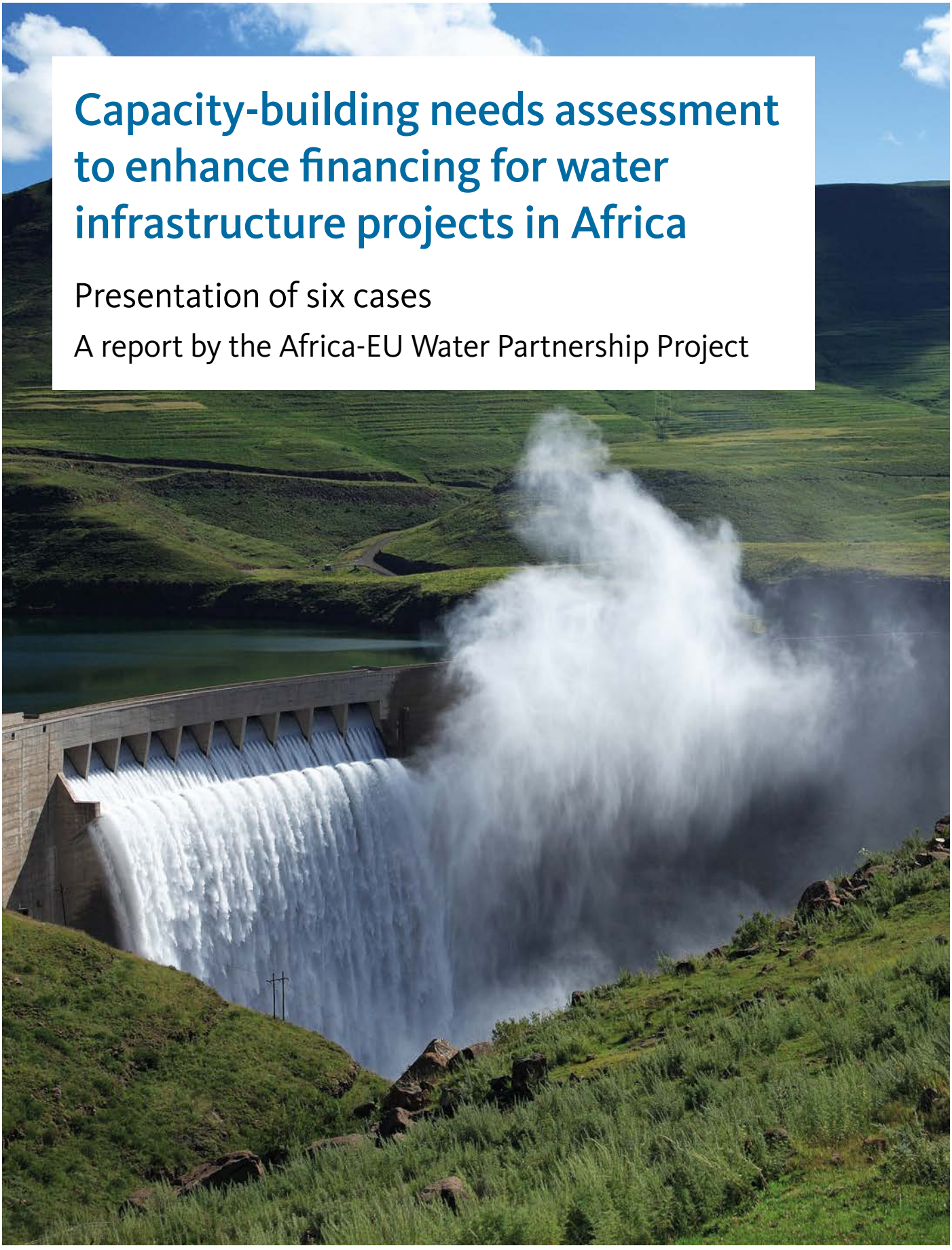
Capacity-building needs assessment to enhance financing for water infrastructure projects in Africa

Presentation of six cases

A report by the Africa-EU Water Partnership Project



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Capacity-building needs assessment to enhance financing for water infrastructure projects in Africa.
Presentation of six cases

A report by the Africa-EU Water Partnership Project

This is a report from the Africa-EU Water Partnership Project (AEWPP) – a project implemented by Stockholm International Water Institute (SIWI) on behalf of the European Union (EU), the African Ministers Council on Water (AMCOW), and the Government of Sweden. The project was financed by the European Commission. This report was financed by the International Centre for Water Cooperation (ICWC) hosted by SIWI under the auspices of UNESCO.

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1. Africa-EU Water Partnership Programme (AEWPP) – Project background

The financing and development of water infrastructure is foundational to achieving the Sustainable Development Goals (SDGs). Recent studies have raised the alarm that, despite efforts, the global community is not on track to achieve the water and sanitation targets outlined in SDG 6, and other connected targets.

The Africa-EU Water Partnership Project (AEWPP) is a joint undertaking by the European Union, the African Ministers Council on Water, and the Government of Sweden through the Swedish International Development Cooperation Agency (Sida), implemented by the Stockholm International Water Institute (SIWI). The AEWPP seeks to improve financial viability of water infrastructure projects in Africa by targeting obstacles to accessing capital.

A key component of the AEWPP is to facilitate investment in water governance by identifying capacity-building and institutional development needs with a focus on infrastructure finance. Currently, there is a large gap between the need for water infrastructure investments and potentially available funding. A major obstacle contributing to this gap is that many of the implementing agencies are not sufficiently credible in terms of financial management and reporting. Accountability and transparency of the organizations and how financial resources are handled may not be robust enough for investors to make financial commitments. The project aims to identify capacity-building that could help overcome these obstacles. This report summarizes capacity-building assessments undertaken of six pilot projects as part of the overall AEWPP, including recommendations for ongoing engagement and support.

