Mapping, Assessment & Management of Transboundary Water Resources in the IGAD Sub-Region Project

Volume I

INSTITUTIONAL FRAMEWORK COMPONENT

INTERGOVERNMENTAL AUTHORITY ON DEVELOPMENT

AFRICAN WATER FACILITY

SAHARA AND SAHEL OBSERVATORY

Mapping, Assessment & Management of Transboundary Water Resources in the IGAD Sub-Region Project

Volume I

INSTITUTIONAL FRAMEWORK COMPONENT

Institutional Framework for Development and Management of Transboundary Water Resources in the IGAD Sub-region

December 2011

Study conducted with the support of:

SEREFACO CONSULTANTS LIMITED
6 Katonga Road, Nakasero, P. O. Box 6916, KAMPALA
Tel. 256 41 4342397 or 4255577, Fax. 256 41 4230691
E-mail:serefaco@serefacoconsultants.com

ISBN: 978-9973-856-58-6

PREFACE

The IGAD sub-region represents one of the marginal regions of the world in terms of rainfall available for natural vegetation growth and crop production. About 80% of the IGAD sub-region is arid and semi arid with low level of water use. It has a population estimated at **206 million in 2010** and projected to reach **462 million in 2050** in an area of **5.2 million km^2**.

The most obvious manifestation has been periodic droughts and desertification that have consigned millions to perpetual poverty and deaths. The populations derive their livelihoods from water and land based primary production activities such as nomadic pastoralism and subsistence agriculture in a region where rainfall variability is high. The sub-region is the home of the greatest numbers of pastoral communities estimated to be about **17 million**. Dependable water availability is therefore vital to the development of the region.

The mounting concerns over water scarcity in the IGAD sub-region have focused attention to several socioeconomic challenges of water resource management.

Firstly, as the sub-region expects to advance economically and socially, the demand for water will increase as a result of population growth, rising incomes, changing dietary patterns, urbanization and industrial development. While demand will increase in all sectors, agriculture will account for the bulk of the water and will therefore be the focal point for adjustment of demand pressure.

Secondly, there are concerns as to whether the IGAD sub-region will have enough water to meet the food security needs of a rapidly growing population. Along with food security, water security has also become a fundamental issue for human development in the sub-region

While it is a fact that water occupies pivotal position in development in the IGAD sub-region, none of the **member countries has adequate information** to manage their water resources for the attainment of economic efficiency and equity in water allocation for different uses. Yet, four IGAD countries namely **Eritrea, Kenya, Djibouti and Somalia** are in the category of those experiencing water scarcity i.e. with **less than 1000 m^3 per person per year** or less.

Indeed by the year 2025 even Ethiopia and Uganda which are presently with adequate water will be water stressed (1000-2000 m^3/person/year) while Djibouti, Eritrea, Kenya, Somalia and Sudan will be in water barrier situation «500 m3/person/year » and therefore water will be limiting any sustainable development.

None of the IGAD Member States has at the present time water per capita necessary for industrial development (2400 m^3/day). This lack of water will severely constrain food production, ecosystem maintenance and economic development among other needs and uses.

Water resources link the IGAD Member states internally and externally with adjacent regions. Six transboundary river basins and six transboundary aquifer systems have been identified in this stage of the IGAD sub-region study. **The ratio of water demands to available supply averages which is 9% in 2011 will increase to 15% in 2031** as projected by this study which is known as "*Mapping, Assessment and Management of Transboundary Water Resources in the IGAD Sub-region Project*". However, there are specific problems that call the need for adequate knowledge of surface and ground water resources.

This Study (the first sub-regional study) has provided a platform for refocusing efforts within the sub-region towards better quantification and understanding of the extent of water scarcity and other water related factors that impact socioeconomic development in the sub-region. The most significant of the drivers of water demand in all sectors is population, which in the sub-region is projected to increase by 165% between 2010 and 2030, and by 136% between 2030 and 2050. This study demonstrates that these increases will create significant increases in water withdrawals for domestic supply and for industry.

The other significant sector is agriculture, which combines irrigation and livestock. Again here population is the most important parameter of change, driving the demand for food and hence the need to raise agricultural productivity through irrigation development.

The regional process has highlighted the **low level of water use** and hence of water security currently estimated as about 3% of the annually renewable water resources as a basic indicator of the overall lack of water infrastructure development to ensure water security for the social and economy and environmental use. The IGAD sub-region is one of the most vulnerable areas to climate variability and recurrent droughts.

Hence, there is need to further understand in depth the environmental situation and consolidate IGAD capacities to monitor the linkages between climate and the water system along with identification and mapping of the water resources and the major risks associated with degradation, pollution and water quality deterioration. Policies, strategies, and objectives of cooperation and how to achieve them should be set out in a second stage of the IGAD project study.

It is important to note that the IGAD project was implemented at national and sub-regional levels with active participation of the focal national institutions by employing national and regional consultants. The project coordination is done by OSS with the establishment of national coordination units in the focal national water institutions of the IGAD Member States. Steering Committee of the project was in place and the regional coordination and facilitation was done by IGAD.

We would like to thank everyone who contributed to the success of this project: the Ministries in charge of Water and national institutions, the IGAD and OSS cooperation partners (particularly the African Water Facility), the national teams, national and

international consultants, the project team within the Executive Secretariat of OSS and The IGAD Secretariat.

Our satisfaction was to pass the ownership of all project results by national teams and the establishment within the Executive Secretary of IGAD powerful tools to ensure the continuity of the project.

This final project report is made up of 7 individual documents namely

- Introduction, Overview and General Recommendations
- Volume 1: Institutional Framework Component Report
- Volume 2: Socioeconomic Component Report
- Volume 3: Environment Component Report
- Volume 4: GIS/Database Component Report
- Volume 5: Water Resources Modelling/Hydrology Component Report
- Volume 6: IWRM Component Report

We also thank SEREFACO Consultants Limited and its team for the excellent work carried out despite all the difficulties encountered particularly the lack of reliable data.

The Executive Secretary of OSS
Dr. Ing. Chedli FEZZANI

The Executive Secretary of IGAD
Eng. Mahboub Mohamed MAALIM

TABLE OF CONTENTS

LIST OF ACRONYMS

BSC	Baltic Sea Cooperation
CBO	Community Based Organization
DRNO	Daily Research News Online
EWFIS	Early Warning Food Information System
FAO	Food and Agriculture Organization
GLFC	Great Lakes Fisheries Commission
HELCOM	Helsinki Commission
ICWE	International Conference on Water and Environment
IGAD	Inter Governmental Authority on Development
IJC	International Joint Commission
ILA	International Law Association
ILC	International Law Commission
IWRM	Integrated Water Resources Management
KBO	Kagera Basin Organization
LCBC	Lake Chad Basin Commission
LHDA	Lesotho Highlands Development Authority
LVBC	Lake Victoria Basin Commission
LVFO	Lake Victoria Fisheries Organization
MBA	Masters of Business Administration
MDBC	Murray Darling Basin Commission
MDG	Millennium Development Goals
MRC	Mekong River Commission
NBA	Niger Basin Authority
NBCU	National Transboundary Coordinating Unit
NBI	Nile Basin Initiative
NCR	Network Capacity Requirements
NEMA	National Environment Management Authority
NFS	National Field Station
NGO	Non Governmental Organization
NTBCU	National Transboundary Basin Coordinating Unit
OMVS	Senegal River Basin Organization
RBCU	River Basin Coordinating Unit
RBO	River Basin Organization
RPSC	Regional Policy Steering Committee

RTBCS	Regional Transboundary Basin Coordinating Secretariat
RTBCU	Regional Transboundary Basin Coordinating Unit
SCCC	Sectorial Coordination and Consultation Committee
STRBO	Sub-Transboundary River Basin OrganizationDPC
TRBC	Transboundary River Basin Commission
TRBO	Transboundary River Basin Organization
TWG	Technical Working Group
UN	United Nations
UNECA	United Nations Economic Commission for Africa
WUA	Water Users Association
ZRA	Zambezi River Authority

EXECUTIVE SUMMARY

The objectives of the Institutional Capacity Building Component of this Project are to develop a sustainable institutional framework for joint management of the shared water resources of IGAD Sub-Region, identify key management issues and development opportunities, develop a joint management strategy, and elaborate the medium and long term capacity building for implementation of the strategy, in order reduce poverty and conserve the environment on sustainable basis.

Information gathered from National Study Reports (2010), lessons learned from literature on international River Basin Organizations, and reference made to the relevant findings of other Components of this Project together with personal experience were made use of in understanding the characteristics of the river basins, the key development areas for regional cooperation, the disadvantages of non-cooperation, and the benefits that can accrue because of joint sub-regional actions.

National studies reviewed did not include specific studies on national institutional frameworks for water resources development and management of the seven countries of IGAD apart from the inclusion of scattered information and data under the studies targeting water resources, socio-economic, and environment. No information and data were available on Eritrea and Somalia except those obtained from regional and international literature.

All the five countries have well established water resources development and management institutions with national policies, strategies, laws, and water master plans which have been undergoing regular reforms. They updated their old national policies and legal frameworks as well as their strategies and master plans for water resources development and management in late 1990s and in 2000s because water issues by then became the subject of increasing international concerns and debate. Besides environmental concerns and commitment to regional and international organizations to which each country subscribes, the member states appear willing and ready to collaborate on the development and management of their transboundary water resources.

The proposed legal instrument to be signed by the Member States agreeing on joint actions on the shared river basin will operationalize the monitoring, collection, generation, and sharing and exchange of data and information. Information and data for compilation, analysis, consolidation, and entry into database will flow from the Field Stations, through the National Basin Coordination Units (NBCU) to the Regional Basin Coordination Unit (RBCU) for transmission to the Regional Transboundary Basin Coordination Secretariat (RTBCS) located in IGAD Secretariat, before they can be disseminated to the clients and

third parties. Flow of information and directives at policy level will move from the Summit of the Heads of State, through the Council of Ministers to the Commissioners and down through the RTBCS in IGAD Secretariat to the RBCU and to the NBRU and then to the Field Stations. All agents operating in the river basin shall report to the Field Stations. Categories of information and data for transmission include those on water resources, climate and atmosphere, ecology and environment, land use and cover, socio-economy, recreation and tourism, infrastructure, natural resources, and agriculture and farming.

The policies of the Governments in the IGAD Sub-Region to promote industrial development including irrigation and to increase access to safe drinking water to majority of the population make freshwater, whether surface or underground, a focal issue in government strategies. This project has proposed measures to be undertaken and investments to be targeted to reduce the problems in the deficit areas of Ethiopia, Kenya, Somalia, Djibouti, Eritrea, Sudan, and Uganda. The private sector will become a key player in the water sector as realistic values are attached to freshwater.

Common vision, mission, broad objectives, policies, and strategies for the development and management of areas of common interest have been developed so that the following issues can be overcome or avoided altogether: (i) lack of a coordinated cross-sectoral and integrated approaches to problems and solutions at individual governments levels, (ii) increased conflict of interest among institutions and states, and (iii) duplication of efforts and waste of resources both at domestic and sub-regional levels.

The Shared Vision: *"Economically prosperous, socially just and environmentally sound transboundary basins for the benefits of the present and future generations."*

The Mission: *"To promote and coordinate sustainable development, conservation, utilization, and management of water and related resources of the transboundary water basins for the mutual benefits of the people of the Sub-Region by implementing strategic programmes, projects and activities, and generating scientific data and information to guide policy decision making and implementation of any development programmes."*

The following **Strategic Elements were identified for the harmonization of strategies:**

- To ensure sustainable use of each of the shared river basin resources
- To preserve species of the shared river basins and the environment that are pristine or of ecological, social, and cultural significance
- To protect ecosystems, human health, and society from risks which occur as a consequence of human activity
- To develop areas and opportunities in the shared river basins and their environment that contribute to economic prosperity and social well-being while safeguarding ecological values
- To implement international instruments relevant to the management of the shared river basins and their environment.
- To communicate with stakeholders to raise public awareness, strengthen multisectoral participation and obtain scientific support for the sustainable development of the shared

river basins and their environment

- To improve policy, institutions and legal processes
- To build human capacity to improve community livelihoods and responsible resource management

Capacity building is a continuous process reflecting the need of the society to respond to new ideas and technologies and changing social and political realities. The lack of adequate institutional capacities in the water sector in the IGAD countries, for joint development and management of shared water resources, is imposing severe limitation to water resources development and management.

Lessons learned indicate that capacity building programmes are more successful and are more likely to be sustainable when they respond to an internal initiative and when they are approached through a process approach and not as single one-time events. Capacity building must be provided to institutions and individuals taking on new roles and to improve awareness and knowledge.

The proposed capacity building strategic plans for water resources development and management will help the member states of IGAD to redefine their capacity building strategies, detailed programs, and required funding. The strategic plan must cover a sufficiently long period of implementation to deliver meaningful benefits. It will be designed as a medium-term action plan, broken down into annual action agendas and investment and recurrent budgets.

Sometimes in a regional set up like IGAD where there are seven (7) countries and six (6) shared river basin resources among them in the Sub-Region, the riparian countries of one or more river basins could decide to strike cooperative arrangements while others might not have the desire to cooperate. Under such circumstances, contingency plans of preparing separate institutional arrangements for the riparian countries of different shared river basins are in order.

The policy, legal, and institutional frameworks as well as, the common strategies and their key elements, the protocol for information and data sharing and exchange, and the plans for human and institutional capacity building are similar to that for the joint TRBO, and can be applied to a single or more shared river basin resources in the IGAD Sub-Region.

Development of a road map for establishing Transboundary River Basin Organization(s) (TRBO) includes the setting up of a transboundary consultative mechanism for each basin, the RPSC and the Working Group, at IGAD level to implement the preliminary aspects for the establishment of the mechanism for each basin. Preparing the detailed action plan, negotiating and preparing the legal and implementation framework, and initiating the implementation process will be the major task of the Working Group under the supervision of the RPSC of the respective river basins.

The proposed framework will be implemented in two stages. Initially, its Coordinating Secretariat will be housed within IGAD Secretariat as a dedicated mechanism for the development and management of the shared river basin resources. The Directorate will

gradually be transformed into an independent functioning body, the “Commission” or “Organization” outside of IGAD Secretariat but within IGAD framework, after a period of five years.

The evolutionary process of the institutional framework will also aim at having one single Sectoral Council of Ministers for the TRBO to deal with all projects and programmes in each of the shared river basins.

Despite the gaps in data and information obtained from the national studies on existing national and regional collaborative frameworks, the data and information derived from other sources complemented them in facilitating the development, design, and elaboration of the frameworks for (a) information and data collection, generation, and dissemination, (b) strategies and the corresponding key elements for sub-regional cooperation and coordination, (c) institutional capacity building, (d) sub-regional coordination of development and management of transboundary river basin resources (e) a road map for establishing transboundary river basin organization in IGAD Sub-Region.

Policies, strategies, and objectives of cooperation and how to achieve them shall be set out in the proposed enabling legal instruments to be signed by the riparian Member States of IGAD to the agreement. This will include agreements on (a) the Status of the water resources, (b) exchange and sharing of information and data, (c) investment policies, (d) establishment of transboundary organization(s) for water resources development and management, (e) service providers and IWRM, (f) regulations for water quality, (g) regulations for water quantity, and (h) regulations on environmental standards.

The success of the proposed institutional framework will depend upon the Member States’ enactment of legislative and policy changes, approval and refining the frameworks, provision of political support, involvement of stakeholders, and guiding the provision of support by development partners.

1

INTRODUCTION

1. OBJECTIVES

The objectives of the Institutional Capacity Building Component of the Project are to: (a) develop a sustainable institutional framework for joint management of the shared water resources, (b) identify key management issues and development opportunities, (c) develop a joint management strategy, (d) elaborate the medium and long term capacity building for implementation of the strategy, in order reduce poverty and conserve the environment on sustainable basis.

2. DEFINITIONS

The term 'institutions' in the development and management of water resources, according to the World Bank (1993), refers to 'the set of rules governing water development, use, and the specific organizational arrangements involved in the formulation and implementation of water resources policies, laws, strategies, and programmes. The same meaning, which was also adopted by the International Law Association (ILA) and the International Law Commission (ILC) when referring to international rivers and ground water aquifers (Frederickson 1992), is being used in this study. Both the rules and the institutions form the 'enabling environment' for the development and management of water resources. Changes in the rules, organizational arrangements and means of human resources development may be required to effectively translate water resources development and management policies into an action programme. Such changes should provide incentives for improved performance in terms of water resources planning, allocation, and operations.

Briefly, institutional capacity building includes:

Human resources development: the process of equipping individuals with the understanding, skills and access to information, knowledge and training that enables them to perform effectively;

Organizational development: the elaboration of management structures, processes and procedures, not only within organizations but also the management of relationships between the different public, private, and community organizations and sectors;

Policy and legal framework development: making policy, legal, and regulatory changes to enable organizations, institutions, and agencies at all levels and in all sectors to enhance their capacities.

3. OUTPUTS AND METHODOLOGY

The Component has, therefore, determined and developed the most suitable institutional framework that will coordinate the functions of IGAD member states with a view to efficiently and sustainably manage the resources of each of the shared river basins and the overall development of each basin. Although this project ***on the Mapping, Assessment, and Management of Transboundary Water Resources in the IGAD Sub-Region*** is focusing on water resources, it is basically poverty oriented and, therefore, part of the poverty reduction strategy programmes of the member states of IGAD. Its development objective is to ***contribute to the eradication of poverty, to promote economic growth, and to reverse environmental degradation in the IGAD Sub-Region***.

In order to define the vision, mission, mandate, and functions of the institutional framework of the regional coordinating and consultative mechanism, reference was made to the findings of Components of the Project on Water Resources, Environment, and Socio-Economics so as to understand the characteristics of the water basins, the key development areas for regional cooperation, and the benefits that can accrue because of joint sub-regional actions.

A river basin, in general, represents a unified hydrologic and geographic unit, which supports a holistic perspective on river basin management. River Basin Organisations (RBOs) are, therefore, being promoted as the most appropriate means to manage water resources under some form of supranational authority (Earle et al 2010). This supports the approach of Integrated Water Resource Management (IWRM), which has been proposed under international water law.

Many of the world's freshwater resources are shared by two or more countries. There are over 263 transboundary river basins in the world, a third of which are shared by more than two countries (UNECA 2000). Transboundary basin catchments represent 47% of the earth's land and 40% of the world's population. Over 145 countries share these basins; the territories of many countries lie exclusively within the hydrological boundaries of basins. Within Africa alone, there are 63 transboundary river basins, six of which are in the IGAD Sub-Region.

A transboundary river basin organization provides a framework for managing water resources across national boundaries. Other critical institutional responses to address some present-day water challenges include commitment to international treaties, effective national water laws and regulations governing access and use of water, and creation of a knowledge-base for basin managers to make informed decisions. At the International level, UN Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Convention) provides a framework and principles to guide basin level agreements. Within the IGAD Sub-Region, transboundary water resources management needs to be understood within the context of riparian nations' membership to IGAD.

Documents reviewed, analyzed, and synthesized revealed that both surface water and ground water resources of IGAD Sub-Region which offer significant socioeconomic potential for its riparian countries are already being subjected to increasing abstraction and use as human

population increase with time. They are also being subjected to the negative effects of climate variability and change. These factors contribute to the decline in quantities and the degradation of their quality. It is important that immediate mitigation measures are adopted by the member states of IGAD Sub-Region before the situation worsens with disastrous effects. A number of major shared water basin issues in common to the riparian countries require coordinated or joint action. It is with this realization that the IGAD Member States are seeking, through this study on Capacity Building, to establish a sub-regional mechanism to address these common shared water basin resources issues with a cooperative spirit and the framework of accepted policy, laws, and procedures.

The study uses the national study reports from Djibouti, Ethiopia, Kenya, Sudan, and Uganda as the main references besides other accessible national, regional, and international literature on transboundary water basin resources organizations. The syntheses and amendments were undertaken to form the basis for the conceptual framework and an analysis of the weaknesses and strengths of existing key actors on water resources issues in IGAD Sub-Region in Phase I.

The emphasis of Phase III Report is on the Road Map for Establishing the Transboundary River Basin Organization(s), the Key Elements of Strategies for enhancing regional cooperation, and the development of framework and guidelines for regional procedures and coordination mechanisms for information production, dissemination and sharing, as well as finalizing the development of Sub-Regional Framework for transboundary water resource management. The Report, however, includes the major aspects of the findings of Phases I and II. The following were, therefore, covered in this study:

(a) Identification of information and data gaps related to institutional set-up and capacity at national and regional levels;

(b) Review of national water management systems and legal tools addressing water resources management, both at the country and sub-regional levels;

(c) Development of common monitoring networks for information and data generation and a road map for the protocol for their sharing and exchange;

(d) Proposals for harmonization of water sector strategies and their key elements between riparian countries;

(e) The elaboration of medium and long term capacity building strategies for planning and managing trans-boundary programmes;

(f) The development of sub-regional framework for transboundary water resources development and management; and

(g) The development of a road map for establishing Transboundary River Basin Organization(s).

4. STRUCTURE OF THE REPORT

Chapter 1 introduces the Institutional Capacity Building Component of the Project by restating the objectives of the study and methodology used, defining institutional capacity

building, and outlining its contents, while Chapter 2 covers the gaps identified in data and information related to institutional set-up and capacity at both national and regional levels. Chapter 3 reviews national water management systems and legal tools addressing water resources development and management at country and sub-regional levels. Chapter 4 is devoted to common monitoring of water resources and information sharing network at sub-regional levels, as well as the protocol for information and data exchange and sharing. Harmonization of key water sector strategies between riparian countries forms the subject of Chapter 5, and Chapter 6 elaborates medium and long term capacity building strategies for planning and managing trans-boundary programmes. Development of Sub-Regional framework for transboundary water resources management and the road map for establishing transboundary river basin Organization(s) are the subject matters for Chapters 7 and 8 respectively.

.

2

INFORMATION AND DATA GAPS RELATED TO INSTITUTIONAL SET-UP AND CAPACITY AT NATIONAL AND REGIONAL LEVELS

1. IGAD SUB-REGION LEVEL

The recurring and severe droughts and other natural disasters between 1974 and 1984 caused widespread famine, ecological degradation and economic hardship in the Eastern Africa region. Although individual countries made substantial efforts to cope with the situation and received generous support from the international community, the magnitude and extent of the problem argued strongly for a regional approach to supplement national efforts. It was with this realization that the Intergovernmental Authority on Drought and Development (IGADD) in Eastern Africa was founded in 1986 and was superseded in 1996 by the creation of the Intergovernmental Authority on Development (IGAD).

IGAD has a Secretariat with divisions responsible for the various socio-economic and environmental sectors in the Sub-Region. The Assembly of Heads of State and Government is the supreme policy and decision body. National Government institutions responsible for the respective socio-economic disciplines are responsible for the coordination of project planning and implementation at national levels with an overall coordination at the IGAD Secretariat. Other specialized institutions of IGAD, if any, have not been identified and reviewed to provide additional information on benefits of such joint arrangements.

Currently quite a large number of projects are being prepared/implemented in the IGAD Sub-Region that are **focusing on generating relevant data and information** for decision making; a fact that indicates early recognition by the riparian states of the role of information in management of river basins. Government ministries, directorates, and departments as well as a few private institutions in the member states of IGAD (Fig. 1) do coordinate the planning and implementation of IGAD approved projects in their respective countries with the overall coordination of the IGAD Secretariat. The relevant sectors include agriculture, livestock, health, environment, water resources, wildlife, weather, conflicts, early warning, hydropower, risk management, food security, and capacity building. Programmes are conceived and developed technically at the national before they are forwarded for consideration and approval by IGAD Secretariat through their normal channels. Early warning and information systems for the IGAD sub-region have been developed predominantly for disasters affecting food security. They are mainly joint initiatives channeled through the UN Food and Agriculture Organization (FAO) such as the Global Information and Early Warning

System on food and agriculture (GIEWS), the IGADD Early Warning and Food Information System for Food Security.

FIGURE 1: IGAD member countries

2. NATIONAL LEVEL

At national levels, food security information activities are mostly coordinated by a national operational agency under a specific ministry or a specific commission. The national early warning systems, in general, cover food production aspects of food security (crop monitoring and forecasting) and publish regular bulletins giving alerts on potential food shortages. Despite efforts at regional level, the development of comprehensive and effective national EWFIS is still limited. Sharing of information is improving within the IGAD region but many agencies cite the need for increased collaboration to share and disseminate findings. For example, in addition to IGAD, Ethiopia shares limited information with only Sudan and Eritrea (DRNO/IGAD 2002). Other countries, such as Sudan, communicate mainly with IGAD. As agencies develop capacities to communicate via electronic mail information sharing should increase drastically.

Information gathered on the institutional framework and status of capacity at the country level in Djibouti, Ethiopia, Kenya, Sudan, and Uganda revealed that all the five countries have well established water resources development and management institutions with

well developed national policies, strategies, laws, and water master plans which have been undergoing regular reforms. In brief, the countries updated their old national policies and legal frameworks as well as their strategies and master plans for water resources development and management in late 1990s and in 2000s because water issues by then became the subject of increasing international concerns and debate. The major weakness in their institutional arrangements, which they all acknowledge, is inadequacy of capacity i.e. human and logistical requirements for effective and efficient operations in the development and management of their water resources.

