhanced	Farmer Field Schools established, awareness on climate threats strengthened, increased capacities and improved processes to implement risk- reduction measures, infrastructure operated sustainably, adaptive capacities of the most vulnerable enhanced.		
Activities	Description	Inputs	Description
1.1 Establish and improve mechanisms towards cross-sectoral planning and implementation	Establish a Steering Committee with a defined agenda and ToR for facilitating paradigm shift and introducing new regulations and procedures for implementation of cross-sectoral climate adaptation measures	Involvement of line ministries, government entities and CSO, Consultancy	Discuss and adapt standard procedures, organizational structures and regulations on the basis of experiences made in the Project  Review lessons learnt  Initiate and advocate for replication in similar cross-sectoral adaptation projects
1.2 Establish an ICT platform	Web-based and/or mobile phone-based system of communication and interaction, addressing researchers, extension officers, farmers and decision makers	Consultancy	Design a platform concept and TOR for the prospective provider  Identify suitable academic or non-profit organization hosting the system and managing content  Identify relevant institutions and establish cooperation agreements  Develop a systematic data collection, processing and management system  Manage website and content in line with capacities and needs of user groups
2.1.1 Construct bulk water system	intake, treatment plant, pumping stations and transmission main	Works and services, consultancy	
2.1.2. provide operation subsidy in year 1-3 of operation	Subsidy from central government to UWSas trough payment of salary bills and electricity costs	Budget Funds	Only year 1-3 of operation. Afterwards, the Project is expected to cover operational costs from revenue in line EWURA standards and the tariff model based on cash flow

			projection
2.1.3 Construct urban water distribution incl. public water tabs	Distribution pipes and public standpipes	Works and services, consultancy	
2.1.4 Finance household connections	Distribution pipes and mainly public standpipes	Works and services, consultancy	Partial pre-financing through the Project on a first-come first serve basis to accelerate new connections
2.1.5 construct rural distribution incl. public water tabs	Distribution pipes and public standpipes	Works and services, consultancy	On the basis of community driven planning, establishment of COWSOs
2.2.1 construct wastewater treatment plants and purchase exhauster trucks	Anaerobic ponds, sludge drying beds and constructed wetlands	Works and services, consultancy	
2.2.2 carry out hygiene awareness campaigns and promote improved household latrines	Promotion of water saving and affordable on-site solutions esp. in vulnerable low income urban areas.	Consultancy, provision of construction materials	Sanitation clubs for schools, radio shows, distribution of subsidized materials (concrete slabs and ventilation pipes), with support of local NGOs
2.2.3 Construct public toilets	On-site sanitation solutions	Works and services, consultancy	At public places, like markets, bus stations and in schools, with support through local NGOs
2.3.1 Construct and rehabilitate dams and small scale irrigation systems	15 charco dams, plus either i.) 3 new valley dams, or alternatively ii.) 1 new dam and the rehabilitation of 4 existing dams, thus upgrading an estimated 1,000 ha to irrigated land	Works and services, consultancy	Selection of sites according to transparent technical and socio-economic criteria
2.3.2 Provide adapted equipment and seeds	Introduction of System of Rice Intensification (SRI) as a climate-smart irrigation technology for rice, drip irrigation for horticulture production, high yielding, fast maturing, and drought-tolerant seeds for horticulture and maize production, "Push-pull" intercropping technology and other conservation agriculture technologies	Consultancy, direct financial contribution	Contribution to provision of irrigation equipment (e.g., pipes, drip irrigation kits, solar pumps)  Support and subsidies to procurement of adapted seeds  Disbursement via disposition fund
2.3.3 establish Ngitili and forest plots	Put in place climate-smart and sustainably managed fuelwood and fodder supply through Ngitili enrichment/development (in case fodder is the main produce) or forest	Works and services, consultancy	Supply of adapted seedlings and training via e.g. ICRAF  Incentive to farmers via deposit accounts

	plantations with spacing allowing pasture use (in case fuelwood is the main produce)		Disbursement via disposition fund
3.1 Develop operational manual for community driven approach, Facilitate development of community adaptation plans and establishment of community based user associations	Describes the procedures of the community driven approach including a user's manual for communities. Communities are encouraged to define priorities. Women are explicitly encouraged to involve and have to be represented in the boards of the associations	Consultancy	Facilitated by the extension officers of the LGAs. Consultants capacitate LGA staff for this task and work together with CSO, user fees have to cover operational costs and maintenance wherever applicable
3.2 Carry out contest and award	Communities or individuals develop ideas and receive a premium upon realization	Consultancy, direct financial contribution	Consultants capacitate LGA staff for this task and work together with CSO
4.1 Capacity building to Regional Secretariat, water utilities, LGAs and MoWI	Training of involved government entities	Consultancy	Training (workshops, on-the-job) by implementation consultant, government entities (MoWI, MALF, LGAs, bulk water supplier) and contingently by national/regional research institutions
4.2 Establish Farmer Field Schools	integrated approaches are promoted that secure and increase yields through soil protection practices, plant and seed variety selection, fertilization, weed control, integrated plant protection and climate-adapted harvesting techniques. The plots of the Farmer Field Schools allow a comparison of production of the treated soils with traditionally cultivated soils.	Consultancy	Consultants capacitate LGA staff for this task and work together with CSO

## H.2. Arrangements for Monitoring, Reporting and Evaluation

Monitoring, reporting and evaluation arrangements will comply with the relevant GCF policies (MAF, AMA, etc).

KfW undertakes semi-annual reviews to assess progress of Project implementation and compliance with covenants and Project agreements, to monitor progress in achieving Project outputs and to monitor evidence of use of funds.

A mid-term review is carried out in year 3 of the Project being effective or at any time that KfW, MoWI and/or the Steering Committee consider necessary. The Strategic Consultant competitively selects and assigns an independent consultant for this task. The mid-term review is financed from the reimbursable budget of the Strategic Consultant. It includes (i) review of the institutional, administrative, organizational, technical, environmental, social, economic, and financial aspects of the Project based on the assumptions and risks included in the design and monitoring framework; (ii) review of covenants to assess whether they are still relevant or need to be changed, or waived due to changing

circumstances; (iii) review of the achievement of intermediate impacts in the framework of a rapid household and ecosystem survey (iv) assessment of the need to restructure or reformulate the Project and the effects of this on the immediate objectives (purpose) and long-term goals of the Project; (v) update of the Project's design and monitoring framework if restructuring or reformulation is necessary or its immediate objectives will change.

Upon completion, KfW carries out a project completion mission, where the satisfactory implementation of the Project within the agreed framework and good financial and engineering practices, the delivery of outputs and the achievement of Project targets is monitored.

2-3 years after physical completion, the Project becomes part of KfW's pool of independent ex-post evaluations, where a sample of 1/3 of all projects, selected on a random basis, are evaluated.

Furthermore, the Implementing Entity regularly reports to KfW. The details are defined in a Separate Agreement to the Financing Agreement. MoWI with the Support of the Implementing Consultant reports to KfW quarterly and annually on the progress of the Project (progress reports), including the fulfilment of the implementation agreements and on the development of all other important general conditions. Actual performance indicators are reported and compared to the expected results. Wherever necessary, adaptation of operational structures is proposed, discussed and implemented. The Regional Secretariat with the support of the Implementing Consultant reports to KfW on the implementation of the community driven approach and the disposition fund as described in Sections C.7.2 and F.4. In addition, MoWI and the Regional Secretariat are tasked to report on all circumstances that might jeopardize the achievement of the overall objective or the purpose and the results of the Project. At the time of the physical completion and commissioning of the Project, and before the expiry of the guarantee period at the latest, MoWI submits a final report on the measures carried out. All reports must have been received by KfW not later than 4 weeks after the end of the period under review. All reports are countersigned by the Implementing Consultant.