Photo: Mats Eriksson/SIWI

2. Capacity-building needs of water infrastructure in Africa

The economic, demographic, and political landscape in Africa has changed dramatically in the past two decades, ushering in a new era of opportunities and challenges across a range of sectors, including water. Water supply and sanitation are basic requirements for human development, but it is estimated that there is an annual funding gap of over USD 11 billion for water infrastructure in Africa. Given the demands placed on national budgets by diverse development needs, such as education and health care, closing the gap will require participation from and risk-sharing by a range of actors, including international development partners, national governments, and the private sector.

Regional water cooperation has tremendous potential to drive economic development. Many African countries have significant natural resources at their disposal – key sources for growth and development – but are constrained in the degree to which they can access credit to trigger the investments needed to harness these resources. Promoting growth while simultaneously reducing the pressure on the resources and making growth inclusive and sustainable is a major challenge for them. The increasingly close connections (nexus) between water, energy, and food security need to be considered in analysing trade-offs and enhancing synergies.

One strategic sector challenge is transboundary water management for regional economic development and integration, where improved water management can be viewed as a regional public good, while failure to manage water resources would be a 'tragedy of the commons'. Regional frameworks for action need to be strengthened and investment mobilized to achieve water, food, and energy security, protect water ecosystems, and mitigate competition between countries over scarce water resources. Investments in water infrastructure (storage, transfer, treatment, and reticulation) are currently insufficient for water resources to fully contribute to national development and local livelihoods.

Part of the reason for African governments' lack of access to sufficient credit for infrastructure development is insufficient investment in the soft aspects of infrastructure, such as capacity-building, training, and raising integrity levels, all of which contribute to improved governance frameworks. These governance frameworks are essential for lowering the risk profile associated with specific infrastructure projects and attracting the participation of a range of investors. A regional approach to the development of water-related infrastructure is needed, based on cooperation between governments and other stakeholders, and with sufficiently robust governance frameworks in place.

3. Description of pilot projects

3.1 Lesotho–Botswana Water Transfer Scheme

3.1.1 Background

The Orange-Senqu River Commission (ORASECOM) was established by the four countries sharing the river basin – Botswana, Lesotho, Namibia, and South Africa – to promote the equitable and sustainable development of the resources of the Orange-Senqu River. ORASECOM provides a forum for consultation and coordination between the riparian states to promote integrated water resources management and development within the basin.

The highest body of ORASECOM is its Council, which is supported by a secretariat and a series of task teams that manage projects. The Council serves as technical advisor to the four countries on matters related to the development, utilization, and conservation of the water resources of the basin. The small ORASECOM secretariat is located in Johannesburg, South Africa. It is jointly financed by the four countries.

ORASECOM will host the planned Lesotho–Botswana Water Transfer (L-BWT) Scheme, which is intended to supply water to Botswana, Lesotho, and South Africa from the Makhaleng Dam in Lesotho – part of the Lesotho Lowlands Water Supply Scheme – through a water conveyance pipeline of approximately 700 km from Lesotho, through South Africa, to Botswana. The Scheme will address critical water needs in the two largest economies in the region: Botswana is predicted to run out of water by 2025 if new water sources are not found, and the proposed water conveyance system will pass through areas in South Africa where there are currently unmet water needs.

The Orange-Senqu basin is already of major economic importance to South Africa and Lesotho, contributing approximately 26 per cent and 100 per cent, respectively, to each country's gross domestic product (GDP). The L-BWT may also generate electricity from hydropower (optional, subject to study outcomes). Thus, revenue generation for Lesotho will further increase, and land under irrigation will be expanded with commensurate increase in food security in Lesotho. Finally, the project will contribute to increased climate resilience and long-term security of water supply for communities in Botswana, Lesotho, and South Africa, with subsequent socio-economic benefits.

3.1.2 Capacity-building needs

The L-BWT Scheme is currently led by a Joint Study Management Committee consisting of six experts from each of the riparian countries. The knowledge and skills of this committee are crucial for how the project is taken forward. Therefore, this group of experts should be a major target group for additional capacity-building. The ORASECOM secretariat itself is another.

Robust knowledge of law and regulations is crucial. Countries may need to enact laws and there is a need for legal expertise and advice in relation to the transboundary development and management of these shared water resources. Eventually, it will be necessary to set up a legal and institutional framework to ensure sustainable operation and maintenance of the scheme.

Financing expertise also needs strengthening. The Committee, as well as the secretariat, will benefit from a thorough understanding of the entire array of existing financial instruments and financing pathways. To this end, a sound understanding of public–private partnership (PPP) and how such financial models could contribute to the realization of the project would be desirable.

A well-founded knowledge of the socio-economic conditions and the implications of the project is highly desirable. This field of knowledge is extremely important for the principal actors to be aware of and to defuse any potential negative impacts of the project on local communities, their livelihoods, and their human rights.

3.2 Songwe River Basin Commission

The Detailed Design and Investment Preparation Project of the Songwe River Basin Development Programme (DDIPP – SRBDP)

This section is based on a discussion with staff at the Secretariat of the Songwe River Basin Commission in Kyela, Tanzania, August 2019.

3.2.1 Background

The governments of Tanzania and Malawi have established the Songwe River Basin Commission (SRBC) to manage the water resources and related development of the Songwe River basin. The Commission was inaugurated on 11 March 2019 by the two countries' ministers of water.

The Songwe River is about 200 km long and its basin covers a surface area of 4,243 km^2 with a population well over 340,000 (2013). The initial rationale for a project on the Songwe River was to address the frequent shifting of the international border between the two countries due to the river's meandering, and related cut-off of ox-bow lakes, in the lower part of the river.

The preliminary study basically focused on developing feasible options for the stabilization of the Songwe River course. The two governments realized that it was not feasible to carry out the river course stabilization measures as a stand-alone project and that it was necessary to consider structural investments for river stabilization in a broader basin development perspective. Therefore, the project was upgraded into the basin-wide and comprehensive Songwe River Basin Development Programme aimed at supporting economic growth and poverty alleviation in the entire basin.

