Transboundary Water Cooperation Workshop Series

Water Cooperation and benefit-sharing in the Nile, SADC/Zambezi Basin and the Mekong

Danish Water Forum
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WORKSHOP PAPER

Introduction to 3rd Workshop

More than 40% of the global population live in basins shared by two or more countries. In addition some 280 river basins and numerous underground aquifers are shared by two or more countries. Transboundary water cooperation (TWC) has traditionally been based on agreements on sharing of water in ways perceived as equitable by the riparians. A new paradigm based on benefit-sharing is gradually being considered and introduced as the practical aspects of this concept are developed and reality checks are made. Lessons on benefit-sharing in transboundary basins are beginning to appear. The need to take this concept forward is the rationale for selection of the theme for the 3rd workshop in the series of workshops on transboundary water cooperation. Topics to get particular focus in the January 2010 workshop were discussed at a special session at the World Water Week in Stockholm in August 2009. This session had participation from the Nile Basin, the Mekong Basin and SADC/Zambezi Basin. The Chair of the session presented two topics, which could be the key themes for discussion at the 3rd TWC workshop in January 2010. The following text is a quotation from the August meeting: "These topics were:

- Sharing of benefits
- Role and lessons learned by river basin organisations on benefit-sharing for instance in relation to water development and hydropower

Representatives from the basins agreed that these topics were very relevant: - to take a look at benefits for communities and livelihoods from sharing waters and take this perspective into the regional cooperation. Energy as a benefit from the water resource was also considered very important. SADC has started a development of guidelines including benefit-sharing. These guidelines could benefit other basins and might also benefit from further input from these basins.

The participants agreed that benefit-sharing is important, but has to be linked to cost sharing and to other sectors.

It was also stressed that gender aspects of this must be included along with capacity building. Benefit sharing was seen by others as a useful and powerful concept, but it has to be seen together with international law, the two concepts should go hand in hand. And it was added that sharing benefits is more complicated than sharing of the resource itself. Further it is important that benefits reach allo.

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This document is thus a discussion paper for the workshop on transboundary water cooperation (TWC) in the perspective of benefit-sharing.

The workshop aims to identify ways in which transboundary water management can prosper from application of benefit-sharing and explore the practical approaches. Lessons and experience will be extracted and shared between the participants from several sources: general experience of TWC from around the world and specific experiences from the basins related to the workshop: the Mekong River basin, the SADC Protocol Countries/Zambezi River basin and the Nile River basin.

1st Workshop: Discussion of stakeholder involvement and national commitment

The first workshop on Transboundary Water Cooperation was held in March 2007. The workshop highlighted stakeholder participation in transboundary water planning, management and decision making; as well as national commitment to TWC. A draft workshop statement was prepared along with a summary of the key results (ref. www.danishwaterforum.dk). A few relevant points regarding stakeholder involvement from the note on "Lessons learned and which way forward", which may also be relevant for the discussion of benefit sharing are given below.

Box 1 – Addressing stakeholder involvement in Transboundary Water Cooperation

Ways forward to address the challenge of stakeholder involvement include:

- The *border/distinction between roles of national and transboundary management is complex* and varies from basin to basin.
- Providing a participatory process and facility within a TWC process (and in River Basin Organisations (RBOs)) to allow, facilitate and support stakeholder involvement
- Developing a policy and a strategy in TWC
- Developing an inventory of stakeholders and make a proper analysis of stakeholder interests and agendas
- Creating procedures for stakeholder involvement, based on assumptions that not all stakeholders will come forward spontaneously, and use an appropriate incentives where required; create a space for substantial civil society presence and consultative participation in decision-making fora in RBOs
- Using shared vision modelling of development options to create TWC, using joint interests and shared knowledge
- Reviewing stakeholder involvement experiences, learn from them and incorporate this learning in management
- Improving the understanding of how TWC decision-making operates through different levels, through time and across space [e.g. 'top-down – bottom-up' and horizontal exchanges]. Results need to be incorporated in stakeholder involvement processes.

Key points on TWC and climate change agreed in 2nd Workshop on TWC

The second workshop on Transboundary Water Cooperation was held in December 2008. The workshop highlighted the added requirements from climate changes to transboundary water cooperation, planning and management. A draft workshop statement was prepared along with a summary of the key results (ref. www.danishwaterforum.dk). A few relevant points regarding from the note on "Lessons learned" and "Which way forward" are given below in Box 1 and Box 2.