After completion of the Project, MoWI reports on its further development. However, the water utilities, MoWI, the LGAs and the Community Based User Associations are responsible for monitoring and ensuring due operation of their systems.

## I. Supporting Documents for Funding Proposal

- NDA No-objection Letter
- Feasibility Study
- Integrated Financial Model that provides sensitivity analysis of critical elements (xls format, if applicable)
- Confirmation letter or letter of commitment for co-financing commitment (If applicable)
- Project Confirmation/Term Sheet (including cost/budget breakdown, disbursement schedule, etc.) – see the Accreditation Master Agreement, Annex 1
- Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Plan (If applicable)
- Appraisal Report or Due Diligence Report with recommendations (If applicable)
- Evaluation Report of the baseline project (If applicable)
- Map indicating the location of the Project
- Timetable of Project implementation

*\* Please note that a funding proposal will be considered complete only upon receipt of all the applicable supporting documents.*

### List of Annexes:

Annex 1 indicative Term Sheet

Annex 2 Maps of the Project area

Annex 3: Investment options and criteria for climate-smart agriculture

Annex 4 Flow chart for community driven planning

Annex 5 Flow charts of contractual arrangements

Annex 6 Flow of funds

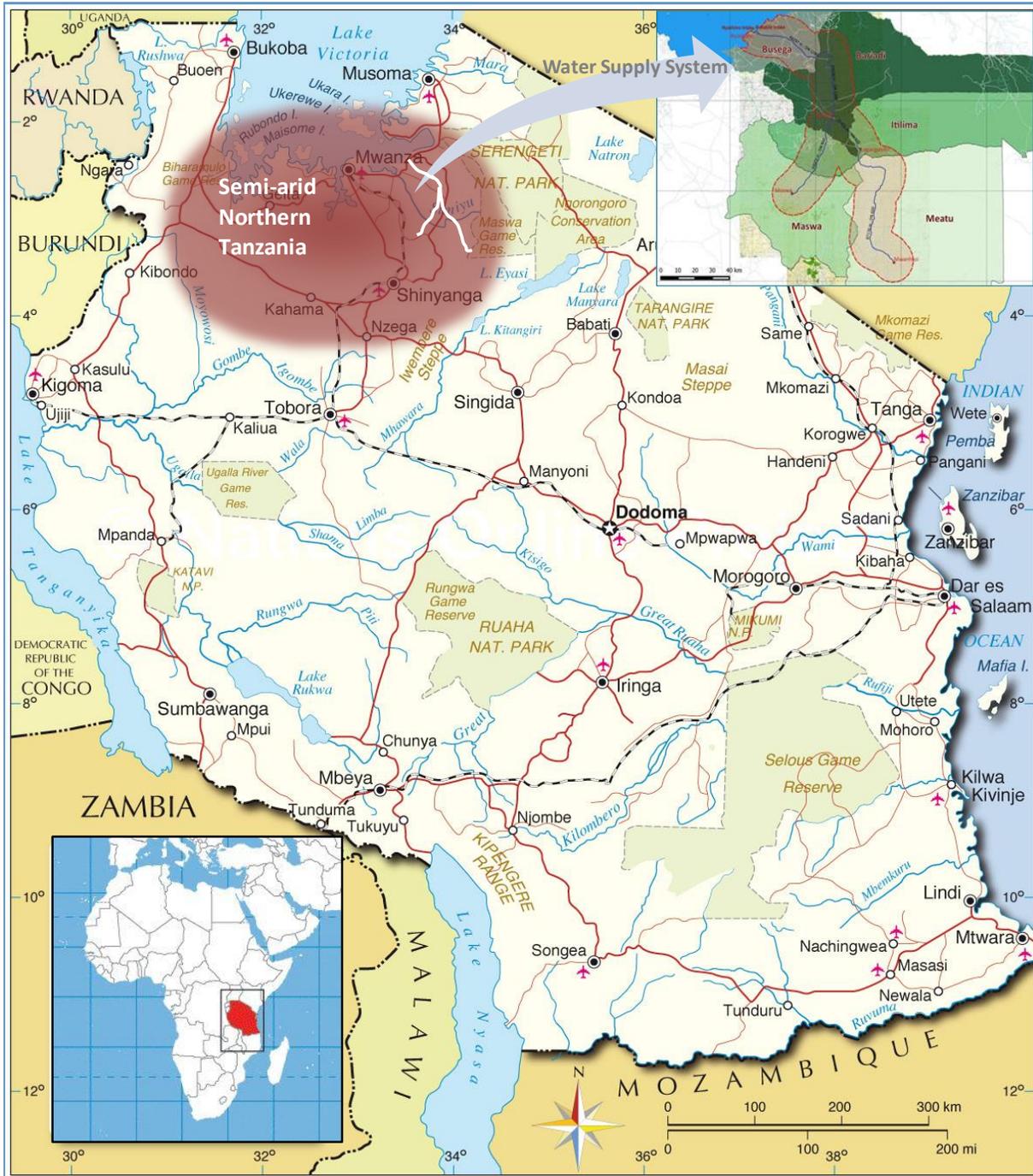
Annex 7 Institutions involved

Annex 8 Summary of the environment and social impact assessment

Annex 9 Procurement plan



Annex 2: Maps of the Project Area



## Annex 2: Maps of the Project Area

### Map of Simiyu Region and its Districts



### Annex 3: Investment options and criteria on climate-smart agriculture

Item	Units	Investment contribution in EUR per unit (incl contingencies)	Comments
Construction of small earth dams	2 <sup>4</sup>	Up to 675,000 <sup>5</sup>	Specification: max 800 m long and max xx (tbd 5 or 8) m high
			<p>Restrictions:</p> <ul style="list-style-type: none"> <li>• availability of land for irrigation of min 250 ha</li> <li>• max investment cost of EUR 3500/ha;</li> <li>• ESIA approval;</li> <li>• no diversion of river water; min water outflow to ensure ecological downstream functions;</li> <li>• no tenure conflicts;</li> <li>• existing local user group with good internal cohesion and proven basic management capacity as confirmed by focus interviews; women representation 25%;</li> <li>• viable management concept (including transparent water tariff structure, management responsibilities, user rights, etc.) and opening of an O &amp; M account;</li> <li>• beneficiary commitment to organize and finance O &amp; M;</li> <li>• beneficiary up-front contribution in-kind of 5% of the projected net cost of construction.</li> </ul>
			<p>Selection criteria:</p> <ul style="list-style-type: none"> <li>• communities most vulnerable to climate change projection;</li> <li>• watershed size, soil conditions;</li> <li>• distance to construction material (gravel, stones);</li> <li>• political commitment to discretionary decision-making of the LGA and community.</li> </ul>
Rehabilitation/finalization of existing dam structures	2 <sup>6</sup>	Up to 337.500 <sup>2</sup>	Specification: contingent on existing structure and condition

<sup>4</sup> Alternatively, the construction of 1 new dam and the rehabilitation of 2 existing dams

<sup>5</sup> incl 20% earmarked for detailed design, tender documents, construction supervision, and excl 20% in-kind contribution

