African Water Facility
Facilité africaine de l'eau
Mobilising Resources for Water in Africa
Mobiliser des ressources pour l'eau en Afrique

Project Appraisal Report

REPUBLIC of UGANDA - REPUBLIC of SOUTH SUDAN

Nyimur Multipurpose Water Resources Project Studies for Implementation

October 2014

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PROJECT INFORMATION

1. Country	Republic of Uganda and Republic of South Sudan
2. Name	Nyimur Multipurpose Water Resources Project Studies for Implementation.
3. Place	Uganda and South Sudan
4. Recipient	Nile Equatorial Lakes Subsidiary Actions Program – Coordination Unit NELSAP - CU
5. Executing agency	Nile Equatorial Lakes Subsidiary Actions Program – Coordination Unit NELSAP - CU
6. Description	**Component 1:** Feasibility Studies, Tender Design Studies **Component 2:** Environmental and Social Impact Assessment Studies **Component 3:** Project Management
7. Total cost	€ 2,596,501
8. AWF Cost	€ 1,975,102
9. Cost (other)	€ 621,399
10. Date of approval	November 2014
11. Duration (From Grant Approval + duration of studies)	February 2015: 6 + 24 months
12. Other important dates	Grant Signature: Date of approval +3 months max
13. Acquisitions	Acquisitions shall be carried out in accordance with the Bank's Rules and Procedures for Goods and Works Acquisitions and the Bank's Procedures for Use of Consultants
14. Currency Equivalents (July 2014)	1 UA/UC = 1.1295 € 1 UA/UC = 1.5366 $US 1 UA/UC = 740.903XOF
15. Fiscal year	1st January to 31st December

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LIST of ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
AFD	Agence Française de Développement/French Development Agency
AMCOW	African Ministers' Council On Water
AWF	African Water Facility
CAS	Country Assistance Strategy
ESIA	Environmental and Social Impacts Assessment
ESMP	Environmental and Social Management Plan
FS	Technical, financial, economic, environmental, social and institutional Feasibility Studies
GDP	Gross Domestic Product
GPN	General Procurement Notice
HDI	Human Development Index
MDG	Millenium Development Goals
MEDIWR	Ministry of Electricity, Dams, Irrigation and Water Resources (South Sudan)
MWE	Ministry of Water and Environment (Uganda)
NBI	Nile Basin Initiative
NDP	National Development Plan
NEL	Nile Equatorial Lakes
NELCOM	Nile Equatorial Lakes Council of Ministers
NELSAP-CU	Nile Equatorial Lakes Subsidiary Action Program – Coordination Unit
NEPAD	New Partnership for Africa's Development
NPP	National Procurement Procedures
PoE	Panel of Experts
PRSP	Poverty Reduction Strategy Paper
PTT	Project Task Team
SBQC	Selection Based on Quality and Cost
RAP	Resettlement Action Plan
SA	Special Account
SSDP	South Sudan Development Plan
SSS	Single Source Selection
TDS	Tender Desing Studies (Comprise Detailed Design studies and preparation of Bidding documentation)
UNDB	United Nation Development Business
WASH	WAter Sanitation & Hygiene
WRD	Water Resource Development

Project Logical framework

Project: Nyimur Multipurpose Water Resources Project Detailed Studies for Implementation.
Goals: Establish the project feasibility, finalize the project tender design and organize a donors' roundtable for financing its implementation

Results Chain	Expected results	Indicator	Reference/Baseline	Target	Means of verifying	Risks/mitigation strategies
IMPACTS	Poverty reduction and promotion of economic growth through a participatory approach aiming at reversing environmental degradation	1. Human development index (HDI) 2. GDP growth rate	2014 Uganda HDI: 0.484 GDP growth rate: 6.4% South Sudan HDI: 0.473 GDP growth rate: 7.1%	**Horizon 2025** Uganda HDI: 0.553 GDP growth rate: 6.7% South Sudan HDI: 0.575 GDP growth rate: 10%	National statistics	**Risk**: Lack of political will for implementing the project **Mitigation**: Inscription of the project in the 2 governments' priority investment programs **Risk**: Lack of stakeholders' participative involvement and public opposition **Mitigation**: Stakeholders' engagement, communication and co-ordination activities included in the Project Management component **Risk**: Lack of adhesion of governments to support the ESMP and RAP **Mitigation**: Governments' commitments to mobilize corresponding resources for implementation before the development partners' roundtable **Risk:** Outbreak of insecurity in the project area/region **Mitigation:** Continuous dialogue and peace keeping in the two countries. The presence of IGAD guarantees this
OUTCOMES	Project feasibility technically, institutionally and financially established	i) Project's design approved by both governments ii) Framework for the project ownership, construction, management and operation approved	i) Identification study (2012) ii) NA	**Horizon 2017** i) Study reports and tender documents available ii) Agreement for ownership, management and operation endorsed by the 2 countries iii) Framework agreement between both governments concerning the approval of the preliminary design, the infrastructure development schedule, each party's role, the institutional framework, the financial structuring and the operation mode of the project	i) Study reports and tender documents; ii) Copy of endorsement letters	
	Socio-environmental impacts identified and mitigation measures defined	ESMP and RAP established and approved	NA	**Horizon 2017** (At completion of the studies) Approval process engaged	ESMP and RAP reports publicly available	
	COMPONENTS					
OUTPUTS	***Component 1:*** Feasibility and Tender Design Studies					
	Technical feasibility	Studies carried out and validated	Aswa basin investment plan (2012)	**Horizon 2016** Technical reports.	FS and TD Study reports	

Results Chain	Expected results	Indicator	Reference/Baseline	Target	Means of verifying	Risks/mitigation strategies
			Identification study (2012)		and validation meetings	
	Tender Design	Study carried out and validated	NA	Tender Documentation		
	Component 2: Environmental and social impact assessment					
	Environmental and social impact assessment studies (incl. ESMP and RAP)	Validated reports of ESIA, ESMP and RAP	Preliminary Environment and Social Assessment as part of identification study (2012)	**Horizon 2017** ESIA and ESMP reports.	Study reports and validation meetings reports.	
	Compliance of the ESIA and RAP studies with respective national environmental regulations	Approval certificates	NA	2017 Approval Certificates	National registries of ESIA certificates	
	Component 3: Project management					
	Executing Agency (NELSAP CU) takes necessary measures to manage the Project and Project Task Team for each country is set up and operational	i) Project Coordinator appointed ii) NELSAP CU project team appointed iii) Ugandan and South Sudanese Project Task Teams confirmed.	Project Task teams for the Aswa Basin exist	**Horizon 2014** i) Project NELSAP CU team operational ii) Country Task Teams operational.	i) Notes and decisions of creation and nominations ii) AWF No objection letter iii) Minutes of the Task Team meetings iv) Quarterly Progress Reports	
	Overall coordination, management and monitoring of activities	i) Procurement and Financial Management rules and procedures applied and documented ii) Project monitoring and evaluation timely carried out	NBI finance and procurement manuals NBI monitoring and evaluation manual NA	**Horizon 2015** i) Consultants recruited **Throughout project duration** ii) Project implementation complies with AWF and Bank's rules and procedures **Horizon 2017** iii) Studies validated and owned by stakeholders	i) Approved procurement plan and signed contracts ii) Quarterly, supervisions, and audits reports iii) Workshops minutes	

Results Chain	Expected results	Indicator	Reference/Baseline	Target	Means of verifying	Risks/mitigation strategies
		iii) Number of workshops held				
	Communication and dialog with involved parties for communities' engagement	i) Communication action plan validated by the AWF ii) Action plan implemented	NBI's communication and stakeholders engagement strategy (2013–2016) and NELSAP communication strategy (2014)	**Horizon 2015** i) Approved project communication action plan ii) Stakeholders aware and well informed on the project	i) AWF non-objection ii) Minutes from meetings and dialogs with stakeholders	
	Multi-country project preparation agreement and initiation of the notification to the NBI countries	i) Agreement signed by the 2 countries ii) Project notification letter prepared and sent to NBI countries	Procedures for interim data and information sharing & exchange (2009 & 2011) Cooperative framework agreement (2010) Procedures for notification of planned measures exist (2009)	**Horizon 2014** i) Multi-country project preparation agreement in place **Horizon 2017** ii) Fulfilment of international water law for the implementation of projects/measures on international waters	i) Signed agreement ii) Signed notification letters	
	Donors' roundtable					
	i) Elaboration of the roadmap of actions for the roundtable preparation i) Implementation of the roadmap actions and roundtable organized and held	i) Approved (by AWF) roadmap for the preparation of the roundtable ii) Roundtable held	NA	**Horizon 2015** i) Approved roadmap documents **Horizon 2017** ii) Commitments made	i) Notice of approval by the AWF ii) Roundtable report	
KEY ACTIVITIES	Component 1: Feasibility and Tender Design studies Component 2: Environmental and Social Impacts Studies Component 4: Project management				**INPUTS (Euros - Excl. Taxes)** Component 1: € 1,304,315 Component 2: € 352,518 Component 3: € 939,669 Total: € 2,596,501 (100%) AWF: € 1,975,102 (76%) NELSAP: € 586,791 (23%) Uganda/South Soudan: € 34,608 (1%)	

Preparation of the Nyimur Multipurpose Water Resources Project Detailed Studies for Implementation

Executive Summary

Origin of the Project

The African Water Facility received a joint funding request dated November 11th, 2013 from the Nile Equatorial Lakes Subsidiary Actions Program – NELSAP on behalf of the governments of the Republic of Uganda and the Republic of South Sudan for financing the Feasibility Studies - FS, Tender Design Studies – TDS (comprising Detailed Design studies and preparation of Tender documents), Environmental and Social Impacts Assessment Studies – ESIA of the Nyimur Multipurpose Water Development Project within the multinational Aswa River Basin, part of the Upper Nile River Basin.

In December 2012, NELSAP formulated a regional Nile Equatorial Lakes (NEL) coordinated water resources development program that identified water resources development projects and aggregated them into investment plans for different NEL sub-basins. Among the projects identified under the action plan were multi-purpose water resources projects for the Aswa basin that aim at improving water, food and energy security; reduction of flow variability and flood damage; and contributing towards improved livelihoods without compromising the environment in the shared river basin. The Nyimur project is one of the three prioritized projects selected by the two countries to be further developped and implemented.

The Project and its rationale

The core scheme of the project consists of a 26 m head dam (earthfill type) and reservoir on Nyimur River and five (5) modules of irrigated areas of approximately 5,105 ha and a mini hydropower plant with a capacity of 350 kW. Water supply schemes of the adequate types targeting local communities in the zone of influence of the project will be part of the project. The development of fisheries in the reservoir/ponds will also be included in the scope of the project. The implementation costs (from the basin planning and pre-feasibility studies) are estimated at US$ 120 million.

The Project corresponds well to the focal areas of intervention of the Africa Water Vision 2025 for Equitable and Sustainable Use of Water for Socio-economic Development and the priorities of the African Ministers' Council on Water (AMCOW) and the New Partnership for Africa's Development (NEPAD) on strengthened cooperative framework arrangements for transboundary water resources management to enhance water and energy security, and adaptation to climate change and variability risks.

The project area has experienced insurgency events for many years, thus impeding the development of the region. This has resulted in very low levels of investment and development in basic services or infrastructure over the past five decades. Poverty is widespread, and is especially acute in rural areas and the more remote corners of the Aswa basin. The agriculture production has drastically declined during the period of turmoil, endangering the food security and displacing thousands of people. The level of food insecurity is significant given that between one third and one half of the population was either severely or moderately food insecure over the past three years. Indeed, a significant proportion of the population (as high as 33% in the lean season) will continue to depend on food aid to ensure a minimum level of nutritional intake *(Assessment of the Irrigation Potential in Burundi, Eastern DRC, Kenya, Rwanda, Southern Sudan, Tanzania and Uganda by Future water, 2012).* Despite a relatively dense network of rivers and favourable climatic conditions with average yearly rainfall up to 1,100 mm and fairly fertile soils, the project area is drastically lacking collective infrastructures and the proper organization of agricultural productive activities.

Project Objectives (Impacts, outputs and outcomes)

The ultimate goal of the project is to sustainably improve both countries socio-economic development through water resources development and management for increasing water availability for multi uses encompassing flood mitigation, irrigation, electricity generation, fisheries and water supply and sanitation. The project's specific objectives are:

- To complete the technical, economic, financial and institutional feasibility studies as well as the project's environmental and social impacts assessments so as to ensure its economic viability;
- To further complete the tender design of the project comprising detailed design studies and preparation of tender documentation for its construction; and
- To mobilize donors' financing for the project implementation.

The AWF funding and its justification

The AWF funding will cover the cost of the studies (Feasibility, Tender Design and ESIA and RAP), the communication activities and a donors' roundtable to mobilize financing for the construction of the planned regional infrastructure. The overall cost of the project has been estimated at € 2,596,501, the AWF grant covering 76%. The balance is from NELSAP and the 2 goverments.

The financing of project preparation studies for the multinational multipurpose water management project preparation services fits in perfectly with AWF 2012-2016 strategy focused on preparing bankable projects to increase investments. The catalytic and potential leverage effect of the project is estimated at 65. AWF's involvement in the Nyimur Multipurpose Water Management project guarantees the project's "quality at entry" and leaves ample room to better assess the transversal aspects, namely i) gender, ii) social equity, iii) environment and iv) climate change. The AWF will keep a constant watch over the proper design and implementation of water resource and environmental protection measures and the reduction of impacts in the areas affected by the project; this project will contribute to a green growth development of this sub-region.

The Project Components

The project essentially involves consultancy services, as identified below:

- Component 1: Technical and Economic Feasibility Studies and Tender Design Studies;
- Component 2: Environmental and Social Impact Assessment Study - ESIA (including ESMP and RAP)
- Component 3: Project management, communication and consultation.

The Executing Agency

The NELSAP CU will be the recipient of the grant and will assume the role of the executing agency. Its capacities for managing the project (administrative and operationnal organization, staffing, procurement, financial management and monitoring & evaluation aspects) have been assessed and found adequate. The NELSAP CU has already managed projects financed by international donors, including the AWF. In addition to standard project management activities, NELSAP CU will be in charge of information & communication, stakeholders engagement and preparation/organization of the donors' roundtable.

Conclusions and recommendations

With the ultimate aim to reduce poverty and increase economic growth, the project when implemented will greatly improve availability of water resources for the local populations' livelihood as well as their productive activities. The project will support the creation of a demand for agricultural support services that will enable farmers to fully benefit from a more reliable access to water. Through crop production/productivity improvement, it will contribute towards agricultural development and poverty reduction by: facilitating market oriented crop intensification, shifting to higher value crop production and crop diversification to meet internal demand and hence increased farm outputs and incomes; increasing agricultural wage employment; reduction of local food prices (hence improving real net incomes), import substitution or export of commercial or other relevant crops, and reduction of food grain deficit to meet the current and future demand and therefore improve local and regional economy. The region, as a whole, will benefit from increased food security, improved water quality and watershed management, as well as

regional stability. The project is, therefore, of major importance for both countries and fits into their national water resources development objectives and strategies. It will also improve agriculture productivity and access to water supply, sanitation and electricity. It is coherent with the Africa Water Vision and MDG. It is also aligned with the priorities of the AWF Strategic Plan 2012-2016 and the Bank's Long-Term Strategy 2013-2022. The project is technically opportune and justified, given the fragility of the region. It has a potential leverage effect of 1 to 65.

Based on the analysis of the project's relevance, effectiveness and sustainability, it is recommended that the AWF approves a grant not exceeding € ***1,975,102*** to the recipient.

The financing will be subject to the fulfilment of the prerequisites below:

Signature of the Grant Agreement:

- The appointment of the Project Coordinator at NELSAP (dedicated to the project) acceptable to the Bank will be the condition for the grant signature.

Disbursement of the tranche to the Project Special Account:

- Opening of a special account in Euro in the National Bank of Rwanda.

1. BACKGROUND

1.1. Origin of the Project

The African Water Facility received a joint funding request dated November 11th, 2013 from the Nile Equatorial Lakes Subsidiary Actions Plan – NELSAP on behalf of the governments of the Republic of Uganda and the Republic of South Sudan for financing the Feasibility Studies - FS, Tender Design Studies (comprising detailed design studies and preparation of tender documentation) - TDS, Environmental and Social Impacts Assessment Studies – ESIA of the Nyimur Multipurpose Water Development Project within the multinational Aswa River Basin, part of the Upper Nile River Basin. The selection of the project and the decision by the AWF to conduct an appraisal mission results from a broad consultative process and multi-criteria prioritization approach conducted by the NELSAP on behalf of its members countries.

The NELSAP[1], a cooperative investment program within Nile Basin Initiative - NBI, was established to facilitate the identification, preparation and resource mobilization for cooperative investment projects at a sub-basin level (like the Aswa Basin) within the framework of the NBI. The NELSAP Coordination Unit - CU, has been the vehicle for a number of important diagnostic studies since 2001 and these have provided an excellent resource base for project preparation for the riparian countries.

The NELSAP-CU prepared a regional Nile Equatorial Lakes (NEL) coordinated Water Resource Development (WRD) program that was endorsed by the Nile Equatorial Lakes Council of Ministers (NELCOM) at their 13th Meeting in Kinshasa (May 2009). The program promotes optimal development of shared resources which would facilitate interdependent sub-regional growth by (i) fostering economic growth through related water sector development, (ii) enhancing regional integration and contributing towards peace and development, (iii) coordinating different interests in the region for mutual benefits, and (iv) creating an investment environment that serves as a firm foundation for sustainable development and contributes to poverty alleviation. The project was consistent with Countries' Assistance Strategies (CAS) and Poverty Reduction Strategy Papers (PRSPs) both of which aim at strengthening governance and institutional capacity and increasing sustainable management practices for reducing poverty.

Among the projects identified under this program were multi-purpose water resources projects for the Aswa basin that aimed at identifying development opportunities within the basin which would improve water, food and energy security; reduce flow variability and flood damage; and contribute towards improved livelihoods without compromising the environment in the shared river basin. The Nyimur project for which the feasibility studies are being sought for is one of the three prioritized projects selected by the two countries of Uganda and South Sudan to carry forward. The other two are the Moroto multipurpose water project and the Kitgum groundwater supply scheme. The Nyimur project was developed through a consultative process that involved consultations with the line ministries in both Uganda and South Sudan, local government officials at districts and sub-county levels. This was on observing the degradation of the catchment conditions, low productivity and low knowledge of the water resources base and break-down of relevant institutions due to the insurgency that lasted in the area for over two decades.

The core scheme of the project consists of a 26 m head dam (earthfill type) and reservoir on Nyimur River, and five (5) modules of irrigated lowland rice of approximately 5,105 ha. A mini hydropower plant with a capacity of 350 kW is included in the dam component. Water supply schemes targeting local communities in the zone of influence of the project will be part of the project. The development of fisheries in the reservoir/ponds will also be included in the scope of the project. The scheme is designed to effect a permanent separation between the irrigation modules and livestock in form of a protection

[1] NELSAP member countries: Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, Uganda

zone (the "cordon sanitaire") 500 m wide that engulfs all irrigation modules and includes watering points for cattle in their periphery.

As an enabling element, a water and soil conservation plan is under implementation in accordance with the Water Source Protection Guidelines[2] issued by the Ugandan Ministry of Water and Environment - MWE. This plan will establish a water resources information/knowledge base and institutional development of the target project area.

1.2. Sectorial priorities

The Project corresponds well to the focal areas of intervention of the Africa Water Vision 2025 for Equitable and Sustainable Use of Water for Socio-economic Development and the priorities of the African Ministers' Council On Water (AMCOW) and NEPAD on strengthened cooperative framework arrangements for Transboundary Water Resources Management (TWRM), structural investments to enhance water and energy security, and adaptation to climate change and variability risks.

1.2.1. Country sectorial priorities

1.2.1.1. Uganda

Northern Uganda has experienced insurgency events for many years, thus impeding the development of the region. This has resulted in very low levels of investment and development in basic services or infrastructure over the past five decades. Poverty is widespread, and is especially acute in rural areas and the more remote corners of the Aswa basin. Agriculture production has drastically declined during the period of turmoil, endangering food security and forcing the displacement/exodus of thousands of people. Despite favourable climatic conditions with an average yearly rainfall up to 1,100 mm (Lamwo region), a relatively dense network of rivers and fairly fertile soils, the northern area lags far behind the encouraging indicators that the country has achieved these recent years. Despite having made considerable progress in recent years, Uganda faces numerous challenges in achieving its development goals and improving the welfare of its growing population. In order to tackle these constraints, a wide range of priorities are targeted by the Ugandan Government through the National Development Plan (NDP) supported by the international donor community.

1.2.1.2. South Sudan

Years of conflict and neglect have left South Sudan as one of the most underdeveloped regions in the world, despite its rich resource base. Poverty in South Sudan has many dimensions, including low levels of consumption, and poor health and education. The legacy of the prolonged war in South Sudan makes the fight against poverty more demanding and challenging.

The overdependence of the economy on oil increases its fragility and vulnerability to external shocks. There is need for a radical shift from overreliance on oil to diversification to non-oil sectors such as agriculture, mining, forestry and manufacturing that potentially have greater regional linkages. The country faces also the enormous challenge to improve its infrastructure. Fifty one percent of the population lives below the national consumption poverty line and this figure will increase due to the persistent instability and the drastic decrease in oil sector generated revenues. There is no direct internationally comparator because Purchasing Power Parity (PPP) data are not available for South Sudan.

1.2.2. Bank sectorial priorities

For each country, the Bank's sectorial priorities are defined in the respective Country Strategy Paper.

[2] The guidelines titled "Framework and Guidelines for Water Source Protection" were issued in May 2013. They comprise 5 volumes: 1) Framework for Water Source Protection; 2) Guidelines for Protecting Water Sources for Piped Water Supply Systems; 3) Guidelines for Protecting Water Sources for Point Water Supply Systems; 4) Guidelines for Protecting Water Sources for Multipurpose Reservoirs and 5) Guidelines for Protecting Water Sources for Hydroelectric Power Plants.

For Uganda, the Bank's Result – Based Country Strategy Paper 2011-2015 states that there are compelling reasons for the Bank Group's continued support to Uganda. First, the country has a remarkable macroeconomic performance and remains one of the fastest growing economies in Africa with sustained growth averaging 7.8% since 2000. However, there is a need to ensure that this growth is sustained and translated into tangible benefits for the majority of the population. Social economic indicators (such as per capita income, life expectancy, population growth rate) show that a lot still needs to be done in order to address constraints which, if not resolved, will pose serious development challenges.

For South Sudan, the Bank's Interim Country Strategy Paper 2012–2014 states that the Republic of South Sudan (RoSS) is classified as a post -conflict country. It has a very high degree of socio-economic fragility, especially in terms of weak institutional and human capacities and one of the lowest social development indicators. Additionally, due to not yet stabilized institutions and government agencies, there is a limited baseline information and statistics and data across all sectors, making it difficult to appraise the current state of development.

The overarching objective of the South Sudan Development Plan (SSDP), established at the creation of the nation, was to ensure that, by 2014, conditions are created for South Sudan to be a united and peaceful new nation, with strong foundations for good governance, economic prosperity and enhanced quality of life for all. Unfortunately, events and conflicts were lethal deterrents to the materialization of this laudable will. Nevertheless, the objectives and priorities of the plan remain valid, targeting Governance, Social and Human, Economic development and Conflict Prevention and Security as its main four pillars. Included under the economic development pillar, the improvement of infrastructure and exploitation of natural resources are the major paths for achieving tangible impacts and outcomes. Valorization of water resources for agriculture production, food security improvement and access to water supply and sanitation is in line with this option in a country where 95% of the population depends on farming, fishing or herding and pastoralism to meet their food and income needs.

1.3. Problem definition

Development in the region of Northern Uganda and South Sudan was affected by two decades of violent conflict. Towards the end of conflict, the poverty rate was estimated at 61% which is double the national average. Socio-economic activities had virtually come to a standstill for most of the population in the region and humanitarian assistance has become the sole source of incomes for several years. Confined within conflict, the population of the area suffered from socio-political marginalization in the national context. Violence, particularly against women and children, and land disputes were major problems. Following the cessation of hostilities in 2006, security was restored, the formerly displaced population slowly started returning to their places of origin and socio-economic activities resumed. For both goverments, reconstruction and development of the area remain a tremendous challenge and at the same time a priority and an opportunity.

This is within this context that the development of a multipurpose water resources project makes sense, in combining improvement of agricultural outputs, fisheries, production of energy, installation of water and sanitation systems and development of actions for the protection of the water source through watershed management initiatives.

The Nyimur River is one of the tributaries of the Aswa River. Over the previous years, the Aswa basin, both in Uganda and South Sudan, was plagued by armed conflicts, acute social insecurity and mass displacement of populations from rural areas towards more secure congregated settlements. Competition for limited resources in the already insecure environment coupled with the widespread availability of guns led to further opportunities for armed conflict. This in turn led to mass abandonment of agricultural land, poverty and famine and high reliance on food aid. Nevertheless, the Aswa basin remains the potential host to a variety of livelihood systems including pastoral, agro-pastoral and pure farming societies.

In terms of pressures on the environment, the social upheaval led to the degradation of abandoned agricultural land and intensive collection of firewood and unsustainable use of other natural resources near population centers. This resulted in deforestation, encroachment and degradation of wetlands and overexploitation of other areas with natural vegetation. This has resulted in abject poverty in the area and likewise wildlife has suffered from hunting and loss of habitat. In the part of the basin in South Sudan, agricultural infrastructure, such as water reservoirs, feeder roads and irrigation systems, which are crucial to livestock and crop production, are underdeveloped or non-existent.

Given these prevailing conditions in this part of the Aswa basin, there is a need to: (i) Mitigate the recurrent flooding and drying out problems by water storage and river regulation and thus allowing cultivation in the lowlands next to Nyimur River; (ii) Create a large base for high productivity cultivation that will lead to a significant increase in local income, make available enough produce to influence positively the construction of agro-processing facilities and the access to markets and also make substantial impact on the wider economic life of the area; (iii) Address poverty and lack of social development, which constrain agricultural intensification, through a labour intensive and participative approach coupled with training and support; (iv) Improve water supply and sanitation infrastructure and thus contributing to better public health, improved livelihoods and cleaner water bodies; and (v) Strengthen trans-boundary cooperation between Uganda and South Sudan in water resources development and management.

Given the shared nature of the sub basin river system, a regional perspective on multipurpose water resources use, together with appropriate management interventions, to reduce the vulnerability of the riparian communities to rainfall variability, a multi-purpose water resources project makes sense for the following reasons:

(a) Substantial poverty reduction will not be possible without inducing economic development on a rather broad and massive scale. Given the current situation in the Aswa Basin, this calls for some large-scale investments in infrastructure for flood control, irrigation and protective installations, facilitating enhanced utilization of available productive potentials by way of intensification and diversification of agricultural production;
(b) Investments focused on such measures to reverse environmental degradation, i.e. without considering productive infrastructure, is economically not viable under the given conditions. Neither investment costs nor operating expenditure would be offset by revenues caused by their establishment and running;
(c) Inducing meaningful social development is hardly possible without investments geared towards achieving enhanced monetary returns per household from utilization of productive infrastructure. Likewise, lack of environmental protection investments would not lead to the desired impacts, since intensification and diversification options would be rather limited and risk levels (caused by instances of flooding and drying-out as well as by continued soil and water erosion) would not be lowered;
(d) Including a small hydropower production component in projects otherwise focused on irrigation facilitates the involvement of the Rural Electrification Agency which can take over the operation and distribution of the electricity to local communities/settlements/households improving their living standards and contributing to development of productive activities;
(e) The inclusion of adequate water supply schemes, depending on the type of settlements and communities in the project area in response to the current non-existence of water supply infrastructure will also contribute to the engagement of the stakeholders in the project implementation by improving their living conditions.

1.4. Institutional situation

1.4.1. Uganda

The Ministry of Water and Environment (MWE) is the responsible line ministry for water related issues. According to the Water and Environment Sector Performance Report 2011, around 65% of the population has access to safe water (65% of the rural population and 66% in the urban areas). Access to improved sanitation in the rural households is 70% while in the urban areas it has increased to 81%. The major challenges encountered in the sector include insufficient government funding, inadequate capacity of the local governments to deliver sector services, continued degradation of forests, wetlands and water resources, mainly through the effects of climate change and various un-sustainable exploitation practices such as encroachment, deforestation and pollution. Most of these problems can be attributed to increasing economic activity coupled with rapidly increasing population.

1.4.2. South Sudan

In South Sudan, the Ministry of Water Resources and Irrigation created in 2006 in preparation for the country's independence was responsible for policy setting, mobilization of external financing and regulation of drinking water supply. It was then transformed into the actual ministry in charge: The Ministry of Energy, Dams, Irrigation and Water Resources (MEDIWR). As stated in its long term vision[3], MEDIWR is determined to achieve universal access to water and sanitation, through an oriented action towards the most in need; hence, MEDIWR will prioritize the delivery of basic services to the poorest rural districts with lowest access to WASH services, as well as to the poor urban dwellers, especially the ones in informal settlements.

In the agriculture sector, the Ministry of Agriculture, Forestry, Cooperatives, and Rural Development has the new assigned objective to transform the country's agriculture to achieve food security. The Ministry focuses on accomplishing this through the development of a scientific, market-oriented, competitive and profitable agricultural system without compromising the sustainability of natural resources for future generations. The territory holds extraordinary agriculture potential, with almost 30 million hectares suitable for farming. Varied climatic zones, fertile soils and ample rainwater as well as the White Nile River running through the RoSS territory from south to north create ideal conditions for growing a wide variety of food and cash crops, with the potential of yielding two crop cycles a year in much of the country. However, due to the conflicts and crisis, the food security is still at risk and the percentage of cultivated land remains below 5% of the available arable land.

Value addition by agriculture, forestry and fisheries accounted for 36% of non-oil GDP in 2010 making the backbone of the economy of South Sudan. However, much of the rural sector activity is currently focused on low-input low-output subsistence agriculture instead of production for markets. South Sudan is now a net importer of food. It currently imports as much as 50% of its needs, including 40% of its cereals from neighboring countries. Livestock provides the main source of livelihood for a substantial portion of the population, with herds (mostly cattle) concentrated primarily in western parts of Upper Nile state, with over 95% of agricultural production being rainfed. In lowland areas, flooding is a normal seasonal occurrence, but variability of the water levels affects harvested areas and yields.

1.5. Lessons from past experience and on-going programs

The Bank and the AWF are already supporting projects handled by NELSAP. Through supervision and reviews, the Bank's staff has acquired first hand experience of the NELSAP institutionnal and operationnal performance. This experience was scrutenized during the evaluation mission through the assessment of the NELSAP performance by Bank's officers in the various concerned fields (Disbursment, Procurement, Financial Management and Monitoring & Evaluation). The assessments conclude that the NELSAP has the skills and capabilitites to manage the project in accordance with the organization, staffing and procedures that were evaluated and agreed during the evaluation process.

[3] Sanitation and Water for All (SWA) Partnership 3rd High Level Meeting, Washington DC, April 2014 Statement of Commitments

In addition and in order to capitalize on experiences by other donors, the evaluation team met the development partners currently active in the water resources management sector.

Uganda

The major initiative currently under progress in Uganda in the water resources management sector is the US $ 135 million World Bank funded project: Water Management and Development Project (WMDP). In addition to infrastructure investments in Urban Water Supply and Sanitation/Sewerage and Catchment/Source Protection, the project comprises investment in integrated water resources development and management, identification, preparation and implementation of selected priority investments through a participatory planning process in the Upper Nile Water Management Zones (WMZs) (the Aswa River Basin being part of this zone) and Improvement of the national water resources monitoring and information system. The WMDP will scale up support for Integrated Water Resources Management (IWRM) currently being introduced at a smaller scale in pilot catchments through the Nile Equatorial Lakes Subsidiary Action Program (NELSAP).

The German cooperation agency, GIZ is supporting the Nile Basin Initiative for Transboundary Water Cooperation in the Nile Basin since 2002; the current phase of the project (2013–2016) comprises technical assistance to the NBI Secretariat with the following objectives: i) promote dialogue between key national stakeholders from policy making, administration, science, civil society and mass media; ii) support Nile basin states to make sound decisions on cooperative water resources management; iii) create favorable conditions for sustainable investments in the Nile basin and iv) build technical and personal skills in order to ensure successful water cooperation among member states.

The French Development Agency – AFD has a long tradition of cooperation with Uganda. These last 5 years, AFD has financed 130 million € of project, more than 50% allocated to the water and sanitation sector, thus acquiring first-hand experience in this field. AFD, EIB and KfW are jointly funding a significant water and sanitation project in Kampala and in the Victoria Lake region.

