

AFRICAN DEVELOPMENT BANK

Language: English  
Original: English  
Distribution: Limited



**African Water Facility**  
**Facilité africaine de l'eau**



---

## ROOF CATCHMENT RAINWATER HARVESTING AND MANAGEMENT IN UGANDA

### APPRAISAL REPORT

This report is made available to staff members to whose work it relates. Any further releases must be authorized by the Director AWF

---

## Table of Contents

I.	LIST OF ACRONYMS .....	II
II.	STRATEGIC RESULTS FRAMEWORK.....	III
0.	EXECUTIVE SUMMARY .....	IV
1.	BACKGROUND .....	1
1.1	ORIGIN OF THE PROJECT .....	1
1.2	THE SECTORAL PRIORITIES.....	1
1.3	PROBLEM DEFINITION.....	2
1.4	BENEFICIARIES AND STAKEHOLDERS.....	3
2.	THE PROJECT.....	4
2.1	IMPACTS .....	4
2.2	OUTCOME .....	4
2.3	OUTPUTS .....	5
2.4	ACTIVITIES.....	5
2.5	AWF VALUE ADDED .....	7
2.6	RISKS .....	7
2.7	COSTS AND FINANCING PLAN.....	8
3.	PROJECT IMPLEMENTATION.....	9
3.1	THE RECIPIENT .....	9
3.2	IMPLEMENTATION ARRANGEMENT AND CAPACITY.....	10
3.3	PERFORMANCE PLAN .....	11
3.4	IMPLEMENTATION SCHEDULE .....	12
3.5	PROCUREMENT AND EXECUTION.....	13
3.6	DISBURSEMENT ARRANGEMENTS AND EXPENDITURE SCHEDULE .....	14
3.7	ACCOUNTING AND AUDIT ARRANGEMENTS .....	15
3.8	MONITORING, EVALUATION (M&E) & REPORTING ARRANGEMENTS.....	16
4	PROJECT BENEFITS .....	16
4.1	EFFECTIVENESS AND EFFICIENCY.....	16
4.2	PROJECT SUSTAINABILITY.....	17
5.	CONCLUSIONS AND RECOMMENDATIONS.....	18
5.1	CONCLUSIONS .....	18
5.2	RECOMMENDATIONS .....	19

## Annex

---

## **i. LIST OF ACRONYMS**

ADB	African Development Bank
AGM	Annual General Meeting
AWF	African Water Facility
CSOs	Civil Society Organisations
DWD	Directorate of Water Development
EIA	Environmental Impact Assessment
FY	Fiscal Year
HYPRs	Half Yearly Progress Reports
M&E	Monitoring and Evaluation
MoFPED	Ministry of Finance, Planning and Economic Development
MoES	Ministry of Education and Sports
MoH	Ministry of Health
MTR	Mid-Term Review
MWE	Ministry of Water and Environment
NEMA	National Environmental Management Authority
NETWAS-U	Network for Water and Sanitation-Uganda
NGOs	Non Governmental Organisations
NRM	National Resistance Movement
PEAP	Poverty Eradication Action Plan
PRSP	Poverty Reduction Strategy Papers
RWH	Rain Water Harvesting
RWH&M	Rain Water Harvesting and its Management
SPO	Senior Programme Officer
UPE	Universal Primary Education
URWA	Uganda Rainwater Harvesting Association
UNICEF	United Nations Children's Fund
UWASNET	Uganda Water and Sanitation NGOs Network
WATSAN	Water and Sanitation
WES	Water and Environmental Sanitation

## ii. STRATEGIC RESULTS FRAMEWORK

Hierarchy of Objectives	Expected Results	Reach	Indicators of Performance , Source and Periodicity	Target and Timeframe	Assumptions
<b>Goal</b> To contribute to the reduction of morbidity, disability, under-nutrition, and mortality from those water-borne, poor hygiene and sanitation related diseases in the project area	<b>Impact</b> Improved overall health of the population of the project sub-counties resulting from year round use of clean water form RWH and from sanitation promotion.  Wide adoption of RWH technology from perceived benefits of proper management	Populations of the project areas  Other similar sub-counties	Incidence of diarrhoeal diseases. <b>Source:</b> Impact assessment study At end of project and in 2015.  % Households using RWH in neighbouring counties <b>Source:</b> National Water Coverage Statistics, 2010, 2015	Reduced in the project area by 10% by the end of the project in 2009 and ... in 2015	Increased resource allocation to rural WES sub-sector.  Political stability
<b>Specific Objective</b> Development and promotion of safe water supply and improved sanitation facilities by means of Rainwater Harvesting and its management	<b>Outcomes</b> Men, women and children at households and institutions in the project benefit from proper management of RWH systems  Local artisans male and female derive income from construction of RWH systems.	Members of households in the project sub-counties Local artisans	Population using the RWH Systems and recommended sanitation systems. <b>Source:</b> Monitoring, Mid-Term Review and Project Completion Reports Data Quarterly, during MTR and at Completion	Counted of members of 720 households and population using the 30 institutions targeted	Project is promptly accepted by local authorities and targeted communities
<b>Inputs and Activities</b> Advocacy at national. District country and sub-county level <b>€14,167</b>  Baseline studies in the 6 participating counties <b>€12,500</b>  Orientation, Training on the implementation for different levels of project <b>€35,620</b>  Mobilisation of the households and institutions for participation through village awareness meetings and addressing women groups and facilitation Exchange visits Mobilize and procure logistics, training and construction materials; Undertake training in Management and O&M of installed systems; Undertake Education and Information on personal hygiene, sanitation and safe water use <b>€20,250</b>  Construction and Installation of facilities <b>€267,708</b> Baseline Survey, Mid-term Review <b>€18,750</b>  Project Management <b>€62,666</b>	<b>Outputs</b> I. Decision makers in 6 sub counties within 3 districts of three regions of the country are supportive of rainwater harvesting and management.  ii. Appropriate management capacities and skills for roof water catchments and improved sanitation at household and institution levels built for staff from partner CBO/NGO, 9 district level staff, and 18 sub-county level field workers, 24 masons selected so that <b>at least</b> 40% are women.  iii. Increased awareness on the potential benefits of roof rainwater harvesting and management for safe water provision and improved sanitation in the project area.  Iv. Developed/constructed rainwater and sanitation facilities at 30 institutions and 720 households in the project areas.	Central and local government authorities  Staff of partners NGOs /CBOs Field Workers at sub-counties, Artisans.  Men and women and children members of the communities  Households and Institutions in the project sub-counties	% of the decision makers in project area are supportive of the project <b>Source:</b> Project Monitoring Quarterly  %of the installed RWH facilities are of high quality and well maintained <b>Source:</b> Project Monitoring Quarterly  % of households and institutions demand for installation of RWH facilities; % of target households and institutions have RWH facilities. <b>Source:</b> Field Surveys End of awareness campaigns  % of the targeted households have access to sanitation facilities.	80 by end of project  100% Monitoring reports  80% 100% By end of project  90 by end of project	Continued political stability  Continued support from other institutions/NGOs

## 0. EXECUTIVE SUMMARY

This proposal was initiated by the NETWAS-U seeking funding for The Roof Water Harvesting and Management Project in response to the national agenda that calls on government partners to provide relief to the most water stressed parts of the country through implementation of low cost technologies. It is anchored on the realization that the full benefits of RWH can only be realized where the attributes of this high value scarce resource are understood and it is consequently managed with this perspective. The project aims at, on the one hand, increasing water supply, improving sanitation and protecting the environment at household and institutional levels, and most importantly on the other hand it aims to demonstrate how RWH can be optimally used as means to alleviate the shortage in water supply in water scarce areas – with proper management. It is expected that this will result in the immediate term in the reduction of morbidity from preventable diseases related to unsafe water and poor sanitation, better child and maternal health and nutrition, and subsequently, in reduction of infant and maternal mortality, better education and good quality of life and human development. In the medium and long term the project as such serves to give a better image to the RWH technology allowing it to gain a wider acceptance well beyond the project area. The project as proposed, builds on the experiences of other rainwater harvesting projects in Uganda (including the on-going “*Pilot Project on Water Harvesting in the IGAD Region*” financed by the African Development Fund) and in other developing countries.