<sup>6</sup> Alternatively, the construction of 1 new dams

			<p>Restrictions:</p> <ul style="list-style-type: none"> <li>• cost of rehabilitation 50% below the cost of a similar new construction;</li> <li>• ESIA approval if applicable;</li> <li>• max investment cost of EUR 3500/ha;</li> <li>• existence of local user group with good internal cohesion and proven basic management capacity as confirmed by focus interviews; women representation 25%;</li> <li>• readiness of LGA to transfer dam operation/management to irrigation organization;</li> <li>• viable management concept (including transparent water tariff structure, management responsibilities, user rights, etc.) and opening of an O &amp; M account;</li> <li>• beneficiary up-front contribution in-kind of 5% of the projected net cost of construction.</li> </ul>
			<p>Selection criteria:</p> <ul style="list-style-type: none"> <li>• communities most vulnerable to climate change projection;</li> <li>• watershed size, soil conditions;</li> <li>• distance to construction material (gravel, stones);</li> <li>• political commitment to discretionary decision-making of the LGA and community.</li> </ul>
Charco dam	15	Up to 57,000 <sup>2</sup>	<p>Specification: dam max 150 m long and 5 m high</p>
			<p>Restrictions:</p> <ul style="list-style-type: none"> <li>• ESIA approval as required;</li> <li>• no tenure conflicts;</li> <li>• existing local user groups with good internal cohesion and proven basic management capacity as confirmed by focus interviews.</li> </ul>
			<p>Selection criteria:</p> <ul style="list-style-type: none"> <li>• communities most vulnerable to climate change projection (Southern Districts);</li> <li>• soil conditions;</li> <li>• beneficiary up-front contribution in-kind of 10% of the projected net cost of construction;</li> <li>• beneficiary commitment to organize and finance O &amp; M;</li> <li>• LGA written commitment to transfer dam</li> </ul>

			operation/management to farmer group.
Irrigation equipment (pipes, drip irrigation kit, solar pumps)	1700 ha <sup>7</sup> of irrigated field	Up to 550/ha <sup>8</sup>	Specification: technical specifications in line with regional capacity for repair and maintenance
			Restriction: equipment to comply with quality criteria from the South African Irrigation Institute or ISO standards ( <a href="http://www.icid.org/res_irri_isie.html">http://www.icid.org/res_irri_isie.html</a> )
			Selection criteria: existence of functioning irrigation organization; 20% upfront in-cash contribution by beneficiary
Climate resilient seeds for horticulture, maize and rice	Lump sum	Up to 100,000	Specifications: TOSCI (Tanzania Official Seed Certification Institute) certification, suitability for agro-ecological zones in the Simiyu Region
			Restrictions: up to 30% of area cultivated by interested farmer p.a. and max 2 ha per farmer; Project to subsidize supplementary costs only (costs of climate resilient seeds minus costs of ordinary seeds)
Farmer Field Schools	200 schools	Up to 25,000	Specifications: <ul style="list-style-type: none"> <li>• capacity to accommodate min 10 and up to 30 people (participants at least 30% female farmers and at least 30% below the age of 25);</li> <li>• equal distribution throughout the region, starting with the Southern districts;</li> <li>• LGA to provide 10% of running cost and support by 1 full-time staff per district; quality control by Regional Secretariat.</li> </ul>
ICT knowledge platform	1 Platform	Up to 135,000	Specifications: <ul style="list-style-type: none"> <li>• separate sections for i.) farmers, and ii.) extension staff; content wording in</li> </ul>

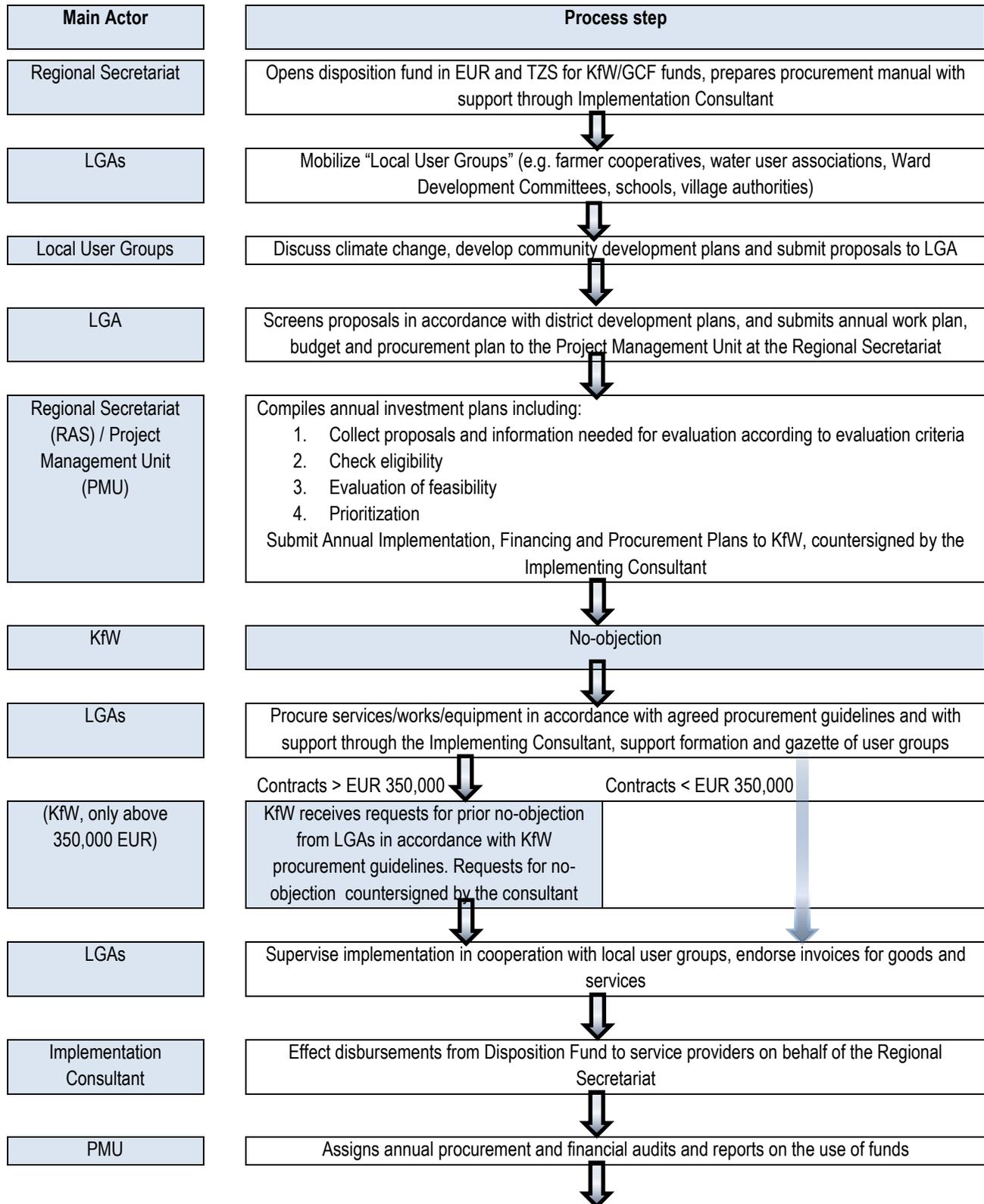
<sup>7</sup> Assuming 300 ha of irrigated fields per dam (1200 ha) plus 500 ha irrigated by Charco dams.

