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Nile Cooperation: Opportunities & Challenges

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Document Sheet

This Technical Report series publishes results of work that has been commissioned by the member states through the three NBI Centers (Secretariat based in Entebbe- Uganda, the Eastern Nile Technical Regional Office based in Addis Ababa - Ethiopia and the Nile Equatorial Lakes Subsidiary Action Program Coordination Unit based in Kigali - Rwanda. The content there-in has been reviewed and validated by the Member States through the Technical Advisory Committee and/or regional expert working groups appointed by the respective Technical Advisory Committees.

The purpose of the technical report series is to support informed stakeholder dialogue and decision making in order to achieve sustainable socio-economic development through equitable utilization of, and benefit from, the shared Nile Basin water resources.

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Authors	Dr. Ana Elisa Cascão
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Contents

Introduction

This ***"Nile Cooperation: Opportunities and Challenges"*** is the first of two Flagship Papers that constitute institutional products of the Nile Basin Initiative (NBI). It is written by an independent consultant in close collaboration with the NBI-NCORE Team and aims at making a case for transboundary cooperation and the role of the NBI in harnessing the opportunities and addressing the challenges, by catalyzing regional integration processes, identifying and promoting joint investments, and promoting win-win solutions.

The Paper provides an overview of the Nile Basin, including hydrological, social, economic, geopolitical, environmental, developmental and historical contexts. In addition, it examines and discusses salient socio-economic and environmental opportunities within the basin that can help meeting the development aspirations of basin citizens. It looks at the implications for Nile cooperation of key trade-offs that countries need to consider and the risks they might face as a result of non-cooperation. The Paper also addresses appropriate management and mitigation measures that can help optimize the use of the shared water resources and it considers how the future might unfold given all the changes that are happening in the Nile Basin, and what might be done to reinforce the need to coordinate development activities.

The Flagship Paper is the outcome of extensive review of NBI documents and wide consultations with key stakeholders in the Nile Basin. The consultations included national stakeholders (current and former Nile-TAC Members, advisors and negotiators, technical experts, private consultants, civil society), experts from NBI institutions (current and former staff NBI Secretariat and ENTRO), and Nile development partners.

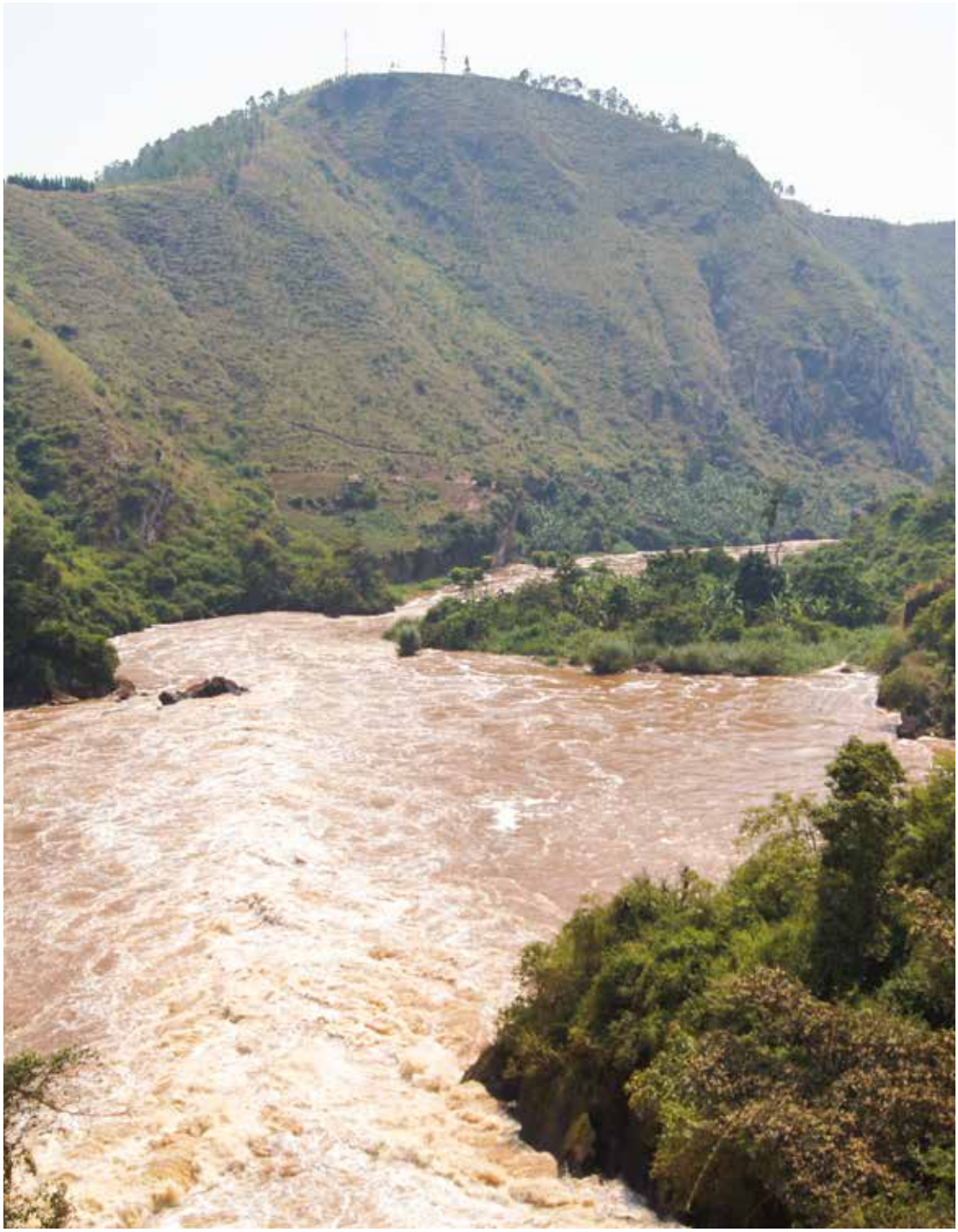
Major consultations were held during a workshop in Addis Ababa – Ethiopia on the 20th of May, 2014, with the goal of getting critical input for the two NBI Flagship Papers. At that initial phase, the consultation focused mainly on "Problem Analysis", specification of the contents of the two papers and their key perspectives, messages and arguments, and their relevance and prioritisation. The outline of this Paper is a direct outcome of deliberations during the workshop and posterior consultations with other stakeholders. The second and third workshops were held on the 18th and 19th of August, 2014 in Entebbe – Uganda and Dar es Salaam – Tanzania, respectively. They were tailored to build on the 'zero draft' of the Flagship Paper and get critical feedback and a broad discussion about the main messages to be conveyed by the papers. Based on those constructive discussions, the consultants revised the papers and submitted them to the NBI Secretariat and Nile-TAC member for a detailed and in-depth review process towards finalization.

Snapshot of The Flagship Paper

The Nile is a complex river system in hydrological, environmental and climatic terms, crossing the borders of eleven different countries with very different social, cultural and economic realities. Sharing water resources between so many countries (and their growing populations and their demands) is a challenge in itself, but the geopolitical and hydropolitical realities in the Basin turn it even more complex. During the 20th century, the development and utilisation of the water resources has increased substantially, particularly during the British colonial period. It was during that period that knowledge on the complex hydrology of the Basin and its different catchments increased substantially and advanced technology allowed infrastructure development such as building of barrages, dams and their reservoirs to support the expansion of irrigated agriculture in downstream countries (Egypt and Sudan). Those developments were supported by legal agreements (1929 and 1959 Nile Water Agreements) that aimed at framing the regulation and allocation of the Nile waters. This was more than a century ago, but has set the stage for the future hydropolitical relations in the Nile that until the beginning of the 1990s were characterised by hydro-diplomatic conflicts and failed attempts to establish all inclusive multilateral cooperation.

The situation has changed substantially as Nile Basin countries opted for multilateral cooperation and agreed to establish the NBI in 1999. This Paper looks at the main development challenges that were, and continue to be, faced by the Basin and its countries (Sections 1 and 2). On the one hand, a large part of the Paper is dedicated to analysis of the ***Opportunities*** for regional cooperation – identifying the salient opportunities and which among them were already captured by the NBI and what could be enhanced to increase transboundary opportunities and translate them into tangible benefits in the near future (Section 3). The Paper focus on seven Opportunities: 1. Knowledge Management for better decision-making processes; 2. Socio-economic and ecosystem benefits of joint watershed and river basin management; 3. Collective Action for Climate Change; 4. Unlocking the potential for regional energy security; 5. Harnessing Agricultural Regional Opportunities; 6. Mobilising investment in a fast-growing region; and, 7. Expanding the Cooperation Platform.

On the other hand, the Paper seeks to identify and analyse the ***Challenges*** that impede the implementation capacity of the NBI/C and the countries to work together to ensure the sustainability of the gains and products of their cooperation (Section 4). The main challenges identified are: high expectations, understanding of conceptualisation of benefits, legal and institutional challenges which also include financial sustainability issues, and



finally the political challenges. Last but not the least, the Paper advocates that understanding the risks of non-cooperation (or limited/fragile cooperation) is very important, in particular in the current period, so that risks can be mitigated and Nile riparian countries can re-assess the uttermost importance of transboundary cooperation for the Nile Basin (Section 5).

This paper advocates that the long-term sustainability of the transboundary cooperation process involves several layers, including the establishment of a permanent river basin commission to replace the current transitional cooperative mechanism of the NBI, the continuous hard work to increase political commitment from countries to a shared vision for the development of the Nile waters, and the mobilisation of additional financial resources to finance the implementation of regional projects and increase country-ownership of the cooperation process.

1. Main Development Challenges

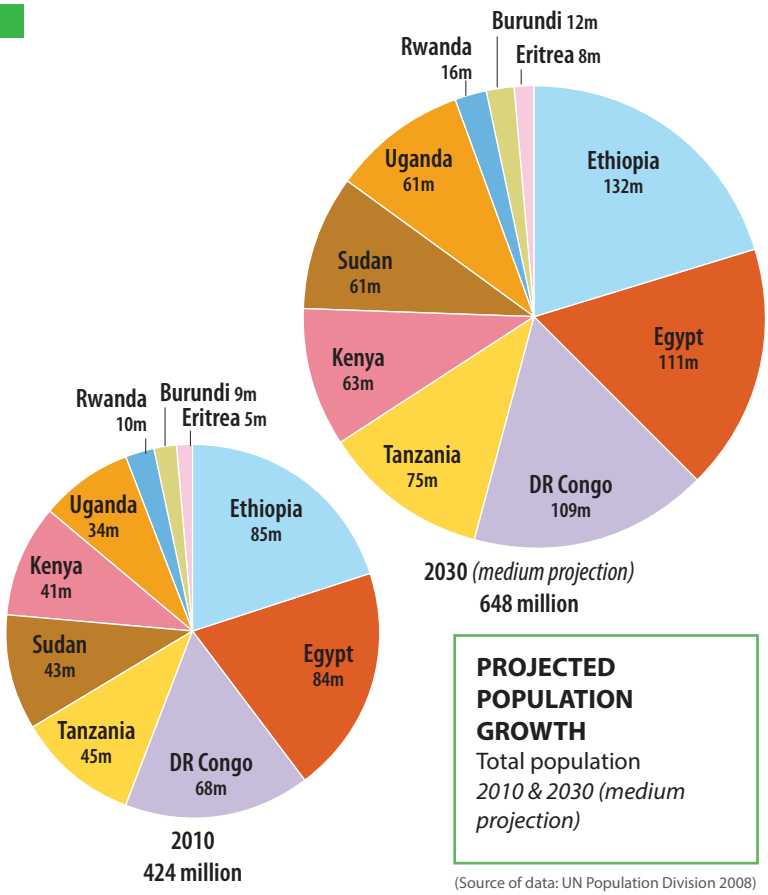
This first section identifies the main bio-physical, social and environmental challenges faced by the Nile Basin countries that have an impact on the economic development of the national political economies and the livelihoods of millions of people that live in the region. Challenges of more economic, legal or political nature are discussed in Section 2. The Nile countries currently have a combined population of 437 million and more than half of these populations live along the Nile River and its tributaries and have their livelihoods dependent on the water availability. Continuous population growth, changing social dynamics and generalized poverty put increasing pressure over the quantity and quality of the water resources available. Additional challenges in terms of availability and management of the Nile water and land resources come from the fact that rainfall and evapotranspiration levels are uneven, increasing the vulnerability of the populations and in particular those that are already the most affected such as the poor and rural sectors of population. Occurrence of climatic environmental degradation, extreme events and the threats of future climate change are additional challenges that point out for the urgent need of collective action in the Basin, in order to jointly tackle the serious social and environmental issues experienced by all countries, while working on strategies to improve regional economic development.