A feasibility study prepared in 2003 identified potential areas of intervention in terms of the development of irrigated agriculture, hydropower production, flood control, stabilization of the river course, upgrading of water supply, fisheries development, promotion of tourism, and the need to create an enabling institutional environment for joint management of the shared water resources. The SRBC is this enabling institution and has a secretariat based in Kyela, Tanzania.

The Detailed Design and Investment Preparation Project of the transboundary Songwe River Basin Development Programme (DDIPP – SRBDP) is funded through the African Development Bank (AfDB), with financial resources jointly provided by the African Water Facility (AWF) and the New Partnership for Africa's Development's Infrastructure Project Preparation Facility (NEPAD-IPPF), and contributions from the governments of the United Republic of Tanzania and the Republic of Malawi. As part of the SRBDP, a business plan has been prepared for the SRBC. This plan, valid for 2015–2025, will be used to solicit support, resources, and funding that is critical for realizing the aspirations of the Shared Vision 2050 and the goals specified in the SRBDP.

The SRBDP consist of several large projects in 9 categories and with 26 sub-projects. The main projects are listed in Table 1 with anticipated costs. The main entry point and anchor to all other activities is the construction of the Lower Songwe Dam and hydropower plant at an estimated cost of USD 550 million. All other projects depend on the implementation of this initial dam. The governments of Malawi and Tanzania are planning to try to access soft loans for the realization of this project. Subsequent projects, though, may have different types of blended finance, including PPPs and private sector investments.

The highest decision-making body of the Commission is the Council of Ministers with representatives from both countries. The Commission also have a Joint Steering Committee to which the Executive Secretary of the SRBC secretariat reports. The secretariat consists of nine staff members, including the Executive Secretary. This document presents a brief assessment of capacity-building needs of the SRBC – increased capacity is anticipated to help the Commission move the project ideas further towards getting funded and implemented.

Table 1. Main projects of the Songwe River Basin Development Programme (SRBDP) and their estimated cost

Project	Cost (USD)
Lower Songwe Dam and hydropower plant (180.2 MW)	550,000,000
Irrigation schemes (6,200 ha)	99,000,000
Water supply projects (urban and rural; 460,000 people)	22,000,000
Institutional and environmental measures	13,000,000
Priority social infrastructure (roads, schools, health centres)	3,000,000
Sub-total priority investments	687,000,000
Rural electrification (118,000 people = 60% of population in 2025)	90,000,000
Social infrastructure	42,000,000
Economic development	8,000,000
Detailed design middle dam	2,000,000
Sub-total other investments	142,000,000
Grand total	**829,000,000**

3.2.2 Capacity-building needs

The following topics for capacity-building were identified.

1. Capacity to update the financial model and plan to suit soft loans as a means of funding the construction of the Lower Songwe hydropower dam. This will enable the Commission to support the ministries of finance in Tanzania and Malawi, which are expected to apply for soft loans to implement the project.

2. Financial management and support system. The current staff responsible for financial management and reporting of the secretariat are barely sufficient to undertake this task. In addition, all financial monitoring and reporting is done manually using Microsoft Office software (Excel and Word). Staff capacity needs to be upgraded through recruitment of additional staff, training on financial management, and introduction of a information technology-based financial management system that can keep track of the financial flow, aid reporting, and help avoid human errors in the operation.

3. Procurement and contracting capacity. As the responsibilities and duties of the secretariat increase, the pressure to undertake procurements and contracting of consultants and operators will increase. Capacity in this field is of the utmost importance to ensure proper use of funds and reduce mismanagement of funds and resources.

4. Legal know-how and capacity. In conjunction with increased responsibilities it will take on, the secretariat will need to have adequate state-of-the-art legal capacity in house to ensure that, for example, procurement and contracting activities are undertaken in the most effective way and ensure that the Commission is always acting in sound legal environments. Recruitment of a legal adviser is recommended.

5. Information and communications technology (ICT). The secretariat has an urgent need to strengthen its capacity in ICT. This crucial support function needs to be strengthened through recruitment. ICT capacity is also needed to enable current (and future) staff to communicate about their work in a more efficient manner.

6. Awareness training in cross-cutting issues. The Commission has a need for regular training on basic cross-cutting issues, such as gender equality, human rights, poverty alleviation, social inclusion,

The Katse dam wall in Lesotho, Orange-Senqu river basin. Photo: AdeleD/Shutterstock

and climate change. Training of current (and future) staff in these matters needs to be scheduled into annual plans with refresher training on a regular schedule. Gender matters should address the work the organization is carrying out as part of its operations as well as in house.

3.2.3 Target groups for capacity-building

There are several stakeholder groups related to the SRBC and the programme it is implementing, that require some level of capacity-building. First and foremost is the team at the secretariat of the Commission itself, where the entire range of different types of capacity-building would be relevant. Capacity-building could range from short one-day courses to on-the-job training, as well as more comprehensive education packages. In addition, the secretariat needs to be strengthened through recruitment of additional staff, particularly for ICT, finance, and legal capacity, and technical expertise related to the environment, energy, and agriculture. Currently, the Executive Secretary holds much of the technical expertise, but recruitment of two additional technical experts is under way (social infrastructure and community participation experts).

The next group relevant for capacity-building is the members of the Joint Steering Committee of the Commission and the Council of Ministers. For these groups, only very short capacity-building or awareness-raising activities would be relevant because of the time constraints of these stakeholders. Strengthening the capacity of this group is strategic since they are in decision-making positions for the SRBDP.

Another stakeholder group of great importance is the district-level officials in Tanzania and Malawi. These officials, primarily working in the fields of agriculture, land use, irrigation, and community development, should ideally have strong capacity since they are important links between the Commission and communities, and may find themselves both in advisory and decision-making roles.

Finally, farmers and small-scale local business ventures need capacity-building to be as effective as possible in their activities and thereby ensure a positive outcome of the entire programme.