3. INFORMATION AND DATA REQUIREMENTS FOR INSTITUTIONAL FRAMEWORK

Review of successful aquatic environmental management systems worldwide {(Nile Basin Initiative (Authority) (NBI), Lake Victoria Basin Commission (LVBC), Lake Victoria Fisheries Organization (LVFO), International Joint Commission of the Great Lakes (IJC), Baltic Sea Cooperation (BSC), Great Lakes Fisheries Commission (GLFC), Mekong River Commission (MRC), Lake Chad Basin Commission (LCBC), Kagera Basin Organization (KBO), Niger Basin Authority (NBA), Zambezi River Authority (ZRA), and Murray Darling Basin Commission (MDBC) of Australia)} revealed that the major factors that underlie success in water resources development and management include:

(a) sufficient institutional capacity (including policy and legislation);

(b) appropriate incentives including fiscal systems and use-rights frameworks;

(c) cooperation and communication between all stakeholders;

(d) real need for development with emphasis on socio-economic benefits;

(e) well focused and technically sound objectives;

(f) strong commitment by member countries;

(g) reasonably few participating member countries;

(h) emphasis on construction of works rather than on planning; and

(i) active support from development partners.

A key factor that determines success in resources management is the nature of the governance arrangements i.e. the institutional framework which defines the relationship between the different stakeholders, e.g., in the water resources, and which ensures that all stakeholders can participate in management decisions (at different levels) and can share in the benefits derived from the resources. The study discovered that the existing institutional frameworks of the seven countries are weak and the main deficiencies common to all the countries were:

a) inadequate budgetary allocation;

b) inadequate funding for research;

c) lack of human resources and equipment;

d) poor to non-existent enforcement of regulations and insufficient linkage between central administration and field agents at local level; and

e) wide range of Government institutions in all the countries having overlapping mandates or engaged in activities that impact directly or indirectly on water resources management in the corresponding shared water basins. (E.g. agencies responsible for wildlife protection, security and defense, judiciary, tourism, trade and investment, environment management, water resources management and development, energy and mineral development, fisheries, and research and training have overlapping mandates).

This raises the need to bring all key institutional stakeholders of the seven countries under a ***regional consultative mechanism*** that can address the cross linkages and different concerns in a coordinated and efficient manner for the sustainable management of the water and environmental resources of the basins.

3

EXISTING NATIONAL WATER MANAGEMENT SYSTEMS AND LEGAL TOOLS AT THE COUNTRY AND SUB-REGIONAL LEVEL

1. OBJECTIVE OF THE LITERATURE REVIEW

The **objective** of the literature review was to generate relevant data and information to enable the formulation of proposals to amend the shortcomings identified in the policy, laws, and institutional framework in the seven (7) countries and development of sub-regional policies, strategic objectives, legislations, and institutions for effectively coordinating comprehensive transboundary water resources management.

The status of water resources management institutions in Djibouti, Ethiopia, Kenya, Sudan, and Uganda, their policies and strategic objectives, their regulations, and their law enforcement, administrative, managerial, and logistical capacities were assessed in this study. The study also assessed the status of other relevant national, regional, and international institutions and river basin organizations responsible for transboundary water resources in order to learn lessons from their experiences particularly their successes, failures, and constraints encountered.

2. COUNTRY SPECIFIC ASSESSMENT

The national studies focused on:

- **(a)** national institutions for water resources management and their capacity needs;
- **(b)** the relevant policies, development strategies, and development action plans;
- **(c)** the existing laws, regulations, and their enforcement;
- **(d)** environmental concerns; and
- **(e)** the level of commitment of each state in regional and international affairs.

The study enabled the understanding of national plans for water resources development and management, and the identification of areas under each issue listed above for formulating, elaborating, and developing policies, strategies, regulations, development plans, and institutional frameworks for the joint development and management of transboundary water resources in the IGAD Sub-Region.

The study revealed that all the five countries have well established water resources

development and management institutions with well developed national policies, strategies, laws, and water master plans which have been undergoing regular reforms [see Part 6: IWRM Component of this report]. In brief, the countries updated their old national policies and legal frameworks as well as their strategies and master plans for water resources development and management in late 1990s and in 2000s because water issues by then became the subject of increasing international concerns and debate. The International Conference on Water and the Environment (ICWE) held in Dublin, Ireland and the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil, in January and June 1992 respectively highlighted the need for water sector reforms throughout the world. They called for innovative approaches to the assessment, development and management of freshwater resources. In 1993, the World Bank defined its new objectives for the water sector. The issue pointed out at these conferences is that the *"growing water scarcity and misuse of freshwater pose serious threats to sustainable development"*. Besides environmental concerns and commitment to regional and international organizations to which each country subscribes, the member states appear willing and ready to collaborate on the development and management of their transboundary water resources. The major weakness in their institutional arrangements, which they all acknowledge, is inadequacy of capacity i.e. human and logistical requirements for effective and efficient operations in the development and management of their water resources. The resources at their disposal can, however, be used as the nucleus for further development at sub-regional level.

The major factors that underlie successful water resources management are known to include sufficient institutional capacity (including policy and legislation), appropriate incentives including fiscal systems and use-rights frameworks; and cooperation and communication between all stakeholders. A key factor that determines success in resources management is the nature of the governance arrangements i.e. the institutional framework which defines the relationship between the different stakeholders, e.g., in the water resources, and which ensures that all stakeholders can participate in management decisions (at different levels) and can share in the benefits derived from the resources.

The study discovered that the existing institutional frameworks of the seven countries are deficient and the main deficiencies common to all the countries were the following: inadequate budgetary allocation; inadequate funding for research; lack of human resources and equipment; poor to non-existent enforcement of regulations and insufficient linkage between central administration and field agents at local level. It was further noted that a wide range of Government institutions in all the countries have over lapping mandates or are engaged in activities that impact directly or indirectly on water resources management in the corresponding shared water basins. Examples of these agencies include those responsible for wildlife protection, security and defense, judiciary, tourism, trade and investment, environment management, water resources management and development, energy and mineral development, fisheries, and research and training. This raises the need to bring all key institutional stakeholders of the seven countries under a ***regional mechanism*** that can address the cross linkages and different concerns in a coordinated and efficient manner for the sustainable management of the water and environmental resources of the basins.

As of now, government ministries, directorates, and departments as well as a few private

institutions in the member states of IGAD do coordinate the planning and implementation of IGAD approved projects in their respective countries with the overall coordination of the IGAD Secretariat. The relevant sectors include agriculture, livestock, health, environment, water resources, wildlife, weather, conflicts, early warning, hydropower, risk management, food security, and capacity building. Programmes are conceived and developed technically at the national level before they are forwarded for consideration and approval by IGAD Secretariat through their normal channels.

3. LESSONS LEARNED FROM EXPERIENCES OF SHARED WATER RESOURCES INSTITUTIONS

In considering a viable institutional, policy and legal frameworks for the sustainable development and management of transboundary water resources, account must be taken of the lessons learned from the experiences of shared water transnational organizations in Africa and other parts of the world. The focus of the lessons learned is on institutional arrangements and effectiveness in addressing the assigned mandate.

The following organizations have been reviewed and analyzed: Nile Basin Initiative (Authority) (NBI), Lake Victoria Basin Commission (LVBC), Lake Victoria Fisheries Organization (LVFO), International Joint Commission of the Great Lakes (IJC), Baltic Sea Cooperation (BSC), Great Lakes Fisheries Commission (GLFC), Mekong River Commission (MRC), Lake Chad Basin Commission (LCBC), Kagera Basin Organization (KBO), Niger Basin Authority (NBA), Zambezi River Authority (ZRA), and Murray Darling Basin Commission (MDBC) of Australia. The review and assessment of past experiences and lessons learned provide useful indications regarding the success achieved by the transboundary water basin resources organizations in the fulfilment of their mandates.

Based on the experiences of shared water transnational institutions in Africa and other parts of the world, and taking account of their policies, laws, mandates and operations, the main features noted from the most successful cases, in terms of fulfilling their mandates, were: (a) real need for development with emphasis on socio-economic benefits rather than political aspirations, (b) well focused and technically sound objectives, (c) strong commitment by member countries, (d) reasonably few participating member countries, (e) emphasis on construction of works rather than on planning, and (f) active support from development partners. The following lessons learned were considered to be relevant:

(a) Transboundary Water Resource: A Catalyst for Cooperation

Joint shared water resources development and management can be an entry point for broader political and socio-economic collaboration despite major challenges and tensions. Areas for mutual benefits and gains from cooperation provide opportunities to engage in dialogue and build trust among basin states and contribute to regional stability and economic integration. Cambodia, Lao, Thailand and Vietnam created the MRC to 'manage greater pressure on water resources from a growing population's needs for clean and adequate water, food and energy supplies to support economic development without causing damage

to the environment and ecological systems', and to 'achieve reasonable sharing of available resources to satisfy the requirements of the riparian countries and its people'. The Komati Dam stimulated rural development through irrigation in some of the driest and poorest parts of Swaziland and the Republic of South Africa. The creation of LCBD was motivated by the prolonged droughts of the 1960s and 1970s and the need to have greater protection against similar events. The creation of NBI, on the other hand, was not motivated by real and urgent needs for international projects within the River Nile Basin.

(b) National Commitment at Policy Level

National policy commitment at the highest possible level is the key for successful cooperation in transboundary river basins. Measures to build trust and confidence among the basin states combined with identification of win-win benefits from collaboration through transboundary projects and investments can enhance the willingness to cooperate. Commitment to success in river basin ventures was found to be very strong in the cases of the OMVS and ZRA, and the LHDA tripartite organizations, but by comparison, commitment was found to be weak in the cases of the LCBC and the NBA.

(c) Transparency and Stakeholder Involvement

Cooperation among riparian countries needs to be supported by a broad stakeholder base in order to be sustainable. Transparency of the on-going processes not only in terms of exchanging information on the technical levels but also informing and involving the public in planning and decision-making, is needed to build lasing successes and sustainable collaboration programmes and projects. This is a common feature with the BSC the IJC. However, stakeholder input in the management of shared water resources is not pronounced in the case of African and Asian regional organizations except the MRC.

(d) Legal and Institutional Framework

The experiences from Africa and other parts of the world show that the commitment to develop a legal and institutional framework for cooperation and forming transboundary basin institutions within a clearly defined mandate is essential. It was found that while decisions taken by some shared river basin organizations are recommendations to member countries leaving implementation decisions to the respective countries which are enforced largely by self monitoring and peer pressure, the experience from other organizations point towards the need for a firm mandate for decision making of shared basin institutions. HELCOM, e.g. adopted a strategy of implementing projects using existing institutions of HELCOM and delegating operational and monitoring functions to national institutions in accordance with the Principle of Subsidiarity.

(e) Capacity Building

It was found that the process of developing a long-term legal and institutional framework needed to be underpinned by efforts to create comparable capacities in shared basin

countries to allow for a dialogue on an equal footing and based on a similar information base. Levelling the playing field among basin countries and institutions can build trust and confidence.

(f) Duration of the Relationship

Strengthening relations between riparian states that have been in conflict and mistrust, sharing resources is a long-term process. International cooperation partners need to commit to long-term support from development partners, realizing that these processes are prerequisites for the successful and lasting cooperative management of shared river basins and development of win-win projects.

(g) Ecosystem (Multi-Sector) Approach

Overarching organizations whose mandates includes transboundary water resources development and other activities throughout the basin like South African Development Community achieve mutual benefits and real gains from cooperation. Collaborative management of transboundary water resources and creating win-win opportunities need to take a holistic approach and realize that political challenges and opportunities are multifaceted.

(h) Common Programmes and Projects

Another lesson learned was that joint development of programmes and projects between basin countries creates interaction and builds trust among basin countries. Early collaborative projects were mostly focused initially on technical communication, monitoring networks and technical cooperation as in the case of NBI and MRC with regard to the quality and quantity of the Nile water and the Mekong River basins respectively.

(i) Investments and the Role of the Private Sector

Where the commitment by riparian states is satisfactory and the needs for joint development projects are real, active support from development partners has proved to be an essential ingredient for success. This is evidenced in the cases of the Senegal basin and Lesotho Highlands' developments. The failure of transnational organizations to obtain support is often related to poor commitment by states coupled with unsound objectives like in the case of LCBC and NBA.

There are large financial needs to attain the Millennium Development Goals (MDG) which include improved access to safe water and sanitation, universal primary education, and halving the proportion of people living in extreme poverty. Large investments in water and other infrastructure measures and in their operation and maintenance will be needed in the coming decade, e.g. to provide drinking water and safe sanitation systems for rural and urban areas. While cost estimates to attain the MDG differ widely, it is clear that national governmental resources alone will not be sufficient. It is apparent from the experiences that public-private partnerships have an important and growing role to play.

4. APPLICATION OF THE LESSONS LEARNED FROM EXPERIENCES OF SHARED WATER RESOURCES INSTITUTIONS

Lessons learned from the experience gathered from shared water transnational institutions in Africa and other parts of the world were used to guide the preparation of the joint monitoring system, and they were subsequently used to design the road map for establishing transboundary basin organizations in the IGAD Sub-Region for the development and management of shared water resources. The following lessons were considered useful:

(a) Shared Vision and Goals

This is a common feature of all shared water organizations. The mandate of their organizations is focussed on clear visions and goals. In the Great Lakes of North America, this was fisheries development, specifically the control of parasitic sea lamprey. In the Baltic Sea, this was originally pollution control and environmental management in the Sea, it later developed to sustainable development in the basin. Similar focus guided the operations of many regional organizations and projects. LVFO is mandated to develop and manage the fisheries sub-sector within the lake while the LVBC is focussed on conservation enhancement and protection of the whole environment within the lake and its environs.

(b) Autonomy and Impartiality

The need for institutional autonomy and implementing decisions and impartiality in assessing critical issues is an important element for success of regional bodies. It is important that judgement on intervention matters is taken through consensus and objectivity without splitting along national lines. The selection of personnel to run the institution has to take into account professional competence, experience, and personal integrity.

(c) High Level Political Support and Pronounced Commitment

Another important feature of shared water organizations is an inbuilt mechanism for high-level political support. Examples are the Summit and Council of Baltic Sea States and the high level ministerial support for the Commission for the Great Lakes of North America. LVFO and LVBC have similar set ups.

(d) Common Cross-Cutting Issues of Immediate Challenge

Immediate challenges of a cross-cutting nature galvanized the formation and maintenance of shared water organizations. The challenge in the formation of the GLFC was the decline in some fish stock due to the activities of the parasitic sea lamprey. In the Baltic Sea, the challenge was pollution and environmental degradation. Where the challenges have not been acute as in the case of the MRC, the institution has not been given adequately focussed mandate thus implementation and cost-effectiveness have been low.

(e) Participation of Stakeholders

Stakeholder involvement, especially the private sector and the civil society, is an important success factor in regional collaboration in shared water resources management. This is a

common feature of the Baltic Sea States and the Great Lakes region. Stakeholder input in the management of shared water resources is not pronounced in the case of African and Asian regional organizations where degree of success is generally lower.

(f) Mechanisms for Adjusting to New Challenges

It was learned that a rigid structure would be unable to evolve and adjust to new challenges and opportunities. The result could be a proliferation of institutions as new issues arise thus creating ineffectiveness and overlapping. Not only should the institution allow flexibility in addressing new issues, but also it should build on the existing institutions and projects. This approach has been mainstreamed into the Baltic Sea Co-operation programmes.

(g) Transparent System of Sharing Costs and Benefits

A transparent system of sharing information, costs and benefits avoids future conflicts. It was found that this system is best included in the instrument setting up the institution. In the case of the LVBC and the IJC, the budgetary allocation to the running of the Secretariat is agreed upon by the member states, which then contribute their assigned share. The operations and projects within member nations are funded by the respective governments.

(h) Co-ordinated Structures and Mechanisms

Effective coordination of the activities in the regional structures is critical. This involves putting in place clear decision making processes and structures that are linked to the highest political levels. The coordination mechanism in the East African Community is through the relevant commissions and projects to the Heads of State through the Council of Ministers of the LVBC. The mechanism in the IJC and the GLFC involve an operating system linked to the United States and Canadian Government structures through the joint council of the relevant ministers in the two countries.

(i) Funding Mechanisms

An equally important factor for the success of any institution has been found to be the availability to access funds to discharge its mandate. It is therefore important and necessary to design an institution that has the capacity to mobilize funds from different sources, especially the development partners and the private sector in addition to the normal budgetary allocation from the Partner States. Given the need to be cost-effective and to target the private sector and development partners as an important sources of funds, the institutional framework must have inbuilt mechanism for mobilizing funds from these sources, of course with the EAC Partner States taking the leading role. An institution that is multi-stakeholder driven is likely to achieve this objective compared to one that is purely inter-governmental.

(j) Building on Existing Institutions

Part of the reasons for the success of other shared water institutions, e.g. HELCOM, LVBC,

LVFO, and IJC has been the adoption of a strategy to implement projects using existing institutions, and delegating operational and monitoring functions on national institutions in accordance with the Principle of Subsidiarity. This approach ensures that success is based on strengthening existing networks, involving all stakeholders, optimizing available funding opportunities from the public and the private sector, and harnessing the political support in reaching the common vision. It implies that the expected institutional framework should as much as possible be anchored on the foundation laid by existing regional institutions such as LVFO and the East African Community.

(k) Fulfilment of Mandates

A common feature observed in all the successful cases of the international water bodies has been their focussed mandates, which is a necessary ingredient for those designed to actually implement projects/activities. The potential for institutions with broader mandates to succeed could only be enhanced by delegating responsibilities to more focussed actors within the established frameworks. Another strategy is to start with fewer, more focussed interventions, as part of the broader mandates, and progressively build on the scored successes. It will therefore be important for the proposed institutional arrangement to start with more focussed areas for intervention and expand slowly as part of its strategy to fulfil its mandates.

5. INSTITUTIONAL FRAMEWORK

The experiences reviewed from Africa and other parts of the world show that the commitment to develop policy, legal and institutional framework for cooperation and forming transboundary basin institutions within a clearly defined mandate is essential and should be based on shared vision.

5.1. The shared vision

The resources of the shared basins in the IGAD Sub-Region are a natural heritage that safeguards sustainable and healthy food supply, livelihood, property and investment, and social, cultural, and ecological values for the people of the seven IGAD countries, while contributing to economic prosperity and accessibility to regional markets thereby promoting a peaceful and harmonious co-existence for present and future generations. If this is the conceptual view from the seven countries, then the shared vision must represent a common understanding, views, and wishes of the people of IGAD Sub-Region regarding the ecosystems of the shared basins. It must be how the stakeholders see the environmental and socio-economic status within the basins and their catchments in the long term, perhaps at the end of twenty five to fifty years. Achieving the vision will take time, strategies, and resources to implement a set of action programs. More importantly, it needs the collective political will and regional cooperation among the Governments, the people of the sub-region, and other stakeholders to implement any planned action programs.

Taking cognizance of public perceptions and political demands resulting from the 1982 United

Nations Law of the Sea Convention, the 1992 United Nations Conference on Environment and Development and its Agenda 21, the 2002 Millennium Development Goals, and the recognition of the importance of shared water resources management, the following can be adopted as the shared vision of the transboundary basins in the IGAD Sub-Region:

> ***"Economically prosperous, socially just and environmentally sound transboundary basins for the benefits of the present and future generations".***

5.2. The mission

The mission is an expression of the immediate aim of the Consultative Mechanism arising from the conviction or sense of calling which is the shared vision. It is a statement describing what the region will undertake to implement its development and management plan in order to achieve the shared vision. In addition, the mission statement affirms the purpose and function of the stakeholders for one common purpose. It has a focus on the job at hand with an orientation towards future goals. The following mission has therefore been proposed to guide the implementation of any development programmes:

> ***"To promote and coordinate sustainable development, conservation, utilization, and management of water and related resources of the transboundary water basins for the mutual benefits of the people of the Sub-Region by implementing strategic programmes, projects and activities, and generating scientific data and information to guide policy decision making and implementation of any development programmes".***

5.3. Policy, legal, and institutional framework

The ultimate goal of the shared vision and mission is to improve the quality of life of the people of IGAD Sub-Region generally, and of the people within the basins in particular. There must therefore be innovative policy, legal, and institutional frameworks. A well coordinated implementation of any joint activities at regional, national, and local level will be desirable to achieve the objectives of the emerging concept as it will contribute to the eventual realization of the shared vision. In addition, regional, national, and local counterpart plan of action focusing on priority issues and areas that are of social, economic, and/or environmental significance would provide a platform for action.

Based on the findings and recommendations prescribed so far, the following institutional arrangements are targets for action:

- National policy and supporting legislation to guide the implementation of any integrated development plan should be adopted.
- Local Authorities in the seven countries should be given responsibility to manage their water resources of the shared basins.
- Area specific institutional arrangements for environmental management of land use, forests, national parks, water supply and quality, fisheries, and public utilities should be in place on each basin.

- Local inter-agency, multi-sectoral coordinating mechanisms to implement sustainable area development programs should be set up.
- A functional regional consultative mechanism, ***the Transboundary Water Basin Consultative Mechanism***, to implement programs of action, be adopted and established.
- The major international environmental instruments must be ratified and implemented by all the seven countries.
- Environmental management must be incorporated into economic development plans at regional, national, and local level.

1. Policy Framework

Shared Basin Management Frameworks (SBMF) are negotiated, agreed upon, and established to promote integrated and balanced multiple water uses among member countries. By working together, through informed dialogue, the countries can develop agreed rules and strategies for sustainable uses of water and the other environmental resources for the intended purposes. And through on-going cooperation, the potential for conflict over the increasingly scarce environmental resources can be greatly diminished and hopefully avoided.

There are many international river and lake basin organizations. Together, they cover a wide surface of the earth and manage the freshwaters and their resources. Like the River Nile basin, they include many nations some of which lie entirely within the shared basins. Despite the obvious and growing potential for discord, to-date negotiated outcomes on sharing water and other transboundary resources have been preferred.

The benefits of joint strategic planning for development and management are to assist change to take place in response to changes in the internal and external environment of the basins. Joint management is critically important for such shared resources where (a) there is a high level of complexity in water resource management, (b) there is great variability in the hydrologic cycle, (c) many different stakeholders need to be satisfied, (d) issues are often highly political, (e) the context of water resources management is undergoing rapid change, and (f) there is need to have sustainable use of land and water for the long term.

It is against this background that the formation of a mechanism to manage the action programs being proposed for the shared water basin resources should be sealed in an Agreement on Cooperation for the Sustainable Development and Management of the Shared River Basin Resources. By agreeing to plan together, the seven countries will recognize the need to cooperate in all fields of basin development and resource management.

2. Legal Framework

It is evident that the existing legislative frameworks of the seven countries as they pertain to water and environmental resources of the shared basins are inadequate and warrant significant undertaking. However since preparation and revision of laws requires lengthy consultations as well as parliamentary approval, the countries should explore adopting common management measures on the basis of the existing legal framework and other international best practices such as the protocol for the creation of IGAD, the United

Nations Convention on Environment and Development, the Convention on IWRM, and the Millennium Development Goals. This would, e.g., be the basis of a Protocol for shared water resources development and management of the basins. The use of technical and other measures to regulate the use of water and other resources of the basins should be supported by alternative enforcement schemes that provide for close involvement of water users associations (if any) and local communities in surveillance and control activities.

Meanwhile, arrangements should be initiated to review and harmonize the national legislations regarding the shared water basins such that when a country is enforcing its national laws, it would also be enforcing the harmonized regional regulations. It will be the main objective of one of the Strategic Goals to provide, through harmonized legislation, favourable environment in which the management of the river basins and their resources will be carried out given the need for regional action at catchments level. This will involve the review and update of the existing policies and legal frameworks of the seven countries with the view to harmonizing them to facilitate implementation of any planned development programmes.

Harmonization of the national regulations of the seven countries is an important strategy that would greatly facilitate the implementation of a water resources management plan for the basins. In particular, emphasis should be placed on the following three specific measures:

- Development of a common framework of water resources regulations.
- Development of legally recognized co-management frameworks for integrated management of the shared river basins (public-private partnerships). This should allow for participation of civil society and, where relevant, private industry should develop, implement, and monitor the performance and impacts of integrated shared river basin management plans.
- Harmonization of standards for monitoring, control and surveillance systems of the water resources and other environmental resources.

It will also be necessary that (a) the use of technical and other measures to regulate exploitation of resources should be supported by alternative enforcement schemes that provide for close involvement of the stakeholders and local communities in surveillance and control activities; (b) the regime of sanctions provided for in water legislation of the seven countries should be subjected to thorough review and revision in consultation with the local communities and other stakeholders, (c) there should be need to address issues relating to national privatisation and investment priorities of the seven countries in the code of conduct regulating the harmonized resources management of the river basins.

3. Institutional and Consultative Mechanisms

An effective and efficient institutional and management structure is essential for implementation of any jointly developed programmes. There is need to have uniform provisions or one code of conduct regulating all exploitative practices. This should be a regional body established by the riparian countries with a Regional Coordinating Secretariat to oversee the water and environmental management of the transboundary water resources

of the river basin in question. This implies the need for requisite resources and capacities for technical and specialized staff as well as funds and equipment.