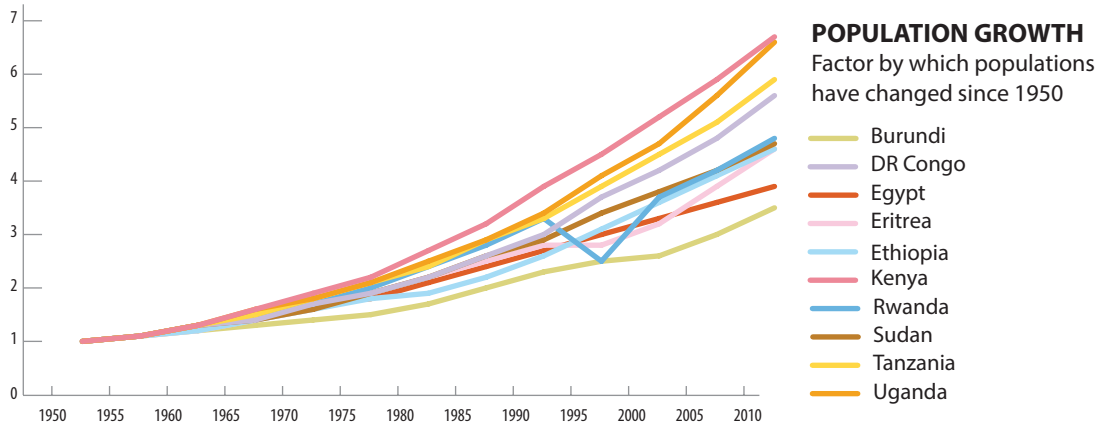
POPULATION GROWTH. The Nile countries have a combined population of 437 million that has been growing exponentially in all the Nile countries for the past decades. Since the 1950s, the populations of the Nile countries have been increasing, although at varying rates, in all the Nile countries without exception. And the population in the region will keep rising rapidly in the 21st century, in particular in upstream countries like Ethiopia, Uganda and Tanzania in particular (see Figure 1[1]). In 2030 it is expected that the total population in the 11 countries will be around 648 million – an increase of 53 per cent over the population in 2010, according to the State of the Nile River Basin.

Current and future population growth represent both opportunities and challenges. The rising population increases availability of labour for economic production, and ensures a large market for food produce, manufactured goods, and services. But the rising population also increases degradation of natural resources, puts pressure on economic infrastructure (transport, education, health, water, and power and telecommunication facilities), increases food security concerns, and leads to rural–urban migration, with the attendant problems of rapid urbanisation.

[1]*Source of diagrams: State of the River Nile Basin (page 113)*

Figure 1



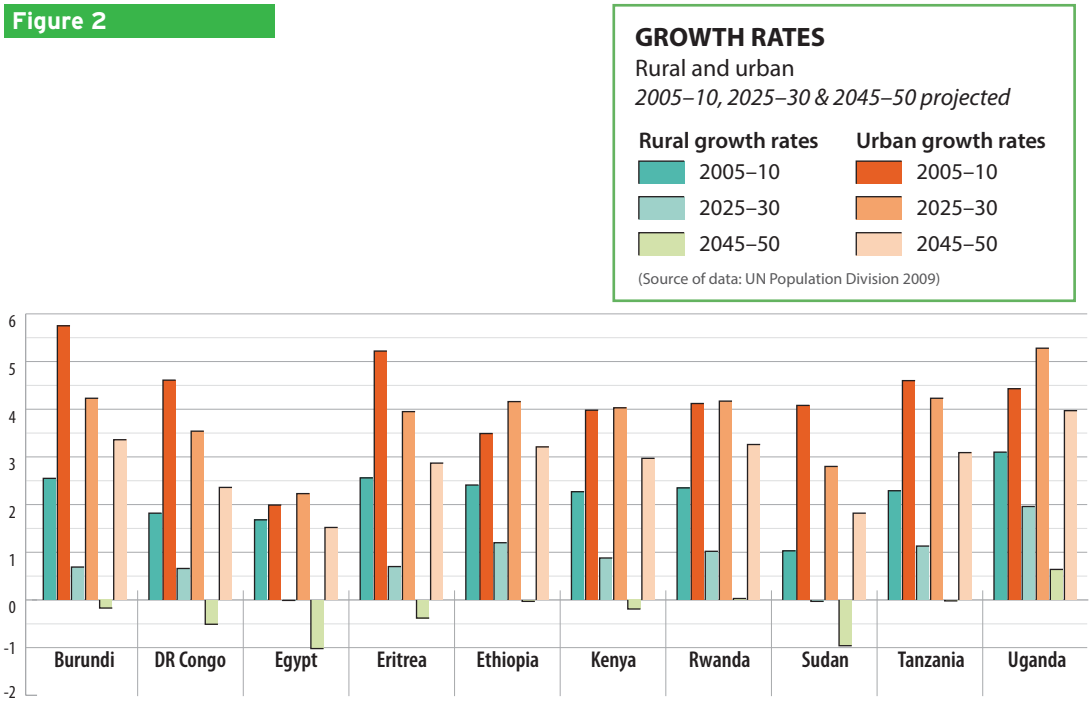


Considering that the factors that enabled a large population to make a positive contribution to economic development are not well established in most of the Nile countries, the challenges posed by the rising population far outweigh its benefits, and threaten to prevent these countries from becoming middle-income economies.

SPATIAL DISTRIBUTION, MIGRATIONS AND URBANISATION. Population growth is not the only factor of concern for national and regional political economies in the Nile Basin. Distribution of the population within and between the countries is another concern. It is estimated that, as is currently the case, slightly over 50 per cent of the population in 2030 will be living in the Nile Basin region, increasing even more the pressure over water, land and environmental resources. Pressures will come both from the high levels of population concentration in rural areas, as increasing social changes towards urbanisation (see Figure 2)[2]. On the one hand, about 72 per cent of the basin population resides in rural areas. The dominance of rural populations

[2]*Source of diagrams: State of the River Nile Basin (page 105)*

Figure 2



is predicted to persist to 2030 and beyond in most Nile countries, according to the NBI State of the River Nile Basin. Main challenges associated with it as the continuation of current challenges: livelihoods vulnerable to climate variability, dependence on subsistence agriculture, higher incidences of poverty, which will contribute to increase rural-urban migrations. On the other hand, high rates of migration and urbanisation will also represent a challenge in terms of water/land management: higher living standards will lead to increasing demands for food and energy, and more infrastructure will be needed to be produce, transport and trade all those commodities. Rapid rates of urbanisation are likely to be translated in escalating social pressure over governments to deliver.

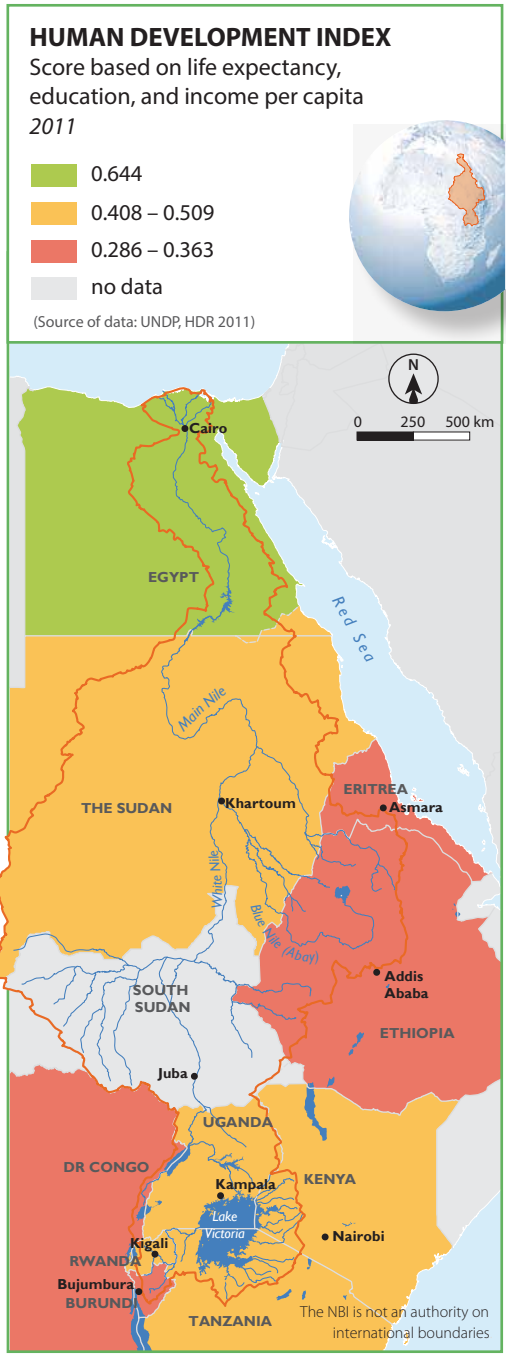
POVERTY. Despite the good progress that many of the Nile countries have been experiencing in last couple of years in terms of economic growth and rates of investment in their economies, the fact is that most of the countries still rank very low in terms of Human Development Index (see Figure 3)[3]. 10 of the 11 Nile countries fall in the 'low human development' category, with eight ranked in the bottom 25. Egypt falls in the 'medium human development' group. According to the statistics, Egypt provide reasonable services and quality of life to its citizens, but a close analysis of other indicators would also show Egypt still faces several poverty-related problems. Among other issues, poverty in the Nile Basin region is related to the economic profiles of the countries (see Figure 4)[4].

Majority of the economies of the Nile Basin countries is over-dependent on the agriculture sector, in terms of GDP and employment of population. Agriculture is mainly of subsistence level, with very low levels of productivity. Only some of the crops produced are for exportation (like coffee, tea, flowers, etc.). Diversification of economies towards services and industrialisation is still very limited, with exception of Egypt. Lack of infrastructure remains a major obstacle for the transition from agriculture-based economies towards more diversified economies that could use water and land resources in a more integrated manner. Investment in the agriculture and energy sectors, as discussed in Section 4 on, is indeed expected to contribute to this diversification.

NATURAL VARIABILITY. The Nile Basin is characterised by high climatic diversity and variability, a low percentage of rainfall reaching the main river, and an uneven distribution of its water resources. Potential evaporation rates in the Nile region are high, making the basin particularly vulnerable to drought events. White Nile flows only contribute up to 15 % of the annual Nile

[3]*Source of diagram: State of the River Nile Basin (page 108)*
[4]*Source of diagram (next page): State of the River Nile Basin (page 109)*

Figure 3

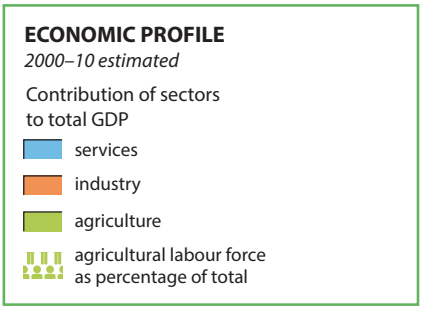


discharge, but are fairly stable throughout the year. The Eastern Nile region supplies around 85% of annual Nile flows, but its contribution is highly seasonal.