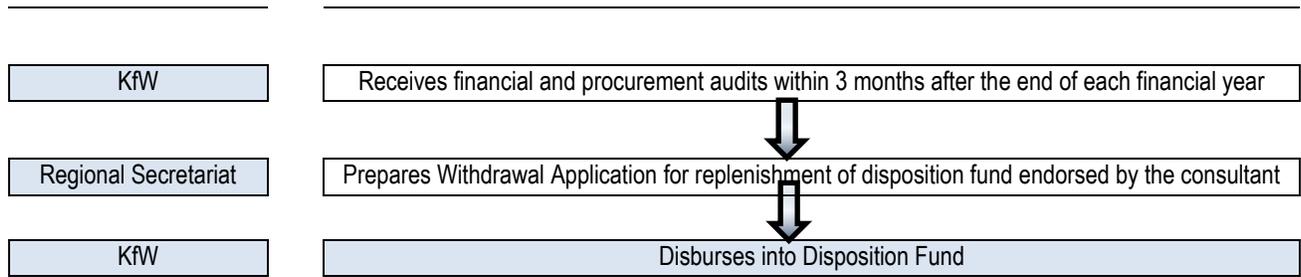
<sup>8</sup> excl 20% in-cash contribution

			<p>line with users' technical capacity/understanding;</p> <ul style="list-style-type: none"> <li>sections tailor-made to the needs of women and youth;</li> <li>technology to be accessible by mobile phone.</li> </ul>
Ngitili development <sup>9</sup> incl land registration	10,000 ha	Up to 260	<p>Specification:</p> <ul style="list-style-type: none"> <li>min 2 ha, max 10 ha per year and per individual application;</li> <li>planting of min 4 native tree species;</li> <li>particular support to young and/or women farmers.</li> </ul>
			<p>Restrictions:</p> <ul style="list-style-type: none"> <li>not in areas recently deforested/logged or wetlands;</li> <li>agreement to terms and conditions (saving accounts, CCRO);</li> <li>20% in-kind contribution by beneficiary</li> <li>undisputed land tenure/ownership.</li> </ul>
Fuelwood plantation <sup>5</sup>	3,700 ha	Up to 930	<p>Specification:</p> <ul style="list-style-type: none"> <li>min 1 ha, max 5 ha per year and individual application;</li> <li>min spacing of plantation 4 x 4 m to allow for grazing between trees;</li> <li>seeds from TTSA;</li> <li>particular support to young and/or women farmers.</li> <li></li> </ul>
			<p>Restrictions:</p> <ul style="list-style-type: none"> <li>20% in-kind contribution by beneficiary;</li> <li>undisputed land tenure/ownership.</li> </ul>
Financial awards for contests	400 awards	Up to 1,000	<p>Specifications: procedures and safeguards to be defined during inception phase, but in line with existing and ongoing Best Practice cases (Caucasus)</p>

<sup>9</sup> excl 20% in-kind contribution and incl. land registration

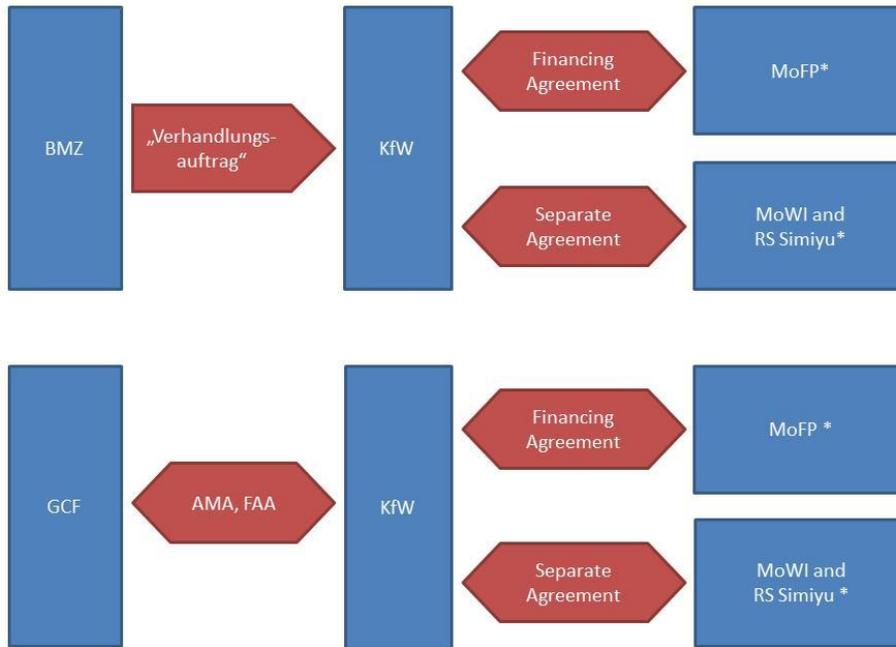
**Annex 4: Flow chart for community driven planning**





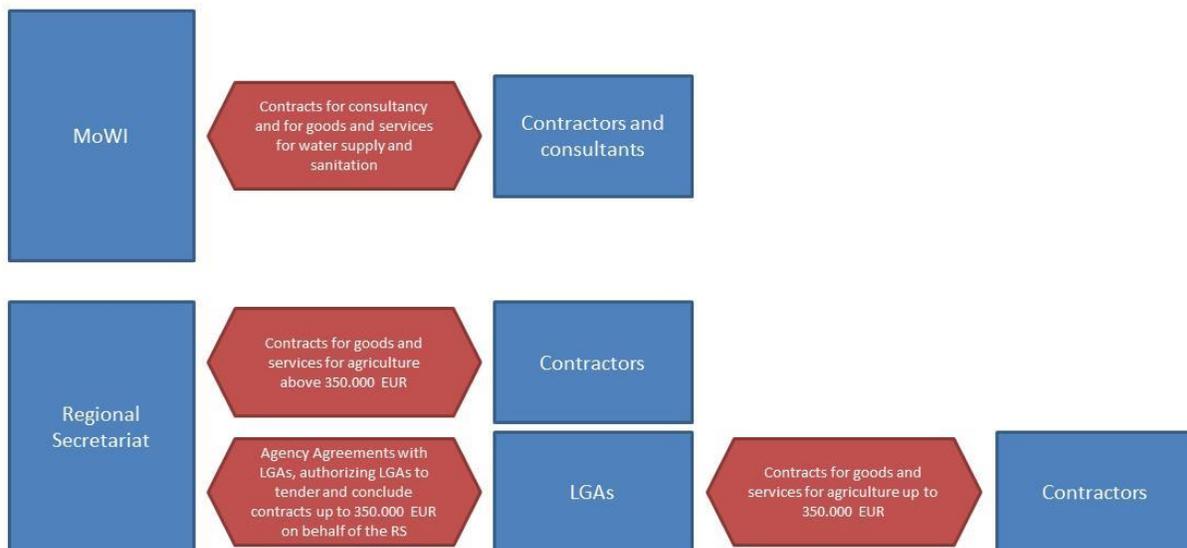
## Annex 5: Flow Charts of Contractual Arrangements