The proposed institutional and management structure (Figure 2) should have the following key attributes:

- Have political recognition and support by a Shared River Basin Technical Committee and be established as an institution to include other environmental resources. However, there should also be a high level of autonomy from the political leaders/Ministers to allow for day-to-day decision-making by experts from respective basin countries based on efficient and cost-effective management and flexible enough to cater for a strong partnership approach between the different key stakeholders.
- Have well defined linkages to other agencies. The proposed institutional structure will need to have close linkages and working relationships with different national and international agencies concerned with management of transboundary natural resources. This linkage could possibly be under a natural resources sector committee that meets regularly to determine and review policy issues and progress of implementation of bilateral decisions among the seven countries.
- Clearly define the roles and functions of the national water resources and other management bodies at national district and community level.
- Allow for innovative revenue generation mechanisms and appropriate incentives including common investment guidelines, fiscal systems, and access rights frameworks for all basins. This could be implemented through a Retention Scheme that derives revenue from levies on exploitation of environmental resources including water, and thus improve efficiencies and service delivery through self financing.
- Undertake capacity building of personnel in order to enhance their skills, knowledge, and technical capacity to undertake joint institutional planning and management of transboundary resources.
- Adopt harmonized standards on all basins for quality assurance and certification systems including; inspection, monitoring, communication, surveillance, construction of works, and enforcement of legislation.
- Involve the local communities by equipping them with resources and information packages as well as skills to foster their participation in decision making and the sustainable management of the resources of the shared basins.
- Have a Strategic Plan and a Business Plan that can be used by the respective countries to evaluate performance and attract donor funding for joint investment projects.

With regard to the proposed structure of the institutional framework for the shared river basins, reference has been made to the regional mechanisms reviewed for lessons learned from their experiences. The review revealed that there is a strong case for replication of the co-management/participatory management systems that are similar to the ones being implemented for Lake Victoria Basin Commission and the OSS proposal for the North-Western Aquifer System in Algeria, Libya, and Tunisia focusing on Concerted Management of Transboundary Water Resources Basin through consultation mechanism.

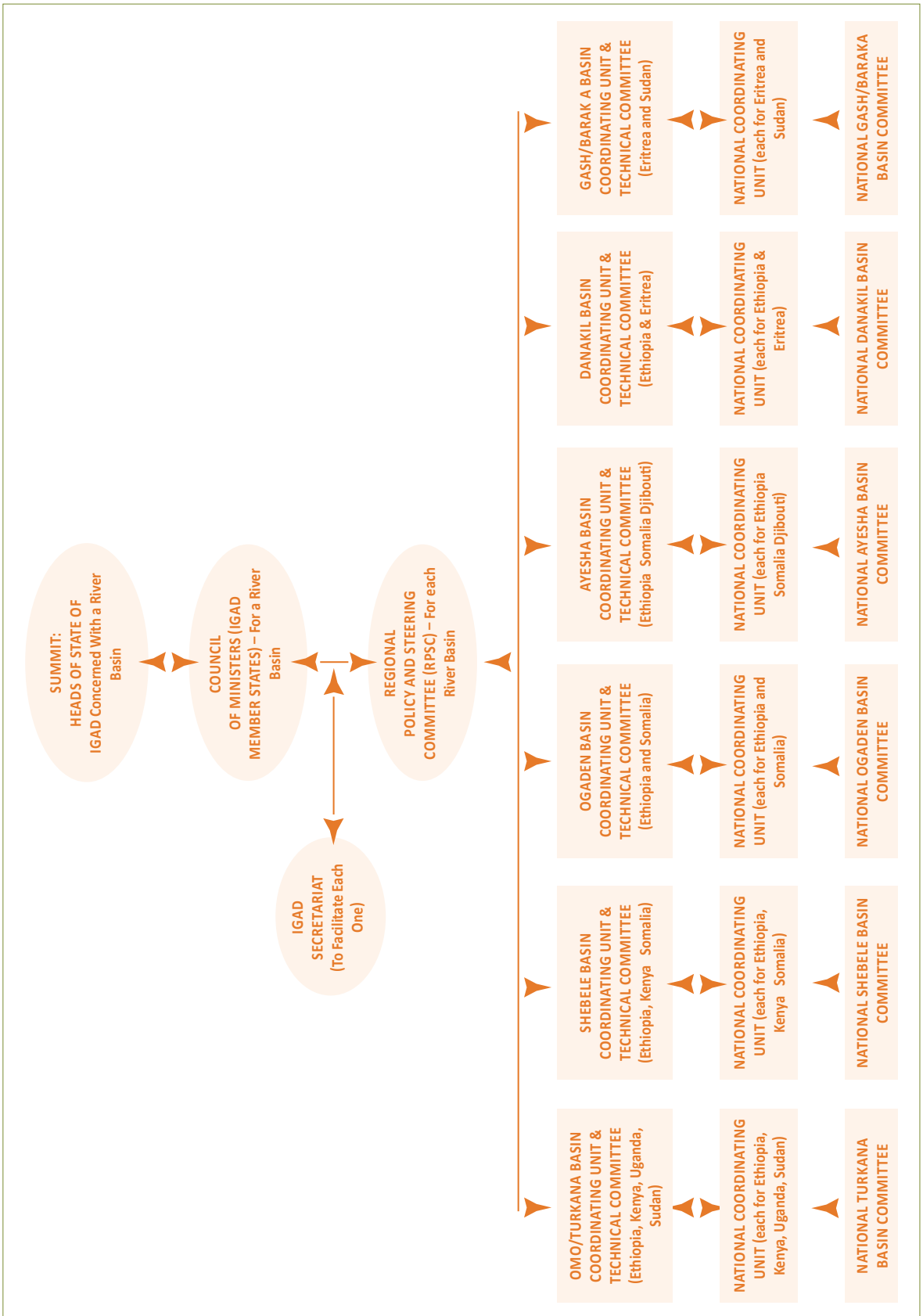

FIGURE 2: Sub-Regional Framework for Transboundary Water Resources Management for Each River Basin

In terms of the institutional structure, the one adopted by LVFO is recommended although it would need to be simplified since the LVFO has a complex structure, designed to connect into the EAC structures and ensure regional equity and harmonization. It is noted that the activities of the LVFO are implemented through five programs and the different functions under each program are implemented by Regional and National Working Groups while the programs of the LVFO are implemented through projects designed to address one or more thematic areas of the programs.

4. Recommendations

The following recommendations underlie the design and implementation of the proposed institutional framework:

(a) Enactment of legislative and policy changes: it is assumed that all the seven countries will expedite any required changes to their natural resources policy/legislation and have them reflected in their National Natural Resources Sector Strategic Plans as soon as possible;

(b) Political support: it is assumed that any political constraints among the seven countries will quickly be worked through under the Shared Basin Steering Committee;

(c) Stakeholder cooperation: it is assumed that all sector stakeholders will support the proposed institutional and management framework for the shared water basins in the IGAD Sub-Region; and

(d) Donor support: it is assumed that donor support (in various forms) will be available to fund any proposed investment projects, the operational costs of the coordinating secretariat and joint operations of the consultative mechanism until it becomes self financing.

.

4

THE NETWORKS OF INFORMATION AND DATA GENERATION AND SHARING/EXCHANGE

1. THE NEED FOR MONITORING AND INFORMATION GENERATION AND DISSEMINATION

The primary objective of international collaboration among basin states is to develop the resources of the drainage basin for the mutual benefit of its connected member countries. It is in this way that even potential conflicts can be avoided, (or they resolve themselves). In a shared drainage basin, when a significant amount of the water used in one country comes from another, or when sources such as aquifers span international borders, the entire process of formulating a national water resources management policy, laws, and institutions must take into consideration the obligations to provide water of a certain quality to downstream users. In order for all the riparian countries to fulfill their economic development goals, it is important that the countries must collaborate to exchange data, share waters, preserve the environment, and generate development programmes that are of joint interest and benefits. There is therefore need for the riparian states of the shared drainage basins in the IGAD Sub-Region to harmonize their policies and laws and re-organize their institutions in accordance with international collaborative arrangements among shared river basin countries. The countries should embrace the concept of a river basin as an economic and geographic spatial unit within which water resources are treated as the common property of all riparian states. They should also rest on the principle that each shared basin country is entitled within its territory to a reasonable and equitable share of the beneficial use of the waters of their international drainage basin.

An integrated water resources management (IWRM) approach to development and management in any of the six river basins entails continual tradeoffs between different stakeholders regarding the use of the basin resources particularly the ultimate scarce resource of the basin: the river water. For these tradeoffs to take place amicably and peacefully, mutual policy, legal, and institutional frameworks for transboundary cooperation that involves all the specific basin riparian countries is essential.

2. MANAGEMENT OPTION FOR COMMON MONITORING NETWORK OF SHARED WATER RESOURCES

2.1. Management structure

The proposed management framework is hierarchical as depicted in Figure 1 This framework

provides for decisions by senior Government Officials that includes representatives of local authorities within the particular basin or basins, and ensures that each of the riparian countries has the capability to carry out agreed actions of monitoring and data collection in the part of the basin within its own territory. A high level political framework for cooperation would be important, but it would likely be a slow and cumbersome process essentially involving centralized government. The National Reports (2010) that were analyzed revealed that in the five (5) countries of IGAD Sub-Region that were covered, the emphasis on decentralization of governance has shifted the apex of decision-making to regional and district organizations as well as elected local bodies like the LCs in Uganda or Water User Associations. Essentially since the planning, development, and management of a river basin is an activity that can span one or more districts/zones, there is greater need for coordination between management entities at central, regional, district, and zonal levels. Decision-making, according to the subsidiarity principle, should take place at the lowest possible level needed to carry out a given task, but the process must be linked to the central ministry of water resources or equivalent in each country through the Senior Officials.

The institutional framework being proposed will focus on national and international cooperation at district or local level, so that at such a level, the responsible officials will be able to resolve many salient national and transboundary issues, such as through harmonization of local by-laws without any need for adjudication at higher, and usually central, level. Mutual transboundary efforts will be made to reduce undesirable activities causing damage on both sides of a border, such as unplanned migration of pastoralists with their cattle. Cooperation will also be encouraged between riparian districts/zones within the same country.

In transboundary river basins elsewhere in the world, it is usually indispensable to establish a commission with senior representatives of all countries involved to make decisions involving two or more riparian nations. In the case of each of the six river basins in the IGAD Sub-Region, a Regional Policy and Steering Committee (RPSC) will be created to perform this function and hence be the ultimate body for decision-making, naturally functioning within the framework of the existing ministerial committee of IGAD. Establishment of a separate special ministerial committee for the transboundary river basins in IGAD Sub-Region was not recommended at the first validation workshop (see First Validation Workshop Report). The RPSC will meet at least semi-annually with the Senior Officers from the respective national ministries responsible for water as members of their countries' delegations. (It is foreseen that the RPSC will eventually be replaced by a permanent commission with a Secretariat within the Secretariat of IGAD).

In the proposed Institutional Framework, the RPSC will function at the apex as a de facto River Basin Commission. The RPSC is linked to IGAD Secretariat where its meetings shall take place. Lessons learned from other River Basin Organizations or Commissions indicate that it is necessary for some personnel capacity to be exclusively dedicated to issues related to the shared river basins. It is, therefore, being proposed that a Coordinator with a couple of Support Staff be appointed and located in the IGAD Secretariat to be responsible for preparing RPSC meetings related to the shared river basins and following up the outcome of those meetings. Each river basin will have a Basin Coordinating Unit and a Task Force

comprising the Senior Officials and selected representations from the National Basin Committees. The National Basin Committee, under the chairmanship of the Senior Official, will meet once every four months at the ministry responsible for water resources, where the Senior Official is based, to review progress of activities taking place within the basin(s) and matters of development planning. The Regional Basin Coordinating Committee and its coordinating Secretariat with be based in a mutually selected member state within the shared river basin unit of that country (i.e. Office of the Senior Officer of that country). The National Coordinating Unit headed by the Senior Officer will be responsible for all the national shared river basins if there are two or more basins in the country. For example, there are five transboundary river basins in Ethiopia, one each in Djibouti and Uganda, and two each in Eritrea, Kenya, Somalia, and Sudan.

The main constraint identified in the National Reports is the general lack of qualified personnel to be dedicated to water resources planning, development, and management within the six basins. The activities being planned to take place will not happen without the infusion of additional staff. Initially, each country will have to identify and provide one senior officer to be responsible for facilitating implementation of activities in their respective country's side of the basin. These officers, who should be located in their ministries responsible for water resources, will be authorized to represent their respective countries in negotiations about transboundary issues. Having explored the legal aspects of this proposed institutional arrangement in the member states of IGAD from the National Reports, the Consultant is concluding that there would be no formal impediments.

2.2. Flow of information and data

Agents of the Government, NGOs, the private sector, programmes, and projects operating within the shared river basin will report to the National Field Station of each country where the information and data shall be processed for submission to the National Basin Coordinating Unit (NBCU) located within each National Coordinating Ministry. After processing the information and data, the National Coordinator shall channel them to the Regional Basin Coordinating Unit (RBCU) to be hosted within the Coordinating Ministry in a country chosen and agreed upon by the Member States of the riparian countries where the information and data shall be consolidated for each basin before transmitting them to the Coordinating Secretariat of the Transboundary River Basins in IGAD Secretariat for further analysis and entry into the Database of IGAD. Both soft and hard copies of the data and information will then be retrieved and channelled to the respective countries for their information and record.

The protocol on information and data sharing and exchange will guide the process of their transfer and dissemination to Member States and third parties.

3. COMMON MONITORING AND INFORMATION SHARING NETWORK AT SUB-REGIONAL LEVEL

3.1. Monitoring and collection of data and information

Lessons learned from most successful RBOs are those that have well-focused, if not narrow,

objectives and that concentrate on projects that form common works beneficial to several basin states. There are cases, however, where not all states will benefit or be concerned with a particular common work. In such cases, it is expedient to limit the arrangements for project implementation to the states concerned. Of the various components of comprehensive water resource strategic planning, i.e. physical, technical, management, socio-economic, environmental, political, and legal, it is physical and technical that are of particular importance in transboundary situations because they concern the need to:

- Integrate the several potential sources of water, namely surface, ground, reclaimed, and desalinized water as appropriate;
- Integrate water supply and waste water disposal;
- Control pollution at appropriate levels.

In addition, the purpose for creating a sub-regional mechanism can cover all or any of the following activities which were detailed in Phase I Report:

- Data collection
- Planning
- Water allocation
- Raising funds for studies and project implementation
- Project cost sharing
- Implementation of projects
- Operation and maintenance of projects
- Monitoring water use, control of pollution, and preservation of environmental conditions.

The types of data and information needed for transmission in the channel would include but not limited to the following:

- Project-wise collection of river flow and quality data
- Climatic data, particularly rainfall
- Land use in riverine plains and extent of agricultural land
- Topographic surveys
- Aerial photography
- Land ownership, traditional/existing water rights
- River flow data throughout the basin
- Climatic data throughout the basin
- Land ownership and traditional /existing water rights
- Groundwater level and quality
- Some monitoring of pollution levels
- River flow and water quality data throughout the basin

- Climatic data throughout the basin
- Groundwater level and quality
- Pollution levels
- Water abstraction by all users
- Data for prosecution for over abstraction and/or pollution
- Data analyzed from perspective of different water users
- Water needs for various environmental processes

3.2. The monitoring and information sharing network

Each Member State will establish one or more Basin Field Station(s) at each shared river basin for the purpose of monitoring and collection of information and data by Field Officers and Agents operating in the river basin(s). After compiling the information and data, the Field Officers will channel the material to the Field Station(s) where they are assessed for accuracy before being forwarded to the National Coordinating Unit in the Ministry responsible for the transboundary river basins. It is here that the data and information are processed before transmitting them to the Regional Basin Coordinating Unit (RBCU) of particular river basin for consolidation. The RBCU will then submit the data and information to the Unit in IGAD Secretariat for processing, and entry into the established Database before dissemination to the Member States, the RBCU, and to any third party authorized by the Protocol in place to receive such information and data on request (Fig. 3).

3.3. Structure of the network

This study identified only six transboundary lake/river basins in IGAD Sub-Region. The seventh would have been Awash River Basin into which some drainage from Djibouti catchments flows towards Lake Abbe which lies at the border between Ethiopia and Djibouti, and which has been recorded as a shared basin between Djibouti and Ethiopia by several authors (World Bank, 1994, 1994, UNFAO 1995, Taddese et al. 2004, Edossa et. Al. 2009). The six are listed in Table 1.

The structure of the Monitoring Network (Table 2) has Ethiopia with the minimum of five (5) Field Stations (i.e. one on each share basin), five (5) Regional (Transboundary) Basin Coordinating Units (RBCU) to be located within Ministries responsible for transboundary river basins, and one (1) National Transboundry Basin Coordinating Unit (NBCU). Somalia has three RBCUs and at least three (3) Field Stations. Eritrea has at least two Field Stations and two (2) RBCUs so are Kenya and Sudan, while Uganda has one Field Station and one RBCU.

Each country is expected to create a National Basin Coordinating Unit within the Ministry responsible for the transboundary river basins. Djibouti does not have any transboundary river basin to share. Figure 3 depicts the network between the countries and the river basins. Once information and data are received at the Field Stations from the Agencies operating within the shared river basins, they are forwarded to the NBCU after compilation.

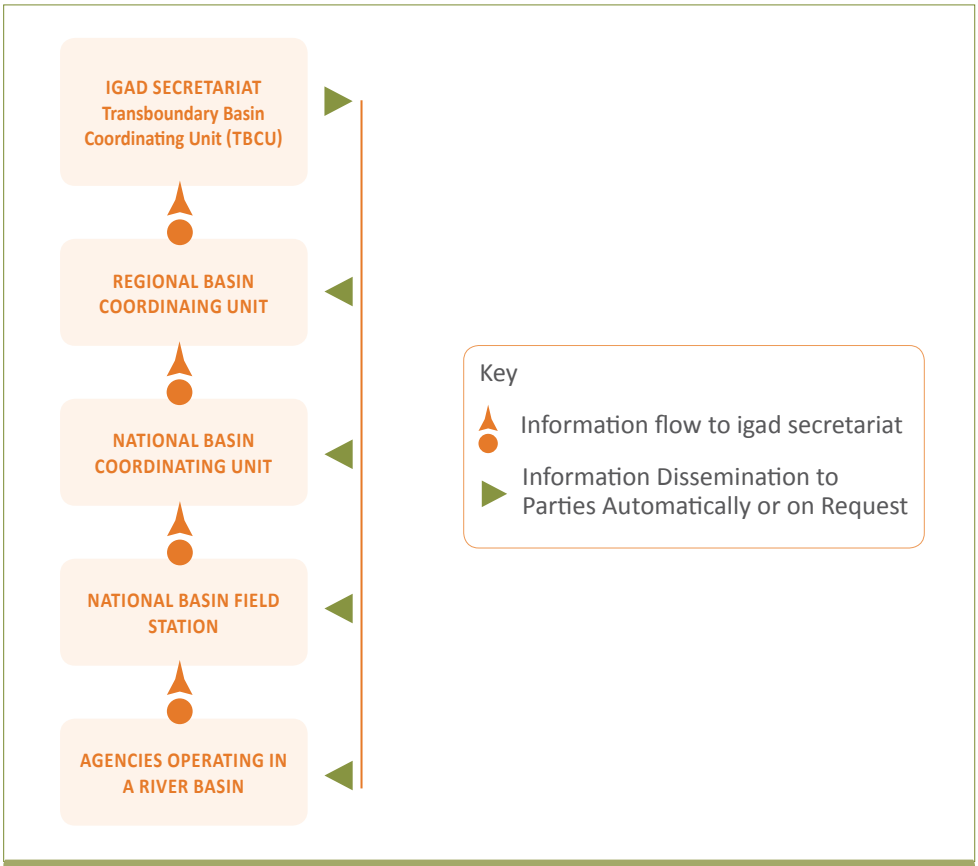

FIGURE 3: Common Monitoring and Information Sharing Network at Sub-Regional Level.

Basin Name	Basin Number	Catchment Area (km^2)	Sharing Countries
Danakil	TB-1 (1)	61,549	Ethiopia, Eritrea
Gash Baraka	TB-2 (2)	66,549	Eritrea, Sudan
Juba Shebelle	TB-3 (3)	753,202	Ethiopia, Kenya, Somalia
Ogaden	TB-4 (4)	207,363	Ethiopia, Somalia
Turkana Omo	TB-5 (5)	256,267	Ethiopia, Kenya, Sudan, Uganda
Ayesha	TB-6 (6)	4,963	Ethiopia, Somalia
Nil	TB-7 (7)	0	Djibouti

Note: *Hence, Djibouti has no transboundary river basin although it borders Lake Abbe that lies between Ethiopia and Djibouti and which receives drainage from both countries.*

TABLE 1. IGAD Transboundary Basins

Basin Name	NBCU	RBCU	Field Stations
Djibouti	**1**	**0**	**0**
Ethiopia	**1**	**5**	**5+**
Eritrea	**1**	**2**	**2+**
Kenya	**1**	**2**	**2+**
Somalia	**1**	**3**	**3+**
Sudan	**1**	**2**	**2**
Uganda	**1**	**1**	**1**
Total	**7**	**15**	**15**

TABLE 2. Network of Field Stations and Regional Basin Coordinating Units.

Following the analysis of the data and information by each country, they are sent to the RBCU for consolidation and transmission to the Unit at IGAD Secretariat.

The distribution of the network shows that Turkana-Omo River Basin is shared by four (4) countries, Juba-Shebelle is by three (3) countries, Ogaden is by two (2) countries, Ayash is by two (2) countries, Danakil is by two countries, and Gash-Baraka is by two countries. The choice of a country to host the RBCU will be decided upon mutually by the countries that share the river basin in question. Choices indicated in Figure 4 are just examples.

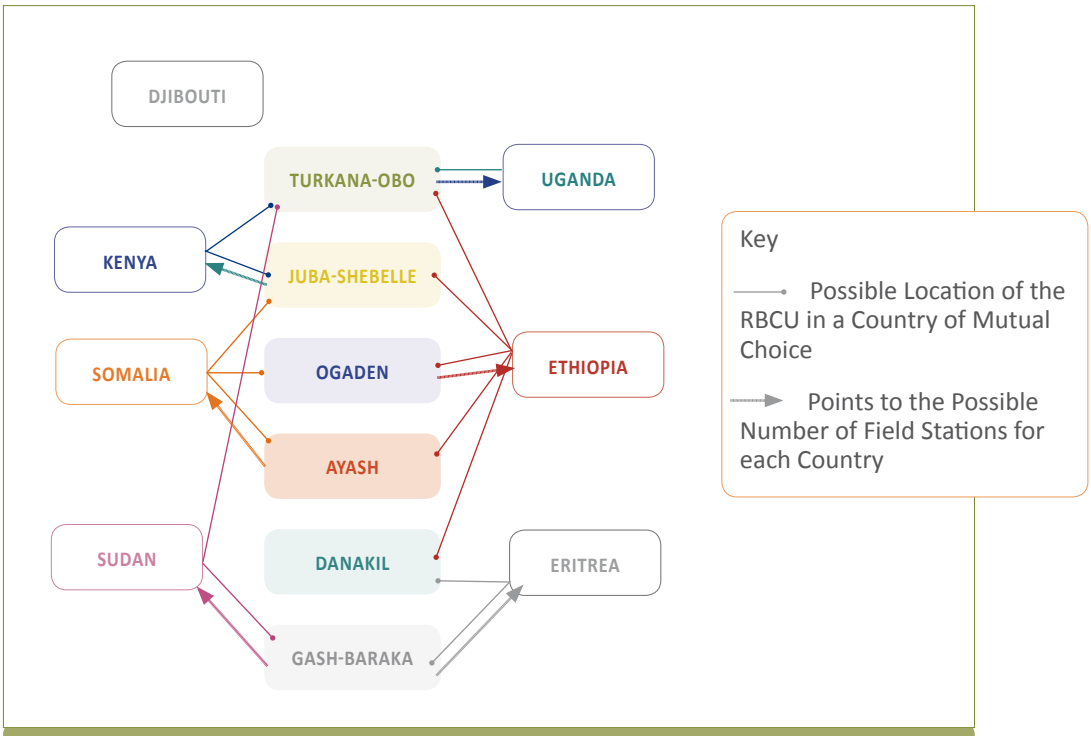

FIGURE 4: Monitoring Network of the Transboundary River Basins.

4. PROTOCOL FOR COORDINATION OF INFORMATION AND DATA EXCHANGE AND SHARING

4.1. Need for a regional agreement on data/information exchange/sharing

The need for a regional agreement on data and information exchange and sharing was identified as part of the Mapping, Assessment, and Management of Transboundary Water Resources in the IGAD Sub-Region Project. The Project Component on Capacity Building Component, therefore, developed a roadmap for negotiating protocols for **data and information sharing and exchange** among the IGAD countries.

In this document, ***data*** refers to observational facts about some aspects related to the

river basin, while ***information*** is defined as processed data. **Exchange** describes the act of providing information and receiving equivalent information in return, and **sharing** refers to using data or information in common with other actors or taking equitable responsibility for providing information. '**Sharing**' embodies a degree of joint or collective effort among member countries in establishing common knowledge throughout a specified river basin; '**exchange**' implies more of a reciprocal transfer of data/information between the riparian countries.