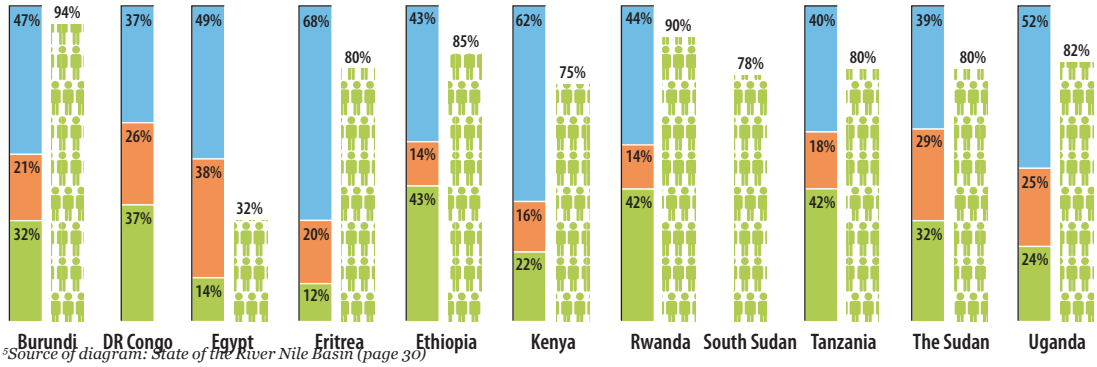
Rainfall over the basin is characterised by highly uneven seasonal and spatial distribution (see Figure 5)[5]. Most of the basin experiences only one rainy season – typically in the summer months. Only the equatorial zone has two distinct rainy periods. The reliability and volume of precipitation generally declines moving northwards, with the arid regions in Egypt and the northern region of Sudan receiving insignificant annual rainfall. The spatial variability of rainfall is clearly illustrated by the pattern of vegetation and distribution of surface water bodies in the basin. Large parts of the Nile watershed do not generate runoff. In fact, the main runoff producing areas are limited to the Ethiopian Highlands and the Equatorial Lakes Plateau, with some contribution from western South Sudan. The relatively small size of the runoff producing area is central to explaining the very low runoff coefficient of the Nile (3.9%).

Across the Nile region, actual and potential evapotranspiration also vary markedly. The arid lands in Sudan and Egypt have higher potential evapotranspiration rates than the humid headwater regions of the

Figure 4



(Source of data: CIA Fact Book; Government of Southern Sudan (GOSS) 2010)



[5] *Source of diagram: State of the River Nile Basin (page 30)*

Figure 5

(Map prepared by the NBI; source of data: Climatic Research Unit)

Nile. However, they have much lower actual evapotranspiration rates because there is little available water and vegetation. Total annual evapotranspiration is highest in the Lake Victoria sub-basin, estimated at about 307 BCM, followed by the Blue Nile sub-basin (264 BCM) and the Sudd sub-basin estimated at 260 BCM. The Main Nile sub-basin downstream of Khartoum has the lowest evapotranspiration rates estimated at 7 BCM per year (all figures according to NBI State of the River Nile Basin).

The natural variability in terms of rainfall and evapotranspiration represents a large challenge for the most of the populations of most of the Nile countries, in particular the rural and poor sectors of societies which livelihoods depends on subsistence agriculture practices. This is particularly the case in the upstream countries where most of the agriculture is rainfed, and as such extremely dependent on the annual variations of rainfall levels. This is a challenge for the populations affected and for the national governments that need to deal with periodic food crisis can affect several regions of the country. Ethiopia, Kenya and Uganda, for example, have experienced this same problem repeated times in the last two decades. Part of the challenge is related to the lack of water infrastructure, namely storage facilities, that could assist national and local authorities to prevent or mitigate that negative impacts of the natural variability. At the other end of spectrum, the downstream basin states that experience low levels of rainfall are much more dependent on the river runoff, in particular for the development and maintenance of its irrigated agriculture, and as such very much concerned that infrastructures downstream could have negative impacts in the water flows. But this challenge – that is both bio-physical and political – can be transformed in an opportunity if better knowledge (jointly generated) about the resource-base and optimisation of water resources utilisation will become the basis of the decision-making process. This is one of the Opportunities for cooperation discussed in Section 3.

ENVIRONMENTAL DEGRADATION. Natural resources of the Nile Basin are under increasing pressure from a multiplicity of sources, mainly agriculture, livestock, invasive species, bushfires, mining, urbanisation, climate change, and natural disasters. Despite their great importance, the environmental resources of the basin are under increasing pressure from a combination of both natural and man-made factors. Agricultural and grazing lands are being degraded; water quality is declining; wetlands and forests are being lost; natural resource are being exploited at rates beyond their natural recovery rates; pollution from urban, industrial, and agricultural sources is increasing; waterborne diseases are spreading; and the harmful impacts of floods and droughts are intensifying . Many of these threats have a direct impact on human health and welfare, while others undermine people‘s ability to secure their livelihoods, with poorer people being most affected. The root causes of the rapid degradation of the basin’s environmental resources are population growth, poverty, civil insecurity, and weak policy, legal, and institutional frameworks in the Nile riparian countries.

Watershed and river basin management are important first steps to address the issue of environmental degradation. In Section 3,we discuss how this challenge can be transformed into an opportunity, what is already being done in a cooperative and jointly manner, and how can this cooperation advance in the future in order to prevent and mitigate negative impacts of environmental degradation, or even restoration of the ecosystems.

EXTREME EVENTS AND CLIMATE CHANGE. The Nile Basin is characterised by climatic variability, with marked fluctuations in rainfall and its time and spatial distribution. Since immemorial times, the Eastern regions of the Nile basin were known to have extreme events of successive years of heavy rains and floods or successive years of rain failures and consequent drought and famine crises. The crisis of the mid-1980s and beginning of the 1990s were a wakeup call for Sudan (and Egypt) to the need to collaborate with the upstream neighbour, in order to minimise the negative impacts of long periods of droughts in the Ethiopian highlands. The upstream Equatorial Lakes region also experience periodic floods and localized droughts. In fact, the high floods of the 1960s in the Lake Victoria region led to the first systematic cooperative institutions among some Nile Basin countries under Hydromet (for more information about previous cooperative initiatives, see Flagship Paper 2).

The extreme events characterising parts of the basin have many adverse implications for human security as well as the economies.

Excessive floods threaten human lives, their livelihoods and property. In countries like Sudan where floods are most pronounced, in addition to loss of lives it is estimated that the economic cost during high floods put an excessive burden not only on population, but as well local and national governments, also increasing dependence on external aid. In the past five years, countries like South Sudan and Sudan suffered extremely high flood seasons, but countries like Uganda also experience landslides with extreme impacts on riverian populations. Rain failure is another extreme event that can lead to widespread drought, food insecurity and even famines. Though Ethiopia is taking measures to avert occurrence of widespread famine as in the 1980s, localized famines may still occur. Fluctuations in the levels of Lake Victoria is another manifestation of the extreme events. The low levels of 2003-2004 were a source of open controversy among the three countries (Kenya, Tanzania and Uganda) with mutual accusations regarding responsibility. But a longer term perspective corroborate that the fluctuations are historical.

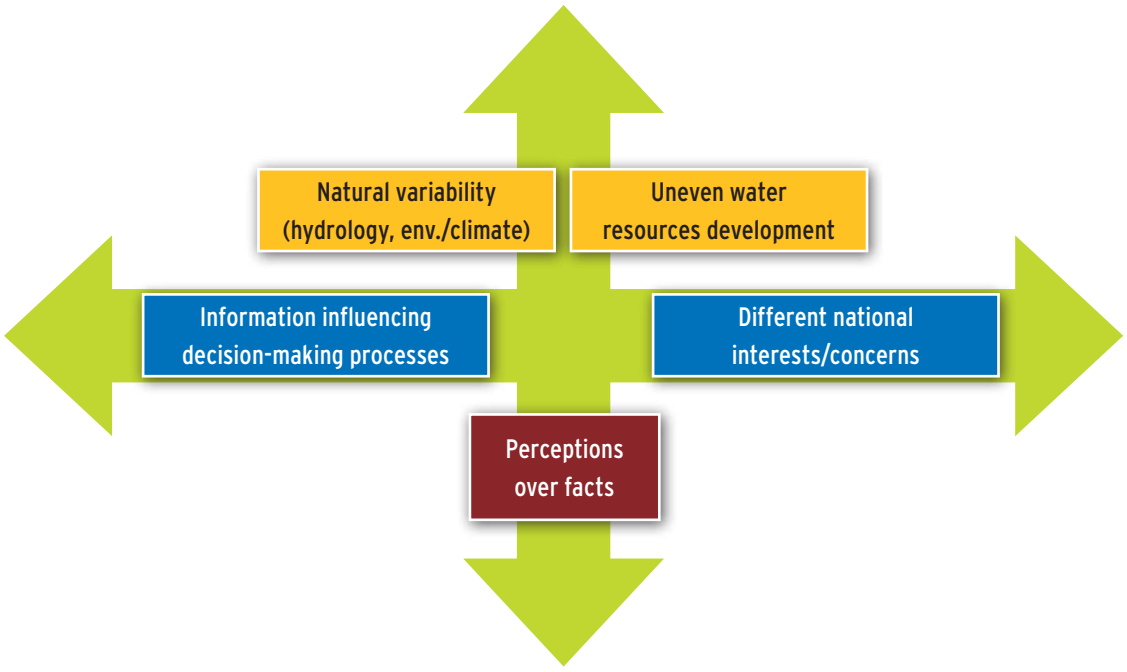
Countries exert efforts to address issues of extreme floods, but national action proves futile where effective action is required beyond the national borders. For example in the case of floods in the Sudan, it is where mitigation measures can only be addressed in a successful manner in Ethiopia. It is thus anticipated that the destructive excessive floods of the Abbay/Blue Nile would be mitigated by the controlled flow from Ethiopian water infrastructure. In 2013, Ethiopia was reported to have reduced flows from its Tekeze Dam (effectively reducing hydro-power generation capacity) in order to reduce flood levels on the Atbara in Sudan. Cooperation among countries through information sharing is also relevant for purposes of early warning and preparedness.

The increased frequency of extreme events is taken as indication of the global climatic change process not just the historical climatic variability specific to the region. The occurrence of climate change in the Nile Basin region is not in doubt, despite considerable uncertaininty regarding the direction and magintude of its impact on preciptation, run-off, river flow and related parameters. Nevertheless, there is broad agreement that climate change may increase the vulnerability of countries, in particular when looking at the projected changes in precipitation. Collective action to deal with climate variability and climate change threats is an obvious Opportunity for transboundary and regional cooperation, as it will discussed in detail in section 3 of this Paper.

2. Political Economy Complexities

THE NILE IS A BASIN OF A CONTRAST AND COMPLEXITY. Both are givens in the world's longest river shared by 11 states with a combined population of more than 300 million. Complexity, however, should not be viewed as something necessarily negative as it can also posit potential opportunities, as well as challenge, given the variegated nature of environments, economies and peoples. Transboundary water cooperation plays an important role in addressing aspects of complexity and in translating complex interrelationships into substantial shared benefits. Multilateral cooperation can also minimise the challenges and risks that complexity throws up. This section summarizes the main complexities (as a 'problem analysis') and related main messages. These were identified by the Nile stakeholders consulted in Addis Ababa, Entebbe and Dar as Salaam. The diagram below summarises what stakeholders consider to be the five main (and interrelated) Nile Basin complexities that have influenced the direction and progress of transboundary cooperation.