South Sudan

The AFD and the GIZ are jointly financing a water supply project comprising i) water infrastructure and pilot projects in the city of Yei, ii) capacity building of the Ministry of Water Resources and Irrigation (MWRI), iii) reform of the South Sudan Urban Water Company (SSUWC) and iv) capacity building of other actors in the water sector.

Most of the other donors are focusing on responding to the food crisis, and supporting the health and governance sectors.

The Nyimur multipurpose water resources project is therefore in synergy with the ongoing initiatives and projects in relation to the water sector.

1.6. Project objectives

The ultimate goal of the project is to sustainably improve both countries socio-economic development through water resources development and management for increasing water availability for multiple uses encompassing flood mitigation, irrigation, electricity generation, fisheries development and water supply and sanitation. The project's specific objectives are:

i) To complete the technical, economic, financial and institutional feasibility studies of the project so as to ensure its viability;
ii) To complete the ESIA and RAP studies, which inform the final detailed designs of the project;
iii) To further complete the tender design of the project for its construction;
iv) To mobilize financing from donors for the project implementation.

1.6.1. Beneficiaries and stakeholders

The project immediate aims are to provide bankable investment project studies reports and to mobilize funds for their implementation. The implementation of this project will substantially contribute to increase the water availability for multiple uses by the populations in the Aswa River Basin, which are the main beneficiaries. At national levels and after construction of the works, the services providers, various consumers of agro-products will also be indirect beneficiaries. The institutional stakeholders comprise the Governments and local authorities of both countries, community interest groups, private and public sectors and NGOs.

1.6.2. Justification for AWF involvement

The project is aligned with AWF 2012-2016 strategy focused on preparation of bankable projects. More specifically, the preparation and structuration of the Nyimur project should catalyze further resource mobilization and commitments from other donors for funding the dowstream investments. The leverage effect of the project is estimated at 65.

Other aspects of the project related to the objectives of AWF's strategy are:

- AWF's involvement in preparing the Nyimur Multipurpose Water Management project guarantees the project's "quality at entry" and leaves ample room to better assess the transversal aspects, namely i) gender, ii) social equity, iii) environment and iv) climate change.
- On the environmental aspect, by financing the technical design studies and environmental and social impact assessments studies, the AWF will keep a constant watch over the proper design and implementation of water resources and environmental protection measures and the reduction of impact in the areas affected by the project; this project will contribute to a green growth development of this sub-region as explained in the chapter 4.2 Sustainability.

2. PROJECT DESCRIPTION

2.1. Impacts

The major development impacts of the Project will be its contribution to i) economic development, and ii) reduction of poverty in the two countries. More specifically, the Project will result in better living conditions, improved health and enhanced food and energy supply for people in the Aswa River Basin. These impacts are attributed to the structural and institutional framework investments in water reservoirs (improved water security and reduced floods and droughts), hydropower production, irrigated agriculture, investments in water supply and sanitation and fisheries development. The project will also contribute to increased resilience of the basin population to changing socio-economic and natural conditions, including climate variability and climate change.

On a longer term, impacts/outcomes will be an increase in both Uganda and South Sudan of agriculture production, food security and access to drinking water and improved sanitation facilities through the completion of water supply and saniation infrastructure as well as supply of electricity to local communities. Increase of irrigated areas and agro-production, fisheries, increase to water and electricity access will contribute sustainably to improve the populations' sanitation, social and living conditions. Upon its completion and under operation, the project will contribute to the stabilization of the border movements between the two countries and will materialize the combined and joint management of land and water resources, and water source protection in the Aswa River Basin.

2.1.1. Short and medium-term outcomes

Short-term expected outcomes are:

- Definition of an adequate technical, institutional, operational and management framework for project financing and investments;
- Government authorities' support and acceptance of the project by various stakeholders.

Medium-term outcomes will be:

- The confirmation of the technical, economic and environmental feasibility of the project;
- The mobilization of donors for the implementation of the project.

2.1.2. Outputs

The expected outputs, detailed in the Project Logical Framework are i) contractual deliverables like key documents and reports as defined in detail in terms of indicative content and deadlines in the consultants' terms of reference and ii) actions and activities required for the management of the project/studies and the preparation of the further project implementation. These are mainly:

- A technical and economic feasibility study of the project;
- A tender design study for the dam, storage, power plant and irrigated areas and water distribution infrastructure within the project area materialized with the Tender documents (TD) including all items and documents defined in the terms of reference related to the project;
- Reports of ESIA, ESMP and RAP complying with national environmental regulations, established through direct participative discussions with local populations facilitated by an experienced NGO;
- NELSAP Project team and Country Project Task Teams set up and operational to participate to the management of the project (Studies);
- Effective coordination, management and monitoring of the activities;
- Effective communities and involved parties engagement through communication and dialog;
- Signature of agreements, information and notification of the project to NBI member countries;
- Donors' commitments to financially support the implementation of the project.

2.2. Activities

The project essentially involves consultancy services, as identified below:

- Component 1: Technical and Economic Feasibility Studies and Tender Design Studies;
- Component 2: Environmental and Social Impact Assessment Study (ESIA) (including ESMP and RAP)
- Component 3: Project management, communication and consultation including a donors'roundtable. This component makes the greater part of the recipient's counterpart contribution of the financing.

A description of the activities is presented below corresponding to the terms of reference (Appendix A 4 to the present report) for the hiring of the consultants.

2.2.1. Component 1: Feasibility Studies and Tender Design Studies

This component is the main component of the Project. The studies are split in 2 phases. A first phase for the comprehensive feasibility study of the proejct, the second phase, dependant on the outcomes of the feasibility study will include the development of the tender design and the preparation of the tender documentation for the launch of an international competitve bidding process for the construction. The description and content of the studies are detailed in the terms of reference attached as Appendix 5. The studies are presented to various stakeholders during (3) planned workshops. They comprise the following tasks.

Phase A: Feasibility studies

Task A 1: Formulation of Project Plans and Layout
Task A 2: Stakeholder Analysis
Task A 3: Water Resources Assessment and Sediment Studies
Task A 4: Irrigable Command Area Design
Task A 5: Dam/Storage Design
Task A 6: Infrastructure design for Small Hydropower Development
Task A 7: Infrastructure Design for Auxiliary Water Resources Use
Task A 8: Formulation of Upstream Sustainable Land Management Actions
Task A 9: Environmental and Social Impact Overall Appraisal
Task A 10: Considerations on Climate Change
Task A 11: Institutional Assessment

Task A 12: Confirmation of Project Layout and Preliminary Design Report
Task A 13: Construction Plans and Implementation Scheduling
Task A 14: Preparation of Cost Estimates and Benefits
Task A 15: Economic and Financial Analysis
Task A 16: Feasibility Study Report

Phase B: Tender Design Studies
Task B 1: Final Design & Tender Document Preparation
Task B 1-1: Detailed Topographic Surveys
Task B 1-2: Detailed Geological and geotechnical considerations
Task B 1-3: Dam /Diversion Structures Design
Task B 1-4: Irrigation System Design
Task B 1-5: Power Generation and Evacuation system design
Task B 1-6: Preparation of Draft O& M, Instrumentation and Emergency preparedness plan
Task B 1-7: Tender documents preparation

2.2.2. Component 2: Environmental and Social Impact Assessment Studies

These will be carried out in compliance with international financial institutions' guidelines and relevant Ugandan and South Sudan regulations.

The scope of work for ESIA studies detailed in the corresponding terms of reference (Appendix A 5) is summarized below:
Task 1: Establishment of a Socio-Environmental Baseline
Task 1.1: Description of the Proposed Project
Task 1.2: Description of the Environmental condition of the Project Area
Task 2: Socio-Environmental Scoping
Task 3. Policy, Legislative, Regulatory and Administrative Considerations
Task 4: Determination of the potential impacts of the proposed projects
Task 5: Formulation of Mitigation Measures
Task 6: Analysis of alternatives to the proposed project
Task 7: Preparation of Dam Safety Plans
Task 8: Development of Environmental and Social Management Plan (ESMP)
Task 9: Development of a Resettlement Action Plan (RAP)
Task 10. Preparation of the ESIA Report

The Nyimur multipurpose water resources project main beneficiaries are the population of the area. They are mainly farmers who had previously abandonned their land because of conflicts and unsecurity but who are now willing to return to their original settlments. It is therfore of prominent importance that the project is designed and implemented with the highest level of particpation by the beneficiaries and the various stackeholders. In this respect, the Nile Basin Discourse (NBD) which is a network of civil society organizations from the 11 countries of the Nile Basin offers a public platform for dialogue, partnership and cooperation among civil society organizations in the Nile Basin. It has a network of more than 1,000 members of partners and organizations. The NBD network is open to all civil society organizations involved in basin resources management and development within the Nile Basin Region to join as either full, associate or honorary members. NBD network provides knowledge and builds capacity to strengthen the voice of civil society organizations within the Nile Basin region. It is recognized that NBD's networking approach has provided a mechanism for coordinated action and has added value to the work of the Nile Basin Initiative (NBI) and other key development partners.

The evaluation mission has concluded that the NBD will be the adequate entity for informing, sensitizing and mainstreaming the participation of all stakeholders and beneficiaries at the time of performing the studies and implementing the project. The NBD will also be an invaluable pivotal point at the time of conducting, under a participative approach, the Environmental and Social Impacts studies for the project.

2.2.3. Component 3: Project management

Project management is assured by the designated Executing Agency, NELSAP. The projet management activities are under the responsibility of a Coordinator. S/He will be nominated from existing human resources of NELSAP Coordination Unit, and will be assigned specific tasks/functions as summarized below. The Project Coordinator' CV must be accepted by the bank. The Coordinator is responsible for overseeing the activities, organizing follow-up/assessment and reporting procedures and communicating/collaborating with various stakeholders.

These activities include:

(a) Project management and co-ordination;
(b) Information to the country Project Task Teams (PTT);
(c) Organization of process for the establishment of bilateral agreements between the two governments;
(d) Organization of public communication and consultation campaigns. This consultation should guide the technical consultant's technical choices and help the PTT validate the studies;
(e) Design of the roadmap for the preparation of the donors' roundtable, implementation of the roadmap and organization of the roundtable and its further follow-up. The aim of the roundtable is to mobilize funding for the construction of the project as soon as studies and tender design are completed. NELSAP will be in charge of executing this component which is developped in parallel with the execution of the studies.

2.3. Risks

The main risks identified that may hinder the performance of the project and their corresponding mitigation measures are as follows:

- Lack of political will for the project and difficulties in formalising inter-governmental agreements for a bi-national project: This risk is mitigated by existing procedures of NBI involving the highest goverment authorities from both states. Another mitigation factor is that the project must be recorded in the 2 goverments' priority investment programs at the earliest stage of the studies.
- Lack of stakeholders' participative involvement and civil society opposition to the trans-border water resources project. As a mitigation, the project management unit will carry out the participative consultation process with the populations, stakeholders and local authorities.
- Lack of adhesion to the 2 governments to support the ESMP and RAP associated measures and compensations. This risk is mitigated by the formal commitments of the governments to mobilize corresponding resources for their implementations before the donors' roundtable.
  Sudden conflicts can erupt in the region, involving insecurity and stalling development projects and initiatives in the area/region. Both governments are dialoging and focus on socio economic measures to maintain peace and stability in the area.

Specific aspect of Anti-Personnel Mines: Because of the past years long insurgency situation in the region, the aspect of Anti-Personnel Mines (APM) is a concern and is still a serious threat to community development. Casualties have been recorded these last years. United Nations agencies and Nordic and UK specialized companies have supported demining operations at the Uganda - South Sudan border till 2012. However, an accurate mapping of areas where APM are still planted is not available, thus maintaining a high level of uncertainty. For the project, this is a risk that must be taken into account at the time of interventions and surveys during the studies as well as during the further relatively extensive civil works which will take place when preparing the sites for the construction of project infrastructures. It is therefore highly suitable and recommended that parties involved in the project studies identify and closely liaise with competent government and international agencies in Uganda and South Sudan for obtaining guidance and advice on the appropriate measures to intervene in the area with the highest level of security.

2.4. Cost and Financial plan

The total estimated cost of the project is estimated at € 2,596,501, including a contingency reserve of 3% . A cost breakdown is presented in the table below and detailed in Appendix A1). AWF's share is € *1,975.102 (76%)* and the contribution from the NELSAP € *586,791 (23%)* and the governments € *34,608 (1%)* respectively. Contributions from NELSAP and the governments are in-kind in the form of staff salaries and various operating costs.

Table 1: Project costs

Description	Amount (€)	Financier
Component 1: Feasibility Studies and Tender Design Studies	1,304,315	AWF
Component 2 : Environmental and Social Impact Assessment Studies (ESMP and RAP)	352,518	AWF
Component 3 : Project Management		
Salaries and running costs of the NELSAP Project team	396,241	NELSAP
Project Task Teams Meetings (representatives from Uganda and South Sudan)	43,260	NELSAP
Provision of office space to NELSAP	34,608	Governments (in kind)
Communication Action Plan Implementation	10,300	AWF
Communication Action Plan Implementation	12,360	NELSAP
Travel expenses	15,450	NELSAP
Office Utilities (electricity, water etc.)	24,720	NELSAP
Special couriers, advertisement	2,060	NELSAP
Workshops for Feasibility	74,160	AWF
Workshops for the ESIA	74,160	AWF
Workshop for Launching of the project	27,810	AWF
Panel of Experts (Technical)	92,700	AWF
Panel of Experts (ESIA)	92,700	NELSAP
Donors' roundtable preparation (Road map)	27,810	AWF
Donors' roundtable (logistics, catering , material)	11,330	AWF
Total for Project	2,596,501	**100%**
Of which : AWF	*1,975,102*	76%
Of which : NELSAP	*586,791*	23%
Of which : governments in kind	*34,608*	1 %

Table 2: Project cost estimate per component

Component	***Total Cost***			
	Euros	**AWF**	**NELSAP**	**Goverments**
Component 1: Feasibility Studies and Tender Design Studies	1,304,315	1,304,315		
Component 2 : Environmental and Social Impact Assessment Studies (ESMP and RAP)	352,518	352,518		
Component 3 : Project Management	939,669	318,270	586,791	34,608
Total	**2,596,501**	**1,975,102**	**586,791**	**34,608**

Table 3: Project cost estimate per cost category

Cost category	*Total cost*			
	Euros	**AWF**	**NELSAP**	**Goverments**
Services (Total)	***1,656,833***	***1,656,833***		
Feasibility and Tender Design Studies		1,304,315		
ESIA Studies		352,518		
Operation	***939,669***	***318,270***	***586,791***	***34,608***
Total (Including 3% contingencies)	***2,596,501***	***1,975,102***	***586,791***	***34,608***
Percentage	***100%***	***76%***	***23%***	***1%***

3. IMPLEMENTATION

3.1. Recipient and executing agency

The Grant recipient will be the NELSAP. NELSAP will be the Executing Agency and will be responsible for the operational management of the project including the ex-post assessment and handling of two audits required by AWF (interim and after the completion of the project activities). The Appendix A 6 is the comprehensive report of the assessment of NELSAP capacities performed by the Bank specialists during the evaluation of the project.

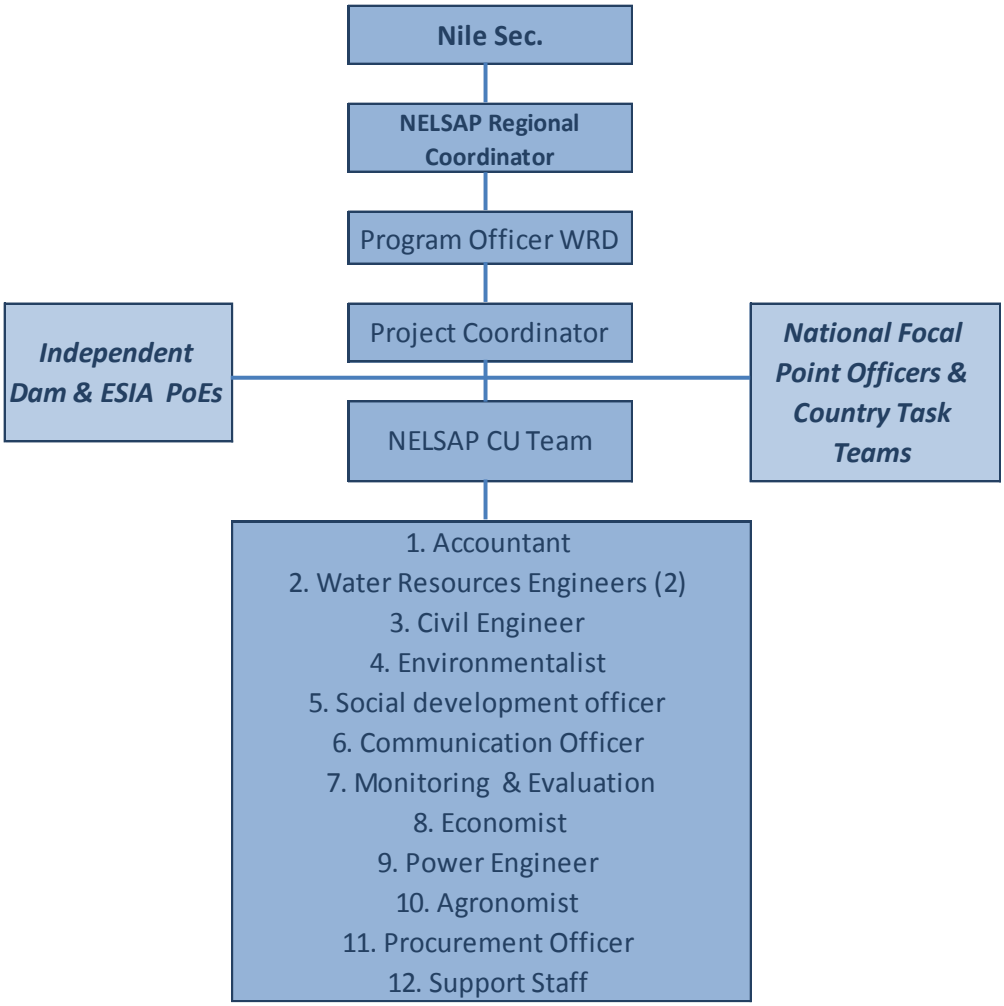
3.1.1. Project management and capacity for implementation

The project shall be managed within NELSAP by a team headed by a designated Coordinator whose curriculum vitae is acceptable by the AWF. The team will be composed of NELSAP officers who will work in various fields of activities under the supervision of the Coordinator as per the requirements of the project progress. The fields of intervention will require activities by officers as illustrated in the organization chart of Figure 1:

The team will be housed by the executing agency, which will cover all of its operating costs, and will benefit from the support of its general services. The Project Coordinator, who is the key person in the project organization/implementation assures the dialog and consultative activities with the Country Task Teams and the National Focal Point Officers in the 2 countries.

The Country Task Teams will assure a role similar to a Project Steering Committee in their capacity to orient, comment, and endorse the studies and approve the findings and design/operational options resulting from the studies. By being composed of high officials of different ministries and agencies in the 2 countries, the Country Task Teams are endowed with skills and knowledge in the various sectors concerned by the project as well as the relevant respective national policies and strategies like: water multi-usage management, water supply and sanitation, agriculture, irrigation, energy and electricity, environment, etc.

Figure 1 : NELSAP Organization Chart for the Project Management



3.1.2. Performance Schedule

The project is planned for a 30 month period from the approval of the project/grant by the Bank to the date studies are completed and the donors' roundtable has taken place. The schedule attached in Appendix A 2 illustrates the chain of completion of components financed by the AWF as well as key dates and events.

3.2. Procurement Arrangements for the Nyimur Multipurpose Water Resources Project

All procurement of goods, works and services financed by the Bank will be in accordance with the Bank's Rules and Procedures: "Rules and Procedures for Procurement of Goods and Works", dated May 2008 revised in July 2012; and "Rules and Procedures for the Use of Consultants", dated May 2008 revised in July 2012, using the relevant Bank Standard Bidding Documents, and the provisions stipulated in the Financing Agreement.

Consultant Services: The procurement of consultancy services for the technical feasibility and tender design studies for the dam, mini-hydropower plant, reservoir, rural water supply, sanitation infrastructure and sustainable land use management establishment in sub-catchments estimated at € 1,304,315 and consultancy services for Environmental and Social Impact Assessment studies (including ESMP and RAP) valued at € 352,518 will be carried out using the selection procedure based on Quality and Cost Based Selection (QCBS) in compliance with the Bank's "Rules and Procedures for using Consultants". Consultancy services for the Independent Dam Safety Panel of Experts as well as for the Panel of Experts for the ESIA both assignments estimated at € 92,700 each will be procured through Single-Source Selection (SSS). Acquisition and procurement for intrants (mainly operating costs) of the Component 3: Project Management, will be done by NELSAP by the method of shopping.

Table 4: Procurement plan

Project Categories	Euros '000			
	Use of NPP	Use of Bank's procedures	Non - Bank-Funded	Total
1. Consulting Services				
1.1 Technical Feasibility and tender design studies		1,304.31 [1,304.31]		**1,304.31 [1,304.31]**
1.2 Environmental and Social Impact Assessment studies (including ESMP and RAP)		352.51 [352.51]		**352.51 [352.51]**
1.3 Independent Dam Safety Panel of Experts		92.7 [92.7]		**92.70 [92.70]**
1.4 Panel of Experts (ESIA)		92.70 [ ]		**92.70 [ ]**
2. Project Management				
2.1 Workshops		176.13 [176.13]		**176.13 [176.13]**
2.2 Donors' Roundtable		39.14 [39.14]		**39.14 [39.14]**
2.3 Communication Action Plan		22.66 [10.30]		**22.66 [10.30]**
2.4 Operation Costs	34.61 [ ]	481.73 [ ]		**516.34 [ ]**
TOTAL	**34.61 [ ]**	**2,561.89 [1,975.10]**		**2,596.50 [1,975.10]**

Assessment of the Executing Agency: The Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU) will be responsible for the procurement of the consulting services. An assessment of the capacity of the Executing Agency to implement procurement actions for the project has been carried out by the Bank. The assessment reviewed the organizational structure for implementing the project and the interaction between the project's staff responsible for procurement activities and the Executing Agency's (NELSAP-CU) relevant central unit for administration and finance.

The Executing Agency's procurement capacity was assessed and found to be satisfactory for the implementation of the project. Procurements will be made by the Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU) which is the Executing Agency for the project.

The agency is staffed with a procurement officer, a logistics officer, an accountant, two water resources engineers, a civil engineer, an environmentalist, a social development officer, a communication officer, an M & E officer, an economist and a hydropower engineer. The resources, capacity, expertise and experience of NELSAP-CU are adequate to carry out the procurements on the project.

Review Procedures: All procurement for consultancy services and procurement of goods (if any) above 50,000 Euros will be subject to prior review by AWF. The following documents are subject to review and approval by AWF before promulgation:

- General Procurement Notice;
- Specific Procurement Notices;
- Tender Documents or Requests for Proposals from Consultants;
- Tender Evaluation Reports, including recommendations for Contract Award (goods), or Reports on Evaluation of Consultants' Proposals;
- Draft contracts (goods), if these have been amended and differ from the drafts included in the tender documents;

- Reports on Evaluation of Consultants' Financial Proposals, including recommendations for Contract award, minutes of negotiations and duly initialled contracts documents.

General Procurement Notice: The text of a General Procurement Notice (GPN) will be agreed with NELSAP - CU and will be issued for publication in UNDB online and in the Bank's Internet Website, upon approval by the President of the Grant Proposal.

Procurement Plan: During appraisal, the Recipient developed a Procurement Plan for project implementation which provides the basis for the procurement methods. This plan has been agreed between the NELSAP-CU and the Project Team on 25 August 2014 and is available at the NBI/ NELSAP-CU office in Rwanda. It will also be available in the Project's database and in the Bank's external website. This Procurement Plan will be updated by NELSAP Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. Any revisions proposed to the Procurement Plan shall be submitted to the Bank for non-objection. NELSAP-CU shall implement the Procurement Plan in the manner in which it has been agreed with the Bank.

3.3. Disbursement terms and conditions

It is envisaged that the special account and the direct payment methods of disbursement will be the most applicable of the possible four methods of disbursement of the Bank.

Payment of the main consultancy contracts will be made using direct payment method.

The project will operate one special account in Euro into which the proceeds of the grant will be deposited and further a local currency account if required. Both accounts will be opened with the National Bank of Rwanda to handle payments for recurrent expenses of the project.

The opening of the special account (S.A) for the project will be a condition for the first disbursement of the grant. An initial disbursement will be deposited in the project special account in Euro based on a full implemented budget approved by the AWF. Justification of expenditure under the special account in the form of statement of expenditure and supporting documents as required may be submitted as often as possible but at least semi-annually.

The NELSAP-CU will maintain records at all times of all disbursements made by the AWF.

Table 5: List of goods and services financed by the AWF (in €)

Expenditure category	
Services (studies and 1 PoE)	***1,749,533***
Operation (NELSAP Management Activities)	***225,570***
Total (Including 3% contingencies)	***1,975,103***

3.4. Accounting and audits

3.4.1. Evaluation of financial capacity and management

NELSAP's (the executing agency) financial management system will be used (currently used for other projects financed by AWF/AfDB) to handle the project financial transactions. NELSAP's internal audit department will carry out internal audits on the project's operations and also strengthen the project's supervisory environment. With a few improvements, the FM system of the NELSAP CU shall be used for this project, and shall be adequate and capable of recording accurate and complete transactions and delivering financial reports timely. The overall Accounting Officer for the Project shall be the Finance

and Administration Manager (FMA) at NELSAP CU headquarters. The detailed assessment of the financial management capacity carried out during appraisal is included in Appendix A6 of this report.

3.4.2. Audit

The AWF will appoint an external auditor to audit the project in accordance with the Bank's regulations. Audit expenses will be covered by the AWF's administrative budget. A first "interim" audit will be completed after 14 months (M0 + 16 in the Table 6 below) from the grant signature. The final audit will take place after the completion of all the activities/studies on the corresponding date with regard to the final report on the Feasibility Studies (Mo + 31 on the services schedule).

3.4.3. Implementation schedule

The project supervision will be based on the management model and focus on the outcomes in which principles of a logical framework approach play a key role. The Logical Framework Matrix indicates the aim and objectives of expected outcomes. The table below indicates the target project implementation schedule (detailed schedule presented in Appendix A 2).

Table 6: Target implementation schedule

MAIN ACTIVITIES	INDICATIVE END TIME OF ACHIEVEMENT
Grant Approval	M0
Signature of the grant agreement	M0+2
Fulfilling of the condition before disbursement	M0+3
Disbursement in the special account	M0+4
Interim Audit	M0+16
Feasibility Studies	M0+20
Decision to pursue with the Tender Design Studies	M0+22
Tender Design Studies	M0+29
Feasibility and Tender Design Studies final presentation Workshop	M0+28
ESIA Studies	M0+25
Donors' Roundtable	M0+29
Elaboration of the project final report by the Executing Agency	M0+30
Last date for disbursement	M0+30
Final Audit	M0+31
Elaboration of AWF PCR	M0+32

The project performance depends mainly on the Executing Agency capacity to rapidly commit acquisitions in advance with the Bank's consent, and then control how they are used.

3.4.4. Follow-up and reports

The project follow-up/assessment plan will be put into place by the NELSAP - CU, subject to the Bank's approval, based on the Logical Framework Matrix that identifies how the project will be rolled out, the objectives to be met and anticipated outcomes. The Country Project Task Teams are the priority receivers of the follow-up reports, which will be shared with AWF and ministers responsible for the water sector and other concerned sectors in both countries.

For the project (Studies), the NELSAP will issue quarterly progress reports, a copy of which will be transferred to the AWF. The reports will be accompanied with administrative and technical follow-up documents, financial statements for each account in compliance with the AWF's format requirements and procedures (Bank's usual format) respectively.

Continued assessment of performance will be made using indicators defined in the Project Logical Framework.

An end-of-project report presenting all activities completed and outcomes achieved and the closing financial situation will be drawn up by the recipient and sent to AWF.

For monitoring and follow-up purposes, the AfDB/AWF will respectively or jointly appoint a Project Manager who will carry out follow-up procedures, with the Executing Agency, at the Bank headquarters and at the project activity sites. The Project Manager will communicate regularly with the recipient and authorize i) an elaboration of an annual work plan and budget, ii) a diligent review of quarterly progress reports. The Bank, as the host institution for AWF, may, at any moment and in consultation with the Executing Agency, deem it necessary to carry out field inspection missions. Phases of the project requiring a "no-objection" notice will be processed by the AWF before being transferred to the Executing Agency.

Moreover, the Executing Agency will comply with the AWF's guidelines specified in Appendix A 7 : **AWF's communication and visibility guidelines** regarding how AWF's role in the project to be emphasized.

4. PROJECT BENEFITS

4.1. Effectiveness and efficiency

The effectiveness of the proposed Project is related to its overall performance in fulfilling the objectives and expected outcomes stated in the Log frame matrix. In introducing the application for funding, NELSAP prepared a project presentation and supporting documents of high standard. This material was further complemented during the appraisal. In conclusion, the proposed Project is likely to be implemented with the necessary efficiency required by AWF.

4.2. Sustainability

Environmental and Climate Change aspects: The Project design places specific emphasis on environmental and social safeguarding by means of the Environmental and Social Impact Assessment. Its aim, when the works will be realized on site, is to achieve poverty reduction and economic growth for the populations under an inclusive approach and the reversal of environmental degradation. The implementation by the 2 governments of watershed management plans and actions with the extended participation of local stakeholders, users and beneficiaries through the appropriate creation of committees, and supervision bodies will reinforce the environmental sustainability of the project. The aspect of Climate Change is duly taken into account in the design and dimensioning of the infrastructures. Effective watershed management all along the lifespan of the project is a tool for reacting and adapting to Climate Changes.

Green growth, gender, inclusivity and equity: The Nyimur project, contributes to green growth through achieving sustainable development outcomes. It represents an investment in resources savings by optimizing the use of water resources, by producing renewable hydroelectricity, not detrimental to other main water usages and by incorporating actions for the protection of the watershed as a natural capital. Financial resources, which will be mobilized for its construction, will satisfy development needs and at the same time will reduce the vulnerability of the socioeconomic systems of the concerned area to environmental change and resource constraints. Additionally, the studies will determine the most suitable techniques, construction methods and more efficient use of energy, materials and manpower at the time of the project construction.

The terms of reference for the technical consultant's services require that the latter ensures that the design of the project assimilates green growth and inclusivity features. The use of environmentally friendly technologies and construction methods with low carbon emissions and intensive use of manpower is a

requirement stipulated in the terms of reference to ensure the project's sustainability. Cultivation methods will be respectful of the environment and will provide opportunities for employement of women as well as youths in the many sectors that the increase of agro-production will impact.

Economic and financial aspects: The economic viability of the Project and its contribution to economic development including revenue generation and creation of local employment opportunities are fundamental factors that have received special attention. The project will generate revenues from electricity supply and several multipurpose benefits connected to flood control, irrigation, water supply, tourism and fisheries as well as sustainable watershed management.

Institutional aspects: The implementation of the project reinforces the credibility of NELSAP as an efficient international organization capable of managing projects aiming at regional integration. The design of the project also comprises the selection of adequate methods for the operation, maintenance and management of the project infrastructures (dam, power plant, command areas, watershed) thus reinforcing, through adequate training and information, the institutional and organizational capacities of the beneficiaries.

5. CONCLUSIONS AND RECOMMENDATIONS

With the ultimate aim to reduce poverty and increase economic growth, the project, when the works will be implemented on site, will greatly improve availability of water resources for the local populations livelihood as well as their productive activities. Therefore, the project is a of major importance for both countries and fits into their national water resources development objectives and strategies as well as improving the agriculture productivity and the access to water supply and electricity. It is coherent with the Africa Water Vision and MDGs. It is also aligned with the priorities of the AWF Strategic Plan 2012-2016 and the Bank's Long-Term Strategy 2013-2022. The project is technically opportune and justified, given the fragility of the region. It presents a potential leverage effect of 1 to 65 and the capacity of being replicated in other River Basins in any country committed to developing and managing shared regional resources.

Furthermore, the project presents a holistic approach; the studies and services consider all the subjects that need mastering to ensure quality at entry and optimum structuration (institutional and legal, technical, environmental, financial, organizational, operational and management aspects). The implementation of a Watershed Management Action Plan (not a component of the project per se) constitutes a valuable factor for the sustainability of the project activities and infrastructures.