3.2.4 Forthcoming activities

The Global Environment Facility (GEF) has recently approved a grant of USD 6.4 million to implement one of the lead projects: 'Strengthening Transboundary Cooperation and Integrated Natural Resources Management in the Songwe River Basin'. This project will encompass four main components: (1) enhancing transboundary management and institutional capacity; (2) improving early warning, disaster risk management, and monitoring measures; (3) community-based demonstrations of integrated natural resources management and conservation; and (4) knowledge, monitoring, and evaluation.

As part of this project, some capacity-building of the SRBC will take place, particularly under components 1 and 4. Under component 1, strengthening of the Commission in terms of knowledge, planning, finance, and other aspects will ensure a working and effective bi-country Commission by strengthening catchment planning, management, and operationalization of the SRBDP.

More specifically, institutional support to the SRBC will focus on organizational development, financial planning/management, and resource mobilization, so that longer-term sustainability (operational, administrative, fiscal, etc.) can be assured. This institutional support will comprise the preparation of SRBC action, annual, and periodic work plans to guide the Commission and basin districts; training and technical assistance in strategic planning, project management, information management, and financial management; formalization of the regulatory framework and agreements; and training on integrated water resources management and ecosystem-based approaches, with consideration of climate adaptation and gender, also including district offices. Finally, the Commission intends to design and manage a basin-level monitoring and evaluation system.

Any interventions targeting support to capacity-building of the SRBC should ideally relate to the GEF project (described above) to ensure that capacity-building efforts are complementary and strategic.

3.3 Nile Equatorial Lakes Subsidiary Action Programme

3.3.1 Background

The Nile Equatorial Lakes Subsidiary Action Program (NELSAP) is one of two investment programmes under the Nile Basin Initiative (NBI), which is a partnership of most of the Nile riparian states effective since 1999. The NBI seeks to develop the river in a cooperative manner, share substantial socio-economic benefits, and promote regional peace and security through its shared vision of "sustainable socioeconomic development through the equitable utilization of, and benefit from, the common Nile Basin water resources".

NELSAP's mission is to "contribute to the eradication of poverty, promotion of economic growth and reversal of environmental degradation" in the Nile Equatorial Lakes Region. The role and mandate of NELSAP is to "facilitate, support and strengthen the identification, preparation and implementation supervision processes for NELSAP projects for the benefit of all riparian countries".

NELSAP promotes investments in power development and trade, river basin management and development, agricultural trade and productivity, and fisheries and watershed management. It oversees the implementation of jointly identified projects and promotes cooperative inter-country and in-country investment projects related to the common use of the Nile basin's water resources. NELSAP countries are Burundi, Democratic Republic of Congo (DRC), Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda. NELSAP has demonstrated effectiveness in the coordination of multi-country preparation of complex regional projects.

Murchison Falls in Uganda on the White Nile. Photo: PRILL/Shutterstock

For instance, the NBI/NELSAP Coordination Unit (CU) has been facilitating the implementation of the Regional Rusumo Falls Hydroelectric Project, which is a joint project between Burundi, Rwanda, and Tanzania with the total cost of USD 340 million funded by the World Bank for the power-generation plant and USD 121 million by AfDB for the 220 kV transmission lines. Once this project is completed, it will generate 80 MW of power to directly benefit Burundi, Rwanda, and Tanzania and indirectly contribute to the regional and continental power grids, whereby non-project countries could also benefit.

The NELSAP-CU also prepared the studies for the Interconnection of Electric Grids of The Nile Equatorial Lakes Countries of Burundi, DRC, Kenya, Rwanda, and Uganda. The project preparation studies were funded by Sida to the tune of SEK 5 million (USD 570,000). The project objective is to improve access to electricity in member countries through increased cross-border sharing of energy and power; it consists of the construction of 220 kV and 400 kV interconnection of electricity networks of the countries.

During the project implementation stage, the individual countries contracted and supervised the construction, while NELSAP-CU coordinated the regional component of holding regional meetings to review and update on progress of project implementation.

3.3.2 Capacity-building needs

Considering current project financing and implementation management challenges, NELSAP needs to improve its human resources capacity, particularly in project financial structuring and implementation management. In 2019, NELSAP approached SIWI to organize a capacity-building workshop for its staff and member countries on promoting PPP as an alternative financing model. The PPP introduction workshop was organized by SIWI in October 2019 with the aim to help NELSAP and the nine NEL member countries to improve the financial structuring and implementation management of their ongoing and future infrastructure projects.

During the workshop, NELSAP presented the two projects and pointed out some weaknesses in finance structuring and management challenges. Example weaknesses highlighted are risk analysis and management, lack of due-diligence study, business case development, environmental impact assessment, and land acquisition plan – all important parts of project implementation in which NELSAP has encountered challenges during the implementation of its projects. NELSAP has also experienced difficulties with procurement, and ensuring project funding source, operation, and maintenance during the implementation of some projects. In addition, NELSAP seeks to address technical and operation performance challenges by adopting a strategy of separating infrastructure investment and ownership from service operation. So far, this has included improving service delivery through optimal PPPs in investment, management, and delivery of water services. One of the capacity areas for NELSAP would be advancing their knowledge for setting up PPP models.

It is essential to have adequate human resources, institutional and legal frameworks, and considerable administrative capability – otherwise it will not be easy to establish a successful PPP models. This can be ensured by having a consolidated experience, expertise, and strategic approach to the use of PPP. As stated in the Guidebook of United Nations Economic Commission for Europe (UNECE), there is a need to increase the capacity of governments and partners at all levels to implement PPPs successfully.

3.3.3 Target groups

NELSAP has two main sub-programmes: (1) Water Resources Management and Development Sub-program, and (2) Power Development and Trade Sub-program. Both these teams have different mandates to deliver quality projects. For the capacity-building programme, the NELSAP senior management team, coordination unit, and regional focal points in the member countries would be the target groups.

3.4 Njoro Kubwa Integrated Bulk Water Supply Project, Kenya

3.4.1 Background

The Njoro Kubwa Integrated Bulk Water Supply Project intends to design, build, own, and operate infrastructure for the production and transmission of potable water from a surface-water source for delivery and sale to Taita Taveta County in Kenya.