Rainwater harvesting, particularly through roof catchment, is being proposed for funding because it is an optimal method, affordable and manageable by the low-income community members both at household and institutional levels, for improving access to safe water. The project shall furthermore promote improved sanitation and hygiene among project beneficiaries.

The project shall conduct education and sensitisation activities that target effective management of the harvested water resource so typically characterised by seasonal scarcity. It is expected that, with proper management of storage, the system will provide safe water to the households for a longer period beyond the dry spells than has hitherto been the case, and therefore eventually guarantee supply all year round. It will serve as a learning ground for management of rainwater harvesting systems that are existing and those to be built and lessons learnt will be replicated in other areas.

The project will be implemented in three districts, selected according to whether they are benefiting from rainwater harvesting technology, have relatively low water coverage, high potential for adoption of the rainwater harvesting technology and based on the existence of a viable CBO/NGO with which the recipient can form partnership for the project implementation.

Two sub-counties in each of the selected districts will be covered. Sub-counties shall be selected following consultation with the district local governments. Selection criteria target sub-counties with low water coverage and high potential for uptake of rainwater harvesting technology. Implementation of the project shall be at sub-county level.

Rainwater harvesting facilities shall be constructed at institutions (schools, health units, administration centres) and homesteads. The direct benefit of the project which shall accrue to women, men and children in the project area is the perennial availability of water of drinking

quality through knowledge gained on management of harvested. This will lead to a saving on time spent to collect water or lost through water related sicknesses, and to improved health as a result of access to safe water and improved hygiene. Masons shall benefit through acquisition of technical skills in the construction of rainwater harvesting facilities, and the rest of the private sector through creation of the opportunity to supply goods and services required for construction of the facilities. Stakeholders include the national level institutions with a bearing on supply of safe drinking water and improved sanitation, district and sub-county local governments, sector NGOs/CBOs active in the districts as well as members of UWASNET the umbrella organisation for water sector NGOs, from sharing and dissemination of experiences and lessons learnt from the project.

The intended project outcomes are ‘(i) People living in the project area will have year-round supply of safe and clean drinking water, through well managed roof rainwater harvesting facilities and improved sanitation and hygiene practices, and (ii) The technology will be better disseminated as people appreciate the importance of proper management of storage to provide adequate quantities for drinking all the year round.’

To achieve the expected outcomes, the project will have the following outputs:

- Decision makers in 6 sub-counties within 3 districts are supportive of rainwater harvesting and management.
- Appropriate capacities and skills for roof-water catchment, its management and improved sanitation at household and institution levels built for staff from partner CBO/NGO, 9 district level staff, 18 sub-county level field workers, and 24 masons.
- Increased awareness on the potential benefits of roof rainwater harvesting technologies for safe water provision all year round and improved sanitation in the project area
- Rainwater and sanitation facilities constructed and operational at 30 institutions and 720 households in the project area.

Beneficiary households and institutions shall contribute to the financing of individual rainwater harvesting facilities constructed. For institutions, the project shall provide materials that are not locally available and *skilled* labor for construction, while the institution shall make available local materials and unskilled labor. Tanks at institutions shall be of ferro-cement or other comparably lasting materials. For households, the project shall work with women groups to mobilize men and women through an equitable division of responsibilities in the provision of resources and labour. Local materials shall be contributed by the beneficiary households. Total contribution from beneficiary households/institutions including investment in time is estimated at 30% of the cost of the facilities installed.

The project will be implemented in collaboration with the local authorities at district and sub-county levels and in partnership with local NGOs. A tripartite agreement shall be signed specifying the role of parties involved. Supervision of the project will be done by the recipient, District and sub-county local governments, and communities in accordance with the defined functions and terms of reference of those structures and/or agencies. Each implementing level will develop periodic work plans with budgets and a timeframe in which to implement its assigned activities.

Given the innovative nature of the project, the recipient will facilitate close participatory monitoring and evaluation of project activities, including implementation progress with other stakeholders. AWF and NETWAS-U will undertake a joint Mid -Term Review at the end of first year of the project. The project will develop and utilize Training Materials within the project area during implementation and will disseminate these materials in other areas with water resource endowment problems similar to those of selected counties, after incorporating experiences and lessons learnt in this project.

The project has been conceptualised taking care of sustainability concerns. For this reason the mobilization activities will utilize gender sensitive team members to especially establish the differentiated needs and expectations of women, men and children as well as any special social grouping with specific needs. These should be incorporated in the designs.

For construction activities, project shall train masons for each sub-county. Masons shall be local residents who have construction skills or have undertaken technical training. Trained masons shall be given basic equipment for the construction of rainwater storage tanks. It is anticipated that the masons shall continue to deliver services to their communities and neighbouring areas on demand and at a fee long after this project has been completed.

The project has net positive effects on the environment, from improved health of the beneficiaries, better use of natural resources, to control of erosion from run off from built up areas. Project design will nevertheless ensure proper management of resulting grey water – through avoidance of stagnant pools and re-use in garden watering. Management training includes provisions for disposal of the first rains.

Total budget for the project is Euros 527,788 of which AWF's proposed contribution is Euros 449,830. Other sources of funding include contributions from district and sub county local governments Euros 9,000 (through making available the technical staff) and beneficiary communities Euros 68,958 through contribution of labor and local materials.

# **1. BACKGROUND**

## **1.1 Origin of the Project**

1.1.1 During the civil strife in Uganda, in the 1970s and early 1980s, the water sector became quite devastated and dilapidated. The majority of the then good water facilities and services in the 1960s went into disrepair and disuse and finally collapsed. Soon after the war in 1986, the new National Resistance Movement (NRM) government received a lot of support for development and rehabilitation of water facilities. Such support came from bilateral and multilateral agencies as well as from the non-governmental organisations (NGOs). This rehabilitation era extended into a development stage in which local civil society organisations (CSOs) such as the local NGOs and private enterprises emerged. This led to enhanced legal and policy changes and reforms that promoted active participation of the private sector, the NGOs and the communities for better effectiveness and sustainability. Network for Water and Sanitation, Uganda (NETWAS-U) was one of such newly born organisations. It was established in 1997.

1.1.2 This proposal was initiated by the NETWAS-U seeking funding for The Roof Water Harvesting and Management Project in response to the national agenda that calls on government partners to provide relief to the most water stressed parts of the country through implementation of low cost technologies (MoFPED Budget Speech 2005/2006). It is anchored on the realization that the full benefits of RWH can only be realized where the attributes of this high value scarce resource are understood and it is consequently managed with this perspective. The project aims at on the one hand increasing water supply, improving sanitation and protecting the environment at household and institutional levels but most importantly it aims to demonstrate how RWH can be optimally used as means to alleviate the shortage in water supply in water scarce areas – with proper management. It is expected that this will result in the immediate term in the reduction of morbidity from preventable diseases related to unsafe water and poor sanitation, better child and maternal health and nutrition, and subsequently, in reduction of infant and maternal mortality, better education and good quality of life and human development. In the medium and long term the project such serve to give a better image to the technology allowing it wider acceptance beyond the project area. The project as proposed, builds on the experiences of other rainwater harvesting projects in Uganda and other developing countries.

## **1.2 The Sectoral Priorities**

1.2.1 Uganda has undertaken policy reforms in the water sector since the mid nineties. The overall objective of the rural water sector reform is to reduce the role of Government in the direct provision of services while maintaining commitment to improved water and sanitation services through facilitation, policy-making, development of standards, monitoring, resource mobilization and setting sector priorities.