Based on the analysis of the project's pertinence, effectiveness and sustainability, it is recommended that a grant not exceeding € ***1,975,102*** from AWF resources be extended to the NELSAP.

The financing will be subject to the fulfilment of the prerequisites below:

Signature of the Grant Agreement:

- The appointment of the Project Coordinator at NELSAP (dedicated to the project) acceptable to the Bank will be the condition for the grant signature.

Disbursement of the tranche to the Project Special Account:

- Opening of a special account in Euro in the National Bank of Rwanda.

Appendixes

Appendix A 1: Detailed cost estimate
Appendix A 2: Project schedule
Appendix A 3: Map of project area
Appendix A 4: Feasibility and Tender Design Studies terms of reference
Appendix A 5: Environmental and Social Impacts Studies terms of reference
Appendix A 6: Assessment of the financial management capacities of the executing agency NELSAP-CU (August 2014)
Appendix A 7: AWF's communication and visibility guidelines

Appendix A 1: Detailed cost estimate

Table 7: Component 1: Feasibility and Tender Design Studies

1	**Component 1: Feasibility Studies and Tender Design Studies**											
1	**Sub-component 1: Feasibility Studies**	***MM Base***	***MM Mission***	***Total MM***	***Intal. trip***	***Unit Rate***	***Total Personnel Costs***	***Perdiem (Hotel & Subsistence)***	***Trip Cost***	***Funded BY***		
	Duration in Months	**18**								AWF	NELSAP	Govts.
	Personnel costs											
	Irrigation and Drainage Specialist/Team leader	6	4	10.0	6	19,000	190,000	18,000	9,000	217,000		
	Water Resources Planner/Deputy Team Leader	2	1	3.0	2	17,000	51,000	4,500	3,000	58,500		
	Dam engineer/ Hydraulic Engineer	1.5	0.5	2.0	1	16,000	32,000	2,250	1,500	35,750		
	Hydropower Engineer	1	0.5	1.5	1	16,000	24,000	2,250	1,500	27,750		
	Agricultural Planner /Agronomist (Regional)	3	1	4.0	2	7,500	30,000	4,500	3,000	37,500		
	Geotechnical/materials specialist	1.5	1	2.5	2	15,000	37,500	4,500	3,000	45,000		
	Soil specialist/Pedologist	1	1	2.0	2	15,000	30,000	4,500	3,000	37,500		
	Gender specialist (Regional)	0.5	0.5	1.0	1	5,000	5,000	2,250	1,500	8,750		
	Agriculture Economist/ Financial Specialist (Regional)	1.5	1	2.5	2	7,500	18,750	4,500	3,000	26,250		
	Hydrologist/Hydro-geologist	1.5		1.5	-	15,000	22,500	-	-	22,500		
	Surveyor (Regional)	10		10.0	-	4,000	40,000	-	-	40,000		
	Social development specialist (Regional)	2		2.0	-	5,000	10,000	-	-	10,000		
	Environmental Management Specialist	0.5	0.5	1.0	1	16,000	16,000	2,250	1,500	19,750		
	Climate Change Specialist	0.5	0.25	0.8	1	15,000	11,250	1,125	1,500	13,875		
	Expert/Specialist Tender Documentation	-		-	-	15,000	-	-	-	-		
	Totals	33	11	43.8	21		**518,000**	**50,625**	**31,500**	***600,125***		
	Expenses and reimbursible costs				***Qtity***	***Unit***	***Unit Cost***	***Total***				
	Reproduction/ reports and drawings				1	Lump sum	5,000	5,000		5,000		
	Acquisition of data, maps, satellite photos etc…				1	Lump sum	8,000	8,000		8,000		
	Draftsmen/Technician/Autocad operator				8	Man Months	6,000	48,000		48,000		
	Topographical Investigations & mapping				1	Lump sum	60,000	60,000		60,000		
	Geotechnical and geological investigations				1	Lump sum	210,000	210,000		210,000		
	Acquisition of 1 vehicle Pick-up 4x4				1	Unit	32,000	32,000		32,000		
	Operation and maintenance of 1 vehicule				18	Vehi.Month	800	14,400		14,400		
	Totals							**377,400**		***377,400***		
	Total Sub-component 1: Feasibility Studies							**977,525**		***977,525***		
1	**Sub-component 2: Tender Design Studies**	***MM Base***	***MM Mission***	***Total MM***	***Intal. trip***	***Unit Rate***	***Total Personnel Costs***	***Perdiem (Hotel & Subsistence)***	***Trip Cost***	***Funded BY***		
	Duration in Months	**6**								AWF	NELSAP	Govts.
	Personnel costs											
	Irrigation and Drainage Specialist/Team leader	2.0	1.0	3.0	2.0	19,000	57,000	4,500	3,000	64,500		
	Water Resources Planner/Deputy Team Leader	0.5		0.5		17,000	8,500	-	-	8,500		
	Dam engineer/ Hydraulic Engineer	1.0	0.5	1.5	1.0	16,000	24,000	2,250	1,500	27,750		
	Hydropower Engineer	1.0	-	1.0	-	16,000	16,000	-	-	16,000		
	Agricultural Planner /Agronomist (Regional)	0.5	-	0.5	-	7,500	3,750	-	-	3,750		
	Geotechnical/materials specialist	0.5	-	0.5	-	15,000	7,500	-	-	7,500		
	Soil specialist/Pedologist	-	-	-	-	15,000	-	-	-	-		
	Gender specialist (Regional)	-	-	-	-	5,000	-	-	-	-		
	Agriculture Economist/ Financial Specialist (Regional)	0.5		0.5	-	7,500	3,750	-	-	3,750		
	Hydrologist/Hydro-geologist	0.5	0.5	1.0	1.0	15,000	15,000	2,250	1,500	18,750		
	Surveyor (Regional)			-	-	4,000	-	-	-	-		
	Social development specialist (Regional)	0.5		0.5	-	5,000	2,500	-	-	2,500		
	Environmental Management Specialist	0.5		0.5	-	16,000	8,000	-	-	8,000		
	Climate Change Specialist	0.50		0.50		15,000	7,500	-	-	7,500		
	Expert/Specialist Tender Documentation	0.50		0.5		15,000	7,500	-	-	7,500		
	Totals	8.50	2.00	10.50	4		**161,000**	**9,000**	**6,000**	***176,000***		
	Expenses and reimbursible costs				***Qtity***	***Unit***	***Unit Cost***	***Total***				
	Reproduction/ reports and drawings				1	Lump sum	10,000	10,000		10,000		
	Draftsmen/Technician/Autocad operator				3	Man Months	6,000	18,000		18,000		
	Geotechnical and geological investigations				1	Lump sum	80,000	80,000		80,000		
	Operation and maintenance of 1 vehicule				6	Vehi.Month	800	4,800		4,800		
	Totals							**112,800**		***112,800***		
	Total Sub-component 2: Tender Design Studies							**288,800**		***288,800***		
	Total Component 1: Feasibility & Tender Design Studies							**1,266,325**		**1,266,325**		
	Contingencies							**37,990**		**37,990**		
	Grand Total Component 1							**1,304,315**		1,304,315	-	-

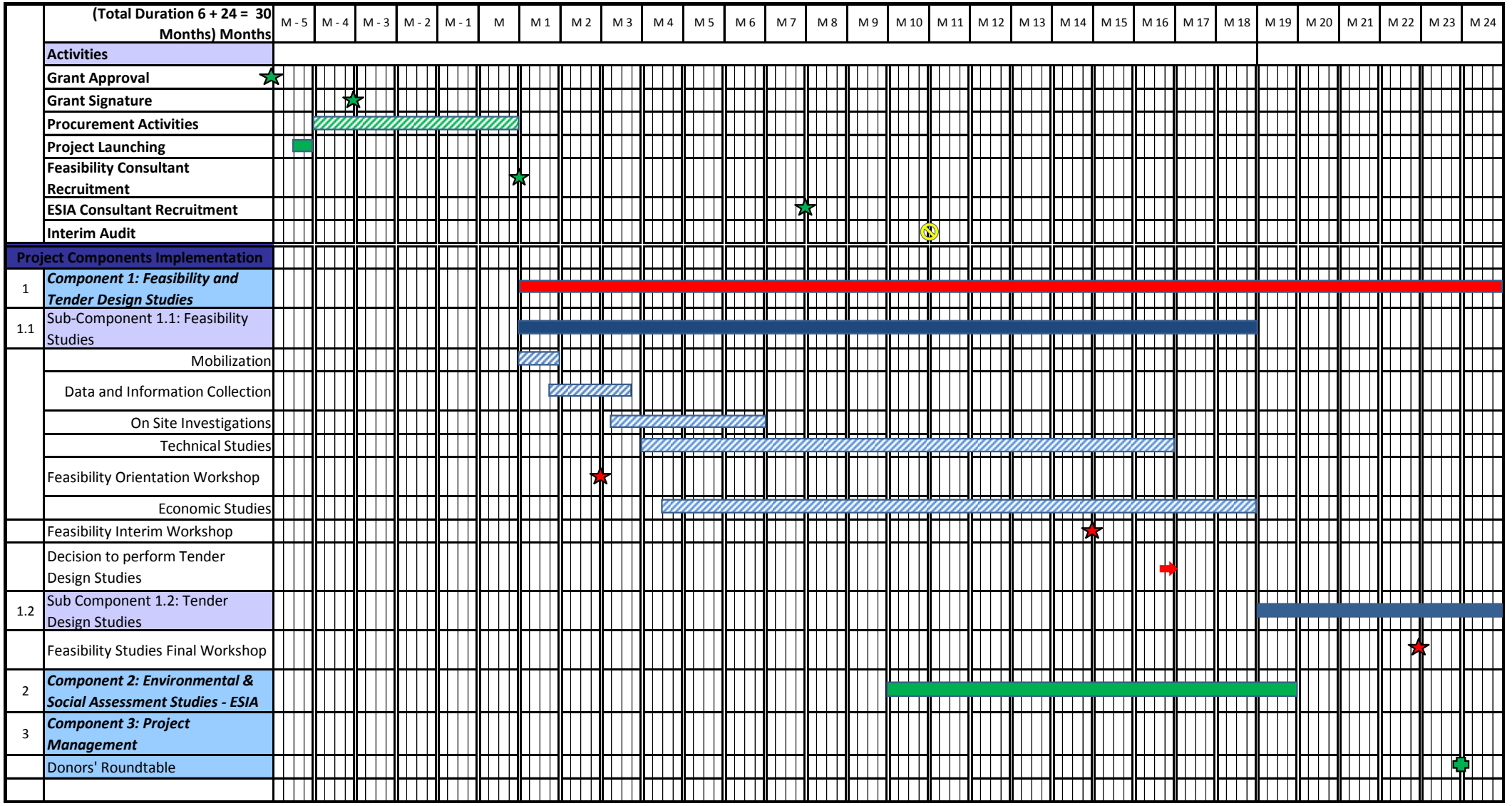
Table 8: Component 2: Environmental and Social Impact Assessment Studies

2	Component 2: Environmental & Social Impacts Assessment Studies (ESIA)	MM Base	MM Mission	Total MM	Intal. trip	Unit Rate	Total Personnel Costs	Perdiem (Hotel & Subsistence)	Trip Cost	Funded BY		
	Duration in Months	**10**								AWF	NELSAP	Govts.
	Personnel costs											
	Environmental Specialist/Team leader	2.0	4.0	6.0	5.0	18,000	108,000	18,000	7,500	133,500		
	Flora & Fauna and Aquatic Ecology and Fisheries Specialist (Regional)	4.0		4.0	-	7,500	30,000	-	-	30,000		
	Public Health Specialist (Regional)	2.0		2.0	-	5,000	10,000	-	-	10,000		
	Sociologist/Anthropologist (Regional)	3.0	2.0	5.0	3.0	10,000	50,000	9,000	1,500	60,500		
	Socio-economist (Regional)	0.5	1.5	2.0	3.0	5,000	10,000	6,750	1,500	18,250		
	Field investigators (Regional)	Lump Sum				18,000	18,000			18,000		
	Rural Development Planner (Regional)	1.0	3.0	4.0	5.0	7,500	30,000	13,500	2,500	46,000		
	Totals	13	11	23.0	16		**256,000**	**47,250**	**13,000**	***316,250***		
	Expenses and reimbursible costs				***Qtity***	***Unit***	***Unit Cost***	***Total***				
	Reproduction/ reports and drawings/workshops material				1	Lump sum	6,000	6,000		6,000		
	Aqcuisition of data, maps, satellite photos etc…				1	Lump sum	3,000	3,000		3,000		
	Draftsmen/Technician/Autocad operator				1.5	Man Months	6,000	9,000		9,000		
	Transport expenses				10	Vehi.Month	800	8,000		8,000		
	Totals							**26,000**		***26,000***		
	Total Component 2: Environmental & Social Impacts Assessment Studies (ESIA)							**342,250**		**342,250**		
	Contingencies							**10,268**		10,268	-	-
	Grand Total Component 2							**352,518**		352,518	-	-

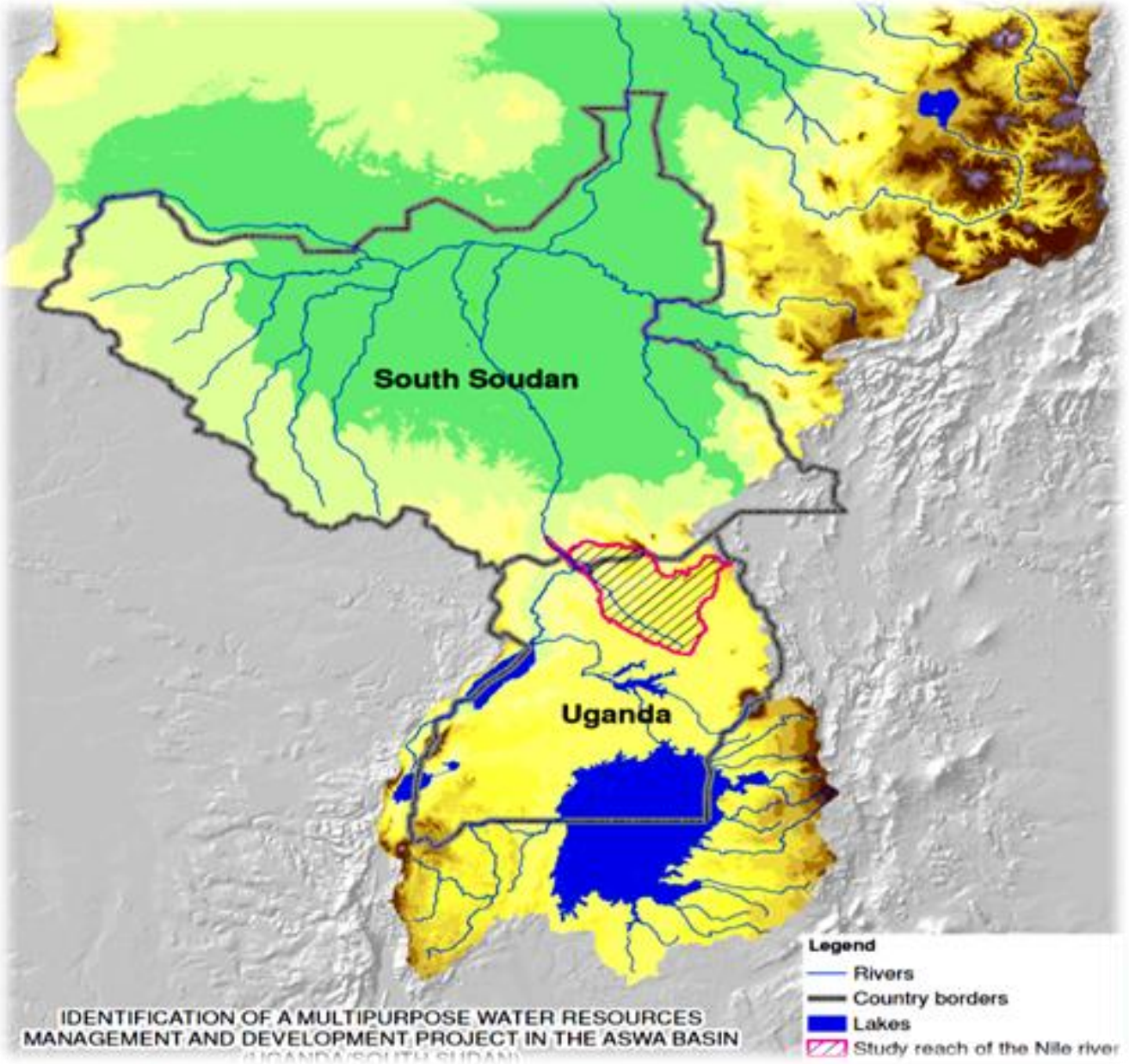
Table 9: Component 3: Project Management

3	Component 3: Project Management										
		MM Base	*MM Mission*	*Total MM*		*Unit Rate*	*Total Personnel Costs*		*Funded BY*		
	Duration in Months	24							AWF	NELSAP	Govts.
	Personnel costs										
	Regional Coordinator	1.0		1.0	-	9,000	9,000			9,000	
	Program Officer	4.0		4.0	-	7,500	30,000			30,000	
	Project Coordinator (NELSAP)	24.0		24.0	-	5,300	127,200			127,200	
	Accountant	5.0		5.0	-	3,400	17,000			17,000	
	Procurement Officer	3.0		3.0	-	4,500	13,500			13,500	
	Monitoring and Evaluation Officer	3.0		3.0	-	5,300	15,900			15,900	
	Communication Officer	6.0		6.0		4,500	27,000			27,000	
	Water Resource Engineer	4.0		4.0	-	4,500	18,000			18,000	
	Environment Specialist	5.0		5.0	-	4,500	22,500			22,500	
	Social Development Specialist	5.0		5.0	-	4,500	22,500			22,500	
	Power Engineer	2.0		2.0	-	4,500	9,000			9,000	
	Civil Engineer	4.0		4.0	-	5,300	21,200			21,200	
	Agronomist			-	-	4,500	-			-	
	Economist	3.0		3.0	-	5,300	15,900			15,900	
	Support staff and services	1.0		Lump sum		36,000	36,000			36,000	
	Totals (Man-months)	70	-	69	-		**384,700**			***384,700***	
	Expenses and reimbursible costs				*Qtity*	*Unit*	*Unit Cost*	*Total*			
	Project Task Teams Meetings (representatives from Uganda and South Sudan)				6	Meetings	7,000	42,000		42,000	
	Travel expenses				1	Lump sum	15,000	15,000		15,000	
	Office Utilities (electricity, water etc.)				24	Per month	1,000	24,000		24,000	
	Office Space				24	Per month	1,400	33,600			33,600
	Communication Action Plan Implementation				1	Lump sum	22,000	22,000	10,000	12,000	
	Workshops for Feasibility				3	Workshop	24,000	72,000	72,000		
	Workshops for the ESIA				3	Workshop	24,000	72,000	72,000		
	Workshop for Launching of the project				1	Lump sum	27,000	27,000	27,000		
	Special courriers expenses				1	Lump sum	2,000	2,000		2,000	
	ESIA Panel of Experts				1	Lump sum	90,000	90,000		90,000	
	Dam Safety Panel of Experts				1	Lump sum	90,000	90,000	90,000		
	Donors'roundtable preparation				1	Lump sum	27,000	27,000	27,000		
	Donors'roundtable (Logistics, transports, catering, material)				1	Lump sum	11,000	11,000	11,000		
	Totals							**527,600**	***309,000***	***185,000***	***33,600***
	Total Component 3: Project Management							**912,300**	**309,000**	**569,700**	**33,600**
	Contingencies							**27,369**	9,270	17,091	1,008
	Grand Total Component 3							**939,669**	318,270	586,791	34,608

Appendix A 2: Project Schedule



Appendix A 3: Map of the Project Area



African Water Facility
Facilité africaine de l'eau
Mobilising Resources for Water in Africa
Mobiliser des ressources pour l'eau en Afrique

Appendix A 4: Feasibility Studies and Tender Design Studies Terms of Reference

FEASIBILITY and TENDER DESIGN STUDIES

FOR

THE NYIMUR MULTIPURPOSE WATER RESOURCES PROJECT

UGANDA/SOUTH SUDAN

DRAFT TERMS OF REFERENCE

October 2014

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List of acronyms

AfDB	African Development Bank
AWF	African Water Facility
ESIA	Environmental and Social Impacts Assessment
ESMP	Environmental and Socail Management Plan
FS	Technical, financial, economic, environmental, social and institutional Feasibility Studies
NBI	Nile Basin Initiative
NELCOM	Nile Equatorial Lakes Council of Ministers
NELSAP-CU	Nile Equatorial Lakes Subsidiary Action Program – Coordination Unit
PoE	Panel of Experts
RAP	Ressettelment Action Plan
TDS	Tender Desing Studies
WRD	Water Resource Development

1 Project background

The NELSAP[1], a cooperative investment program within NBI, was established to facilitate the identification, preparation and resource mobilization for cooperative investment projects at a sub-basin level within the framework of the NBI. The NELSAP CU has been the vehicle for a number of important diagnostic studies since 2001 and these have provided an excellent resource base for the project preparation for the riparian countries. The NELSAP CU prepared a regional NEL coordinated WRD program that was endorsed by the NELCOM at their 13th Meeting in Kinshasa (May 2009). The program promotes optimal development of shared resources which would facilitate interdependent sub-regional growth by (i) fostering economic growth through related water sector development (ii) enhancing regional integration and contributing towards peace and development (iii) coordinating different interests in the region for mutual benefits and (iv) creating an investment environment that serves as a firm foundation for sustainable development and contributes to poverty alleviation. The project was consistent with Countries Assistance Strategies (CAS) and PRSPs both of which aim at strengthening governance and institutional capacity and increase sustainable management practices for reducing poverty.

Among the projects identified under this program were multi-purpose water resources projects for the Aswa basin that aimed at identifying development opportunities within the basin. The project for which the feasibility studies are being sought for is one of the three prioritized projects selected by the two countries of Uganda and South Sudan to carry forward. The other two are the Moroto multipurpose water project and the Kitgum ground water supply scheme. The project was developed through a consultative process that involved consultations with the line ministries in both Uganda and South Sudan, local government officials at districts and sub-county levels. This was on realisation of the degraded catchment conditions, low productivity, low knowledge of the water resources base and break-down of relevant institutions due to the insurgency that existed in the area for over two decades.

The project comprises a community based irrigation scheme, water reservoir, a water and soil conservation component among other enabling sub components. The project will establish a water resources information/knowledge base and institutional development of the target project area. The core scheme of the project consists of a 26 m head dam and reservoir on Nyimur River and five (5) modules of irrigated lowland rice of approximately 5,105 ha. A mini hydropower plant with a capacity of 350 kW is included in the dam component. The scheme is designed to effect a permanent separation between the irrigation modules and livestock in form of a protection zone (the "cordon sanitaire") 500 m wide that engulfs all irrigation modules and includes watering points for cattle in the periphery.

The project includes two intervention areas for the improvement of existing and construction of new rural water supply and sanitation infrastructure for a population of approximately 12,000. In addition, it includes the establishment, in the sub-catchments, of areas where Sustainable Land use Management is practiced as well as afforestation activities for an estimated at 14,300 ha. Information and knowledge base requirements will be established alongside the feasibility of the core project components.

The feasibility and detailed design studies for which these terms of reference are established will cover irrigation development, dam/reservoir development, watershed management projects as well as water supply for auxiliary use (rural and livestock water supply) and associated sanitation facilities. The studies will ensure that the project is:

(i) in accordance with the countries development objectives;
(ii) technically sound and the best of the alternatives;
(iii) attractive to the intended beneficiaries;
(iv) operationally and managerially workable;
(v) economically and financially viable, and
(vi) sustainable and environmentally sound.

[1] NELSAP member countries: Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, Uganda

Because of the past years long insurgency situation in the region, the aspect of Anti-Personnel Mines - APM is a concern and is still a serious threat to community development. Casualties have been recorded these last years. United Nations agencies and Nordic and UK specialized companies have supported demining operations at the Uganda - South Sudan border till 2012. However, an accurate mapping of areas where APM are still planted is not available, thus maintaining a high level of uncertainty. For the project, this is a risk that must be taken into account at the time of interventions and surveys during the studies as well as during the further relatively extensive civil works which will take place when preparing the sites for the construction of project infrastructures. It is therefore highly suitable and recommended that parties involved in the project studies identify and closely liaise with competent government and international agencies in Uganda and South Sudan for obtaining guidance and advice on the appropriate measures to intervene in the area with the highest level of security. On the basis of findings and identification of places where the APM aspect is still a concern, the Consultant will complement the land suitability assessment.

2 Project rationale

The Nyimur River is one of the tributaries of the Aswa River. Over the previous years, the Aswa basin, both in Uganda and South Sudan, was plagued by armed conflict, acute social insecurity and mass displacement of populations from rural areas towards more secure congregated settlements. This in turn led to mass abandonment of agricultural land, poverty and famine and high reliance on food aid. The Aswa basin is host to a variety of livelihood systems including pastoral, agro-pastoral and pure farming societies. Competition for limited resources in the already insecure environment coupled with the widespread availability of guns lead to further opportunities for armed conflict. In terms of pressures on the environment, the social upheaval led to the degradation of abandoned agricultural land and intensive collection of firewood and unsustainable use of other natural resources near population centres. This resulted in deforestation, encroachment on and degradation of wetlands and overexploitation of other areas with natural vegetation. This has resulted in abject poverty in the area and likewise wildlife has suffered from hunting and loss of habitat.

Given the prevailing conditions, there is a need to: (i) Mitigate the recurrent flooding and drying out problems by water storage and river regulation and thus allowing cultivation in the lowlands next to Nyimur River (ii) Create a large base of a high productivity cultivation (irrigated low land rice) that will lead to a large increase in local income, make available enough produce to influence positively the construction of agro-processing facilities and the access to markets and also make substantial impact on the wider economic life of the area (iii) Address poverty and lack of social development, which constrain agricultural intensification, through a labour intensive approach coupled with training and support; (iv) Improve water supply and sanitation infrastructure and thus contributing to better public health, improved livelihoods and cleaner water bodies and (v) Strengthening trans-boundary cooperation between Uganda and South Sudan in water resources development and management.

Given the shared nature of the sub basin river system, a regional perspective on multipurpose water resources use, together with appropriate management interventions, to reduce the vulnerability of the riparian communities to extremes in rainfall variability, a multi-purpose water resources projects is being proposed for the following reasons:

(a) Substantial poverty reduction will not be possible without inducing economic development on a rather broad and massive scale. Given the current situation in the Aswa Basin this calls for some large-scale investments in infrastructure needed for flood control, irrigation and protective installations, facilitating enhanced utilisation of the available productive potentials by way of intensification and diversification of agricultural production.
(b) Focussing investments on such measures needed to reverse environmental degradation only, i.e. without regard of productive infrastructure, is economically not viable under the given conditions. Neither investment costs nor operating expenditure would be offset by revenues caused by their establishment and running.

(c) Inducing meaningful social development is hardly possible without investments geared towards achieving enhanced monetary returns per household from utilisation of productive infrastructure. Likewise, omission of investments in environmental protection would not lead to the desired impacts, since intensification and diversification options would be rather limited and risk levels (caused by instances of flooding and drying-out as well as by continued soil and water erosion) would not be lowered.
(d) Including a hydropower production component in projects otherwise focused on irrigation facilitates the involvement of private capital in the initial investment.

Larger projects allow a critical mass of agricultural production to be reached for markets to develop and agro-processing to become viable. At the same time, introduction of hydropower removes a main obstacle for the development of processing facilities.

3 Technical description of the main components of the project

As the uppermost project area in the Nyimur Sub-Basin there is need to retain a substantial amount of water at the top of the scheme, in order to secure availability of irrigation water also during extremely dry seasons and to prevent flushing too much water through the main river bed in extreme rainfall cases. Thus, this system would at the same time be a response to the effects of climate change, which results in higher frequencies and more pronounced intensities of extreme weather conditions, i.e. floods and droughts. In total the Nyimur River scheme would thus consist of 4 modules with a gross irrigation area of about 5,105 ha.

The proposed irrigation project would consist of five major installations and the irrigation infrastructure to be established downstream of each of them. Their locations can be seen in the map file attached to the Terms of reference. They can be summarized as follows:

a) A head dam (earth dam), capacity 44Mm^3, to the system combined with irrigation intakes and a power generation plant with a capacity of 350 kW. Its location would be on the main Nyimur River. Its width is estimated to 796 m and its height 26 m. Downstream irrigation infrastructure would be ending at the beginning of the reservoir ahead the next control dam in the Nyimur Valley.
b) Four control dams, whose role would be to raise the water by approximately 3 m each in order to provide sufficient irrigation water availability also during the dry periods. The control dams include irrigation intakes to both sides of the river. Details include:
    - A control dam with irrigation intakes on the Ateng River, due South of the head dam (named control 3 in the map attached). Downstream irrigation infrastructure would also be ending at the beginning of the reservoir ahead the next control dam in the Nyimur Valley
    - A control dam with irrigation intakes in the Nyimur River, West of the head dam (named control 1 in the map attached). Downstream irrigation infrastructure would be ending at the beginning of the reservoir ahead the next control dam in the Nyimur Valley
    - A control dam with intake functions in the Nyimur River, downstream of the above irrigation infrastructure (named control 2 in the map attached). Downstream irrigation infrastructure would be ending at the beginning of the reservoir ahead the next control dam in the Nyimur Valley
    - A control dam with intake functions in the Nyimur River, downstream of the above irrigation infrastructure (named control 4 in the map attached). Downstream irrigation infrastructure would be ending shortly before the confluence with the Aswa River.
c) Other components include
    - A small hydro component which could be installed at the foot of the dam. The installed capacity is estimated at 350 kW. The yearly produced energy is estimated at 2.5 GWh approximately.
    - Sustainable Land Management (green infrastructure) activities in the sub-catchments upstream of the project.
    - Water supply and sanitation in main project area- improvements in infrastructure for safe water supply and sanitation in the sub-catchments of the project.
    - Development of fisheries in the reservoir area and other ponds and water storage facilities.

4 Objectives of the assignment

The goal of the project is to sustainably improve the living conditions and incomes of rural populations in the proposed irrigation scheme and the surrounding watersheds. The objective of the studies is to make ready for implementation the Nyimur multipurpose water resources development project, located in the Aswa river basin (South Sudan/Uganda), which is part of the NEL region planned Irrigation and watershed Projects (up to 2035). The first phase in conducting the assignment shall be to carry out a Feasibility Study and secondly conduct detail designs and prepare tender documents (once confirmed as feasible). The final output will include feasibility study reports (with in-depth assessments of technical, institutional, social, environmental, financial and economic aspects of the project, including an optimized long-term water resources assessment, allocation and utilization in the catchments related to the projects), detailed (final) designs and tender documentation which will form the basis for investment finance mobilization and project implementation.

This project phase will result in in-depth technical reports of the project that would include: storage reservoirs, a community based irrigation scheme and improvement in the productivity and management of the upstream watersheds. The feasibility studies will provide sufficiently accurate estimates of costs and expected results to enable decisions to be made on project financing. In addition, the definition of the project components, organizational arrangements and procedures will be detailed enough to permit the executing agencies to use the study as guidance on project implementation.

5 General Scope and Methodology of the Study

The project adheres with international best practice, including NBI/NELSAP policies/guidelines and AfDB safeguards. The study will entail feasibility type studies, preparation of technical designs, cost estimates, and implementation arrangements for the finally agreed development options for the Nyimur Irrigation development and watershed management project. The feasibility studies will comprise analyses related to: water resources, watershed management, irrigation infrastructure, topographic plans, headwork and hydraulic structure studies, geologic and geotechnical investigations, agricultural command area development, drainage and flood study, dam design, environmental analyses, social analysis, economic and financial analysis, and farmer consultation. Upon approval of the feasibility studies, detail designs & tender documents will be prepared. The Consultant shall define in consultation with stakeholders (as relevant) the scope of the project options, assess the practicability of the development, and provide the basis for decision making on the choice of design options. The consultant shall define the benefits and costs, and determine financial feasibility, economic justification and cost recovery. The Consultant will adopt participatory approaches to ensure the optimal involvement of stakeholders from national to community levels, during the study. In planning and scheduling of the tasks, the consultant should note that not all tasks will be conducted in linear fashion and the consultant should propose a schedule on how the tasks can be scheduled to meet the objectives of the assignment. The scope of the services of the consultancy, during the development of this study, shall contain, but not be limited to the activities and tasks described hereinafter.