NATURAL VARIABILITY. High levels of variability in terms of hydrology, environment



and climate comprise the biggest challenge in the Nile river basin as they affect all Nile Basin States and their populations. The overview presented in the previous section highlighted aspects of variability. In environmental terms, the system is very dynamic and complex – different agroecological-regions, soil types, levels of degradation and erosion, population density and vegetation cover. Climate types vary from region-to-region within the Nile Basin – from tropical equatorial areas to arid and semi-arid lands. Natural variability is a given, and indeed it is one of the defining features of the Nile River Basin. The basin also has an extensive record of climate extremes, both floods and droughts, which means that identifying and agreeing what is 'normal' can be difficult. This 'natural' complexity cannot be managed at country level alone, but rather needs management at scale through a regional system which is capable of minimizing negative impacts and promoting optimal utilization and management of the shared water resources. This can be considered to be not only a challenge, but one of the challenges that can be transformed into an opportunity for regional cooperation (see Section 3).

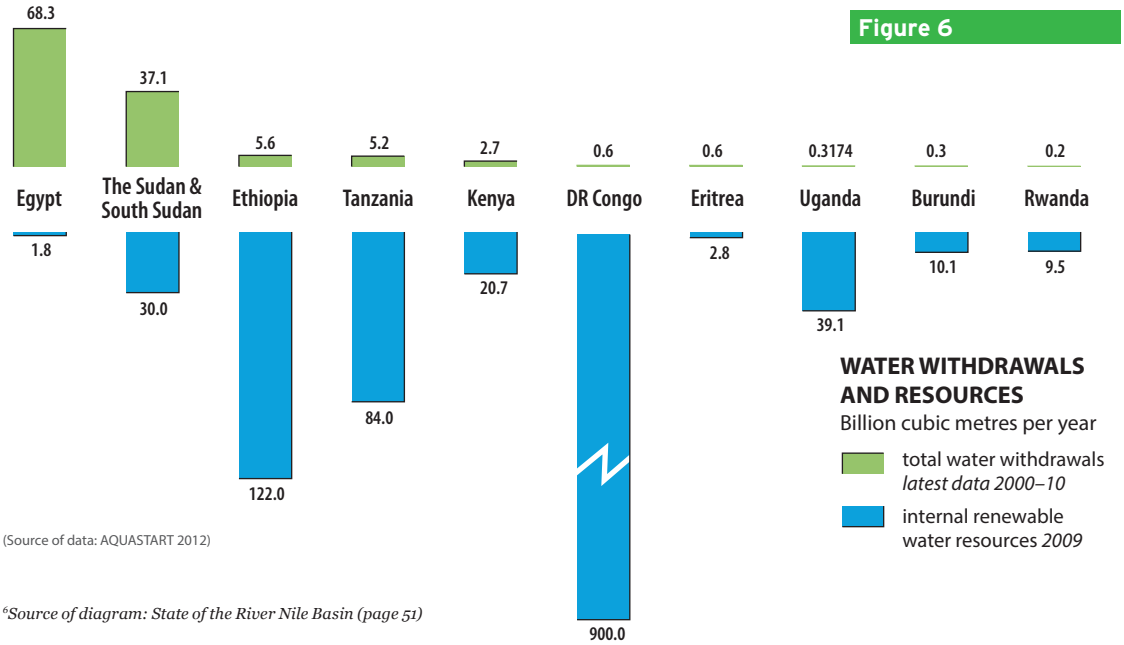
UNEVEN WATER RESOURCES UTILISATION AND DEVELOPMENT.

Uneven development of the river's shared waters is a reality. Figure 6[6] shows the asymmetry between water availability in the different Nile countries and levels of total water withdrawal. It clearly indicates that Egypt and Sudan, the two downstream countries, are currently the only two countries to have systematically utilised and developed the common water resources. Individual Nile basin states have widely varying capacity to manage and control water resources within their boundaries, whether for agricultural or energy production, though this is an area of rapid change. Such variation impacts the output and optimization of water use for agriculture and energy purposes, and resulting levels of current and potential socio-economic development. Much of this difference in capacity is attributable to varying levels of infrastructure development, storage capacity, energy production/access, and irrigation/ agricultural development. Multilateral cooperation can contribute to levelling the development 'playing field' between Nile riparian countries, through identifying and supporting implementation of water-related infrastructure that delivers both national and regional benefits.

DIFFERENT NATIONAL INTERESTS.

Countries have different national interests in the Nile waters, as well as different concerns in terms of development, utilisation and management for different sectors of national political economies. The developmental needs and priorities of the individual countries are not identical and certainly require different, needs-specific solutions. There are innumerable instances of such divergence. In some countries, for example, environmental degradation including topsoil erosion is a massive national problem (e.g. Ethiopia and Rwanda), while in others it is desert encroachment that posits challenges to farmers (Egypt and Sudan). Addressing low productivity in rainfed agriculture is a priority

Figure 6



(Source of data: AQUASTART 2012)

[6]*Source of diagram: State of the River Nile Basin (page 51)*

in many NB countries, with an explicit focus on seeking to enhance food security. At the mouth of the river in the Egyptian delta water quality issues and intrusion of sea water are a prime concern for Egypt.

The interests of the different countries can be divergent and often seem conflicting. Nevertheless, conflict may be apparent rather than a reality, particularly when divergent water uses are in fact compatible. For example, the same quantity of water may be used for non-consumptive hydropower generation, fish production, and navigation as well as for drinking and irrigation. The core issue is how to effectively manage multiple demands on the resources by involving the right stakeholders and coordinating flows in such a way that it does not undermine the interests of any key constituency of users.

Divergent interests in the historical agreements on the Nile (the colonial 1929 and the bilateral 1959 between Egypt and Sudan) are prime drivers in current hydro-political complexity on the Nile. The disagreement among countries over the CFA, signed in 2010, has generated two camps: one upstream and one downstream, with Egypt and Sudan freezing participation in NBI projects and activities. This was part of the wider 'flux' within the Nile and Sudan subsequently resumed participation in 2012. Currently it is exerting effort at trying to encourage Egypt to return to the NBI fold. Indeed, although sharing mutual interests under the 1959 Agreement, Sudan has not felt impeded in seeking to cooperate with Ethiopia over the Grand Ethiopian Renaissance Dam.

Divergent interests can thus be accommodated with detailed plans on benefit-sharing serving to support projects that maximize benefits and minimise impacts and costs. A multipurpose multi-country project may address the divergent needs of countries with different benefits accruing to each interest, even though such divergence is commonly viewed as the key driver of hydropolitical complexity (and therefore cooperation challenges) in the basin. In the case of the NBI, the adoption of the Guiding Principles on Benefit-sharing, emphasised win-win projects and no significant harm in the preparation and implementation of investment projects on the ground.

INFORMATION. Availability, production and dissemination of consensual information (facts and figures) about the status, utilization and potential of the Nile water resources in the basin are major issues in the region. Having in mind that information is key to decision-making processes, both nationally and regionally, its asymmetric availability and use increases levels of complexity in managing and developing water resources management in the Nile Basin. The multilateral cooperation process can bring countries together to reach consensus and quality assurance in developing information tools and mechanisms to guide decision-making processes at regional level. Cooperation also contributes to increasing the uptake of information by decision-makers at a national level where most of water-related decision are taken.

PERCEPTIONS OVER FACTS. One of the major complexities in the Nile Basin is that perceptions often overshadow facts. This is a socio-political complexity that can affect relations between countries at bilateral and multilateral levels. Negative or erroneous perceptions about neighbouring countries and their behaviour, ambitions, and plans have not only impacted negatively the water-related decision-making processes at national level, but also constrained attempts to move forward with transboundary cooperation approaches and agendas. Any transboundary cooperation process in the Nile Basin to be effective must tackle the delicate issue of long-lasting 'enmity and competition' perceptions, and this can only be achieved through the promotion and endorsement (by the countries) of revitalized paradigms of 'regional cooperation and integration' – establishing the viability and necessity of regionalism as a mode of thought.

MAIN DEVELOPMENT CHALLENGES AND THE ROLE OF WATER. Indicators show that most of the Nile Basin States face several socio-economic development challenges, many of which are reflected in national development policies and plans. Water plays a key role in sectors that underpin economic growth in many countries including agriculture, energy, fisheries and tourism. It is not expected that national development agendas will be replaced purely by a regional one, but stakeholders recognise that addressing development from a regional perspective can assist in strengthening national development, including reaching key goals and targets. The essence of collective action is that benefits achievable through cooperation go far beyond benefits achievable alone.

All Nile countries to a greater or lesser

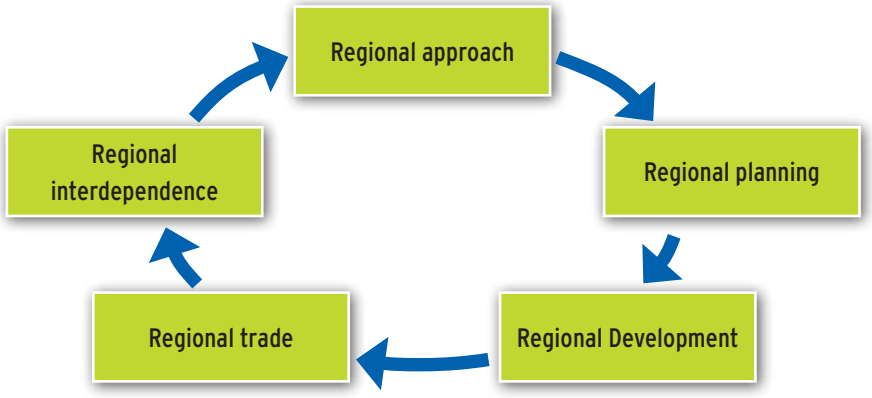
extent face similar development challenges such as food insecurity, energy insecurity, environmental degradation and the negative impacts on livelihoods of natural disasters. The underlying factors in current development challenges are multiple from economic and environmental to social, political and historical. Nevertheless, there is a general consensus that lack of infrastructure, that would allow countries to tap unexplored potential, is of particular importance and as such, planning and development of infrastructure is key. This ranges from new roads, ports, airports, industrial sites and power transmission lines to hydraulic infrastructure including dams and watershed management to augment 'natural' capital infrastructure.

Development of hydraulic infrastructure is key for national development of the countries in the Nile Basin. Multilateral cooperation can also provide an alternative/parallel platform for investment in infrastructure development, besides national development plans.

VALUE ADDED OF REGIONAL DEVELOPMENT. Planning and development of infrastructure is usually the responsibility of national governments. However, there is an increasing awareness of the advantages of undertaking planning at a regional level. Several countries in Africa are committed to regional solutions for national and regional problems. SADC in the Southern Africa region is an example, with numerous regional programs that promote joint planning, management and/or development of infrastructure, including a particular programme for transboundary water resources. The East Africa Community (EAC) is another good example within the wider Nile Basin region of regional cooperation and integration between neighbouring countries, encompassing cooperation across a number of economic fields.

According to both academic and technical literature, it is assumed that regional planning, management and development of 'common goods' generate intrinsic added value. Some of the assumptions are that regional development/cooperation can contribute to: 1) Increased benefits; 2) Decreased impacts; 3) Reduced costs; 4) Optimisation of resources; 4) Optimisation of planning/management; 5) Easier access to financing; 6) Fostering of good relations between neighbours; and 7) Increased intra-regional trade. The main value added of multilateral cooperation is in the promotion of regional development planning perspectives and transboundary solutions that cannot be otherwise achieved by individual countries at national level. Regional development efforts complement and amplify national development efforts, ultimately promoting national development of the individual countries.