1.2.2 Various policy documents and provisions constitute the legal and policy framework of the development and management of the Water and Environmental Sanitation (WES) sector in Uganda. The Constitution of the Republic of Uganda (1995) defines access to water and sanitation services as fundamental rights for all Ugandans; the Local Government Act (1997) provides for decentralization of services including rural water and sanitation development; the National Water Policy (1999) promotes an integrated approach to water resource management



and recognises that water has an economic value. This latter policy calls for participation of all stakeholders, including women and the poor, in the planning, implementation and management and the derivation of benefits of the water and sanitation sector.

1.2.3 Other policy, legal and planning documents in this regard include the Water Act (1995) and its accompanying regulations, the Environmental Management Act, the National Water and Sewerage Act, the National Gender Policy (1997) that promotes affirmative action to ensure gender equity in national socio-economic activities. The Children Statute (1999), the Health Sector Strategic Plan (2000), Water Action Plan (1994) and the Poverty Eradication Action Plan, (PEAP 1997) and revisions made in 2001 and 2004. The National Operation and Maintenance (O&M) Framework provides that O&M for rural water is the full responsibility of the beneficiaries.

1.2.4 As part of the sector reform Uganda also pronounced a road map for meeting the Millennium Development Goals in the form of a Strategic Investment Plan (SIP) to 2015 as well as a series of short term Operational Plans. The SIP identifies different technologies for this purpose and RHW is identified as the possible solution in about 20 of the 55 districts of the country.

1.2.5 The legal and policy frameworks recognise water as being essential to life and provide implementation strategies, maximisation on resources, close coordination in implementation and use of resources and wider participation of all sector stakeholders including local authorities, the private sector, the bilateral and multilateral agencies, the NGOs and beneficiaries. This project is very much in line with all these acts, polices and regulations.

### **1.3 Problem Definition**

1.3.1 Uganda, which is located right on the equator, in the hinterland of Tropical Africa, is endowed with plenty of rainfall. The annual rainfall ranges from about 650 mm in the north-eastern region to about 2,200 mm over Lake Victoria basin in the central region. It is, however, ironical that the safe water coverage is still low. Assuming 100% functionality of the installed WS&S facilities the percentage of people supplied within 1.5 km of an improved water source in rural area fell only from 61.3% to 61% in the FY 2005/6. It has been estimated that access to safe water within a distance of 1 km is as low as 48.9% (Water and Sanitation Sector Report, June 2006). Despite the increased expenditure of the grant funds to the sector, stagnation in safe water coverage has been attributed to most of this investments going to improvement of the source and not being able to keep up with rural population growth (3.3%) since FY 2003/4 For example, during the financial year, 2003-2004, 800.000 additional people were supplied with water but 1.000.000 newly born babies were added to the population, thus the shortage of 200,000 without adequate water supply despite the effort.

1.3.2 Despite the positive overall water endowment situation in the country, there are a number of areas where the only viable solution for provision of water is to use rainwater for direct drinking and other forms of water for lower quality uses. It has been recognised (see paragraph 1.2.4 above) that in about 20 of the then 55 districts in Uganda at the time of the Sector Investment Programme, rainwater harvesting would be the technology of choice. Rainwater harvesting project, particularly through roof catchment, is a viable option when considered in the quantities normally required for direct drinking and is being proposed for funding because it is an optimal method affordable and manageable by everybody both at household and institutional

levels. It cannot be compared with other options for other lower quality uses such as for body and clothes washing and has consequently often been left out in proposals of options that “offer similar results”. However when considered in its niche it is a formidable alternative.

1.3.3 There are a number of benefits from rainwater harvesting as an appropriate technology for household and institutional water supply which will be discussed in detail in chapter 4.

1.3.4 Institutions and households with rainwater harvesting facilities, require skills for effective management of the stored rainwater so as to derive the full benefits of this resource and have safe drinking water during the dry periods. This project shall sensitise and educate institutions and households on the management of stored rainwater so as to access safe water throughout the year for better health..

## 1.4 Beneficiaries and Stakeholders

1.4.1 The project will be implemented in 3 districts across the country, selected as a result of a wide consultation with the Directorate of Water Development (DWD) under the Ministry of Water and Environment (MWE) and the Uganda Rainwater Association. Selection **criteria** include: that selected districts are not benefiting from rainwater harvesting technology through other projects; have relatively low water coverage; have high potential for adoption of the rainwater harvesting technology; districts with viable CBO/NGOs with which NETWAS-U, the project sponsor can form partnership with for the project implementation; districts with eagerness to participate and supportive to RWH.

1.4.2 Two sub-counties will be selected from each of the 3 districts and these 6 sub-counties will constitute the project area in the selected districts. The two sub-counties for each district shall be selected in consultation with the district local government. Selection criteria shall include sub-counties eagerness to participate and supportiveness to RWH, low safe water coverage and high potential for rainwater harvesting technology uptake. Implementation of the project shall be at sub-county level.

1.4.3 The decision to implement the project in two sub-counties (as opposed to many sub-counties within one district) is based on cost and the pilot nature of the activity. The projects could be replicated, expanded, rolled out to other districts and sub-counties based on the plausibility or otherwise of the outcome. Intensive promotion shall be carried out such that a high percentage of households with hard roof will be encouraged to participate in the pilot project and have access to their own rainwater harvesting system instead of begging water from neighbouring households with the facility as is now the case. In addition, the project shall conduct education and sensitisation activities that target effective management of the harvested - seasonally limited - water resource. It is expected that, the provision of proper management skills to participating households, water tanks would store and provide safe water for a longer period beyond the dry spells and eventually all year round. This project will be a learning ground for management of rainwater harvesting and the lessons gained can be replicated in other parts of the country.

1.4.4 Both households and institutions (schools, health units, administration centres) will benefit from this project. More specifically, the main beneficiaries from the project include:

- Women and children through saving on time spent to collect water;

- Households/Communities through improved health as a result of access to safe water and improved hygiene conditions;
- Households through gained knowledge of proper management and use of rainwater storage;
- Private sector (masons etc) and women groups through acquisition of technical skills in the construction of Rain Water Harvesting facilities;
- The private sector through increased demand for their goods and services;
- Extension workers through improved skills in communication, mobilization and social marketing of the Rainwater harvesting and management technology; and
- District and Sub-county local governments through acquired knowledge and skills from capacity building activities.

1.4.5 Stakeholders of this project include the key institutions involved in the rural water sub sector which include:

- National level government and non-government institutions that are involved in the effort to improve access to safe water and sanitation;
- District Local Governments in the pilot districts for the provision and management of rural water supply and sanitation services; and
- Sector NGOs/CBOs that are active in the pilot districts as well as UWASNET as the umbrella organisation for sector NGOs for sharing and dissemination of experiences and lessons learnt from the project.
- The African Development Fund is also active in the field of Rainwater Harvesting through a project entitled *Pilot Project on Water Harvesting in the IGAD Region* targeting water for agriculture and human consumption.

## **2. THE PROJECT**

### **2.1 Impacts**

2.1.1 Through incorporation of appropriate storage management the project will provide clean and safe water all year round to both households and institutions, and as a result will lead to improved sanitation and hygiene for the people living in the project areas. Consequently, communities will enjoy better health with considerable reduction in water-borne, poor hygiene and sanitation related diseases, which will in turn lead to a reduction in morbidity and mortality and to improved quality of life and ultimately to increased productivity and production.

2.1.2 The long-term impact of the Harvesting Rainwater by Roof Catchment Project is, therefore, a significant contribution to the reduction of morbidity, disability, under-nourishment, and mortality from water-borne, poor hygiene and sanitation related diseases in the project areas.