A company (Miraadi Water) has been formed, co-owned by Headstream Water Solutions and the Kenya Innovative Finance Facility for Water (KIFFWA), and with the purpose to develop this bulk water supply. In the county, the water will provide services to three main projects/off-takers: (1) an agricultural irrigation scheme, (2) a meat production business, and (3) a municipality.

The estimated cost of the bulk water supply development project is USD 64 million. The project idea and development is still in its infancy and, as it proceeds, potential financiers could be AfDB, Dutch Development Bank, and Development Bank of Southern Africa (DBSA).

3.4.2 Capacity-building needs

In order to strengthen the project to achieve its goals, to reduce risks related to the project, and thereby to make it more financially viable – which in turn will increase the likelihood of attracting funding for the project – capacity-building needs have been identified.

Capacity-building needs can be identified on three different levels (tiers). Tier 1 is related to the project designer, developer, and implementer, Miraadi Water and its owners. Tier 2 is related to the three buyers of water: the irrigation scheme represented by a farmers' cooperative, the meat factory represented by a private company/association, and the private water utility owned by the county. Tier 3 is related to skills among the workers within the Tier 2 entities – for example, farmers, abattoir workers, and water technicians.

Capacity-building tier 1

The capacity-building of the developer of the project (Miraadi Water) should aim to increase their ability to package and present the project in an attractive format, suitable both for grant providers and for private investors. For an investor or financier to come on board, Miraadi Water needs to show strong ability to govern the project from its initial planning, construction, and implementation phase to the continued operational, maintenance, and business management. To attract funding, Miraadi Water needs to show good understanding of a variety of dimensions, including development and sustainability matters linked to poverty alleviation, human rights and social inclusion, environmental and social impact, climate change mitigation and adaptation, as well as business management and technical know-how related to water infrastructure development. Much of this kind of expertise may be taken on board through short- and long-term consultancies, but a certain amount of knowledge is also desirable in house. A good start would be to support Miraadi Water to develop a business plan for the construction and operation of the bulk water supply.

Capacity-building tier 2

Capacity-building on this level intends to strengthen the performance of the three intended buyers of water from the bulk water supplier. The more successful these three entities are in their businesses, the greater the demand for water from the bulk provider will be and the more secure the bulk water supply project will be. The main consumer of the bulk water supply will be the irrigation scheme, followed by households in the municipality, while around 20 per cent of the water supply is expected to be used for the meat production.

Tavevo Water and Sewarage Co Ltd. This water utility company was established in 2006 and is operating commercially with the mandate to provide adequate water and sanitation services in urban areas in Taita Taveta County. The company has been well established for several years, and has sufficient staff, but there is a need to strengthen the capacity of its performance to secure payment for the services provided. Currently, about 40 per cent of the water is not accounted for. The company needs capacity support to reduce the amount of unaccounted-for water, which in turn would increase the financial performance. Capacity-building of the Tavevo water utility is needed in three main areas.

1. General training of staff in management and operations, including financial management and administrative support. The need for this kind of training to a large extent has its background in the fact that the water utility has a fairly large staff turn-over rate. Thus, there is a need to broaden key knowledge and skills within the organization to ensure that the utility does not suffer if key staff should leave.

2. Capacity support to reduce the unaccounted-for water. Support here is needed in two areas. One is technical, with the purpose of improving the infrastructure and reducing leakages. The water supply infrastructure was built around 40 years ago and there is probably a need for upgrading. The other is administrative and management, with the goal of improving the billing system and ensuring effective collection of revenues. In addition, means and methods to identify and connect new

customers (households) to the supply system will also be crucial. Currently, only about 10 per cent of the population in the county has a piped water connection.

3. Capacity support to develop the infrastructures related to the distribution of the water, while taking into account the company's limited financial capacity. Knowledge would be shared about project-financing (off-balance sheet) mechanisms that would allow (a) fundraising (mostly grants based) for the envisioned infrastructures, and (b) securing the future additional water revenues (or part thereof) for the benefit of the Njoro Kubwa Integrated Bulk Water Supply Project.

Agricultural irrigation scheme – farmers' cooperative. The farmers' cooperative was formed in 2017 and encompasses 700 farmers. A chairperson and a treasurer have been identified (elected by the farmers' community), but that is about as far as they have got, so the capacity-building need is great. The total planned irrigated agriculture area is around 10,000 acres (around 40 km^2). The intention is to set up a management company, owned by the cooperative, to manage the irrigation scheme and market the products. To this end there is a substantial need for training in all aspects of business management and administration. This will include commercial principles, governance structure, and financial management.

Meat production. An association has been formed with a chairperson and a treasurer identified. The supply chain and the market are basically identified. In the current set-up, cattle from Taita Taveta County are being transported to Mombasa by the coast where slaughtering takes place, and much of the meat is then sold for export to the Middle East market. In the forthcoming business model, the main task is to set up an abattoir (slaughterhouse) in the county to facilitate the entire supply chain from cattle to packaged meat on site. The capacity-building needs include business and administration management, institutional governance and management, and financial management. There may also be more technical training needs in relation to livestock keeping and meat production, abattoir management, and halal slaughtering principles and practices.

Capacity-building tier 3

The third level of capacity-building aims more at the 'grass-roots level'. For the irrigated agriculture it may encompass training of farmers in irrigated agriculture, choice of crop varieties, how and when to irrigate, planting and harvesting practices, when and how to apply fertilizers and pesticides.

For the meat production, it could (for example) entail methods of livestock keeping and livestock raising; methods and practices to improve meat quality in handling and feeding of livestock; slaughtering practices; and handling, storage, and transport of meat products.

For the water utility, improved skills of technicians to manage, repair, and maintain the water distribution system would be of importance.