Box 2 - Key points from 2nd workshop on: Lessons learned and experience on roles, policies and tools related to transboundary water management in the perspective of Climate Change

Lessons on institutional roles related to climate change

- The *border/distinction between roles of national and transboundary management is complex* and varies from basin to basin.
- *Transboundary basin organisations/institutions have an important role in information support to riparian countries* and function as platforms for networking.
- Issues which are best handled at national level include *Disaster Risk Reduction and adaptation* recognising among others, the socio-economic and cultural environment.
- Planning of *responses to Climate Change need to take place both at regional and national level*, while implementation of adaptation/mitigation measures are handled at national/local level.
- The *national institutions should deal with plans and intersectoral issues* in the Climate Change perspective before the agenda is taken forward to the regional level

Lessons on policy development at transboundary level

- Policy *instruments that are common to the riparian nations enhance effectiveness at transboundary basin level* as do formalised guidelines and tools for engagement and exchange of information
- Policy development should *involve stakeholders at local level*. Local government institutions need to be involved as they have mechanisms to feed into national government structures.
- *Participatory, cross-sectoral scenario development and dialogues* are basic to policy development
- *Helsinki and UN Conventions are important background documents*/tools for policy development. Policies on equity and equality in water access and sharing of losses due to Climate Change can flow from these documents.

Lessons on actions and tools for climate change and disaster risk reduction

- *Climate Change models with appropriate resolution* are critically important for policy development but need further development to increase reliability
- *Decision support framework, forecasting, early warning systems and simulation models* support assessment of Climate Change impacts.
- *Seasonal forecasts* are used extensively, but science needs further development before the tool is reliable
- *Vulnerability assessments, flood plain assessments and land use planning* are important both at national and transboundary levels
- *National development plans are important tools* when they are harmonized between the affected riparians
- Actions and tools can only materialize based on *sustainable financial resources*
- *Data gaps often constrain the use of models* and makes results and decisions less reliable

Box 3 - Key points from 2nd workshop discussions on: Way forward on roles, policies and tools related to transboundary water management in the perspective of Climate Change.

Recommendations for development of institutional roles related to Climate Change

- Transboundary institutions can only play their designated roles with *sustainable financing preferably from the riparian states. Compensation/insurance funds needed* to finance mitigation of Climate Change impacts.
- Climate Change impacts with transboundary implications need to be discussed between riparians within a *framework of a transboundary institution with a suitable mandate*. Discussions/negotiations need to be enhanced by *confidence building and capacity development*.
- *Protocols for data sharing need to be developed* to support the transboundary institutions and negotiations in

their quest for mitigation of negative Climate Change impacts

- Transboundary basin organisations/institutions should have an *enabling and empowering* role where there are implications across borders while the riparian states/National River Basin Organisations are *implementing bodies* for adaptation and mitigation

Recommendations on policy instruments to be used by transboundary institutions when addressing climate change

- Policies for addressing *Climate Change impacts need to be built into overall water policies and strategic plans based on a bottom up approach* with a starting point in the riparians' strategies
- *Guidelines for addressing Climate Change impacts and transboundary EIA* procedures should be among the policy instruments in addition to data sharing protocols.
- *Harmonized national legal frameworks* enabling cooperation and sharing of benefits and "disasters".

Recommendations on instruments and tools to be available for transboundary institutions when addressing climate change

- *Integrated Water Resources Management approaches* are essential to address Climate Change
- Agreed *reservoir operation schedules* needed up front
- *Notification procedures* for disaster situations
- Databases and on-line *hydrological information*
- *Decision support, early warning and forecasting systems*

Introduction to benefit sharing

Considering that over 50% of the earth's land area is within shared river basins together with the prospect of a quarter of the world's population being exposed to extreme water scarcity within the next 25 years it is imperative to develop and exchange experience and lessons learnt on different operational approaches to management of water resources in shared basins.

Cooperation across boundaries is a precondition

The first precondition for rational and efficient basin management is cooperation between the riparians. A situation where an upstream country for instance fills up its reservoirs for fear of an impending drought can severely damage the downstream country's economy and availability of water. Similarly, releases of flood flows from an upstream country to avoid smaller damages can potentially lead to a massive disaster for a downstream country. Also water quality is a matter of cooperation. Pollution may seriously impair the potential use downstream and it may often be an economic advantage to treat wastewater at the source, rather than at a downstream river water intake.

Not only surface water is found in shared basins, but groundwater reservoirs are also found to be extending over international borders and cooperation is also needed here to exploit the groundwater in the most appropriate manner.

