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AWF SUPPORT TO THE NIGER-HYCOS PROJECT

APPRAISAL REPORT

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AFRICAN WATER FACILITY

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LIST OF ACRONYMS

ACMAD	African Centre of Meteorological Applications for Development
ADCP	Acoustic Doppler Current Profiler
AGRHYMET	Regional Training and Application Centre in Agro-meteorology and Operational Hydrology
AOC	Afrique Occidental et Centrale (West and Central Africa)
AOC HYCOS	Hydrological Cycle Observing System in West and Central Africa
AWF	African Water Facility
CILSS	Comité Inter-Etats de Lutte contre la Sécheresse au Sahel (Inter-States Permanent Committee for Drought Control in Sahel)
DCP	Data Collection Platform
ECOWAS	Economic Community for West Africa States
EUWI	European Union Water for Africa Initiative (EUWI)
FAO	United Nations Food and Agriculture Organization
FDA	French Development Agency
FRIEND	Flow Regimes from International and Experimental Network Data
GEF	Global Environmental Facility
GWP	Global Water Partnership
HYCOS	Hydrological Cycle Observation System
IRD	Institute of Research and Development
IWRM	Integrated Water Resource Management
LFA	Logical Framework Approach
MoU	Memorandum of Understanding
NBA	Niger Basin Authority
NHS	National Hydrological Service
OHRAOC	Regional Hydrological Observatory for West and Central Africa
OIEau	Office International de l'Eau (International Office of Water)
RAP/IWRM/WA	Regional Action Plan Integrated Water Res. Mgmt in West Africa
RBM	Result Based Management
RNC	River Niger Commission
SC	Steering Committee
TA	Technical Assistance
ToR	Terms of Reference
TWRM	Trans-boundary Water Resources Development
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
WHYCOS	World Hydrological Cycle Observation System
WHO	World Health Organization
WMO	World Meteorological Organization
WRCU	Water Resources Coordination Unit (of ECOWAS)
WS&S	Water Supply and Sanitation

AWF NIGER-HYCOS PROJECT - LOGICAL FRAMEWORK

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	TARGET GROUPS AND BENFICIARIES	PERFORMANCE INDICATORS, SOURCES OF VERIFICATION	RISKS AND MITIGATION STRATEGIES
DEVELOPMENT GOAL: Contribute to economic growth, reduced poverty, enhanced livelihood, better health and food security, improved aquatic environment, and reduced water conflicts in the Niger Basin.	**IMPACT:** Upgraded and consolidated basin-wide hydrological observation network and information system providing easily accessible information for all users fostering better regional cooperation, more effective water development and poverty reduction under the auspices of the Shared Water Vision program.	– Hydrological service providers – Water sector planning and regulatory authorities – Public and private sector development actors, NGOs and service providers – Urban and rural populations	Indicators: Measures for economic growth, reduced poverty, and enhanced livelihood, health and food security of all people in the Niger Basin (Macro-indicators) by improved water availability, due to enhanced water knowledge and information services. Sources: National statistics and development status reports, Shared Water Vision monitoring reports, Niger-HYCOS Progress reports and project supervision/ evaluation missions	Risks - Niger-HYCOS not contributing to achievement of development goals due to poor project performance. - Overall development goals not reached due to external risks beyond the control of the project, such as low performance of the National IWRM Action Plans, inefficient Poverty Reduction Programs, or weak performance of the Shared Water Vision activities in the riparian countries. Mitigation: - Details of mitigation strategies are mentioned under Activities - NBA using its influence to motivate member countries.
PROJECT OBJECTIVES: "To enable NBA and the National Hydrological Services (NHS) of the member states to operate an appropriate and sustainable hydrological information services thus contributing to	**OUTCOMES:** - An operational and sustainable HYCOS Network in place in all NBA member countries supporting the fulfilment of the Shared Vision objectives. - The Niger-HYCOS system providing timely and reliable hydrological information to all its user groups. - National Hydrological Services in each of the 9 NBA countries strengthened and effectively providing data and information for the implementation of National IWRM Action Plans and water resources development under the Shared Vision.	Same as above	Indicators: NBA and the National Hydrological Services (NHS) effectively operate the hydrological knowledge base and information services and users receiving appropriate information products. Source: National and regional statistics and reports.	Risks - HYCOS performance hampered by non-functioning hydrological equipment and data transfer systems. - Hydrological staff not retained in the NHS after training. - Weak ownership to the project by authorities and stakeholders in partner countries. Mitigation: - Measures to minimize technological and O&M risks are built into project mgmt quality control and advisory structure. - NBA creating favourable working

sound water resources development.	- Trans-boundary WRM and joint development projects among the riparian states are benefiting from improved hydrological information services.			relations with NHS in member countries - The signed MoUs between NBA and 9 member countries formalises ownership and commitment
ACTIVITIES:	**OUTPUTS:**			
Activity 1: Strengthening of National Hydrological Services (NHS) in the member countries	- Enhanced IWRM institutional capacity by well trained hydrological personnel and supervisors - Extended and modernized hydrological monitoring networks by installing or upgrading 14 Data Collection Platforms (DCPs) and associated infrastructure, equipment, and data transmission systems;	NHS staff and managers	Indicators: - Physical deliverables and TA services timely delivered according to stated quantities and within agreed budgets - 14 DCPs installed/ upgraded Verification: Project Progress Reports, supervision missions and evaluation reports.	Same as above
Activity 2: Strengthening of the Regional Project Centre (RPC)	- Upgraded Regional and National Hydrological data bases and enhanced skills and capacity of the NHS pursued by RPC support and training.	RPC Staff	Indicators: - Equipment, training and TA services timely delivered as planned within approved budgets Verification: Same as above	Same as above
Activity 3: Training Support	- Enhanced hydrological knowledge and information services achieved by training of 540 officers from the riparian countries trained in hydrological and WRM services);.	RPC Members	Indicators: - 540 staff from national hydrological and water related services in 9 riparian countries successfully trained. Verification: Same as above	Same as above
Activity 4: Project Evaluation	The Project duly evaluated and reported after completion.	SC, NBA, donors	Evaluation Report approved	N/A
Activity 5: Strengthening of Hydrological Forecasting Services	9 staff of NHS trained at RPC in hydrological modelling and forecasting and such services improved.	Hydrological Forecasting Staff	Indicators: - 9 staff successfully trained at RPC in hydrological modelling and forecasting Verification: Same as above	

0 EXECUTIVE SUMMARY

0.1 Origin of the Project

0.1.1 The Niger Basin Authority (NBA) has requested AWF to support the implementation of the Niger-HYCOS[1] Project. The NBA, which will be the recipient of the AWF grant, is a river basin organisation created under a convention between the nine riparian states of the Niger Basin. Its objectives are to strengthen the management and development of the shared trans-boundary waters for the benefit of the basin population thus contributing to economic growth, reduced poverty, and enhanced livelihood for all stakeholders. These objectives are translated into actions on the ground through the Shared Vision Process for Sustainable Development of the Niger Basin. The political will to participate in the Shared Vision was confirmed by the heads of states of the nine riparian countries[2] and NBA at a conference in Paris, April 2004.

0.1.2 Among the many water resources and watershed management challenges facing the Niger Basin riparian states can be mentioned the escalating environmental degradation, land erosion, sediment transport, depletion of water resources, reduction in flood plain areas, over exploitation of pasture lands, poor agricultural practices, and water pollution. This negative trend in the Niger Basin is exacerbated by the long term effects of global warming.

0.1.3 Reliable and long-term hydrological data and knowledge are a prerequisite for appropriate design and operation of water infrastructure (dams, hydropower, flood protection, erosion control, irrigation schemes, river transport, and water supply and sanitation etc.). The hydrological services in the Niger Basin are generally insufficient to support the interventions and investments under the Shared Water Vision Program. The Niger-HYCOS is a joint basin-wide hydrological monitoring system that is necessary for NBA and the member countries to properly perform their water resource planning, management, and development responsibilities. Like other basin-wide HYCOS systems, the Niger-HYCOS is linked to the World Hydrological Cycle Observation System (WHYCOS) aimed at improving the basic water resources monitoring activities, and strengthening the international hydrological cooperation.