CHALLENGES. Despite the fact that many countries in the Nile Basin recognise the numerous advantages of regional planning, management and development, political commitment to cooperation and integration is inadequate. This is particularly the case in the water-sector, and specifically in the development of hydraulic infrastructure. Looking at the last ten years, it is possible to observe that the modus operandus for water resources management and water resources development in the Nile Basin is still very much at the national level. National governments have not endorsed or embraced 'regional development' perspectives as expected. Specific challenges in this regard will be discussed in section 4 of this report.



3. Cooperation Opportunities In The Nile Basin

3.1. Introduction

The opportunities that cooperation can unlock are what distinguish cooperation alone from cooperation that drives development, what has been termed effective cooperation. This section identifies those opportunities in the case of the Nile and explains what makes them part of effective cooperation, including their contribution to wider development across states in the Nile basin. It also shows how these opportunities – if seized together – are part of a vital 'cooperation matrix' in which benefits of cooperation seed and grow other forms of cooperation, generating new avenues of benefits and future opportunities. In short a virtuous cycle of cooperation can emerge and, in the Nile, has shown signs of doing so under the Nile Basin Initiative. At the same time, however, unless these cooperation opportunities are properly seized when they become available they may be lost to less-optimal options leading to a 'development deficit' for peoples of the basin that could have been avoided.

This section shows the wide range of these opportunities from actions that generate economic growth and social development to actions that reduce risk and increase resilience to future shocks. It shows how significant progress has been made to date, but that existing foundations of development cooperation achieved now urgently need to be built upon under stronger institutional frameworks that bind states together in sharing benefits, reducing costs and in furthering a long-term strategic vision of development for the basin as a whole.

In this Flagship Paper, we have identified several types of challenges ranging from social and economic to environmental and climatic, but all in terms of future management and development of the common Nile water resources. The key concept related to challenges is that they frequently entail levels of risk – from lack of control over basin flows leading to flooding to reduced food security through loss of soil fertility. However, these challenges can be transformed in opportunities for cooperation when the shared nature of risk is understood and accepted and Nile riparian countries agree to come together and address these risks. The goal of this specific section is to identify a selected set of opportunities for cooperation and understand what has already be accomplished in the past 15 years by seizing these opportunities by the NBI and its centres (Nile-SEC, ENTRO and NELSAP) as entrusted by the riparian countries. Besides, it examines in brief how some of the NBI projects – both Shared Vision and Subsidiary Action Programmes (SVPs and SAPs) – have already contributed to turning these opportunities for cooperation into benefit streams for the countries. We also recognised that the cooperation process in the Nile Basin is still a work in progress and advancing the goal of stronger cooperative institutions and legal frameworks will take further time and collective effort.

This Flagship focuses on seven different areas of opportunities, as identified by stakeholders during consultations held. For each of them we analyse: 1) what each opportunity entails; 2) what has already been accomplished and is being done through cooperation; and 3) any additional opportunities that exist for each of them. It is important to note that many of these opportunities are interrelated and that the list itself is not exhaustive.

Knowledge Management

Better knowledge management can improve the identification of benefits, the development of projects and ways of address the challenges of implementation, including understanding anticipated impacts

River Basin Management

Sustainable management of watershed/river basin management is an opportunity to generate multiple benefit streams – including reduced soil loss and enhanced water retention supporting greater food security in rainfed farming, reduced impacts on downstream reservoirs, and flood mitigation

Climate Change

Changing climate patterns in the basin can be a threat, but may also represent opportunities. Collectively mitigating threats and exploiting opportunities is a long-term priority

Hydropower

The Nile system includes substantial changes in altitude and gradient leading to extensive 'head' within the system, which provides the basis for hydropower generation

Agriculture

The Nile basin includes huge untapped agricultural potential, both in rainfed uplands and downstream irrigation, including sustainable intensification of production and more crop/livestock per drop

Investment

Many international investors wish to invest in the Nile Basin's fast-growing economies, particularly given the huge market represented by the 11 basin states

Cooperation Platform

The existing cooperation platform built under the NBI has been is the result of efforts dating back to the early 1990s. This represents a solid foundation on which to build

3.2. Opportunity 1: Knowledge Management for better decision-making processes

> Better knowledge management can improve identification of benefits, the development of projects and ways of addressing the challenges of implementation, including understanding anticipated impacts

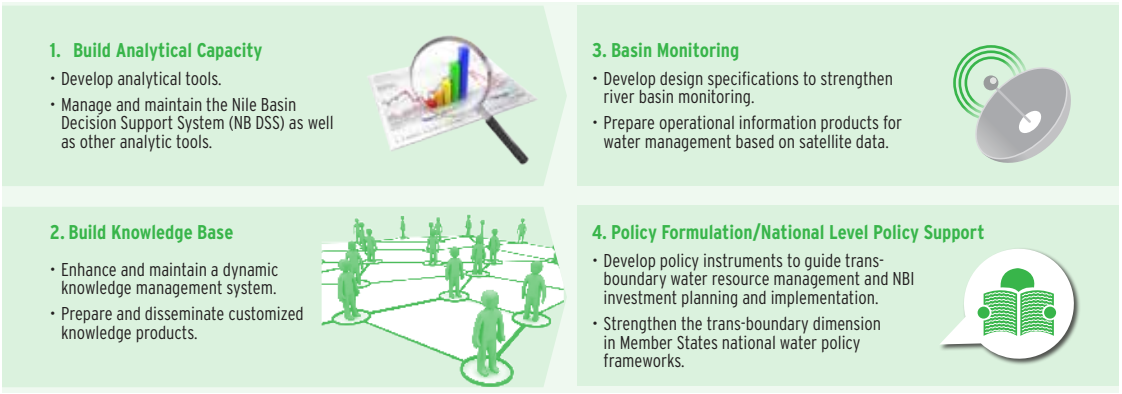
THE OPPORTUNITY. A key challenge in the Nile Basin is that achieving the production and dissemination of information and knowledge based on a consensus on the status, utilisation and potential of the Nile water resources has always been an elusive goal. At the same time this challenge can be considered an opportunity: through multilateral cooperation, the Nile riparian countries can join forces in order to develop and maintain a sophisticated, high-quality, and up-to-date set of information and knowledge management tools that can underpin decision-making on the management and development of Nile water resources. In doing so, they will contribute to a public good of increased information availability, national institutional capacity building, reduced decision-making asymmetries between countries, and greater trust about data provided by neighbouring countries. Above all else, Nile Basin States will then lay the foundations for better identification of mutual benefits, informing the planning and development of projects and assessing the challenges of implementation, including understanding (and mitigating) any negative anticipated impacts.

WHAT HAS BEEN ACCOMPLISHED TO DATE. This opportunity has been at the forefront of cooperation process since the establishment of the NBI in 1999. Several of the Shared Vision Programmes (SVPs) aimed at building capacity at national and regional levels in areas of knowledge management. This included capacity building to reduce the fragmentation in management approaches and bolstering a common platform of information management and exchange. The Water Resources Planning and Management (WRPM) Project was designed to build the foundations of a common approach to knowledge management, including developing a Decision Support System (DSS) for the Nile Basin, that provides stronger human and institutional capacity under a basin-wide platform for communication, information management, and water resources analysis. The NB DSS is now operational in the Nile-SEC, the two SAP offices and in all the national centres within Nile riparian countries.

Some of the high level results achieved include: 1) A strong technical foundation for cooperative water resources management through a shared knowledge base on the waters and related resources of the Nile, and specialized knowledge platforms to build capacity in country-level decision-making; 2) Enhanced capacity of the member states to utilize the NBI's technical products, and 3) Increased inclusion of a transboundary dimension to development within national water policies.

Since the closure of the SVP projects, several of the knowledge products have been streamlined for the NBI centres and also for the national institutions of riparian countries, now enshrined as "water resources

BOX 1. WATER RESOURCES MANAGEMENT CORE FUNCTION[7]



[7]*Source of the picture: NBI High-Level Results Poster on Water Resources Management Program (2013) http://www.nilebasin.org/images/docs/Water%20Resource%20Management.pdf*

management", one of three core functions of the NBI. The Nile-SEC, in particular, is the centre responsible for the intelligent and interactive basin-wide knowledge base that is vital to underpinning development programs. The objective is to assess, manage and safeguard the water resource base that supports the peoples of the Nile Basin through applying the principles of knowledge-based integrated water resources management to water development planning and assessment.

FUTURE: ENHANCING THE OPPORTUNITIES. Ultimately it is expected that the ground-breaking work already accomplished by the NBI in the past 15 years will be only the beginning of a more cooperative and integrated approach to knowledge management. The Nile Basin Commission (whatever final shape it takes) is expected to continue playing a major role in the generation, enhancement and dissemination of knowledge and analytical tools that inform decision making. A common knowledge base (instead of fragmented national data) will be the best available mechanism to identify benefits. At present the Nile DSS generates high-quality, updated information and knowledge about benefits and costs generated by a specific infrastructure project for specific countries and communities (e.g. a storage structure in upstream country A), and can compare it with alternative scenarios (e.g. storage and other multipurpose uses in alternative upstream country B or C). In an ideal scenario, Nile Basin States will use this cooperative analytical tool to decide on national projects as well as regional projects across different stages in the project management cycle. Challenges of implementation, negative impacts (expected and unexpected), associated costs (economic and non-economic) of the project can all be analysed by all Nile Basin States concerned on the basis of confidence, trust and consensus in the information provided – this is a hugely important opportunity to seize.

To take forward this process continued input, refinement and updating of data on the Nile system is required. Systematizing this process further at the level of institutional engagement across all Nile countries, and standardizing ways and means of providing data inputs, are critical issues for the future. The Nile basin can lead the way internationally in terms of supporting a strong knowledge platform, in levelling the asymmetries in data availability and use and in showing how knowledge management and sharing can fundamentally underpin current and future basin wide cooperation.

3.3. Opportunity 2: Socio-economic and ecosystem benefits of joint watershed and river basin management

Sustainable management of watershed/ river basin management is an opportunity to generate multiple benefit streams – including reduced soil loss and enhanced water retention supporting greater food security in rainfed farming, reduced impacts on downstream reservoirs, and flood mitigation

THE OPPORTUNITY. Population growth, increasing migration towards riverain areas, agricultural practices that reduce soil cover, and deforestation for grazing or charcoal production, are just some of the resource management pressures facing different catchment areas in the Nile basin. These are simultaneously local, national and transboundary challenges in scale and dimension, interrelated through the shared nature of the river system. In a catchment such as the Blue Nile, for example, over-exploitation of natural resources, deforestation and environmental degradation in the highland farming areas results in heavy silt loads downstream as well as declining fertility upstream. This entails huge costs not only to downstream river channel management in Sudan and Egypt, but to long-term development sustainability in upstream communities. Declining performance and high maintenance costs of existing hydraulic infrastructure (dams and irrigation canals) affects agricultural and energy production downstream, whilst loss of resilience to shocks upstream can increase the vulnerability of rural communities. Without river basin management in the Ethiopian highlands, future farming sustainability upstream will be impaired and economic benefits lost from future water resources infrastructure downstream. Developing watershed management programmes can therefore have significant win-wins across the basin and for communities at a local level. Similar examples of environmental degradation with concurrent local, national and cross-border benefits

and costs can be found in and around the tributaries of Lake Victoria, for instance in the Kagera river basin.