The studies will be performed in two phases:

- The first phase A comprises the feasibility study of the project
- The second phase B comprises detailed design studies and the preparation and finalization of the Tender Documents for the launching of an international call for bids for the implementation/construction of the project.

The execution of the second phase will be subject to the notification to proceed by the owner further to the presentation of the findings of the feasibility study in a workshop gathering the concerned authorities and stakeholders.

The consultant is also required to conduct the studies in coordination with other consultants in charge of the Environmental and Social Assessment studies (ESIA) as well as the members of the Panels of

Experts (PoE) set up as per the international rules relating to dam projects preparation. In principle, 2 independent panels will be established: i) The technical PoE and ii) the ESIA PoE.

5.1 Phase A: Feasibility studies

Task A 1: Formulation of Project Plans and Layout

Task A 1-1 Data and information collection

The consultant should collect relevant studies, data and information, review the Aswa basin planning reports which include the diagnostic report, the Basin Strategy Report, the Investment planning report and the bankable project planning report, as well as review reports from previous regional studies (like the irrigation potential assessment of the NEL region), sector and country/regional strategies, as well as national and regional policies related to water resources and agricultural development within the Aswa basin. The Consultant should screen and synthesize the data and establish a project databank related to policies, institutions, existing infrastructure, hydrology and meteorology, topography and maps, geology, soils and materials, multipurpose aspects, agriculture, hydropower, possible environmental impacts (both positive and negative), and socio-economic conditions for use in further analysis. The Consultant should at this stage review the basin hydro-meteorological station network study and propose a robust hydro-meteorological data collection network for both the pre and post construction phases of the project scheme to enhance the better understanding and monitoring of the water flux in the catchment. This information must be evaluated to determine its validity for use throughout the development of the project. The Consultant will acquire at his expenses all maps, satellite photos, numerical and digital data bases required for the studies.

Task A 1-2: Socio-economic assessment

The purpose of this task is to provide an understanding of the socio-economic profile of potentially affected communities, to enable the project design to meet their development needs and mitigate negative impacts. This assessment should serve both diagnostic monitoring and impact evaluation purposes that should result into:

a) understanding of the area's social and economic history, socio-economic profile of the communities and the social structure and institutions;
b) understanding of the process of socio-economic differentiation, impoverishment and wealth such as livestock, land etc.;
c) understanding of the constraints that inhibit livelihoods and livelihood development which can be potentially addressed by targeted water resource development and watershed management interventions; and
d) collection of statistically reliable descriptive data on those parameters which the project intends to influence, such as health, gender, production and household incomes at the baseline and project completion.

The Consultant will exchange information with the team of the Consultant in charge of the performance of the ESIA as well as with members of the ESIA independent POE

Task A-1-3: Financial and institutional solutions

Considering the multi-purpose character of the project, the Consultant should:

a) broadly assess the possible financial and institutional solutions for the funding, ownership, operation and maintenance of the dams and associated irrigation and water supply infrastructure.
b) based on the demand for water services recognized in previous studies (e.g. secure water for irrigation, domestic water supply, hydropower production, etc), identify the main institutions or stakeholders that have interest and can take responsibility for the ownership, operation and maintenance of the proposed infrastructure. The potential solutions for sustainable irrigation and water supply supported by the project should take its basis from the socio-economic assessment.
c) based on broad cost estimates for both investments and O&M, the Consultant shall assess and identify possible scenarios of financing solutions, ranging from concessional financing to private investment, or a combination of them. Fiscal barriers and risks for main institutions and stakeholders should be identified.

d) based on a combination of demands as well as institutional and financial alternatives and constraints, different scenarios for the prioritization of the multiple uses of the dams should be suggested. Possible phased solutions should be considered as an alternative to mitigate barriers in upfront capital-investments.

Task A 1-4: Formulation of project scenarios

The Consultant should on the basis of previous studies broadly:

a) confirm the proposed dam site considering the local conditions such as topography, geology, construction materials, available infrastructure and environmental conditions.
b) based on the socio-economic assessment and the identification of financial and institutional solutions, formulate and present alternative project plans and corresponding roadmaps for preparation, construction, commissioning, operation and maintenance. The alternatives shall be presented to the Client and a priority of the alternatives should be decided, and be guidance for the detailed technical and financial assessment of the Feasibility Study. Recommendations should be formulated to the Client to reach the financial and institutional solutions, which can be conducted in parallel with the Feasibility Study and Detailed Design.

Task A 2: Stakeholder Analysis

The Consultant should:

c) undertake a stakeholder analysis of the project area;
d) carry out broad socio-economic surveys using appropriate methodologies;
e) carry out a broad analysis of gender issues;
f) profile the potential beneficiaries to be benefitted from the proposed irrigation development and watershed management activities;
g) identify categories of vulnerable groups specific to impacts from the project and activities that will adversely affect them;
h) review land policy, land cadastre, land use and possible impacts on land-based livelihoods, as well as potential land acquisition and likely scale of resettlement; and
i) recognize specific socio-economic, institutional and other constraints that can be potentially addressed in the proposed project,
j) identify possible barriers to project execution and completion;
k) use the above information to identify the project communication needs. The information obtained from the surveys will be used as a basis for conducting a project socio-economic impact assessment. The outcomes of this task should be adequate enough to be used in "with project" and "without project" scenario evaluations at feasibility level economic and financial analysis.

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Task A 3: Water Resources Assessment and sediment studies

Task A 3-1: Assessment of water resources availability

The task objective is to assess the water resources availability to satisfy the estimated uses and demands. Based on the analysis, the consultant will match the water availability for each time segment with the irrigation need and other demands at different levels of probability using appropriate hydrological techniques and match the water availability at monthly time segment with the demands. The Consultant shall:

(a) Determine the current and potential future water uses and demands for the identified water uses at the project area, together with their seasonality, levels of service, priority of use and cumulative effects;
(b) Assess and quantify any upstream water uses (abstractions/diversions) and their impacts to the proposed project;
(c) Assess both the surface- and groundwater potential and availability and examine potential for conjunctive use of available surface and ground water resources in an environmentally sustainable manner;

(d) Undertake water quality assessment of the surface water;
(e) Estimate optimal demands and their command areas to be served for the various water uses with the available water resources, without adversely affecting more downstream users. With respect to groundwater, the Consultant should also assess:
    - the future ground water regime and behavior after the development of irrigation in the project area;
    - impacts on the ground water table due to seepage and percolation and drainage from the irrigation canals;
    - drainage control, groundwater table, and ground water quality control measures that need to be incorporated into the detailed design of the project later.

Task A 3-2: Hydrological Analysis

The aim of this task is to determine the hydrological patterns of the catchment area and the Nyimur river and the resulting characteristics of the river discharge at the location of the dam in order to dimension the critical components of the scheme and in particular the capacity of the spillways and arrangements for the protection of the site and works during the construction. The analysis will also establish the volume of available water and thus the capacity and size of the other components of the project like the power plant and the command areas. The recommended approach is through flood frequency analysis methods that the Consultant will describe and justify in the corresponding reports. The analysis will also factor the Climate Change considerations.

In addition, and in order to establish the most appropriate design of the project and take account of its impact on the downstream part of the river, the Consultant will apply a morpho-dynamic approach/modeling for predicting the possible evolution of the river bed as a result of the water storage and retention of sediments.

The task of the Consultant shall be to:

(a) Undertake hydrological analyses such as rainfall-runoff modelling to estimate reservoir yield, inflow design flood (refer to guidelines for Selecting and Accommodating Inflow Design Floods for Dams, FEMA P-94 /August 2013), to facilitate the design and sizing of different hydraulic structures such as the reservoir, spillway and outlet works;
(b) Determine the flow duration curves to facilitate the design of the hydropower components such as turbines, canals, penstock, etc;
(c) Adopt appropriate hydrological techniques (such as modelling, etc.) to derive the required design flows and other hydrological information/statistics from the nearest available gauging stations, rainfall records, etc. where sufficient hydro-meteorological data are not available;
(d) Assess the spatial and seasonal fluctuations of climatic variables on the hydrological characteristics for the project (refer to the NELSAP climate guidelines and tools);
(e) Assess the effects of the proposed storage on existing uses and
(f) Undertake flood routing through the downstream channel and floodplain to enable evaluation of effects in the event of excessive spills or dam break (hydrological dam safety considerations).

Task A 3-3: Sediment Analysis

In view of the existing concerns of land degradation, erosion and sedimentation within the project area, the Consultant will assess the sediment regime and total sediment transport of the river system in the project area. This will include:

(a) Determination of the sediment yield (estimates of sediment load should include projections of changes in upstream sediment release, based on upstream development plans, additional sediment data should be collected during the course of the studies, from the existing hydrological stations);
(b) Forecasting of dead storage volume and the future rate of reduction of the live storage and reservoir trap efficiency, which will require limited sediment sampling to the extent possible.

Other than design against the storage depletion (reducing yield and flood attenuation capability), this analysis should also aid the subsequent design against increased loads on the dam, abrasion of outlet structures (e.g. spillways) and mechanical equipment and blockage of outlets which could cause interruption of benefits (e.g. irrigation releases) and reducing the ability of the dam to pass floods safely (e.g. by blocking emergency outlet gates). The analysis will also lead for substantiating the operation

manual of the dam in relation with planned releases and flush release for evacuating accumulated sediment. Sediment load estimates should include projections of changes in upstream sediment release, based on upstream development plans. The Consultant will take into consideration the action plans which are foreseen in the near future for the protection of the watershed under the guidelines prepared by the Ministry of Water and Environment of Uganda. He will draw conclusions and recommendations concerning the impact on the life span of the scheme and on the constructive measures to be retained for the project design and its operation and maintenance.

Task A 3-4: Water Quality and Quantity Assessment

The Consultant will provide a detailed assessment and evaluation of the direct and indirect effects of water quality/quantity change on downstream ecosystems dependent on periodic natural flooding (water logging), water quality (soil salinization, irrigation return flows and ecological damage) during the low flow periods, accretion due to changes in the sediment transport regime, social considerations (loss of water access, livelihoods, etc.), cumulative effects and any potential riparian issues (in the river catchment and downstream of the proposed irrigation schemes) due to the proposed developments (for notification of planned measures).

Task A 4: Irrigable Command Area Design

The objective of this task will be to prepare feasibility level designs for development of the irrigation command areas. Detailed activities under this task are given below:

Task A 4-1: Irrigation Potential Assessment

The objective of this task is to evaluate and physically delineate the areas that can be potentially developed for irrigated production. The approach will combine use of maps, satellite imagery, remote sensing data and on the field surveys and tests. It will build on the study (incl. GIS based data bases) on Assessment of the Irrigation Potential in Burundi, Eastern DRC, Kenya, Rwanda, Southern Sudan, Tanzania and Uganda (Final Appendix Uganda and South Sudan, July 2012). The area which can potentially be irrigated depends on the availability of "soil and water", the appropriate pedological patterns combined with the irrigation water requirements, crops and cropping patterns that are feasible, and the local climatic factors. This task will thus include:

(a) Evaluation of potential crops and cropping patterns;
(b) Assessment of land suitability for irrigation;
(c) Evaluation of irrigation water requirements; and
(d) Assessment of water resources availability and options for developing water resources in the project area to meet the irrigation demand.

Details of each of the sub-tasks are as follows:

Task A 4-1-1: Soil Survey Investigations and Land Suitability Studies

The Consultant should:

(a) Undertake a semi-detailed soil survey for the demarcated irrigable command area, using appropriate sampling and observations in conformity with guidelines for soil surveys of Food and Agriculture Organization (FAO);
(b) Prepare soil maps on a scale up to 1:10,000 based on these surveys;
(c) Collect and analyze soil samples required for the determination of standard physical and chemical properties of the soils required for evaluation of irrigation water requirements and soil suitability for the proposed crops as well as establish proper drainage modules for the project to affect the design of the drainage system for the command areas.

For the latter, the Consultant should take appropriate measures to verify and ensure the quality and reliability of laboratory test results. The Consultant should then:

(a) Develop a suitable land classification system for assessment of "irrigability" and "drainability" within the proposed irrigation development areas;
(b) Critically evaluate and analyze findings of the topographic, soil surveys and land characteristics of the proposed project areas; and

(c) Identify and delineate irrigation blocks and areas in terms of suitability for irrigated agriculture development.

As cited in the introductory chapters of these Terms of Reference, the aspect of Anti-Personnel Mines is an important factor to be taken into consideration for assessing the land suitability. The Consultant will closely liaise with the competent agencies and organizations in Uganda and South Sudan in view to delineate the areas of exclusion to the project or which should be identified for demining programs.

Task A 4-1-2 Evaluation of Crops, Cropping Patterns and Markets

Based on the collected baseline information on the type of soils, topography, and land-use patterns and the will analysis of water-use patterns (rain-fed crops, irrigated crops, drainage, surface and groundwater extraction) and examination of existing local field-crop production and soil management practices. The Consultant will establish and delineate major cropping pattern zones (considering types of irrigated crops grown, crop calendar and cropping intensity); propose schedules of crops for consideration, estimate expected yields and crop water requirements for alternative cropping programs, and examine the existing Agricultural Support Services.

The assessment will cover:

(d) existing crops and cropping patterns that can be adopted in the proposed irrigation schemes, which will form a basis for needed extension support to the project,
(e) the ownership structure of farms including consulting the potential irrigation farmers;
(f) constraints on farm productivity;
(g) the market potential of the possible crops within and around the project area;
(h) the potential for increased competitiveness of its products including an analysis of the comparative advantage of the project area; and
(i) availability of and accessibility to entrants supplies, storage, technology, finance, markets (building on NELSAP study on Analysis of Cross-border Trade in Agricultural Products along Selected Corridors of the Nile Basin Region, 2012) and transport and distribution networks.

The consultant will also analyze the gender division of labor in irrigated agricultural production for each socioeconomic group, identify the needs of both women and men related to proposed agricultural activities. Based on the analysis, the Consultant should formulate the cropping and irrigated agriculture development plans for the proposed schemes including the potential distribution of land areas between the small scale individual farms and large scale commercial farms. If considered feasible identify suitable and appropriate cropping patterns for each mode type, estimate farm level crop production volumes, input and production costs, and gross and net returns, and generate incremental benefit estimations for use in the economic and financial analyses of the feasibility study.

Task A 4-1-3: Determination of Irrigation Water Demand Requirements

The aim of this task is to evaluate irrigation water demand for the basic design parameters generated by the task above. The Consultant should:

(a) Collect all the existing available agro-meteorological data for the project areas required for estimation of crop water requirements and irrigation water requirements of the scheme;
(b) Verify the reliability and accuracy of data, and make corrections as necessary before use (In this context, quality analysis of collected data and filling in of all missing data using appropriate standard approaches and techniques is necessary);
(c) Carry out "Agro-climatological assessment" where the Consultant should review available climatic data and make estimates of farm and project level irrigation requirements for viable crops, cropping patterns and crop rotations and irrigation technologies to be adopted, using all available agro-meteorological data for the project area;
(d) Deduce the peak irrigation water demand supported by analysis of different cropping patterns in the project area for purposes of fixing canal design and
(e) Deduce irrigation water requirements at salient intervals for deciding the cropping pattern in order to compare with water availability.

Task A 4-2: Preparation of Topographic Plans[2] for the Irrigation command area

Using the combination of on the field surveys, maps, numerical data bases from high intensity satellite imagery and ground control the Consultant will:

(a) Prepare 1:5,000 scale topographic maps of the project with 5 m contour intervals, l m for use in planning;
(b) Use these maps to evaluate the topographic features which would influence design of layout of the irrigation scheme and locations of major hydraulic structures of the supply source(s), irrigation water conveyance and distribution systems, and drainage systems; and
(c) Demarcate possible physical locations and boundaries of the primary parameters of the irrigation system layout, including layout of main irrigation canals and drainage systems, location(s) of potential irrigation supply sources (e.g. dam, weir, river, etc.), and drainage system layout.

The maps will be shared with the ESIA consultant team.

Task A 4-3: Command Area Development

Prior to commencement of any further tender design, design criteria should be approved by the Client. At the stage of the feasibility study, the scope for command area preliminary design and layout will include the following:

(a) Analysis of flood protection, land reclamation and drainage works required to ensure sustained economic operation of the command areas;
(b) Determination of access/feeding roads requirement both to and within the area;
(c) Preparation of general layout plans showing the location and principal features of main works required for the most suitable irrigation supply and drainage system.

The consultant should examine the reliability of water supply, considering the various future and existing water uses and identify appropriate water conveyance system to supply/distribute water to all sites of the land to be developed and recommend appropriate irrigation methods best suited for the command area. The consultant should locate suitable irrigation water diversion sites and systems in the command area and investigate pumping, storage or diversion requirement and reservoir operations required for irrigation with due consideration of floods and siltation in the command area.

Task A 4-4: Irrigation System Preliminary Engineering Design

The consultant will prepare preliminary designs for major structural and hydraulic elements of the proposed irrigation system, including, the water conveyance system, on-farm water distribution system, drainage canals system, flood prevention and control considering both structural and hydraulic safety. The consultant should take into consideration intensive labor engagement and use of local construction capability and materials during the design as necessary. Monthly and annual diversion and farm requirements of water should be estimated, on the basis of crop water requirements. The Consultant shall prepare the layouts and drawings of the different project components using AUTOCAD software. Drawings will be at appropriate scales allowing the accurate evaluation of quantity of works and their corresponding costs and will allow to easily divide the irrigated surfaces when allocation of land to farmers will be implemented. The consultant will prepare the schedule of quantities in line with Civil Engineering Standard Methods of Measurement (CESMM 4), for use in cost estimates and the economic and financial analysis of the feasibility study.

Task A 5: Dam/Storage Design

[2] In the various sections of the TOR on topographic mapping, all of the topographic mapping exercises (including dam site, irrigation, and detailed for designs) may be undertaken at once – or separately, as desired

The detailed identification studies recommended the need for storage in order to support the irrigation command area and various auxiliary uses. Based on the water demand, and resource availability, the Consultant will design a dam/storage reservoir. Details will include the following:

Task A 5-1: Reservoir Studies and Operating rules

The consultant will develop reservoir operating rules based on the assessment of multi-purpose benefits of the storage. A reservoir simulation model should be developed to assess different combinations of multipurpose uses and project scenarios so as to derive an optimum water allocation solution, and to calculate the benefits in the economic analysis for each project scenario. Specifically, the Consultant should determine:

(a) The optimum reservoir size and operational rules;
(b) Efficient and economic uses of the reservoirs; and
(c) The life of the reservoir based on the assessment of multi-purpose benefits of the storage and appraisal of sediment carriage and deposit.

The operating rules should maximize the returns on investment in storage. The Consultant should consider the prioritized multipurpose uses of the reservoir and environmental flows.
The study should also explore the impact of climate change on the proposed projects and its intended outcomes and recommend adaptation and mitigations measures.

Task A 5-2: Topographical Surveys[3]

This task aims to establish:

(a) The configuration of the dam site and reservoir area;
(b) Accessibility to dam site;
(c) Accessibility to construction material sources and borrow areas, as a means towards confirmation of dam type and appurtenant structures selection; and
(d) Influence on type, layout, and downstream inundation in the selection of the spillway;
(e) The identification of sensitive areas that the ESIA study will have to consider.

The Consultant will carry out topographical surveys as a combination of various methods (on site surveys, numerical data bases, satellite imagery, etc.) to capture specific site features such as the proposed dam axis, spillway area, energy dissipation area, reservoir extent, surface area-volume-depth curves, river channel profiles, locations of proposed infrastructure for irrigation, hydropower, water supply, livestock, fish farming, watershed intervention areas, etc.
The survey will also capture site features such as existing infrastructure within the proposed project area (roads, buildings, bridges, power lines, etc.), trees and vegetation, rock outcrops, etc. Prospective borrow areas for dam and construction materials and aggregates shall be mapped at a scale 1:2,000. The consultant shall survey cross-sections of the river and its flood plain with the project area at intervals at locations deemed relevant for incorporation in the mathematical hydraulic model of the river (to be specified in the technical proposals) for purpose of routing floods in the event of extreme spillway releases. Topographic survey on the reservoir area extent shall be done to an appropriate scale with contour intervals of 1m up to an elevation of maximum water level + 6m.

The final output will be detailed and clear site maps (of a scale equal or better than 1:1,000 with 0.5m contour intervals (at locations selected dam site) and scales of 1:500 to 1:200 as applicable with contour intervals of 0.25 m (at locations of ancillary structures expected to cover about 0.5 km2), detailed Digital Terrain Model and high resolution orthophotos of the project areas. The dam cross section of both vertical and horizontal shall be prepared at a scale of 1:100 indicating the pertinent features of the head works.

[3] In the various sections of the TOR on topographic mapping, all of the topographic mapping exercises (including dam site, irrigation, and detailed for designs) may be undertaken at once – or separately, as desired

For further reference on the site, all the required benchmarks and stations shall be established using stable features and be properly connected with the national grid stations and benchmarks of the proposed dam site and near the intake structures of the irrigation system. The number of benchmarks will be proposed in the technical proposals. The method and results of topographic field surveys and mapping shall be duly reported.

Task A 5-3: Geological and Geotechnical Investigations

Geological investigations will be conducted during the feasibility stage to such a level for the technical features, dimensions and location of main infrastructures to be sufficiently accurate for minimizing changes and additional investigations during the further Phase of the tender design studies. Investigations will determine:

(a) The general geologic and tectonic setting of the site area by analysis of the lithology, stratigraphy, structural geology, and tectonic history in situ and through exiting relevant documentation;
(b) The geologic conditions related to selection of the dam site (rock type, overburden, fractures, bedding which have a strong influence on the need for foundation treatment and costs);
(c) The characteristics of the foundation soils and rocks;
(d) Other geologic conditions (such as faults) that may influence design, construction, and long term operation;
(e) Seismicity and earthquake intensity of the project area; and
(f) The sources of construction material in the vicinity of the project area.

The Consultant shall identify and geo-reference for illustration on maps, crucial soil and rock features, establish the engineering properties of rocks and soils, surficial deposits, and tectonic-structural patterns. The extent, depth, and type of exploration will depend on the complexity of the geology and size and type of dam as conceptualized by the consultant.

Field Investigations will include but not limited to:

(a) Exploratory boreholes and trial pits (main tool for investigation) for soil sampling and testing for engineering properties relevant for project design (permeability tests in boreholes, to be undertaken following accepted norms)
(b) Foundation investigation of dam axis including the spillway (incl. carrying out geophysical tests as needed, at selected intervals to obtain data on stratification and groundwater) energy dissipation area, intake area, river diversion works during construction, headrace tunnel, surge chamber, penstocks, power house site (caverns), substation, sources of construction materials, and infrastructure to the site; (iii) assessment of uncertainties arising from interpretation of geophysical results and their possible impacts on costs and site viability;
(c) Preparation of geological profiles for the dam foundation, abutments, reservoir rim area and potential project command areas, showing all the geological structures in place and inducing the potential permeability and stability;
(d) Preparation of geological map of the reservoir floor and rim, drawn to sufficient detail commensurate with the feasibility level to permit identification and assessment of potential leakage paths;
(e) Geo-reference possible sources of construction materials, and carry out tests to assess their engineering properties;
(f) Analysis of the tectonic/ seismic intensity of the area and recommend safety design measures (against sliding of dam slopes, settlements, sliding of abutments, liquefaction of foundations, cracking of dam body, loss of filter zones).

Additional boreholes may be required to develop geologic correlations and to determine the type of dams suitable for the site. The consultant could consider topping up selected boreholes with open type piezometers for monitoring pore water pressure and permeability.

The final output of this task will be a detailed Geotechnical Baseline Report - GBR which translates the results of the geotechnical investigations and previous experience into clear descriptions of anticipated subsurface conditions upon which contractors may rely at the time of bidding for the construction of the

scheme. It will contain the project geology/geotechnical aspects, with engineering properties used by the Consultant in the hydraulic and structural design of the dam. The report may also identify the additional information required to reach a satisfactory presentation of the geotechnical assumptions at the base of the design during tender design. The GBR will be updated as additional information is made available from the investigation campaigns and dedicated studies carried out during tender design stage of the studies. The final version of the GBR will be provided as part of the tender documents.

All investigations that the Consultant describes and quotes in his proposal will be specified according to international standards and criteria for hydroelectric dams such as those of FERC, USBR and ICOLD subsurface investigation criteria, guidelines and manuals, with improvements as recommended by the Consultant.

In its proposal, the Consultant is required to describe the investigations in details by providing description of the proposed activities, quantities that he estimates necessary, unit prices inclusive of mobilization/demobilization costs, transport and operation of equipment, staffing and associated logistics and conditions of execution.

Task A 5-4: Preliminary Engineering Design for the dam and appurtenant structures
Based on findings of investigations relating to the dam site, the Consultant shall:

(a) Carry out structural and hydraulic designs of the various dam components including foundations and abutments, dam structure, spillways, energy dissipating works, retaining walls, seepage control and internal drainage systems, river diversion works, intake, bottom outlet and gates, outlet works, terminal works; electro-mechanical system and components, dam instrumentation considering both structural and hydraulic safety;
(b) Prepare the layouts and drawings of the different project components using acceptable CAD software at appropriate scales allowing quantity measurements;
(c) Propose dam safety monitoring and management systems and corresponding instrumentation; and
(d) Prepare a schedule of quantities in line with Civil Engineering Standard Methods of Measurement (CESMM 4), for use in cost estimates and the economic and financial analysis of the feasibility study.

The Consultant will issue the corresponding report, showing the various assumption and parameters retained for the design and the dimensioning. The report will described the methods or computation tools utilized as well as their references. The schedule of quantities will be also provided in Excel format.

Task A 5-5: Preparation of Outline O & M, Instrumentation and Emergency Preparedness Plans (EPP)
In compliance with the Multilateral Development Institutions and International Instances guidelines, safeguards and operation procedures relating to Dam Safety Plans, the consultant will prepare:

(a) An outline of the dam Operation and Maintenance Plan;
(b) An outline of an instrumentation plan considering both structural and hydraulic safety (plan for the installation of instruments to monitor and record dam behavior and the related hydro meteorological, structural, and seismic factors, rationale for the instrumentation should be thoroughly documented) and
(c) An outline of the Emergency Preparedness plan (specifying roles of responsible parties when dam failure is considered imminent, or when expected operational flow release threatens downstream life, property, or economic operations that depend on river flow levels).

Task A 6: Infrastructure design for Small -Hydropower Development

The consultant will assess the potential and prepare feasibility level designs for development of a small hydropower plant, taking advantage of the hydraulic storage infrastructure and the water released for the irrigation schemes. For baseline data, reference will be made to the NBI comprehensive basin wide study of power options (2011) as well as the Regional power system master plan and grid code study conducted by the Eastern African Power Pool and EAC (May 2011). Given the small capacity of the

plant (estimated at 350kW but to be established by the Consultant) the distribution of electricity generated as well as the operation, management and maintenance of the plant will be likely taken over by the Rural Electrification Agency of Uganda. Detailed tasks will include the following:

Task A 6-1: Electricity sector and local network analysis
The Consultant will:

(a) Identify and map the current existing electricity transport and distribution networks in the area, including transnational connection systems and projects in progress or planned in Northern Uganda and in South Sudan;
(b) Enquire on the strategies and development plans of the concerned Rural Electrification Agencies in the 2 countries;
(c) Identify the agency that will take over the operation of the plant and the transport and distribution of electricity to targeted consumers;
(d) Establish with this agency the conditions for the take over and the operational constraints and requirements;
(e) Analyze the potential local power demand through a power market survey (incl. history and condition of market, trends and growth rates of various consumer groups, tariff and tariff policy, other supply options and their prices, etc.);
(f) Undertake a load forecast in the targeted areas that the plant can supply (incl. source of forecast, anticipated variation of load, distribution by geographical areas, scenarios and reserve requirements);
(g) Prepare a load-resource analysis for peak and average energy loads and resources (incl. identification of dates when power may be needed and impact of alternative assumptions on need for and timing of project); and
(h) Determine the need for and the timing of the hydropower generation from the power plant (incl. definition of the power system and comparison of projected loads with projected resources to determine the type, amount, and scheduling of power, considering on- and off-grid options).

Task A 6-2: Reservoir simulation for hydropower generation
The Consultant will conduct studies, computations and simulations for determining the size and capacity of the small power plant and its operation parameters. The tasks will cover:

(a) Determining the flow available for generation (as a result of competing demands, leakage and losses) and establish the duration curve (flow-duration curves, head-duration curves)
(b) Definition of the plant type and characteristics (tail water curve, storage-elevation curve, downstream flow requirements, range of expected heads and discharge series, effect of sediment on live storage and the loss of energy generation over time);
(c) Optimize energy output consistent with the reservoir simulation assessment established under previous task;
(d) Prepare discharge series that represent the flow available for power production, incl. definition of project operating criteria (operating constraints, downstream channel capacity constraints, etc.).

Task A 6-3: Energy potential analysis
The main tasks by the Consultant will be to:

(a) Determine the energy potential of the proposed site given the discharge series and other data developed. Documentation should include but not limited to: the type of analysis (duration curve vs. sequential routing method), model used as well as input assumptions (incl. alternative power installations studied, turbine characteristics, hydraulic capacity, efficiency, head loss, channel routing assumptions, generation requirements);
(b) Define power operation criteria including basis for selection of equipment (maximize firm energy vs. maximize average energy vs. maximize dependable capacity, etc., base load vs. peaking, total energy potential for the site, average annual energy, annual and peak demand months generation-duration curves.)

Task A 6-4: Evacuation Line alignment and Survey

The Consultant will undertake alignment and map the route of the evacuation line from the plant switchyard site to the substation which will be designated by the agency taking over the operation of the plant and the distribution of electricity to targeted customers. Based on this survey, plan-profile drawings will be produced and used to spot structures. Information on the plan and profile should include alignment, stationing, calculated courses, roads, streams, and swamps etc.

Task A 6-5: Preliminary design of power plant and evacuation line

(a) Identify a range of plant size and operating options for each developed dam alternative (dam heights, reservoir capacities, project layouts, etc.) informed by the power system requirements and marketability considerations, and select a range of options (operating modes, alternative methods for firming up peaking capacity, etc.);
(b) Analyze physical constraints (e.g. limitations on pondage available for shaping flow to follow demand pattern, etc.), and environmental and non-power operating constraints (e.g. storage releases for water supply, irrigation, flood control regulation, minimum "environmental" discharges for water quality and fish, etc.);
(c) Determine the dependable capacity and compute energy benefits for each developed dam alternative and on the basis of net benefit analysis, select the best plant size;
(d) Establish dimensions and prepare the main and auxiliary plant equipment and performance specifications for complete out fitting of the power plant;
(e) Prepare feasibility level designs, preliminary performance specifications of the power plant features including: civil works related to the power plant, the hydro-mechanical, and electro-mechanical works;
(f) Undertake preliminary design of the system for evacuation of electricity produced by the power plant into the market, including connection to the substation of the national grid. This will include: confirmation of design data (including but not limited to the transmission voltage, levelized current value, amortized life (40-50 years), location of evacuation line corridor, field effects of the transmission lines and environmental constraints) followed by conductor selection, consideration of wind loading, maximum tension determination, transmission towers, insulators, ruling span determination, spotting towers and magnetic effects. The study shall include an assessment of the reinforcement needs with the existing grid and suggest the corresponding measures to be implemented and correlated cost;
(g) Prepare technical layouts and drawings of the proposed power plant (including intakes, headrace and tailrace canals, penstocks, powerhouse, etc.) and evacuation line infrastructure using Computer Aided Design software;
(h) Prepare a schedule of quantities and cost estimates for the hydro-mechanical, electro mechanical and evacuation line, for input into economic and financial analysis.

Task A 7: Infrastructure Design for Auxiliary Water Resources use

The consultant shall assess the potential and undertake feasibility level designs of measures for auxiliary uses like livestock development, small scale hydropower, water supply, associated sanitation facilities and rural development infrastructure etc. These shall be done taking into consideration development plans and priorities of Uganda and South Sudan, or any other riparian issues that may arise because of the project. The Consultant will also incorporate technical, environmental and socio-economic aspects, in order to guarantee the sustainable use of the available resources. The detailed tasks will consider the following aspects:

Task A 7-1: Infrastructure Design for Livestock Watering

The aim is to examine and recommend possible options at feasibility level, for investments in improving productivity of livestock in the project area, to supplement incomes of the farmers. The Consultant should:

(a) Carry out a livestock resource assessment to determine the existing production levels, carrying capacities with respect to the available water and land resources, and also consult with potential livestock keepers/ herdsmen in the area;
(b) Assess current livestock physical infrastructure in the project areas;

(c) Assess the likely impacts on the livestock production after implementation of the identified multipurpose project;
(d) Recommend complementary investments that can improve livestock productivity including but not limited to, access to watering points, land and paths zoned for livestock and possibilities for the adoption of cropping patterns that have a significant amount of good quality residue for animal feed;
(e) Determine the water requirements for livestock development;
(f) Propose and outline measures, including cost estimates, which can be taken to develop livestock at each project area, to the extent that livestock can benefit from the proposed multipurpose project;
(g) Prepare preliminary designs and layouts for bulk transmission to the extent that livestock watering can benefit from the proposed irrigation development and watershed project.