0.2 The Niger-HYCOS Project

0.2.1 The HYCOS-Niger Project has 3 years duration including the initial phase of 6 months preparatory study that started in April 2005. The main project has a planned duration of 30 months from January 2006 to July 2008. The project shall strengthen the capacity of the National Hydrological Services (NHS) in NBA's member states and upgrade the HYCOS monitoring infrastructure and operations managed by NBA. The total project costs are estimated to about 5.16 million Euro financed by AFD (about 3 million Euro), the proposed AWF grant (1.2 million Euro), and the in kind contributions from NBA (230,000 Euro) and the nine member countries (730,000 Euro) totalling 960,000 Euro.

[1] HYCOS: Hydrological Cycle Observation System
[2] Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Guinea, Mali, Niger, Nigeria and Chad

0.2.2 NBA has requested AWF to co-finance some essential project activities comprising: (i) Strengthening of National Hydrological Services (NHS) in the member countries; (ii) Support to the Regional Project Centre (RPC); (iii) Training Support; (iv) Project Evaluation; (v) Strengthening of Hydrological Forecasting Services.

0.3 Conclusion and Recommendation

0.3.1 Based on a comprehensive assessment of the funding request for the Niger-HYCOS Project in terms of its relevance, effectiveness, sustainability, and the recipient's credibility and capacity, the Bank is recommended to approve NBA's application for funding of 1.2 million Euros.

1 BACKGROUND

1.1 Origin of the Project

1.1.1 River Niger (see maps in Annex 1) is the third longest river on the African Continent, (4200 km). The watershed comprises a mountain plateau, wetlands, deserts, and deep valleys and the basin is subdivided in four main zones. The Upper Niger starts in the Guinean ridge of Fouta-Djalon a region of high plateaus with an average altitude of about 1,100 meters. The river runs North-East and forms, during the rainy season, a vast flood plain in Mali, called the Inner Delta. After the Inner Delta, the river makes a turn in Mali and runs South-East through Niger and towards Nigeria called the Middle Niger. It continues to Nigeria in the Lower Niger in where the flow increases considerably after the confluence with Benue River from Cameron before entering the Atlantic Ocean.

1.1.2 The active basin is shared by the nine West and Central Africa States: Benin, Burkina, Cameroon, Côte d'Ivoire, Guinea, Mali, Niger, Nigeria and Chad. The River Niger covers the needs of the riparian populations for water to farming, habitat for fish resources, hydropower production, river transport etc. The flood plains of the river are generally developed for the production of rice, cotton, wheat and market-gardening. The region of River Niger serves as habitat for more than 130 aquatic species, including fish, hippopotami, crocodiles and manatees. Furthermore, the abundant plant biomass associated with the extension of these wetlands constitutes a unique reservoir of biodiversity and an essential barrier to desert encroachment

1.1.3 The natural environment of the basin is highly determined by climatic factors including rainfall and temperature. The rainfall is unevenly distributed in the basin and in addition to this geographical variability there is a considerable inter-annual variability. Over the last three decades it has been a general decrease in the mean inter-annual rainfall moving the arid zones from north towards south. As far as the long term effects of global warming are concerned there are indications of persistent increase in the average daily temperatures the last 40 years.

1.1.4 The NBA and the nine riparian countries are involved in many water management and development projects with different consequences for the river basin. An example is the ADF funded NBA project "Silt Control in the Niger River", a five years project (from January 2004 to December 2008). The project is to mitigate the alarming increase of levels of erosion and sedimentation affecting the whole catchment of the river. The project is an extensive multinational silt control program in the middle parts of the basin situated in Niger, Mali, and Burkina Faso. The project interventions are in conformity with the policy of IWRM of the Bank and the NBA member States, focusing on poverty reduction, environmental protection and sustainable management of natural resources.

1.1.5 Among other relevant Bank funded interventions in the Niger Basin can be mentioned the proposed co-financing of the RWSSI Project in Niger called the ADB

initiative for rural water supply and sanitation – the launching sub-component now under preparation. The project is located in the three regions Tahoua, Tillabéri and Maradi. AWF is also preparing the funding for National WRM Action Plans in various riparian countries in consultation with the Water Resources Coordination Unit (WRCU) of ECOWAS.

1.1.6 The Niger-HYCOS is part of the World Hydrological Cycle Observing System (WHYCOS) a WMO guided program to improve water resources knowledge and monitoring services, strengthened international cooperation across national boundaries, and free exchange of hydrological data and information. WHYCOS is developed for promoting a bottom up approach, from the country level through the basin to global scale and it primarily focus on strengthening technical and institutional capacities of National Hydrological Services (NHSs) and improving their cooperation in the management of shared water resources as illustrated in Figure 1.

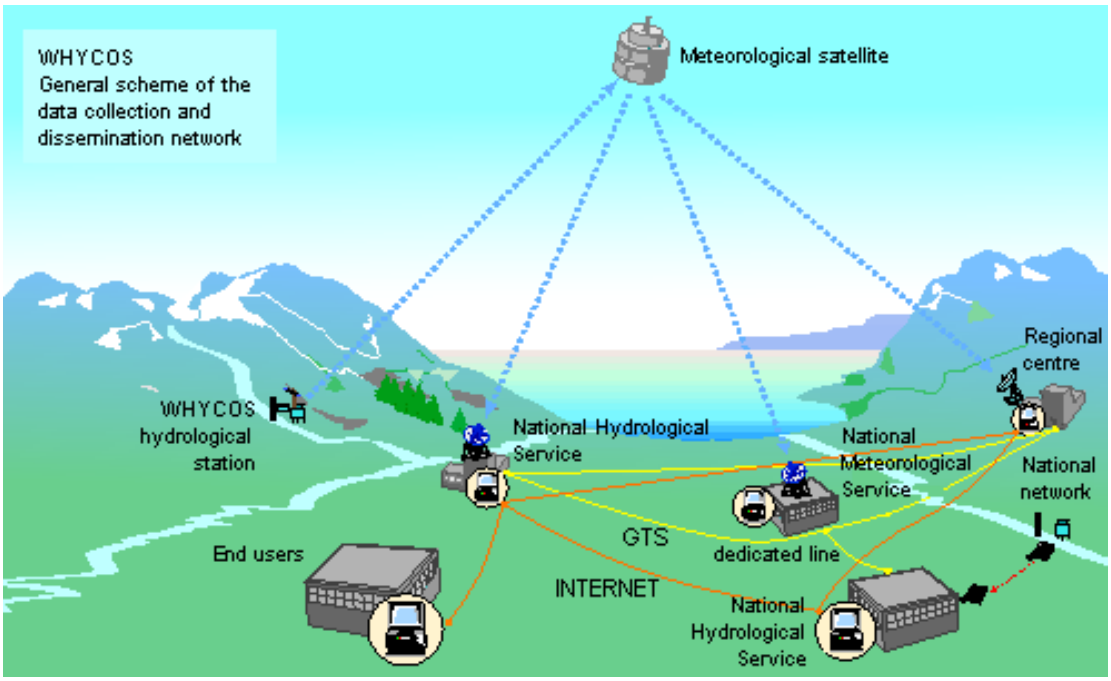


Figure 1.1 Illustration of main elements of a HYCOS Network

1.1.7 A properly operating Niger-HYCOS is a pre-requisite for NBA to perform its water resources planning and management responsibilities according to international standards and to meet the needs of the riparian states for hydrological data and information for infrastructure design and operations. This involve strengthened national hydrological services and enhanced cooperation between the member states on water development projects at national level and joint projects among riparian states. Such national and trans-boundary oriented process will also contribute to enhanced reliability and transparency of hydrological data and confidence among the partner states.

1.2 Sectoral Priorities

1.2.1 The NBA member states give high priority to the joint management and development of the basin resources while paying due attention to the environmental concerns. Hence, they have mandated the Executive Secretariat of NBA to pursue the development of a Shared Vision Process for Sustainable Development of the Niger Basin with the assistance of development partners. The Niger Basin Authority (NBA) Shared Vision concept is based on the West African Conference in March 1998, where the "Ouagadougou Declaration" urged the countries sharing a river basin to "create or consolidate their basin organization". The political will to participate in the Shared Vision was confirmed by the heads of states of the nine riparian countries[3] and NBA at the Paris meeting in April 2004.