### Contractual Arrangements: Financing Agreements



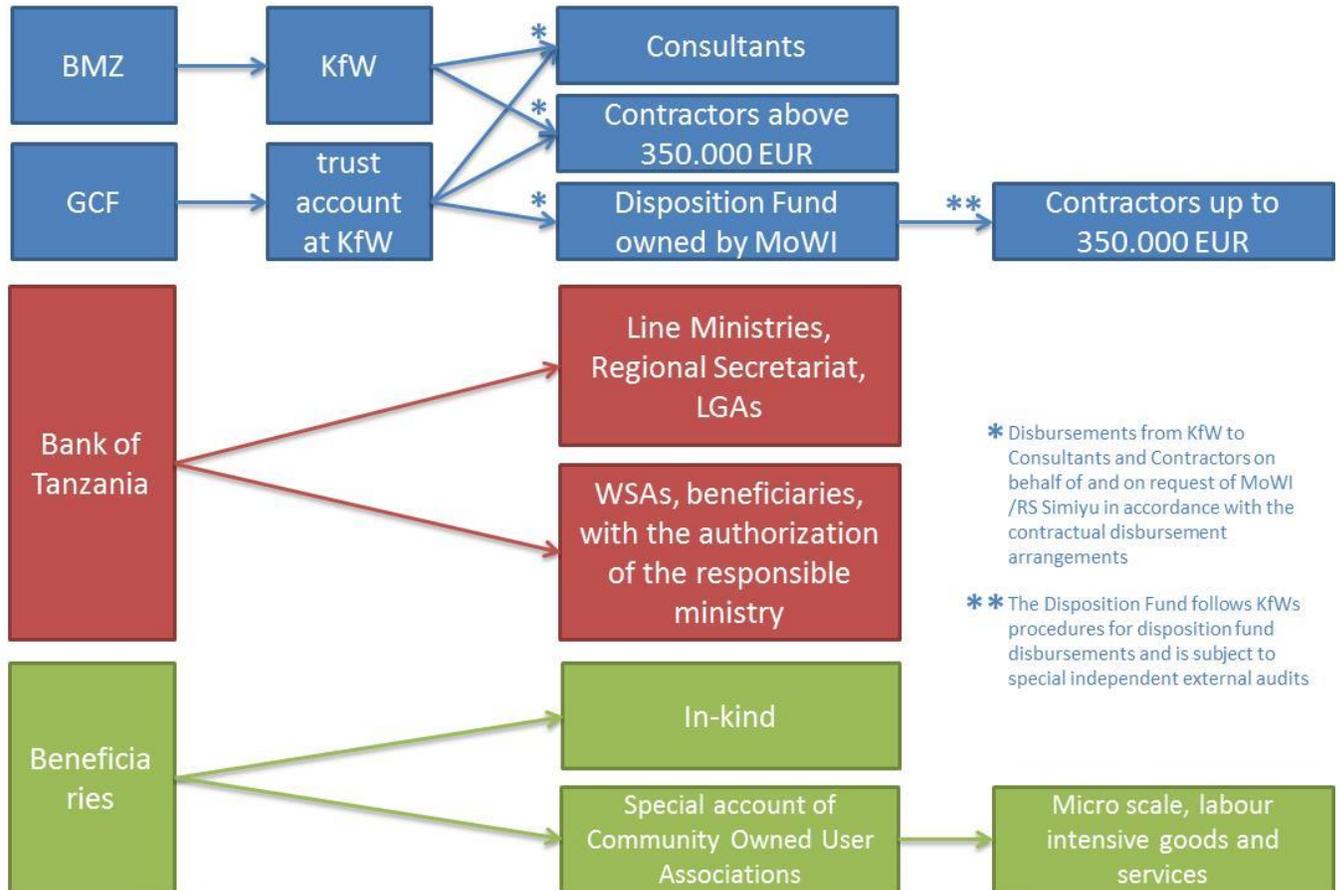
\* representing the United Republic of Tanzania

### Contractual Arrangements: Implementation



Annex 6: Flow of Funds

## Flow of Funds



## Annex 7 Institutions Involved

### Vice President's Office

The VPO has the mandate to oversee all environmental matters in the country, including the climate change agenda. The Division of Environment is the National Climate Change Focal Point (NCCFP) for the UNFCCC. A National Climate Change Steering Committee (NCCSC), an inter-ministerial committee comprised of Permanent Secretaries from different ministries, is established to facilitate coordination. The NCCSC provides guidance to the focal point to ensure effective participation of different institutions from various sectors. A National Climate Change Technical Committee (NCCTC) to oversee the general implementation technically is in place under the VPO mandate.

### Ministry of Water and Irrigation

The implementing entity for the Project will be the Ministry of Water and Irrigation (MoWI) on behalf of the United Republic of Tanzania. It will ensure the due execution of works and services and the required institution building in the fields of water supply and sanitation. Furthermore, it is responsible for the overall coordination of Project activities. It has been assigned to take over the leadership for all required interaction and interlinkages with different Tanzanian partners related to the Project, especially the Ministry of Agriculture, Livestock and Fisheries. It will also be responsible for coordinating the process of enabling replication and paradigm shift on the basis of lessons learnt in the Project and chair the Steering Committee.

MoWI's vision is to ensure sustainable management and development of water resources for the social and economic development of the country. Since the start of the national Water Sector Development Project (WSDP) in 2007, the ministry has continuously and successfully transformed its structures and strengthened its planning and implementation capacity. Staff numbers have been increased to 2,300 people (FY 15/16), staff has been trained and a comprehensive capacity development plan has been implemented. The approved budget for the FY 2014/2015 compiled by MoWI was about 200 m EUR. Challenges in the flow of payments from the Ministry of Finance and Planning through the Bank of Tanzania have been a major burden to development of water supply in the country and the new government shows strong commitment to overcome this barrier. MoWI initiated the Climate Change Dialogue Forum in 2012 to provide a platform for stakeholders to exchange experiences and best practices. Since then the Ministry has successfully initiated 11 forums with great participation of stakeholders from various backgrounds, including different Ministries, local government institutions, NGOs, universities, private sector and development partners. Accordingly, MoWI already plays a coordinating role concerning climate change-related activities and in the dialogue in multi-sectoral and institutional settings.

The employees of the responsible Urban Water Supply and Sanitation Division show great commitment to the Project and are highly motivated. Despite these strengths, it has to be considered that staffing levels are still low and there is room for improvement of training efforts and empowerment, especially of young professionals. This shall be addressed by delivering capacity building on specific topics and on overall management through the Strategic Support Consultant. Since there is no urban water utility in the Simiyu Region with sufficient capacity to manage the procurement process and supervise the large consulting and works contracts required for the water supply and sanitation component currently, these task shall be implemented by the Ministry of Water and Irrigation in the initial Project phase. The Ministry of Water and Irrigation is expected to ensure a smooth handing over of contract management and the operation of water supply and sludge management to bulk water suppliers and urban utilities at a later stage.

The Ministry is experienced in the implementation of large scale projects and thus well prepared to guide the Project in a holistic manner. KfW and the Ministry of Water and Irrigation have an excellent and close

working relationship due to the long-term engagement of German Development Cooperation in the Tanzanian water sector. The Strategic Consultant shall support MoWI in facilitating a paradigm shift, institutionalisation of lessons learnt and replication. It shall furthermore support MoWI in reviewing the documents prepared by the Implementing Consultant (e.g. detailed design, procurement and supervision of works contract), support adherence to KfW and national standards and support a coordinated monitoring of the Project implementation process.