### **2.2 Outcome**

As a result of the project outputs, the expected project outcomes are that:

- (i) People living in the project area will have throughout the year, safe and clean drinking water, through well managed roof rainwater harvesting facilities and improved sanitation and hygiene practices. And that*
- (ii) The technology will be better disseminated as people appreciate the importance of proper management of storage to provide adequate quantities for drinking all the year round.*

## 2.3 Outputs

To achieve the expected outcome, the project shall have the following outputs:

- i. Decision-makers in the 6 sub-counties within 3 pilot districts will be supportive of rainwater harvesting and management.
- ii. Appropriate capacities and skills on roof-water catchment, its management and improved sanitation at household and institution levels built for staff from partner CBO/NGO, 9 district level staff, 18 sub-county level field workers, and 24 masons.
- iii. Increased awareness on the potential benefits of roof rainwater harvesting technologies for safe water provision and improved sanitation in the project area
- iv. Rainwater and sanitation facilities are operational at 30 institutions and 720 households in the project area.

## 2.4 Activities

For the project to achieve the intended outputs, the following major activities will be conducted:

### ***Related to output I:***

### ***Decision makers in 6 sub-counties within 3 districts of three regions of the country are supportive of rainwater harvesting and management.***

2.4.1 Mobilisation, Sensitisation and Advocacy for the Project at national, district and sub-county and community levels on various dimensions of the project.

- A National level Workshop shall be organized for National-level stakeholders as well as representatives from the participating districts with the objective of introducing and gaining support for the project and ultimately to create a climate for dissemination to non-participating counties with water resources problems.
- District-level workshops shall be organized for key stakeholders at district level and for representatives from the pilot sub-counties. This workshop shall introduce the project package, outputs, activities, and implementation work plans with the objective of gaining commitment for district level support; and
- Sub-county level workshops shall be organized for stakeholders at the sub-county level with the objective of introducing the project to the wider sub-county local administration to gain sub-county commitment, support and participation in the project.

2.4.2 Under this activity, the project will conduct baseline studies to establish the baseline data in the participating sub-counties. More specifically, it will employ facilitators with gender analysis skills to conduct baseline studies in 6 sub-counties to:

- i. generate baseline data on safe water coverage, sanitation coverage, housing types, attitude on rainwater harvesting technology, availability of local materials, willingness and ability to make contributions.
- ii. identify the specific needs of women, children and other social groups with respect to drinking water and sanitation and their preparedness to

participate in their activities; determine roles and responsibilities of each gender group in the obtention of drinking water, and in the implementation of the project and hence incorporate the results and recommendations into the design.

***Related to output II:***

***Appropriate management capacities and skills for roof-water catchments and improved sanitation at household and institution levels built for staff from partner CBO/NGO, 9 district level staff, 18 sub-county level field workers, and 24 masons.***

2.4.3 The project will provide orientation and/or training of those involved in the implementation of the project at various level. These shall include training of:

- i. staff from each of the 3 partner CBO/NGOs
- ii. Specified number of extension workers per sub-county, where the facilities will be installed, in communication for sanitation improvement, and management of rainwater harvesting.
- iii. Four water artisans/masons per sub-county in construction, repairs and maintenance of rainwater harvesting tanks including the installation of gutters, filters and water-level devices. Masons so trained shall have extensive skills and jobs in other construction work.

***Related to output III:***

***Increase awareness on the benefits of roof rainwater harvesting technologies for safe water provision and improved sanitation in the project area.***

2.4.4 The project will carry out mobilisation, and sensitisation of households and institutions for their participation and involvement in the project. Develop information, communication and education materials for awareness creation on the use of RWH from roofs its storage management and appropriate sanitation practices for use in the project and dissemination in other areas. It will hold meetings or use a drama group at village level targeting women groups and institutions for sensitisation and awareness with the objective of creating demand for rainwater harvesting facilities. The meetings shall explain, the project approach and roles and responsibilities of key actors during the implementation process. The project will:

- Identify willing and motivated women groups for participation in the project and obtain their needs, views and perspectives concerning participation in the implementation and benefits of the project; and
- Conduct/facilitate visits of community/women group leaders to communities with successful rainwater harvesting projects.
- Disseminate the experiences of the selected sub-counties to neighbouring counties at the completion of the present so as to obtain wide adoption the management innovation introduced here.

***Related to output IV:***

***Rainwater and sanitation facilities operational at 30 institutions and 720 households in the project areas.***

2.4.5 Under this activity the project will implement a number of tasks that have to do with provision of goods and services for the construction of structures. These tasks will include

- Design of the systems incorporating the location specific conditions and community requirements.
- Mobilisation and/or procurement of the relevant logistics, equipment and fittings for construction activities. The project shall provide Bills of Quantities (BOQ) for varying tank sizes so that the institution makes an informed decision on what tank size they are willing to contribute towards based on the ability to meet cost of local materials.
- Construction of the rainwater facilities at households and institutions; The tanks will have simple water level gauges and drawings on the wall enabling people to tell the content.
- Education of beneficiary households and institutions on the all year round management aspect of the harvested rainwater. Enabling them to understand the time a given amount of water in the tank lasts at a constant withdrawal of a certain amount of water every day.
- Mark all tanks - “With support of the African Water Facility, 2007” and record the GPS - coordinates of each tank.

## **2.5 AWF Value Added**

2.5.1 The project falls within the AWF category of Small Scale Capital Investment projects piloting innovative technology. Whereas rainwater harvesting is a well established technology being slowly adopted in many parts of the world, it is considered as a third rate solution since the amount of storage typically available tends to run out before the end of the dry season. The project promotes the principle *that households should be able to measure the available storage and using simple technique to project the consumption rate that is required to ensure that they can bridge the period to the next rainy season.* This is the principle of storage management.

2.5.2 This principle works best where a critical mass of households possesses a RWH system and consequently there are no inter-household transfers. At these early stages therefore it has proved necessary for AWF to work in a clearly scope area such as a sub-county and only later promote the uptake on a larger scales.

2.5.3 The project also instantiates the core principles of the AWF which include promotion of the principles of IWRM such as focussing on novel delivery mechanisms as in this case implication of households self delivery may be considered as a form of unbundling of what is typically a community system. Its implementation through NGOs confirms the important role of diversity of stakeholders and partnerships.

## **2.6 Risks**

2.6.1 The project management will have to pay serious attention to compromised transparency during implementation. A robust mechanism has to be put in place to ensure that all provisions of project agreements including the criteria for selection of districts and sub-counties are respected. The project will address risk through empowering communities to demand accountability from

implementing agencies and articulating the selection criteria during the joint planning and advocacy workshops, open discussion of mitigation measures and strict supervision of the implementation.

2.6.2 Rainwater harvesting, especially, at the institutional level, may bring about stagnant waste/foul water around the premises which could bring about mosquito breeding and other forms of waste waterborne infectious organisms. The implementing agency will ensure that this technology is environmentally friendly and compliant with the NEMA and other environmental health regulations. Appropriate arrangements shall be made first to avoid stagnant water and the nuisances associated therewith and secondly to ensure that the waste water generated is put to efficient uses. If need be simple grey-water treatment systems to permit productive reuse of the water in agriculture will be constructed. This shall be coupled with relevant education and the general promotion of sanitation and appropriate water efficiency consciousness.

## 2.7 Costs and Financing Plan

2.7.1 The project costs, as shown in the budget details attached have been computed from the activity details in section 2.4 above which have themselves been derived from the objectives stipulated in sections 2.2 and 2.3 for medium term outcomes and immediate outputs respectively. The work plan and budget matrix reflect the quantification of requirements as well as single activity budgets. The coordination of financial receipts, allocation, disbursements, expenditures, and accountability is elaborated in sections 3.5, 3.6 and 3.7 below.