1.2.2 The Shared Vision will act as a catalyst for enhanced regional integration both at the political, economic, and public level, and will pave the way for exploiting opportunities for joint works and investment programmes among the basin states. This is considered a suitable instrument for increased regional food production and hydropower development, promotion of river transport, industrial development and many other associated activities contributing to regional development and environmental preservation.

1.2.3 The evolving "Niger Basin Observatory" of NBA is an important Information and Knowledge (I&K) management initiative for the entire basin that is essential for effective implementation of the Shared Water Vision. Its main function is to collect, store, analyze, and disseminate data and information on natural resources, as well as monitoring of environmental state of the basin, and assessment of the impacts of water development interventions in a basin-wide development context. The Niger-HYCOS is an indispensable supplier of timely and reliable data and information to the Observatory.

1.3 Problem Definition

1.3.1 There are numerous water resources challenges facing the nine riparian countries of the Niger Basin. The economies of these states highly rely on the development and use of the water resources for agriculture, livestock, WS&S, hydropower, fisheries, river navigation etc. Despite the substantial natural resources of the River Niger basin, its populations are living difficult and unstable conditions and famine is a recurrent phenomenon in the countries of the region. Major identified issues in the Niger Basin include land degradation, sediment transport, water scarcity, loss of biodiversity, flooding, water borne diseases, growth of aquatic weeds, and water quality degradation. These problems are exacerbated by the uneven annual and spatial distribution of water resources in the region. Appropriate hydrological data and services are important factors in problem resolution.

1.3.2 Among some specific water related economic activities and challenges in each zone of the river can be mentioned mining and wood exploitation activities in the Upper Niger, including the large potential of flow regulation for hydropower production, flood control, and enhanced river navigation. The Inner Delta is a flood

[3] Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Guinea, Mali, Niger, Nigeria and Chad

prone area hosting about 30% of Mali's population and has a considerable agricultural production and plays an important role as the main rice producing region of Mali and it also provides substantial pasture land and fish resources. The Middle Niger is also a notable rice production and pasture region making it vulnerable to river flow changes, since the average flow rate is significantly lower than in the upper parts of the basin. In the Lower Niger the river flow increases considerably after the confluence with the tributaries, especially the Benue River from Cameron. The Lower Niger has large reservoirs for hydropower production and an increasing industrial production with heavy impacts on the flow regime and the water quality of this part of the river.

1.4 Beneficiaries and Stakeholders

2.4.1 The Niger-HYCOS shall serve the interests of all the partners involved in water and land management throughout the basin, including hydrological forecasts adapted to the various types of users and beneficiaries. At a macro level, the water resources information system shall particularly facilitate social and economic development by extension of irrigated agriculture and enhancement of its efficiency for increased food security, promotion of river navigation, increased hydropower production, construction of appropriate reservoirs and flood attenuation structures, early warning of extreme floods for enhanced welfare and economic development.

1.4.2 The primary beneficiaries of the Niger-HYCOS project are the users of hydrological information provided to them by the national hydrological services. Hence, strengthening of the quality of hydrological services of the NHS will provide a better hydrological basis for the water development investments and water dependent economic activities and services. Moreover, improved hydrological knowledge will pave the way for fact based strategies and decision making in the fields of water resources and environmental management to assure equitable sharing of common waters among nations, economic sectors and single users. In brief the main beneficiaries comprise:

- NBA a key for the pursuance of the Shared Vision;
- Institutions in charge of operational hydrology basically the NHS;
- Political leaders, water regulatory authorities, and other policy and decision makers;
- Economic sectors such as agriculture and agro-industry, hydropower, fisheries, inland navigation, industry, and tourism
- Service providers water supply and sanitation;
- Environmental management authorities;
- Reservoir operation managers;
- Scientists and researchers of complementary programs i.e. FRIEND-AOC,
- Universities and schools;
- African media (press, radio, television) and the public society at large
- Niger Basin Observatory;
- Regional and International Institutions (NBA, AGRHYMET, ACMAD, WMO, UNEP, UNESCO, FAO, etc.)
- International development cooperation agencies.

1.4.3 Ultimately all people of the riparian countries of the Niger Basin who in different ways depend on the river are the beneficiaries of the Niger-HYCOS due to improved performance of the above mentioned authorities and development actors leading to better water management, capital investments, and improved performance of water related sectors..

2 THE PROJECT

2.1 Impacts

2.1.1 The immediate technological impacts of the Niger-HYCOS Project is a system in place that provides reliable and easily accessible information and forecasting on water resources of the basin that will serve as a basis for equitable sharing of water resources among riparian countries, sectors and users. The impacts of the project will also be to enable NBA and the National Hydrological Services (NHS) of the member states collectively to perform appropriate, and sustainable hydrological information services that in turn will contribute to the performance of the Shared Water Vision process at river basin, national and local level.

2.1.2 The development impact of the project is to contribute to economic growth, reduced poverty, and enhanced livelihood, health and food security of all people in the Niger Basin. This shall be achieved through improved water availability, reduced impacts of floods and droughts, and mitigation of erosion, siltation and other environmental threats. It will also contribute to increased quality of investment projects in water related sectors and service provision (hydropower, agriculture, water supply and sanitation, industry, inland navigation etc.) and avoidance of water conflicts. The river development interventions are of special concern for women in rural areas who are often in charge of water provision, agricultural food production and commercialization of this production that for example would be facilitated by enhanced river navigation conditions.

2.2 Outcomes

2.2.1 The AWF support will be an integral part of the Niger-HYCOS Project under common framework of objectives, outcomes, assumptions and risks. Hence, the outcomes of the AWF Support will be part of the collective outcomes of all project activities. The outcomes of the AWF support are summarised in the following.

2.2.2 ***Outcome 1:*** *An efficient and sustainable HYCOS hydrological network and services in place in all NBA member countries delivering the required hydrological information to the HYCOS database.* This includes an operational and reliable regional system for collection, transmission and archiving of data on water resources situation with required speediness and frequency based on a network of strategic hydrological stations.

2.2.3 ***Outcome 2:*** *The Niger-HYCOS services providing appropriate, timely, and reliable hydrological information products to all its user groups.* This entails the availability of high quality, coherent and constantly updated information on the surface water resources, in the basin, especially the flow pattern regardless of its geographic, seasonal and multi-seasonal and multi-annual variability.

2.2.4 ***Outcome 3:*** *National Hydrological Services in each individual NBA country strengthened and effectively providing data and information for the implementation of National IWRM Action Plans and associated investments in water related economic sectors and services.* Most of the National Hydrological Services (NHS) of the States in the sub-region are at the present insufficiently equipped and performance of the hydrological information services is insufficient. NHS will be substantially strengthened through the national training and capacity building activities of the Niger-HYCOS. Another contributing factor will be enhanced hydrological information transparency and cooperation between the nine riparian states.

2.2.5 ***Outcome 4:*** *Trans-boundary WRM strengthened and emerging joint water development actions among the riparian states benefiting from improved hydrological information knowledge.* This is to enable the integration of the hydrological aspects in the national and regional sustainable development policies for water sector investments. A better basis for the determination of the exploitable portion of the water resource will contribute to knowledge based agreements among riparian states on equitable water sharing advocated by NBA.

2.3 Outputs

2.3.1 The project will include physical deliverables, project management support, training of hydrological staff etc. as agreed in scope, quality, and timing. Improved governance, operational skills and capacity of the hydrological services at national and river basin level are fundamental for the success of the Shared Water Vision process. The outputs of the below activities that collectively will contribute to the achievements of the five outcomes of the AWF grant will compose:

1. Related to Activity1: Extended/modernized hydrological monitoring networks by installing/upgrading of 14 Data Collection Platforms (DCPs) funded by AWF (out of a total of 54 of the whole project) including associated structures, equipment, data transmission systems, and spare parts for 5 DCPs;

2. Related to Activity 2: RPC's capacity strengthened to perform training, coordination of project activities, promotion of regional cooperation, and sharing of experience and information, upgraded regional hydrological data base, Strengthened NBA's focus on groundwater management, enhanced water quality monitoring, and increased involvement of all stakeholders;

3. Related to Activity 3: Training in hydrology and IWRM of at least 540 officers from the riparian countries contributes to enhanced hydrological knowledge and information services and strengthened water management and development planning benefiting the implementation of the Shared Water Vision.