### **Regional Secretariat**

The Regional Secretariat is tasked to oversee and supervise LGA operations. The autonomy of LGAs, and their continued reliance on the transfer of funds from central government for operational and development activities, calls for the establishment of a central government body at regional level to undertake the tasks of oversight and supervision of LGA finances and operations. The Regional Secretariat reports to PO-RALG and to sector Ministries on national development activities and monitors the overall economic development in the region. It furthermore advises LGAs and assists them in the realization of their targets by securing the enabling environment for their successful performance. In particular, it accounts for recurrent and development expenditures of LGAs as approved in the national budget, based on the submission of quarterly reports by LGAs, and provides assistance to LGAs in planning and budgeting.

The Regional Secretariat will be tasked to support the LGAs in all their functions and oversee and consolidate their activities under the Simiyu Climate Adaptation Project. This relates to all activities that will be implemented on the local level, e.g. climate-smart agriculture, rural water supply and rural sanitation. To ensure their smooth implementation, the Regional Secretariat shall host a Project Management Unit (PMU). The PMU will compile and endorse annual work plans, procurement plans and budgets prepared by the LGAs. Additionally, it will monitor and report on implementation of the Project on the basis of information provided by LGAs. It will also coordinate and/or carry out the different capacity building measures, deploy short term experts on specific topics, organize training of trainers, conceptualize the contest-award system, ensure a conducive framework for community driven planning, and enable upscaling and replication of lessons learnt on regional level. The PMU will also be the holder of the Project's disposition fund for climate-smart agriculture, carry out audits and send requests for disbursements to KfW for funding under the disposition fund.

The Simiyu Region established its Regional Secretariat in 2012. Overall, the Secretariat is able to execute its functions today. However, administrative structures are still developing, skills are low and there seems to be only little if any experience with overseeing larger projects. Finding adequate staff is seen as a significant challenge due to poor basic services in the Region, e.g. clean and reliable drinking water. An international consultancy firm shall deliver capacity building support to the regional and local structures and shall support the PMU at the Regional Secretariat in executing their tasks. The consultant shall countersign all relevant documentation on financial management, reporting, withdrawal applications, and requests for no-objection to KfW and shall also countersign all documentation prepared by the LGAs on procurement, contract management and supervision of construction works. With the consultancy services provided, we expect the Regional Secretariat to be capable to implement its tasks under the Project. For a map of the Simiyu Region with its Districts and urban centres, please refer to Annex 2.

### **Local Government Authorities (LGAs)**

The Simiyu Region consists of 6 LGAs, namely the Districts of Busega, Bariadi, Itilima, Maswa and Meatu, and the Municipality of Bariadi. The geographic area of the Project covers the northern Districts Busega, Bariadi and Itilima as well as the Municipality of Bariadi. LGAs are tasked to facilitate the maintenance of peace and order and to further the social and economic development of their area of jurisdiction. The most important areas of local service delivery are primary education, secondary education, health, water

supply, rural roads and agriculture & livestock production as well as ensuring democratic participation, revenue collection and financial accountability. With the new legislation, LGAs are authorized to levy charges, fees and local taxes. Nevertheless, recurrent grants from the central government still constitute the bulk of financial resources available to LGAs. LGA staff includes the District Executive Director and heads of departments, technical staff, school teachers and health personnel. All of them report to the District Executive Director and are civil servants. Since local revenue is limited, staff salaries are largely funded through the transfer of recurrent grants from the central government to the LGAs. While the annual national budget is prepared in accordance with national priorities, as outlined in the National Strategy for Growth and Reduction of Poverty II, the various sector strategies, including the National Climate Change Strategy and the Medium Term Expenditure Framework, a bottom-up approach of planning is maintained at local level. Thus the villages and urban neighbourhoods' plans are consolidated and coordinated by the Ward Development Committee, which handles 3 – 5 villages or neighbourhoods.

LGA capacities are still relatively low. About 50% of the staff posts are vacant. While budget execution of recurrent expenditures is relatively high, it is surprising that the execution of overhead cost is low for the LGAs in Simiyu. Overhead cost for the agriculture and livestock sector represent only 5-10% of personal emoluments. Lack of such funding severely limits the mobility of staff, distribution of printed materials, purchase of inputs for demonstration plots and other basic requirements for extension work. Most likely this reflects late release or non-release of funds by the Treasury. Due to their pivotal role for any development that takes place at local level, strengthening LGAs will be critical to improve the currently limited adaptive capacities and to build community resilience in the long term. The Project design takes this into account by giving high priority to capacity building and training to LGAs in delivering their services to communities. Training and support is carried out through the Regional Secretariat with the support of the Implementing Consultant.

### **SIMWASA (Simiyu Bulk Water Supply Authority)**

Due to the significant investments and the geographical spread of the transmission mains, a bulk water supply authority will be established under the Water Supply and Sanitation Act 2009. The Simiyu Bulk Water Supply Authority (SIMWASA) shall own, operate and maintain the water treatment plant, pumping stations, transmission mains, the command reservoir and secondary reservoirs along the pipeline. SIMWASA shall be responsible for the sale of bulk potable water to BARUWASA and COWSOS along the transmission mains as well as to the urban utilities of Nyashimo and Lagangabilili. The MoWI in collaboration with the Regional Secretary will be responsible for establishing the bulk water supply authority.

SIMWASA shall receive considerable training and capacity building measures throughout the Project. Capacity development interventions shall be comprised of three components. The first component is recruitment of sufficient qualified staff soon after it has been legally established. This shall be the responsibility of MoWI working in close collaboration with the Regional Secretariat of the Simiyu Region. SIMWASA is to be headed by a qualified and experienced engineer and supported by about 18 staff, including 2 engineers responsible for infrastructure as well as technicians in electromechanical engineering, plumbing and laboratory services, staff with degrees in business administration, accounting and database management, a public relations and community mobilization expert as well as supportive staff. The second component shall include the provision of kick-start basic working tools and office space. This shall create a conducive environment for the staff of the Bulk Water Supplier to work efficiently. The third component, in form of operation training, shall be provided as part of capacity building interventions. All components will be implemented with the assistance of a consultant.

### **BARUWASA (Bariadi Urban Water and Sanitation Authority) and Urban Water and Sanitation Authorities (UWSAs) of Lagangabilili and Nyashimo towns**

The Bariadi Urban Water and Sanitation Authority (BARUWASA) was legally established in 2002. It is responsible for water supply and sanitation services in Bariadi town. Since Bariadi was a District capital at that time, BARUWASA was originally a district utility under the supervision of the LGA and PO-RALG. It became a regional UWSA with effect from 1st January 2013, following the establishment of the new region of Simiyu. Now it is under the supervision of the Ministry of Water and Irrigation.

In Tanzania, Urban Water and Sanitation Authorities (UWSAs) are legal entities that are responsible for providing potable water supply and sanitation services in towns. The Electricity and Water Regulatory Authority (EWURA) grades UWSAs in categories as follows: category 'A' comprises of UWSAs with water service coverage of more than 75% of their area of service and which meet all operational and maintenance costs as well as depreciation; category 'B' comprises of UWSAs with water service coverage of more than 65% and which meet all operational and maintenance costs; and category 'C' comprises of UWSAs with water service coverage of less than 65% and which meet operational costs except part of plant electricity costs and salaries as shall be determined in the Memorandum of Understanding (MoU).