Task A 7-2: Infrastructure Design for Water Supply Development

This sub-task will determine the potential for development or expansion of water supply for domestic, municipal and industrial uses, at and around the project area. The Consultant will:

(a) Establish the current levels of access to water for domestic, municipal, industrial use, etc.;
(b) Assess the functionality or service level of any existing water supply systems or water sources;
(c) Prepare feasibility level designs and layouts for bulk transmission to the extent that water supply can benefit from the irrigation development and watershed project;
(d) Assess the situation as far as sanitation is concerned and propose and design sanitation systems in association to the water supply schemes to be included in the project.
(e)

Task A 7-3: Design for Flood Mitigation Developments

The task objective is to assess the risk of flooding in the project area, potential damages from future flooding to the proposed project infrastructure, to irrigation and drainage system, hydraulic structures, and crops. The design of flood mitigation developments will derive from the findings and parameters established during the hydrological analysis under Task A 3.2. More specifically, the Consultant should:

(a) Collect all information available in records and with local communities on the history of flooding, severity and damage caused by floods in the project areas;
(b) Analyze hydro-meteorological records to assess the risk of flooding in the project areas with project situation;
(c) Evaluate the flood risk in upstream areas consequent to new water storage facilities;
(d) Identify major structural and nonstructural measures to prevent adverse impacts to communities, irrigation system infrastructure and crops in the project area and
(e) Prepare feasibility level measures, layouts and cost estimates which can be taken to avert floods under the planned project.

Task A 7-4: Design of Rural Feeder roads

There is a strong link between the poor state of rural infrastructure and rural poverty. The task objective is to design a rural road network to take into account marketing and social opportunities, within the framework of government road programs. Studies will include the survey and design of the rural road as well as stream crossings within the project area. The Consultant will map the recommended networks connecting the command areas and linking them to locations of settlements and primary points of access to the market or to storage, processing or commercialization facilities. The Consultant will prepare the guiding technical specifications for the execution of the feeder and access roads and will estimate the corresponding costs for incorporation in the economic feasibility computations.

Task A 8: Formulation of Upstream Sustainable Land Management Actions

The task objective is to take stock of the baseline status of the watersheds in the project areas and identify major interventions required to improve, protect and maintain the watershed in a healthy and sustainable manner, in order to address sedimentation risks related to future depletion of storage (reducing yield and flood attenuation capability); abrasion of outlet structures and mechanical equipment and increment of loads on the dam) in order to sustain the proposed infrastructure. This task has to be conducted in close coordination with the activities of the Watershed Management plans and

actions which are implemented by the Ministry of Water and Environment of Uganda under the guidelines dated May 2013 titled Framework and Guidelines for Water Source Protection (5 volumes).

The Consultant should (building on work undertaken under the Aswa basin identification studies and the Aswa GIS and information data base, 2012):

(a) Review watershed degradation hotspots in the catchments upstream;
(b) Identify current interventions being applied to combat catchment degradation, funding sources and the organizations involved;
(c) Using soils, climate and topographic characteristics delineate 14,300 ha of priority area for rehabilitation and management using satellite imagery, GIS or other techniques in the watersheds of the Nyimur project in both Uganda and South Sudan;
(d) Undertake a quick assessment of the current status of the watersheds based on an appropriate sample sub-catchment;
(e) Consult the people living in the sample sub-catchment to understand their level of dependence on the resources of the watersheds;
(f) Propose suitable soil, water and sustainable land conservation measures required to enhance the integrity and productive capacity of the watersheds; and
(g) Undertake preliminary designs of measures as well for proposed watershed improvement works in the upstream watershed to reduce erosion and sediment ingress into the reservoir, which would consequently improve water yields. This information will be used to estimate the associated impacts on the watershed and for financial and economic analyses.

Task A 9: Environmental and Social Impact Overall Appraisal

A comprehensive Environmental and Social Assessment – ESIA Study, with related ESMP and RAP is assigned to another consultant independently from these Feasibility Studies. Nevertheless, the Consultant is required to appraise the environmental and social aspects of the project including land acquisition and resettlement sensitivities in each project area and, through the consideration of alternate project designs, develop project proposals that avoid or minimize potential adverse environmental impacts. The options retained for the design as well as the location of infrastructures will be made in consultation with the consultant in charge of the ESIA study.
Specifically, the consultant should:

(a) Assess environmental and social impacts that could make the project non-feasible or financeable, or result in costs likely to exceed the intended benefits when mitigation is taken into account;
(b) Estimate the extent of resettlement and land and asset acquisition that would be associated with the project, and develop a preliminary concept of a development program for the area;
(c) Examine design alternatives such as changes in dam location, alignment, height, reservoir size, access road alignment, material sources (borrow areas), etc. and make comparison of such alternatives, in technical, economic, social and environmental terms, so that the best recommendations are passed on to the team members working on the engineering aspects for incorporation in the project designs.

The appraisal will be guided by the national environmental including land acquisition and resettlement related legislation, NELSAP preliminary Environmental and Social Management Framework and NELSAP Environmental and Social Guidelines, as well as AfDB safeguards.
The depth of the appraisal will be sufficient to adequately inform the development of alternate project designs, the selection and justification of the preferred alternative. Project alternatives that substantially convert or degrade important natural habitats should not be considered unless they include equivalent habitat restoration and maintenance within the project area or elsewhere. Design features to avoid adverse impacts, minimize land acquisition and involuntary resettlement, or enhance environmental/natural resource services are to be clearly noted in the description of preferred project alternatives, with suitable maps. Acceptability of the final project design will depend not only on its technical and financial feasibility, but also on its environmental and social suitability, including trans boundary considerations.

Under a separate contract, an independent ESIA study including an Environmental Management Plan EMP and Resettlement Action Plan RAP will be prepared for the projects as will be described in the final feasibility report. Thus, as part of that report, the Consultant should provide and exchange with the Consultant in charge of the ESIA, documentation of the environmental and social information and analyses used to design the projects, of the measures included to avoid or minimize adverse impacts, and of project plans to manage adverse impacts. In particular, the consultant shall collaborate closely (through liaison and regular meetings) with and provide support to the Consultant hired to conduct the ESIA, for the assessment of potential impacts and design of mitigation measures. Collaboration between the consultants will also focus on costing key items from the EMP for inclusion in the project costing. Other areas of collaboration/exchange of information will be determined from time to time, in order to enhance the quality of the study outputs.

Under this task relating to environmental matters, the Consultant will also assess the potential of the project for contributing to green growth economy. He will determine and substantiate how the project can help the 2 countries' economies and societies become more resilient as its multipurpose nature contributes to meet demands for food production, transport, housing, energy and water.

Task A 10: Considerations on Climate Change

The AfDB is currently rolling out a Climate Safeguard System (CSS) as a set of decision-making tools and guides that enable the screening of projects in vulnerable sectors for climate change risks and to identify appropriate adaptation measures to reduce vulnerability. As a result of the nature of the project, a preliminary assessment has classified the Nyimur Dam as a development which may be very vulnerable to climate risk (Category 1). This requires a detailed evaluation of climate change risks and adaptation measures, and the development of comprehensive risk management and adaptation measures which are to be integrated into the project design and implementation plans.

The consultant will also refer to the NELSAP Climate Mainstreaming Guidelines which have been established to be used by NBI and NELSAP technical staff and decision makers, but also by public officials and program and project managers, private sector interests and development agencies. They aim to provide the principles and steps to mainstream climate change into water resources programmes and water infrastructure selection and implementation.

The scope of activities to be performed by the consultant will include a detailed evaluation of climate change risks associated with the proposed Nyimur dam investment project described in the following:

(a) Carry out a review of available climate change policies, assessments and related projects in the 2 countries and identify critical knowledge gaps and uncertainties;
(b) Conduct analysis based on available information and confirm the initial CSS screening classification;
(c) Carry out a climate change and variability assessment, with a particular focus on (i) temperature, (ii) evapotranspiration, (iii) precipitation, (iv) the hydrological regime and (v) the incidents of extreme weather events;
(d) Prepare and select probable scenarios;
(e) Undertake hydrological modelling to determine changes to the flood regime and dam inflow caused by climate change;
(f) Estimate impacts and risks on the viability of the Nyimur Dam, including (but not limited to): (i) reduced inflows; (ii) higher reservoir evaporation; (iii) infrastructure damage due to changing flood regimes; (iv) changes to water borne diseases; (v) risks of eutrophication and salinization; (vi) risks to increased siltation;
(g) Estimate impacts of climate change on flood and drought in the catchment area downstream;
(h) Identify and discuss potential impacts of climate change on beneficial uses of water from the dam, including potential increase failure to meet design specifications (irrigation, hydropower, flood control, etc.);
(i) Estimate the additional costs for required infrastructure adjustments to manage climate change related risks;
(j) Estimate potential amounts of GHG emissions from the proposed reservoir, and the amount of GHG emission offset through the generation of energy from the hydropower plant;

(k) Advise the governments on possible alternative financing possibilities from dedicated climate change mitigation funds;
(l) Prepare a climate risk management and adaptation plan related to both design and operation and an Adaptation Evaluation Report.

Task A 11: Institutional Assessment

The objective of this Task is to design institutional arrangements for the proposed project to be sustainably implemented, operated and managed. The consultant will assess institutional constraints and opportunities for efficient management of irrigated agricultural production in the project area and adequate operation and maintenance of the project infrastructures. The institutional analysis will define the linkages with the current institutional set-up of the trans boundary water management and recommend implementation arrangements. This will cover:

(a) Assessment of the institutional (including environmental and social) capacity of local agencies supporting agriculture and delivering irrigation services;
(b) Assessment at the field level of the importance of and access to local groups and institutions for different socio-economic groups for both women and men;
(c) Assessment of private sector involvement in the agriculture sector (particularly in rural finance, input supply, machine leasing, output storage, agro-processing, and marketing, including the role of cooperatives and farmers' associations), and
(d) Likely implementation and operation arrangements for the potential project(s) including potential for Public-Private-Partnerships (PPP).
(e) Explore opportunities for various social groups (women and men), to participate in decision making processes.

Task A 12: Confirmation of Project Layout and Preliminary Design Report

The consultant will, based on the preceding tasks confirm the project layout, which will include:

(a) Updating and revision of design parameters;
(b) Evaluation of layout alternatives; clearly indicating the assumptions used;
(c) Preparation of the final desk project layouts (including main project components, irrigation command area, dam axis location and alignment, dam type, configuration, cross-sections, intakes and waterways, river transfer and diversion works, regulation works, etc.).

Following confirmation of the project layout, the consultant should prepare a preliminary engineering design report and optimize the layout of the main components.
At that stage, the Consultant will co-organize and participate to a workshop for presenting the project to NELSAP, the Country Task Teams and various stakeholders. The aim of the workshop is to validate the design parameters and the various selected/retained technical, institutional and organizational orientations relating to the project. The Consultant will prepare the necessary illustrative and descriptive material for the workshop (Project Information Memorandum, Power Point Presentations, etc.) and will validate the workshop agenda with the NELSAP team. He will also establish the minutes of the workshop and the workshop report as the basis for adjusting the design and orientations of the project resulting from comments and suggestions issued by the participants.

Task A 13: Construction Plans and Implementation Scheduling

The Consultant shall establish construction schedules for the implementation of the project components (dam, irrigation system, power station and outlet works). Apart from the construction items of the earthworks and concrete works for the main structures these schedules shall include activities such as mobilization, construction of access roads as well as routes to borrow areas, mapping and information on quantity and quality of borrow areas, establishment of the construction camp, provision of housing and transport facilities for supervising staff, construction packaging, work methods and preliminary labour force requirements. In the schedules the Critical Path Method shall be applied. Based on this the disbursement schedule of the project main components will be estimated as an input for the financial and economic analysis.

Task A 14: Preparation of Cost Estimates and Benefits

The consultant shall identify and value the costs and benefits that will arise with the proposed project for purposes of comparison with the situation as it would be without the project and determining the incremental net benefit arising from the project investment. This will involve preparation of financial cost estimates, for the various project options and components with expenditure schedules for capital costs, replacement costs, operation and maintenance, management costs, etc. for all activities and services. A summary of the financial and economic cost estimates should be provided in a tabular form and appropriately classified and discussed. All cost estimates must show the foreign and local currency requirements; taxes, subsidies should be identified and their implications analyzed; physical and price contingency allowances should be quantified appropriately for each component/activity of the projects. The consultant should prepare estimates of project benefits, which should include: direct/indirect benefits, tangible benefits (arising either from an increased value of production or from reduced costs), intangible benefits (such as new job opportunities, improved access to rural water supply, through availability of storage etc.). The consultant will also estimate secondary benefits created or costs incurred outside the project (using shadow pricing techniques/non market valuation), so that they can be attributed to the project investment, in the economic analysis. Residual values must be calculated. Specifically for the storage reservoir, the consultant will identify multi-purpose benefits deriving from upstream storage. They will propose a number of scenarios that differ in terms of the use of the stored water (irrigation, flood management, hydropower generation, municipal water supply, etc.) and that maximize the returns on investment in storage. Scenarios should include sensitivity tests involving climate change scenarios.

Task A 15: Economic and Financial Analysis

The Consultant shall perform the economic and financial analysis of the project for determining the usual indicators and parameters allowing further decision on the funding and implementation of the project. The Consultant will:

(a) compile and tabulate estimated incremental direct agro-economic financial benefit streams, prepared using constant prices (or suitably applied price projections if warranted) and appropriate assumptions; estimate likely build-up of agricultural production volumes over the years following the initial investments and likely future agricultural production trends in a without-project situation;
(b) undertake project economic and financial analysis using standard techniques (for the irrigated agriculture as well as other identified uses). This should include determination of the financial and economic viability of the project, by carrying out analyses to determine the net present value (NPV), cost benefit analysis (CBA; B/C ratio), Net benefit – investment ratio (N/K) and financial and economic internal rates of return (FIRR, EIRR), including different discount rates;
(c) The Consultant should also perform sensitivity analysis on important parameters (including calculation of switching values) to check their impact on the financial and economic viability. The consultant should clearly list what assumptions are made and which key developments are needed to reach FIRR and EIRR.

The key information for the project shall be presented in tabular format together with key environmental and social information. The Consultant should also provide documented analysis in Excel spreadsheets and based on this analysis make final recommendations on the way forward.

Task A 16: Feasibility Study Report

The Consultant will prepare a separate feasibility study report for the project, which shall document the feasibility study investigations carried out findings and information. The reports shall contain firm statements on the technical, economic/financial and environmental and social sustainability, and recommendations on project suitability and outlook, if necessary through a multi-criteria analysis. The reports shall include concise executive summaries to make the report more accessible to the public. The results of the investigations shall be compiled and appended in a separate volume of the feasibility studies. This volume will aim at evidencing that the amount of investigation carried out brings a sufficient understanding of the site conditions to finalize the project layout and cost estimate with an acceptable level of accuracy at feasibility level. The reports will form a decision point on whether to advance the studies (Phase B: Tender Design Studies), in case viable options have been identified, or

terminate the studies in case all options are non-feasible. In the former, the Consultant in consultation with the Client and stakeholders during the planed Workshop shall agree on the best design alternatives/layouts, for which tender/detailed designs shall subsequently be prepared.

5.2 Phase B: Tender Design Studies

Task B 1: Final Design & Tender Document Preparation

For the selected and agreed design alternatives/layouts, the Consultant shall prepare detailed final designs and tender documentation. The design report should include assumptions, analyses, conclusions and recommendations for the detailed designs of each project, as well as calculations and justification of the methods used for design, detailed organizational charts and schedules for implementation, drawings, bill of quantities, contract specifications, contract packages etc. Relevant annexure including the Geotechnical baseline report (described under the feasibility study) should be included. Detailed tasks include the following:

Task B 1-1: Detailed Topographic Surveys

In view to achieve a sufficient level of accuracy for the positioning of main infrastructures and to establish bills of quantities to be included in the tender documentation, the Consultant, within the scope of the Phase B should:

(a) Undertake detailed surveying works both at the dam sites, irrigable area and sites of collection of local materials and prepare a topographic map of the schemes area to scale;
(b) Prepare a topographic map of the dams at a scale not more than 1:500 and at a contour interval of not more than 0.5m, showing all the features upstream and downstream, right and left of the proposed site, including observation pits and material source areas;
(c) Prepare dam site cross-sections at vertical and horizontal scales of 1:200 indicating pertinent features to the head works;
(d) Prepare topographic map of the irrigation command area at a longitudinal scale of not more than 1:1,000 at a contour interval of not more than 1m for steep areas and not more than 0.5m for plain and undulating areas: the topographic map should also show major features in the irrigable area, i.e. including canals, water fetching points, settlements, cattle crossings, hills, etc;
(e) Establish benchmarks and connect them to national grid stations and benchmarks of the proposed head works;
(f) Prepare longitudinal profiles of the main, secondary and tertiary canals, main and secondary drain, at a scale of vertical 1:100 and horizontal 1:500. Grid survey of the irrigation plots at the recommended and specified grid interval whenever as required for land levelling work. The structures shall be presented on appropriate design drawings.

The structures shall include but not be limited to access roads, foundation excavation and treatment works, embankment zoning, dam instrumentation, concrete outlines and placement details, reinforcement details, construction and expansion joint details, block outs for mechanical installations and second stage concrete.

Task B 1-2: Detailed Geological and geotechnical considerations

Building on the Geotechnical baseline Report (GBR), the consultant shall update data series and if necessary additional/complimentary geological/geotechnical investigations (mainly with boreholes) shall be carried out to facilitate a responsible decision for “fine tuning” purposes during the final design. Further investigations will be carried out into the sources of construction materials and concrete aggregates. The suitability of the dam fill materials shall be tested for compaction and permeability. Aggregates shall be tested on the likelihood of developing Alkali Aggregate Reactions when applied to concrete structures.

Task B 1-3: Dam /Diversion Structures Design

The Consultant should prepare

(a) detailed structural and hydraulic designs for the dam site, spillway, intakes, bottom outlet, gates, energy dissipating mechanisms and other appurtenant structures with respect to maximum flood estimates and maximum scour depth with consideration of both structural and hydraulic safety;
(b) carry out detailed structural and hydraulic designs for the diversion structures with respect to maximum flood estimates keeping the geologic and geotechnical information into consideration; and
(c) update the cost estimates. The consultant will also prepare operating, maintenance and surveillance manuals (including rule curves) for outlet structures, for flood control, power and environmental releases.

Task B 1-4: Irrigation System Design
The Consultant will:

(a) Carry out detailed design and layout (at the appropriate scales allowing to establish accurate bills of quantities and allocation planning of individual parcels to individual farmers or associations/cooperatives of farmers) of the irrigation system and the associated hydraulic structures considering the total demand, economy and base flow availability. The designs will be compatible with the local management system conditions and/or capability and should include canals, drain night storages (if any) and road alignments, canal spacing and lengths, location of structures, and water profiles along canals and drains at specified reaches, which is most economical, easily manageable and aligned with topographic features and geological investigations; due attention should be given to the possibilities of crossing irrigation and drainage canals by human and livestock movements. The consultant will, in consultation with the client, the ESIA consultants and local community leaders select the locations of such crossings.
(b) Establish flood protection requirements for the command area and design the respective drainage system accordingly;
(c) Design the canal-lining requirements using the inputs from the engineering geology assessments;
(d) Prepare general plans and drawings for the dam site and all irrigation infrastructure;
(e) Design access roads, which will give easy access to all the irrigation blocks;
(f) Prepare specifications and priced bill of quantities and construction schedules accordingly. The work items and construction schedules will be presented to the Client and other stakeholders, for discussion and approval;
(g) Prepare operating and maintenance manual (including rule curves) for irrigation release outlet structures (gates).

Task B 1-5: Power Generation and Evacuation system design
The Consultant will:

(a) Prepare final power plant designs, specifications of the power plant features including: civil works related to the power plant, the hydro-mechanical and electro mechanical works;
(b) Prepare detailed designs and specifications (incl. conductors, cables, insulators, hardware, accessories, transmission towers and construction specifications) for the transmission line to evacuate electricity produced into the market;
(c) Prepare layouts of the proposed power plant (including intakes, headrace and tailrace canals, penstocks, powerhouse, etc.), and transmission line infrastructure using Computer Aided Design software;
(d) Prepare a schedule of quantities and cost estimates for the hydro-mechanical, electro mechanical and transmission works. The work items and construction schedules will be presented to the Client and other stakeholders, for discussion and approval.

Task B 1-6: Preparation of Draft O& M, Instrumentation and Emergency preparedness plan
Building on Task A 5-5 and with reference to AfDB guidelines on dam safety, the consultant will prepare the following broad framework plans (an estimate of funds needed to prepare the final detailed plan by the implementing firm will be made)

(a) A draft Operation & Maintenance (O&M) plan (containing: General Information; Salient Project Features; Operation Guidelines and Procedures; Monitoring Programme; Safety Inspections; Directory of Drawings, Records, Suppliers and Vendor Manuals and Appendices;
(b) A draft instrumentation plan;
(c) A draft Emergency Preparedness Plan (containing (a) issues of organization, communication, procedure for evacuation, local facilities, etc. and (b) Dam break analysis, Inundation map, emergency warning system and plan, safety equipment, warning levels and response matrix for different deficiency levels and other information specific to the reservoir).

Task B 1-7: Tender documents preparation
Under this sub-task, the Consultant will:

(a) Prepare tender documents for various contracts of land development, construction works of the dam, irrigation and drainage system, roads, and other infrastructure in lots which breakdown will be agreed with the client;
(b) Prepare tender document for the machinery and equipment.

The bidding documents should follow AfDB standard documents with inclusion of models for letter of invitation, general conditions of contract, particular conditions of contract and all templates for pricing, bank guarantees models and all usual forms for the constitution of a complete bidding documentation file.

6 Methodology and Standards

The Consultant will be expected to employ the most effective methodology and standards to achieve results with optimal national stakeholder involvement. In addition the Consultant will be expected to:

(a) Collect most data from review and analysis of existing secondary sources of information such as assessment reports and various other regional and relevant global publications;
(b) Prepare clear, concise and focused reports; and
(c) Ensure reports are delivered in time as per the agreement. International Standards shall be used for the feasibility studies, and their application shall be appropriately referenced. Examples of International design criteria to be referenced include: ICOLD dam design criteria to guide the definition of design floods, Selection of design flood: FEMA 2013; Loading, loading combinations, factors of safety (USBR Design of Small Dams); Sediment Management (RESCON 2003) and Seismic design parameters (Seismic Design Considerations for East Africa by Z. Lubkowski, K. Coates, M. Villani, N. Jirouskova and M. Willis).

7 List of reports, schedule of deliveries, and period of performance

The Consultant will produce the following reports and attend the related meetings:

Report	Workshop	Description	No of Copies
Inception Report (Month 2)	X (Month 2)	Contains the updated work plan, state of mobilization, refined work methodology and understanding of assignment, specify submission dates for each of the required technical reports in draft form, issues identified for Client's attention, proposed content and structure of the various reports. The proposed project schedule shall be broken down by tasks and sub-tasks and presented in Gantt chart form. A workshop will be held after month 2 to review and approve the report.	5 to NELSAP CU
Interim Report (Month 9)		The report will contain progress made, including details of the project area, links with existing institutions, lessons from similar projects, an assessment of constraints and opportunities, preliminary results from field investigations and surveys, socio-economic and environmental survey findings, geotechnical baseline report, preliminary findings of the various water use/water demand assessments, and relevant annexes. A meeting with the client will be held at Month 10 to	5 to NELSAP CU

Report	Workshop	Description	No of Copies
		review the report.	
Draft Feasibility Report (Month 15)	**X (Month 16)**	Covering Feasibility study of the selected design alternatives. It will contain a complete technical description of the recommended schemes, including justification, analysis, computation, drawings, figures and maps as well as detailed reports on all subjects treated in the scope of the study, such as social and environmental impacts of the project. A review meeting will be held in month 16 to discuss this report and will form a decision point on viability of the projects.	Submission by electronic mail
Feasibility Report (Month 18)		Covering Feasibility study of the selected design alternatives (incorporating Client's comments).	5 to NELSAP CU
Draft Tender Design Report (Month 20)	**X (Month 22)**	Details will include detail design report for the agreed Engineering works (dam/ head works, irrigation infrastructure, hydropower infrastructure, livestock watering and municipal water supply abstractions, system layout and farm and access roads); Tender documents and Design report and Construction drawings. A review meeting will be held after month 22 to discuss this report.	5 to NELSAP CU and on CD
Final Tender Design Report (Month 24)		Covering Detailed design study of the selected design alternatives (incorporating stakeholders' comments).	
Monthly progress reports – 1st week of every month		1-2 page maximum comprising a narrative and bar charts or other graphic presentation, showing details of the Consultant's progress, changes in the assignment schedule, impediments and proposed remedies will be submitted on a monthly basis. Reports should include a financial summary, indicating amounts invoiced, amounts disbursed, and any other pertinent financial details.	Submission by electronic mail

Three workshops will be organized to discuss the inception phase, the interim report and the draft design report. The workshops will be facilitated by the Client with the participation of the Consultant. At each workshop, the consultants will make PowerPoint presentations and provide concise reports for discussion.

Note: *The abovementioned workshops are different from the expected stakeholder public consultative meetings and/or workshops to be organized and facilitated by the Consultant in the project-affected areas for information gathering (as part of Consultant's fieldwork) and stakeholder review and comment on draft documents during the course of the assignment.*

8 Data and Services to be provided by the Client

Data and documentation on hydrological, meteorological, water quality and other relevant aspects of the NEL river basin which the project may have will be availed to the consultant; however, the consultant has the ultimate responsibility for collecting the required data and documentation which cannot be made available by the project from official sources. The Client will:

(a) Facilitate in establishing communication with the relevant institutions;
(b) Liaise and assist the consultant in obtaining any other information and documents required from other government agencies in the NEL countries and which the Client considers essential for conducting of the assignment;
(c) Provide assistance to obtain work permits for staff of the Consultant;
(d) Provide assistance in obtaining Customs and Tax Exemptions as detailed in Special Conditions of the Consultancy Agreement and General Conditions of Service;
(e) Arrange consultative meetings and ensure linkage with relevant regional authorities; and
(f) Provide any document listed in the annex on request that the consultant may require either for purposes of preparing bid documents or in the course of the feasibility studies.

The Consultant shall operate their own project office and shall bear all accommodation, local transportation, visas, and other costs necessary to carry out the assignment.

9 Qualification of the Consultant

The study team should comprise experienced professionals, and include national /regional/international consultants as necessary to ensure study relevance and effectiveness in light of prevailing local conditions. The team should reflect an appropriate mix of disciplines, education, skills and experience, an understanding of underlying development issues, and regional experience. The team should be made up of specialists each with a postgraduate degree in the relevant discipline and the required years of experience in undertaking studies related to large hydraulic infrastructure, irrigation development and watershed management projects. The areas of expertise required include: irrigation engineering and agriculture development, watershed management, rural development, civil/infrastructure/hydraulic engineering, dam and hydropower engineering, hydrology, financial and economic analysis, geotechnical/geological engineering, institutional analysis and environmental and social impact assessment including gender aspects. The Consultant may optimize their personnel to demonstrate the competences required for the assignment. The qualifications of the key experts are as follows:

Ref.	Position	Competences
1	Dam Design/ Civil Engineer (TL), (Regional/international) Team Leader	Postgraduate qualifications in Civil/Hydraulic Engineering, with a minimum of 10 years' experience in water resources planning and design and construction supervision of hydraulic structures such as dams, hydropower projects and irrigation systems.
2	Irrigation and Drainage Specialist (Regional/international) Deputy Team Leader	Postgraduate qualifications in irrigation Engineering with at least 10 years of work experience in the planning and design and construction supervision of irrigation and drainage systems.
3	Water Resources Planer (International/regional)	Postgraduate qualification in water resources management and planning and at least 10 years of experience in comprehensive planning of multipurpose water management projects in developing countries.
4	Hydropower Engineer (International/regional)	Postgraduate qualifications in Civil Engineering with specialization in the field of hydropower and at least 10 years of experience in the design and construction supervision of hydropower plants.
5	Agricultural Planner /Agronomist	Postgraduate qualifications in Agronomy and at least 10 years of experience in the development, design, construction supervision and advisory services for the operation of irrigation and agriculture/rural development projects in sub-Saharan Africa.
6	Geotechnical/materials specialist (Regional/international)	Postgraduate qualifications in Geotechnical Engineering and at least 10 years of experience of on-site geotechnical investigations, design and construction supervision of dams, dykes and large hydraulic infrastructure projects. The specialist will also consider the geological and seismology aspects for the design of the project.
7	Soil specialist/Pedologist (National/regional)	Postgraduate qualifications in soil sciences and at least 10 years of experience in soil and pedological investigations for irrigation projects, cultivation methods design and watershed management projects in sub-Saharan Africa.
8	Gender specialist	Postgraduate qualification in Social and Human sciences, fully conversant with recognized best practices in the domain and at least 5 years of experience of infrastructure development projects in developing countries. The Specialist will ensure that socio-economic and gender issues are appropriately included during the project preparation/design stage.
9	Agriculture Economist/ Financial specialist (National/regional)	Postgraduate qualifications in Economy and at least 10 years of work experience in economic and financial studies, analysis and assessment of agro-irrigation projects in sub-Saharan Africa.
10	Hydrologist/ Hydro-geologist (National/regional)	Postgraduate qualification in water resources /hydrology, and at least 10 years' experience in use of water resources models for surface- and groundwater assessments as well as experience in use of GIS/remote sensing in river basins. He will also cover the aspects of geology and seismology for the design of the Project in conjunction with Geotechnical specialist.
11	Social Development	Postgraduate qualifications in sociology, development studies or related

Ref.	Position	Competences
	specialist (National/regional)	fields. 10 years of work experience. The Specialist will ensure that socio-economic and gender issues are appropriately included during the project preparation/design stage.
12	Environmental Management specialist (National/regional)	Postgraduate qualification in Environmental management or related fields and at least 10 years work experience in Environmental Assessments. Knowledge of DFIs Social and environmental safeguards is a must.
13	Specialist of Climate Change aspects (International/regional)	Postgraduate in Environmental Management or International Development with specialization in the domain of sustainable development and climate change aspects. At least 10 years of work experience in the treatment of climate change aspects within the frame of large water management infrastructure projects in countries in Sub Saharan Africa. Must be conversant with guidelines, safeguards and best practices recommended by International Development Institutions as well as knowledgeable of tools, instruments and procedures for applications to mobilize funds and financing in connection with Climate Change and Environmental Protection.
14	Expert/specialist Tender Documentation (National/regional)	Graduated Civil Engineer or Technician with at least 5 years of experience in preparing Tender Documentation for large civil infrastructures and works in compliance with models and standard documents recommended in DFIs funded projects.

10 Costs and contract details

It is estimated that the study works/activities will commence in **June 2015 and take 24 months**. Proposals should indicate how the funds will be best utilized to achieve the objectives of the assignment. Whilst all of the Consultant' costs incurred in their participation, supporting the arrangement and running of national and regional workshops must be included in the consultant's financial proposal, the costs of holding the workshops themselves (costs of venue, participants' expenses such as transport and accommodation, materials etc.) will be met by the Client and should not be included in the Consultant's financial proposals. The costs of all other consultations, meetings etc. required by the Consultant to adequately complete the assignment must be included in the financial proposals.

11 Supervision arrangements

The Client is the NBI/NELSAP. The Consultant will be directly supervised by the NELSAP CU on behalf of the NBI. At the National level, the consultant will report to the Project National Focal Point (in the Ministries responsible for Water Resources and Irrigation)). Outputs of the study will be reviewed by the Dam safety Panel of Experts – POEs) recruited by NELSAP, who basically comprise (i) a hydrologist (ii) a dam design/construction engineer and (iii) a geotechnical/geological Engineer. The NELSAP CU will ensure close coordination with other regional projects, to ensure information exchange. Results from the study will be communicated to the **AWF** by the NELSAP CU. The Client will hold discussions with the Consultant at various stages of the consultancy to assess work progress, discuss constraints and possible interventions to ensure quality and meet deadlines.