4. Related to Activity 4: Project evaluated and experience disseminated;

5. Related to Activity 5: 9 staff successfully trained in hydrological modelling and forecasting at the Regional Project Centre (RPC) contributing to improved

performance of hydrological modelling and forecasting services in the river basin.

2.4 Activities

2.4.1 The AWF support will include funding of a number of important activities comprising TA services, operational costs and investment in equipment and tools. The scope and preliminary cost estimates of the AWF funded activities were established in close cooperation with NBA during appraisal. The Facility considers provide support to the project activities specified below.

2.4.2 Activity 1: Strengthening of National Hydrological Services (NHS) in the member countries. This constitutes a major element of the AWF support since the national services are essential suppliers of data to the Niger-HYCOS data base operated by the NBA. The AWF support covers field hydrometric systems, data processing and dissemination at national level, and in-country training of hydrological field personnel as summarised in the following: (i) Upgrading of existing hydrometric stations based on Data Collection Platforms (DCPs); (ii) Establishment of new strategic hydrometric stations, provision of hydrometric field equipment, data transmission systems, and training in all riparian countries; (iii) Strengthening of data processing and dissemination by procurement of hydrological software and data processing equipment, data verification, national water resources modelling, and preparation of planning and decision making indicators for IWRM; and (iv) Capacity building of the NHS through preparation of modules for in-country training sessions performed by the trainers who have been trained at the RPC assisted by project staff. The goods and services involved in these activities have been identified and budgeted for in detail.

2.4.3 Activity 2: Strengthening of the Regional Project Centre (RPC). The Regional Project Centre (RPC) comprises the Execution Unit that coordinates the implementation of the project activities in and by the participating countries. In addition to training it promotes regional cooperation on assessment and management of natural resources and exchange of experience and competences between countries. The Centre is also responsible for the monitoring of the hydro-metric network operations, implementation of training activities, and provision of other assistance to the member countries. The RPC is in charge of the management of the Regional Information System covering practical information on hydrology, status of the main aquifers, level of major dam, water resources development projects. The AWF support will comprise technical assistance, office equipment, computers and software, and other investments and project related operational costs.

2.4.4 Activity 3: Training Support. Enhanced hydrological knowledge and improved performance of hydrological and IWRM services in each member country is important for effective implementation of the Shared Water Vision. The AWF support includes development of a training module, provision of training tools and equipment, and covering of TA expenses for the implementation of training of hydrological staff from each of the member countries. This activity includes the training of about 540 water officers from the riparian countries (6 training modules, 9 countries and supposedly 10 persons from each country trained in hydrological and WRM services).

2.4.5 Activity 4: End of Project Evaluation. AWF will fund the final evaluation of the Niger-HYCOS Project to be conducted 2 months before the end of the project. It shall be carried out by an independent expert including a mission visiting the RPC and some countries participating in the project. The evaluation report will be forwarded to the Project Steering Committee (SC), the Supervising Agency and the donors.

2.4.6 Activity 5: Strengthening of Hydrological Forecasting Services
This activity comprises support to strengthen NBA's hydrological and forecasting services including forecasting and simulation programmes for floods and droughts. The AWF contribution will cover training of one officer from each country i.e a total 9 staff at the Regional Project Centre (RPC) in hydrological modelling and forecasting.

2.5 Risks

2.5.1 It is important to identify and elaborate on risks threatening the efficiency of the project and jeopardising the achievement of the objectives summarized in the LFA matrix. There is a broad variety of risk factors ranging from technological risks to the chance of not contributing to the overall development goals beyond the control of the project even if the project as such has been successfully implemented.

2.5.2 The technological risks are linked to the quality and reliability of the delivered hydrological equipment and data transfer systems. Cases of non-functioning technical equipment will reduce the quality of the hydrological information supplied to water sector decision makers, regulators, planners, investors, service providers etc. and would reduce the value of the Niger-HYCOS operations. Such risks have been mitigated by taking into account lessons learned from previous problems facing the operation and maintenance hydrometric stations. Measures to minimize these risks are already embedded in the specification of the equipment, system design, and included in the quality control functions of the project supervision and advisory structure.

2.5.3 Other risk factors such as delayed procurement and installation of the hydrological equipment by each member country are dealt with in the agreements between NBA and each riparian country. The project implementation plan has also taken into consideration the risks of delays when designing the required capacity to address possible delay situations. Moreover, the threat of equipment being vandalised by people or other causes such as extreme floods etc. will be mitigated by making provisions for stocks of spare parts that can be quickly mobilised for necessary replacement and repair work. The supervision responsibility by assigned caretakers is also an element of problem mitigation.

2.5.4 Weak ownership to the project by the partner countries is a potential risk factor. The contributions from the member countries are related to the assignment of staff to the project, provision of facilities, and other operational and financial inputs. The signed MoUs between NBA and the hydrological authorities of the member countries formalizes the obligations of each party, but does not guarantee their compliance. Weak project performance may also result from lack of resources assigned to the project due to overcommitted staff or staff leaving the hydrological service after they have benefited from training. A mitigating factor is that NBA has

promoted enhanced involvement and ownership of heads of the national hydrological services in the preparation of the Niger-HYCOS Project as part of the MoUs.

2.5.5 Provided the Niger-HYCOS deliver the information and knowledge services as planned, the envisaged impacts of the project in the view of the overall development goals may still be limited if the associated development actors and authorities are not performing as anticipated. This might be due to low performance of the National IWRM Action Plans, the Poverty Reduction Programs etc., or that the Shared Water Vision is not able to benefit from improved hydrological information and knowledge to achieve tangible results on the ground. Such effectiveness issues are related to a more complex set of risk factors beyond the control of the project.

2.6 Costs and Financing Plan

2.6.1 The broad cost estimate for each activity was established during the appraisal mission. Later NBA submitted a complete itemized budgetary breakdown of the Niger-HYCOS Project including the AWF activities in a revised and updated Project Document. Annex 2 gives a summary of the cost estimates for the AWF funded activities and Table 1 below shows the overall budget and funding arrangements for the complete Niger-HYCOS Project including the AWF funding contribution.

Table 1 Overall Project Costs and Funding (Euro)

Item	Funded by AFD Euro	Funded by AWF Euro	Total Cost Estimate Euro	% of Project Costs
Preparatory Phase	188,768	0	**188,768**	4.5%
Strengthening National Hydrological Services	1,522,162	614,942	**2,137,104**	50.9%
Strengthening Regional Project Centre (PRC)	660,447	317,695	**978,143**	23.3%
Training	300,000	127,565	**427,565**	10.2%
Steering Committee	44,972	0	**44,972**	1.1%
Executing Agency Services	60,000	0	**60,000**	1.4%
Services Supervising Agency	140,000	0	**140,000**	3.3%
Services IRD	38,775	0	**38,775**	0.9%
Services AGRHYMET (training not incl.)	11,000	0	**11,000**	0.3%
Project Evaluation	0	20,000	**20,000**	0.5%
Hydrological Forecasting	0	60,000	**60,000**	1.4%
Misc. and unforeseen	33,875	60,000	**93,875**	2.2%
TOTAL (Euro)	**3,000,000**	**1,200,203**	**4,200,203**	**100%**

2.6.2 In addition to the above NBA has committed a contribution of 230,500 to cover staff expenses for project management carried out by its managers and specialists in legal affairs, accounting, procurement, secretarial services, office facilities, telecommunication, logistical support, etc. The contributions from the nine member countries, estimated to a value of 730,000 Euro will comprise allocation of staff from their hydrological departments, provision of office facilities for project staff, logistic support, administrative assistance, etc.

3 PROJECT IMPLEMENTATION

3.1 Recipient

3.1.1 The Recipient and Executive Agency of the AWF-NBA Grant Agreement will be Niger Basin Authority (NBA) – an inter-governmental organization and has the required legal status to receive and manage financial resources directly. The NBA plays today a key role in strategic coordination and monitoring of water related investments supported by numerous external support agencies under the auspices of the Shared Water Vision process for a harmonized and sustainable development of the Niger water resources.