The role of sound data and information basis in the management of river basins cannot be over emphasized. Information/data are required, among others, for planning of projects, monitoring of state of the basin, operation of facilities, for monitoring performance of interventions, etc. Information required for managing basin water and related resources, to a larger extent, depends on what management/development related problems are to be solved, which, in turn, depends on the level of utilization of the water resources of a given basin.

In transboundary water resources management, **agreements** are needed on data/information exchange and sharing to define the terms (or modalities) under which access can be granted to data/information. Data can be reciprocally transferred between riparian countries and/or can be collected, processed and compiled in a systematic manner and made accessible to all parties involved.

This document, therefore, presents the roadmap for the development of the protocol (agreement) on data and information exchange and sharing. The roadmap is based on the review of relevant documents on regional and international agreements and experience in addition to the analysis of current situation in the IGAD Sub-Region.

4.2. Agreements/protocols on exchange and sharing of information/data

Agreements on exchange and sharing of data and information can take different forms. Pending the decision on the type of protocols the IGAD countries might agree upon to govern data and information exchange and sharing, the term 'agreement' shall be used interchangeably with the term 'protocol' in this document. The agreement could be in the form of a protocol, or an interim procedure, guideline, or any other form of document that might be agreed upon by the riparian states.

Data and information relevant to water resources management/development can be obtained from different sources. National agencies are usually the primary sources of data, such as hydrometric records, climate, demography, etc. Global/regional datasets are also available in a number of international/regional agencies, such as the UN Global Environmental Monitoring System1, the Global Runoff Data Centre2, the FAO, etc. With the advancement of satellite technology, imageries of the earth's surface and products developed based on such imageries are available in the public domain for free or can be purchased. River basin organizations, such the Mekong River Commission and the Organization for the Development of the Senegal River (OMVS), have already established Information Systems that glean data/information obtained from the riparian countries, generated through the various programs/projects, and from other sources, including satellite imageries and derived products.

In the context of transboundary water resources management, thus, taking into consideration

the various sources from which data/information can be obtained, three broad categories of sources can be identified:

- **National (private):** This refers to data/information that are available in national agencies of riparian states. While certain rules are to be followed to get access to these data/information for 'national' use, special arrangements are required to get access by 'outsiders'.
- **Shared:** This refers to data/information that has been compiled through the consent and participation of the riparian states and hence is available to all riparian states. The fact that the data/information is 'shared' by the states signifies that they are mutually agreed by the riparian states.
- **Public domain:** Data and information in the public domain are available to practically everyone. Examples of such data/information are satellite imageries and derived products obtainable from the internet, information released for public 'consumption', etc.

Access to data/information is governed by some sort of, usually written, policy, which might recognize different class of users and sensitivity of the data/information.

Based on literature review and lessons learned from similar protocols of existing RBO, preliminary identification of the types of data/information required for the development and management of the shared river basin resources in the IGAD Sub-Region has been made. These broad categories of information/data listed in Table 3 are deemed sufficient for the purpose of the roadmap and they shall then be refined further during the drafting of the agreement.

Category	Definition	Examples of Data/Information in the Category
Water Resources	Inland water features, drainage systems and their characteristics	Drainage network, hydrometric data (river flow, stages), sediment discharges, bathymetry of lakes, reservoirs; characteristics of groundwater aquifers
Atmosphere and Climate	Process and phenomena of the atmosphere	Precipitation, temperature, evapo-transpiration, cloud cover, climate change indicators
Ecology/ Environment	Environmental resources including flora and fauna in national environments	Wildlife; vegetation, wetland boundaries and characteristics; pollution sources, nature reserves, water quality parameters
Land use/cover	Description of land cover and land use	Vegetation cover; spatial coverage and characteristics of different land use patterns
Socio-economy	Socio-economy	Population distribution; Human Development Index (at selected spatial resolution); Basic Socio-economic Information
Recreation/Tourism	Recreation/Tourism	Existing recreation and tourism sites and characteristics; potentials
Infrastructure	Information on physical infrastructure	Characteristics of existing water related infrastructure (such as reservoirs), data on hydroelectric power plants and power
Agriculture and farming	Information related to cultivation of crops and rearing of animals	Cropping patterns; rainfed agricultural systems, water demands, fisheries (aquaculture); livestock

Table 3. Categories of Data/Information Required.

4.3. Status of information/data exchange/sharing in igad countries

Currently quite a large number of projects are being prepared/implemented in the IGAD Sub-Region that are focusing on generating relevant data and information for decision making; a fact that indicates early recognition by the riparian states of the role of information in management of river basins. Diverse types of data and information are required to implement the current and potential future joint/cooperative projects. Further, more data/information will be required to ensure that future development/management of the shared river basin resources will be based on principles agreed to by the riparian states. Data/information might also be required for specific purposes, such as for flood-risk reduction, to support operation of facilities such as reservoirs, dams, etc.

Addressing water resources development and management concerns effectively requires a holistic view of all issues including the political dimension. Strengthening and development of sectoral information and data exchange systems both at national and regional level has already been given high priority by IGAD, but focusing mainly on food security. An early warning unit was created under the agriculture and environment division and a project on Early Warning and Food Information System (EWFIS) was developed and implemented. Other information systems such as the IGAD Environment Information System and Network, IGAD Infonet, etc., were also initiated. Over time, the number of information systems increased and IGAD started to integrate the different sectoral initiatives in a common umbrella, the Regional Integrated Information System (RIIS). A first version of RIIS was formulated and current operational IGAD information systems include:

(a) Marketing information system

(b) Remote sensing applications project

(c) Library and documentation services

(d) IGAD secretariat technical infrastructure; and electronic communication network

Early warning and information systems for the IGAD sub-region have been developed predominantly for disasters affecting food security. They are mainly joint initiatives channeled through the UN Food and Agriculture Organization (FAO) such as the Global Information and Early Warning System on food and agriculture (GIEWS), the IGAD Early Warning and Food Information System for Food Security. To contribute towards the food security of the IGAD region, the project worked towards developing fully operational and self-sustained early warning and food information systems (EWFISs) at both the national and the regional levels. Other initiatives conducted in specific fields, such as livestock diseases, drought, floods, with some time an outlook on cross cutting issues, have led to the establishment of more or less operational sectoral early warning information system.

At national levels, food security information activities are mostly coordinated by a national operational agency under a specific ministry or a specific commission. The national early warning systems vary in their agency linkages, specific objectives and types of information collected but in general they cover food production aspects of food security (crop monitoring and forecasting) and publish regular bulletins giving alerts on potential food shortages.

Despite efforts at regional level, the development of comprehensive and effective national EWFIS is still limited. Assistance at national level is often being provided by UN organizations and international NGOs in various countries and for various areas of interest. However, the focus remains mainly on drought and food security issues and does not cover the full range of hazards including data and information on water resources that could happen in almost all the countries of the region.

At regional level, sharing of information is improving within the IGAD region but many agencies cite the need for increased collaboration to share and disseminate findings. For example, in addition to IGAD, Ethiopia shares limited information with only Sudan and Eritrea. Other countries, such as Sudan, communicate mainly with IGAD. As agencies develop capacities to communicate via electronic mail information sharing should increase drastically.

Early warning systems are geared to process information relating to food security and as such cover a wide range of variables. EWFISs are particularly good at predicting drought conditions. While floods, storms and tropical cyclones are expected seasonal events, monitoring is not always sufficient to provide warnings and prevent disasters and in some cases, other tools for preparedness such as hazard mapping may not be available. More extensive use of data on environmental degradation might provide tools for land use planning to prevent disasters arising from deforestation and desertification. Development of early warning and information systems covering conflict started with the preparation of a protocol on the establishment of a Conflict early warning and response mechanism for IGAD member states.

Sub-regional initiatives	IGAD EWFIS	IGAD CPSZ	GIEWS FIVIMS	DMC	FEWS	WFP/ VAM	SCF/UK VA	LEWS	UNICEF	Meteo services	WHO	UNEP
Major hazards												
drought				☑								
conflicts												
floods										☑		
env. degradation												☑
earthquakes												
pest infestations												
epidemics											☑	
livestock diseases								☑				
Cross cutting issues												
populations									☑			
food supply:security			☑		☑							
economic market	☑				☑							
vulnerability		☑			☑	☑	☑					
lands resource mngt		☑										☑

Source: IGAD 2002

Table 4. National/Regional Information/Data Sharing and Exchange in IGAD Sub-Region.

A large number of international organizations and cooperation agencies are conducting early warning and information sharing activities in the region, particularly in relation to drought and food security issues. Table 4 gives an overview of domains covered and the gaps remaining.

4.4. Lessons learned on transboundary data/information sharing/exchange

There are currently at least 260 international drainage basins in the world for which there are probably well in excess of 400 international water / energy agreements of varying degrees of sophistication. The importance of sharing and/or exchanging data and information on international water resources has been acknowledged in a significant number of those international agreements including in Africa, Asia, the Americas and Europe.

Table 5 summarizes examples of international agreements/arrangements on data and information exchange (and sharing) within the context of integrated water resources management.

Region/River Basin and/or Countries	Procedure/agreement for data/ information sharing	Remarks
Columbia River Countries: Canada and USA	A subsidiary agreement to the Columbia River Treaty governs data/information exchange. The agreement is entitled: "Terms of Reference for the Columbia River Treaty Hydrometeorological Committee"; dated 20 May 1968.	Scope covers, among others, exchange of available hydrometeorological data/information; recommend establishment of additional gauging stations. (full terms of reference of the committee provided in Annex 2)
The Mekong River Countries: Lao PDR, Thailand, Vietnam, Cambodia; China PR and Myanmar (Burma) are not members	Sharing and exchange of data/ information subject to the provisions of the ***'Procedures for Data and Information exchange and sharing'***	• Agreement defines types of data/ information • The Mekong River Commission (MRC) secretariat is designated as the custodian of the data/ information (creates and maintains the MRCInformation System) • MRC Joint Committee oversees the effective implementation of the agreement. (Full text of procedure provided in Annex 1)
Nubian Sandstone Aquifer System Countries: Chad, Egypt, Libya, and Sudan	Agreement on Monitoring and Exchange of Groundwater Information of the Nubian Sandstone Aquifer System Signed 3 – 4 October 2000	According to the agreement, member states share information through the Nubian Aquifer Regional Information System (NARIS). The agreements includes the information to be shared: • Annual extractions, specifying the geographical location and number of wells and springs • Annual electrical conductivity measurements, followed by chemical analysis if drastic changes in salinity are observed • Water level measurements taken twice a year The information compiled in the NARIS is used to run aquifer development scenarios using the aquifer model developed for the NSAS.

Region/River Basin and/or Countries	Procedure/agreement for data/ information sharing	Remarks
Senegal River (Organization for the Development of the Senegal River, OMVS) Countries: Mali, Senegal, Guinea, Mauritania	Agreements have been concluded between relevant (national) organizations and the OMVS with a view to defining the role and the responsibilities of the individual organizations involved (collection, processing, and storage of data) and the OMVS (preparation, dissemination, and exchange of information).	The OMVS is an example for cooperation with a strong international competence center in charge of organizing cooperation with national authorities. The OMVS is responsible for the operational regulation of jointly run infrastructure, and as such it also operates hydrological measuring networks
Orange-Senqu River Commission; Countries: Botswana, Lesotho, Namibia, and South Africa	An Orange-Senqu agreement that provides for the development of a database and a provisional integrated water resources management plan.	• Data-sharing and joint hydrological analyses are conducted regularly among the countries; • The data collected by South Africa are regularly shared with its neighbors; • Namibia provides runoff data and information on present and anticipated water demand; • Lesotho also provides runoff and precipitation data. South Africa has funded measuring weirs in Lesotho to calibrate the data.

Table 5. Lessons from Transboundary Agreements on Data/information Sharing

4.5. Information/data management and dissemination

National level coordination and information management are key roles and, in the first instance, the responsibility of the national authorities. In many cases there will be constraints to effective co-ordination and information management. The following are the components of information/data management and dissemination:

1. Identification of information needs

The starting point in the design of any information management system is the identification of the eventual users of the system, their particular needs as well as data and information that would answer to their demand. The users of information in most water resources development and management situations are numerous.

2. Establishing the baseline

The establishment of solid baseline data is essential because effective decision-making requires the comparison of newly gathered data against a baseline that represents the "normal" situation. For example, it is not sufficient in terms of understanding the economic effects of a severe drought to learn the price of cattle in the market today

3. Data gathering and Management

There is a wide range of data-gathering techniques available to stakeholders, from highly sophisticated satellite and remote sensing systems, actual measurements, and observations

to one-on-one interviews with key informants, including, among others, authorities, and members of the public. Decisions concerning the particular techniques to be used in gathering data and the frequency of data gathering depend primarily upon availability of financial resources, expertise, and time, although, ideally, the frequency of data collection and reporting must match the rate of change in the situation being assessed.

4. Data Analysis and Information Production

What decision-makers clearly need is not sheer volume, but well-reasoned, insightful findings and conclusions accompanied by recommendations for action and clear statements from data analysts on how particular conclusions were drawn.

5. Information Dissemination

It should never be assumed that information would find its way to those who need it. Procedures for the dissemination of information to decision-makers should be planned in advance taking into account the geographical, political, and organizational location of those eventual users.

6. Generating Informational and Institutional Memory

Institutions should be able to draw on their prior experience with information easily accessed from their banks of "institutional memory" whenever requested. Building a real capacity for institutional memory requires a firm commitment by top management, a detailed plan, and well funded, operating budget.

4.6. The strategy for sharing/exchange of information/data

Water Users Associations (WUA), National Authorities, International Organizations, and NGOs are assuming a growing role and interest in the development and management of shared water resources in the IGAD Sub-Region. The need for cross-fertilization among the parties is greater than ever. However this cross-fertilization shall only become effective when the stakeholders involved in the management and development of the shared water resources will be able to concretely share their findings, concepts, and particularly their results in term of data and information. This means that they should agree on common protocols that will enable them to talk the same language, exchange compatible data and products, and strengthen information circulation among them with the aim to better address the issue of integrating all aspects of development and management of shared water resources in the Sub-Region.

1. The Issue to be Addressed

Significant efforts are being made in the collection of data and generation of information through scientific and technical research, the implementation of appropriate water resources projects in the field, and the harnessing of local know-how at national and regional levels. The results, in the form of products, information, and data represent a unique scientific, technical and cultural heritage for sustainable development and the fight against poverty. However, this information heritage is often dispersed on account

of sectoral compartmentalization at the inter-institutional level. The huge body of data, information and products thus gathered does not always amount to a useable information capital for three main reasons:

- The results of data collection and processing are disseminated among only a limited number of users who often form part of the same professional, scientific or technical domain;
- The products generated are only to a limited extent transformed into information that can be directly used in decision-making processes relating to the development and management of shared water resources;
- The information all too often remains dispersed, restricted and hard to access by users at both the national and international levels owing to a lack of suitable mechanisms for the circulation of information.

Based on the literature review carried out during development of the this road map, there is a consensus, among the riparian states, on regular sharing/exchange of readily available and relevant data and information on existing measures and on the condition of water resources within the Sub-Region. However, consensus yet has to be reached on the scope and modalities of exchange of information on 'planned measures'. Currently there is no comprehensive basin wide agreement governing the sharing and/or exchange of information among the member states of IGAD on water resources. As mentioned earlier, ad hoc arrangements are being pursued to provide access to the various projects, mainly at the subsidiary level. It is assumed that all the member states are now willing to generally agree as to the need for having comprehensive agreement on data sharing and exchange regarding the shared water resources in the Sub-Region. The following have been identified as the main arguments for working towards a comprehensive agreement for data/information sharing and exchange:

- **Support to establish 'Shared' Knowledgebase:** Under this project, a great deal of data has been entered in a regional database from five of the seven countries of IGAD in three main themes, namely, **water resources, environment**, and **socio-economy**. The monographs being prepared under this project for the five shared river basins in the Sub-Region involve collection and systematic compilation of diverse types of data and information on the five shared basins. This means (a) huge resources will be committed to the collection and compilation of data and information on different parts of each of the shared river basins, and (b) there is an urgent need to establish joint coordination mechanisms for each shared basin with the help of which, among others, availability (or lack thereof), and quality of data and information can be easily identified.
- **Support to enhance capacity:** Preliminary indications are that availability of data relevant to water resources management differs greatly between countries. Early identification of such gaps in data availability and quality will help design projects/programs that specifically target enhancing the collection of relevant data and information in the riparian states. The proposed data and information sharing agreement shall help in this task by mandating relevant national and regional institutions for creation, maintenance and management of the shared information and database and areas requiring improvement can easily be

identified.

- **Sustain international support:** Experience in other jurisdictions, including the recent Mekong experience, suggests that international development partners appear to be more comfortable with providing support to international initiatives when a comprehensive basin wide data and information sharing mechanism is in place.

- **'Ad hoc' arrangements:** Currently ad hoc arrangements are used to provide access on data/information to projects in IGAD Sub-Region on a project-by-project basis. Without mutually agreed (or trusted, validated) data/information base, the process for implementing the cooperative framework agreement being proposed in this project might be unduly delayed.

The question, therefore, requires a well thought agreement on exchange and sharing of data/information where careful consideration is given with respect to the (a) types of data/information to be shared, (b) use of data/information from various sources, including from the public domain, (c) agreed methods for quality assurance, and (d) issues regarding custodianship of the common knowledge base and maintenance. Without an appropriately designed agreement on data/information sharing and exchange, there is great danger that identification and implementation of win-win development scenarios can be unduly complicated.

2. The Scope of the Protocol

The agreement on data/information exchange and sharing should explicitly address the following main issues:

- **Exchange and Sharing:** The focus of the protocol should be on exchange of data and information between riparian states and sharing of data and information among the riparian states of IGAD on shared river basin water resources. Any shared basin-wide arrangement contemplated should, therefore, address both exchange and sharing of information and data.

- **Types of data/information:** The agreement should identify the broad thematic categories of data and information covered by the agreement as given in Table 3, and should be based on data and information required to implement various joint projects.

- **Custodianship of Data/Information:** The data/information that are being and will be compiled from various sources for the planning/implementation of various current and future projects/programs can be systematically archived and made available for use by IGAD countries in their cooperative management of the shared river basins.

- **Access to 'third party:** An important question to be addressed by the agreement refers to the provision of access to potential users other than governments of the riparian states entering into the agreement. This relates specially to access to the information and datasets gathered/compiled through the various IGAD projects. The main question to be addressed in the agreement includes the circumstances and modalities under which access to data/information would be granted to third parties, which may include academic and research institutions, NGOs, UN agencies, private institutions, etc.

- **Cost:** What are the circumstances under which data and information should be paid

for and by whom? Should exchange of readily available data proceed at no cost to the requesting riparian state? Depending upon whether third party access is provided for, the agreement should have provisions on how access is granted to such outside users.

- **Data standards:** This refers to the various standards that are potentially relevant in handling the data/information sets included in the protocol which should clarify how these standards are to be set and who should be responsible for quality assurance of the data/information, for standardizing data formats and other relevant issues.

- **Implementation arrangements:** The protocol needs to address the issue of how the agreement on data/information sharing and exchange is to be implemented with regard to monitoring, verification and compliance, and dispute resolution.

- **Adaptivity:** How can the agreement be made adaptive with regard to emerging technologies? Flexibility and adaptability will have to be built into the agreement. An outstanding example is in the 1944 Agreement between the US and Mexico on the Colorado, Tijuana, and Rio Grande rivers. Here an innovative system was developed whereby a Commission was set up which meets to determine issues relating to the implementation of the agreement. Decisions made at certain meetings come under Minutes, which are binding on the parties unless they officially disagree or contest it within 30 days. The Commission would call meetings on an ad-hoc basis to address any issue with implementation, and create sub-committees to provide technical support.

- **Sustainability:** Sustainability could be achieved by ensuring that the agreement adequately addresses the fundamental incentives of the parties.

3. The Possible Elements of the Agreement

The following outline of the elements in a possible comprehensive shared basin-wide data and information sharing agreement is based on information gathered from the lessons learned during literature review. Two of the key international precedents which were used to help identify these elements are summarized in Table 5 on data and information sharing agreements that are being implemented. The following give a possible idea of what a basin wide data and information sharing agreement might look like for possible enrichment through discussion and comments at the next regional workshop. It is stressed that the content of the actual agreement itself should be determined during the actual drafting of the agreement.

Possible Elements in a typical Comprehensive River Basin-Wide Data and Information Exchange and Sharing Agreement should include the following:

(i) Preamble

(ii) Definitions of Key Terms

(iii) Objectives of the Agreement

(iv) Some possible examples of Principles governing such Agreement would include:

- Transparent (readily understood, clear, perfectly evident)
- Participatory (inclusive)
- Demand side driven (wanted by the participants, driven by them and responsive to

their interests as opposed to supply side driven

- Comprehensive (extensive, wide, large, compendious)
- Consistent (accordant, congruous)
- Flexible (responsive to or readily adjustable, to changing conditions
- Adaptive (tending to show adaptation or adjustment to environmental conditions
- Sustainable (capable of being sustained (socially, environmentally, economically))
- Equitable (state or quality of being equal or fair)

(v) Implementation Mechanism for Agreement would include the following:

- Types of data and information to which Agreement applies
- Mechanism in Agreement for data and information sharing and exchange would include:
  - Establishment of Data and Information Sharing and Exchange Implementation Committee
  - Composition of the Committee
  - Rules of Procedure of the Committee
  - Roles and Responsibilities of the Committee

(vi) Finances (e.g. who pays for what, when and how)

(vii) Monitoring, Verification and Compliance with this Agreement

(viii) Confidentiality

(ix) 3rd Party Access

(x) Final Clauses

(xi) Entry into Force

(xii) Signature and Ratification

4. General Approach for Protocol Development

The following two alternative approaches are proposed for consideration:

i. Interim procedures (or guidelines) shall be drafted and agreed upon by the riparian states as test (or 'trial') version of the protocol, which shall be developed after an initial trial period of agreed upon length.

ii. To develop the agreement without the need to pass through an interim arrangement.

Many international river basin data and information agreements appear to have been successfully negotiated using a two step process. However other agreements also appear to have been successfully negotiated using a one step process. The advantage of a one step process appears to be that it may be easier to focus energy and attention on the negotiation process if the negotiators know they may only have one opportunity. The disadvantage of a one step process is that there may be reluctance on the part of the negotiators to reach agreement if the negotiators perceive that they only have one opportunity to get it right. The advantage of using a two step process appears to be that the opportunity to "test

drive" whatever agreement is reached is then built in to the negotiation process. This can apparently be a significant incentive to reaching agreement. Another advantage appears to be that "interim" arrangements appear to be easier, quicker and cheaper to reach. However the disadvantage of a two step process can be that once an initial agreement is reached the incentive to continue negotiating can sometimes evaporate.

The roadmap for information/data exchange/sharing is designed to respond to the needs expressed by a large number of decision-makers and responsible for the development and management of shared river basin resources in the IGAD Sub-Region. Besides being a legal document, it also seeks to encourage the various stakeholders involved in the development and management of the shared water resources to share their experiences and information patrimony. This approach is aimed at creating a synergy of both human, institutional and financial resources.

4.7. Arrangements for drafting the agreement

Based on the examples of the Mekong, the Great Lakes of North America, and the Columbia, the agreement should probably be drafted by an entity which at some level has representation of all the member states of IGAD. There are several possibilities for developing an organizational structure which is representative of all the parties of the shared river basins; responsive to needs; efficient and focused; capable to meaningfully grapple with the issues (there should, however, be sufficient representation of technical people that understand the complexities of data and information, as well as issues of property rights and the like).

In the structure, the Advisory Body is the primary body giving regional representation prior to review of the Draft Agreement, the product, by the Regional Transboundary River Basin Commission (RTBC). There would be ongoing communication between the RTBC, Advisory body and the Support Group in terms of direction and overview. The TWG under this structure is relatively small and easy to manage as well as efficient in terms of work and their being able to come to decisions as to what to present to the Advisory Body and the Support Group.

The TWG is relatively small and easy to manage and likely to be efficient in terms of work and their being able to come to decisions as to what to present to the Advisory Body and the Support Group.

The duties and responsibilities of the TWG shall include taking the lead in working with the Support Group consisting of personnel from the Coordinating Unit at IGAD Secretariat and outside advisors to negotiate and produce sequential working drafts of a basin wide data and information sharing agreement (Fig. 5).