This type of challenge can be transformed into an opportunity for joint cooperation, if the benefits of taking collective action are well understood (which is why there are important overlaps between many of these cooperation opportunities, cf. Knowledge, above). Joint river basin management enhances watershed management and conservation of ecosystems thereby enhancing integrated water resources management at sub-basin scale and underpinning the sustainable development and management of resources across a range of sectors from farming, to energy production and industry. The adoption of an IWRM approach in the Eastern and Equatorial Nile watershed basins is key. By targeting poverty alleviation and enhancement of sustainable livelihoods in conjunction with addressing environmental degradation, key areas of shared risk can be addressed at local, national and basin scales. Joint watershed/river basin management allows all concerned riparian countries to identify the challenges and risks of non-cooperation (local, national and transboundary levels) including the costs (of inaction) for each and every country, and enables identification of opportunities to develop policy, legal and institutional mechanisms that can maximize socio-economic and environmental benefits from watershed management, including the production of important ecosystem benefits.

Joint action can improve the capacity of national institutions to deal more efficiently with watershed and river basin management challenges through fostering peer-to-peer learning, sharing of best practice and improving upstream-downstream data and information sharing and feedback on interventions. Countries can also establish new or improved existing legal and policy frameworks that more adequately address the challenges and bring a transboundary perspective national-level watershed management. Ultimately, joint cooperation will offer the opportunity to riparian countries to plan and implement infrastructure that generates multiple and multi-scale benefits.

WHAT HAS BEEN ACCOMPLISHED TO DATE. River and watershed management has long been part of the NBI cooperation agenda. It is a major opportunity and niche for joint cooperation between countries and can provide tangible benefits to populations, and contribute immediate and tangible examples of the added value of cooperation. The NBI through its SAP programmes has been promoting investments in several priority areas, including 'river basin management'. In the Eastern Nile, the main project under this category has been the Eastern Nile Watershed Management Project (see Box 1). Other projects have incorporated important river basin management components such as the Eastern Nile Flood Preparedness and Early Warning Project and the Baro-Akobo-Sobat Multipurpose Water Resources Development Study Project. In the Equatorial Nile, the portfolio has included two main river basin management projects: the Kagera River Basin Management Project (see Box 2), and the Sio-Malaba-Malakisi River Basin Management Project. Boxes 1 and 2 provide details about the specific projects' objectives and their role in transboundary cooperation (through the NBI, but also involving national and local institutions and actors).

FUTURE: ENHANCING THE OPPORTUNITIES. Scaling up joint cooperation of watershed and river basin management in the Nile Basin is crucial, whether under the NBI, the would-be Nile Basin Commission or other forms of cooperation. It is unquestionable that joint action can contribute to poverty reduction and environmental restoration and development, as past projects have already exemplified this. Nevertheless, financial and technical support to countries to increase capacity building needs to be continued, in order to move to a higher level of impact from that already achieved under the NBI. The buy-in by countries for wider watershed management interventions could be enhanced if the cooperative institutions succeed in underlining the streams of benefits these projects can deliver beyond the immediate watershed and its local community. The (sharing of) downstream benefits and regional positive-sum outcomes of watershed management upstream should provide further financial and other incentives for buy-in by both upstream and downstream countries.

Watershed management projects are often narrowly viewed as 'national' since benefits may immediately accrue to local communities, but take years, in some cases, to show results at scale. Nevertheless their real and potential downstream impacts underline key regional opportunities, including reduced siltation

BOX 2. RIVER BASIN MANAGEMENT OPPORTUNITIES IN THE EASTERN NILE[8]

RIVER BASIN MANAGEMENT
Portfolio

Eastern Nile Watershed Management Project

Total on-going Investment
USD 80.3 million
Ethiopia Contribution
USD 40.0 million
Project Preparation Cost
USD 2.0 million
Total Investment Potential
USD 780.0 million
Ethiopia Contribution
USD 420.0 million
Project Preparation Cost
USD 4.0 million
Participating Member States

The Eastern Nile Watershed Management Project is intended to establish a framework for sustainable management of selected watersheds in the Eastern Nile region. The framework is required in order to improve the living conditions of the people that depend on these water sheds by providing alternative and/or complimentary livelihood opportunities, decreasing population pressure and increasing land productivity. The framework will also be used to protect the environment, reduce soil erosion, sediment transport and siltation in addition to laying the foundation for the future. The Project is coordinated under ENTRO in Addis Ababa, Ethiopia.

Project objective
Increase adoption of sustainable land and water resource management practices through:
- Building national capacity; facilitating stakeholder consultation; information and knowledge sharing.
- Establishing long-term coordinated system of monitoring and knowledge development for effective watershed planning.
- Conducting detailed project preparation for Eastern Nile watersheds hot spots in an investment ready format.

Before

The Eastern Nile watersheds, especially the steeper, upper Ethiopian highlands are severely degraded due to poverty-driven over exploitation of natural resources and they constitute the most critical clusters of watershed hotspots, without whose prior restoration, all future water resources infrastructure development will be rendered of limited economic benefit to any one of the three countries – Egypt, Ethiopia, and Sudan.

The annual economic cost of watershed degradation in Ethiopia is currently estimated at USD 670 million, expected to reach at least USD 4.5 billion in 25 years unless the problem is addressed urgently. Watershed degradation impacts are not confined in the Ethiopian highlands, but run all along downstream in Sudan and Egypt. Between 157.2 and 207.2 million tons of sediment are transported annually from the Ethiopian highlands along the Blue Nile, Tekeze and Sobat main sub-basins of the Nile. These sediments also entail huge costs downstream in Sudan and Egypt including – Hydropower underperformance; high HP infrastructure maintenance costs, dredging costs of clogged irrigation channels, etc.

Integrated watershed management – a system of multifaceted interventions – (e.g. increasing agricultural productivity through improved farming systems, marketing, education, health care, energy supply, alternative employment, population policy, etc.) – that targets poverty alleviation and enhancement of sustainable livelihoods is the proven way to address the root causes of watershed degradation, which the three countries are promoting through the Eastern Nile Watershed Management (ENWSM) Project.

NBI Role

- Providing a political and technical platform for consultation with Egypt and Sudan.
- Establishing the baseline and characterizing the watershed system.
- Working out the environmental, social and economic cost and benefit distribution among the three Eastern Nile countries, of the positive and negative effects arising from watershed management interventions.

Benefits/ Potential Benefits

- Demography and poverty related drivers and causes of watershed degradation identified.
- Critical Eastern Nile watershed hotspots adversely impacting any future water resources infrastructure development in the region identified.
- Regional cooperation further fostered.
- A Cooperative Regional Assessment (CRA) identifying challenges, opportunities and cost of inaction along with the institutional mechanism and requirements worked out from a trans-boundary perspective.
- Capacity of national institutions to undertake watershed management enhanced.
- Sediment and water quality monitoring framework established.

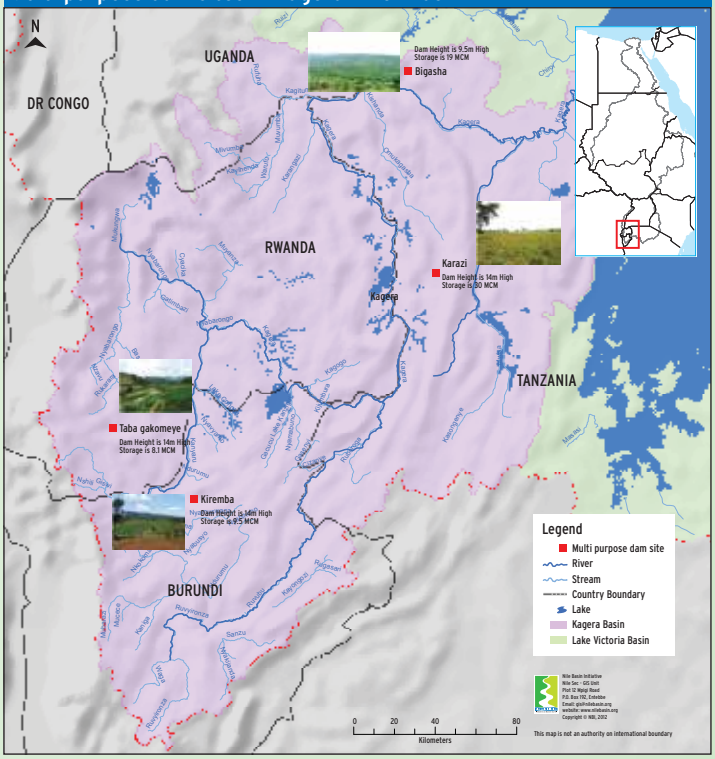
[8]*Source of the box: NBI country Papers: Ethiopia, the NBI and the Benefits of Cooperation (2011) – p. 16*

BOX 3. RIVER BASIN MANAGEMENT OPPORTUNITIES IN THE EQUTORIAL NILE[9]

RIVER BASIN MANAGEMENT
Portfolio

Kagera River Basin Management Project

Multi purpose dam sites in Kagera River Basin



Total Potential Investment
USD 500.0 million

Project Preparation Cost
USD 10.19 million (Phase 1 & 2)

Expected Start Date of Implementation Phase
January 2013

Participating Member States

The Kagera basin area has insufficient water for household use and for grazing despite the abundant water sources found in the area. Wetlands have been exploited and degraded, and there is cross border migrations of pastoralists which cause conflicts. Cooperative water resources management offers unique opportunities as catalysts for greater regional integration both social-economic and political with potential benefits exceeding those derived from the river itself. The Kagera River Basin Management Project is aimed at developing tools and permanent cooperative mechanisms for the joint management of the water resources in the Kagera River Basin and to protect the environment. The Project is coordinated under NELSAP-CU and the Project Management Unit is located in Kigali, Rwanda. In Burundi, the project is operational in 11 provinces of Gitega, Muramvya, Mwaro, Karuzi, Ruyigi, Kayanza, Ngozi, Muyinga, Cankuzo, Rutana, Kirundo.

Project objectives

- Establish a sustainable cooperative framework for joint management of the shared water resources of the Kagera River Basin.
- Develop an investment strategy and conclude pre-feasibility studies.
- Build capacity at all levels for sustainable management and development of the Kagera River Basin.
- Implement small scale investment projects that provide early tangible benefits to the population and promote confidence in the cooperation on the Nile.
- Facilitate Lake Victoria Environmental Management Project II (LVEMP II) preparatory activities for Rwanda and Burundi.

[9]*Source of the box: NBI Country Papers: Burundi, the NBI and the Benefits of Cooperation (2011) – p. 13-14*

BOX 3 CONTINUED. RIVER BASIN MANAGEMENT OPPORTUNITIES IN THE EQUTORIAL NILE[9]

Before	NBI Role	Benefits/ Potential Benefits
• No legal and policy framework between the Kagera riparian countries (Burundi, Rwanda, Tanzania, Uganda) for joint and transboundary development and implementation of shared water resources. • No joint investment projects with transboundary aspects and benefit sharing. • Inadequate capacity in water resources planning and development. • Lack of confidence in what NBI/NELSAP can do to promote the socio-economic welfare of riparian populations and protect the environment. • Rwanda and Burundi were not part of the LVEMP II. • Lack of preparedness for climate change adaptation in the Kagera basin.	• Preparing the following: - Policy and legal framework for enhanced cooperation in the basin. - The Kagera Basin Investment Strategy focusing on big dams - Monograph and Kagera Data Base. - Feasibility studies for four small multipurpose projects, one in each riparian country. - Pre-feasibility studies for eight large dams in the Kagera Basin. - Regional hydrometric network equipment and installation of equipment in the Kagera basin. - Small scale projects for rural water supply and afforestationas well as their implementation. - Projects for Integrated Water Resources Management (IWRM) in the Kagera Basin targeting environmental degradation reversal in the Kagera sub-catchments and wetlands. • Building capacity of Kagera basin water resources officers and decision makers in IWRM through training and study tours. • Reviewing the Kagera River navigability studies and proposing terms of reference for feasibility study. • Facilitating consultancies of studies that allowed Burundi to join LVEMP II.	• Provision of a framework where joint planning and management of the Kagera River water resources will take place for improved socio-economic development of the basin and reduced/minimized potential water related conflicts. • Data and information for basin-wide planning and development. • Integrated Water Resources Management (IWRM) basin wide plan that will facilitate water resources planning for sustainable management of the Kagera Basin. • Hydrometric network data that will allow better water resources planning. • Increased capacity in water resources planning and development in the Kagera region at the local, district and national levels. • Feasibility studies for multipurpose dams prepared. These studies are expected to result in bankable investment projects in watershed management and multipurpose dam infrastructure. Their further development will provide water for food production through irrigated agriculture, livestock and domestic use in addition to electricity to rural towns thus reducing the consumption of wood and hence deforestation. • Reduced soil erosion and loss of vegetation cover through community environmental projects. • Increased climate change adaptation preparedness through appropriate adaptive mechanisms. • Better environmental protection of the Lake Victoria Basin through LVEMP II that allowed joint planning and management of the basin. • Safe drinking water supplied to communities in Butihinda. • Afforestation carried out in Busoni, Kabarole and Kayanza.