3.1.2 NBA has demonstrated its capacity to conduct larger development cooperation projects with various donors and international organizations, and through its cooperation with AFD on the Niger-HYCOS project. It has also established good working relations with the ADB through the Bank funded project agreement with NBA on silt control in the Niger Basin. So, in addition to its formal status as an institution eligible for AWF support, it is also considered to have the necessary skill and capacity to be in charge of the implementation of the AWF funded activities.

3.2 Implementation Arrangements and Capacity

3.2.1 The Niger-HYCOS Project is one of the projects under the "Convention de Financement" between NBA and AFD signed 9 April 2004. The Project Document (November 2005) lays down the main implementation arrangements that also apply for the AWF funded activities. The document has now been revised and updated to cater for AWF's contributions. On the basis of this convention each member state has signed a MoU with NBA as a formal commitment to the implementation of the Niger-HYCOS project. It will be implemented by the input of human resources and other contributions provided by NBA and the national hydrological services (NHS) of each member country reinforced by TA and other inputs assigned to the project by external support agencies. Figure 3.1 illustrates the main elements of the project management arrangement.

3.2.2 NBA will be the implementing agency responsible for (i) project administration, coordination and financial management; (ii) setting up a Regional Project Centre (RPC) including the Project Execution Unit (PEU)lead by the Project Manager (PM); (iii) coordination of the project activities with other associated water projects in the Niger Basin; (iv) preparation of proposals, ToR and bid documents and procurement administration; (v) contract management and supervision; and (vi) project accounting, internal control and progress monitoring and progress reporting. The project will be implemented on the basis of Annual Work Plans to be approved by the Steering Committee, which serves as a basis for the Project Manager's performance and progress reporting to the SC.

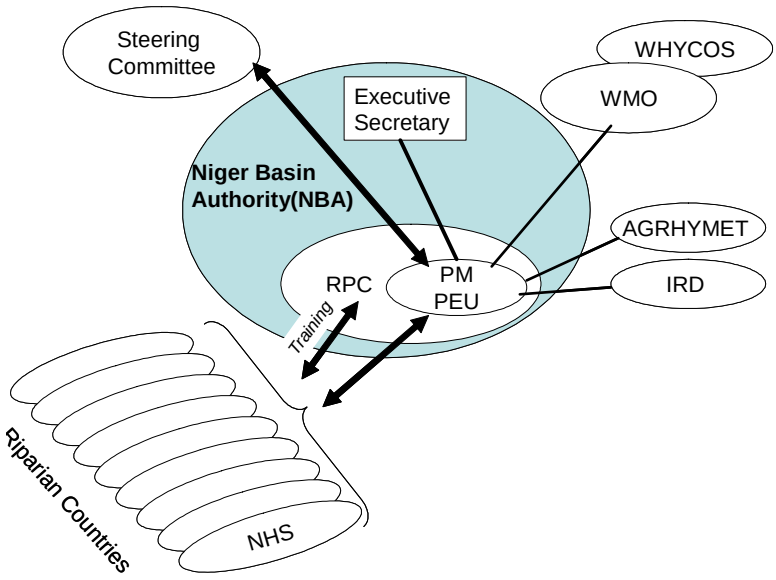


Figure 3.1: Project Implementation Structure Niger-HYCOS

3.2.3 A Steering Committee (SC) for the Niger-HYCOS project has already been set up to endorse the annual activity program and ensure good governance as the highest decision making body of the project. It shall assure proper coherence between the various project components, perform strategic supervision, take decision on the possible modifications in terms of project orientation, and approve the annual activity plan and related budget. The Steering Committee is composed of representatives from the NHS of the participating countries, NBA, AFD, and from the supervising agency WMO. The latter shall facilitate the necessary coherence between the Niger-HYCOS and the WHYCOS program. The implementation of the project also benefits from the support of IRD and the AGRHYMET Regional Centre in Niamey.

3.2.4 The French Development Agency (FDA) and the African Water Facility will be the two main external funding agencies of the Niger-HYCOS Project. Consultations have been held between the two donors to assure good coherence between the design and implementation of the project activities funded by the respective donors. The NBA also has close working relationship with several other international and regional institutions (including in particular ACMAD), and those which operate in the area of the preservation of the natural environment.

3.3 Performance Plan

3.3.1 The project implementation supervision will follow the Result Based Management (RBM) format in which the LFA principles play a key role. The AWF activities are integrated elements of the Niger-HYCOS Project. The AWF activities will also follow the project implementation and management modalities as for the overall Niger-HYCOS Project. The tentative LFA matrix of the Niger-HYCOS

Project including the AWF activities as presented at the out-set of this report states the project goal and objectives that are linked to the expected outcomes, and project activities.

3.4 Implementation Schedule

3.4.1 The time-phased targets of the Niger-HYCOS will be in the framework of a planned duration of 30 months from January 2006 to July 2008 as shown in the general time schedule below. The initiation of the AWF grant agreement depends on the date of effectiveness of the AWF-NBA grant agreement. Assuming effectiveness in October 2006, the AWF support period would be 22 months (October 2006 – August 2008). The implementation schedule has been revised by NBA to include the AWF funded activities.

Table 3.1 Overall Time Schedule for AWF Activities

ACTIVITY	2006	2007		2008
	2nd half	1st half	2nd half	1st half
1. Strengthening of NHS	*******	*******	*******	***
2. Strengthening of PRC	*******	*******	*******	*
3. Training	*******	*******	*******	
4. Project Evaluation				**
5. Hydrological Forecast Services	*******	*******	********	**

3.5 Procurement and Execution

3.5.1 The project will involve the procurement of goods, works and services as summarised in Table 3.2 below.

Table 1: Goods and Services to be procured under the AWF Agreement

Services	Total Cost (Euro)	Goods	Total Value (Euro)
– Hydrometric Observers in 9 member countries	9,120	– Hydrological monitoring equipment member countries	20,886
– Technical Assistants in 9 member countries	33,661	– Data transmission and communication equipment for NBA member countries	182,847
– Permanent Assistants	7,318	– Computer equipment for NBA member countries	58,845
– External Consultants	92,613	– Software for member countries	99,092
– National Consultants	6,746	- IT, software, and equipment (RPC)	72,063
- Hydrometric forecasting system	60,000	– Vehicles (2)	73,176
– Project Evaluation	20,000		
– Training (06 modules)	89,379		
Total	**318,837**	**Total**	**506.909**

3.5.2 NBA's procurement rules and procedures are found to be appropriate for the procurement of works, goods and services under the AWF agreement for the Niger-HYCOS Project and will be applied. These rules are also used under the project agreement between NBA and the French Development Cooperation Agency (AFD). The applicable limits for national competitive bidding versus shopping/direct negotiations used by NBA under the current agreement with AFD are summarised in Table 3.3 below.

Table 3.3: Summary Procurement Methods and Thresholds

Category	NCB	Short List	Other
Goods	> FCFA 5 million (Euro 7,700)		National Shopping: < FCFA 5 million (Euro 7,700)
Services		International: > FCFA 5 million (Euro 7,700) National: < FCFA 5 million (Euro 7,700)	
Miscellaneous			Direct Purchase

3.5.3 For procurement of goods the NBA rules set an upper limit of 7,700 Euro for allowing national shopping. Contracts beyond that limit shall be procured as national competitive bidding (NCB).

3.5.4 Consultancy services contracts exceeding 7,700 Euro will be procured on the basis of international shortlists. This is applicable for external consultants, hydrometric forecasting trainers, and the project evaluation consultant. The selection procedure will be based on the comparability of technical proposals and selection of the lowest financial offer. Contracts with value below Euro 7,700, such as local observers and technical assistants in each member country, will be will be procured on the basis of national shortlists. The selection procedure will be based on the comparability of technical proposals and selection of the lowest financial offer.