Logically, water is a resource of the river basin, not a national property

Traditionally, cooperation between riparians has focussed on the sharing of water following a set of agreed rules developed from notions of ownership and property rights. Setting these rules has typically been a subject of protracted dialogues and negotiations as has the question of "who owns the water". One key question that has been featured in many discussions is: "Is water generated as a result of rainfall over a national territory really a nationally owned resource?" Arguably this situation is neither logical, nor

tenable as the national borders are arbitrary. The only logical unit for water resources "ownership" is the river basin no matter which nations have a share in it. From this perspective, water resources do not belong to national units but rather to a river basin.

Within some nations, land ownership and water has been traditionally associated. A landowner also "owns" the water on / under the land. For various reasons such a practice has been abandoned in most cases. So the concept of water resources as a resource to be shared is generally accepted within a nation, but often not accepted in the relations between nations.

Water as a "common pool" resource

In the terminology of economists, water resources in a river basin are a "common pool" resource. This means that the use of the resources by one riparian / individual reduces the benefits (resource) available to others. Water use in a nation in the upstream part of the basin creates external effects in downstream parts. If these are not taken into account (internalised) and the overall benefits reduced, then what looks like an optimal solution in the upstream nation will be a suboptimal solution, when looking at the basin as a whole. The basin maintains hydrologic integrity and allow internalising what is otherwise "external" consequences.

The purpose of this concept paper

Sharing of benefits is one approach which could help avoiding the long and often inclusive discussions on the contentious issue of property rights. The concept is attractive from a generic point of view, but putting it into practice is challenging, especially when dealing with large areas and multiple nations.

This concept paper lists some of the issues involved in the sharing of benefits with the purpose of providing food for thought and giving a background for the discussions on the planned workshop themes of:

- How are benefits (social, economic, environmental, political) measured objectively in a "transboundary water management" context
- Is it relevant also to internalise costs (social, economic, environmental, political) in other parts of the basin in evaluation of benefits
- which principles can be used for sharing and distribution of benefits in a "transboundary water management" context

Issues and concepts in benefit sharing in transboundary basins

The scope of benefits

It is presumed that cooperation within an international river basin is desirable and it is understood that a number of otherwise unattainable benefits will result from cooperation These benefits are described as *benefits to the river* (e.g., improved water quality, environmental protection, etc.), *benefits from the river* (e.g. hydropower, irrigation, etc.), *benefits because of the river* (e.g., reduced risk of conflict, increased food and security, etc.), and *benefits beyond the river* (e.g., integration of markets, benefits of regional trade, etc.).
Benefit sharing views water as a variable flow depending on technological options

Benefit sharing presents an alternative to traditional water management approaches of quantifying absolute amounts of water in a system and focuses instead on the values derived from water uses. Rather than viewing water as a fixed volume allocated in a zero sum exercise, benefit sharing views water as "a variable flow through space and time". Water can be used in a river system multiple times depending on the level of interventions and technical options available. The zero sum exercise can become a positive sum exercise and with the help of technical interventions, the "basket of benefits" is broadened. A key

constraint within benefit sharing is the availability/feasibility of technical options, in addition to the limitations of the quantities and quality of water within a system.

The benefits and the costs

One of the key components of applying the benefit sharing concept in practice is the identification of the potential costs and benefits of cooperation. Potential costs include financial, institutional, social, environmental and political costs and the loss of unilateral opportunities. Examples of benefits could include environmental protection, and flood and drought mitigation. It is also important to consider carefully the question of "who gets the benefits and who bears the cost". If, for instance, the benefit is an upstream net benefit of increased crop production through irrigation and the cost is a decrease in environmental quality downstream, there will be substantial difficulties in negotiating the share of the benefit that will make the downstream riparian interested in cooperating and agreeing to the intervention.