- A feasibility study for Kiremba dam has been prepared. Development of the dam will provide electricity to rural towns.
- Safe drinking water supplied to communities in Butihinda.
- Afforestation carried out in Busoni, Kabarole and Kayanza.

[8]*Source of the box: NBI country Papers: Ethiopia, the NBI and the Benefits of Cooperation (2011) – p. 16*

load in river systems enhancing the long-term operability of downstream hydropower infrastructure. The Rusumo Falls Dam may face the threats if no action is taken to address the sediment load in the Kagera system, for instance. As other countries benefit from watershed management impacts, they should also share in the costs of the projects. In the case of Ethiopia the government itself has now taken on massive river basin soil conservation measures within the Nile basin watershed, in part promoted by the success of NBI-led watershed management approaches.

A further aspect of the impacts of watershed management projects relates to benefits to the river. These include enhanced water quality in the system, and eventually, enhanced soil water availability and groundwater recharge, which, in areas of volatile rainfall, can enhance the resilience of farmers and wider water user communities. At a broader scale, opportunities for large-scale investments in hydropower, irrigation, navigation and tourism also emerge.

3.4. Opportunity 3: Collective Action for Climate Change

Changing climate patterns in the basin can be threats, but may also represent opportunities. Collectively mitigating threats and exploiting opportunities is a long-term priority

THE OPPORTUNITY. The Nile Basin and its populations are already highly vulnerable to the negative impacts of climate variability and are expected to as well vulnerable to the impacts of global climate change, namely changes in the rainfall levels, extreme events such droughts and floods, sea level rise, etc. All upstream and downstream countries agree that climate change is a threat for all of them. Mitigation and adaptation strategies by individual countries will be insufficient, because the effects and impacts are of regional nature. And this represents a great opportunity for multilateral cooperation between neighbouring countries.

WHAT HAS BEEN ACCOMPLISHED TO DATE. Many Nile Basin countries are addressing issues of Climate Change through their individual response action plans (National Adaptation Plans of Action (NAPAs)), But there are transboundary dimensions that go beyond the capacity of individual countries such that Climate Change is now pointed out as emerging driver for Nile Basin cooperation. All three NBI Centres (Nile-SEC, ENTRO and NELSA-CU) are taking steps to support countries in their response to Climate Change. Ultimately, a key feature of the NBI mission is "the capacity and necessary mechanisms for the countries to take a regional approach to minimize climate change threats to socio-economic growth and development". Several of the NBI, ENTRO and NELSAP programmes, activities and tools put this in evidence.

The NBI approach to Climate Change is on based on 'no-regret' approach based on a series of measures that should be incorporated in the projects being developed at regional (but as well national) levels. These measures include: Increased water storage capacity; Interconnection of electricity grids; Land-use planning; Expanding forests and reverse deforestation; Infrastructure for intra-basin agricultural trade; Increase productivity and water-use efficiency in irrigated agriculture; Mitigation impact of drought; Mainstream CC adaptations and mitigation plans; Increase research; Build capacity at national and national levels; Developing mechanisms for soliciting CC adaptation funds; Operating joint hydrometerological programmes (according to the NBI State of the River Nile Basin, 2012). Among the several 'no-regret' measures, the NBI but considers that the priority measure is to expand water storage infrastructure (large and small) in the Nile region.

The NBI is already mainstreaming climate change in the NBI activities in several different ways. On the one hand, in the last decade the NBI institutions had been already incorporating CC in the project preparation and implementation phases. Almost all the pre-feasibility and feasibility studies for the SAPs (NELSAP and ENSAP) investment projects have included CC components. On the other hand, in 2012 the NBI has adopted an Environmental and Social Management Framework, which is part of the Nile Basin Climate Resilience Growth Program (NBCRG Programme), which informs all current and future NBI activities, programmes and planned infrastructure. The development objective of the NBCRG is to improve climate change resilient water resource management and development in the Nile Basin Two of

the expected programme's outputs are: 1) to develop a portfolio of climate resilient catalytic transformative investment projects and 2) to develop a knowledge base and analytical framework for climate-resilient planning. The ultimate goal of the NBCRG is to promote coordinated and optimised climate proofed planning of water resources.
Future: Enhancing Opportunities. The NBI and its regional centers (and the would-be Nile Commission) should continue and strengthen all the background work already done in what relates to contributing to climate-resilient economic growth at national and regional levels, and promote a series of important interrelated activities, namely:

1. Bridging the knowledge gap: promoting studies at the basin and sub-basin levels that include Climate Change factors and appropriate coping mechanisms, and supporting the coordination of national and regional institutions working in the same field;
2. Supporting science-policy dialogue: bring Climate Change scientists (both from the region and international experts) to the cooperation processes, both technical and political;
3. Strengthening monitoring and planning tools: the establishment of Hydrometerological monitoring networks in several locations of the Nile river basins is an extremely important factor to gather information and contribute for the collective knowledge base that can support collective decision-making processes;
4. Facilitating expansion of the region's water and power infrastructure: through the investment projects of ENTRO and NELSAP that can showcase and provide evidence of the benefits of climate-proofing approaches;
5. Promoting idea of transboundary level adaptation measures, based on the idea that Climate Change adaptation will be most effective when undertaken in coordination with other riparians.

Ultimately, enhanced regional transboundary cooperation offers the opportunity to develop and implement more effective strategies at a basin-wide level, particularly given the Nile systemic impacts that will be felt. The Nile Basin States would do well to implement a number of proactive measures aimed at building resilience to current climate variability while enhancing adaptive capacity for future climate threats.

3.5. Opportunity 4: Unlocking the potential for regional energy security

The Nile system includes substantial changes in altitude and gradient leading to extensive 'head' within the system, which provides the basis for hydropower generation

THE OPPORTUNITY. Energy security is not a reality in most of the countries of the Nile Basin region. Access to a reliable source of energy is still low in urban areas (12% and 17% in Rwanda and South Sudan, respectively) and extremely low in rural areas (less than 2% and 3% in Tanzania and Burundi, respectively). This has negative socio-economic impacts and hinders economic development. With rapid population growth and urbanisation, demand is increasing. A reliable electricity supply is now a priority for nearly all national economic plans in Nile countries, and is a requirement of foreign investors arriving in the basin. Projections for future demand in all sectors (agriculture, industry, services) are huge and existing energy sources are woefully inadequate. Supply infrastructure currently in place will be insufficient to meet demand and, as a result, all countries have developed (and are implementing many cases) ambitious national energy policies to boost supplies, much of which is based on rapid scaling up in renewable hydropower, but also includes other renewables and thermal power.

Notwithstanding the current energy supply-demand gap in the Nile region, that there is enormous potential is well-known, though the distribution of supply and demand 'centres' requires interconnection. In NELSAP countries this has been undertaken through the Rusumo Falls Dam and power interconnection between Burundi, Rwanda and Tanzania, and the other NELSAP riparian countries. In the Eastern Nile, Ethiopia and Sudan are already interconnected with support from ENTRO, while Ethiopia and Kenya are constructing interconnection outside the context of NBI. In the Eastern Nile, studies for a regional transmission line completed in 2008 indicated a market for transmission of around 3,200 MW from Ethiopia to Sudan (1,200 MW) and Egypt (2000 MW).

The Nile Basin region is well-endowed with energy resources (gas, oil, coal, geothermal),

but hydropower remains the most attractive for many countries (see Figure 7)[10]. The hydropower potential of the whole region is extremely significant (8,000MW in the Blue Nile River; 4,000MW in the White Nile River; and 2,300MW in the Baro River), as is the potential for power trade within and beyond the region. The energy sector is pioneering the benefits potential of intra-regional trade, in a region that has historically low levels of trade between countries, lagging far behind any of the other African regional groupings. The advantages of 'regional energy' are summarised below:

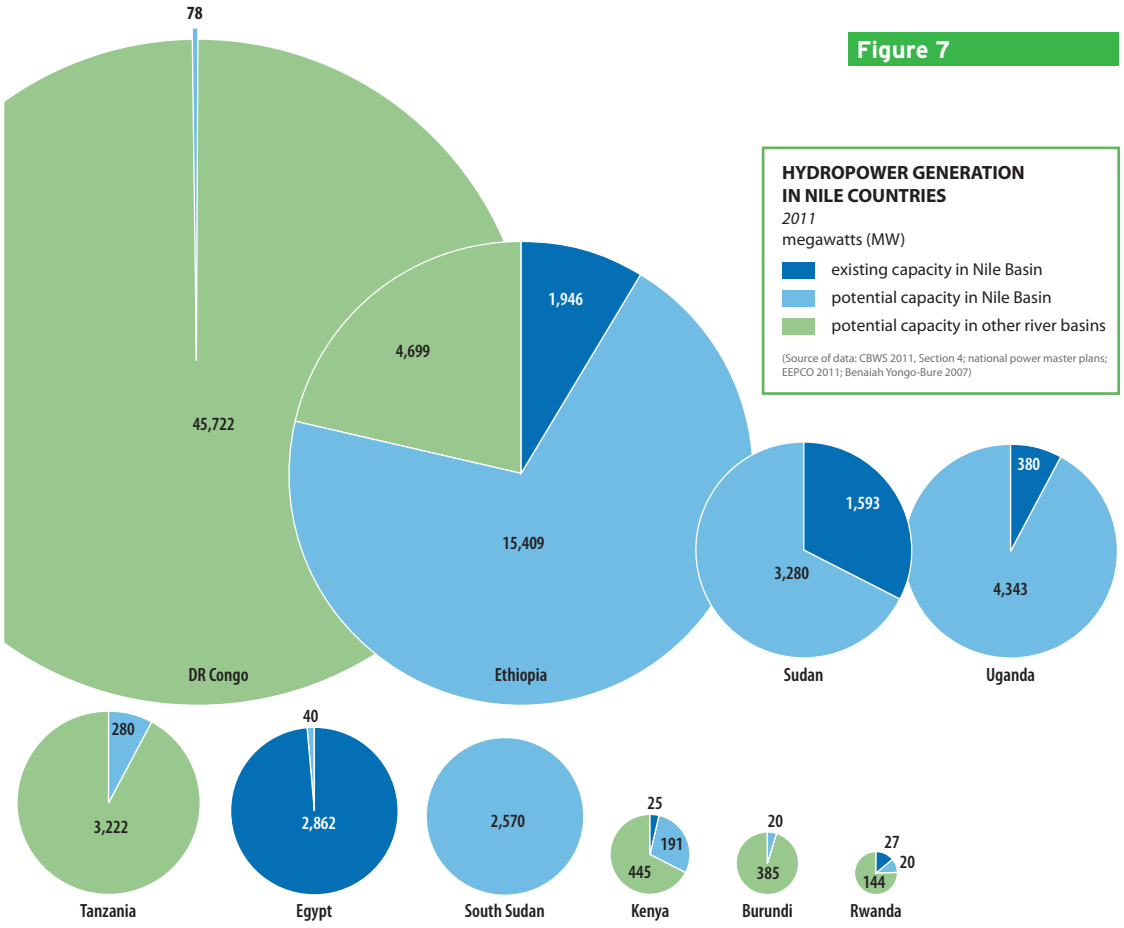
Regional interconnections/grids: Based on transmission infrastructure that allows national grids of countries to be interlinked in a regional grid, through which power can be exchanged (imported/exported) between countries;

Regional pooling: Aims at secure reliable, robust and cheap energy supplies, by diversifying energy sources and increasing reserve capacity in order to decrease the exposure of countries to national power shortages;

Regional trade: Includes several financial, legal and regulatory frameworks that facilitate the establishment of regional markets and cross-border trade in cheaper energy, including mechanisms such as power-purchase agreements, public-private partnerships, etc.