Table 2.1 Project Costs (Euro)

Components	Grant	Local Cost	Total Cost
Mobilization and Advocacy	14,167		14,167
Baseline studies	12,500		12,500
Orientation and training of duty bearers	35,620		35,620
Sensitisation and training	20,250		20,250
Construction of RWH facilities at institutions and household levels	267,708	68,958	336,666
Documentation and dissemination of programme experience	6,875		6,875
Mid Term Review	18,750		18,750
Programme support	73,955	9,000	82,955
<b>Total project cost</b>	<b>449,830</b>	<b>77,958</b>	<b>527,788</b>

2.7.2 Out of the total budget for the project of Euro 527,788 AWF will fund Euro 449,830. Other sources of funding include contributions from district and sub-county local governments in the amount of Euro 9,000 (through making available the technical staff) and beneficiary communities in the amount of Euro 68,958 through unskilled labour and provision of local materials. The project plans to spend Euro 193,441 (42%) in the first year and Euros 256,389 during the second year of implementation.

2.7.3 Beneficiary households and institutions shall contribute to the financing of individual rainwater harvesting facilities constructed. For institutions, the project shall provide materials that are not locally available and provide funding for skilled labour for construction while the institutions concerned shall make available local materials.

2.7.4 For financing the construction of household rainwater harvesting, the project shall work with organised women groups. Lessons from other NGOs implementing rainwater harvesting indicate that, initially, demand for the facilities (willingness to pay/contribute) is often slow but gradually builds up during the course of the project. Initially, for every 5 tanks to be constructed by the project, group members shall be required to contribute funds for construction of 1 tank as well as meet the cost of locally available materials (for the 5 project tanks and group-financed tank) and provide unskilled labour during the construction activities. The ratio 5:1 may be revised during the course of the project to 4:1, then 3:1 as demand for the technology increases. Experiences from organizations implementing rainwater harvesting indicate a need for close management and supervision during construction.

Table 2.2 Sources of funding

Source	Euros	% of total
AWF	449,830	85.1
District and Sub-county local authorities	9,000	1.7
Beneficiaries	68,958	13.2
Total	527,788	100

### 3. PROJECT IMPLEMENTATION

#### 3.1 The Recipient

3.1.1 The project will be implemented by the Network for Water and Sanitation-Uganda (NETWAS-U). It is an indigenous non-governmental organization registered with the Ministry of Internal Affairs with a certificate of Incorporation. NETWAS-U was established in 1996 within the water, sanitation and environmental protection sector, with the purpose of mainly building local capacity for development, management and maintenance of water and sanitation resources at community level. NETWAS-U has over the years gained useful experience in building capacities in management and maintenance of water and sanitation facilities, projects/program planning and management, and monitoring and evaluation. On a small scale, it has also been involved in physical development of safe water sources such as spring protection, shallow wells, gravity schemes, rainwater harvesting and improvement of sanitation facilities in the local communities. NETWAS-U will bank on these experiences to implement the proposed project.

3.1.2 NETWAS-U has an established office with basic furniture, office equipment including communication facilities and is manned by a senior programme officer, a programme assistant and some support staff. As is often the practice, the organisation has got access to highly trained resource persons both within the CSO fraternity and government that it engages when substantial work has been secured for implementation. There are collaborative arrangements in place for executing such work.

3.1.3 This project is designed to be implemented within the framework of the NETWAS-U strategic plan under its management structure. The Council as the policy body of the organisation consists of nine members and normally sits once every quarter of the year will oversee the implementation of programmes and projects through the secretariat's submission of regular work plans, budgets, progress reports and periodic audits. The NETWAS-U secretariat will work with Uganda Water and Sanitation NGOs Network (UWASNET), the Uganda Rainwater Association



(URWA), the relevant district and sub-county level offices and partner NGO/CBO for implementation of project activities.

## **3.2 Implementation arrangement and capacity**

3.2.1 The implementation arrangement will be a combination various levels all playing specific roles to support the project. These levels include:

- The national level involvement that will focus on support for the project as well as advocacy and to engender district support and participation in the project;
- The decentralised & integrated approach at District and Sub-district level that will focus on:
  - Capacity building and skills development for project implementation
  - hygiene and sanitation promotion
  - monitoring and advocacy;
- Community level support that will involve mobilization and creating demand for rainwater tanks and working with women groups that come together to pull resources for construction of RWH tanks and gain skills in construction work as well as provide support for improved sanitation activities within the community

3.2.2 The project will be implemented in collaboration with the local authorities at district and sub-county levels and in partnership with local NGOs. In each district of operation therefore, and in consultations with UWASNET, NETWAS-U will identify a viable registered CBO/NGO with a track record of successful community based project implementation and with capacity and competencies to implement the rainwater harvesting project. NETWAS-U shall sign a tripartite memorandum of understanding (MoU) with the identified CBO/NGO and the District Local Government. Such MoU shall reflect the roles and responsibilities and expectations from each of the three parties in the project implementation process. Working in partnership with existing local NGO will have the added advantage of better sustainability as the partner organisation shall continue to operate in the district and maintain contact with beneficiary communities.

3.2.3 In terms of capacity to implement the project, NETWAS-U Council of nine members will, to a larger degree, be involved in advocacy and communication activities to CSOs, Local Authorities and community leadership particularly during the initial stages of the project and periodically during the implementation reviews. The Council normally sits once every quarter of the year to receive, consider and approve work plans, budgets, and reports. The Council also has Finance and Programmes Committees that quarterly sit to discuss, in more detail, the work plans, budgets and reports with the secretariat prior to submission to the Council and/or Annual General Meeting (AGM).

3.2.4 The secretariat is comprised of the Senior Programme Officer (SPO), who is also the executive head of the organisation, a Programme Officer/Training Officer and an Assistant Programme Officer. These are assisted by a team of support staff comprising of Accounts Officer, Administrative Officer, Office Attendant, security guard and a driver. This team will be fully involved in the management of the project at head office level. Some technical services will occasionally be contracted out to consultants or sister CSOs.

### 3.3 Performance Plan

3.3.1 Supervision of the project will be done at Council, Secretariat, District, Sub-county and community levels in accordance with the defined functions and terms of reference of those structures and/or agencies. These are provided for in the NETWAS-U constitution, and will be catered for in the tripartite memorandum of understanding to be signed between NETWAS-U, the district local administration and the partner CBO/NGO.

3.3.2 Initially, the secretariat will develop work plans, budgets, and performance plans for submission and consideration by the Council. It will also conduct monitoring and supervision from which supervision reports, progress reports and accountability reports will be developed for submission to the Council, donors, and major stakeholders for consideration and approval regularly.

3.3.3 Detailed monthly activity plans shall be developed in consultation with the implementing partner NGOs and with beneficiary communities/women groups. The Secretariat will supervise work being done by the partner NGO and jointly with the district level staff provide support supervision to the operational level staff. The sub-county level field officers will supervise work at household and institution levels. The supervision will cover technical, financial and material/equipment performance, operations and accountability.

3.3.4 Critical measurable indicators for each of the outputs and outcomes described in chapter 2 above are as reflected in the table 3.1 below

Table 3.1

Project outcome/output	Indicators
Outcome: People living in the project areas having all year round safe and clean drinking water, sustainable developing, managing and promoting safe water supply through roof rainwater harvesting and management as well as improved sanitation and hygiene practices	% increase in access to safe water facilities and % increase in access to sanitation facility in the participating sub-counties following two years of project implementation.
Output i: Decision makers in 6 sub-counties within 3 districts of three regions of the country are supportive of rainwater harvesting and it's management.	6 sub-counties supportive of rainwater harvesting technology and it's management by the end of the first quarter of the first year
Output ii. Appropriate management capacities and skills for roof-water catchments and improved sanitation at household and institution levels built for staff from partner CBO/NGO, 9 district level staff, 18 sub-county level field workers, and 24 masons.	Partner CBO/NGO staff, 9 district level staff, 18 sub-county level staff trained by the end of the first quarter in the first year of implementation;  12 masons trained by the end of the second quarter of the first year of implementation, 24 masons trained by the end of the third quarter of the first year of implementation.