Negotiating the sharing of benefits

Helpful aspects in a benefit sharing situation / negotiation include, amongst others:

- Issue linking, which will expand potential benefits, such as linking a water agreement to favorable trade agreements in other sectors and thus creating trade-off arrangements.
- The desire to keep good neighbourliness can help in oiling the wheels in a benefit sharing negotiation. A country may accept an agreement – even perhaps on less favourable terms – in order to keep good relations. Examples of this are South Africa and Lesotho in the Lesotho Highlands Water Project and Bhutan and India in the Chikha hydropower project.
- Extending the geographical scope of cooperation can, for instance, result in inclusion of areas where an upstream country becomes a downstream country and vice versa. This could for instance apply in the case of Incomati River Basin and Maputo River Basin where Mozambique, South Africa and Swaziland are involved.
- Agreeing on side payments, where financial compensation is paid in return for a concession can ease the negotiations
- Exercising power in cases where a downstream country with an inferior geographical location possess superior economic, military or political power is unfortunately among the realities of international relations

Once the range of potential costs and benefits of cooperation in a specific situation have been articulated, mechanisms for redistributing these costs and benefits can be identified. Mechanisms can include payment for water, payments for power-purchasing agreements and financing and ownership arrangements. The Lesotho Highlands Water Project illustrates benefit sharing in practice through payment for water, purchase agreements for power, and financing arrangements. However, this is a bilateral initiative, so it does not take into consideration potential benefits, or compensation for loss of benefits, for other riparians.

Traditional water resource management paradigm and a new benefit-sharing approach

Below an outline of the differences between the traditional water resource management paradigm and a new benefit-sharing approach is presented.

Table 1: Comparison of the Traditional Paradigm and the Benefit Sharing Approach – modified after A. Turton.

Element	Traditional water resources management paradigm	Benefit sharing paradigm
Perspective on	Water is treated as a finite volume and allocation	Water is treated as a less finite flow with

water	becomes a zero-sum game.	technological capacity becoming a key variable. Sharing becomes a positive sum game.
National sovereignty	Fear of erosion of sovereignty constrains development of agreements.	Sovereignty is not eroded by agreement potentially using a PNA* model.
Institutional architecture	Centralized decision making and hierarchical structure within the context of a negotiated regime.	Decentralized decision-making in a matrix styled structure potentially within the context of a PNA* model.
National security	Water resource management is subsumed to national security concerns, trying to cascade security from the top down.	Human security generates many types of benefits that can be shared, building security from the bottom up.
Scale of optimisation	Sovereign nations within a river basin results in a smaller range of potential solutions.	The level of the hydropolitical complex above nations and basins results in a larger range of potential solutions.
Basket of options	Limited by viewing water as a finite volume with the scale of optimisation being the nation or basin.	Broader, because water is viewed as a less finite flow, with the scale of optimisation being the hydropolitical complex.
Scale and remedy	The potential impact of remedy is limited by the lower scale of optimisation.	The remedies to water constraints are sourced outside of the water sector in a hydropolitical complex.
Data	Sometimes classified, generally not freely shared and usually contested.	Declassified, freely shared, institutionalised and usually uncontested.
Decision making	Centralised and hierarchical designed to protect against the erosion of sovereignty, but always taken against a background of imperfect knowledge and mediated by the prevailing threat perception.	Decentralized with fears of the potential erosion of sovereignty attenuated by a possible PNA* model.
Hydro political dynamics	Zero sum, competitive and unstable with a high potential for conflict.	Positive sum and stable with a growing incentive for cooperation.

Source: Turton, 2008

*PNA Model - "The Parallel National Action (PNA) process differs from harmonization, coordination and co-operation in the sense that, while it involves all of these processes, it goes beyond them in the degree to which it develops continuously expanding integrative behavioural codes of conduct among the participating states and thereby expands the scope and intensity of common activities into an integrative network" Nielsson, 1990: 78)

**Hydropolitical context - the sphere of river basins / nations within which a specific nation has a strategic interest because of the water resources located there.

The dichotomy between optimization and equity

Nations are conglomerates of stakeholders

Optimisation does not include any relation to equity. Outcomes that are optimal in the aggregate are not necessarily equitable. And even if a sharing of benefits is seen as equitable between two or more nations there is still the issue that nations consist of specific groups and individuals. Stakeholders include national and sub-national bodies and entities within these, water users, powerful individuals, NGOs, private sector etc. Each of these parties may have widely differing interests in the transboundary water issues and

benefit sharing and are important for identification of acceptable sharing arrangements and their implementation.

The optimal solution is not necessarily the selected solution

In the final analysis, cooperation seldom depends on the identification of an optimal solution with maximization of gains ('gains for whom?'), but rather on the subjective perception of the various groups and how they play out. It may be true to say that it is not possible to identify the "right solution", but rather an "agreed solution" is sought. From an optimisation point of view, it may, for instance, be more efficient to locate dams in the headwaters of a basin (e.g. Euphrates, Tigris and Nile basins). Against this, no guarantee may exist for the equitable distribution of benefits from such dams, which renders the optimal technical solution questionable in a political sense.