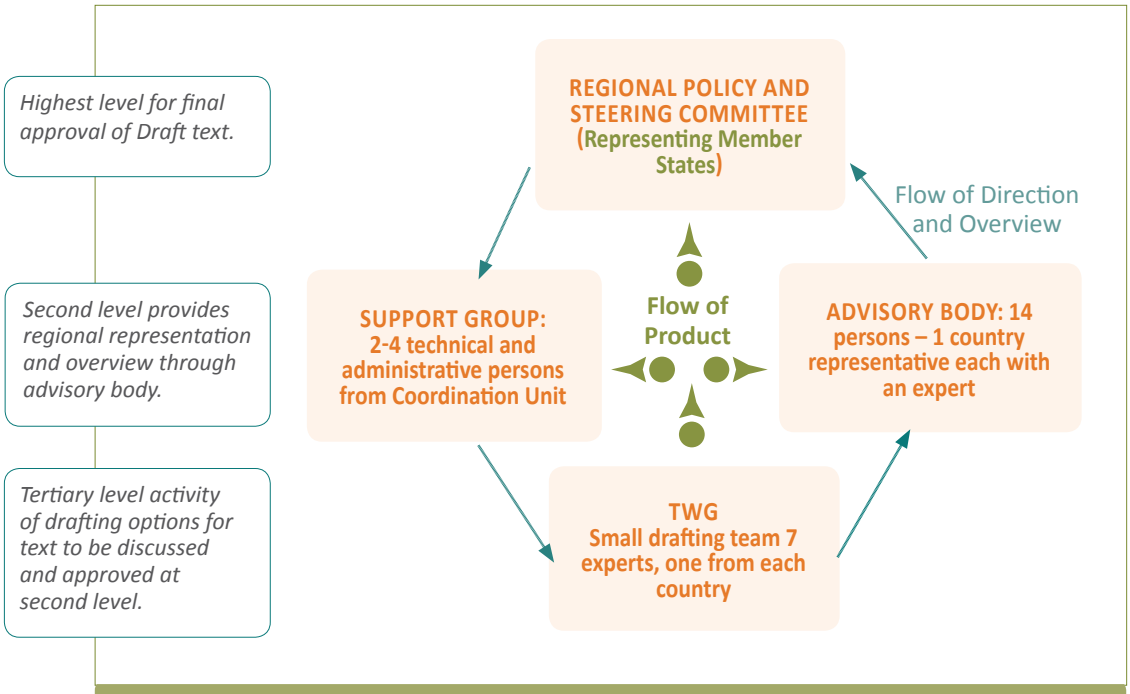

FIGURE 5: Mechanism for Drafting the Information/Data Exchange/ Sharing Protocol.

The Support Group will be the core engine of the process providing the logistical, managerial and administrative support for the process. It would contain the Coordinator of the Unit and possibly a lead drafting consultant (either international or local) along with sufficient support staff. The group would be responsible for the organization of essential activities, convening of meetings, continual prompting of the drafting team and advisory group.

The Advisory Group would be sounding block for the results of the TWG and final intellectual (and informal political) vetting of the product from the TWG before submitting it to the RTBC. Depending upon its structure and composition it could also provide for a representative perspective with members from all each shared basin states as well as selected local and regional experts, and thus act as an informal political vetting body.

The Technical Working Group (TWG) will be the entity primarily responsible for the researching, negotiating, and drafting of the protocol. One of the first activities of the TWG would be to develop a drafting strategy to develop the product. The lead drafting consultant would also be a part of the TWG and the Support Team to ensure effective communication between the two bodies and to provide continuity between the various levels. The TWG would be responsible for presenting the product to the advisory body as well as to the RTBC. The terms of reference for the TWG will include the skill sets, education and experience that members of the TWG should ideally possess to successfully negotiate an agreement.

The role of IGAD Secretariat would then be to facilitate the links between already existing networks of the above mechanism and to ensure that the result of their activities is benefiting the region including member states.

4.8. Main elements of the roadmap for the development of the protocol

The proposed sequence of events leading to a successful comprehensive data and information sharing agreement is also dependent upon obtaining the endorsement of the member countries (a) this road map of proposed tasks, (b) the use of a "two step" negotiation process, (c) the use of an "interest based" negotiation methodology, (d) the provision of adequate human and financial resources including sufficient resources to be able to continuously engage relevant stakeholders, and (e) the careful selection and training (capacity building) of the Technical Working Group which will be instrumental in the negotiation and drafting of any agreement.

A detailed narrative for the tasks in an idealized Roadmap leading to a comprehensive basin wide data and information sharing agreement based on the observations and analysis above is as follows:

(a) Appointment of the Regional Transboundary Basin Commission (RTBC)

Each member states of IGAD should appoint a qualified individual to represent the future member of the Regional Transboundary Basin Commission (RTBC) which shall be seven (7) in number. The Commission will be advisory to the Ministerial Council of IGAD on issues regarding the shared river basin resources in IGAD Sub-Region.

(b) Endorsement of Roadmap

RTBC should endorse this draft roadmap including the terms of reference for a Technical Working Group (TWG) and should appoint the members of the TWG. This activity should take two months following the appointment of the RTBC.

(c) First meeting of the TWG

The key activity in this task is that the TWG will meet with a view towards: familiarizing itself with the issues; obtaining training in the areas of interest based negotiation strategies and drafting skills if deemed necessary or desirable; helping to determine the desirable scope of possible additional consultations at the national level; and, assisting with the planning for a key regional workshop. The outcome of this task will be:

- Enhanced awareness and appreciation on the part of TWG members regarding what is realistic and achievable in terms of a comprehensive basin wide data and information sharing agreement.
- A strategy for additional consultations at the national level if deemed necessary or desirable.
- A common language with respect to negotiations through the training and expectations regarding how the negotiations will be conducted.

This activity should take one month from date of appointment of the TWG members.

(d) Further Consultations with Stakeholders

The key activity in this task is planning the appropriate scope and content of further

consultations at the individual country level. Its objective is to ensure that the individual countries who will ultimately be responsible for implementation of any agreement that is reached feel that they are being adequately and properly consulted. Outcome of the task will be: (a) an enhanced sense of ownership of the process by each of the individual member states, and (b) additional insurance that the regional workshop contemplated in a subsequent task will resonate with appropriate stakeholders and be a resounding success. The key deliverable for this task will be further awareness, appreciation and insight on the part of the TWG into the interests of individual member states regarding a comprehensive information/data sharing agreement. This task should take about two months following the previous task.

(e) Regional/International Workshop

The objectives of the workshop should be to (a) enhance awareness among the agreement drafting experts (TWG, Support Group and Advisory Group) and other key stakeholders on main technical/technological, management, and policy issues relevant to the protocol, (b) provide a forum for networking between projects/programmes and regional/international institutions that are involved in developing information products for sustainable development in IGAD countries, and (c) serve to examine some of the scientific databases that have been collected or created about the shared river basin resources with main focus is those information/databases created/maintained in the IGAD countries, and in other regional/international institutions worldwide and used--or not used--for decision making for in the region. The data/information to be considered should include those in the areas of ecology, biodiversity, agronomy, hydrology, meteorology, health, geography (geographic information systems or GIS), and socio-economic aspects.

Main tasks of the workshop should be to:

- Identify types of existing scientific and technical data and information sources relating to the shared river basins that have been created or collected by government, academic, regional/international and private-sector entities.
- Identify gaps in availability of information/data.
- Exchange experience on current and possible future advanced technologies relevant to data/information acquisition/processing and their potential influence in shaping future data/information management processes, including acquisition, quality control, management, dissemination, etc.
- Examine how these data and information sources have been used for research and for various types of decision making regarding the environment and people within the region, using specific case studies.
- Exchange experience on current practices/policies in the IGAD countries with respect to access to relevant information/data through national presentations
- Exchange of experience/lessons learned and best practises from international experience in data and information exchange and sharing in international river basins.
- Identify technical, scientific, management, and policy barriers encountered in both the creation of these databases and in their use for decision making. In identifying these

barriers, consider what was done previously and what might be done in the future to overcome them.

At the end of the workshop the TWG shall produce a preliminary draft of an interim agreement for data and information sharing for discussion purposes. This schedule of activity should take about two months after the last task.

(f) Further meetings of the TWG to finalize an interim Agreement

The key activity in this task is organizing, attending and providing appropriate international legal advice and facilitation skills to subsequent meetings of the TWG with a view towards (a) refining and finalizing the interim agreement and (b) preparing an action plan for implementation of the interim agreement. The outcome of this task is an agreed upon text for an interim agreement for comprehensive data and information sharing for the shared river basin resources to be presented to the RTBC for endorsement. This should take about three months from end of last task.

(g) Endorsement of interim Agreement by RTBC

The key activity in this task is obtaining formal endorsement for the interim agreement arising from previous tasks. The outcome is a fully operational interim agreement for data and information sharing for the shared river basin resources in IGAD Sub-Region. This task should be completed within three months following the previous task.

(h) Implementation of interim Agreement

The proposed schedule for this activity is from the date of endorsement and beyond.

4.9. Conclusion and recommendations

Based on literature review carried out and the analyses made as part of this exercise, the following have been recommended for possible consideration by the Client:

- The proposed agreement need to be comprehensive agreement covering aspects of data exchange as well as sharing.
- To ensure flexibility, it is proposed that initial step in the agreement development should probably focus on drafting an 'interim procedures' for data exchange and sharing focusing on those data/information types urgently required to prepare/implement urgent projects/ programs involving the shared water basin resources in the Sub-Region; subsequent phases shall target drafting of the full-fledged protocol.
- From the alternative organizational arrangements that have been proposed for drafting the agreement, 'Structure A' has been recommended to ensure efficient and transparent development of the agreement, which consists of a small Technical Working Group, supported by a small Support Group and an Advisory Body comprising of representatives from all riparian countries.
- A step-by-step process, or a plausible Roadmap, has been proposed for developing the agreement, which includes capacity building, participatory drafting and technical support.

Enrichment of the proposed roadmap and its subsequent endorsement by the RTBC is the first key step to start the drafting of the agreement on data and information exchange and sharing.

5

STRATEGIES BETWEEN RIPARIAN COUNTRIES

1. THE NEED FOR HARMONIZATION OF WATER RESOURCES STRATEGIES

The introduction of integrated water resources management (IWRM) tends to ensure that the needs of the people are adequately met even though the number of people making demands on the resources available has increased drastically. This population increase is coupled with greater urbanization and greater demand for water across all sectors of the economy leading to further water scarcity. The policies of the Governments in the IGAD Sub-Region to promote industrial development and to increase access to safe drinking water to majority of the population make freshwater, whether surface or underground, a focal issue in government strategies. This project is proposing measures to be undertaken and investments to be targeted to reduce the problems in the deficit areas of Ethiopia, Kenya, Somalia, Djibouti, Eritrea, Sudan, and Uganda. The private sector will become a key player in the water sector as realistic values are attached to freshwater.

Despite the importance of the water resources in the IGAD Sub-Region, there is no framework in place to provide a mechanism for sustainably managing the water resources in the transboundary river basins within the current IGAD framework. There is therefore need to develop common vision, mission, broad objectives, policies, and strategies for the development and management of areas of common interest, so that the following management problems, among others, which have resulted from a system where the shared river basins being managed by individual member states of IGAD or by sectoral institutional arrangements can be overcome or avoided altogether:

- Lack of a coordinated cross-sectoral and integrated approaches to problems and solutions at individual governments levels;
- Increased conflict of interest among institutions and states; and
- Duplication of efforts and waste of resources both at domestic and sub-regional levels.

Such management problems, if not avoided, can only lead to further degradation of the shared resources by default. This situation can be rectified by the governments of the Sub-Region reviewing their positions and aiming at an integrated institutional mechanism which will solve such problems, harmonize and integrate the several beneficial uses of the shared river basins.

2. DEFINITION OF WATER RESOURCES MANAGEMENT STRATEGY

A water resources management strategy has been defined by the World Bank (1994) as "a set of medium- to long-term action programs to support the achievement of development goals and to implement water-related policies". Development goals, in the case of IGAD Sub-Region under study, should concern food security, population growth, development of poor regions, rural and urban development, environmental health, and the role of public and private sectors. The specific goal for the Sub-Region will be to develop, conserve, and use the river basins resources in an integrated and sustainable manner through cooperation for the benefit of the people of the Sub-Region. This includes the provision of safe water supply and sanitation to a high percentage of the population within a specified period.

The policies in the Sub-Region should include joint government decisions about the preservation and protection of ecosystems, water rights, role of pricing, stakeholder participation, and information system. The objective of formulating a sub-regional water resources management strategy is to provide measures to manage this vital resource in accordance with goals and policies that have been jointly adopted by the member states of IGAD. Harmonization of water-sector strategies of the riparian countries will test whether the goals and policies adopted are realistic. For example, where there may not be enough water available to meet the goal of self-sufficiency in food production, the goals and policies may have to be modified. In harmonizing the national strategies, the Consultant has taken into consideration the idea of the best or most efficient use of existing or emerging resources in each river basin to achieve goals in order to avoid the harmonized strategies from being unrealistic and unable to achieve their aims.

This Regional Strategic Framework for the IGAD countries has been developed to facilitate a cooperative and multidisciplinary approach to the development and management of their shared river basin resources. The benefits of adopting such a framework are that it helps to focus the work of the riparian states through a common vision and strategies whilst at the same time facilitating decision-making through a set of agreed guiding principles. This allows more efficient use of resources and provides an effective mechanism for sharing valuable lessons and results within the partners and other agencies. The key elements of the Regional Strategy were elaborated at a regional workshop involving representatives of the governments from the IGAD countries and the donor agency.

3. GUIDING PRINCIPLES FOR HARMONIZED STRATEGY

The Dublin Statement (ICWE 1992) identified the following underlying principles to be applied in water resources management:

- Water must be managed in a holistic way, taking interactions among users and environmental impacts into account.
- Water must be valued as an economic good and managed as a resource necessary to meet basic human rights.
- Institutional arrangements must be reformed so that stakeholders are fully involved in

all aspects of policy formulation and implementation. This means that management must be devolved to the lowest appropriate level, with enhanced roles for NGOs, community groups, and the private sector.

- Women must play as central part in the provision, management, and safeguarding of water.

In addition to the above, the following key factors were considered in formulating the guiding principles for the harmonized strategies for IGAD Sub-Region: effectiveness, efficiency, equity and distributional effects, public health, environmental impact, fiscal impact, political and public acceptability, sustainability, and administrative feasibility.

4. A NEW PARADIGM FOR IGAD COUNTRIES

IGAD member countries shall (a) adopt a shared vision of the transboundary river basins, (b) pursue a common integrated strategy to achieve the shared vision activities undertaken at all levels of government in the Sub-Region with the participation of multisectoral stakeholders to ensure public support, (c) take concrete steps to prevent and mitigate threats to the environment of the shared basins through their own national and local efforts, (d) share responsibility to address complex transboundary environmental threats which are beyond the capacity of any single government, agency, development partner, or other group to deal with, and address environmental issues of the shared river basins collectively by working intra-regionally, and with the development partners and other international organization, to implement international conventions that the IGAD member countries signed or acceded to.

4.1. The shared vision

The resources of the shared basins in the IGAD Sub-Region are a natural heritage that safeguards sustainable and healthy food supply, livelihood, property and investment, and social, cultural, and ecological values for the people of the seven IGAD countries. They are also contributing to economic prosperity and accessibility to regional markets thereby promoting a peaceful and harmonious co-existence for present and future generations. The shared vision, therefore, represents a common understanding, views, and wishes of the people of IGAD Sub-Region regarding the ecosystems of the shared basins. It must be how the stakeholders see the environmental and socio-economic status within the basins and their catchments in the long term, perhaps at the end of twenty five to fifty years. Achieving the vision will take time, strategies, and resources to implement a set of action programs. More importantly, it needs the collective political will and regional cooperation among the Governments, the people of the sub-region, and other stakeholders to implement any planned action programs.

Taking cognizance of public perceptions and political demands resulting from the 1982 United Nations Law of the Sea Convention, the 1992 United Nations Conference on Environment and Development and its Agenda 21, the 2002 Millennium Development Goals, the Ministerial Forum on Water (UNDP 2009, and the recognition of the importance of shared water resources management, the vision as stated in section 2 can be adopted as the shared vision of the transboundary basins in the IGAD Sub-Region.

While recognizing the sovereign rights of each affected country and the cultural context of riparian communities, the shared vision is for the shared river basins resources sector that:

- contributes to poverty alleviation, sustainable livelihoods and food security at household, local and national levels;
- is based on sound regulation, good governance and functional management institutions that ensure equitable development and safety within the different parts of the sector;
- uses appropriate technologies with due recognition of the environmentally sustainable limits to harvesting natural resources and developmental productivities; and
- is part of a holistic view of the shared river basin ecosystems and is managed according to the principles of integrated shared river basin management, including the wider aspects of land tenure, and
- has a well integrated supply chain from harvest to consumer that supports labour intensive post-harvest activities (which are mainly carried out by women), equitable trade and marketing that ensure safe food and water for all.

4.2. The mission

The mission is an expression of the immediate aim of the Transboundary River Basin Organization being established arising from the conviction or sense of calling which is the shared vision. It is a statement describing what the region will undertake to implement its development and management plan in order to achieve the shared vision. In addition, the mission statement affirms the purpose and function of the stakeholders for one common purpose. It has a focus on the job at hand with an orientation towards future goals. Similarly, the mission, as stated earlier, can be used to guide the implementation of any development programmes.

4.3. Desired institutional and operational changes

The ultimate goal of the shared vision and mission is to improve the quality of life of the people of IGAD Sub-Region generally, and of the people within the basins in particular. The desired institutional changes shall therefore include:

- National policies and supporting legislations to incorporate regional aspects of the laws contained in the Convention for the establishment of the Transboundary River Basin Organization (TRBO) for the IGAD countries;
- Local governments to be given responsibility to manage their shared river basin resources and the aquatic environment;
- Area specific institutional arrangements to be instituted for environmental management of the shared river basin resources;
- Local inter-agencies, multi-sectoral coordinating mechanisms to be set up to implement sustainable share river basins programs and projects;
- A functional regional mechanism, the TRBO, established to implement the sustainable development strategy for the share river basin resources;

- The major international environmental instruments to be ratified and implemented by each member country; and
- Environmental management to be incorporated into economic development plans at national and local levels.

Operationally, the desired changes include:

- Implementing the national environmental strategy;
- Having environmental assessment and management systems in place as tools for sustainable development;
- Implementing integrated environmental management programs by local governments within the shared river basins;
- Establishing cooperation between jurisdictions for addressing transboundary environmental problems across boundaries at sub-regional levels;
- Having joint research and sharing of information for the management of the shared river basin resources in place;
- Undertaking integrated implementation of international environmental instruments at national and local levels; and
- Operationalizing a sustainable financing mechanism for regional implementation of international conventions.

4.4. The key elements of the strategies and associated principles

Having considered the vision, mission, and broad objectives of the joint institutional arrangement being proposed and approved at the Regional Validation Workshop in Uganda (August 2010) where the representatives of the member states of IGAD Sub-Region disclosed strong support for this view, and having formulated the areas/issues for sub-regional management actions, the guiding principles, and the specific objectives, the following specific Strategic Statements and Principles have been identified and harmonized from the national strategies of the member states:

(a) To ensure sustainable use of each of the shared river basin resources in order to (i) achieve sustainable development and higher quality of life for meet the needs of the present and future generations and (ii) conserve biological diversity and ;its components for their intrinsic value as well as their ecological, genetic, social, scientific, educational, cultural, recreational, and aesthetic value;

(b) To preserve species of the shared river basins and the environment that are pristine or of ecological, social, and cultural significance as (i) they are irreplaceable assets whose benefitrs may not yet be fully understood, (ii) wild flora and fauna in their many and varied forms are an irreplaceable part of the natural systems of the earth, (iii) wetlands perform fundamental ecological functions as regulators of water regimes and as habitats supporting characteristic flora and fauna;

(c) To protect ecosystems, human health, and society from risks which occur as a

consequence of human activity since (i) the protection of the shared river basin and the environment has direct and indirect economic benefits, (ii) in taking measures to prevent, reduce, and control pollution of the aquatic environment, the member states shall act so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another, and (iii) the member states shall take all measures necessary to prevent, reduce, and control pollution of the aquatic environment resulting from the use of technologies under their jurisdiction or control; this include the adoption of conservation measures for the sustainable management of each of the river basins and their resources, as well as identifying emerging problems such as climate change, wetland management, soil erosion, and sedimentation related to the management of the lake and its resources.

(d) To develop areas and opportunities in the shared river basins and their environment that contribute to economic prosperity and social well-being while safeguarding ecological values since (i) economic development is of vital local, national, and regional importance, (ii) environmental conservation and economic development are compatible, (iii) in order to achieve sustainable development, encironmental conservation shall constitute an integral part of the development process and cannot be considered in isolation from it, (iv) market mechanisms which internalize environmental costs and benefits promotre long –term economic growth, and (v) to protect and preserve the environment of the shared river basins, the use of the full range of available management tolls and financing options in implementing national or regional programs of action, including innovative managerial and financial techniques, should be promoted; in addition, there is need:

- To jointly plan basin-wide development policies and action for the use and conservation of the water resources of each basin;
- To develop appropriate environmental management plans, for waste water collection, treatment, and disposal where they infringe on the main body of each river basin.
- To meet the foreseeable irrigation water, power generation, and other water requirements of riparian countries in each of the river basins.
- To promote proper management and optimum utilization of the living resources of each of the river basins.
- To provide for the conduct of research into the water resources of the river basins and their environment.
- To regulate the water levels and outflows of water reservoirs within each of the river basins.

(e) To implement international instruments relevant to the management of the shared river basins and their environment as (i) states shall be required to fulfill the obligations under the Convention for the establishment of the TRBO and other mutual agreements in good faith and in full cooperation and a spirit of partnership with one another, (ii) effective environmental legislation is necessary for the implementation of the Convention, (iii) environmental standards, management objectives, and priorities should reflect the environmental and developmental context to which they apply, (iv) member states shall endeavour to harmonize their environmental policies at the appropriate

regional level, and Iv) in the implementation of international instruments, regional regulations/rules, standards, and recommended practices and procedures to manage the aquatic environment, characteristic regional features, the economic capacity of the member states and their need for economic development shall be taken into account.

(f) **To communicate with stakeholders to raise public awareness, strengthen multisectoral participation and obtain scientific support for the sustainable development of the shared river basins and their environment** because (i) member states shall facilitate and encourage public awareness and participation by making information widely available through the Protocol on Information and Data Sharing and Exchange, (ii) the creativity, ideal, and courage of the youths of the world should be mobilized to ;forge a global partnership in order to achieve sustainable development, (iii) indigenous people and their communities and other local communities have a vital role in environmental management and development due to their knowledge and traditional practices, and due to the fact that the member states should recognize and duly support their identity, culture, and interests and enable their effective participation in the achievement of sustainable development, (iv) women have a vital role in environmental management and development, their full participation is essential to achieve sustainable development, and (v) understanding of the importance of and the measures required for the protection and preservation of the aquatic environment shall be propagated through media, included in educational programs, and developed in educational and public awareness programs; this includes the need to jointly carry out monitoring and data management for the resources of the respective river basins, monitor compliance with the agreed obligations, and assess achievements.

(g) **To improve policy, institutions and legal processes** in order to (i) develop a responsive and well regulated policy and institutional environment for the shared river basin resources at national and local level, which involves communities and recognizes the importance of local level needs in planning, monitoring and regulation;

(h) **To build human capacity to improve community livelihoods and responsible resource management** in order to (i) ensure through the adoption of a participatory approach and capacity building, that the shared river basins are managed in a sustainable way to the benefit of all in the communities; specifically, this should include the following:

- to improve and diversify the livelihoods of the basin resource users;
- to achieve sustainable management of the natural resources on which community livelihoods depend;
- to ensure conflicts between user groups are resolved; and
- to ensure the needs of the poor, marginalized groups and small scale

operators are included.

Harmonization of these strategies considered each river basin in IGAD Sub-Region as being an economic and geographic spatial unit within which its water resources are treated as the common property of all riparian basin countries. It also considered the fact that each riparian state is entitled within its territory to a reasonable and 'equitable share' of the beneficial use of the waters resources within the river basin. The measure of "equitable share" according to the Helsinki Rules (World Bank 1994) would include the list of the geography, hydrology and climate of the basin in each concerned state, past and existing water users, social needs of each basin state, costs of development, and the degree to which the needs of a basin state may be satisfied without causing substantial injury to another state in the basin.

4.5. Activities in support of the strategic elements

The major activities listed below that require sub-regional cooperation are in support of the strategies for the institutional framework, and are in relation to its mandates. In each major activity that has been identified, there will be need for distinct division of responsibilities among stakeholders, with the secretariat of the institutional framework taking a leading role. Although the areas identified are categorized into sub-sectors, they will need to be addressed through inter-sectoral coordination at the National and Field Station levels, so that a holistic and integrated approach is adopted.

The need that cuts across all sectors is the development and adoption of regional policies, legal framework, standards and regulations to govern the various development activities. The specific issue requiring harmonized policies and legal instruments will be identified as stakeholders single out priorities to address regional concerns. Some of the issues requiring regional action will also have implications beyond the river basins. This is particularly so in industry, trade and commerce, infrastructure, and agriculture.

(a) Sustainable Water Resource Development and Management

- Policy Framework: for integrated, coordinated, and sustainable water resources management and utilization, including involvement of the private sector.
- Long-Term Planning: for integrated water resources management, promoting water user associations and water harvesting techniques.
- Water Sources Conservation Strategies: for conserving and monitoring water quantity and quality from water reservoirs and bodies and catchment areas.
- Water Quality Assurance Plans: for preventing water pollution and monitoring water quantity and quality and exchange of data.
- Water Use Rights Strategies: for determining, allocating, and monitoring water use in areas such as irrigation farming and common standards for water rights.
- Industrial Use and Pricing Standards: to monitor, assess, and allocate the use of consumptive water for industrial use and common standards for water.
- Hydropower Generation Strategies: for the development and utilization of the river

water for hydropower generation.

- Safe Water Access Approaches: for ensuring access to safe water for the riparian communities in the river basins.
- Drought and Flood Mitigation Common Strategies and Efforts: to monitor and mitigate the effects of droughts and floods in the river basins.