12 Quality Management Requirements

The Consultant will be required to demonstrate in their proposal evidence of adoption of the use of a Quality Assurance System (ISO 9001 or equivalent), as well as describe how quality control will be implemented in the course of the project.

Appendix 1: Summary of key national development strategies

Policy /Strategy	Involved NEL countries	Overview
EAC Treaty (The Treaty was first ratified by Kenya, Tanzania and Uganda. Later, in 2007, Rwanda and Burundi became full members of the Community)	Burundi, Kenya, Rwanda, Tanzania, Uganda	The overall objectives of cooperation in the agricultural sector are the achievement of food security and rational agricultural production within the Community. To this end, the Partner States undertake to adopt a scheme for the rationalisation of agricultural production with a view to promoting complementarily and specialisation in and the sustainability of national agricultural programmes in order to ensure: (a) a common agricultural policy;(b) food sufficiency within the Community;(c) an increase in the production of crops, livestock, fisheries and forest products for domestic consumption, exports within and outside the Community and as inputs to agro-based industries within the Community; and (d) post-harvest conservation and improved food processing
Agriculture and Rural Development Policy for the EAC2006	Burundi, Kenya, Rwanda, Tanzania, Uganda	This policy overall objective is to achieve food security and rational agricultural production.
COMESA Agricultural policy2002	Burundi, Kenya, Rwanda, Uganda, DRC, S-Sudan	This policy overall objective is to achieve food security and rational agricultural production.
COMESA Comprehensive African Agricultural Development Programme (CAADP) 2003	Burundi, Kenya, Rwanda, Uganda, DRC, South Sudan	The CAADP has been endorsed by African Heads of State and Governments as a framework for the restoration of agricultural growth, food security and rural development in Africa within an integrated and coordinated approach
Agriculture and Rural Development Strategy 2005-2030 for the EAC2006	Burundi, Kenya, Rwanda, Tanzania, Uganda	This strategy is aimed at implementing the EAC Agriculture and Rural Development Policy.
National Irrigation Sector Framework Master Plan for Uganda 2010-2035,2011	Uganda	The potential role that irrigation could play in the broader context of the National Development Plan and the relevance of irrigation in terms of food security.
National Development Plan 2011-2015,2010	Uganda	Vision: a transformed Uganda society from a peasant to a modern and prosperous country within 30 years
Agriculture Sector Development Strategy and Investment Plan: 2010/11- 2014-15,2010	Uganda	"A Competitive, Profitable and Sustainable Agricultural Sector". Immediate objectives: a) Factor productivity (land, labour, capital) in crops, livestock, and fisheries sustainably enhanced b) Markets for primary and secondary agricultural products within Uganda, the region and beyond developed and sustained c) Favourable legal, policy and institutional frameworks that facilitate private sector expansion and increased profitability along the entire value chain developed d) MAAIF and Agencies functioning as a modern, client-oriented organisation within an innovative, accountable, support environment
Uganda National Rice Development Strategy (UNRDS) 2009	Uganda	The Coalition for African Rice Development (CARD) envisages to double Rice production in Africa in the next ten years following the TICAD IV declaration. Uganda is a member of CARD and the NRDS is its framework for achieving this objective.
Programme for Development of Infrastructure for Water	Uganda	The overall objective is provision of water for agricultural production in order to increase agricultural production/productivity and mitigate the impacts of climate change on rainfed agriculture

Policy /Strategy	Involved NEL countries	Overview
for Agricultural Production in Uganda2009		
National Irrigation Policy,2005	Uganda	The irrigation policy is to develop the large irrigated agricultural potential for the production of high value crops and food crops to ensure higher income and food security and raw materials needed for agro-industries, on efficient and sustainable basis without degrading the soil fertility and water resource base.
Operationalization of the rural development strategy for increased agricultural productivity2005	Uganda	The objectives of the RDS are: i) To increase farm productivity of selected commodities produced by households; ii) To increase household outputs of the selected agricultural products; and (iii) To promote value addition and ensure a stable market for these agricultural products (MFPED, 2005).

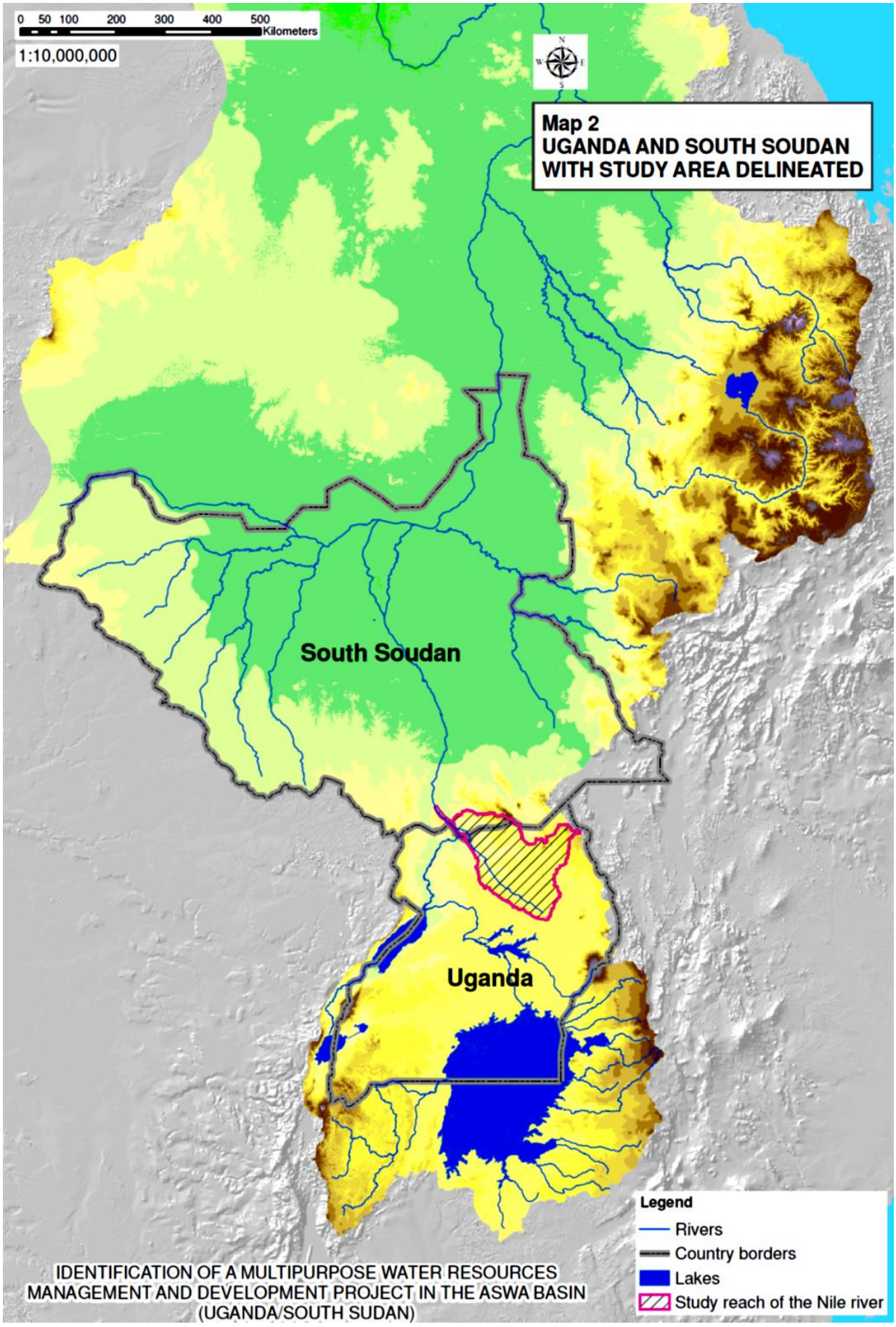
Appendix 2 Studies undertaken and reference Documentation

Study/Documentation	Description
1. Aswa basin situational analysis report	The Diagnostic / Situational Analysis establishes a comprehensive assessment for the management and development issues related to water resources within the Aswa basin with the aim of establishing the water resources development / management potential, opportunities and constraints in Aswa Basin
2. Aswa Basin Strategy	The Strategy') identifies strategic priorities and measures for managing the water and related resources of the Aswa River Basin in accordance with the national development goals and policies of Uganda and South Sudan and outlines or provides broad directions for an investment program. More particularly, the Strategy identifies specific development and management opportunities in connection with: watershed conservation and management, irrigation and drainage, hydropower generation, water supply for human and livestock, flood and drought control, wastewater management and environmental conservation. Based on the opportunities identified, it sets out a shortlist of multipurpose projects covering some or all of the above demands and needs and selects two priority projects, one in each country, to be presented to international donors for funding.
3. Aswa basin Investment Plan (BDP, 2012)	The Aswa Basin Multipurpose Basin Water Resources Development and Management Plan is an action plan comprising a portfolio of subprojects applicable to the year 2035, based on the development strategy. The investment plan comprises a prioritized set of investments in irrigation, watershed restoration and management, environmental protection, hydropower, domestic and industrial water supply etc. The plan was formulated within the context of development goals and key water related policies in Uganda and South Sudan.
4. Aswa Basin Mike basin model (2012)	A water budget and water allocation model for the Aswa basin was developed in MIKE BASIN, and is a useful tool in evaluating current and future water uses of the basin waters as well as guiding in rational decision-making in water resources issues within the basin. The model incorporates catchments with groundwater flow component, rivers, channels and water users including the hydropower and irrigation schemes The allocation model can be coupled to the Nile Basin DSS to access and utilize its extended decision support functionalities, such as catchment process modelling, multi-criteria analysis, cost benefit analysis, etc.
5. NELSAP Climate Mainstreaming Guidelines	The guidelines have been established to be used by NBI and NELSAP technical staff and decision makers, but also by public officials and program and project managers, private sector interests and development agencies. They aim to provide the principles and steps to mainstream climate change into water resources programmes and water infrastructure selection and implementation.
6. Nile basin Sustainability Framework (report) 2009	This is an agreed set of regional policies, guiding principles and strategies that defines how the Nile Basin countries will go about achieving their joint goal of sustainable socio-economic development as articulated in the Nile Vision. The purpose is to provide the integrated and organized means for facilitating the transformation of the Nile Vision into real, on-the-ground actions with a focus on ensuring sustainability.
7. Nile Basin Institutional Design study (Draft report) 2011	The broad strengthening process of NBI institutional and governance arrangements has two phases. Phase 1; the Institutional Design Study (IDS), estimated to take approximately 12 months, comprises institutional studies, analysis, and the generation of the first set of illustrative options for, (a) enhancement of the institutional architecture and governance arrangements of the NBI itself, and, (b) the first set of illustrative options for enhancement of regional collaboration and synergy. Phase 2, estimated to take at least 6 months, is a period of intense, facilitated dialogue intended to arrive at, and have Nile-COM formally endorse, the preferred option for both (a), NBI itself, and (b), regional collaboration.
8. Available information in the NB DSS data base2009	The compiled data for the NB DSS include the following subject to what each country could avail to the project. – Meteorological data: Rainfall, wind-speed, sunshine hours, temperature, and evaporation (covered periods vary from station to station). – Hydrology: Water levels, discharge measurements, station reference coordinates. – Digital elevation Models (30m Astrm and 90 m SRTM same as those available in the web); Catchment boundaries; Land use /cover:

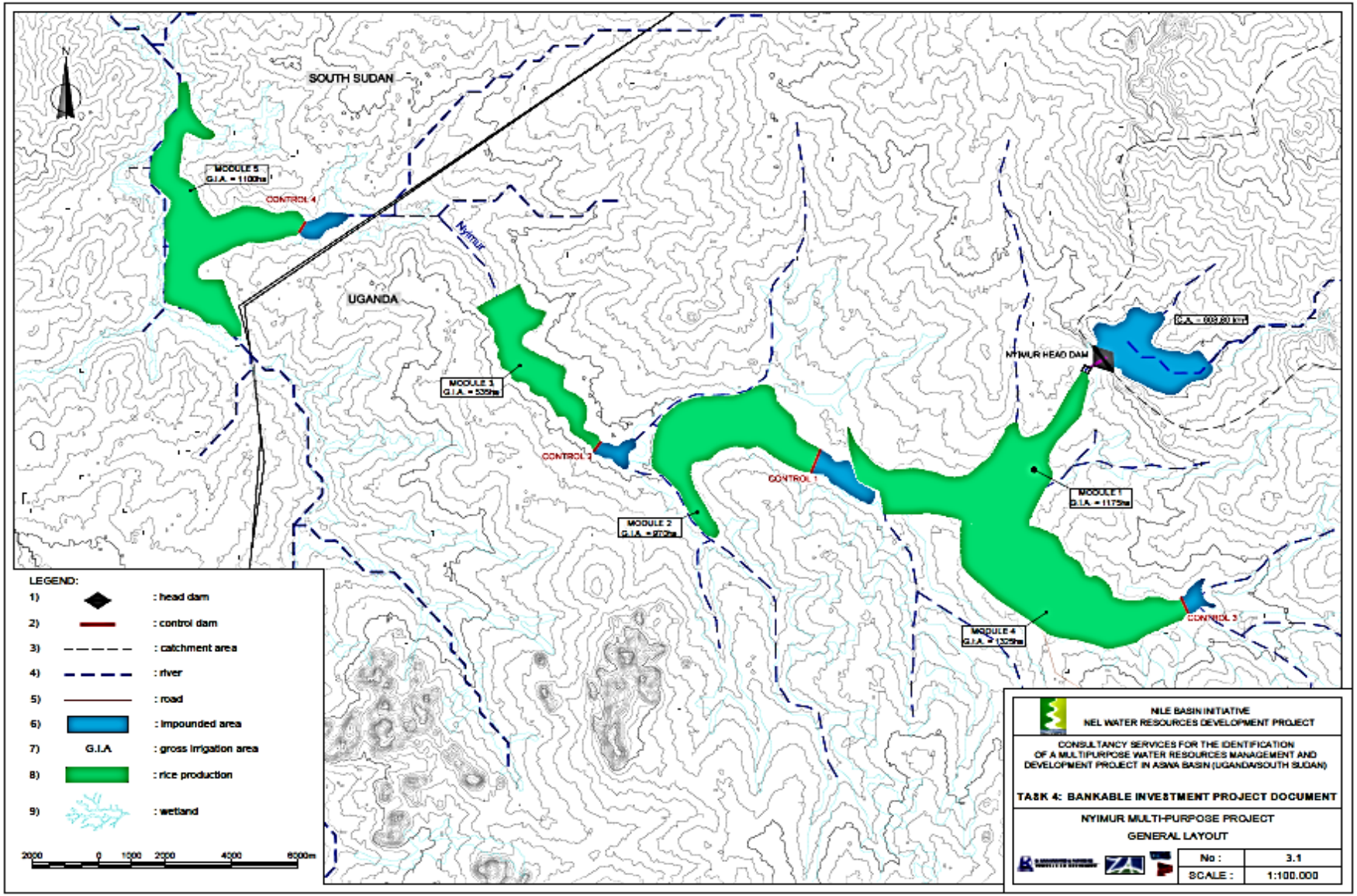
Study/Documentation	Description
	– Existing Hydropower stations and planned stations (the detail vary from country to country) – Irrigation schemes (size and location, crop type).
9. Large Scale Irrigation Practices in Nile Basin, Best practices, weaknesses and opportunities, FR 2009 by Wim Bastianssen	The study provides an overview of the performance of Large Scale Irrigation systems in the Nile Basin against internationally accepted standards and benchmarks and recommendations on how to improve the performance indicators. Good irrigation practices in the Nile Basin and areas that need to undergo improvement programs will be identified. Part of the outputs include an inventory of LSI systems.
10. Agricultural Water In The Nile Basin – An Overview, Final Report, Ian Mcallister Anderson (April 2008) 2008	The assignment contains a review, evaluation and compilation of an overview on agricultural water sector of Nile basin and related reports on best practices, stakeholders and future development perspectives.
11. Lake Victoria Environmental Management Project; Phase II (PAD) 2008	The development objectives of the proposed LVEMP 2 are to: (i) Strengthen regional and national institutions for coordination of sustainable management of the transboundary Lake Victoria basin resources; (ii) Facilitate environmentally friendly investments in the Lake Victoria Basin; and (iii) Enhance conservation of biodiversity and genetic resources of targeted fish species. The project duration is 8 years effective 2008.
12. Resource mobilization Framework(report May 2009) 2010	Framework that provides a set of coherent policy directions and strategic actions for implementation by NBI and specifically by NELSAP in order to be able to mobilize adequate and sustainable resources in a predictable and timely manner for financing NELSAP portfolio of investments *(available in soft and hard copy)*
13. Wetlands strategy 2010	The strategy addresses the need to protect the hydrological importance of the wetlands of the River Nile especially in storing water and regulating flow that ensures that River Nile always has water throughout the year. It proposes actions for restoration and reversal of Wetlands Degradation, which was highlighted as one of the major threats to management of the Nile Basin environment. *(available in soft and hard copy)*
14. Nile Basin Initiative Act 22,2002	An Act to confer legal status in Uganda on the Nile Basin Initiative, and otherwise give the force of law in Uganda to the signed Agreed Minute No. 7 of the 9th Annual Meeting of the Nile Basin States held in Cairo, Egypt, on 14th February 2002; and to provide for other connected or incidental matters.
15. NBI Strategic Action Program,2002	These are policy guidelines for taking the strategic action which is necessary to realize the potential of the Nile. Its objectives include: (i) to develop the water resources of the Nile Basin in a sustainable and equitable way to ensure prosperity, security and peace for all its peoples (ii) to ensure efficient water management and the optimal use of the resources (iii) to ensure cooperation and joint action between the riparian countries, seeking win-win gains (iv) to target poverty eradication and promote economic integration and (v) to ensure that the program results in a move from planning to action.
16. NELSAP Preliminary Environment and Social Framework,2009	The ESMF: (i) establishes clear procedures and methodologies for the environmental and social planning, review and approval of the projects to be prepared under NELSAP;(ii) specifies roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to projects;(iii) determines the training, capacity building needed to successfully implement the provisions of the ESMF and (iv) establishes the project financing required to implement the ESMF.
17. NELSAP Communication	The aim of this strategy is to promote dialogue through the institutionalization of a two-way information exchange between the NELSAP and its stakeholders.

Study/Documentation	Description
Strategy (2008), 2009	
18. NELSAP Project Selection Criteria,2006	NELSAP objectives are overarching criteria and these include: Poverty reduction; Reversal of environmental degradation and Economic development. Additional criteria as agreed by NELTAC in 2006 include: (i) have specific Country(ies) defined goals and anticipated measurable results that are clearly stated (ii) demonstrate benefits at a regional level (iii) ability to be up scaled (iv) demonstrate sustainable use of water resources (v) Commitment for significant public consultation and Stakeholder involvement and (vi) Economic and Financial viability and sustainability

Appendix 3: Maps of Uganda and South Sudan with Aswa basin delineated



Appendix 3: Map showing the Nyimur Multipurpose Project Layout



African Water Facility
Facilité africaine de l'eau
Mobilising Resources for Water in Africa
Mobiliser des ressources pour l'eau en Afrique

BANQUE AFRICAINE DE DEVELOPPEMENT
AFRICAN DEVELOPMENT BANK

Appendix A 5: Environmental and Social Impacts Studies Terms of Reference

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA), AND RESETTLEMENT ACTION PLAN (RAP) DEVELOPMENT

FOR

THE NYIMUR MULTIPURPOSE WATER RESOURCES PROJECT

UGANDA/SOUTH SUDAN

DRAFT TERMS OF REFERENCE

October 2014

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Appendix 2: Reference Documentation
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List of Acronyms

AfDB	African Development Bank
AWF	African Water Facility
ESIA	Environmental and Social Impacts Assessment
ESMP	Environmental and Socail Management Plan
FS	Technical, financial, economic, environmental, social and institutional Feasibility Studies
NBI	Nile Basin Initiative
NELCOM	Nile Equatorial Lakes Council of Ministers
NELSAP-CU	Nile Equatorial Lakes Subsidiary Action Program – Coordination Unit
PoE	Panel of Experts
RAP	Ressettelment Action Plan
TDS	Tender Desing Studies
WRD	Water Resource Development

1 Project background

The NELSAP[1], a cooperative investment program within NBI, was established to facilitate the identification, preparation and resource mobilization for cooperative investment projects at a sub-basin level within the framework of the NBI. The NELSAP CU has been the vehicle for a number of important diagnostic studies since 2001 and these have provided an excellent resource base for the project preparation for the riparian countries. The NELSAP CU prepared a regional NEL coordinated WRD program that was endorsed by the NELCOM at their 13th Meeting in Kinshasa (May 2009). A regional NEL coordinated WRD program to promote optimal development of shared resources would facilitate interdependent sub-regional growth by (i) fostering economic growth through related water sector development (ii) enhancing regional integration and contributing towards peace and development (iii) coordinating different interests in the region for mutual benefits and (iv) creating an investment environment that serves as a firm foundation for sustainable development and contributes to poverty alleviation. The project was consistent with Countries Assistance Strategies (CAS) and PRSPs both of which aim at strengthening governance and institutional capacity and increase sustainable management practices for reducing poverty.

Among the projects prepared under this program was the multi-purpose water resources project for the Aswa basin that aimed at identifying development opportunities within the basin. The project for which the feasibility studies are being sought for is one of the three prioritized projects selected by the two countries of Uganda and South Sudan to carry forward. The other two are the Moroto multipurpose water project and the Kitgum ground water supply scheme. The project was developed through a consultative process that involved consultations with the line ministries in both Uganda and South Sudan, local government officials at districts and sub-county levels. This was on realisation of the degraded catchment conditions, low productivity, low knowledge of the water resources base and break-down of relevant institutions due to the insurgency that existed in the area for over two decades.

The project comprises a community based irrigation scheme, water reservoir, a water and soil conservation component among other enabling sub components. The project will establish a water resources information/knowledge base and institutional development of the target project area. The core scheme of the project consists of a 26 m head dam and reservoir on Nyimur River and five (5) modules of irrigated lowland rice of approximately 5,105 ha. A mini hydropower plant with a capacity of 350 kW is included in the dam component. The scheme is designed to effect a permanent separation between the irrigation modules and cattle in a form of a protection zone (the "cordon sanitaire") 500 m wide that engulfs all irrigation modules and includes watering points for cattle in the periphery.

The project includes two intervention areas for the improvement of existing and construction of new rural water supply and sanitation infrastructure for a population of approximately 12,000[2]. In addition, it includes the establishment, in the sub-catchments, of areas where Sustainable Land use Management is practiced as well as afforestation activities for an estimated at 14,300 ha[3]. Information and knowledge base requirements will be established alongside the feasibility of the core project components.

2 Project rationale

The Nyimur River is one of the tributaries of the Aswa River. Over the previous years, the Aswa basin, both in Uganda and South Sudan, was theatre of armed conflict, acute social insecurity and mass displacement of populations from rural areas towards more secure congregated settlements. This in turn led to mass

[1] NELSAP member countries: Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, Uganda
[2] Estimates were based on 25 USD per person.
[3] Estimates were based on a unit cost of 70 USD/ha.

abandonment of agricultural land, poverty and famine and high reliance on food aid. The Aswa basin is host to a variety of livelihood systems including pastoral, agro-pastoral and pure farming societies. Competition for limited resources in the already insecure environment coupled with the widespread availability of guns lead to further opportunities for armed conflict. In terms of pressures on the environment, the social upheaval led to the degradation of abandoned agricultural land and intensive collection of firewood and unsustainable use of other natural resources near population centres. This resulted in deforestation, encroachment on and degradation of wetlands and overexploitation of other areas with natural vegetation. This has resulted in abject poverty in the area and likewise wildlife has suffered from hunting and loss of habitat.

Given the prevailing conditions, there is a need to:

- Mitigate the recurrent flooding and drying out problems by water storage and river regulation and thus allowing cultivation in the lowlands next to Nyimur River.
- Create a large base of a high productivity cultivation (irrigated low land rice) that will lead to a large increase in local income, make available enough produce to influence positively the construction of agro-processing facilities and the access to markets and also make substantial impact on the wider economic life of the area.
- Address poverty and lack of social development, which constrain agricultural intensification, through a labour intensive approach coupled with training and support;
- Improve water supply and sanitation infrastructure and thus contributing to better public health, improved livelihoods and cleaner water bodies.
- Strengthening trans-boundary cooperation between Uganda and South Sudan in water resources development and management.

Given the shared nature of the sub basin river system, a regional perspective on multipurpose water resources use, together with appropriate management interventions, to reduce the vulnerability of the riparian communities to extremes in rainfall variability, a multi-purpose water resources projects is being proposed for the following reasons:

- Substantial poverty reduction will not be possible without inducing economic development on a rather broad and massive scale. Given the current situation in the Aswa Basin this calls for some large-scale investments in infrastructure needed for flood control, irrigation and protective installations, facilitating enhanced utilisation of the available productive potentials by way of intensification and diversification of agricultural production.
- Focussing investments on such measures needed to reverse environmental degradation only, i.e. without regard of productive infrastructure, is economically not viable under the given conditions. Neither investment costs nor operating expenditure would be offset by revenues caused by their establishment and running.
- Inducing meaningful social development is hardly possible without investments geared towards achieving enhanced monetary returns per household from utilisation of productive infrastructure. Likewise, omission of investments in environmental protection would not lead to the desired impacts, since intensification and diversification options would be rather limited and risk levels (caused by instances of flooding and drying-out as well as by continued soil and water erosion) would not be lowered.
- Including a hydropower production component in projects otherwise focused on irrigation facilitates the involvement of private capital in the initial investment.

Larger projects allow a critical mass of agricultural production to be reached for markets to develop and agro-processing to become viable. At the same time, introduction of hydropower removes a main obstacle for the development of processing facilities.

3 Technical description of the main components of the project

As the uppermost project area in the Nyimur Sub-Basin there is need to retain a substantial amount of water at the top of the scheme, in order to secure availability of irrigation water also during extremely dry seasons and to prevent flushing too much water through the main river bed in extreme rainfall cases. Thus, this system would at the same time be a response to the effects of climate change, which results in higher frequencies and more pronounced intensities of extreme weather conditions, i.e. floods and droughts. In total the Nyimur River scheme would thus consist of 4 modules with a gross irrigation area of about 5,105 ha.

The proposed irrigation project would consist of five major installations and the irrigation infrastructure to be established downstream of each of them. Their locations can be seen in the map file attached to the Terms of reference. They can be summarized as follows:

a) A head dam (earth dam), capacity 44 MCM to the system combined with irrigation intakes and a power generation plant with a capacity of 350KW. Its location would in the main Nyimur River. Its width is estimated to amount to 796m and its height 26m. Downstream irrigation infrastructure would be ending at the beginning of the reservoir ahead the next control dam in the Nyimur Valley.
b) Four control dams, whose role would be to raise the water by approximately 3 m each in order to provide sufficient irrigation water availability also during the dry periods. The control dams include irrigation intakes to both sides of the river. Details include:
    - A control dam with irrigation intakes on the Ateng River, due South of the head dam (named control 3 in the map attached). Downstream irrigation infrastructure would also be ending at the beginning of the reservoir ahead the next control dam in the Nyimur Valley
    - A control dam with irrigation intakes in the Nyimur River, West of the head dam (named control 1 in the map attached). Downstream irrigation infrastructure would be ending at the beginning of the reservoir ahead the next control dam in the Nyimur Valley
    - A control dam with intake functions in the Nyimur River, downstream of the above irrigation infrastructure (named control 2 in the map attached). Downstream irrigation infrastructure would be ending at the beginning of the reservoir ahead the next control dam in the Nyimur Valley
    - A control dam with intake functions in the Nyimur River, downstream of the above irrigation infrastructure (named control 4 in the map attached). Downstream irrigation infrastructure would be ending shortly before the confluence with the Aswa River.
c) Other components include
    - A small hydro component which could be installed at the foot of the dam. The installed capacity is estimated at 350 KW. The yearly produced energy is estimated at 2,5 GWh approximately.
    - Sustainable Land Management (green infrastructure) activities in the sub-catchments upstream of the project.
    - Water supply and sanitation in main project area- improvements in infrastructure for safe water supply and sanitation in the sub-catchments of the project.

4 Objectives of the ESIA and Resettlement Action Plan (RAP)

The overall objective is to carry out an Environmental and Social Assessment and prepare a resettlement action plan for the Nyimur Multipurpose Water Resources development project. This will include establishment of a socio-environmental baseline, assessment of proposed development options, scoping; prediction of the magnitude and significance of environmental and social impacts, recommending mitigation measures for identified impacts, and devising how they can be incorporated into project design and implementation plans. The study will be undertaken within the framework of the Government of Uganda, South Sudan as well as AfDB safeguards. The project will also use the "NELSAP Environmental and Social Management Framework for Project Preparation and Implementation", which guides NELSAP in addressing and managing environment and social safeguards, public consultations, and disclosure.

A specific aspect of the project resides in that the project area concerned was deserted for a long time due to the conflict and the resulting insecurity in the region. The cultivated land and the villages were abandoned and existing infrastructure has quickly degraded. With the efforts by the 2 governments to reinstate peace and stability, the populations will return to their original settlements. Within that context, the project is a unique opportunity to organize and optimize this reinstallation. This will be achieved by the equitable and fair redistribution and re-allocation of land valorized by the project, the installation of new public infrastructures by the governments for education, health and administrative facilities. The ESIA will aim at achieving a fair balance of mitigation measures, incentives and compensations for both the displaced people (because of the reservoir development for example) and the reinstalled populations.
In this context, the Consultant will refer to the Grievance Redress Mechanism (GRM) in his approach and dialog with impacted populations and stakeholders as a tool for early identification, assessment, and resolution of complaints.

The specific objectives of the assessment are:

- To provide baseline information about the environmental, social, and economic conditions in the project area;
- To identify, analyze and evaluate the type and extent of likely potential environmental and social impacts with emphasis on significance, magnitude and distribution of beneficial/adverse effects of the planned project on the existing biophysical and socio-economic environmental components, and assess the capacity of the institutions responsible for management of these impacts;
- Evaluate the social and socio-economic aspects of proposed project, identify stakeholders, carry out public consultations, including potentially project affected persons, analyze their views regarding the environmental and social impacts, design social provisions and measures, formulate strategies for participatory implementation, and recommend the incorporation of the findings into the project design.
- To assess the best alternative project at most benefits and least costs in terms of financial, social, and environment.
- To develop an Environmental and Social Management Plans (ESMP). The ESMP shall outline the mitigation/enhancement, monitoring, consultative and institutional strengthening measures to prevent, minimize, mitigate or compensate for adverse environmental and social impacts and to enhance beneficial impacts, costs of the measures and monitoring requirements.
- To develop a Resettlement Action Plan (RAP) consistent with the laws and policies in South Sudan and Uganda as well as the World Bank's policy on Involuntary Resettlement and based on up-to-date information as produced and provided by the project feasibility studies.

The study findings and related Environmental and Social Management Plans (ESMPs), as well as the Resettlement Action Plans (RAPs) shall be prepared in a level of detail specific enough for downstream work towards project implementation.

5 Scope of work for ESIA and RAP

As a guidance for the Consultant's studies, the Appendix 3 provides a description of the thematic structure of the ESIA. However, it is indicative only and does not release the Consultant from its obligations to conduct the studies in compliance with the state of the art, the safeguards and guidelines recommended by international Development Institutions and the best recognized practices. The Consultant is also invited to deepen investigations and studies for aspects and domains that his surveys, enquiries and studies will identify as critical for this particular project.

5.1 Task 1: Establishment of a Socio-Environmental Baseline

5.2 Task 1.1: Description of the Proposed Project

The Consultant shall review existing documentation and provide and describe all project components including associated facilities and infrastructure (drawing from the conceptual project formulation from the feasibility study consultant). The description shall indicate components requiring land acquisition and resettlement; and give an overall estimate of land acquisition and resettlement. In addition, the description shall provide information on, but not limited to, the general design and extent of irrigation and drainage works including specifications of dam and reservoir, the other uses benefiting from the reservoir other that irrigation, size and characteristics of the catchment, and aspects related to operation and maintenance of irrigation schemes.