3.5.5 The responsibility for procurement of goods and acquisition of services rests with the Recipient (NBA) and the modalities and conditions will be embedded in the grant agreement with AWF. It is NBA's obligation to assure that that the AWF funds are used in a cost efficient manner and only for eligible project expenditures. All procurement activities shall be transparent and allow adequate competition between different suppliers are service providers and facilitate easy control by AWF of the procurement processes and the use of funds. The latter will be supervised and verified during the course of the implementation of the project by the Project Auditor employed by AWF.

3.5.6 Services for continuous project auditing will be procured through a shortlist. The selection procedure will be based on the comparability of technical proposals and selection of the lowest financial offer. For contracts of values below Euro 6,000, direct negotiation procedures will apply.

3.6 Disbursement Arrangements and Expenditure Schedule

3.6.1 The overall costs for the AWF grant totalling 1.2 million Euro are presented in Table 3.1. The funds will be channelled through the Niger Basin Authority, which will open a Special Account denominated in foreign currency in a Bank acceptable to ADB/AWF. The operation of the account will be the sole responsibility of NBA.

3.6.2 Disbursements of funds will be made on revolving method basis whereby funds will be deposited in the special account, which will be replenished quarterly periodically based on the reports on previous expenditures and work plan for the following quarter.

3.6.3 The disbursement will be on a semi-annual basis following the same intervals as the AFD funded activities for the same project, and will be transferred on the basis of requests for deposits into the special account from the Recipients including statement of expenditures of previously disbursed funds and updated work schedules.

Table 3.4: Semi-Annual Cost Distribution and disbursement of AWF Funding

ACTIVITIES	2nd half 2006	1st half 2007	2nd half 2007	1st half 2008	Total EURO
1. Strengthening National Hydrological Services	459,398	48,364	48,364	58,817	**614,942**
2. Strengthening Regional Project Centre (PRC)	167,183	63,434	57,183	29,895	**317,695**
3. Training	29,957	48,031	49,578	0	**127,565**
4. Project Evaluation	0	0	0	20,000	**20,000**
5. Hydrological Forecast Services	15,000	15,000	15,000	15,000	**60,000**
Misc. and unforeseen	22,867	12,378	12,378	12,378	**60,000**
TOTAL	**694,405**	**187,205**	**182,502**	**136,089**	**1,200,202**
Percent distribution	*58%*	*16%*	*15%*	*11%*	

3.7 Accounting and Audit Arrangements

3.7.1 The Grant Agreement will include the specific accounting arrangements and requirements for the Recipient opening of a Special Account with a local Bank acceptable to AWF from which all eligible payments will be made. The account should allow instalments in Euro and FCFA on an interchangeable basis. The administration of the special account shall be performed by NBA.

3.7.2 In the interest of fast tracking the implementation of the Project actions, the AWF will recruit and retain an auditor to perform ex post evaluation or supporting documents review and audit the project. The Facility will require that a statement of expenditure and supporting documents review be performed and certified by the independent auditor at predetermined intervals to ensure that fund have been utilized in line with the grant agreement. The costs of such audit shall be charged to AWF and are not involved in the Grant.

3.8 Monitoring Evaluation and Reporting Arrangement

3.8.1 The objectives, actions, and expected outputs and outcomes of the AWF activities, as summarised in the attached LFA matrix adopted by NBA, which will form part of the Grant Agreement. A list of specific indicators of achievement and means of verification mentioned will serve as a basis for result based performance monitoring during implementation and after completion.

3.8.2 The implementation supervision of the AWF Activities will be based on the management and procurement procedures laid down in the "Convention de Financement" between NBA and AFD. Therefore, AWF's own project supervision will be closely linked to and coordinated with AFD's supervision activities. It will include regular correspondence with the Recipient, and review of the Recipient's Progress Reports. AWF will consider at any time the need for undertaking field supervision missions, preferably as joint missions with AFD. AWF will also check if the specific outputs of the AWF funding have been timely delivered with the required quality and if the expenditures are in agreement with the budgets and schedules.

3.8.3 The technical progress and achievements of the project shall be controlled by the Supervising Agency (WMO) and be documented in the semi-annual reports prepared by the project coordinator and RPC in consultation with the participating countries. The level of achievement in relation to the project objectives and expected results shall be reported to, and assessed by, the Steering Committee during its annual meetings. These reports shall cover the technical, financial and administrative issues. The semi-annual reports to be shared with the participating countries and partners shall address specific difficulties or constraints, if any, facing the project and suggest appropriate solutions to mitigate identified problems.

3.8.4 According to the NBA-AFD agreement the entire Niger-HYCOS project shall be evaluated two months before the end of the project by an independent expert. This activity will be funded by AWF as Activity 4.

4 PROJECT BENEFITS

4.1 Effectiveness and Efficiency

4.1.1 The effectiveness of the AWF involvement in this project is related to its overall performance and the likelihood of achieving the overall objectives and expected outcomes as highlighted in the LFA Matrix. The overall effectiveness depends on the sum of single factors, also those beyond the control of the project management.

4.1.2 The project efficiency aspects have been elaborated in the table below.

Table 4.1 Assessment of Project Efficiency

Efficiency Factor	Assessment
i) Quality of project preparation	As far as the quality of the project preparation is concerned, the Niger-HYCOS Project Document based on a 6 months preparatory study provides a thorough design basis. In addition, the agreement for the AFD funded activities (75% of the budget) is already effective and in action, so the project preparation seems to of adequate standard
(ii) Procurement efficiency	Procurement has already started under the agreement between NBA and AFD which will also set the standards for and contribute to the efficiency of the procurement under the AWF grant agreement
(iii) International competitiveness of costs of acquired services and goods	The heart of the monitoring network are the Data Collection Platforms (DCPs). Such systems have been installed in many countries and may be considered as conventional technology in terms of price and reliability. The international competitive bidding will; also contribute to assure sound pricing.
(iv) Performance of the external services involved in project implementation,	The external service providers (apart from the advisory institutions WMO and IRC) are also regional and international experts selected on a competitive basis.
(v) Efficiency of project management by the Recipient	NBA has over the last few years strengthened its capacity to manage sizeable projects and it is also considered appropriate form managing the AWF Agreement. This assumption can also be qualified by ADB's positive experience with NBA's project management efficiency under the erosion mitigation project.
(vi) Responsiveness of AWF and other funding agencies	High responsiveness is embedded in the guiding principles for AWF, and it is assumed that AWF will be responsive during the project implementation process, provided an adequate human resources base to enable the management of the future project portfolio.
(vii) Quality and cost efficiency including compliance with cost estimates and budgets	The budget for the Niger-HYCOS is based on long term experience from similar projects suggesting that there high likelihood of keeping the budgets.
(viii) Efficiency of implementation monitoring co-operation between AWF, other donors and the Recipient	AWF have had consultations with ADB and NBA during the appraisal to establish a common basis for coordinating the monitoring of the project implementation.

In conclusion the above assessment suggests that the project will be implemented with the adequate efficiency.

4.2 Sustainability

4.2.1 The sustainability of the project interventions are closely related to the above discussed effectiveness factors. The threats to project sustainability include: (i) the institutional and technical sustainability of the Niger-HYCOS and the operations of the hydrometric data and information services, and (ii) the actual contribution of improved knowledge and information services to long lasting development effects of future water sector development investments and services in the Niger Basin, especially those under the Shared Water Vision Program. The first factor is directly related to the performance of the project whereas the second sustainability concern is to a large extent beyond the control of the project as such.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

5.1.1 The Project is an important and well justified initiative against the backdrop of the many trans-boundary water challenges facing the Niger Basin riparian countries and the need to provide appropriate hydrological information to enable the implementation of the Shared Water Vision process for effective governance of the shared international waters. The Niger-HYCOS Project plays an important role in supporting the creation of an adequate hydrological monitoring network and information services. This will have bearings on the political, economic, and public activities in the Niger Basin and is expected to pave the way for enhanced regional food production, hydropower capacity, river navigation, water based industry, and other activities contributing to regional development.

5.1.2 According to AWF's Operational Programme for 2005-09 support to improved trans-boundary water resources monitoring and knowledge enhancement in the Niger Basin is identified as one of the priority areas. Assessments of the eligibility of the Recipient and the project is found to be in accordance with the criteria laid down in AWF's Operational Procedures and Guidelines and the anticipated efficiency, effectiveness and sustainability of the project are found acceptable.