Output iii. Increase awareness on the potential benefits of roof rainwater harvesting technologies for safe water provision and improved sanitation in the project area.	Women groups and community leaders from 6 sub-counties have participated in visits to other rainwater harvesting projects by the end of the second quarter of the first year of implementation.
Output iv. Developed/constructed rainwater harvesting and sanitation facilities at 30 institutions and 720 households in the project areas.	Rainwater facilities constructed at: 50 households by the end of the second quarter of first year 175 households by the end of the first year, 600 households by the end of the second quarter in year 2 720 households by the end of the second year 5 institutions by the end of first year 20 Institutions by the end of the second quarter of the second year. 30 institutions by the end of the second year. within 6 sub-counties in three districts

### 3.4 Implementation Schedule

3.4.1 As stated in 3.2 above, each implementing level will develop periodic work plans with budgets and a timeframe in which to implement its assigned activities. These will be submitted to higher level for consideration, approval, and disbursement of appropriate resources.

3.4.2 The project is scheduled to last two years. A summary evaluation will be done before end of the period to assess whether there would be need for extension.

3.4.3 The table 3.2 below presents in detail on a quarterly basis the implementation schedule for the first year of project implementation. The schedule for the second year will be developed including the experiences of the first year in due time, as a basis for further disbursements. At the current stage it captures few activities that are known to flow into the second year, namely the training in management and facilities construction.

Table 3.2

Output	Tasks	Timeframe (Qtr) Yr 1				Yr2	Indicators
		1	2	3	4	1-4	
i. Decision makers in 6 sub-counties within 03 districts of three regions of the country are supportive of rainwater harvesting and management.	Develop project promotion materials						Developed materials
	Conduct national level awareness workshop						Workshop reports
	Conduct district level project awareness workshop						
	Conduct sub-county level awareness workshops						
	Conduct baseline study						Baseline study report
ii. Appropriate management capacities and skills for roof-water catchments and improved sanitation at household and institution levels built for staff from partner CBO/NGO, 9 district level staff, 18 sub-county level field	Identify partner CBO/NGOs						CBOs/NGOs identified
	Sign tripartite MoU						Signed MoU
	Conduct joint training for CBO/NGO and district level staff						Training report
	Conduct training for sub-county level staff						Training report

		Timeframe (Qtr) Yr 1			Yr2	
workers, 24 masons	Conduct training of masons					Training report
	Conduct training of women's groups in construction and management of RWH tanks					Training report
iii. Increase awareness on the potential benefits of roof rainwater harvesting technologies for safe water provision and improved sanitation in the project area. .	Conduct village level project awareness meetings					No. of meetings conducted in 6 sub-counties
	Identify women groups					No of women's groups identified in 6 sub-counties
	Facilitate awareness visits					No of women group representatives that participated in awareness visit
iv. Constructed rainwater facilities at 30 selected institutions and 270 households in the three districts of each of the central, western and eastern regions of the country.	Procurement of installation equipment/materials					Procurement records
	Installation of RWH tanks					No and sizes of tanks installed
	Education on management, O&M and sanitation promotion					Reports

### 3.5 Procurement and Execution

3.5.1 Procurement of goods, works and services by NETWAS-U will be in accordance with the provision of the Operational Procedures of the AWF and the principles of public procurement as stipulated in Uganda's Public Procurement and Disposal of Public Assets (PPDA) Act, 2003. In accordance with the thresholds set in the PPDA Guidelines, NETWAS-U shall use the procurement modes outlined below.

#### 3.5.2 Procurement of Works

- *Open Bidding* is used if the estimated value of the works exceeds UGX 100,000,000 or US\$ 50,000, whichever is greater.
- *Restricted Bidding* is used if the estimated value of the works does not exceed UGX 100,000,000 or US\$ 50,000, whichever is greater.
- *Quotations Procurement* is used if the estimated value of the works does not exceed UGX 80,000,000 or US\$ 40,000, whichever is greater.

#### 3.5.3 Procurement of Services

- *Restricted Bidding* is used if the estimated value of the services does not exceed UGX 50,000,000 or US\$ 25,000, whichever is greater.
- *Proposals Procurement* is used if the estimated value of the services does not exceed UGX 30,000,000 or US\$ 15,000, whichever is greater.

#### 3.5.4 Procurement of Supplies

- *Open Bidding* is used if the estimated value of the supplies exceeds UGX 70,000,000 or US\$ 35,000, whichever is greater.

- *Restricted Bidding* is used if the estimated value of the supplies does not exceed UGX 70,000,000 or US\$ 35,000, whichever is greater.
- *Quotations Procurement* is used if the estimated value of the supplies does not exceed UGX 30,000,000 or US\$ 15,000, whichever is greater.

The Table 3.3 below presents the - Procurement Arrangements (Euro)

Procurement Category	Quotations	Proposals	Others
	Procurement	Procurement	
<b>Services</b>			
Workshops, Trainings, Capacity building		79,042 [70,042]	
Information Management		[10,208]	
Consulting Services		[18,750]	
<b>Project Management Costs and Overheads</b>			<b>62,666</b>
<b>Goods</b>			
Computers, Printer, LCD Projector	[4,206]		
Vehicle	[16,250]		
<b>Works</b>			
Rainwater Harvesting Systems (750 units)	336,666 [267,708]		
<b>Total by Category</b>	<b>357,122</b> <b>[288,164]</b>	<b>108,000</b> <b>[99,000]</b>	<b>62,666</b>
<b>GRAND TOTAL</b>		<b>527,788</b> <b>[449,830]</b>	

Shown in [ ] AWF's contribution

### 3.6 Disbursement Arrangements and Expenditure Schedule

3.6.1 The total AWF grant contribution to the project is 449,830 Euros and the Table below gives the recommended disbursement schedule to meet the project goals. Disbursement to recipient NETWAS-U will be made on a half yearly basis. The first disbursement requires a signed agreement, the establishment of a Special Project Account at a local bank acceptable to ADB and a formal request for disbursement from the recipient. Subsequent disbursements will require formal requests from the recipient, a tentative work plan and financial reports on the preceding period both acceptable to the AWF.

3.6.2 The project shall open a Special Account with local commercial bank, into which the advances will be deposited. The Special Account will be replenished on the condition that the

preceding advance has been utilized and justified up to at least 50 percent and that the other advances have been fully justified.

3.6.3 Audit (external and internal) of the project should include an audit of the use of the special account and attestation that: i) the requests for replenishment of the revolving fund submitted are consistent with relevant information, ii) the internal controls and procedures used for their preparation, are reliable enough to justify the requests for replenishment, and iii) the goods and services financed from the special account have been received by the project.

3.6.4 To protect the interests of the recipient and the AWF/ADB, the bank holding the special account must issue an irrevocable undertaking that:

- funds held in the Special Account will not, under any circumstances, be set off, seized or attached to satisfy amounts due to the bank by the project (for example by attachment) or be used as sundry collateral;
- monthly statements of the Special Account will be issued and communicated to the project; and
- The account and related documents will be placed at the disposal of the AWF staff and its appointed auditors and made available for access whenever requested.

Table 3.4 Disbursement Schedule for the AWF Grant

Item	Transfer Date	Amount Euro
First instalment (Mobilizing, Development of Training Materials, Trainings, Capacity building, Consultancies, Construction materials, Construction etc)	2007	193,441
Second instalment (Trainings, Capacity building, Consultancies, Construction materials, Construction etc)	2008	256,389
Total AWF Grant		449,830

### 3.7 Accounting and Audit Arrangements

3.7.1 NETWAS-U maintains internal controls per their Human Resources and Financial Manual of 2000. The Accounting Officer is the Senior Programme Officer (SPO) who also has overall responsibility for management and control of the project resources, while reporting to the NETWAS-U council. NETWAS-U uses the quick books accounting system operated by the Accounts Assistant. Using *Quick Books* accounting software, the SPO and Accounts assistant generate financial reports including balance sheet, income and expenditure reports, vendor's reports, creditors' reports, bank balances, invoices, assets depreciation etc.