All of the above examples of grass-roots-level training will serve to reduce the risk for failure of the business models and thereby secure a continuous need for the water supply. Reduced risk will be an important part of the risk evaluation linked to funding and investing in the scheme(s).

3.5 Enugu Water Supply Project, Nigeria

3.5.1 Background

Enugu is the capital city of Enugu State in south-eastern Nigeria with a population of around 1 million people.

Drinking water for Enugu city is mainly supplied from two water production facilities. The largest is the Ajalli Water Treatment Plant, which has a total design output capacity of 77,000 m^3 per day, and the smaller is the Oji River Water Supply Scheme, whose total design output capacity is 50,000 m^3 a day. There is a third source: the colonial era water supply scheme called the Iva Valley Spring, with a capacity of 4,500 m^3 per day. Thus, the total installed capacity from the three water production facilities is 131,500 m^3 per day.

Comparison of annual operational costs with the annual sales shows a major financial gap during the last three years. The current revenues of the Enugu State Water Corporation (ENSWC) represents no more than 9 per cent of the current operating costs. This apparently reflects poor management capacity of the utility, which is largely reliant on government subsidies due to its current low capacity for cost recovery and revenue management. One of the main causes of low cost recovery is poor water supply services leading to the fact that many households are not willing to pay the bill since they do not receive enough water.

ENSWC's active domestic connections cover only 4 per cent of Enugu State's population. After adding non-active connections, ENSWC still only covers 6 per cent of the state's population. With its installed capacity, ENSWC could cover up to 18 per cent of the population.

The federal government of Nigeria has been focusing for many years on reformation, policy development, and capacity-building of the states to provide reliable and sustainable water supply services for the people. International organizations also provide support to the federal and state authorities to improve water supply and sanitation services in the country – for example, the World Bank recently financed the water supply and sanitation reformation project (2004–2013). But a growing population and an ever-increasing demand for water and sanitation requires a greater effort beyond present endeavours. This means that a strong and capable administration and an effective management system should be in place to deliver sustainable water supply and sanitation services.

In addition to the institutional frameworks, financial model, and tariff system, ENSWC also needs to rehabilitate and upgrade the water supply infrastructure and tools. For example, laying of new pipes of various capacities and diameters for transmission and distribution networks as recommended by a consultancy firm (Hydroconseil); rehabilitation of the Ajali and Oji river treatment plants, replacement of five pumps at the Oji plant, and another five pumps at the pumping stations; installation of a dedicated power line to secure the plant's electricity supply; and installation of meters for the connected households.

Data from a 2011 UNICEF survey indicates that 20 per cent of Enugu State households, and 39 per cent of Enugu State's urban households get piped drinking water. Similar data were also reported in the World Bank evaluation report in 2017, which indicated that 40 per cent connection was achieved at the country level. But current data, from Enugu's assessment report, show low and even worse coverage because the network requires intensive rehabilitation, and operational management of water supply utility is inadequate.

3.5.2 Capacity-building assessment

SIWI, through its Africa Regional Country office, provided technical support to ENSWC to develop a consistent financial model and affordable tariff structure that enables ENSWC to recover its operational costs and ensure sustainable service provision to the households. The financial model will strengthen the cost-recovery practices for improving access to domestic and international capital to allow sustainable water infrastructure development and reliable water supply services to Enugu city.

In addition, SIWI conducted a capacity-building assessment to identify the gaps and weakness of ENSWC in terms of technical capability, financial management, administration, billing system, and operation and maintenance. The capacity-building assessment was conducted through:

1. Collection of data and information through a questionnaire, which was responded to by 16 civil servants from ENSWC

2. Video conference call with the senior management team of ENSWC to discuss their needs and challenges.

In 2013, a water supply reform project of the World Bank was completed in Enugu. A World Bank evaluation in 2017 reported that the project initially exceeded the outcome target of 40 per cent for new household connections at the country level. Since then the number of connections has declined. The reason for this is that – because of poor operation and maintenance management, and lack of reliable water

supply services – most households have disconnected from the network. Also, inadequate administrative capacity and poor infrastructure capacity made households even more unwilling to pay their water bills. The low tariff and poor billing recovery were another cause for reduction of the World Bank project achievement. In addition, a lack of autonomy for state water authorities vis-à-vis state administrative structures also hampered progress towards reform and limited the supervision ability and leverage of the Federal Ministry of Water Resources (MMWR).

ENSWC is now 90 per cent subsidized due to poor billing recovery and insufficient water supply services. According to ENSWC, the total annual budget provided by the state government for the operation of the utility is about NGN 1.5 billion (about USD 414,000). ENSWC's operations are restricted by its bureaucratic financial management processes and its lack of financial autonomy. It has no systematic financial system and its cash and balance sheets are handled manually. The utility has only government internal audit system without involving third-party auditing, which would provide better checks and control to ensure transparency, coherence, and cost-effectiveness. Its procurement system is based on the national procurement policy with competitive bidding process. Evaluation of bids goes through a long process which is part of the government bureaucracy and a complex administration system.

Project and programmatic risk analysis systems are not in place. The overarching goal of the Enugu Water Policy reflects the key aspects of good water services such as adequacy, reliability, quality, affordability, and sustainability. Thus, the ENSWC law and water policy is adequate in most respects, but they have not been fully implemented. Furthermore, ENSWC does not have a long-term business plan in place. The last business plan, for 2009–2013, was developed in 2008, but it expired before being implemented.

In addition to governance aspects, ENSWC management also proposed rehabilitation of infrastructure, particularly increasing pipe capacity to support the required level of discharge for transmission and distribution networks to provide reliable water supply at an acceptable service level to the households. Of four pumps only one is functional, so the water production capacity is lower than the design capacity while the demand is high.

The expansion of water supply transmission and distribution networks is also essential in order to reach poor people living in suburban areas, which are unable to afford to buy water from vendors. The utility authority also emphasized the need to improve the technical capacity of its engineering department. Gender balance is also poor with only 3 women employees out of 396 staff.