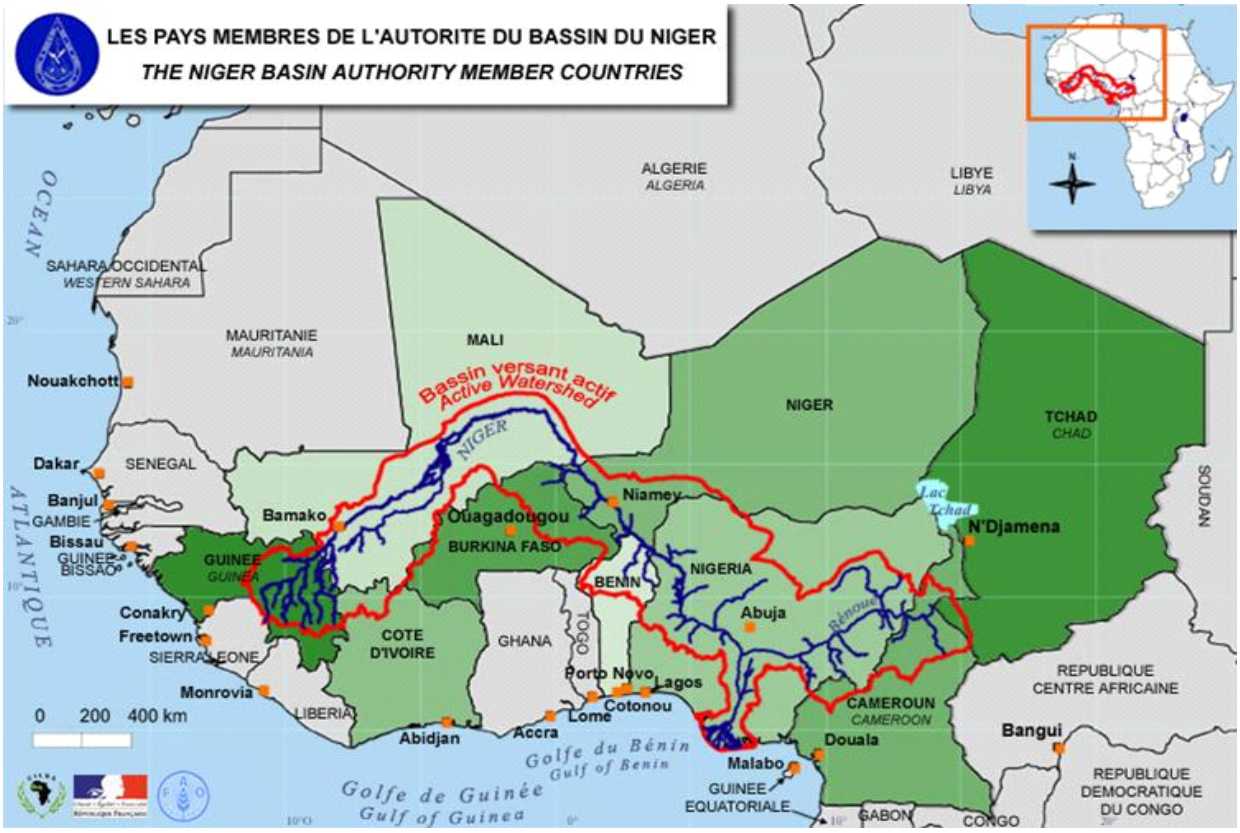
5.2 Recommendations

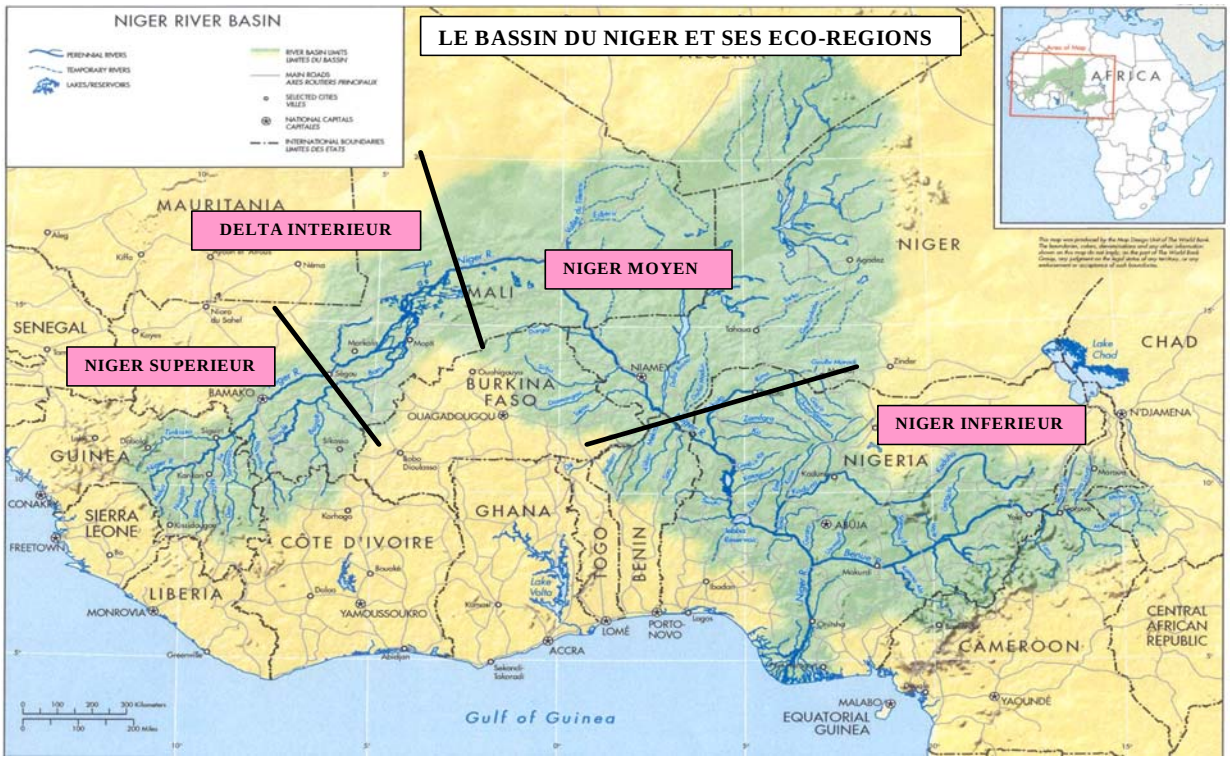
5.2.1 Based upon a critical assessment of the relevance, effectiveness, and sustainability of the Project, as well as the credibility and capacity of the Recipient, it is recommended that the Bank approves the Application from Niger Basin Authority (NBA) for funding of identified activities of the Niger-HYCOS Project totalling an AWF grant of 1.2 million Euro out of a total project budget of about 5.16 million Euro including 3 million Euro from AFD and 960,000 Euro in kind contributions from NBA and the riparian countries.

5.2.2 Following this appraisal a draft Grant Agreement between NBA and AWF has been prepared as a basis for approval and signing. The condition for the effectiveness of the Grant Agreement between AWF and NBA is that NBA has established the Special Account as stated in the agreement.