5.3 Task 1.2: Description of the Environmental condition of the Project Area

The baseline surveys are intended to provide a measure of existing environment and the socio-economic situation against which future changes due to the project can be monitored. The consultant shall describe and analyze the physical, biological and socio-cultural conditions prevailing in the project area, highlighting relevant environmental and social issues. The description will include the characteristic of proposed project area and cover areas potentially affected by impacts, the potential compensation area, and area affected by alternatives. Monitoring indicators will be developed.

The Consultant shall collect, evaluate and present baseline data and information on the relevant environmental characteristics of the present environment in the area of influence of the proposed dam and irrigation command area and related activities, determined from actual site visits, site specific and regional baseline studies in physical, biological, and socio-economic domains. Collection of baseline data should be designed to satisfy information requirements and focused on relevant aspects that are likely to be affected by the proposed project. In addition to field sampling, the consultant will review information from secondary sources, such as the Aswa basin situational analysis report, the Aswa basin strategy and investment plan, the Aswa basin bankable project document, the NEL Multi Sector Strategic Environment and Social report, and other relevant documentation.

Key socio-economic issues to be considered include demographic profile with social categories, number of households/families, types of housing, health and education profile, migration patterns, if any; Land ownership and holding; Existing cropping pattern of the project area and changes; Agricultural practices including traditional knowledge on endemic species; Improvement in crop production and productivity; Possible improvement in surface and ground water availability and benefits accrued to irrigated agriculture, drinking water use, and industries; Agricultural input pattern; Economics of cultivation; Non-agricultural practices such as poultry, livestock keeping etc; Employment profile; Income profile; Other economic activities prevailing in the region; Availability of social and economic infrastructure; Gender issues; revenue disparities, health problems, land use patterns and civil society structures. The level of detail should be sufficient to convey the general nature of environmental and social resources condition of the affected areas.

5.4 Task 2: Socio-Environmental Scoping

The Consultant shall carry out an environmental scoping exercise to define the important issues and impacts that need to be studied and confirm the ToR for the study. The scoping, which will involve stakeholder consultation will cover the physical, biological, socio-economic and cultural environments of the proposed project.

The exercise shall focus on the following areas amongst others:

- Impacts on the flora and fauna.
- Likely change in the river regime;
- Impact due to change in hydrological cycle;

- Impact on siltation preferably using quantitative techniques;
- Impact on water quality (surface and ground water);
- Impact on ground water levels and recharge potential;
- Impact due to change in waste assimilation capacity of the river system;
- Impacts on the drainage and water resources
- Impacts on landscape and general aesthetics,
- Impacts on recreation
- Erosion concerns and associated siltation
- Impacts on land use and agriculture
- Impacts on protected areas, swamps, as well as other relevant natural and critical habitats
- Impacts on cultural property
- Water issues for livestock purposes
- Impacts on property, settlements and community facilities
- Land uptake and resettlements;
- Disease burden and associated health impacts, HIV/AIDS issues, safety issues
- Induced development resulting from the implementation of the project
- Gender related issues
- Potential cumulative impact assessment issues, appropriate boundaries for analysis, and identifying relevant past, present, and future actions.
- Security implications.

As part of the scoping exercise, the Consultant will consult the affected population and other relevant stakeholders using an appropriate methodology. The outcome of the Public Consultations shall be recorded in the Scoping Report. The findings of these consultations will also be made accessible to the relevant stakeholders, including potentially affected persons.

5.5 Task 3. Policy, Legislative, Regulatory and Administrative Considerations

The Consultant shall identify and describe the pertinent regulations and standards - both local and international (AfDB safeguard policies, World Bank Safeguard Policies, identifying which of these should be triggered), governing the environmental quality, health and safety, protection of sensitive areas, protection of endangered species, land use control at the national and local levels and ecological and socio-economic issues. The examination of the legislation should include the relevant international conventions to which the governments are signatories. All applicable legislation, regulations, policies and standards in relation to the construction and operation the development should be highlighted. The consultant shall assess the relevant government agencies involved in environmental and social management issues, to ensure that the ESMP will be effectively implemented. Thereafter, the Consultant shall identify the project activities that should comply with the identified regulations.

5.6 Task 4: Determination of the potential impacts of the proposed projects

Following the scoping and baseline assessment, the consultant will predict and assess the environmental and social benefits and negative impacts of the Project as well as any environmental enhancement that may occur. The assessment will distinguish between positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts as well as impacts that are unavoidable or irreversible. Wherever possible, impacts will be described quantitatively, in terms of costs and benefits. For each potential impact, the consultant should determine the magnitude, the consequences (who it will affect and how), the probability of reversing the impact, and the probability that the impact can be avoided. Once the impacts have been analyzed, their significance will be determined, i.e., whether they are acceptable, require mitigation, or are unacceptable. Potential impacts will include but not limited to:

- Social and ecological effects of reservoir inundation (loss of agricultural, forestry and grazing land, population resettlement, impact on flora and fauna; impact on historic and cultural sites, effects on water resources outside and inside command area, etc.).
- Effects on the hydrology and water quality of the river
- Effects related to construction works: soil erosion; construction spoils (disposal of); sanitary conditions and health risks associated with construction camp and workers coming into the area; social and cultural conflicts between imported workers and local people.
- Effects related to project operation: pollution by agrochemicals impacts on soils (waterlogging, salinization, etc.); changes in groundwater levels inside and outside command area; changes in surface water quality and risks of eutrophication, potential for increased incidence of water-borne and water-related diseases.
- Effects on riverine fisheries and potential for creating a reservoir fisheries resource.
- Impacts of altering river flow regimes on the ecology of the floodplain, and the economic activities/land use on the floodplain (agriculture, livestock production, etc.).
- Impact of altering water supply on urban and rural users.
- Potential environmental and social impacts by planned and unplanned immigration into the area.
- Effect of existing and predicted land use in the watershed on the functioning and longevity of the dam, reservoir and the irrigation command area.
- Effects of climate change and variability on the planned project during project implementation. Reference will made to previous climatic studies undertaken by the NELSAP, as well as the NELSAP climate adaptation mainstreaming guidelines,
- Cumulative impacts and their contribution to the overall cumulative effect.

5.7 Task 5: Formulation of Mitigation Measures

The Consultant will formulate cost-effective measures to mitigate (preventing, minimizing, compensating or enhancing beneficial impacts) anticipated environmental and social changes and impacts during project implementation and operation, or further reduce the residual environmental and social changes inherent in the selected project design and propose optimized alternatives as necessary. The scope will include technical, social, and institutional measures to be implemented as integral elements of the project. The measures will inform technical designs of the project components (under the feasibility study). The extent to which the different mitigation measures will reduce the scale of impacts arising from the scheme will be evaluated, and unavoidable residual impacts identified. The measures will be incorporated in the Environmental and Social Management Plan (ESMP).

5.8 Task 6: Analysis of alternatives to the proposed project

The objective of comparative analysis will be to define the merits and demerits of realistic alternatives, thereby providing decision makers and the public with a clear basis for choosing between options. The consultant will assess alternatives that were examined in the course of developing the proposed project (by the feasibility study) and identify other alternatives which would achieve the same objective. The Consultant will systematically compare feasible alternatives to the proposed project site, technology, design, and operation--including the "without project" situation--in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. For each of the alternatives, the analysis shall quantify the environmental costs and benefits to the extent possible, and attach economic values where feasible. This will include analysis of (i) costs and benefits of environmental impacts; (ii) costs, benefits, and cost-effectiveness of mitigation measures; and (iii) discussion of impacts that have not been expressed in monetary values, in quantitative terms where possible (e.g. weight of volume estimates of pollutants).

5.9 Task 7: Preparation of Dam Safety Plans

The consultant shall prepare Dam Safety Plans covering all aspects related to the World Bank dam safety safeguard operational policy according (OP4.37), and the plans shall make an integral part of the ESMP. The plans shall include:

i) Operation and Maintenance Plan including the first impoundment and dam safety inspection procedures;
ii) Dam safety monitoring and instrumentation plan;
iii) Emergency preparedness plan; and
iv) Quality control plan

5.10 Task 8: Development of Environmental and Social Management Plan (ESMP)

The objective of this task is to describe how the mitigation and other measures to enhance the benefits of Environmental and social protection will be managed, who will implement them, and when and where they will be implemented. As part of the ESMP preparation, the consultant will assess the institutional needs required to implement environmental assessment recommendations and recommend steps to strengthen or expand them so that the management and monitoring plans in the environmental assessment can be implemented. The consultant will also prepare a detailed schedule to monitor the implementation of mitigation measures and the impacts of the project during construction and operation. The ESMP shall not only include recommendations for actions and the procedures for their implementation in the short and long term, but must also set out the costs for its implementation. It should show how management and mitigation methods are phased with project implementation and when costs will be incurred. The participation of various agencies, NGO and public organizations constitutes a key element of this study. The Environmental and Social Management Plan shall be discussed with all the parties concerned. The Consultant will show the extent of the consultations undertaken in order to obtain the opinion of these persons/organizations.

Elements to be included in the ESMP will include but not limited to the following:

- Summary of Potential Impacts
- Description of Planned Mitigation Measures (incl. dam safety requirements)
- Description of Planned Environmental Monitoring
- Description of Planned Public Consultation Process
- Description of the Responsibilities and Authorities for Implementation of Mitigation
- Measures and Monitoring Requirements
- Description of Responsibilities for Reporting and Review
- Work Plan including staffing chart, proposed schedules of participation by various members of the project team, and activities and inputs of various government agencies
- Detailed Cost Estimates
- Mechanisms for feedback and adjustment

Elements to be included in the Monitoring Program will include but not limited to the following:

- Realistic sampling program (temporal and spatial)
- Sampling methods relevant to source
- Collection of quality data
- Comparable new data with other relevant data used in environmental assessment
- Cost-effective data collection
- Quality control in measurement and analysis
- Innovations (e.g., in tracing contaminants and automated stations)
- Appropriate databases
- Multidisciplinary data interpretation to provide useful information
- Reporting for internal management and external checks

– Allowance for, and response to, input from third parties
– Presentation in the public arena (external assessment)

5.11 Task 9: Development of a Resettlement Action Plan (RAP)

The purpose of this task is to develop a detailed plan that lays out all the activities to be done to implement the resettlement program. The RAP includes and addresses the resettlement of people to be displaced because of the construction works as well as people who are returning to their original settlement that they occupied before the outbreak of conflicts in the region. The RAP will be developed based on up-to-date information about the number and characteristics of affected people, the impacts on the displaced populations and other adversely affected groups, resettlement alternatives and appropriate mitigation measures, as well as legal issues involved in resettlement. Using appropriate and standard methods, the RAP shall identify the full range of people to be affected by the project and justify their displacement after consideration of alternatives that would minimize or avoid dis- placement. It shall outline eligibility criteria for affected parties, establish rates of compensation for lost assets, and describe levels of assistance for relocation of affected households.

In addition, the RAP shall document elements including but not limited to:

– Identification of affected people and Impacts
– Socio-economic profile of communities within the project area eligible for compensation
– The legal framework for land acquisition and compensation; including i) Establishing rates of compensation; ii) determining eligibility for compensation and resettlement assistance including development initiatives aimed at improving the socioeconomic well-being of affected populations; iii) establishing mechanisms to resolve grievances among affected populations related to compensation and legibility
– An entitlement matrix listing all likely effects, both permanent and of temporary land acquisition.
– An compensation framework, which details compensation guidelines established by the host government, methodology for valuation, proposed types and levels of compensation to be paid, compensation and assistance eligibility criteria, which groups of affected people are entitled to which forms of compensation and how and when compensation will be paid;
– A description of resettlement assistance and livelihood restoration activities;
– Preparation of an institutional framework that designates responsibilities to prepare the detailed assets inventories, provide compensation, undertake relocation work, take responsibilities for income restoration, supervise, manage and monitor the implementation of land acquisition and resettlement. Recommend an institutional strengthening strategy and/or formulation and training of resettlement units in the executing agencies.
– Identification of alternative relocation sites, where affected person might have to be resettled.
– A description of organizational responsibilities for the different aspects of a resettlement;
– A framework for stakeholder engagement and development planning; taking into consideration the gender concerns and vulnerable groups
– Description of livelihood restoration mechanisms
– A description of the procedures for addressing complaints, disputes and grievances;
– An implementation schedule covering all resettlement activities from project preparation through implementation, including a description of the linkage between resettlement implementation and the initiation of civil works as well as agencies responsible for each activity.
– A budget comprising itemized cost estimates for all resettlement activities, including planning and implementation, management and administration, monitoring and evaluation, and contingencies; specification of sources of funding and approval processes.
– A monitoring, evaluation and reporting plan, with provision for corrective actions to address issues as they arise.

5.12 Task 10. Preparation of the ESIA Report

The consultant will prepare an Environment and Social Impact Assessment report, with the Baseline report, ESMP and RAP as appendices. The report shall be in the English Language and should be clear and concise. The Appendix 3 provides a guidance and example of the thematic structure of the report. The report should include but not limited to the following:

- Executive or non-technical summary;
- Introduction
- Policy, legal and administrative framework
- Project description and justification
- Description of the project environment
- Project alternatives
- Anticipated environmental impacts and mitigation/enhancement measures
- Environmental hazard management
- Environmental and Social Management Plan - ESMP
- Public consultations
- Conclusions
- Appendices
- Annexes (i) Baseline Report (ii) ESMP and (iii) RAP

6 Methodology and Standards

The Consultant will be expected to employ the most effective methodology and standards to achieve results with optimal national stakeholder involvement. In addition the Consultant will be expected to: (i) collect most data from review and analysis of existing secondary sources of information such as assessment reports and various other regional and relevant global publications (iii) Prepare clear, concise and focused reports and (iii) Ensure reports are delivered in time as per the agreement. A summary of some available reference documentation is attached as appendix 3, for ease of reference.

7 Reports and Schedule of Deliveries

It is envisaged that the assignment will take up to **10 calendar months**. The Consultant will report to the Program officer WRD at NELSAP, who will be responsible for approving the outputs. The Consultant shall prepare and submit the following reports and documents, in English, in an approved format to the Client. The Consultant will initially submit two copies of draft reports for comments by the Client and a soft copy. The comments of the Client shall be incorporated in the final version of the reports. The detailed schedule for the reporting is contained in Table 1 below.

Table 1: Reports and schedules of deliverables

ITEM	WORKSHOP	REPORT/DOCUMENT TITLE	CONTENT	NO. OF COPIES
A.1	**X (Month 2)**	Inception report and EIA Scoping report: Month 2	Contains the updated work plan, state of mobilization, refined work methodology and understanding of assignment, issues identified for Client's attention, EIA scoping report, proposed	5 to the NELSAP CU

			content and structure of the various reports. A meeting will be held after month 2 to discuss the report.	
A.2		Baseline report (Month 4)	Contains preliminary analysis of baseline environmental and social findings together with environmental and social impact scoping results with the relevant annexes	5 to NELSAP CU
A.3	**X (Month 8)**	Interim Report (Month 7)	Report covering Environmental and Social Impact Assessment (ESIA),	5 to NELSAP CU
A.4		Draft final report (Month 9)	Report covering Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plans (ESMP), as well as Resettlement Action Plan (RAP)	5 to NELSAP CU
A.5	**X (Month 10)**	Final ESIA & RAP report (Month 10)	Report covering Environmental and Social Impact Assessments, Environmental and social management Plan (ESMP) of the Project as well as Resettlement Action Plan (RAP)	10 to NELSAP CU and on CD
A.6		Monthly reports 1st week of every month	1-2 page maximum comprising a narrative and bar charts or other graphic presentation, showing details of the Consultant's progress, changes in the assignment schedule, impediments and proposed remedies will be submitted on a monthly basis.	Submission by electronic mail

Three workshops will be organized. The first will be conducted at the end of the inception phase. The second will be held to discuss the 2nd interim report. The third workshop will be organized after submission of the draft final report containing the ESIA, ESMP and RAP to discuss the report with stakeholders. The workshops will be facilitated by the Client. At each workshop, the consultants will make PowerPoint presentations and provide concise reports for discussion.

Note: *The abovementioned workshops are different from the expected stakeholder public consultative meetings and/or workshops to be organized and facilitated by the Consultant in the project-affected areas for information gathering (as part of Consultant's fieldwork) and stakeholder review and comment on draft documents during the course of the assignment.*

8 Data and Services to be provided by the Client

Data and documentation on hydrological, meteorological, water quality and other relevant aspects of the NEL river basin which the project may have will be availed to the consultant; however, the consultant has the ultimate responsibility for collecting the required data and documentation which cannot be made available by the project from official sources. The Client will (i) Facilitate in establishing communication with the relevant institutions (ii) Liaise and assist the consultant in obtaining any other information and documents required from other government agencies in South Sudan and Uganda which the Client considers essential for conducting of the assignment (iii) Provide assistance to obtain work permits for staff of the Consultant (iv) Provide assistance in obtaining Customs and Tax Exemptions as detailed in Special Conditions of the Consultancy Agreement and General Conditions of Service (v) Arrange consultative meetings and ensure linkage with relevant regional authorities. The Consultant shall operate their own project office and shall bear all accommodation, local transportation, visas, and other costs necessary to carry out the assignment.

9 Qualification of the Consultant

The Consultant should demonstrate past experience in conducting ESIAs and preparing RAPs for irrigation development and multipurpose water storage infrastructure projects for the last ten years. The team will be

led by a Senior Environmental Assessment Specialist with a clear strategic understanding of project objectives from a regional and multipurpose perspective. The areas of expertise required include: environmental and social impact assessment, large water and hydraulic works, aquatic and terrestrial ecology, public health, and public consultation. The Consultant may optimize their personnel to demonstrate the competences required for the assignment. The personnel of the Consultant should have a wide practical experience in the areas mentioned. The use of regional experts among the core personnel is required. The qualifications of the key experts are as follows:

	Position	Competencies
1	Team Leader / Environmental and Social Assessment Specialist/Expert	University Degree in Environmental Science or Natural Resource Management, Masters or higher qualifications would be an added advantage with at least 15 years of experience in managing ESIA studies for large and complex dam and irrigation development projects, preferably in East Africa. Familiarity with AfDB environmental and social safeguards policies is a necessity. The Expert will lead the overall effort on this ESIA project, and will provide specialist knowledge on all matters affecting the development of this ESIA and RAP. The expert will be responsible for preparation of the ESIA, overall coordination of support and expertise within the project team, coordination and gaining agreement with Environmental Agencies and other stakeholders, Panels of Experts with respect to delivering a positive ESIA, including scoping process and review process, as well as eventual trans-boundary ESIA aspects. The expert will have experience in designing and implementing public/stakeholder consultation and participation processes, especially for large water resource development projects in sub-Saharan Africa.
2	Flora and Fauna, Aquatic Ecology and Fisheries Specialist	University degree in Ecology, MSC or higher qualifications with previous experience in preparing EIA's. This should be a senior specialist with at least 10 years of experience in environmental assessments, management and the preparation of EIAs and EMPs. He/she should have experience from at least 5 comparable projects in the water Infrastructure. The specialist should have demonstrated experience in aquatic ecological assessments appropriate to dams and rivers, and preferably in sub-Saharan Africa.
3	Public Health Specialist	University degree in Public Health or Medicine, Masters or higher qualifications, with at least 15 years in preparing EIA's for major water infrastructure projects (incl. irrigation and drainage projects). The specialist should have demonstrated experience in water-borne and water-related diseases, rural sociology, and preferably in the region.
4	Sociologist/Anthropologist	University Degree in social sciences (anthropology, sociology, social work or economics), Masters or higher qualifications 10-15 years of senior experience in preparing and implementing social impact assessments, resettlement and compensation plans for large projects, preferably in East Africa. Familiarity with AfDB environmental and social safeguards policies is a necessity. The Social Expert will be responsible for social aspects of the process. She/he will describe socio-economic environment at the project area, and be responsible for identification and evaluation of potential social impacts and mitigation measures, including involuntary resettlement issues. She/he will head the sub-task team for the development of the RAP.
5	Socio Economist	Postgraduate qualifications in Economy and at least 10 years of work experience in economic and financial studies, analysis and assessment of agro-irrigation projects in sub-Saharan Africa.
6	Rural Development Planer	University degree in rural engineering and at least 15 years of experience in the region on rural and agro development projects with demonstrated knowledge of local conditions.

10 Contract Details

It is estimated that the work will commence in mid-2015 ***and take 12 months.*** Proposals should indicate how the funds will be best utilized to achieve the objectives of the assignment. Whilst all of the Consultant' costs incurred in their participation, supporting the arrangement and running of national and regional workshops must be included in the consultant's financial proposal, the costs of holding the workshops themselves (costs of venue, participants' expenses such as transport and accommodation, materials etc.) will be met by the Client and should not be included in the Consultant's financial proposals. The costs of all other consultations,

meetings etc. required by the Consultant to adequately complete the assignment must be included in the financial proposals.

11 Supervision arrangements

The Consultant will be directly supervised by the NELSAP CU on behalf of the NBI. At the National level, the consultant will report to the NBI National Focal Point. The NELSAP CU will ensure close coordination with other regional projects, to ensure information exchange. Results from the study will be communicated to the **AWF** by the NELSAP CU. The client will hold discussions with the consultants at various stages in the consultancy to asses work progress, discuss challenges and constraints being encountered and possible interventions to ensure adherence to quality and deadlines. At each stage the consultant will produce brief progress reports on the status of the work for the clients' records.

12 Quality Management Requirements

The Consultant will be required to demonstrate in their proposal, evidence of adoption of use of a Quality Management System as well as to describe how quality control will be implemented in the course of the project.

13 Scope of Services, Nature and Timing of Future / Downstream Work

Future downstream work will include implementation of physical infrastructure development projects. This will involve tendering and construction supervision works for the physical works. The outputs of this assignment will provide the basis for the detailed design and costing and mobilization of resources for implementation of identified interventions.

Appendix 1: Map showing the Nyimur basin, within the Aswa basin

Appendix 2: Reference documentation

The list below is not exhaustive and the Consultant is invited to effect his own research and identification of informative documentation which are of relevance with the project. The Consultant will quote all the reference documentation in an appendix to the study reports.

Study/Documentation	Description
19. Aswa basin situational analysis report	The Diagnostic / Situational Analysis establishes a comprehensive assessment for the management and development issues related to water resources within the Aswa basin with the aim of establishing the water resources development / management potential, opportunities and constraints in Aswa Basin
20. Aswa Basin Strategy	The Strategy') identifies strategic priorities and measures for managing the water and related resources of the Aswa River Basin in accordance with the national development goals and policies of Uganda and South Sudan and outlines or provides broad directions for an investment program. More particularly, the Strategy identifies specific development and management opportunities in connection with: watershed conservation and management, irrigation and drainage, hydropower generation, water supply for human and livestock, flood and drought control, wastewater management and environmental conservation. Based on the opportunities identified, it sets out a shortlist of multipurpose projects covering some or all of the above demands and needs and selects two priority projects, one in each country, to be presented to international donors for funding.
21. Aswa basin Investment Plan (BDP, 2012)	The Aswa Basin Multipurpose Basin Water Resources Development and Management Plan is an action plan comprising a portfolio of subprojects applicable to the year 2035, based on the development strategy. The investment plan comprises a prioritized set of investments in irrigation, watershed restoration and management, environmental protection, hydropower, domestic and industrial water supply etc. The plan was formulated within the context of development goals and key water related policies in Uganda and South Sudan.
22. Aswa Basin Mike basin model (2012)	A water budget and water allocation model for the Aswa basin was developed in MIKE BASIN, and is a useful tool in evaluating current and future water uses of the basin waters as well as guiding in rational decision-making in water resources issues within the basin. The model incorporates catchments with groundwater flow component, rivers, channels and water users including the hydropower and irrigation schemes The allocation model can be coupled to the Nile Basin DSS to access and utilize its extended decision support functionalities, such as catchment process modeling, multi-criteria analysis, cost benefit analysis, etc.
23. NELSAP irrigation potential assessment study (2012)	This was a preliminary study undertaken through the concluded NELSAP Regional Agricultural and Trade Productivity (RATP) Project, covering the countries of Burundi, Eastern DR Congo, Kenya, Rwanda, South Sudan, Tanzania and Uganda. The study identified irrigation potential of 105,400 ha in Burundi; 99,900 ha in Rwanda; 14 million ha in Tanzania; 3 million in Uganda; 500,000 ha in South Sudan and identified some focal areas for downstream irrigation studies and development.
24. NEL multi-sector investment opportunity analysis (2012)	This was undertaken by NELSAP for the Nile Equatorial Lakes Region, and it identified and prioritized development potentials and constraints for the region's water resources. Through a regional water resources assessment, review of sectorial, national and regional plans, and other assessments, it established development scenarios and optimal thresholds for viable development of various regional WRD interventions, including irrigation and hydropower, within the NEL region. Its final outputs included a NEL Basin Planning Model and a regional water investment strategy to guide the future regional WRD developments. It established that optimal irrigation potential of 36,000 ha for Burundi; 62,000 ha for Rwanda; 510,000 ha for Tanzania and 2.28 million ha for Uganda.
25. Available information in the NB DSS data base 2009	The compiled data for the NB DSS include the following subject to what each country could avail to the project. • Meteorological data: Rainfall, wind-speed, sunshine hours, temperature, and evaporation (covered periods vary from station to station). • Hydrology: Water levels, discharge measurements, station reference coordinates. • Digital elevation Models (30m ASTER and 90 m SRTM same as those available in the web); Catchment boundaries; Land use /cover:

Study/Documentation	Description
	• Existing/planned power stations (the detail vary from country to country) • Irrigation schemes (size and location, crop type).
26. Large Scale Irrigation Practices in the Nile Basin, Best practices, weaknesses and opportunities, Final report January 2009 by Wim Bastiaansen, 2008	The study provides an overview of the performance of Large Scale Irrigation systems in the Nile Basin against internationally accepted standards and benchmarks and recommendations on how to improve the performance indicators. Good irrigation practices in the Nile Basin and areas that need to undergo improvement programs will be identified. Part of the outputs include an inventory of LSI systems.
27. Agricultural Water In The Nile Basin – An Overview, Final Report, Ian McAllister Anderson (April 2008)	The assignment contains a review, evaluation and compilation of an overview on agricultural water sector of Nile basin and related reports on best practices, stakeholders and future development perspectives.
28. Resource mobilization Framework report (May 2009)	Framework that provides a set of coherent policy directions and strategic actions for implementation by NBI and specifically by NELSAP in order to be able to mobilize adequate and sustainable resources in a predictable and timely manner for financing NELSAP portfolio of investments *(soft copy)*
29. NBI Strategic Action Program, 2002	These are policy guidelines for taking the strategic action which is necessary to realize the potential of the Nile. Its objectives include: (i) to develop the water resources of the Nile Basin in a sustainable and equitable way to ensure prosperity, security and peace for all its peoples (ii) to ensure efficient water management and the optimal use of the resources (iii) to ensure cooperation and joint action between the riparian countries, seeking win-win gains (iv) to target poverty eradication and promote economic integration and (v) to ensure that the program results in a move from planning to action.
30. NELSAP Preliminary Environment and Social Framework, 2009	The ESMF: (i) establishes clear procedures for the environmental and social planning, review and approval of the projects to be prepared under NELSAP;(ii) specifies roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to projects;(iii) determines the training, capacity building needed to successfully implement the provisions of the ESMF and (iv) establishes the project financing required to implement the ESMF.
31. NELSAP Project Selection Criteria (2006)	NELSAP objectives are overarching criteria and these include: Poverty reduction; Reversal of environmental degradation and Economic development. Additional criteria as agreed by NELTAC in 2006 include: (i) have specific Country(ies) defined goals and anticipated measurable results that are clearly stated (ii) demonstrate benefits at a regional level (iii) ability to be up scaled (iv) demonstrate sustainable use of water resources (v) Commitment for significant public consultation and Stakeholder involvement and (vi) Economic and Financial viability and sustainability
32. NELSAP Gender Mainstreaming strategy (2008)	The strategy provides the NELSAP with operational guidelines on how gender principles will be mainstreamed within projects. The strategy forms an integral part of projects activities and aims at providing a minimum view of the gender goals and to facilitate a process of learning and increased capacity to analyze and mainstream gender in the course of the work.

Appendix 3: Thematic structure of the ESIA

This Appendix is provided as a guidance for the Consultant for conducting the studies and for establishing the ESIA report. It only gives an example of the structure of the ESIA report but does not limit the scope of the studies to the listed subjects, the Consultant remaining responsible for including, developing and deepening other aspects and domains that his surveys, enquiries and studies will identify as critical for the particular project.

1. Policy, Legal and Administrative Framework

This chapter concerns the policy, legal and administrative framework within which the ESIA is carried out. It presents the relevant environmental and social policies of the national (in Uganda and South Sudan) legal requirements and related constraints (e.g. practices that may discriminate or exclude any stakeholder group) relevant to the project. It provides information on the environmental requirements of any co-financiers, and identifies relevant international environmental/social agreements to which the 2 countries are signatories.

2. Project Description and Justification

The first part of this chapter shall describe the proposed project and its geographic, ecological, social, economic and temporal context: project location, various project components, capacity, construction activities, facilities, staffing, working conditions, availability and source of raw materials, production methods, products, schedule of works, land tenure, land use system, potential beneficiaries, affected groups (directly and indirectly), and offsite investments that may be required. It shall at least include a map showing the project location and area of influence.

The project justification should be based on combined economic, environmental and social assessments. To this end, this chapter shall describe the current situation in the sectors concerned by the project, explain the problems or the needs to be satisfied and present the constraints associated with the project implementation. The technical features of the project (layout, location of main works, capacities and size, technical and operational specifications, etc…) will derive from the Feasibility Studies performed by the technical Consultant, thus requiring that both Consultants exchange, discuss and harmonize the findings of their respective studies and activities

3. Description of the Project Environment

This chapter shall first determine the limits of the study area that shall be defined in order to encompass all project direct and indirect impacts. The description and analysis of the physical, biological and human conditions shall address relevant environmental and social issues within this area, including any changes anticipated before project implementation.

Within the human environment, key issues that shall be considered include population characteristics and trends, revenue disparities, gender differences, health problems, natural resource access and ownership, land use patterns and civil society organisation level. A particular attention shall be given to the rare, threatened, sensitive or valorised environmental and social components.

The information presented shall be relevant to decisions about project location, design, operations as well as environmental and social management. Maps, figures and tables shall be included in this chapter to better illustrate the various environmental and social components.

4. Project Alternatives

This part of the ESIA Report consists in analysing the various feasible alternatives of the project, including the "without project" option and the option of replacing the dam with other investments in the catchment to satisfy and achieve the same objectives. The selected alternative shall be the most environmentally and socially sustainable, taking into account the technical and economic feasibility.

5. Anticipated Impacts and Mitigation/Enhancement Measures

This chapter presents a detailed analysis of beneficial and adverse impacts of various components of the selected project alternative on the physical, biological and human (social, cultural and economic) environments. The below long-list of impacts and concerns of different relevance for the Nyimur project will serve as a check list for the assessment of E&S impacts.

- Increase in economic activity and employment;
- Induced development due to new opportunities such as in fisheries and dam related projects (irrigation, hydropower, etc.);
- Possible disruption of existing activities particularly floodplain agriculture and artisanal fisheries downstream;
- Loss of livelihood for those who are living and/or cultivating the land in the flooded areas;
- Disruption of activities in catchment areas, particularly if they represent potential sources of pollution for the reservoir;
- Development of additional skills for those taking advantage of new opportunities;
- Uncertainty and increased perturbations due to a lack of information and communication;
- Development of new infrastructures;
- Destruction of existing infrastructures in the dam and reservoir area;
- Reliable water supply for irrigation, domestic and other uses;
- Contamination of domestic water supplies due to the mismanagement of the reservoir;
- Increased pressures on existing social services due to migration and resettlement;
- Degradation of air quality by dust, heavy machinery atmospheric emissions and waste disposal and increase in ambient noise during the construction period;
- Flood control, design of cofferdams and temporary diversion works;
- Interruption of surface water flows during and after construction;
- Changes in the level of groundwater table resulting from changes in the drainage and water flow;
- Contamination of surface and underground waters an soils by spilling of wastewater and hazardous materials;
- Alteration of water flow downstream impairing agricultural activities on floodplains;
- Proliferation of aquatic weeds in reservoir and downstream impairing dam discharge, irrigation schemes, navigation and fisheries;
- Degradation of the reservoir water quality;
- Runoff erosion resulting in sedimentation problems;
- Landslides and other types of soil movements in the works areas;
- Soil compaction and erosion during construction;
- Soil erosion and potential landslides due to water level changes in the reservoir;

- Loss of productive soils by flooding;
- Soil destabilisation as a result of excavation;
- Destruction of ecosystems of particular interest;
- Degradation of ecologically sensitive areas;
- Loss of biodiversity;
- Destruction of vegetation;
- Loss of forest products (fuel wood, timber, non- timber forest products, medicinal plants);
- Impact on the fish species;
- Creation of a new fish habitat in the reservoir facilitating fisheries development;
- Loss of existing wildlife and fish habitats;
- Disruption of wildlife migrations;
- Increase in poaching due to non-resident workers;
- Adverse impact on fishes due to changes in water flow and limnology, disruption of fish migrations, and degradation of water quality;
- Loss of sites of cultural, archaeological or historical importance by flooding/impounding;
- Loss of productive land and natural resources in impounded areas;
- Disruption of natural resources exploitation activities, particularly fisheries;
- Derangement of livestock grazing and traditional agriculture, particularly flood recession agriculture;
- Insufficient arable land to satisfy subsistence agricultural needs;
- Loss of territory for local populations;
- Changes in land and water uses, access and rights, that can lead to social conflicts;
- Increased pressure on natural resources due to migration;
- Social conflicts associated with the venue of migrant workers and new settlers (divorces, ethnic tension, etc.);
- Degradation of the visual quality of the landscape due to land clearing, construction works, new infrastructures, etc.
- Health and safety impacts;
- Etc.