Benefit sharing within national boundaries as a source of inspiration for transboundary benefit sharing[1]

A hydropower dam and benefit sharing with affected people downstream

Many parallel issues are found when comparing benefit sharing within the national borders and transboundary benefit sharing. One typical example is the case of an upstream dam and the interaction with stakeholders downstream. While the primary beneficiaries of dams usually live far away from the dam sites, groups of people in the project-affected area may feel most of the negative impacts of dams. In view of this, dam proponents, operators, and regulators need to also commit to support measures for development and livelihood opportunities for local and regional communities. One way to fulfil this need is to share part of the benefits generated by dam operation with these communities. In addition, in the case of dam-induced forced population displacement, livelihood opportunities are generally considered as being among the most important means required for complementing cash compensation.

Monetary and non-monetary sharing mechanisms

Benefit sharing mechanisms can be either non-monetary or monetary. The former type is generally included in compensation policies and include, for instance, access to irrigated land, employment generated by the project or improved access to markets and services.

Monetary benefit sharing is based on the premise that dam projects generate a significant economic net income that can be shared with project-affected populations. The following types of monetary benefit sharing mechanisms can be considered: a) revenue sharing; b) developments funds; c) equity sharing; d) taxes paid to regional or local authorities; and e) preferential electricity rates or water-related fees.

The net income and thus the sharing of benefits is significantly affected by the financing conditions and the source of financing. In many cases hydropower dams are financed from private sector institutions in return for concessions for power deliveries. It requires a very strict regulatory control to ensure that the concessionaire includes benefit sharing with those affected by the project.

Benefit sharing laid down in legislation – an example from Norway

The Norwegian legislation comprises a variety of benefit sharing mechanisms: revenue sharing, equity sharing, development funds, property taxes, preferential electricity rates. This legislation explicitly recognizes that project affected people, as part of the populations of municipalities in which water

[1] Material summarised from UNEP (2007)

resources are exploited, must receive a share of the project benefits, over and above mitigation and compensation measures that are included in project design.

Mekong Basin - Specifics

Setting:

The Mekong river basin encompasses an area of 787,800 sq km^2 of Southeast Asia and comprises six riparians:

Riparian	Area of country in basin(in km2)	% area of country in basin
Laos, People's Democratic Republic of	198,000	25.14
Thailand	193,900	24.62
China	171,700	21.79
Cambodia (Kampuchea)	158,400	20.10
Vietnam	38,200	4.84
Myanmar (Burma)	27,600	3.51

Water resources management of the Mekong river basin occurs under the Mekong River Commission (MRC), established in 1995. The Mekong River Commission Secretariat is based in Vientiane, Lao PDR. The MRC was built on a foundation of nearly 50 years of knowledge and experience in the region starting in 1957 when it began as the UN-founded Mekong Committee. It incorporates four countries of the lower Mekong Basin – Cambodia, Lao PDR, Thailand and Vietnam, as equal partners. The MRC consists of three permanent bodies: A Ministerial Council, a Joint Committee, and a Secretariat. National Mekong Committees act as focal points in each of the member-countries. China and Myanmar both occupy the upper Mekong basin and are currently observers and dialogue partners relative to the Commission.

SADC Protocol Countries/Zambezi River Basin

Setting:

The Zambezi basin of Central eastern Africa encompasses an area of 1,385,300 sq km^2 and comprises nine riparians:

Riparian [all are SADC members]	Area of country in basin(in km2)	% area of country in basin
Zambia	576,900	41.64
Angola	254,600	18.38
Zimbabwe	215,500	15.55
Mozambique	163,500	11.81
Malawi	110,400	7.97
Tanzania, United Republic of	27,200	1.97
Botswana	18,900	1.37
Namibia	17,200	1.24
Congo, Democratic Republic of (Kinshasa)	1,100	0.08

Water resources management of the Zambezi river basin occurs broadly under the provisions of the Southern African Development Community (SADC) Water Protocol on Shared Water Course Systems (1995), ratified in 1998. This protocol, and the Revised Protocol of 2003, has an overall objective *to foster closer collaboration for judicious, sustainable and coordinated management, protection and utilisation of shared watercourses and advance the SADC agenda on regional integration and poverty alleviation*.

SADC is a regional economic community structured by a 1992 Treaty for economic development and poverty reduction. SADC member countries include all Zambezi basin countries listed above, plus Lesotho, Madagascar, Mauritius, South Africa, Swaziland and the United Republic of Tanzania. SADC is headquartered in Harare, Zimbabwe.