BARUWASA is a category "C" UWSA and is considered to suffer from a number of institutional weaknesses, including missing infrastructure like very limited available water and no functioning treatment facilities, a low customer base, limited physical coverage, poorly maintained infrastructure, high levels of unaccounted for water, low skill levels of staff and poor customer relations. BARUWASA has been recently staffed with a new and qualified Managing Director, but the utility sees itself continually confronted with the above mentioned factors, which inhibit their capacity to better perform in the provision of sustainable water and sanitation services. Additionally, the inadequate working environment makes it difficult to fill open posts with capable staff. Capacity building under the Project therefore takes into account institutional (the legal and regulatory frameworks that govern the activities and the mandate of an organization), organizational (working environment factors, ranging from the quality of systems, structures and processes in place to the suitability of work space and access to work equipment) and individual needs (skills, knowledge, competencies and attitudes of staff members).

The District capitals of Nyashimo and Lagangabilili currently do not have UWSAs. The Ministry of Water and Irrigation will set up autonomous UWASAs for these two District towns in line with the Tanzanian rules and regulations. The two new UWSAs will be overseen and regulated by EWURA and will receive considerable capacity building support through the Project. There is a process of clustering of utilities going on in the country and following this, BARUWASA will deliver certain services to the two other utilities particularly the Legal Department, Personnel Department and Financial Management Department.

### **COWSOS (Community Owned Water Supply Organisations)**

According to the National Water Policy (NAWAPO) of 2002, the Water Resources Management Act No. 11 of 2009 and the Water Supply and Sanitation Act No. 12 of 2009, communities shall be registered and become the legal owners of their water supply schemes. Roles, responsibilities, rights and limits of authority of water user entities are clearly defined. LGAs shall support and facilitate communities in acquiring technical and management skills. They are furthermore responsible for ensuring that the services offered by any COWSO meet required level of satisfaction.

For the villages located within the 12 km corridor of both sides of the transmission line from Nyashimo to Lagangabilili, COWSOS shall be formed around water supply tanks, meaning that COWSOS will be clustered serving more than one village. In the long run, it is expected that about 29 COWSOS will be formed. For the formation of COWSOS, water users in each of the villages elect representatives who will

then elect a board to oversee the day-to-day activities of the COWSO. The Project will seek to ensure gender balance in the board. For example, in the very successful rural water supply system in Hai in Tanzania that was set up in the 1990s with the support from KfW, half of the trusts elected by the communities were women. These experiences will be used in the presented Project. The board will assign a manager that will be in charge of the operations of the COWSO and who will report to the board. Additionally, it will assign one water technician to oversee operators at village level, one accountant and one office supervisor. Each village will select a local operator who shall be responsible for operation and maintenance within the particular village. The local operator shall be assigned with a performance agreement elaborating on tariff, setting, revenue collection and payment procedures and submission of the collections to the bank account to be maintained by the board.

In cooperation with a competent consultant the LGA will assist in the formation and registration of the COWSO as well as the preparation of the constitution, regulations, performance agreements, guidelines for tariff setting, and operational guidelines.

## Annex 8 Summary of the environment and social impact assessment

### PS 1 – Assessment and Management of Environmental and Social Risks and Impacts

While investments in drinking water security follow the predefined design of infrastructure components, agricultural components are implemented through a programmatic approach, where measures are determined in the course of implementation in a participative approach with affected communities and according to detailed procedures and criteria. Using these two approaches in one Project results in different timing of the environmental studies of the components. Therefore, an ESIA has been prepared according to the national requirements of Tanzania as well as IFC Performance Standards for the water supply and sanitation components. As part of the ESIA a Scoping Exercise with broad Stakeholder Engagement has been performed in the Project region. For the climate-smart agriculture component an Environmental and Social Framework has been prepared that outlines the potential impacts and mitigation measures and frames the process of how environmental and social risks will be addressed and managed in the implementation phase.

The ESIA states that the Project is environmentally feasible. Since drinking water is a basic need and human right, use of the shared water sources of Lake Victoria for drinking purposes is undisputed and receives highest acceptance even by the neighbouring countries. Water abstraction for the Project will amount to 1.6% of the Tanzanian share of water abstraction from Lake Victoria. The amount abstracted would lead to a decline in sea-level of 3 cm over 100 years, which is evaluated by the ESIA as negligible impact especially when compared to abstraction for other usages, e.g. irrigation or industries. Tanzania, Kenya and Uganda signed the Protocol for the Sustainable Development of Lake Victoria Basin on November 29<sup>th</sup>, 2003. In line with this Protocol and the World Bank Operational Policies including OP 7.50 (Projects on international waterways), the MoWI already notified riparian states of the planned Project and will share the final ESIA and the feasibility study with them for comments. Two protected areas that are bordering the Serengeti National Park are located near the planned water supply corridor. The Project is not expected to put additional pressure on these areas, or to impact the ongoing conservation programme. Water supply is limited to drinking water supply and public water points in rural areas so that it is not expected to cause an overall shift in settlement patterns. Furthermore, the climate-smart agricultural measures are expected to prevent deterioration of land productivity in the changing climate and to conserve available water resources, thus to enhance ecosystem services in the vicinity of the Serengeti Ecosystem.

Regarding the economic and physical displacements, a Resettlement Policy Framework has been prepared that explains principles, compensation and eligibility criteria for the future resettlement and compensation as currently the exact alignment is still under evaluation. Further the RPF provides an implementation for the, to be developed Resettlement Action Plan (RAP).

A preliminary Environmental and Social Management Plan (ESMP) has been prepared which outlines costs, timeframe and responsibilities to implement appropriate mitigation and enhancement measures for the Project. The ESMP will be refined during the detailed design phase and once the construction contractors have been selected. It will be revised and updated continuously. A Stakeholder Engagement Plan has been prepared as a guiding document for ensuring proper coordination and management of all the stakeholder interests and concerns in a prompt and well-coordinated structure.

Negative impacts on some groups of people are inevitable during preparation, construction and operation phase. In order to avoid conflicts, the Ministry of Water and Irrigation will implement a grievance mechanism to allow the public and affected people to voice concerns about the Project and related activities. A community-based system for grievance redress already exists within the sub-village structure

and will be used if necessary. Additionally, other higher authorities such as (among others) the Ward Tribunal, the District Land Housing Tribunal and the High Court, are proposed to follow up on unresolved cases.

To ensure that the views of vulnerable groups are taken into account in the planning of the Project, ESIA consultations were held at community level to solicit for their opinions and contributions on how the Project is likely to affect them, and proposals for mitigation. The results of these consultations were used as input to the ESMP as well as the detailed design consideration. Opinions of vulnerable groups will also be taken into account in future stages of the Project through, e.g. informal discussions at the existing water supply facilities, formal discussions with community-based women's associations or Non-Governmental Organisations (NGOs).

During the execution of the ESIA stakeholder opinions were sought through interviews, group discussions and public meetings. Feedback from these consultations has been taken into account when preparing the ESIA. A proposed Stakeholder Engagement Program at the responsibility of MoWI, the new bulk water supplier (SIMWASA), the urban water utilities and Community Owned Water Supply Organisations (COWSOs) targets the time period beyond the ESIA, including the operation phase and will majorly focus on engagement with lower level stakeholders that are not part of the organisation of the Project, especially on ward and village level. Possible formats are community meetings, information brochures, meetings with leaders, school information campaigns, public health outreaches, newspapers, posters, radio, non-technical summary documents, joint meetings and brain storming sessions in regards to matters that affect communities collectively. MoWI will establish a Community Liaison Unit headed by a Community Liaison Officer to ensure the successful implementation of the Stakeholder Engagement Plan.