Children collecting water in Abuja, Nigeria. Worldwide, more than a billion people do not have access to safe drinking water. Photo: Fabian Plock/Shutterstock

3.5.3 Capacity-building needs

ENSWC management requires good knowledge of water governance and there is also a need of an overarching water supply policy and strategy for the state. ENSWC staff should improve their technical and management capacities so that they are able to manage and operate the utilities on the basis of good water governance criteria such as equity, accountability, coherency of policy and action, responsiveness, integration, and ethical guidelines to meet the domestic demand. In particular, the relevant department and stakeholders should also improve their administrative and financial management capacities.

Strong and capable water supply utility management is needed to ensure effective and efficient commercial and technical operations. The core values of the utility should be defined clearly as guiding principles that motivate staff behaviour, defining how staff act internally and externally. Organizational strategy, and competent and experienced human resources, are two more core components of utility management. Meanwhile, knowledge of water governance system is required to define rules, practices, and processes through which decisions on the management of water resources and services are taken and implemented, and decision-makers are held accountable.

Local authorities would benefit from improved knowledge of good water governance and integrated water management. This would enable them to improve water supply management tools and institutional frameworks. Not only would this allow them to provide better water supply services, but it would possibly help attract donors to financially support the rehabilitation of infrastructure systems.

Capacity-building on how to engage community/household participation for decision-making in the management of the urban water system, including discussion with households on the affordability of the tariff system, is also desirable. All these efforts would improve the management and administrative competence of ENSWC and would make the organization more capable of generating sufficient revenue through improved billing recovery systems for better operational management and maintenance of the utility.

Based on the current organizational structure, capacity-building needs have been identified for existing staff of the utility (Table 2).

Table 2. Capacity-building needs identified for existing staff of the utility Enugu State Water Corporation (ENSWC)

Department	Capacity-building
Senior management or Board of Directors	• Good governance, strategic objectives, and organization policy development and implementation • Guiding principles, business plan, core values, and business development
Administrative department	• Management services, staff discipline, managing customer relations • Supervision and control of general, administration, finance, and commercial files • Human resources management
Finance and Supplies Department	• Financial management • Managing operating expenditures and incomes • Monthly, quarterly, and annual account management • Reconciling payments on the electronic platform • Check and balance sheet management and audit • Procurement (works, goods, and services)
Engineering Department	• Baseline performance data, network design and expansion, feasibility studies for groundwater supply, hydrological and hydraulic analysis • Construction and rehabilitation of infrastructure; national water quality standard; monitoring and evaluation of transmission and distribution networks, pumping stations, and treatment plant; meter improvement and installation • Technical terms of reference for procurement process, risk analysis
Commercial Department	• Billing recovery system, reading meters • Raising bills and posting of payments, encouraging customers to pay bills • Household connection planning

3.6 Niger Basin Authority

Establishment of a Regional Climate Change Adaptation Fund (FRACC) and basin-wide payment for environmental services as part of the Integrated Program for Development and Adaptation to Climate Change in the Niger Basin (PIDACC/NB)

This section is based on interviews with staff at the Authority (NBA), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), and the World Bank, July 2018.

3.6.1 Background

The NBA was founded in 1964 as the River Niger Commission. In 1980, it was re-founded as the Niger Basin Authority to serve the nine member countries being riparian states to the River Niger (Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger, and Nigeria). While focusing mainly on water and hydroelectric resources, the NBA nations also use the organization to harmonize their development of energy, agriculture, forestry, transport, communications, and industrial resources. The NBA has worked to create an Integrated Development Plan of the Basin, focusing especially on cross-boundary projects. While not the original focus of the NBA, environmental protection from the threats of desertification, deforestation, and pollution of the rivers by agriculture and industry has become a major theme of its work.

Water erosion and silting have a major impact in the Niger basin, not only for downstream flows and the maintenance of biological balances and natural ecosystems, but also for habitats and all socio-economic activities. These phenomena, amplified over time with recurrent droughts, have weakened the living conditions of the populations and biodiversity in the Niger basin. The NBA has adopted a Water Charter that provides for the use of water in the basin to take into account the principles of: (a) equitable and reasonable use of water resources in the basin; (b) non-damaging use of water resources; (c) precaution and prevention; and (d) 'polluter-payer and user-payer'.

The Integrated Program for Development and Adaptation to Climate Change in the Niger Basin (PIDACC/NB) is justified by the need to promote sustainable social development, and to protect the major water infrastructures built in the basin and the main wetlands of the Niger basin. It will also consolidate and extend the important achievements of the previous program against silting in the Niger basin. It aims to implement basin-wide actions in each of the nine member countries of the NBA.

It has been decided to set up a regional fund for climate change adaptation (FRACC) to finance the implementation of payments for environmental services (PES). SIWI Africa has agreed to finance consultancy services to support the NBA in establishing the FRACC and PES mechanisms.

3.6.2 Capacity-building needs

Two visits to NBA have been undertaken, the last in July 2018, during which interviews were conducted with staff at NBA, GIZ, and the World Bank. These confirmed similar views on capacity-building needs within NBA. The following main points were highlighted during the interviews.

- NBA is in general under-staffed with respect to the current workload. This refers both to the basic administration and finance operations, as well as to staff for technical operational know-how.
- A number of key staff will retire in the near future. There is a need to develop a plan for replacement of these staff in order not to lose important institutional memory and knowledge.
- The World Bank has suggested the establishment of a finance mobilization team, which would be dedicated to looking into long-term financial sustainability of NBA and make efforts to broaden its portfolio of financial support, including innovative funding mechanisms.

The World Bank, in collaboration with several other donors, conducted an institutional and organizational audit of NBA. The audit was carried out by KPMG Côte d'Ivoire. However, the clients (World Bank and other donors) were not satisfied with the audit and demanded a complementary audit be carried out. The report of the complementary audit was expected to be finalized in October 2018, but it was further delayed well into 2019 and then not made public. Despite not having access to this complementary audit with possible additional capacity-building needs and staffing at NBA outlined, a strengths, weaknesses, opportunities, and threats (SWOT) exercise has been conducted for NBA (Table 3).