SADC established a Regional Strategic Plan (RSAP) for Integrated Water Resources Management in SADC Countries in 1998. The RSAP reviewed the role of water in the regional development agenda and proposed a wide-ranging strategic programme of projects to carry this forward. One of those projects included an implementation programme for the SADC Protocol.

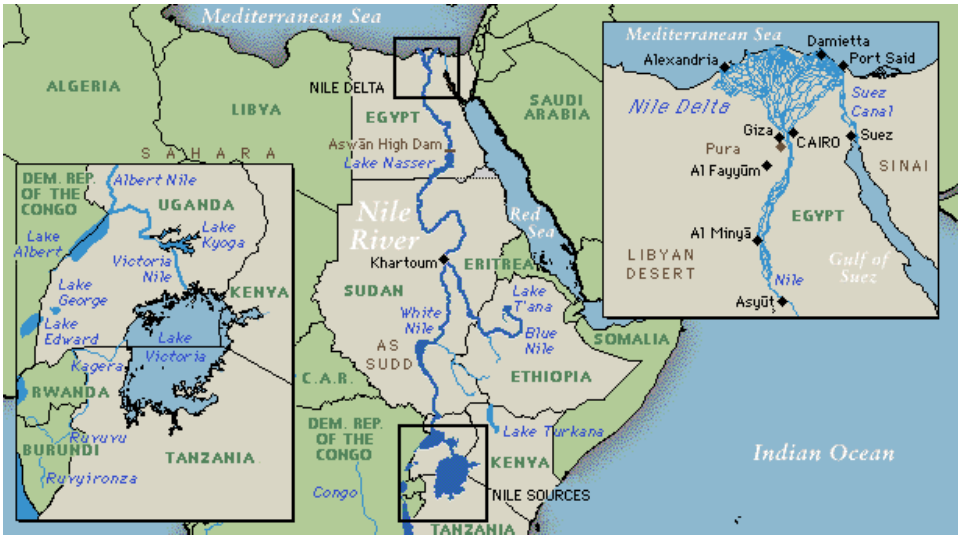
ZAMCOM, a river basin authority for the Zambezi basin, has been set up in 2004 and is under development following the principles of the SADC Protocol. It was signed by the nations in the basin, except Zambia which still consults with its stakeholders.

Nile Basin

Setting:

The Nile basin of north-eastern and central Africa encompasses an area of 3,031,700 sq km^2 and comprises thirteen riparians:

Riparian	Area of country in basin(in km^2)	% area of country in basin
Sudan	1,927,300	63.57
Ethiopia	356,000	11.74
Egypt	272,600	8.99
Uganda	238,500	7.87
Tanzania, United Republic of	120,200	3.96
Kenya	50,900	1.68
Congo, Democratic Republic of (Kinshasa)	21,400	0.71
Rwanda	20,700	0.68
Burundi	12,900	0.43
Egypt, administered by Sudan	4,400	0.15
Eritrea	3,500	0.12
Sudan, administered by Egypt	2,000	0.07
Central African Republic	1,200	0.04



Water resources of the Nile river basin are not managed by a transboundary organization. There is a Nile Basin Initiative (NBI), established in 1999, which is a transitional mechanism that includes nine Nile

riparians as equal members in a regional partnership to promote economic development and fight poverty throughout the basin. Member countries include: Burundi, Democratic Republic of Congo, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda. The vision of the NBI is to achieve sustainable socio-economic development through the equitable utilization of, and benefit from, Nile Basin water resources.

The Nile-COM (Council of Ministers) serves as the highest decision-making body of the NBI. The Nile-COM is supported by Nile-TAC, (technical advisory committee) which is composed of two senior officials from each member country. The NBI maintains a secretariat, the Nile-SEC, located in Entebbe, Uganda.

The NBI includes firstly a Strategic Action Program consisting of two complementary sub-programs: firstly, a Shared Vision Program - Building a Foundation for Cooperative Action addressing issues related to environmental management, power, trade, efficient water use for agriculture, water resources planning and management, confidence-building, stakeholder involvement, applied training, socio-economic development and benefit-sharing. Secondly, Subsidiary Action Programs in the Eastern Nile region (Egypt, Sudan and Ethiopia) and the Nile Equatorial Lakes Region have been established and include the six countries in the southern portion of the Basin.

Further Reading

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Material from documents with titles in **bold** is used extensively in this Concept Paper.