The MoWI will ensure monitoring through the standalone Environmental and Social Monitoring Plan which involves the continuous measurement or periodic review of mitigation activities and their effectiveness. The Monitoring Programme has been divided into a Construction Contractors' Monitoring Programme, which mainly includes monitoring of construction practices and mitigation measures based on visual inspections at the construction sites, and MoWI's Monitoring Programme, which includes construction monitoring, community health, safety and security monitoring, resettlement monitoring, and stakeholder engagement monitoring. This plan states clearly that it must be part of the construction and maintenance contracts to ensure it will be implemented. For the resettlement, a completion audit will be carried out in line with the final Resettlement Action Plan.

Cumulative impacts were also considered in the ESIA and the requirement of a cumulative impact assessment with respect to a planned nickel mine nearby is recommended. The respective mining company holds a retention license for a nickel mining in the vicinity of the Project area. Explorations including environmental and social studies have been carried out, but the project has currently been put on hold due to the declining nickel prices. The company still holds a retention license that is valid for another three years. It is not clear if and when the project will be pursued in the future. KfW will ensure that a cumulative impact assessment of the Project and the nickel project will be carried out if it resumes.

The environmental and social impacts of the climate-smart agriculture component are considered limited and site specific and range between environmental and social risks categories B and C. For B projects an ESIA will be conducted to assess any risks and develop an adequate ESMP that shall also take into account possible cumulative impacts of the water supply and the agriculture components. Measures with potential risks are the irrigation system since it may involve minimal land-take and construction health and safety may be an issue, the construction or rehabilitation of small dams due to the same risks on a slightly larger scale as well as fertilizer usage for different agricultural purposes. The implementation is governed by the ESMF and close monitoring of site selection and construction as well as the development of pest management plans. Therefore, the residual risks are considered to be covered and managed.

### PS 2 – Labour and working conditions

In order to mitigate negative impacts, the Project will provide labour opportunities for local residents, especially directly affected households, women and youth. Best practice health and safety provisions are an integral part of construction contracts in KfW financed projects. Opportunities for sub-suppliers and sub-contractors will be awarded to suitable local firms which in turn employ local labour. Every construction contractor and MoWI as supervisor will ensure that adequate labour and working conditions are provided to all workers through:

- Provision of first aid facilities and regular check of worker health and vaccination;
- Training provisions for workers and supervisors on first aid, health and safety procedures;
- Maintaining proper medical aids and medicines by establishing temporary stock during construction;
- Training of construction workers in general health and safety matters and on specific hazards of their work especially fire safety, traffic safety, personal protective equipment, emergency preparedness and response;
- Provision for workers with appropriate personal protection equipment (PPE), such as safety boots, helmets, gloves, protective clothing, goggles and ear protection;
- Provision of safe drinking water to all workers, as confirmed by independent water quality testing and submission of lab results to the engineer; and
- Traffic safety instructions for workers and contractors.

Monitoring of the labour management will include inspections of:

- The proportion of local population in the workforce;
- Proportion of women and youth employees in the workforce;
- Evidence of written contracts and paid salaries;
- Number of worker grievances;
- Age of workers;
- Quality of worker's accommodation;
- Proportion of unskilled workforce that have had their skills upgraded.

### PS 3 – Resource Efficiency and Pollution Prevention

The following impacts and risks are mostly on-site and construction related. A variety of mitigation measures has been identified in the ESIA. In summary:

- Water pollution (at the water intake) during construction and operation phase. Mitigation measures include enforcement of protection of the 60 m buffer zone around the lake shore at the water intake; establishment of a protective zone, marked with buoys, in the lake; and selection of construction methods that minimize disturbance on the lake's bottom;
- Installation of sanitary water treatment facilities in workers' camps;
- Water treatment plant: risk of flooding during heavy rains and wastewater effluents draining into the lake. Mitigation measure: Consider an alternative location for the water treatment plant at Bukabile further away from the lake and at higher elevation;
- Soil erosion and land contamination. Mitigation measure: Usage of native/excavated material to backfill the trench section around the pipes to minimize the volumes of excess material. Disposal of spoil in appropriate approved areas and subject to landscaping.

In addition to this, with financing from KfW and the European Union, the Lake Victoria Basin Commission is developing a comprehensive programme for the protection of the water of Lake Victoria. It includes investments in sanitation infrastructure for riparian towns and polluters as well as enhanced monitoring systems for the water quality of the lake and strengthening of corresponding institutional structures.

#### PS 4 – Community Health, Safety and Security

The main risk for the community will occur during construction. As part of the ESMP, MoWI and SIMWASA will ensure:

- To adopt a comprehensive approach to prevent HIV/AIDS and other Sexually Transmitted Diseases (STDs) that shall target both workers and the affected communities since human interaction will not only be confined to the Project's boundaries. The approach will comprise awareness raising and peer education, condom promotion, voluntary and provider-initiated testing and counselling, awareness campaigns at schools through drama and film shows etc.;
- To construct communal sanitation facilities at suitable locations such as schools, churches/mosques, markets and health centres to aid the camp followers' access to sanitary facilities;
- That contractors establish traffic rules to be followed by their personnel within and outside the Project area, including establishment of safe work zones and reduction of allowed vehicle speeds. MoWI/SIMWASA will collaborate with the local traffic police to ensure enforcement of traffic rules.

#### PS 5 – Land Acquisition and Involuntary Resettlement

Since the final routing of the pipeline will be determined in the detailed design, the scale of physical and economic displacement can only be estimated at this point in time. The RPF indicates that a total of 568 structures are located within the 10 m wide wayleave for the water mains. Opportunities to minimize the resettlement impact include:

- Re-routing of the main pipelines in order to bypass the highly populated areas in Dutwa and Nyang'hanga and the urban centre of Bariadi town. This option would reduce the number of affected structures and resettlement costs by an estimated 35-40%;
- Fitting the water mains closer to the road within the boundaries of the former road reserve (22.5 m from the centre line) where the Tanzanian National Roads Agency (TANROADS) has already acquired the land and relocated all structures and where no further road extensions are planned.

The RPF frames the land acquisition and resettlement process and responsibilities, provides eligibility criteria and outlines the monitoring requirements. Furthermore, it spells out what will be further elaborated as part of the RAP. The recommendations will be considered during the detailed design phase. The RAP is currently being prepared and will be implemented prior to the start of the construction works. Planning and implementation of the RAP will be guided by IFC's PS 5 and by national legislation.

#### PS 6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources

In the direct zone of potential impact there is no protected area, therefore no impacts on any protected, critical, or natural habitats are expected. The baseline and the assessment of the terrestrial and aquatic flora and fauna reverted that the value in the direct Project area is quite low and also the impact magnitude can be rated as low to insignificant. Nevertheless, the ESMP proposes some general measures during construction, in particular with respect to vegetation clearance and revegetation.

#### PS 8 – Cultural Heritage

One sacred site was confirmed at the proposed location for one of the water reservoirs, namely Isenge holy hill near Dutwa. However, until the detailed design of the water supply system has been completed, it

is not known whether this site is located within the direct impact zone. A chance finds procedure has been outlined in the draft ESIA report and the consultant will be asked to include these aspects in the ESMP. They will be further refined by the contractors as part of their ESMP/EHS plans in order to create ownership and accountability. The siting of the primary reservoir at Isenge holy hill will be agreed with traditional leaders or - if possible - be shifted to another suitable location.