3.7.2 NETWAS-U keeps a permanent record of all its physical assets. Physical inventories are carried out annually to ascertain the safety and condition of property. Depreciation is calculated every year.

3.7.3 Financial reports are prepared quarterly and annually. On a monthly basis, the Accounts Officer produces monthly trial balance, income and expenditure returns, and bank reconciliation statements for each bank account operated by NETWAS-U. These reports are submitted to the

finance committee that comprises the Treasurer, Vice Chairman and the SPO. Financial reports are also presented during council meetings. On an annual basis, the Accounts Officer prepares final accounts such as balance sheet, trial balance, income and expenditure status, etc, which are subsequently sent to the Council members. Dhadialla and Associates Certified Public Accountants audit the financial statements of NETWAS-U annually and present the audited accounts at the Annual General Meeting.

3.7.4 NETWAS-U will maintain the project's accounts by category of expenditure, source of funding (Shilling and Euro) and put in place a system of internal control to ensure prompt recording of transactions, timely production of accounts and reports and safeguard of project assets. Financial records will be maintained in accordance with internationally acceptable accounting procedures. NETWAS-U will prepare and consolidate monthly financial statements into quarterly financial statements to be included as a section of the QPRs.

3.7.5 The project will be audited by an independent audit firm procured and paid by the AWF/ADB.

### **3.8 Monitoring, Evaluation (M&E) & Reporting Arrangements**

3.8.1 Given the innovative nature of the project, close monitoring and evaluation of project activities, including implementation progress and expenditure are essential. The monitoring and evaluation will be undertaken on a regular and continuous basis by NETWAS-U. Quarterly monitoring visits to project areas will be undertaken jointly by NETWAS-U and participating agencies of the project at the District level. District-based participating agencies in collaboration with relevant local authorities will visit the sites at project costs at least every two weeks and report to NETWAS-U. Participating agencies will, on a quarterly basis, prepare and submit to NETWAS-U reports on project activities. On that basis and visits made by NETWAS-U, the latter will furnish the AWF/ADB with HYPR's on progress made on the implementation of the project and reports on project expenditures in the Bank's format in a timely manner. AWF/ADB will closely monitor the implementation of the project through regular follow-up, reviews and supervision missions. The latter would be undertaken at least once a year to be able to assess that implementation progress on key impact and outcome indicators related to the project outputs are on target.

3.8.2 AWF and NETWAS-U will undertake a joint Mid-Term Review (MTR) at the end of PY1

## **4 PROJECT BENEFITS**

### **4.1 Effectiveness and Efficiency**

4.1.1 Rainwater Harvesting depending on rain patterns is not always an alternative to water supply systems that promises to provide the MDG requirements of between 25 and 50 litres per capita per day. On the contrary it does promise that with appropriate design and management a house hold can be provided with far above the minimum requirement of 1.5 litres water for drinking of a high quality. This allows the concerned households to use water of lower quality for lower quality applications such as washing which can even be done away from the house. During the wet season the available storage can also be put to many uses including productive uses.

4.1.2 The benefits of RHW in water scarce environments are many:

- Affordable for low-income communities.
- Improved water security, better quality of water and the technology is user friendly and has a life span of over 10 years (URWA Bulletin August 2005).
- Time is saved from collection of water from other conventional sources (springs, boreholes, shallow wells). The key beneficiaries being women and children especially the girl-child who bare the burden of collecting water for the family.
- Localizing water facilities at household and institutional levels provides a better opportunity for proper operation and maintenance and utilisation of water facilities.
- During the wet seasons, the presence of rainwater storage within the compound would encourage the household and institutions to use more litres per person per day with the corresponding associated health benefits.
- Opportunity for skill development and income generation among individuals such as masons
- Associated health benefits as a result of access to safe water all year round.

4.1.3 The project posits that with proper management, the use of rainwater harvesting can improve the health and reduce morbidity related to waterborne diseases for much longer time during the dry period that has been considered when rainwater is used without due prudence.

4.1.4 In economic terms it can be stated that the system is viable on that early part of the demand curve with a high elasticity. While the demand studies will be conducted during the baseline study stage of the project and the specific consumer expectations determined then, it can be stated ex post that in water scarce areas the technology is the only viable alternative to bottled water and that comparison of least costs should be based on it.

4.1.5 Although in a strict sense not comparable to typical water systems, the project's per capita investment costs, based on the population of 720 households and population equivalents in the 30 institutions, works to about EUR 44 - within the range for water systems.

4.1.6 NETWAS-U shall ensure that services are provided and managed with increased performance and cost effectiveness. NETWAS-U will supervise the administration of funds received so as to ensure that they are effectively and efficiently used for the purposes agreed upon in the grant agreement. There shall be quarterly financial reports and accountability at all levels that receive and use project funds.

## **4.2 Project Sustainability**

4.2.1 The project has been designed with the issues of sustainability in mind. It will work with women groups who are expected to provide local materials for the rainwater storage tank construction activities. For every 5 tanks the project constructs, the group shall contribute and finance the construction of one tank. This arrangement is meant to kick start a trend where women groups recognise their potential to generate their own resources to finance the construction of the rainwater harvesting facilities, consequently, recognizing their own capacity collectively and individually, continue building rainwater harvesting facilities long after the project funding has stopped.



4.2.2 For this reason the mobilization activities will utilize gender sensitive team members to especially establish the needs and expectations of women and children as well as any special grouping with specific needs. These should be incorporated in the designs.

4.2.3 The for construction activities, project shall train 4 masons for each sub-county who shall be local area residents. They will develop construction skills through experience and technical training. Trained masons shall be given basic equipment for the construction of a rainwater storage tank. It is anticipated that the masons shall continue to deliver services to their communities and neighbouring area on demand and at a fee.

4.2.4 It is further anticipated that partner CBOs/NGOs shall continue to be in touch with communities and groups and further provide support after the project life. Part of the management training will include teaching households to adequately budget for maintenance costs, which on tanks tend to be low varying with choice of technology. Annual maintenance fraction for rainwater tanks based on Ugandan material and labour cost range does not exceed 0.025% (1). These costs are well within the means of even very poor households to meet. Most maintenance costs shall be related to replacement of the screen.

4.2.5 Involvement of the district and sub-county local governments as designed in the project further underpins external support to communities after the project.

4.2.6 Environmental issues related to the project have been discussed at length under project risks, wherein measures to be taken to address risks related to disposal of water have been stated. These are mainly incorporated in the design and will require monitoring during installation of systems. It is worth noting that harvesting roof has another positive spin-off in the form of reduction in erosive power of water concentrated by impervious roofs. More generally water harvesting is a form of sustainable management of water resources in that it minimizes losses due to evaporation.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Conclusions**

5.1.1 This project intends to carry out activities which will lead to a significant improvement in the health and economic wellbeing of populations in the project area through knowledge transfer, rainwater harvesting systems, and new skills to manage the seasonally limited resource and maintain the facilities for a longer term use. The targeted groups are 30 institutions and 270 households in six sub-counties in Uganda. Various Project activities will collectively:

- Introduce the concept of storage management as a central strategy to ensure year round availability of clean water that requires no additional treatment
- Improve knowledge about hygiene and environmental sanitation at district and sub-county administration, at institutions and households;

---

<sup>1</sup> T.H Thomas (ed.) Roof-water Harvesting: A handbook of Practitioners. Draft for Seminars. March 2003.

- Construct rainwater harvesting systems to improve access of beneficiaries to clean water and train owners to manage it in such a way that this limited resource (clean rainwater in the storage tank) lasts all year round; and
- Increase capacity of Local Governments and communities to scale up the project model to other districts and sub-counties.

5.1.2 Through this project, the communities will be less prone to preventable diseases related to water and sanitation. This will in turn, lead to improved health status, increased productivity and increased prosperity in the long run. It will enable local governments, institutions, and communities organizations (often women groups) to organize the construction of further storage tanks with ensured sustainability.