Table 3. A strengths, weaknesses, opportunities, and threats (SWOT) exercise of the Niger Basin Authority (NBA)

Strengths	**Opportunities**
• Well-organized institution • Established in the 1960s • Tools in place (Water Charter) that supersedes local institutional framework • Technical expertise available • Highly consultative institution (e.g. the Water Charter process, which was a full consultative process with the member states) • Strong control and procedures supported by a coherent organizational structure	• Water Charter and annexes should allow the NBA to play a more active role in basin management • Other basin organizations present examples of regional mechanisms that are a success • Donors have renewed their engagement, which shows confidence in the institution • Willingness to create additional funding mechanisms (including through the regional fund for climate change adaptation and payments for ecosystem services)
Weaknesses	**Threats**
• Challenges to retrieve member states' fees • No buffer in case of liquidity shortage • Limited funding to properly develop the envisioned mandates • Regional/political interferences • Long execution processes (9 states to represent) • Currently understaffed with retirements ahead • Shortage of financial governance skills linked to project development and to resource mobilization	• Different positions on what the NBA role should be in terms of regional governance vs implementation (even among the group of donors) • Pressure on national budgets limits the potential to increase national contributions to the NBA • Replacement of current experts who will retire (human resources management problem)

4. Conclusions

Lack of financing for improved water infrastructure is a major global concern, particularly important in developing countries, and the need may be greatest in Africa. Most actors and policy-makers involved in the water infrastructure sector know that financial flows, whether from public investments or grants, are insufficient to meet the huge demand for investments to ensure water, food, and energy security.

Currently, there is a large gap between the need for water infrastructure investments and potentially available funding. A major reason for this is that many of the implementing agencies are not sufficiently credible in terms of financial management and administration capability. Accountability and transparency of the organizations and how financial resources are handled may not be robust enough, causing investors to hesitate to make financial commitments. In most cases in Africa, government institutions are responsible for development of water infrastructure for the benefit of their citizens. When administrative and financial capacity is low, improving this government capacity (to achieve better governance) becomes imperative for bridging the water infrastructure financing gap.

Part of the reason for a lack of access by African governments to sufficient credit for infrastructure development is insufficient investment in the soft aspects of the infrastructure development, such as capacity-building, training, and raising integrity levels – all of which contribute to improved governance frameworks. These governance frameworks are essential for lowering the risk profile associated with specific water infrastructure projects and attracting the participation of a range of investors.

In addition, social and environmental capacity and expertise within implementation organizations may be asked for. Such knowledge is essential when it comes to, for instance, undertaking environmental and social impact assessments of planned projects. Knowledge in cross-cutting issues such as gender aspects, poverty reduction, human rights, and climate change are other areas of expertise of great importance. However, most cutting-edge expertise can also be brought in on demand, while basic transparent administrative and financial functions have to be inherent in any organization.

The six pilot projects presented in this report are all different in their background, context, and governance structure. Four are transboundary and two are national projects. Only one is a private business venture, while the others are under government governance. However, in nearly all cases, basic financial administrative capacity is listed as an important capacity-development need. This lowest common denominator sheds light on one of the most crucial aspects when it comes to attracting funding, namely that the implementing agency is financially accountable, can demonstrate financial and administrative transparency, and has a robust management and accounting system in general. The organization needs to instil trust in the potential financier that financial and administrative management will not be a shortcoming when it comes to implementing the project.

5. Summary

The capacity-building needs are quite different for the different pilot projects. However, financial and administrative capacity is clearly something that all project organizations would benefit from. Table 4 summarizes the main capacity-building needs for the different organizations.

Table 4. Summary of the main capacity-building needs for the six pilot projects

Country/ location	Name of project	Type of organization	Areas of capacity-building need
Lesotho, South Africa, Botswana	Orange-Senqu River Basin Commission (ORASECOM) and the Lesotho–Botswana Water Transfer Scheme (L-BWT)	Multi-governmental river basin organization	• Law and regulation • Financing and public–private partnership (PPP) • Socio-economic conditions and impact assessment
Tanzania and Malawi	Songwe River Basin Commission	Multi-governmental river basin organization	• Capacity to update the financial model and plan for development • Financial management and support system • Procurement and contracting capacity • Legal know-how and capacity • Information and communications technology (ICT) • Awareness training on cross-cutting issues
Nile Equatorial Countries	Nile Equatorial Lakes Subsidiary Action Program (NELSAP)	Multi-governmental member organization	• Project financial structuring and implementation management • Project risk analysis, land acquisition, environmental impact assessment, and due-diligence study • Project procurement and ensuring project funding source, operation, and maintenance
Kenya	Njoro Kubwa Integrated Bulk Water Supply Project	Private sector company (Miraadi Water)	• Capacity-building of Miraadi Water on the ability to package and present the project in an attractive format, suitable for both grant providers and private investors • To strengthen the performance of the three intended buyers of water from the bulk water supplier – farming cooperative, water utility, meat production • At the grass-roots level aimed at farmers, livestock keepers, and water technicians
Nigeria	Enugu Water Supply Project	State water utility	• Good governance • Development of a water supply policy and strategy • Business plan, core values, and business development • Human resources management and discipline, managing customer relations • General administration and finance • Baseline performance data, network design and expansion, feasibility studies for groundwater supply, hydrological and hydraulic analysis • Construction and rehabilitation of infrastructure • Billing recovery system, reading meters, raising bills, and posting of payments • Household connection planning
Niger basin countries (Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger, Nigeria)	Niger Basin Authority (NBA)	Multi-governmental river basin organization	• Human resource management and staff development plan • Staff retirement replacement plan • Financial and administrative operation and sustainability • Fundraising and business development

Authors

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About SIWI

Stockholm International Water Institute (SIWI) seeks to strengthen water governance for a just, prosperous, and sustainable future.

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