(b) Sustainable Natural Resources

- Development and Harmonization of Land Use Policies: for both public and private land.
- Sustainable Production Technologies: adoption of common approaches and/or exchange of information on appropriate and sustainable yield-boosting technologies.
- Sustainable Land Use Approaches: foe soil conservation techniques and regulations, including development plans and implementation of a regional approach to land husbandry practices.
- Regional Security for Food Security: for improved food security.
- Use of Water for Agricultural Production: for development and development of systems to improve water harvesting for crop and livestock uses.
- Common Approaches to Sustainable Livestock Production: to promote improved livestock breeds, and pasture for increased productivity and control of soil erosion.
- Common Standards for Disease and pest control: to control and monitor disease and pests of crops and livestock.
- Common Strategies for Market information: to improve agricultural markets and exchange of information.
- Strategies and Models for Accessibility to Credit and Inputs: for improved access to credit inputs for agricultural production and marketing.
- Strategies on Vagaries of weather: for mitigating effects of weather (drought and floods) in the basin.
- Common Approaches to Pollution Prevention: to prevent pollution from agriculture, e.g agro-chemicals, nutrient leakages and siltation.
- Approaches to Forest Conservation: for sustainable management of forest resources e.g. timber, bee, honey, etc.
- Promotion of Development of Alternative Energy Sources: of fuel energy saving technologies and the development of alternative energy sources.
- Sustainable Methods of Forestry products, Harvesting and Regeneration: for harvesting and use of forestry products; control of bush fires and tree planting.
- Wildlife Conservation Approaches: for wildlife conservation and sustainable methods of game harvesting and tourism promotion.
- Regional Fisheries Management Plan: for promotion of sustainable fisheries development and management.

- Strategies for Balancing Fish Species: to reverse the decline of fish species and bio diversity in the rivers and their tributaries.
- Approaches and Methodologies to Joint Research and Monitoring of Fish Stocks and Yields: for researching and monitoring fish stocks and yields.
- Policies, Laws, and Regulations for Alien Fish Species and Management: for controlling the introduction of alien species, as well as common standards for monitoring alien species.
- Laws, Regulations, and Enforcement Methods for Sustainable Fishing Practices: to curtail illegal and unsustainable fishing practices.
- Common Standard and Regulations for Processing and Sanitation: on fishing grounds, landing sites, fish processing and marketing.
- Approaches for Empowering Local Fisher Folk: to mitigate the effect of marginalization of small scale fishing communities and local fish consumers by export- oriented fish processors.

(c) Development of Industry, Trade, Commerce and Infrastructure:

Although most of the issues under this category are best dealt with at national level in accordance with the principle of subsidiarity, they are likely to have an optimal impact in the basins if monitored at a wider regional level. These relate to:

- Investment Codes: promotion of investment in agro-processing , manufacturing infrastructure, and trade and other activities in the basin.
- Non-tariff Barriers to Trade: to provide an enabling environment for increased trade among the partner states including power trading/pooling.
- Strategies for Access to capital: for addressing lack of and access to capital by small-scale enterprises.
- Polluting Technologies: common plans for phasing out technologies that cause environmental pollution.
- Strategies and Plans for Tourism Sector: for tourism development in the basin.
- Road, Railway, Water and Air Transportation Improvement; Development Plans: for improvement of road, rail, air and water transport in the basin.
- Communication: improved standards and availability of communication systems (e.g. telephone, radio, Internet).
- Energy Supply: regional plans for energy production and supply, including promotion of alternative sources(e.g. from solar and wind).
- Hydropower Generation: policies and development of investment plans for exploitation and distribution of hydropower(see also under water resources).
- Urban Infrastructure: rehabilitation and expansion of basic infrastructure in urban centers, especially improvement of urban roads, sewage systems, and clean water supplies.

- Development and Harmonization of Regulatory Framework: on infrastructure and energy.

(d) Security, Safety of Navigation, and Public Health

- Security: approaches to improve the security situation especially control of piracy, to allow smooth economic transactions around the river basin.

- Navigation Standards and Routes: standards for safe navigation within the river basin (e.g. navigation routes and inland vessel standards.)

- Inland Water Transport Strategies: for improving availability and safety standards for inland water transport.

- Disaster: systems for disaster management (e.g. pollution due to oil spillage, responding to stress calls, floods, and drought control.

- Strategies for Improved Access to Safe Clean Water and Sanitation Facilities: for improving access to safe water and provision of sanitation facilities

- Water Quality Monitoring: systems for monitoring water quality for human consumption

- Approaches to Social Services Infrastructure: to improve social services infrastructure in both urban and rural areas.

- Approaches to Disease Surveillance and Control: for monitoring and controlling threats to human health, with a focus on HIV/AIDS an other communicable diseases such as those caused by pathogens and pollution.

(e) Research, Capacity Building and Institutional Development

- Research and Research Networking Strategies: to optimize the use of existing information infrastructure and manpower.

- Establishing Regional Centers of Excellence: in research and education.

- Awareness Creation Strategies: to increase public awareness, anticipation, and confidence building.

- Education: development of curriculum to improve standards of education.

- Information Gathering and Dissemination/Sharing: strengthen collaboration between database centers and other agencies and stakeholders operating in the basin.

- Strengthening and Rehabilitation Strategies: for strengthening existing regional institutions to improve their roles in generating and disseminating information.

(f) Environmental Protection and Management

- Development of a Protocol on Environmental Management: to be based on the signed Memorandum of Understanding on Environmental Management.

- Signing of a Protocol for Sustainable Development of the River Basin: to provide the overall code of conduct for undertaking activities by all stakeholders and actors within the established institutional framework for sustainable development of the rivers and their basin resources.

- Strategies on Pollution: for reduction and control of pollution from:
  - Land use activities.
  - Industrial effluent and other forms of waste.
  - Urban sewage and other wastes.

- Strategies for Enforcement: to strengthen and co-ordinate enforcement capabilities for pollution control.

- Threats to Biodiversity Strategies and Plans: for the sustainable conservation of fauna and flora in the basin.

- Approaches to Community Involvement: to increase local community involvement in biodiversity conservation.

- Approaches to Wetlands and Lakes: for wetland and lake management and conservation.

- Strategies for Invasive Weeds: for the control of invasive and other alien aquatic weeds.

- Strategies for Alien Species: for regulating the introduction of alien fauna and flora species in the river basins.

- State of the Environment: mechanisms to increase information sharing and dissemination to facilitate joint reports on the State of the Environment in the river basins.

6

MEDIUM TO LONG TERM CAPACITY BUILDING STRATEGIES

1. DEFINITIONS AND THE OBJECTIVES OF CAPACITY BUILDING

"Capacity building" was defined by Philbin (1996) as the "process of developing and strengthening the skills, instincts, abilities, and processes that organizations and communities need to survive, adapt, and thrive in the fast-changing world." Its fundamental goal is to enhance the ability to evaluate and address the crucial questions related to policy choices and modes of implementation among development options, based on an understanding of environmental potentials and limits and of needs perceived by the people of the country concerned. It is, therefore, the sum of efforts to nurture, enhance, and utilize the skills and capabilities of people and institutions at all levels – nationally, regionally, and internationally – so that they can better progress towards sustainable development.

In its broadest interpretation, capacity building encompasses **human resource development** (HRD) as an essential part of development. HRD involves a planned approach to learning aimed at changes in knowledge, skills, understandings, attitudes, and values, and in the behavior of a learner or group of learners. The goal of HRD is to provide or build productive capabilities. Another aspect of capacity building is **partnership development**, co-management or stakeholder participation. Such partnerships give the local communities knowledge and skills, innovative and proven methodologies, networking and funding opportunities, replicable models for addressing community needs and managing resources, options for organizational management and governance, and strategies for advocacy, government relations, and public outreach. Capacity building in the IGAD Sub-Region will, therefore, be carried out in the context of both human resource development and partnership development.

2. THE NEED FOR AND PROCESS OF INSTITUTIONAL CAPACITY BUILDING

The issue of capacity is critical and the scale of the need is enormous but the appreciation of the problems among national governments appears to be **very low**. Capacity building is a major aspect of formulating a water resources development and management strategy; but the review of the National Consultancy Reports (2010), and other relevant international literature including Alaerts et al (1991) on capacity building reveals mounting evidence that institutional capacity in many countries including the member states of IGAD is limited and it is the major constraint in their lack of ability to absorb financial resources and convert them into worthwhile and sustainable actions. The link between needs and supply is **weak**,

there is lack of realistic funding, there is need for support for change, training institutions are isolated making communications very poor, development of teaching materials is inefficient, and alternative ways of capacity building are not adequately recognized.

Records (National Consultancy Reports 2010) show that many failures in water resources management are the results of the weakness of many governmental agencies and institutions in capacity building as well as the lack of trained staff. For example of the 507 technical and professional staff needed in the development and management of water resources in Uganda, only 364 are being deployed. No figures were given for Djibouti, Ethiopia, Kenya, and Sudan. The six countries still organize and administer water sector activities separately: irrigation, water supply, hydropower activities, inland water transport, water quality control, and environmental issues are being managed by different institutions in the same country where uncoordinated policy decisions are often made. The result, many times, is excessive and unproductive investments, with different agencies developing the same water source for different uses.

Real medium and long term success in water resources development and management depends on the ability of nationals of these countries to identify problems and formulate and implement policies and strategies. For building capacity, the process of formulating a water sector strategy is, therefore, paramount.

Many of the shared river basin organizations reviewed (Phase I Report), are not fully able to deal with the complex and dynamic nature of transboundary river basin development and management issues. The challenges include excessive bureaucracy, resourcing issues with staff, programming that is technically oriented rather than strategic, and too often weak decision making and conflicting priorities.

The capacity building **process** has three essential phases: (a) Performance analysis - identifying performance gaps that the organization wishes to address, (c) Capacity diagnostic analysis - identifying the factors leading to the organization's gaps, (c) Strategy development - based on the diagnostic analysis, developing strategies to address factors that constrain capacity.

3. STRATEGIES FOR CAPACITY BUILDING

'Capacity' means the ability of the people, organizations, and society as a whole to successfully manage their affairs, and 'capacity building' means a process whereby people, organizations, and society as a whole unleash, strengthen, create, adapt, and maintain capacity over time (OECD 2006). Capacity building (development) therefore implies that people instead of plans or structures are drivers for change and performance (Pres 2008) which is a long term process that includes training, dialogue, networking, and advisory services. It requires a flexible approach, adapted and customized to meet organizational and individual needs.

Capacity building or development, in the context of transboundary river basins, requires the following core strategic components:

- "Professional Knowledge" which refers to managerial aspects of water, including the financial, strategic, and business planning.
- "Methodological Competence" which refers to human resources development and organizational performance improvement including training-the-trainers and coaching.
- "Regional Cooperation" which involves initiating or strengthening national and regional partnerships in the region, with a view to advancing the implementation of the Sub-Regional water policy.
- "Training Needs Assessment, Monitoring and Evaluation" whichis a feedback loop to address new capacity development requirements.
- "Public Relations and Awareness" which involves creating awareness among the general public about pressing water development, management, and use issues.
- "Communities of Practice (or Partnerships)" which involves sharing best practices and lessons learned to revise future programmes.

Capacity Development in Water Resources development and management, therefore, requires the following:

- In-depth understanding of organization characteristics, strengths, and weaknesses which can lead to a more tailored approach to the activity design and program distribution;
- The use of centralized projects to support capacity building activities in national government can be effective, but implementing arrangements and fund flow mechanisms should be carefully designed in a participatory manner;
- Classical training has limited application. A varied form of on-the-job training for trainees is generally more beneficial and better value, although it is more time-consuming and expensive, and requires skilled delivery;
- Introduction of new management systems (e.g., results oriented management) should be carefully combined or integrated to enhance existing planning and management systems and local wisdom. Often, new techniques can best be simply used to enhance and develop existing practices since poor translation of new ideas can cause suspicion and non-acceptance;
- Public awareness campaigns have proved to be successful, low-cost, large impact initiatives;
- The ability of projects to adjust when challenged by external factors is important to increase project impact. Close monitoring and flexibility by the Government and ADB optimizes use of project resources.
- As part of a holistic approach to capacity building, careful consideration should be given to increasing outsourcing of activities and strengthening the capacity of local consulting nongovernment and NGOs/CBOs (nongovernment organizations, universities, etc.).
- Capacity building projects often focus on easy-to-monitor activities and outputs (training days, equipment purchase) rather than less tangible outcomes (quality of hydrological databases, implementation of effective river basin management) which reflect increased capacity. There is a need to continue to search for, and focus on, the real impact indicators;

- The success of capacity building is highly dependent on strong commitment from the target individuals, managers, and institutions. Stakeholder ownership is essential during project design, with the understanding that capacity building programs are long-term commitments.

Each of the member states of IGAD lacks adequate institutional capacities in the water sector. These are imposing severe limitation to water resources development and management. Many of the millennium development goals of poverty reduction, improvement in access to safe water supply and sanitation, reduction in child mortality, environmental sustainability, and achievement of sustainable development are all dependent upon the capacity of countries, their institutions, and their people.

The NCR (2010) revealed the causes of lack of success of capacity building programmes in the IGAD member countries as the reverse incentives created by co-operation partners, poor conditions of service, factors encouraging brain drain, and heavy dependence on technical assistance rather than lack of financial resources alone. The member states, however, learned many lessons in recent years, and there are, therefore, new opportunities for capacity development to be addressed in a more sustainable manner and with possible greater impacts. Advances in communication have transformed abilities to learn and opening up great new opportunities. Lessons learned (Phase I Report 2010) from years of development interventions show that capacity building has to be anchored, owned and managed at country or community level.

All the member states of IGAD have embraced the need for water sector reform and Ethiopia, Kenya, Sudan, and Uganda have restructured their water laws and institutions in accordance with the principle of IWRM, while Djibouti, Eritrea, and Somalia are still in the process of adaptation to meet the challenges of sustainable management of their limited water resources.

Capacity building is a continuous process reflecting the need of the society to respond to new ideas and technologies and changing social and political realities. It supports the process of transformation for the implementation of IWRM, including water policies and legislations, institutional development and human resources development. The complexity of the integrated approach to water resources management requires that capacity building must address holistically a wide range of issues, problems, and opportunities across sectors. Lessons learned indicate that capacity building programmes are more successful and are more likely to be sustainable when they respond to an internal initiative and when they are approached through a process approach and not as single one-time events. Capacity building must be provided to institutions and individuals taking on new roles and to improve awareness and knowledge.

4. PROPOSED TRAINING APPROACHES

4.1. Building capacity of water professionals

One of the important human resources capacity building tools is training of water

professionals across the full range of the water sectors and organisations. The necessary change in approach can be achieved through specially designed courses, through modification of university courses, and through on the job training programmes. Specific ideas include:

- Providing specific courses on participatory approaches and gender awareness;
- Encouraging multi-disciplinary training involving all kinds of water practitioners, including environmentalists, economists, engineers, social scientists and business majors;
- Including water management in degree programmes, in engineering and other faculties, such as economics, environmental sciences, biology, etc, or adding water as a major in such degree courses as the MBA;
- Developing modules for on-the-job training to keep practitioners' skills up-to-date;
- Developing training of trainers modules in new approaches and techniques;
- Creation of short courses on water management for policy-makers, aimed specifically at senior managers without technical water backgrounds;
- Once formal training is completed, the concepts can be reinforced through a range of training activities (e.g. on-the-job training, short courses, distance learning, sabbaticals, twinning arrangements, international short courses, etc,).

The training of trainers requires an understanding of adult learning methods and the significance of the peer group (farming community, professional water community) in creating learning opportunities. Equally, training trainers in information exchange and communication requires significant input into education programs by water resources management agencies. Recommended methods include in-service courses, seminars and workshops. There is an increasing emphasis on electronic means of information dispersal and training techniques especially distance learning.

Many information exchange facilitators (such as extension officers, field guides and field agents) come from biophysical science and engineering backgrounds, and need a cross-disciplinary training in various skills in communication, group interaction facilitation, accounting and program management and counselling. Knowledge exchange systems provide valuable support for capacity building.

Lessons learned (Cap-Net Site 2008) and experience shows that:

- Training of senior managers (e.g. in the value of IWRM and new water innovations) can help ensure capacity building throughout the organisation, and support for training of junior staff;
- On the job training is highly effective as a learning tool and agent of change in large water organisations;
- The effectiveness of training programmes can be increased if groups of people that regularly work together are trained together;
- Training of trainers requires extensive practical experience by the instructor but is a cost-effective capacity building tools;
- Trainers do not require a high level of technical capability in such topics as how to

construct GIS, develop explanatory models, or select the best equipment, but they do need to understand the management of institutional and organisational structures;

- Successful courses to train trainers combine learning by doing with classroom learning experiences;
- Regional and even international programmes can be as useful as programs that focus only on a single country or state.

4.2. Building capacity and empowerment of stakeholders

Once well organized, the public, through Water Users' Associations (WUA), can become a central partner in IWRM. They can therefore become fully responsible for some elements of water management. Hence, effective IWRM requires that government institutions will enable and enhance the active participation of the public - as water users, as voters, as tax/charge payers and/or as providers of labour. For people to perform management tasks and influence overall management, they need to be organised, e.g. in WUAs. Other groupings include consultative groups, community groups and lobby groups.

Such organisations are necessary to give voice to the public. Initially their sustainability may well require external financial and structural support, e.g. to cover travelling costs, set-up a secretariat or finance external expertise. WUAs are usually small and deal with only one or a few aspects of water management. To ensure an integrated approach, they must form an integral part of the broader organisational framework. This is especially so in large and complex water systems with many geographical and cross-sectoral interdependencies. In such cases, WUAs may form an «association of associations». The level of participation depends on the context.

Participatory management has been shown to be most successful if the public is involved enough to be aware of the general goals and needs. Therefore, individuals and civil groups need information, skills and «water awareness». Participatory management can also be helpful in almost all efforts to implement IWRM, particularly in cases of competing use or geographic disputes. Stakeholders and interest groups may need formal training in some activities – for example in managing a community based system, or in measuring and monitoring water use in participatory irrigation approaches. They also need support in the form of access to information and technical knowledge.

Experience shows that:

- All relevant categories of water users should be represented in the association;
- Public participation needs to be carefully managed to avoid capture by minority or particularly articulate groups; where this happens decision making becomes overly influenced by groups with limited legitimacy;
- External funding and structural support can be essential initially for ensuring «balanced» public participation in which also the less affluent groups contribute to decision making; however, sustainability and effectiveness depend ultimately on self-reliance.

4.3. Building regulatory capacity

A clear regulatory framework is an important instrument for IWRM, but ensuring compliance is often difficult. Effective regulation requires human and technical capacity. For instance, to do an effective job of monitoring, an organisation requires the equipment, and ability to use it, to uncover and deal with non-compliance. Sufficient manpower, expertise and data are essential for the application of the different regulatory tools and economic instruments. For example, to improve water quality, a regulatory agency needs to have reliable water quality data and staff trained to interpret them correctly. An economic regulator needs capacity in financial analysis and access to necessary information. Regulation moreover requires fact finding and investigation. All these tasks need to be underpinned by financial capacity.

Important tools to ensure regulatory capacity are a well-developed legislative framework, the presence of enforcement agencies, mechanisms and structures, information and communication systems, and education and training, and water management indicators.

Plans for regulatory capacity building must be preceded by assessment of current capacity, and the establishment of regulatory instruments. This assessment needs to be linked to water resources assessment and in policy making and planning. Capacity building should include the building of legitimacy with those regulated.

Lessons learned and experience from existing institutions reveals that:

- Capacity building that emphasises skills rather than knowledge transfer can improve the performance of regulatory organisations;
- Training of trainers programs have been shown to be highly cost-effective;
- Regulatory capacity buildings can be seen as integral to the development of regulations themselves; if regulatory capacity building gets early attention, the risk of ineffective regulation can be minimised;
- Efforts to ensure that regulatory staff accepts the legitimacy of their task, and place emphasis on integrity, are key to building strong regulatory organisations;
- Legitimacy with those regulated is important for ensuring acceptability and compliance.

Overall lessons learned, therefore, show that all RBOs evolve with time and see their composition and duties adapted from time to time reflecting the real needs of the moment. They also show that successful RBO are supported by (a) an ability to establish trusted technical competencies, (b) a focus on serious recurrent problems such as flooding or drought or supply shortages, and the provision of solutions acceptable to all stakeholders, (c) a broad stakeholder involvement, catering for grassroots participation at a basin-wide level (e.g. through water forums), (d) an ability to generate some form of sustaining revenue, (e) the capacity to collect fees, and attract grants and/or loans, and (f) clear jurisdictional boundaries and appropriate powers.

5. RECOMMENDATIONS

Capacity building strategic plans for water resources development and management **will help the member states** of IGAD to define their capacity building strategies, detailed programs, and required funding. The **main elements** of the plan should include:

(a) framework (capacity development policy, water resources program strategy, and planning performance targets);

(b) institutional strengthening (organizational, legal, and regulatory environment for improved governance);

(c) human resources management (systems and methods);

(d) human resources development (training and education);

(e) financing, budgeting, and planning (sustainable systems); and

(f) implementation and monitoring mechanisms.

The strategic plan must cover a sufficiently long period of implementation to deliver meaningful benefits. It will be designed as a medium-term action plan, broken down into annual action agendas and investment and recurrent budgets. The process or road map of plan formulation is summarized as follows:

■ Needs Assessment and Diagnostic Analysis should be done through intensive consultation between various agencies, civil society organizations (NGOs & CBOs), and consumers including the media. The national planning team will (a) map out existing capacity problems and priority actions, and (b) develop strategies in the following areas:

- Improvement of the national Government's information and dissemination strategy;
- Preparation of a non-prescriptive "positive list" of local authority functions.
- Preparation of model regional regulations in key policy areas to ease the burden of the sub-regions to put in place a multitude of new regulations within a very short period of time.
- Review of sectoral regulations to ensure that the sectoral regulatory framework is in accordance with the Helsinki Declaration, and the implementing regulations defined by ILC;
- larification of the mechanism of transferring central government civil servants to the Sub-Regional Authority and of the arrangements to merge national government institutions with the Sub-Regional Institution being created;
- Improvement of coordination between national government agencies involved in water resources issues;
- Focus on demand-driven capacity building programs that national agencies can support with a mix of tools and instruments.

■ Drafting of Relevant Components (Strategy Development) of the Plan: This includes scheduling short- and medium-term measures and the provision of technical

backstopping.

- Presenting the draft Strategic Plan for consultation among relevant agencies at national level.
- Developing the Strategic Plan Budget through consultation between the Planning Team, Ministry of Finance in each country, and the Parliament to identify national and and external budgetary contributions;
- The draft Strategic Plan is reviewed by the Ministry responsible for water at national level;
- The Plan is legalized by national Parliament as part of the regional strategic plan for the Sub-Region of IGAD.

7

SUB-REGIONAL FRAMEWORK FOR TRANSBOUNDARY WATER RESOURCE MANAGEMENT

1. THE NEED FOR TRANSBOUNDARY RIVER BASIN ORGANIZATION(S)

The establishment of policy, administrative, and legal frameworks that will permit the development and implementation of technical and non-technical measures, rules, and regulations have already been discussed and generally approved at the Regional Validation Workshop in Uganda (August 2010). The multi-functional cooperative arrangement which is based on both advisory and executive functions is required to determine the interaction among the riparian states of the river basins in as far as the respective river basins are concerned and to act as a forum for consultations, cooperation, and conflict and dispute resolution. Advisory functions are non-binding and carry moral weight in direct proportion to the credibility the institution being developed from a tract record. While executive functions are carried out either directly, as implementer or indirectly as overseers of the implementation of decisions by national institutions accountable to the regional institution either directly or through the national Governments.

The overall **objective** of the institutional arrangement for the development and management of the shared river basins in the IGAD Sub-Region is to develop, conserve, and use the water resources in an integrated and sustainable manner through basin-wide cooperation for the benefit of the people of the Sub-Region. The **specific objectives** are as follows:

- To promote an interactive multi-sectoral approach to water resources management and use the river basins as hydrological, environmental, ecological, socio-economic development units of the sub-region.
- To develop projects which are of joint benefit to the riparian states or the whole sub-region.
- To develop projects that form part of a long-term integrated river basin plan.
- To develop infrastructural capacity and techniques for managing the water resources of the river basins.
- To integrate the several potential sources of water – surface, ground, reclaimed, and desalinated – as appropriate.
- To integrate water supply and waste water disposal.
- To control pollution at appropriate levels.

- To assist the riparian countries in the determination of the entitlement of each riparian state in the use of the respective water resources.
- To develop an integrated management mechanism of water and other natural resources, and environmental conservation of the river basins for the socio-economic development of the seven member states.
- To foster integrated sub-regional cooperation, harmonize national strategies and actions for the sustainable management of the river basins, their resources and environment.
- To harmonize national measures for the sustainable utilization of the living resources of the river basins and adopt appropriate conservation measures.

The ultimate goal of the shared vision and mission is to improve the quality of life of the people of IGAD Sub-Region generally, and of the people within each of the basins in particular. There must therefore be innovative policy, legal, and institutional frameworks. A well coordinated implementation of any joint activities at regional, national, and local level will be desirable to achieve the objectives of the emerging concept as it will contribute to the eventual realization of the shared vision. In addition, regional, national, and local counterpart plan of action focusing on priority issues and areas that are of social, economic, and/or environmental significance would provide a platform for action.