The methodology of assessment, based on a rigorous scientific method, shall be first presented. Then all environmental and social, direct and indirect, short and long-term, temporary and permanent impacts shall be described and assessed, indicating their importance level and their probability of occurrence. The importance level may be assessed on the basis of the nature, extent, intensity and duration of the impact, as well as on the sensitivity of the concerned environmental and social components and perceptions of the public. Irreversible or unavoidable impacts shall be clearly identified. Cumulative effects shall also be addressed taking into account other projects or actions planned in the study area.
Appropriate mitigation measures shall be identified to prevent, minimise, mitigate or compensate for adverse environmental and/or social impacts. Moreover, enhancement measures shall be developed in order to improve project environmental and social performance. Roles and responsibilities to implement measures shall be clearly defined. The cost of the measures shall be estimated, including the cost for environmental and social capacity building and gender mainstreaming, if necessary. Residual impacts shall be presented.

The below long-list is meant to serve as a guiding check-list for the assessment of E&S impacts and mitigation measures.

- Give preference to local employment (men and women) and local inputs (food, basic material) to the extent possible;
- Offer appropriate compensations or alternative income opportunities to men and women having a

reduced access to or loosing productive means;
- Ensure that the poor and other vulnerable groups can continue to safely satisfy their basic needs;
- Provide adversely affected people, men and women, with the training required to benefit from new opportunities;
- Plan information, education and communication activities during and after project implementation to increase awareness of all users (men and women) on safety measures that shall be followed;
- Before construction, consult concerned ministries to verify the adequacy of current and proposed infrastructures;
- Involve the population (men and women) in the maintenance and management of new infrastructures to ensure their sustainability;
- Ensure adequate social services, including drinking water supplies and sanitation facilities, for addressing the basic needs of the local populations, non-resident workers and migrants;
- Assist social service administrations in coordinating their efforts to offer additional services and improve service delivery if required;
- Promote safety net measures to protect the poor and other vulnerable groups against a service price increase;
- Establish quality control for water supplies and sanitation facilities;
- Near the residential areas, avoid noisy works after regular working hours;
- Maintain vehicles and machinery in good condition in order to minimise gas emissions and noise;
- Use dust and noise attenuators, such as vegetation hedges along transport corridors in order to minimise noise and the aerial transport of dust;
- Plan and set up on-site sanitary facilities for the disposal of wastewater;
- Maintain vehicles, machinery and equipment in good condition in order to avoid leaks and spill of hazardous materials (hydrocarbons, chemical products, etc.);
- Ensure a safe management of hazardous materials (hydrocarbons, chemical products, etc.);
- Take all precautions during the refuelling of vehicles and machinery, and forbid the refuelling near water bodies;
- Avoid crossing permanent waterways; if necessary, locate the crossing where the banks are stable and the waterway the narrowest;
- Conserve the vegetation along water bodies and near wetlands;
- Plan emergency response measures in case of accidental spill;
- Assess the relevance of clearing the vegetation before flooding the reservoir;
- Avoid areas sensitive to erosion;
- Carry out the construction works in the dry season;
- Limit the circulation of heavy machinery to minimal areas;
- Avoid establishing access roads along steep slopes; instead, locate the access roads perpendicularly or diagonally to the slope;
- Use existing borrow pits rather than creating new ones; after the works, restore borrow pits by stabilising slopes and facilitating vegetation regeneration;
- Stabilise the soils in order to reduce potential erosion;
- At the end of construction works, level off the soils and facilitate vegetation re-generation;
- Implement integrated watershed management in order to control soil erosion;
- Prevent land clearing in watershed and facilitate the reforestation of cleared areas;
- Design the works in order to release sediments (hydraulic release);
- Dredge accumulated sediments;

- Regulate water flow to minimise soil salinization or concentration of chemical products;
- Design the project by taking into account ecosystems of particular interest and ecologically sensitive areas;
- Protect equal areas of ecosystems of particular interest to offset losses;
- Establish a perimeter of protection around sensitive ecosystems such as wetlands and unique habitats sheltering endangered species;
- Minimise the length of work in ecologically sensitive areas;
- Design the project by taking into account wildlife reproduction areas and migration corridors;
- Do not carry out any work in reproduction areas during the reproduction periods;
- Minimise sedimentation in spawning grounds downstream;
- Relocate animals before flooding the reservoir;
- Control illegal fishing and hunting, particularly by non-resident workers;
- Maintain a minimum water flow for fishes and aquatic life;
- Provide appropriate means of passage for fishes;
- Facilitate the development of culture fisheries in reservoir as a mean of compensation;
- Before construction, carry out an archaeological search in the potential areas containing artefacts and preserve discovered artefacts;
- Negotiate with traditional authorities the preservation of important cultural, religious, historical and aesthetic sites and resources and agree on potential compensation for the communities;
- During construction, ensure an archaeological surveillance in the potential areas containing artefacts and in case of a discovery, advise the concerned authorities;
- Involve traditional authorities in monitoring cultural, religious, historical and aesthetic sites and resources during the various phases of the project;
- Provide equivalent or better housing and accompanying facilities to involuntarily displaced men and women in accordance with consultation results;
- Plan adequate settlement areas with appropriate housing and services (water and sanitation) for non-resident workers and their families;
- Provide temporary food supplies to involuntarily displaced men and women, as needed;
- Provide complementary training /support to men and women to facilitate adjustment during the transition period;
- In accordance with priorities of displaced men and women, ensure appropriate funding for resettlement as well as for productive land compensation to men and women owning or occupying/cultivating the land;
- Establish access mechanisms to land in the watershed in order to control unorganised settlements;
- Take into account the various land uses while designing the project in order to minimise the loss of land, particularly productive land;
- Involve traditional authorities in the design of the project, particularly in siting settlements and in defining flooded areas;
- Wherever possible, compensate the loss of land by protecting an equivalent land area in the region;
- Offer compensation or alternative revenue opportunities to men and women loosing land and/or productive means, e.g. to owners and those occupying/cultivating the land;
- Develop alternative grazing areas to compensate for those lost;
- Integrate land management priorities into land planning instruments to take into account various land uses;
- Clearly define water rights and establish water user fees in consultation with concerned stakeholders;

- Build on the respective knowledge and experience of women and men in water management;
- Etc.

6. Environmental Hazard Management

This chapter shall describe the security measures and propose a preliminary contingency plan for the construction and operation phases of the project (possible contingency situations, major actions to properly react to accidents, responsibilities and means of communications).

The ESIA shall include an analysis of the technological accident risk: identification of hazard and potential consequences, estimation of the consequences' magnitude and frequency, and risk estimation and evaluation.

The main risks of the project are related to:

- Health impacts (Vector-borne and other communicable diseases, HIV and sexually transmitted infections Injuries and Malnutrition). Activities associated with construction works such as the manipulation of fuel, waste and hazardous materials;
- Flooding and management of the reservoir;
- Changes in land and water uses, access and rights, that can lead to social conflicts;
- Social conflicts associated with the venue of migrant workers and new settlers (divorces, ethnic tension, etc.);
- Dam rupture, causing sudden flooding of the downstream area and resulting in the loss of human lives and serious economic damages. This aspect will be analyzed by the feasibility study including factoring of Climate Change influence on patterns of floods. The ESIA will summarise the main findings of the dam rupture analysis.
- Etc.

In order to prevent or minimise these hazards, appropriate risk management measures shall be designed and implemented.

7. Environmental and Social Monitoring Plan

The first section of this chapter shall describe the surveillance measures aiming at ensuring that the proposed mitigation and enhancement measures are effectively implemented. The second section concerns the environmental and social monitoring activities designed to measure and evaluate the project impacts on some key environmental and social components of concern and to implement remedial measures, if necessary. Indicators, roles and responsibilities shall be clearly defined. The cost of the program shall be estimated, including the cost for environmental and social capacity building if necessary.

8. Public Consultations

This chapter shall summarise the actions undertaken to consult the groups affected by the project, as well as other concerned key stakeholders including Civil Society Organisations. The Consultant should establish a consultation mechanism with local administrative authorities and traditional authorities to ensure that their views are considered during the planning and implementation phases. Men and women should have the opportunity to organise themselves in groups representing their collective interests. The detailed record of the consultation meetings shall be presented in annex to the ESIA Report.

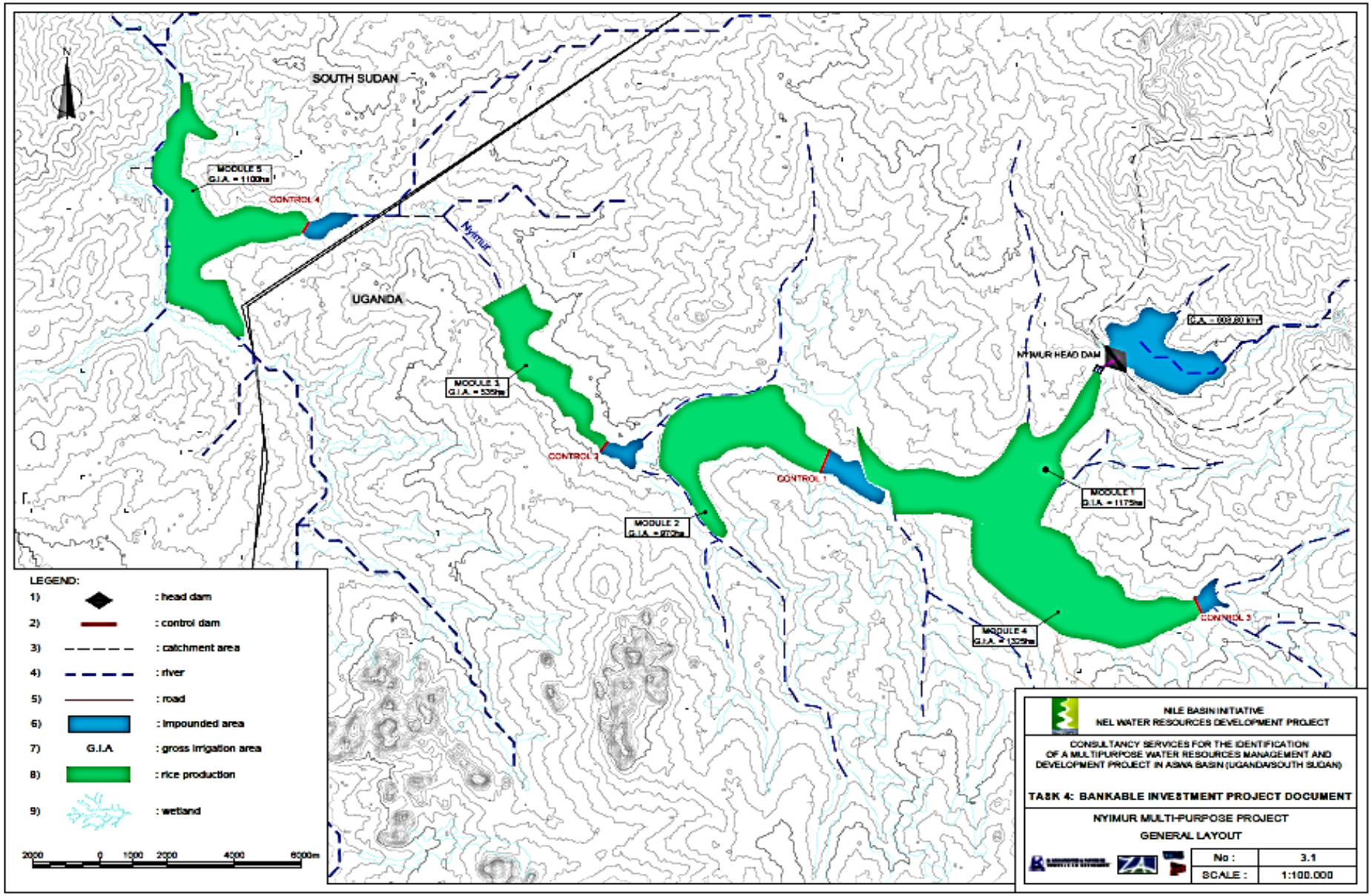
9. Conclusion

The Conclusion shall specify the environmental and social acceptability of the project, taking into account the impacts and measures identified during the assessment process. It shall also identify any other condition or external requirement for ensuring the success of the project.

10. Annexes

- List of the professionals and organisations having contributed to the preparation of the ESIA Report;
- List of consulted documents, including project-related reports;
- Baseline data referred to in the Report;
- Record of consultation meetings with primary and secondary stakeholders;
- The specific studies prepared in the framework of the ESIA;
- Any other document that the Consultant considers useful for substantiating the ESIA study results.

Appendix 4: Map showing the Nyimur Multipurpose Project Layout



Appendix A 6: Assessment of the financial management capacities of the executing agency NELSAP-CU (August 2014)

Financial Management and Disbursement arrangements

The FM assessment concluded that the overall residual risk is **"Moderate"** after taking into account mitigation measures. Based on the assessment and experience the risk level is such that the Project will be able to (1) use the funds for the intended purposes in an efficient and economical way, (2) ensure funds are properly managed and flow smoothly, adequately, regularly and predictably, (3) prepare accurate, reliable and timely periodic financial reports, (4) monitor the efficient implementation of the project and (5) safeguard the entities' assets.

Project Implementation: The Implementing Agency shall be the Kigali based Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP CU), a subsidiary program of the Nile Basin Initiative (NBI). The FM system of the NELSAP CU is adequate and capable of recording accurate and complete transactions and delivering financial reports timely. The Overall project coordination shall be headed by the Regional Co-coordinator (NELSAP CU), with the assistance of a Project Coordinator, independent panel of dam experts, National Focal Points and Country Task Teams for this project. In addition there shall be a NELSAP CU task team for the project that shall include: power engineer, civil engineer, water engineer, accountant, procurement specialist, environment specialist, communication specialist, social development specialist, an economist and support staff. This task team shall be involved in technical and operational aspects of this project. The task team shall be appointed from the existing staff at the NELSAP CU.

Accounting policies, staffing& systems: The NBI's finance and administration policies, guidelines and procedures manual shall guide the accounting processes to be followed in accordance with the International Public Sector Accounting Standards (IPSAS). The financial manual touches on all accounting areas such as cash and bank management, work in progress, accounts receivables, accounts payables, petty cash, fixed assets. The chart of accounts is flexible to create new projects accounts for capturing project expenses. Once funds are approved, a full set chart of accounts specific to the project will be set up where project expenses are posted. Approved and certified payments are sent to Finance Department for disbursements to contractors, consultants and suppliers. Bank accounts are maintained by the Finance Department.

The Finance Department of NELSAP CU is made up of three staff at headquarter and five finance officers based at the project level in Kigali, Burundi, Kenya and Tanzania, who are suitably qualified and experienced. The NELSAP CU's Finance and Administration Manager (FMA) is the officer responsible for all the financial aspects of all projects managed individually by NELSAP CU and those managed by the PIUs. The Finance Officers at the project level report operationally to the Project Coordinators specific to the project and functionally to the FMA. The FMA's role include overall direction, responding to queries from Bank/donors, budget estimates while the Finance Officers roles include day to day activities such as processing invoices, reconciling ledgers, preparing quarterly reports and bank reconciliations.

The finance staff at HQ is currently directly responsible for eight projects funded by both the Bank and World Bank. There are five projects managed by PIUs. NELSAP CU finance staff have previous experience on Bank funded projects, and other donors (World Bank, Norad and Sida), and shall not require to undergo training in the Bank's Financial Management procedures.

NELSAP uses SUN system 5.4.1 to record its financial transactions. The system is hosted by servers at NELSAP CU HQ in Kigali. Each implementing unit has a stand-alone SUN system with plans underway to centralize and host the system at HQ. The system is able to capture expenditures and generate various reports required for financial management and has been considered adequate. Currently the procurement department does not have an integrated module in SUN system; however this shall be addressed during the upgrade. System access levels have not been profiled on the basis of the duties and staff grade, therefore, once access is granted, it gives right to all system procedures The system was installed in 2010

and currently requires an upgrade to SUN system 10.1, to centralize operations through web plug-ins, improve system controls, give access and visibility to technical Heads of Departments (HoD) and include a procurement module.

Budgeting: NELSAP CU's budgeting arrangements have been assessed and found to be adequate. The budgets are guided by the Nile Basin Initiative's results based work planing, budgeting, monitoring and evaluation toolbox which was approved by the NILECOM in 2007. In addition there is an approved results chain that guides the strategic planning and implementation of all projects by NELSAP CU.

For this project, the same procedures detailed above shall be used by NELSAP CU for budgeting and approval. The Project Coordinator shall be the budget holder and shall provide the estimated inputs for various activities to be included in the procurement plan. The project estimates shall be reviewed by the Technical HOD and Finance Manager and approved by the Regional Coordinator before submission to NELTAC and NELCOM for final approval and authorization.

Budget monitoring is done through the SUN system. All expenditure is captured real-time into SUN system. Budget variance analysis reports are produced monthly by the Finance Officer for recurrent expenditure and sent to the Technical HODs and the Regional Coordinator. The Technical HODs provide commentaries on the variances in the reports. Additionally the Finance Officer produces quarterly budget reports to donors. The system does not allow any amounts in excess of the budgetary allocation.

Internal Controls and Audit: NELSAP CU does not have an internal audit department. However, it is supported by an Internal Auditor of the Nile Basin Initiative (NBI) Secretariat based in Entebbe, Uganda. The Head of Internal Audit (HIA) reports functionally to the Internal Audit Committee of the NELTAC and administratively to the Executive Director of the Nile Basin Initiative Secretariat (NBI). The Head of Internal Audit is recruited by the Internal Audit Committee in accordance with the secretariat's policies. Flexible risk-based annual audit plans are developed using appropriate risk-based methodology for implementation throughout the year. These plans are approved by the Internal Audit Committee of the Nile Technical Advisory Committee (NELETAC). Bi-annual internal audit reports are issued to this committee summarizing the results of the audit which are reviewed and track of previous recommendations by management is also tracked. The Nyimur Multipurpose Water Resources Project shall be audited at least once in a year. The internal audits are guided by the internal audit charter and manual.

The expenditure and payments procedures as included in the NBI's Finance and Administration manual are followed. NELSAP CU also creates a new project together with the chart of accounts in SUN system. However, the mission noted a discrepancy on the segregation of duties contrary to the best practices: the Finance and Administration Assistant is the originator of all financial transactions, processing and involved in bank reconciliations; furthermore none of the other senior finance officers supervises her work in relation to processing in the financial system.

Bank reconciliations are prepared monthly, reviewed and approved within NELSAP CU Finance Department. The bank reconciliations are currently done manually, with a view of migrating to system reconciliations, by the Finance and Administration Assistant, reviewed by the Finance Officer and approved by the Finance and Administration Manager. Reconciliations are prepared every month by the 10^{th} day after close of the month.

Information backups are done weekly by the IT department and archived using external drives and stored by the IT Officer in his office. The backups are not secure against fire and theft. The backups need to be stored in safes or locations outside the office.

Financial Reporting: Africa Water Facility (AWF) requires that its projects be audited twice for the duration of the project. Thus annual project financial statements will be prepared in accordance with the IPSAS cash basis annually by 30th September**.** As the Project is a non- revenue earning, the annual financial statements should include: (i) Statement of Receipts showing separately Bank's funding, those of counter party and cash balances;(ii) Statement of Special Account; (iii) Statements of Expenditures (both for the current year and accumulated to-date); and (iv) Notes to the Financial Statements describing the

applicable accounting principles in place and a detailed analysis of the main accounts.. The PIU shall provide an update on financial performance of the project as part of the Quarterly Progress report (QPR) as required by the Bank not later than 45 days after the end of each Quarter.

External Audit: NELSAP's audit is carried out both as an organization-wide audit and project specific. This Project's audit will be conducted by an Auditor that shall be appointed by (AWF) in accordance with International Standards on Auditing using the Bank's terms of reference for external audit.

The audit report, complete with a management letter and management responses, shall be submitted to the Bank twice in the life of the project and no later than six months after the end of each half, and not later than the succeeding 31st December.

Disbursement Arrangements: Disbursements under the AWF grant will be made in accordance with the Bank's rules and procedures as laid out in the Disbursement handbook. In addition, the Bank shall issue a Disbursement Letter of which the content will be discussed and agreed during negotiations. The disbursement methods that will be used for this project include the: (i) Direct Payment and (ii) Special Account method. NELSAP CU shall open one Special Account in foreign currency. All the accounts shall be opened at the National Bank of Rwanda (NBR). The opening of foreign currency special account will be made a condition precedent to first disbursement of the loan. The first disbursement shall be deposited in the project Special Account in foreign currency based on the full implementation budget for the project and based on the agreed work plan approved by the Bank through the initial Withdrawal Application to the Bank after the effectiveness of the project. However, the project management shall be required to make justifications to AWF every six months.

Governance and anti-corruption: The operations of the project will be guided by all existing procedures manuals e.g. the finance and administration manual and the anti-corruption manual. The internal audit department shall assist in monitoring and evaluating the internal controls. External oversight shall be provided by the external auditor. The AWF will provide some oversight, especially during supervision missions that shall take place twice per year. All the anticorruption measures that pertain to NBI/NELSAP will apply to this project.

Risk analysis and Mitigation: The table 1 below identifies the key risks that the project management may face in achieving its objectives and provides a basis for determining how management should address these risks. (H – High; S – Substantial; M – Moderate; L – Low)

Risk	Risk Rating	Risk Mitigation measures	Risk after Mitigation
Inherent Risk			
Project Level There may be no value for money. The volatility of the location where the dam shall be built.	**M** **S**	Value for money audit will be conducted at mid-term of the project. The feasibility study needs to involve all stakeholders and provide ways of sharing the resources.	**L** **M**
Budgeting Some project elements may be understated due to frequent price escalations.	**S**	Management should ensure that estimates are reasonable and price adjustments are catered for in budget figures.	**M**
Internal Control Capacity constraints may hinder adequate coverage by internal audit checks.	**S**	Management should ensure that internal audits for the project operations are carried out at least twice a year in line with NBI procedures and share the reports with the Secretariat.	**M**
External Audit Delays in submitting audit reports. Audit scope may not adequately cover project.	**S**	The audit will be carried out the auditor who shall be appointed by AWF in accordance with the International Standards on Auditing using Bank terms of reference for external audit	**M**
Overall inherent risk			**Moderate**
Control risk			

Risk	Risk Rating	Risk Mitigation measures	Risk after Mitigation
Entity Level Lean Internal Audit Department.	**S**	Management should put in place an intentional process to increase the number of staff to be able to cover organization-wide and projects at the same time.	**M**
Budgeting Better interrogation and review of budgets.	**S**	Management should ensure that they form an internal budget committee to challenge and review budget estimates.	**M**
Accounting and Information System Upgrade of the SUN System. Centralization of the accounting system.	**M** **S**	Management should ensure the accounting system is upgraded to include system controls. The FMA should ensure that the accounting system is centralized to have better visibility of the transactions real time for projects managed outside HQ.	**L** **M**
Internal Control Segregation of duties in the finance department	**S**	The FMA should ensure that originators of payments should not be the same ones processing the payment and carrying out bank reconciliations.	**M**
Reporting and Monitoring Financial information produced is not reviewed.	**M**	The FMA should ensure all reports are reviewed, signed and commentaries sent to budget holders.	**L**
Overall control risk			**Moderate**
Overall Project Risk Rating			**Moderate**

FM Action Plan: The action plan below indicates the actions to be taken for the project to strengthen its financial management system and the dates that they are due to be completed by.

	Action	**Date Due**	**Responsibility**
1.	Selection of the Project Coordinator and an accountant to fully handle the project (separate from existing projects).	Before effectiveness	NELSAP
2.	Production and agreeing of formats for Quarterly financial reports.	During Launch	NELSAP and AWF
3.	Confirm capacity building required in the Internal audit and finance department.	Before effectiveness	NELSAP
4.	Open Special account in EUR at NBR.	Before disbursement	NELSAP

Conditions:

The general conditions shall be; (1) appointment of a Project Coordinator and an Accountant to the Project; and (2) opening of a Special account at NBR.

Appendix A 7: AWF's Communication and Visibility Guidelines

A7.1 Communication and brand visibility greatly matter to the AWF. The AWF views communication as a strategic function firmly tied to its strategies and business objectives. Steady communication with AWF stakeholders helps build credibility and secure their trust and esteem, which in turn, helps AWF build and protect its reputation. Communications is also about disclosure. The AWF is a multi-donor fund, and is accountable to a Governing Council that expects the AWF to hold itself to the highest level of accountability and transparency. The AWF is committed to making every effort to disclose, share and report information useful and relevant to its stakeholders and the greater public. This entails effectively communicating its achievements, progress, and results by using all means available, in a timely manner. All these elements are important for business and essential to attract and retain donors, and for AWF to maintaining its social license to operate.

A7.2 Brand awareness is about making sure the public knows AWF exists and can tell the AWF apart from other water funds or organizations. The brand is a visual, memorable trigger, or a logo, that embodies the AWF and captures its core identity. Brand awareness is achieved over time, through activities meant to increase brand visibility, by repeated use and exposure of the logo at strategic places and times. The AWF logo is used as a seal or a signature used to signal AWF financial support or special collaboration.

A7.3 The AWF has established Communication and Visibility Guidelines to the attention of partners, AfDB regional offices and grant recipients to help AWF more effectively achieve its brand and communications objectives, as laid out in the AWF Long Term Communications Strategy 2006 approved by the AWF Governing Council in 2006.

General Requirements

A7.4 At an early stage, when preparing communication activities related to an AWF supported event of project, contact the Communication Officer at AWF Secretariat, copying the AWF Project Manager.

A7.5 At a minimum, and wherever possible, the AWF logo should be applied to outreach materials that pertain to AWF supported projects or events. The proper use of the logo should be discussed with the AWF Communication Officer.

A7.6 The AWF should be verbally mentioned as donor of the project it is funding at public speaking events where the project is discussed, and also be mentioned as donor in any Power Point presentations relevant to the project funded by the AWF, using the name and the logo of the AWF appropriately.

A7.7 The logo is to be obtained upon request from the AWF Communication Officer. Documents and publications related to an AWF supported project or sponsored publication should contain the AWF logo, as well as this phrase on the cover page: *"This project/program/study is funded by the African Water Facility".*

A7.8 Implementing and executing agencies should always have a link to the AWF website on the page of their website relevant to an AWF-funded project/activity. The website is: www.africanwaterfacility.org

A7.9 The AWF asks that grant recipients report back to the AWF Secretariat, any special mention, award nominations or recognition that the project may have received.

Validation Process

A7.10 The AWF management is responsible for the final clearance of AWF communications products/outputs.

Press Releases & Media Advisories

A7.11 The AWF will issue an AWF-branded press release every time a project is approved and/or signed, and when completed (handover).

A7.12 AWF press releases must always include a quote from the Coordinator of the AWF, which must be cleared by the Coordinator.

A7.13 The AWF encourages and appreciates initiatives to issue joint press releases with its grant recipients. A standard joint press release can be issued at any time agreed with the AWF (between launch and completion).

A7.14 When the grant recipient wishes to produce a press release, liaising with the AWF Communication Officer is required, as well as receiving a quote from the AWF Coordinator, as appropriate, and getting approval and clearance.

A7.15 The AWF should be included in the title and/or first paragraph of the press release, as appropriate.

A7.16 The press release should incorporate the AWF logo, mention that funding was provided by the AWF, and mention the amount of the AWF funding.

A7.17 If a press conference is planned, the press release should include the name of an AWF senior representative who will be present at the press conference, when relevant.

A7.18 All press releases must bear the name and contact information of the AWF Communication Officer, and if possible that of the communication/media representative from the grant recipient.

A7.19 The AWF boilerplate text ("About the AWF") must be added to the text, including the AWF web site address. Please contact the AWF Communication Officer for the latest version.

A7.20 The AWF has final validation of all its press releases, following a review process involving reviewers.

A7.21 The rules above also apply to media advisories.

Press Conferences

A7.22 Press conferences to launch projects funded by the AWF should be organized in cooperation with the AWF, as much as possible.

A7.23 The invitations should bear an AWF logo.

A7.24 The AWF logo of a visible size should appear on any banner or poster to be displayed at the site of the conference.

A7.25 Press kits need to include a press release with the AWF logo.

A7.26 Whenever possible, an AWF banner should be on hand and set up to serve as a backdrop for TV and photo purposes.

Press Visits

A7.27 When appropriate, journalists should be invited to visit the project funded by AWF, accompanied by representatives of the AWF or the AWF Focal Point in the respective authority / government of the grant recipient.

Visits by Government Officials, AWF Donors

A7.28 Visits to projects by government officials and AWF donors are encouraged. Those should be prepared in coordination with the AWF and the AWF Focal Points of the host government. This can include meetings with local beneficiaries.

A7.29 These visits may also include government officials and AWF donors' participation to roundtables and other events, as relevant.

Leaflets, Brochures and Newsletters

A7.30 All leaflets and brochures relevant to the project/program financed by AWF should incorporate the basic elements of the AWF visual identity, i.e. the AWF logo -with or without tagline.

A7.31 Leaflets and brochures produced by a grant recipient must also incorporate a definition of the AWF (boilerplate text).

A7.32 The cover page of all documents pertaining to the project financed by the AWF must clearly identify the activity as being part of an AWF-funded activity.

A7.33 Copies, including electronic copies of the publications, should be made available to the AWF.

Electronic Communication

A7.34 Electronic communication disseminating information on AWF-funded projects including websites, newsletter, and social media platforms, should link to the AWF website.

Signage

A7.35 The grant recipient should produce display panels, posters or banners to promote their AWF-funded or AWF-related activities at exhibitions and other events, placed in strategic locations for all to see.

Vehicles, Supplies and Equipment

A7.36 AWF generally requests that vehicles, supplies and equipment funded by AWF be clearly identified, and visibly carry the AWF logo and the phrase "Provided with the support of the African Water Facility" in English, French or Portuguese, as relevant.

A7.37 This requirement is subject to negotiation between AWF and the grant recipient as some supplies and equipment may be exempt.

A7.38 The grant recipient must provide evidence of compliance with this rule (digital photos sent by email are recommended.)

Photographs and Audiovisual Productions

A7.39 Professional high resolutions (300 Dpi) digital photographs of the project funded by AWF should be supplied to the AWF throughout the different phases of the project, to document the progress of actions and events related to these, and to be used in print and online publications.

A7.40 All photos should be submitted with full caption and credit information.

A7.41 The AWF will be entitled to use or reproduce photos submitted to it without payment of royalties.

A7.42 Whenever relevant, audiovisual materials should acknowledge AWF support, by featuring the AWF logo at the beginning and/or end of the movie/documentary.

A7.43 Copies of the movie(s) / documentary (ies) should be supplied to the AWF.

Commemorative Plaques or Signage

A7.44 Whenever relevant, the grant recipient should place a permanent plaque, or some other type of large, commemorative signage on the most visible part of the building, infrastructure or nearby the project site, which received funding by AWF, beside the name of the implementing agency and/or name of the project, for visitors to see.

A7.45 When appropriate, the plaque or signage could contain the following sentence: "This [name of the infrastructure] was funded by the African Water Facility" alongside the AWF logo.

Promotional Items

A7.46 Before taking any decision on the production of such items, the Communication Officer at the AWF should be consulted.

A7.47 Promotional items bearing the AWF logo can be distributed to support communications activities related to the project funded by AWF. This