## **5.2 Recommendations**

5.2.1 The project falls into the core area of AWF Capital Investment, promoting rain water harvesting. It is piloting the management of this limited resource (clean rain water in a storage tank) to last throughout the year. The project further contributes to improved hygiene knowledge and behaviour and to sustainable sanitation.

5.2.2 It is, therefore, recommended that the African Water Facility approves a grant not exceeding EURO 449,830 to the applicant NETWAS-U for the execution of the project - ROOF CATCHMENT RAINWATER HARVESTING AND MANAGEMENT IN UGANDA subject to the standard conditions of the AWF grants and including the following:

### Condition of Effectiveness:

The grant agreement shall come into effect on the day that it is signed.

### Conditions for first disbursement:

The first disbursement shall be made following confirmation that the Recipient has opened a Special Account with a local bank under conditions acceptable to the African Water Facility.

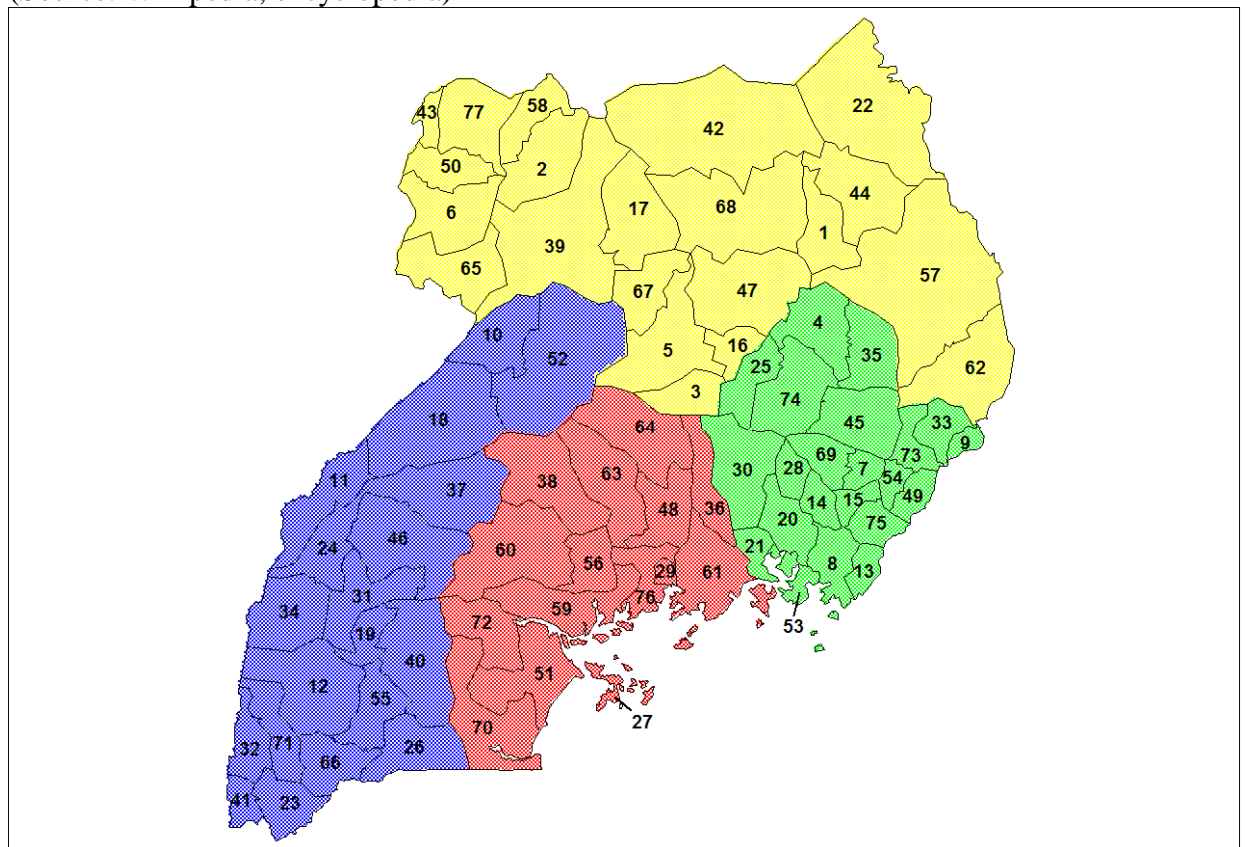
## Annex

### Map of Uganda showing main towns and Lake Victoria



### Uganda Districts

(Source: Wikipedia, encyclopedia)



**Uganda is divided into 80 districts** across four administrative regions. Most districts are named after their main commercial and administrative towns. Eleven new districts came into being on 1 July 2006.

Each district is further divided into counties, sub-counties, parishes and villages. The head elected official in a district is the Chairperson of the Local Council V.

Below are population figures from the 2002 Census. County data was used to determine figures for the districts created or altered since 1 July 2005

<b>Central Region</b>			<b>Northern Region</b>		
<b>Map</b>	<b>District</b>	<b>pop.</b>	<b>Map</b>	<b>District</b>	<b>pop.</b>
27	Kalangala □	36,661	1	Abim □	58,590
29	Kampala □	1,208,544	2	Adjumani □	201,493
36	Kayunga □	297,081	3	Amolatar □	96,374
38	Kiboga □	231,718	39	Amuru □	177,783
48	Luwero □	336,616	5	Apac □	405,524
	Lyantonde □	66,175	6	Arua □	413,113
51	Masaka □	767,759	16	Dokolo □	131,047
56	Mityana	269,763	17	Gulu □	290,624
59	Mpigi □	414,757	22	Kaabong □	379,775
60	Mubende □	436,493	42	Kitgum □	286,122
61	Mukono □	807,923	43	Koboko □	131,604
63	Nakaseke □	138,011	44	Kotido □	157,765
64	Nakasongola □	125,297	47	Lira □	530,342
70	Rakai □	405,631	50	Maracha □	310,338
72	Sembabule □	184,178	57	Moroto □	170,506
76	Wakiso □	957,280	58	Moyo □	199,912
<b>Eastern Region</b>			62	<u>Nakapiripirit</u>	153,862
<b>Map</b>	<b>District</b>	<b>pop.</b>	65	<u>Nebbi</u>	433,466
4	Amuria □	183,817	67	<u>Oyam</u>	270,720
7	Budaka* □	221,525	68	Pader	293,679
	Bududa □	124,368	77	Yumbe	253,325
8	Bugiri □	426,522	<b>Western Region</b>		
	Bukedea □	122,527	<b>Map</b>	<b>District</b>	<b>pop.</b>
9	Bukwa □	49,826	10	Bulisa □	64,823
13	Busia □	228,181	11	Bundibugyo □	212,884
14	Namutumba □	169,156	12	Bushenyi □	723,427
15	Butaleja □	160,927	18	Hoima □	349,204
20	Iganga □	547,155	19	Ibanda □	198,043
21	Jinja □	413,937	26	Isingiro □	318,913
25	Kaberamaido □	122,924	23	Kabale □	471,783
28	Kaliro □	153,513	24	Kabarole □	359,180
30	Kamuli □	558,566	31	Kamwenge □	295,313
33	Kapchorwa □	143,684	32	Kanungu □	205,095
35	Katakwi □	123,215	34	Kasese □	532,993
45	Kumi □	265,488	37	Kibale □	413,353
49	Manafwa □	264,383	40	Kiruhura □	212,087
53	Mayuge □	326,567	41	Kisoro □	219,427
54	Mbale □	332,174	46	Kyenjojo □	380,362
69	Pallisa* □	300,729	52	Masindi □	405,042
73	Sironko □	291,906	55	Mbarara □	360,008
74	Soroti □	371,986	66	Ntungamo □	386,816
75	Tororo □	398,601	71	Rukungiri □	308,696