Based on the findings and recommendations prescribed so far, the following institutional frameworks will be targets for action:

(a) National policy and supporting legislation to guide the implementation of any integrated development plan should be adopted.

(b) Riparian Local Authorities in each of the seven countries should be given responsibility to manage the water resources of their shared basins.

(c) Area specific institutional arrangements for environmental management of land use, forests, national parks, water supply and quality, fisheries, and public utilities should be in place on each basin.

(d) Local inter-agency, multi-sectoral coordinating mechanisms to implement sustainable area development programs should be set up.

(e) A functional regional consultative mechanism, the ***Transboundary River Basin Organization*** (TRBO), to implement programs of action, be adopted and established.

(f) The major international environmental instruments must be ratified and implemented by all the seven countries.

(g) Environmental management must be incorporated into economic development plans at regional, national, and local level.

2. FRAMEWORKS FOR THE SUB-REGIONAL TRANSBOUNDARY RIVER BASIN ORGANIZATION

Sometimes in a regional set up like IGAD where there are seven (7) countries and six (6) shared river basin resources in the Sub-Region, the riparian countries of one or more river

basins could decide to strike cooperative arrangements while others might not have the desire to cooperate. Under such circumstances, contingency plans of preparing separate institutional arrangements for the riparian countries of different shared river basins are in order.

The policy, legal, and institutional frameworks as well as, the common strategies and their key elements, the protocol for information and data sharing and exchange, and the plans for human and institutional capacity building that have been prepared for the joint TRBO can as well be applid to a single or more shared river basin resources in the IGAD Sub-Region. Instead of focusing on the shared resources of the six river basins, the focus will have to be on a single or more joint institutional framework. Riparian countries of other river basin resources could be left to organize themselves for joint cooperative arrangements later in case they eventually realize the advantages of joint actions.

3. CHARACTERISTICS OF THE SHARED RIVER BASINS

The spatial and temporal variations of the quantity and the quality of the water resources of the six river basins, the rainfall patterns, the flow patterns, and their predictability have been captured under Part 4 of this Project. The economic status and the potential of the basin that include irrigation, hydropower generation, and navigation have also been captured under Part 2 of the Project; and so are the environmental status and the threats facing it such as persistent drought, desert encroachment, loss of arable and pasture land, and pollution from industrial and domestic wastes. Issues of IWRM have also been covered as well as the matters related to the GIS and database establishment for the management of information systems.

4. RELEVANT LESSONS LEARNED ON SIMILAR ARRANGEMENT

The realization that a shared basin is transnational, and must be jointly managed by the riparian states as a common resource for their equitable benefit should help to create a common vision among the riparian states, and should enhance their co-operation and need to consult in managing the water resources for socio-economic development and the maintenance of environmental integrity anywhere in the basin. The case of Senegal River Basin Organization (OMVS) illustrated that if all the riparian states are not able to participate in the cooperative arrangements, it is expedient to start the process with those who are willing with a view of eventually obtaining full participation.

The Protocol or Convention establishing a river basin organisation needs to focus on integrated regional development of the riparian countries using the management of the common water resources. It is important when building infrastructure to be clear about the geographical area it is going to serve and who the beneficiaries will be. The environmental issues should include the maintenance of the integrity of the aquatic ecosystems as well as specific environmental impacts from infrastructure. A river flow simulation model is useful for planning, and for maximising operations of facilities. It can also be used as a decision support tool as for the by the STRBO.

The establishment of a credible regional planning and development programme early in the life of the organisation will enable it to focus on implementation rather than spending too long carrying out studies. Political commitment of riparian Member States is easier to obtain when they are aware that their financial sacrifices will soon lead to physical development. Projects will take time to become viable economically and financially, and Member States need to appreciate that they would be responsible in servicing debts which the organisation may owe. The provision of knowledge, infrastructure, information, markets and finance are important for local people to succeed. The institutional arrangements should involve water users associations like farmers, etc.

5. OBJECTIVES OF THE STRBO

Just like the case for TRBO discussed in this report, the objective of STRBO should be to jointly promote inter-country co-operation, co-ordinate technical, economic studies and other activities related to the shared river basin development such as navigation, irrigation, hydropower generation, environmental protection and conservation, and regulate river flow for irrigation, navigation, flood control, power generation, domestic and industrial water supply and other purposes. The Secretariats of the National, Basin, and Regional Coordinating Units should be financed jointly by the riparian Member States that have agreed to cooperate. Once loan facilities have been obtained, they should be repaid on a formula based on the proportion of benefits of the project to the riparian countries. Benefits accruing from investments in industrial developments like energy generation should be shared on agreed upon formula. The irrigation should be in the hands of local communities who are organised and assisted with finance and other facilities to carry out their farming activities.

6. MANAGEMENT MECHANISM

The mechanism (Figure 6) for a single river basin varies from the multiple structures in that fewer individuals are involved in the structure. For a single STRBO, the following will be needed:

- The Summit of the Heads of State: To provide general policy orientation of the Organization. Instead of seven (7), there will only be two, three, or at most four Heads of State involved.
- The Council of Ministers (Foreign Affairs): This is a planning and supervisory body. It will elaborate the global development policy with respect to the exploitation of the resources of the river basin.
- The STBRB Commission: This is the executive body of the Organization. It will operate under the Council of Ministers and be advisory to the Council of Ministers. It will be responsible for the allocation and apportionment of water to meet various needs in addition to providing advice on sanitary condition.
- Sectoral Coordination and Consultation Committees (SCCC): Consultation will be institutionalized to provide advice on the various sectors in the river basin. These will sit

in consultation with the Council of Ministers as they will be composed of the technical representatives of the riparian Member States.

- The River Basin Coordination Unit (RBCU): This will have implementation and execution role in addition to coordinating the SCCC. It will also coordinate planning at regional level.
- The National Basin Coordination Unit (NBCU): This will have implementation, execution, and coordination role within each of the Member States. The Unit will also coordinate planning at the national level.
- National Field Stations (NFS): These will coordinate field activities in each riparian country.

The signing of the Protocol and the establishing of the Sub-Regional Transboundary River Basin Organization (STRBO) should be followed by implementing the following actions which are similar to the functions proposed for the TRBO:

- Establish and operationalize the statutory Agencies or bodies of the Organization;
- Mobilize resources for pre-investment studies;
- Adopt the protocol on common works and on exchange and sharing of information and data;
- Use the IWRM tools on (i) institution building, (legal provisions for carrying out stated functions and human and institutional capacity building of staff;

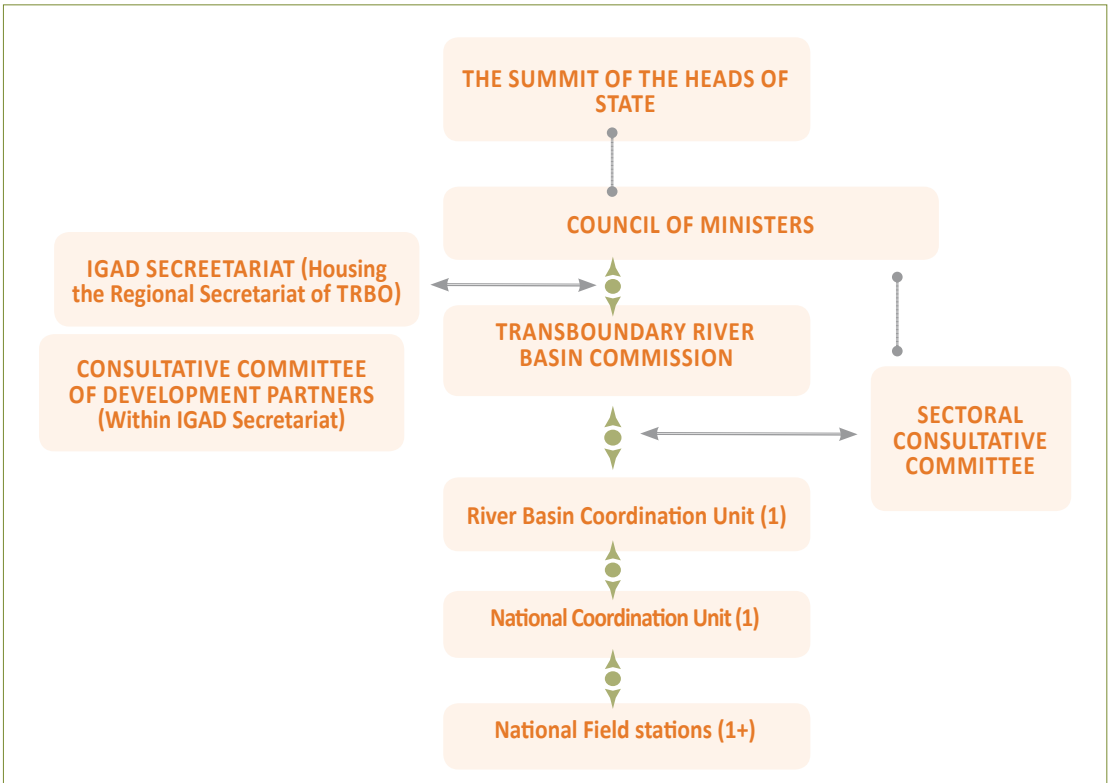

FIGURE 6: Organizational Structure of a Sub-Basin Transboundary River Basin Organization.

7. FUNCTIONS OF THE ORGANIZATION

- Initiate pre-investment studies, financing, and execution of common works;
- Adopt the protocols on common works;
- Initiate integrated development of the river basin;
- Establish both the National and Regional Planning Committees;
- Initiate management and exploitation of common works;
- Initiate integrated management of water resources for socio-economic development and ecosystem needs;
- Initiate the mitigation of environmental impacts and follow-up activities.

The activities will be carried out under similar vision, mission, mandates, strategies, principles, and the road map recommended for the establishment of TRBO for IGAD Sub-Region.

8

ROAD MAP FOR ESTABLISHING SHARED RIVER BASIN ORGANIZATION(S)

1. THE NEED FOR TRANSBOUNDARY RIVER BASIN ORGRANIZATION (TRBO)

A river basin, in general, represents a unified hydrologic and geographic unit, which supports a holistic perspective on river basin management. River Basin Organisations (RBOs) are, therefore, being promoted as the most appropriate means to manage water resources under Integrated Water Resource Management (IWRM), which has been proposed under international water law.

Transboundary river basin organisations provide a framework for managing water resources across national boundaries. Other critical institutional responses to address some present-day water challenges include commitment to international treaties, effective national water laws and regulations governing access and use of water, and creation of a knowledge-base for basin managers to make informed decisions. At the International level, UN Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Convention) provides a framework and principles to guide basin level agreements. Within the IGAD Sub-Region, transboundary water resources management needs to be understood within the context of riparian nations' membership to IGAD.

2. OBJECTIVE OF ESTABLISHING TRANSBOUNDARY RIVER BASIN FOR IGAD COUNTRIES

The ultimate objective of creating a sub-regional organization for shared river basin resources in the IGAD Sub-Region must be directed to the development of a specific potential to meet clearly identified demands. This includes the demand to avoid the risks of conflicts if major water resource projects continue to be constructed without proper consultation between riparian states. The overarching role of any sub-regional organization to be created in the Sub-Region should, according to the World Bank (1994) be "to promote studies and the construction of works that will lead to an integrated, economically sustainable and technically sound development of the water resources of a river basin". The other important requirements for the creation of an effective organization include:

- Real need for development with emphasis on socio-economic benefits rather than political aspirations;

- Political and financial commitment on the part of the member states;
- Clear definition of what the member states require of the organization (e.g. water sharing or the construction of specific common works);
- Development of projects that are of joint benefit to several or all of the basin states and are not essentially national projects;
- Development of projects that are related and part of a long-term integrated river basin plan;
- Defined procedures for interaction between the organization and the national agencies;
- An organization, incentive structure, and staff for the RBO that are compatible with its responsibilities and its legal status; and
- An active support from development partners.

Lessons learned from most successful RBOs are those that have well-focused, if not narrow, objectives and that concentrate on projects that form common works beneficial to several basin states. There are cases, however, where not all states will benefit or be concerned with a particular common work. In such cases, it is expedient to limit the arrangements for project implementation to the states concerned. Of the various components of comprehensive water resource strategic planning, i.e. physical, technical, management, socio-economic, environmental, political, and legal, it is physical and technical that is of particular importance in transboundary situations because they concern the need to:

- Integrate the several potential sources of water, namely surface, ground, reclaimed, and desalinized water as appropriate;
- Integrate water supply and waste water disposal;
- Control pollution at appropriate levels.

In addition, the purpose for creating a sub-regional TRBO can cover all or any of the following activities which were reviewed in Phases I & II Reports:

- Data collection
- Planning
- Water allocation
- Raising funds for studies and project implementation
- Project cost sharing
- Implementation of projects
- Operation and maintenance of projects
- Monitoring water use, control of pollution, and preservation of environmental conditions.

River basin organizations vary from joint commissions concerned with little more than water sharing organizations like Mekong River Commission, India-Pakistan or Sudan-Egypt Joint Water Commissions to organizations that have major executive functions and are

corporations like Senegal Basin's OMVS which covers almost all of the functions listed above. It is desirable, if not essential, that a TRBO operates continuously and not be ephemeral in its activities. It must exist as a point of reference at all times so that any issue among basin states can receive immediate attention.

Development of a road map for establishing Transboundary River Basin Organization(s) (TRBO) include the setting up of a transboundary consultative mechanism, the RPSC and the Working Group, at IGAD level to implement the preliminary aspects for the establishment of the mechanism. Preparing the detailed action plan, negotiating and preparing the legal and implementation framework, and initiating the implementation process will be the major task of the Working Group under the supervision of the RPSC. This will be based on the vision, mission, goal, guiding principles, strategies, and the strategic objectives that have been formulated and subjected to the Regional Review Workshop I in Uganda. It is after the creation of the TRBO that the detailed project implementation plan for the core, support, and sector programs will be developed.

3. LESSONS LEARNED FROM EXPERIENCES OF TRANSBOUNDARY WATER INSTITUTIONS

Lessons learned from the existing TRBOs in Africa revealed that most African countries recognized the need for inter-country cooperation for integrated basin-wide development of their transboundary water resources and signed a number of bilateral and multilateral agreements which led to the creation of some TBOs in the early 1060s and 1970s, but that they were in a poor state of operation as compred to those in developed countries. Notable among these are the treaties/agreements on the Volta (1962), the Niger (1963) and the Mano (1964), the Lake Chad (1964), Kariba (1963), the Senegal (1964), the Gambia (1969), and the Cunene (1969) among others. The organizations lack total confidence of their member States and suffer from lack of strong political commitment and sustained financial support. They were also plagued with numerous administrative, management, technical, and financial problems. As a result, Africa's water resources especially the transboundary water resources are less developed than those in other parts of the world. Besides, the continent suffers from chronic seasonal water supply fluctuations.

The design of the institutional framework for the establishment of Transboundary River Basin Organization for the development and management of the shared river basins in IGAD Sub-Region was based on the experiences and lessons learned from shared water organizations in Africa and other parts of the world. The lessons learned included the following:

(a) **Shared Vision, Mission, and Goals:** The mandate of the organizations focused clearly on the strategic objectives to be achieved. A similar focus guided the operations of many regional organizations and projects.

(b) **Autonomy and Impartiality:** They emphasized the need for institutional autonomy in implementing decisions and impartiality in assessing critical issues that proved to be an important element for success of regional bodies. It is essential that judgment on intervention matters is taken through consensus and objectivity without splitting along

national lines. The selection of personnel to manage the organization has to take into consideration professional competence, experience, and personal integrity.

(c) **High Level of Political Support and Pronounced Commitment:** Inbuilt mechanism for high-level political support at Presidential or Ministerial level is an important feature of shared water organizations.

(d) **Common Cross-Cutting Issues of Immediate Challenge:** A number of immediate challenges of cross-cutting nature such as pollution, decline in fisheries, flood, etc., galvanized the formation and maintenance of shared water organizations. Where the challenges have not been acute, the institution was not given adequately focused mandate.

(e) **Participation of Stakeholders**: Involvement of stakeholders especially the private sector and the civil society is an important success factor in regional collaboration in shared water resources management.

(f) **Mechanisms of Adjusting to New Challenges:** Flexible structures evolved and adjusted better to new challenges and opportunities than rigid ones. Those institutions that allowed flexibility in addressing new issues, but also built on existing institutions and projects performed well.

(g) **Transparent System of Sharing Costs and Benefits:** A transparent system of sharing information, costs, and benefits avoids future conflicts. The system is best included in the legal instrument setting up the organization. For instance, the budgetary allocation to the running of the joint secretariat is agreed upon by the member states, which then contribute their assigned share. The operations and projects within member nations are funded by the respective governments.

(h) **Coordinated Structures and Mechanisms:** Effective coordination of the activities in the regional structures is critical. This involves putting in place clear decision making processes and structures that are linked to the highest political levels. The coordination mechanism of cooperative programmes should be through the relevant commissions and projects to the Heads of State through the relevant Council of Ministers.

(i) **Funding Mechanism:** An equally important factor for the success of any institution is the availability to access funds to discharge its mandate. It is therefore important and necessary to design an institution that has the capacity to mobilize funds from different sources, especially the development partners and the private sector in addition to the normal budgetary allocation from the Partner States. Given the need to be cost-effective and to target the private sector and development partners as an important source of funds, the organizational framework must have inbuilt mechanism for mobilizing funds from these sources, with the Partner States taking the leading role. An institution that is multi-stakeholder driven is likely to achieve this objective compared to one that is purely inter-governmental.

(j) **Building on Existing Institutions:** Part of the reasons for the success of other shared water organizations has been the adoption of a strategy to implement projects using

existing institutions, and delegating operational and monitoring functions on national institutions in accordance to the Principle of Subsidiarity. This approach ;ensures that success is based on strengthening existing networks, involving all stakeholder, optimizing available funding opportunities from the public and private sector, and harnessing the political support in reaching the common vision. This implies that the expected institutional framework should as much as possible be anchored on the foundation laid by existing regional institutions.

(k) **Fulfillment of Mandate:** The common feature repeated in all the lessons learned of the international shared water bodies has been their focused mandates, which is a necessary ingredient for those designed to actually implement projects and activities. The potential for institutions with broader mandates to succeed could only be enhanced by delegating responsibilities to more focused actors within the established frameworks. Another strategy is to start with fewer, more focused interventions, as part of the broader mandates, and progressively build on the scored successes. It will ;therefore be important for the proposed institutional arrangement to start with more focused areas for intervention and expand slowly as part of its strategy to ;fulfill its mandates.

4. INSTITUTIONAL FRAMEWORK

4.1. The shared vision

The resources of the shared basins in the IGAD Sub-Region are a natural heritage that safeguards sustainable and healthy food supply, livelihood, property and investment, and social, cultural, and ecological values for the people of the seven IGAD countries. They are also contributing to economic prosperity and accessibility to regional markets thereby promoting a peaceful and harmonious co-existence for present and future generations. The shared vision, therefore, represents a common understanding, views, and wishes of the people of IGAD Sub-Region regarding the ecosystems of the shared basins. It must be how the stakeholders see the environmental and socio-economic status within the basins and their catchments in the long term, perhaps at the end of twenty five to fifty years. Achieving the vision will take time, strategies, and resources to implement a set of action programs. More importantly, it needs the collective political will and regional cooperation among the Governments, the people of the sub-region, and other stakeholders to implement any planned action programs.

Taking cognizance of public perceptions and political demands resulting from the 1982 United Nations Law of the Sea Convention, the 1992 United Nations Conference on Environment and Development and its Agenda 21, the 2002 Millennium Development Goals, the Ministerial Forum on Water (UNDP 2009, and the recognition of the importance of shared water resources management, the following can be adopted as the shared vision of the transboundary basins in the IGAD Sub-Region:

"Economically prosperous, socially just and environmentally sound transboundary basins for the benefits of the present and future generations."

While recognizing the sovereign rights of each affected country and the cultural context of riparian communities, the shared vision is for the shared river basins resources sector that:

- contributes to poverty alleviation, sustainable livelihoods and food security at household, local and national levels;
- is based on sound regulation, good governance and functional management institutions that ensure equitable development and safety within the different parts of the sector;
- able limits to harvesting natural resources and developmental productivities; and
- is part of a holistic view of the shared river basin ecosystems and is managed according to the principles of integrated shared river basin management, including the wider aspects of land tenure, and
- has a well integrated supply chain from harvest to consumer that supports labour intensive post-harvest activities (which are mainly carried out by women), equitable trade and marketing that ensure safe food and water for all.

4.2. The mission

The mission is an expression of the immediate aim of the Transboundary River Basin Organization being established arising from the conviction or sense of calling which is the shared vision. It is a statement describing what the region will undertake to implement its development and management plan in order to achieve the shared vision. In addition, the mission statement affirms the purpose and function of the stakeholders for one common purpose. It has a focus on the job at hand with an orientation towards future goals. The following mission has therefore been proposed to guide the implementation of any development programmes:

"To promote and coordinate sustainable development, conservation, utilization, and management of water and related resources of the transboundary water basins for the mutual benefits of the people of the Sub-Region by implementing strategic programmes, projects and activities, and generating scientific data and information to guide policy decision making and implementation of any development programmes."

4.3. Desired institutional and operational changes

The ultimate goal of the shared vision and mission is to improve the quality of life of the people of IGAD Sub-Region generally, and of the people within the basins in particular. The desired institutional changes shall therefore include:

- National policies and supporting legislations to incorporate regional aspects of the laws contained in the Convention for the establishment of the Transboundary River Basin Organization (TRBO) for the IGAD countries;

- Local governments to be given responsibility to manage their shared river basin resources and the aquatic environment;
- Area specific institutional arrangements to be instituted for environmental management of the shared river basin resources;
- Local inter-agencies, multi-sectoral coordinating mechanisms to be set up to implement sustainable share river basins programs and projects;
- A functional regional mechanism, the TRBO, established to implement the sustainable development strategy for the share river basin resources;
- The major international environmental instruments to be ratified and implemented by each member country; and
- Environmental management to be incorporated into economic development plans at national and local levels.

Operationally, the desired changes include:

- Implementing the national environmental strategy;
- Having environmental assessment and management systems in place as tools for sustainable development;
- Implementing integrated environmental management programs by local governments within the shared river basins;
- Establishing cooperation between jurisdictions for addressing transboundary environmental problems across boundaries at sub-regional levels;
- Having joint research and sharing of information for the management of the shared river basin resources in place;
- Undertaking integrated implementation of international environmental instruments at national and local levels; and
- Operationalizing a sustainable financing mechanism for regional implementation of international conventions.

5. THE MANDATE OF THE ORGANIZATION

The proposed Transboundary River Basin Organization (TRBO) should be able to provide leadership in the development and management of the core, support and sector programs that have been identified. This should be from a regional perspective and through the involvement of the existing and potential stakeholders in the shared river basins. The Organization will not primarily implement projects and activities on the ground; rather, it will be a catalyst for change, providing guidance on the basis of agreed plans and priorities and will coordinate the approach of stakeholder in project implementation.

This mandate has been formulated to be consistent with the mission and to lead to the

achievement of the vision through focused strategies and action programmes. The mandate will be:

> ***"To efficiently and effectively promote, facilitate, and coordinate the activities of the different actors within each of the transboundary river basins in order to achieve the goals and the mission of the Organization."***

6. FUNCTIONS OF THE ORGANIZATION

The Organization shall have three types of programmes: core, support, and sector programmes. The focus of the programmes will be towards what is to be achieved rather than towards what is to be done.

The core programmes are those central to the purpose of the Organization and are addressing issues that led to the signing of the Cooperative Agreement for establishing the organization. The activities under these programmes will, in the long run, be funded by the contributions of the member countries, thus ensuring sustainability. They include the following:

- River Basin modeling and knowledge base
- Rules for water utilization
- Institutional strengthening
- Environmental monitoring and assessment
- Environmental decision support
- Strategic networking and coordination
- Capacity and awareness building
- Support of studies and facilitation of research

The Support program is addressing the establishment of an effective TRBO that will be capable to promote, in partnership with other institutions, river basin-wide development and coordination. This one is important in the short and medium term to address capacity building needs of the Organization and that of the riparian Governments. As capacity increases, the support programme will diminish in size. The activities include:

- Integrated training in river basin resources development and management
- Information management and communication
- Educational exchange program with similar institutions
- Environmental governance
- Provision of program support
- Core activities in the new Organization
- Management of the shared river basins

The sector programmes will address important sectoral issues in the shared river basins within the mandate of the Cooperative Agreement for establishing the organization. The

programmes will have regional focus intended to address development needs in the sectors from a basin-wide perspective. It will complement and support national and bilateral development initiatives. These include activities in (a) Water Resources Management which will aim at promoting sustainable development of the shared river basins' resources for social and economic development for the benefit of the riparian population, (b) Flood management will aim to promote sustainable development of the shared river basins' resources, (c) Agriculture, Irrigation, and Forestry program will promote the sustainability and further development of food production from the land and water resources of the river basins., (d) Fisheries, (e) Navigation, (f) Tourism.