ANNEXES

ANNEX 1: NIGER RIVER BASIN MAPS





ANNEX 2: PRELIMINARY COST ESTIMATES FOR AWF GRANT FUNDING

Activity 1: Strengthening of National Hydrological Services

Item	Benin	B. Faso	Cameroon	Cote d'Ivoire	Guinea	Mali	Niger	Nigeria	Chad	Total
Operational Costs										
Hydrometric Observers	457	2,195	1,829	457	1,107	823	503	695	1,052	9,120
Technical Assistants	1,829	6,403	1,829	1,829	5,305	6,403	1,829	6,403	1,829	33,661
Travel Allowance	1,829	4,939	7,683	2,561	13,172	11,891	2,561	19,026	6,677	70,340
Operating expenses vehicles	3,692	7,680	9,158	6,796	8,565	10,255	6,519	12,928	5,761	71,353
Data processing costs	1,258	648	1,868	648	2,325	2,325	648	3,468	2,058	15,245
PTT	152	381	1,067	0	854	968	0	2,820	762	7,005
Miscellaneous	305	0	0	0	5,336	0	0	0	2,439	8,080
Total Operational Costs	**9,523**	**22,247**	**23,434**	**12,292**	**36,662**	**32,665**	**12,060**	**45,340**	**20,579**	**214,803**
Investment Costs										
Hydrological monitoring equipment	0	915	1,677	915	1,829	1,829	0	12,806	915	20,886
Data transmission and communication equipment	0	21,800	8,537	0	35,627	47,366	0	45,765	23,752	182,847
Computer equipment	12,348	5,336	6,555	7,013	3,049	0	3,049	18,446	3,049	58,845
Software	0	15,245	0	16,769	0	16,769	0	50,308	0	99,092
Vehicle	0	0	0	0	0	30,490	0	0	0	30,490
Transport of Equipment	0	762	0	0	3,049	1,119	0	3,049	0	7,979
Total Investment Costs	**12,348**	**44,058**	**16,769**	**24,697**	**43,555**	**97,573**	**3,049**	**130,374**	**27,715**	**400,139**
TOTAL ACTIVITY 1	**21,871**	**66,305**	**40,204**	**36,989**	**80,217**	**130,239**	**15,109**	**175,714**	**48,294**	**614,942**

Activity 2: Strengthening of Regional Project Centre (PRC)

Item	Costs (Euro)
Operational Costs	
Permanent Assistants	7,318
External Consultants	92,613
National Consultants	6,746
Travel Allowances	23,630
Sub-Contracting	4,573
Licences Subscriptions	25,154
Office Stationary	0
Vehicle Operations	18,294
Total Operational Costs	**178,327**
Investment Costs	
IT Equipment	10,778
Databases software	6,860
Internet systems	15,245
Office equipment	0
1 Vehicle 4WD	42,686
Technological Base	0
Specific Equipment	39,179
Unforeseen	24,620
Total Investment Costs	**139,368**
TOTAL ACTIVITY 2	**317,695**

Activity 3: Training

Item	Costs (Euro)
A. Training Modules	
Per diem Trainees	6,098
Travel Trainees non Nigerians	6,098
Travel Nigerian Trainees	76
Subsistence Nigerian Trainee	305
Teaching Expenses Trainees 1 month each	7,203
Field Transport	823
Preparation Sundries	76
Printing expenses	76
Miscellaneous and unforeseen	1,524
Sub Total A	**22,280**
B. Expenses in Countries	
Organiser	73
Co-organiser	108
Conference facilities	0
Car rent	0
Per diem field work local	667
Projector rent	0
Document production	0
Training 06 Modules in 09 countries (each 5,094)	65,151
Misc.	1,945
Sub Total B	**67,096**
C. Training supervision in countries	
Travel of supervisor	12,272
Perdiem of supervisor	25,916
Sub Total C	**38,188**
TOTAL ACTIVITY 3	**127,565**
Activity 4:	
PROJECT EVALUATION	**20,000**
Activity 5:	
HYDROLOGICAL FORECASTING SERVICES	
TA training consultants	40,000
Software and operational	20,000
TOTAL ACTIVITY 5	**60,000**
UNALLOCATED	**60,000**

ANNEX 3: ASSOCIATED DOCUMENTS

Title	Institution	Date
Niger-HYCOS - Document de projet (Version révisée)	ABN	Août 2006
Convention de Financement	ABN-AFD	09.04.2004
Inter-Office Memorandum Mission de la Delegation de	ADB/BAD	17.01.2006
Supervision Agreement	NBA-WMO	
Convention Relative à l'Exécution du Projet Niger – HYCOS	BNA et La République de Cote d'Ivoire	16.03.2006
Convention Relative à l'Exécution du Projet Niger – HYCOS	BNA et Le Ministère des Mines, de l'Energie et de l'Hydraulique du Benin	04.05.2006
Convention Relative à l'Exécution du Projet Niger – HYCOS	BNA et Le Ministère de l'Environnement et de l'Eau du Chad	15.02.2006
Convention Relative à l'Exécution du Projet Niger – HYCOS	BNA et Le Ministère de l'Hydraulique l'Environnement et de la lutte contre la Désertification l'Eau du Niger	16.01.2006
Convention Relative à l'Exécution du Projet Niger – HYCOS	BNA et Le Ministère des Mines, de l'Energie et de l'Eau au Mali	21.02.2006
Convention Relative à l'Exécution du Projet Niger – HYCOS	BNA et Le Ministère de l'Agriculture, de l'Hydraulique, et des Ressources Halieutiques du Burkina Faso	30.01.2006
Convention Relative à l'Exécution du Projet Niger – HYCOS	BNA et Le Ministère de la Planification, de la Programmation, du Developpement, et de l'Amenagement du Territoire du Cameroun	25.04.2006
Project Convention between Niger Basin Authority and The	NBA and the Federal Ministry of Water Resources of the Federal Republic of Nigeria	25.04.2006
Convention Relative à l'Exécution du Projet Niger – HYCOS	BNA et Le Ministère de l'Hydraulique et de l'Energie de Guinée	16.01.2006
Paris Declaration Management and Governance principles for the sustainable development of the Niger Basin	NBA Conference Paris	26-27 April 2004
Niger Basin Authority Partners Cooperation Framework		
Niger-HYCOS Project First Meeting of the Steering Committee Synthesis Report	NBA	9-11 November 2006
Aide-mémoire. L'Appui à l'Autorité du	Mission par Jean-Noel Roulleau –	12.11.2005

Bassin du Niger pour la gestion intégrée des ressources en eau du Bassin du Fleuve Niger	TEN/ERN	
Project Niger-HYCOS. Compte Rendu de la Réunion	BNA	03.10.2005
Compte Rendu de la Visite de l'equipe du projet Volta-HYCOS à l'ABN du 03 au 07 mars 2006	BNA-	
Bulletin Mensuel- Monthly Bulletin Niger-HYCOS	BNA	January 2006
Bulletin Mensuel- Monthly Bulletin Niger-HYCOS		February 2006
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Information note on Shared Vision Process for the Sustainable Development of the River Niger Basin	NBA	6-9 April 2004
Shared Vision Process for the Sustainable Development of the River Niger Basin. Presentation of Phase II	Extraordinary Session of the NBA Council of Ministers, Abuja	9-13 May 2005
Note sur le Projet "Appui à la mise en place d'un Observatoire de l'Environnement du Bassin du Niger	BNA	
Manuel de Procedures Administratives, comptables et financieres		
Recueil de Livres de Procedures Introduction	ABN	04/03/2006
Recueil de Livres de Procedures Livre 1 Cadre Juridique et Organisationnel	ABN	04/03/2006
Recueil de Livres de Procedures Livre 2 Aspects de Gestion Financiere	ABN	04/03/2006
Recueil de Livres de Procedures Livre 4 Aspects de Gestion Comptable	ABN	04/03/2006
Niger-HYCOS Project Document Working Document	NBA	November 2005
Niger-HYCOS Project Document ANNEX 3 Draft Budget	NBA	
Project Niger-HYCOS Plan de Travail et Budget Prévisionel 2006	BNA	
24eme Session Ordinaire du Conseil des Ministres (Ouagadougou, 12-16 septembre 2005) Rapport d'Activités 2005 du Secretariat Executif	BNA	Août 2005
24eme Session Ordinaire du Conseil des Ministres (Ouagadougou, 12-16 septembre 2005) Programme d'Activitiés 2006 du Secretariat	BNA	Août 2005

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Estimates of Recharge of a rising water table in semiarid Niger from H and C modelling	Guillaume Favreau et. al. GROUND WATER. Vol 40, No.2	March-April 2002
Groundwater recharge increase induced by land-use change : comparison of hydrodynamic and isotopic estimates in semiarid Niger	Guillaume Favreau et. al. Proceeding of symposium Maestricht The Netherlands	July 2001
Major ion chemistry of groundwaters in the Continental Terminal water table of southwestern Niger (Africa)	Francoise Elbaz-Poulichet et. al. UMR Hydrosciences, CNS-IRD-University Montpellier	20.01.2001
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