7. THE STRUCTURE OF THE ORGANIZATION

As part of the process to determine the preferred institutional framework and organizational structure, three (3) proposed options were presented for consideration at first Regional Validation Workshop held in Entebbe, Uganda August 2010 where one was recommended for further development. At the second Regional Validation Workshop held in Nairobi from 17th to 19th January 2011, the refined structure was considered and it was recommended to be referred to the Client for further consideration and comments which the Consultant is awaiting. The final structure of the Department/Directorate within IGAD Secretariat for the development and management of the shared water resources are as shown, figure 7. and will consist of:

- The Summit of the Heads of State: for general direction;
- The Council of Ministers (Foreign Affairs): for policy initiatives and decisions;
- The Commission for the TRBO: for policy initiatives;
- Secretariat of the Commission within IGAD Secretariat: for execution/ implementation role;
- The Regional Transboundary Basin Committees: for transboundary implementation and operational role on each shared basin;
- The National Transboundary Basin Committees: for national implementation and operational role on all shared basins in the country;

The Council of Ministers of IGAD (CoM/IGAD): The CoM concerned with a particular river basin will guide the implementation of development programmes in that transboundary river basin through the established Commission at IGAD Secretariat. The CoM will report to the concerned members of the Summit with a particular basin for overall policy directions. It may create a Sectoral Council of Ministers for each of the shared river basin resources to be advisory to CoM/IGAD. The Permanent Secretaries responsible for water resources, and other Permanent Secretaries as may be decided upon by the CoM, shall comprise an Advisory Board for the CoM/IGAD.

The Transboundary River Basin Commission (TRBC) initially represented by the Regional Policy and Steering Committee: The TRBC will comprise the nationally appointed Commissioners, one from each riparian country. Within the Commission will be the

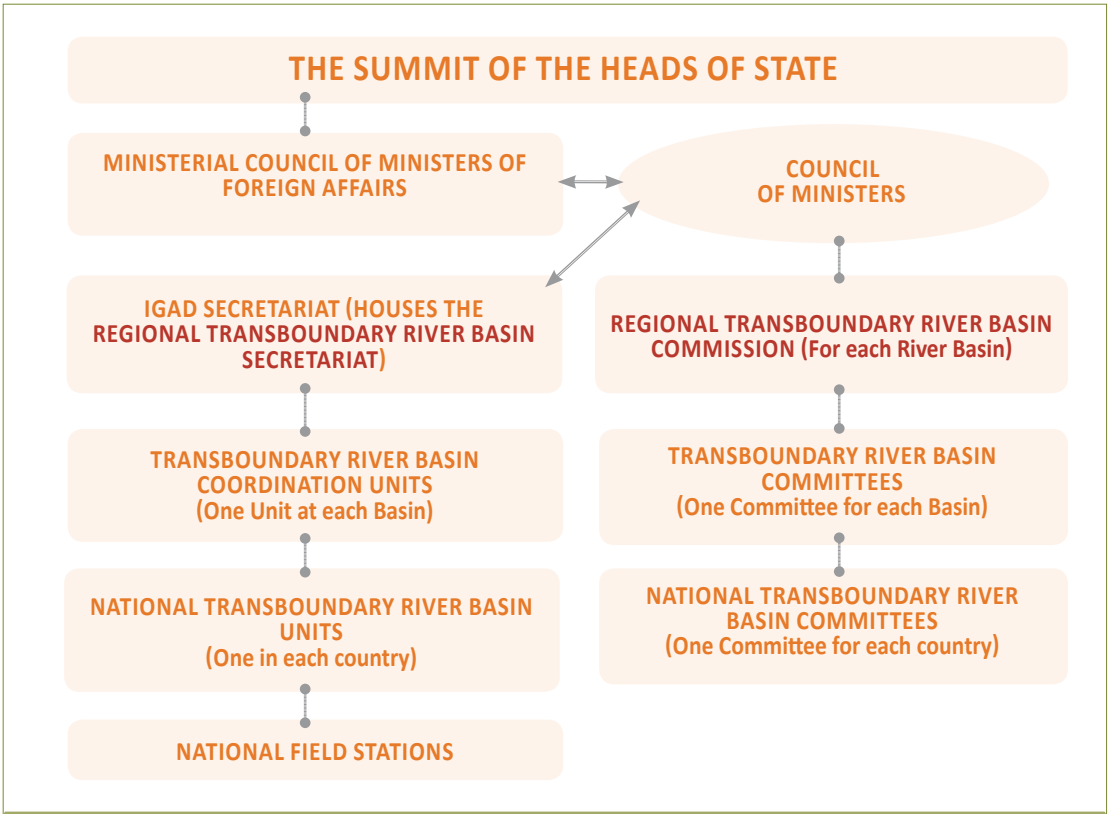

FIGURE 7: Organogram of IGAD Transboundary River Basin Organization for a River Basin.

NOTE: The Transboundary River Basin Organization consists of the Ministers responsible for Water Sectors from the seven countries advising the Summit directly while maintaining contact with the Ministerial Council of Ministers of Foreign Affairs. A Regional Transboundary River Basin Committee/ Commission to be facilitated by a Coordinating Secretariat based in the IGAD Secretariat will be established to replace the Regional Policy and Steering Committee and the Technical Working Group instituted during the transitional period. The members of the Commission will be the specially appointed Commissioners one from each Member State with National Coordinators and the Basin Coordinators becoming technical advisors. Each Coordinating Unit and the Secretariat will consist of separate administrative, financial, and technical Sections within the Secretariat based at IGAD Headquarters.

Transboundary River Basin Regional Coordinator and the Transboundary River Basin National Coordinators. The Commission will (a) be responsible for assisting the CoM/IGAD in formulating and articulating policies on the shared river basin, (b) deal with matters of the basin through the Regional and National River Basin Committees, and (c) delegate its operational details to the Regional and National Transboundary River Basin Committees and ad hoc Task Forces when needed.

The Secretariat of the TRBC within IGAD Secretariat (S/TRBC): The S/TRBC will be headed by a Coordinator/Executive Secretary who will report to the Director of Agriculture and Environment in IGAD Secretariat. The S/TRBC will comprise the Coordinator/Executive Secretary, Project Officer(s), and Support Staff. The S/TRBC will facilitate meetings of the Regional Transboundry Basin Committee and that of the Commission.

The Regional Transboundary River Basin Committee (RTRBC) and National Transboundary

River Basin Committee (NTRBC): The two (2) Committees of the Transboundary River Basins will comprise of the Regional Transboundary Basin Coordinators (RTBC) and the National Transboundary Basin Coordinators (NTBC). Each NTBC will be appointed by the respective national Government, while the RTBC will be appointed by the Commission. This Committee will also include Senior Officials from Government at the levels of Directors or Commissioners, Heads of relevant public and regional institutions, regional projects, and Chief Executive Officers from business and industry, and Civil Society. The Committees will be responsible for initiating policy directives and their implementation, and will make recommendations to the Commission. NTRBC will also be responsible, at national level, to coordinate communications between the TRBC and national actors.

Development Partnership Committee (DPC): The members of the DPC will be drawn from International and National Development Partners, Private Sector (Business and Industry), and Government (both Central and Local). Its main responsibility will be to agree and give general direction to be taken by the Commission/IGAD. The Commission will maintain a harmonious working relationship with Development Partners, Chief Executives of Business and Industry, and the Government.

8. REPORTING MECHANISM

The Coordinator/Executive Secretary of Commission will report to the Director of Agriculture and Environment of IGAD and will coordinate projects, programmes, and organizations operating within the transboundary river basins. In facilitating the role of the stakeholders, the staff of the Commission will work with regional and national institutions, Government Departments or Directorates, Partnership Committees, and the Regional and National TRBC.

The budget of the Commission will be appropriated as part of IGAD Secretariat, but with a clear budget line for its operations. The Partner States will share equally the burden of operating the Commission.

9. LEGAL FRAMEWORK AND THE POSSIBLE ELEMENTS OF THE PROTOCOL

The objectives and functions of IGAD are in line with the mandate and functions of the Commission for the Development and Management of the Transboundary River Basin Resources. The establishment of the Commission is also within the legal mandate of IGAD. There will be a Protocol on the Sustainable Development of the Transboundary River Basins and their Resources to be signed by IGAD member States. The Protocol will provide guiding principles to be followed by Stakeholders in all the shared river basins. The Protocol shall also take cognizance of the existence of current protocols and treaties in IGAD countries. IGAD Secretariat will be the custodian of the Protocol unitl the time when an independent body or secretariat will be established, or as the IGAD Partner States shall decide otherwise.

The outline of the elements in a possible comprehensive protocol for the Establishment of a Transboundary River Basin Organization described below is based on information gathered from the lessons learned during literature review. It is stressed that the content of the

actual agreement itself should be determined during the actual drafting of the agreement. Some possible examples of Principles governing such Agreement would include:

- Transparent (readily understood, clear, perfectly evident)
- Participatory (inclusive)
- Demand side driven (wanted by the participants, driven by them and responsive to their interests as opposed to supply side driven
- Comprehensive (extensive, wide, large, compendious)
- Consistent (accordant, congruous)
- Flexible (responsive to or readily adjustable, to changing conditions
- Adaptive (tending to show adaptation or adjustment to environmental conditions
- Sustainable (capable of being sustained (socially, environmentally, economically))
- Equitable (state or quality of being equal or fair)

The following give a possible idea of what a basin wide outline of such agreement might look like for possible enrichment through discussion and comments:

(xiii) Preamble

(xiv) Definitions of Key Terms

(xv) Application of the Protocol

(xvi) Objectives of the Agreement

(xvii) Seat and Institutional Framework

(xviii) The Organs of the Organization and their Functions

(xix) Observers and Cooperation with Development Partners

(xx) Scope of the Transboundary Co-operation

(xxi) Principles

(xxii) Equitable and Reasonable Utilization of Water Resources

(xxiii) Protection and Conservation of the Basins and their Ecosystems

(xxiv) Sustainable Development of Natural Resources

(xxv) Prior Notification Concerning Planned Measures

(xxvi) Environmental Impact Assessment and Audits

(xxvii) Prevention of Significant Harm to Neighbours

(xxviii) National and Regional Measures

(xxix) Information and Data Exchange and Sharing

(xxx) Finances (e.g. who pays for what, when and how)

(xxxi) Annual Report

(xxxii) Territorial Limits of Contracting Parties

(xxxiii) Monitoring and Precautionary Measures

(xxxiv) Pollution Control

(xxxv) Public Participation, Education and Awareness

(xxxvi) Mainstreaming of Gender Concerns

(xxxvii) Water Resources Monitoring, Surveillance and Standard Setting

(xxxviii) Emergencies and Disaster Preparedness

(xxxix) Confidentiality

(xl) Legal Status, Privileges, and Immunities

(xli) Cooperation with Other Organizations and Institutions

(xlii) Final Clauses

(xliii) Entry into Force

(xliv) Signature, Ratification, Accession

(xlv) Amendment

(xlvi) Saving Provisions

(xlvii) Withdrawal and Termination

(xlviii) Interpretation and Settlement of Disputes

(xlix) Relationship between this Protocol and other Agreements

(l) Depository

(li) Annex

10. THE ROAD MAP

The second Regional Validation Workshop held in Nairobi, Kenya, considered the final option of the organizational structure and the proposed road map for the Establishment of the Transboundary River Basin Organization (TRBO), and recommended that the process should start with the establishment of a Unit within IGAD Secretariat and led by a Coordinator to initiate actions towards the establishment of the TRBO. The Unit should gradually evolve into a Directorate within two years and into an independent body "Commission" or "Organization" at the end of five (5) years, fully structured with the ability to deliver the mandate and functions of the Organization. The recommendations on the key milestones for the evolution are presented below.

The proposed institutional framework, the TRBO, will be implemented in two stages. Initially, its Coordinating Secretariat, the Unit and eventually the Directorate, will be housed within IGAD Secretariat as a dedicated mechanism for the development and management of the shared river basin resources. The Directorate will gradually be transformed into an independent functioning body, the "Commission" or "Organization" outside of IGAD Secretariat but within IGAD framework, after a period of five years. It is, therefore, proposed that:

During the First Year

- Appoint a Coordinator with Support Staff to be supervised by the RPSC to provide initial technical and secretarial services. The Coordinator will report to the Deputy Secretary General of IGAD
- Appoint the Technical Working Group (TWG) to draft the Convention for the Establishment of the TRBO, the Protocol for the Exchange and Sharing of Data and Information, and the Agreement for the Consultative Mechanism.
- The Unit to organize Regional Workshops to discuss the draft documents and recommend them for approval and endorsement by the RPSC, the CoM, and the Summit of Heads of State.
- Prepare details of the timeline for the evolution process in consultation with key actors.

During the Second Year

- Complete the series of Regional Workshops and processing the legal documents.
- Organize Consultative Meetings of the RPSC, CoM, and the Summit to approve and endorse the legal documents to enable the institution of the Consultative Mechanisms, the Exchange and Sharing of Data and Information, and the Establishment of the TRBO.
- Finalize the agreements and plans for establishing an independent Directorate to allow adequate time for the recruitment process and setting up of offices during the third year, ready for its launch in year four.

During the Third Year

- Establish the Directorate within IGAD Secretariat
- Member States to appoint the members of the Commission to replace the RPSC.
- The Commission to recruit and appoint the Secretariat staff of the Directorate.
- Appoint the Project/Program Officer(s).
- Institute the Committee of Development Partners
- The Secretariat staff and the Program/Project Officer(s) to prepare programmes and projects

During the Fourth Year

- The Directorate to start its independent operations under the Executive Secretary who will be reporting to the Commission. It is recommended that all new regional projects and institutions dedicated to the shared river basin resources should be designed taking into account the reporting requirement to the Transboundary River Basin Commission.
- Preparation to transform the Directorate to a Commission initiated.
- The legal documents are reviewed for possible amendments after the trial period of two years.

During the Fifth Year

- Define the form and nature of the Commission/Organization.
- Facilitate stakeholder development initiatives in the river basins.
- Facilitate implementation of programmes.
- Facilitate preparation of work plans.
- Launch the Commission/Organization.
- The Commission/Organization to start operations under the Commission that will be reporting to the CoM of IGAD through Sectoral CoM that the CoM of IGAD may establish.
- Recruit additional Program/Project Officer(s) as may be required.

The evolutionary process of the institutional framework will also aim at having one single Sectoral Council of Ministers for the TRBO to deal with all projects and programmes in any of the shared river basins.

11. FUNCTIONS OF THE TRANSBOUNDARY RIVER BASIN ORGANIZATION

The range of functions to be performed by the TRBO in implementing the harmonized strategies includes the following:

- Provision of advice on water resources issues of each of the river basins related to water allocation, management of the water quality and living resources of the rivers.
- Provision of advice to member Governments on specific issues such as controlling water abstraction, with the legitimate goal of fair allocation of finite resources and controlling the degradation of the quality of the river water.
- Provision of advice on such other issues referred to it for advice by the member states, in accordance with the terms of the enabling agreement.
- Provision of advice on proposed national abstraction and waste water discharge licences which have a significant impact on the shared resources.
- Liaising with other institutions of governments, other international organizations on behalf of the member states.
- Investigating violations of domestic legislation at the request of the regional institutions.
- Implementing agreed upon obligations and other agreed upon actions or recommending to the Governments the implementation of obligations.
- Monitoring compliance with the agreed upon obligations and assessing achievements.

9

CONCLUSIONS AND RECOMMENDATIONS

1. CONSLUSIONS

The study revealed that both surface water and ground water resources of IGAD Sub-Region which offer significant socioeconomic potential for its riparian countries are already being subjected to increasing abstraction and use at individual national levels as human population increase with time, and to the negative effects of climate variability and change. For the people of the member countries to derive equitable and sustainable benefits, it is essential to establish institutional framework that is acceptable to the member countries to address the common shared water basin resources issues with a cooperative spirit within the framework of sub-regional policy, laws, and procedures.

The data and information derived from regional and international literature on transnational shared water resources development and management filled the gaps in the national studies on existing national and regional collaborative frameworks. The material gathered facilitated the development, design, and elaboration of the required frameworks for creating and establishing Transboundry River Basin Organization for the Member States of IGAD. The frameworks include the following:

Existing National and Sub-Regional Management Systems and Legal Tools: Despite many administrative and logistical deficiencies, all the five countries have well established water resources development and management institutions with national policies, strategies, laws, and water master plans which have been undergoing regular reforms.

Information and Data Generation Exchange and Sharing: The proposed road map for the legal instrument to be formulated and signed by the riparian Member States agreeing on joint actions on the shared river basin resources will operationalize the monitoring, collection, generation, and sharing and exchange of data and information.

Sub-Regional Water Sector Strategies and their Key Elements: Common vision, mission, broad objectives, policies, and strategies for the development and management of areas of common interest have been developed so that (a) lack of a coordinated cross-sectoral and integrated approaches to problems and solutions at individual governments levels, (b) increased conflict of interest among institutions and states, and (c) duplication of efforts and waste of resources both at domestic and sub-regional levels can be overcome or avoided altogether.

Medium to Long Term Institutional Capacity Development Strategies: Capacity building being a continuous process the proposed capacity building strategic plans for water resources development and management will help the member states of IGAD to redefine their capacity building strategies, detailed programs, and required funding. The main elements of the plan include (a) the framework (capacity development policy, water resources program strategy, and planning performance targets); (b) institutional strengthening (organizational, legal, and regulatory environment for improved governance); (c) human resources management (systems and methods); (d) human resources development (training and education); (e) financing, budgeting, and planning (sustainable systems); and (f) implementation and monitoring mechanisms (in accordance with the proposed road map).

Sub-Regional Framework for Transboundary River Basin Resources Management: The focus of the policy, legal, and institutional frameworks as well as, the common strategies and their key elements, the protocol for information and data sharing and exchange, and the plans for human and institutional capacity building is on a single or more shared river basin resources in the IGAD Sub-Region, i.e. on a single or more joint institutional framework(s).

Road Map for Establishing Transboundary River Basin Organization(s) (TRBO): The road map has been designed for refining and signing the protocol on the cooperative arrangement and implementing the agreed upon schedule of action programmes leading to the establishment of the Transboundary River Basin Organization. Initially, its Coordinating Secretariat for the road map will be housed within IGAD Secretariat as a dedicated mechanism for the development and management of the shared river basin resources. The Directorate will gradually, during a period of five (5) years, be transformed into an independent functioning body, the "Commission" or "Organization" outside of IGAD Secretariat but within IGAD framework. The ultimate evolutionary process of the institutional framework will aim at having one single Sectoral Council of Ministers for the TRBO to deal with all projects and programmes in any of the shared river basins.

2. OVERALL RECOMMENDATIONS

(a) The success of the proposed institutional framework will depend upon the Member States' enactment of legislative and policy changes, approval and refining the frameworks, provision of political support, involvement of stakeholders, and guiding the provision of support by development partners.

(b) Consultative visits to the countries as the Consultant did in Uganda would provide access to the required national information and data on the existing policy and legal frameworks, organizational arrangements, reform strategies, policy and institutions of the water sector, laws and law enforcement systems, capacity building plans and projects, policy, legislative, and institutional gaps, key sub-regional level issues, and reforms in the water sector of each Member State.

(c) Policies, strategies, and objectives of cooperation and how to achieve them should be set out in the proposed enabling legal instruments to be prepared and signed by the riparian Member States of IGAD to the agreement. This should include agreements on

(i) the Status of the water resources, (ii) exchange and sharing of information and data, (iii) investment policies, (iv) establishment of transboundary organization(s) for water resources development and (v) service providers and IWRM, (vi) regulations for water quality, (vii) regulations for water quantity, and (viii) regulations on environmental standards. A technical drafting committee should be appointed to prepare the final protocols under the supervision of the RPSC for approval by senior officials, Council of Ministers, and the Heads of State of the member countries.

(d) While the lead institution in the proposed road map can be the Ministry responsible for water resources, it would be most essential to involve all the stakeholder institutions, professional groups, development partners, and potential beneficiaries or water users associations within each country in the final development of policies and guidelines affecting the development and management of trans-boundary river basin resources.

LITERATURE SOURCES FOR THE INSTITUTIONAL AND CAPACITY BUILDING COMPONENT

Earle, Jaguskog, and Ojendal. 2010. Transboundary Water Management in Practice. (Internet – Google).

Edossa, D.C., M.S. Babel, A.D. Gupta. 2009. Drought Analysis in the Awash River Basin, Ethiopira. In: Water Resources Management. Vol. 24 (7), 2441-1460.

Hudson, Andrew. 2009. UNDP Experience with South-South Cooperation in Transboundary Water Management and Knowledge Sharing on Water. Ministerial Forum on Water. Muscat, Oman.

Taddese, G., K. Sonder, D. Peden. 2004?. The Waters of Awash Basin – A Future Challenge to Ethiopia. ILRI. (From Internet – Google).

UNEC. 2000. Transboundary River /Lake Basin Water Development in Africa: Prospects, Problems, and Acheivements. Addis Ababa, Ethiopia.

World Bank. 1994. A Guide to the Formulation of Water Resources Strategy. Technical Paper Number 263. 103p.

World Bank. 1994. The International River Basin Organizations in Sub-Saharan Africa. Technical Pater Number 250. 71p.

Cap-Net Web. 2008. Training Manuals for IWRM

Alaerts, G.J., Blair, T.L., & Whittington, D. 1991. Procedures and Partners for Capacity Building in the Water Sector. In: IHE/UNDP, 1991.

Fox, I.K. 1976. "Institutions for Water Management in a Changing World." Natural Resources Journal, 16(4):743-58.

Frederickson, Harald. 1992. Water Resources Institutions. Technical Paper No. 191. Washington, D.C.: The World Bank.

ICWE. 1992. Development Issues for the 21st Century. The Dublin Statement and Report of the Conference, Dublin. WMO, Geneva.

OECD. 1989. Water Resources Management: Integrated Policies. Paris.

The International Law Association (ILA), 17 Russell Square, London WC1B 5DR.

The International Law Commission (ILC), The United Nations, New York, New York 100017.

World Bank. 1993. Water Resources Management: A Policy Paper. Washington, DC.

Earle, Jaguskog, and Ojendal. 2010. Transboundary Water Management in Practice. (Internet – Google).

Edossa, D.C., M.S. Babel, A.D. Gupta. 2009. Drought Analysis in the Awash River Basin, Ethiopira. In: Water Resources Management. Vol. 24 (7), 2441-1460.

Hudson, Andrew. 2009. UNDP Experience with South-South Cooperation in Transboundary Water Management and Knowledge Sharing on Water. Ministerial Forum on Water. Muscat, Oman.

Taddese, G., K. Sonder, D. Peden. 2004?. The Waters of Awash Basin – A Future Challenge to Ethiopia. ILRI. (From Internet – Google).

UNEC. 2000. Transboundary River /Lake Basin Water Development in Africa: Prospects, Problems, and Acheivements. Addis Ababa, Ethiopia.

World Bank. 1994. A Guide to the Formulation of Water Resources Strategy. Technical Paper Number 263. 103p.

World Bank. 1994. The International River Basin Organizations in Sub-Saharan Africa. Technical Pater Number 250. 71p.

Mapping, Assessment & Management of Transboundary Water Resources in the IGAD Sub-Region Project

INSTITUTIONAL FRAMEWORK COMPONENT

Information gathered from National Study Reports, lessons learned from literature on international River Basin Organizations, and reference made to the relevant findings of other Components of this Project together with personal experience were made use of in understanding the characteristics of the river basins, the key development areas for regional cooperation, the disadvantages of non-cooperation, and the benefits that can accrue because of joint sub-regional actions.

National studies reviewed did not include specific studies on national institutional frameworks for water resources development and management of the seven countries of IGAD apart from the inclusion of scattered information and data under the studies targeting water resources, socio-economic, and environment.

Common vision, mission, broad objectives, policies, and strategies for the development and management of areas of common interest have been developed. Strategic Elements were identified for the harmonization of strategies.

Capacity building is a continuous process reflecting the need of the society to respond to new ideas and technologies and changing social and political realities. The lack of adequate institutional capacities in the water sector in the IGAD countries, for joint development and management of shared water resources, is imposing severe limitation to water resources development and management.

The policy, legal, and institutional frameworks as well as, the common strategies and their key elements, the protocol for information and data sharing and exchange, and the plans for human and institutional capacity building are similar to that for the joint TRBO, and can be applied to a single or more shared river basin resources in the IGAD Sub-Region.

Development of a road map for establishing Transboundary River Basin Organization(s) (TRBO) includes the setting up of a transboundary consultative mechanism for each basin. Policies, strategies, and objectives of cooperation and how to achieve them shall be set out in the proposed enabling legal instruments to be signed by the riparian Member States of IGAD to the agreement ■

Sahara and Sahel Observatory
Bd du Leader Y. Arafat, BP 31, 1080 Tunis Carthage, Tunisia
Tel. : (+216).71.206.633 - Fax : (+216).71.206.636
URL : www.oss-online.org - Email : boc@oss.org.tn

African Water Facility
Banque Africaine de Développement, BP 323 – 1002 Tunis(ia)
Tel. : (+216).71.103.971 - Fax : (+216).71.348.670
URL : www.africanwaterfacility.org - Email : africanwaterfacility.org

Intergovernmental Authority on Development
Avenue Georges Clemenceau, P.O. Box 2653 Djibouti
Tel. : (+253).354.050 - Fax : (+253).356.994
URL : www.igad.int