WHAT HAS BEEN ACCOMPLISHED TO DATE. The NBI and its subsidiary actions programmes (ENSAP and NELSAP) have contributed to initiating dialogue on options and preparing inception phases, including pre-feasibility and feasibility studies for future regional power plans. More recently, the SAPs have assisted countries in their efforts to plan, construct and expand regional transmission infrastructure, to create regional power markets and supporting regulatory frameworks. At the Nile Basin level, the NBI has produced several seminal reports and studies, through its Shared Vision 'Regional Power Trade Project' (2000-2007), promoting the idea of 'improved access to reliable and low-cost power, and the establishment of regional markers to increase reliability and economies of scale in planning, construction

Figure 7



[10]*Source of diagram: State of the River Nile Basin (page 168)*

and operation of power infrastructure in the basin'. In the Eastern Nile region, ENTRO has developed the Eastern Nile Power Trade Study (2004-2007), and the Ethiopia-Sudan Transmission Interconnection project (2004-2006) that now connects the power grids of Ethiopia and Sudan to facilitate cross-border energy trade. The ENTRO portfolio also included the development of significant hydropower potential in the Blue Nile Basin (including four potential large-scale dams) through the Joint Multipurpose Programme (JMP), now closed due to institutional challenges in the Eastern Nile.

The NBI can take credit for initiating a platform for joint planning and development of hydropower generation and transmission options, and promoting power pooling amongst Nile countries. The NBI has also developed analytical tools such as the Nile-DSS that make it possible to quantify costs, benefits, and trade-offs in power options. In the last 10 years, the NBI has contributed to unlocking the potential for regional energy security, benefiting from the fact that win-wins are more identifiable and tangible, and every country has a state in increasing supplies. One of the lessons to be drawn is that energy can be a lever with which to push for greater regional cooperation – with direct economic incentives, clarity of immediate benefits, and for which contracts and agreements are therefore easier to reach. That achieving this level of cooperation over energy requires strong regional institutions is also an important factor in encouraging the empowerment of these institutions.

The NBI has assumed a critical role in these processes. It has provided and can continue to provide a platform for consultation and consensus-building towards joint action. It has prepared bankable projects complying with the requirements and conditionalities of international financiers. Furthermore, the NBI has already undertaken considerable background analysis and engagement – including stakeholder identification – that should contribute to regional energy security. In addition to capacity building for experts in power generation and trade, the background work includes the SSEA for Power Options carried out by NELSAP-CU, the EN Power Trade Investment Studies of ENTRO, and all the products of the Regional Power Trade SVPP that promoted the idea of regional markets to increase reliability and economies of scale in planning, construction and operation of power infrastructure in the basin. The relevance of NBI is not confined only to areas of interconnection and trade, however. In the meantime, ENTRO is leading work on 'Dam Safety' in which it builds capacity of national experts and at the same time seeks to formulate dam safety guidelines and regional frameworks. The adopted concept of dam safety is wide and includes planning, construction, monitoring and operation and maintenance.

FUTURE: ENHANCING THE OPPORTUNITIES. Despite all of the NBI achievements, there remains much to do in order to attain the levels of regional energy security that can deliver tangible benefits to populations (in particular rural) in Nile countries. In order to capitalise and build on the work undertaken thus far, a stronger and more ambitious NBI/Commission should address the following priority action areas:

- Proceed with support and incentives to joint implementation and exploitation of hydropower/energy options, even in projects 'outside' the NBI;
- Reinforce advocacy strategies for influencing countries to focus on multipurpose projects (and not solely hydropower), that combine power production with delivery of other social and environmental services;
- Conduct updated scoping studies of newly-constructed and planned (national) energy projects, their capacity and potential, and plans (or lack of) to integrate regionally within a grid;
- Strengthen plans to connect Nile Equatorial and Eastern Nile power pools (still not connected), by teaming up with the Eastern Africa Power Pool (EAPP);
- Support further integration of regional power markets in the Eastern Nile region by resuming the Joint Multipurpose Programme (JMP);
- Support further harmonisation of national and regional frameworks (including legal and institutional) and advocacy strategies to include environmental and social concerns in projects;
- Support further financial resource mobilisation strategies (including diversification of financial sources and cost-sharing mechanisms/formulas) for expansion of regional production, interconnections, markets and trade;
- Conduct a comprehensive study of all current and potential actors (including public power suppliers, private sector,

BOX 4: POWER OPPORTUNITIES IN THE EASTERN NILE REGION[11]

POWER
Portfolio

Joint Multipurpose Program

Total Investment (Preparatory studies)
USD 7.0 million

Total Potential Investment
USD 4.0-6.0 billion

Participating Member States

The Joint Multi-purpose Program (JMP) is a long-term program which includes a set of coordinated major investments such as power development, power transmission lines, watershed management and other multipurpose water uses. The project is coordinated under ENTRO in Addis Ababa, Ethiopia.

Project objective
Contribute to transformational and sustainable socio-economic development, economic integration and stability in the Eastern Nile region. A more immediate development objective of the JMP1 is to undertake cooperative and sustainable development and management of the shared Blue/Main Nile water resources, putting in place the requisite trans-boundary institutions, linking the beneficiary countries through multi-purpose storage and power system infrastructure, improving watershed and flood plain management, as well as modernizing irrigation systems and promoting related investments such as in transport and rural electrification.

Before

Sudan and its two neighbouring Eastern Nile countries, namely Egypt and Ethiopia were least informed about each other's water resources development plans and aspirations and as such pursued their individual/unilateral national solutions and development paths to address their respective water resources challenges. The transboundary, basin-sub-basin perspective and the hydrologic unity of the Nile were least factored in.

NBI Role

- Providing a political and technical platform for consultation with Egypt and Ethiopia.
- Completing the JMP launch phase which resulted in information and analysis, identifying the most favorable sub-basin (Abay-Blue Nile) that provides the requisite scale and features for the first JMP.
- Undertaking resource mobilization for JMP-1 identification studies including strategic social and environmental assessment and consultations.

Potential Benefits

- One System Inventory of natural resources, water resources and socio-economics of the Eastern Nile sub-basin prepared on the basis of "no-borders" analyses.
- Enhanced risk mitigation.
- Enhanced national and regional capacity building for management and coordination of large scale national/regional infrastructure institutions.
- Regional technical consultations leading to improved understanding of the Eastern Nile Sub-Basin.

[11] *Source of the box: NBI Country Papers: Sudan, the NBI and the Benefits of Cooperation (2011) – p. 10*

BOX 5: POWER OPPORTUNITIES IN THE EQUATORIAL NILE REGION[12]

POWER
Portfolio

Regional Transmission Interconnection Project

Total on-going Investment
USD 363.0 million
Uganda Contribution
USD 24.9 million
Project Preparation Cost
USD 9.0 million (Phase 1)
Estimated Total Project Cost
USD 400.0 million
Participating Member States

Access to electricity is a priority for the Nile Equatorial Lakes (NEL) countries' economies because it is a prerequisite for poverty reduction and economic growth. The majority of NEL countries have very low access to electricity, with an average of 6%. Load shedding is common to all countries such that industrial and domestic consumers often experience erratic service. This is mostly due to demand surpassing supply as well as limited power trade in the region, which could arrest the situation.

Under the Regional Transmission Interconnection Project, over 769 km of 220 kV and 110 kV transmission lines and associated sub-stations are to be constructed to interconnect electric grids. This will improve access to electricity through increased cross-border sharing of energy and power. The Project is coordinated under NELSAP-CU and the Project Management Unit is located in Kigali, Rwanda. Overall, the project consists of three Components as follows:

i. 220 KV Uganda (Bujagali) – Kenya (Lessos) interconnection (256 km)
ii. 220 KV Uganda (Mbarara) – Rwanda (Kigali) interconnection (172 km)
iii. Rwanda - Burundi - DRC (Eastern part) (R-B-C) Interconnections:
   a) 220 KV Ruzizi – Bujumbura (112 km) to Kiliba (19 km)
   b) 220 KV Ruzizi – Goma (150 km)
   c) 220 KV Kibuye-Gisenyi-Goma-Kigali (about 200 km)
   d) 110 KV Rwanda (Kigoma) – Burundi (Rwegura) about 120km

Project objective
Improve access to electricity in NBI Member States through increased cross-border sharing of energy and power.

Before

Limited power trade between:
- Uganda and Kenya at 132 KV
- Rwanda-Burundi-DRC from a jointly developed Ruzizi 2 (45 MW) operated by a joint utility – SINELAC.
- Limited cross-border electrification between Uganda-Rwanda; Uganda-Tanzania; Kenya-Tanzania.

NBI Role

- Promoting the project.
- Undertaking feasibility studies.
- Mobilising funding from African Development Bank (AfDB), JICA (Japan), KFW (Germany), and The Netherlands as well as the European Investment Bank (EIB).
- Providing overall project coordination at regional level and technical assistance to the National Project Coordination Units.

Benefits/ Potential Benefits

Provision of transmission lines to relay power from generating plants: Bujagali and Karuma in Uganda, Lake Kivu Gas Methane in Rwanda and geothermal plants in Kenya. This will further give rise to the following benefits:
- Increased cross-border exchange and trade energy at 220 KV.
- Improved transient stability of the systems' safety.
- Affordability of supply as well as flexibility in the operation of the interconnected networks of the five beneficiary Member States.
- Accelerated decommissioning of expensive power generation options such as thermal and use of generators.
- Reduced tariffs.
- Support to rural electrification programs.
- Load diversity savings.
- Improved standards of living and economic development.
- Positive contribution to environmental management through reduced deforestation.
- Reduction in GHG emissions.
- Evolution of a power market dedicated to:
  - Cost effective electricity supply.
  - Cost reflective tariff.
  - Continuity of service of load demand to ensure secure, safe, and reliable operation of the system, nationally and regionally.

[12]*Source of the box: NBI Country Papers: Uganda, the NBI and the Benefits of Cooperation (2011) – p. 10*

banks, constructors) involved in the energy sector and extend power of influence to private sector actors representing increasingly the most relevant stakeholders in the process of infrastructure construction, distribution and sales of energy;
- Strengthen plans to connect Nile power pools to other African regional power pools such as the Southern Africa Power Pool by teaming up with the SADC.

3.6. Opportunity 5: Harnessing Agricultural Regional Opportunities

The Nile Basin includes huge untapped agricultural potential, both in rainfed uplands and downstream irrigation, including sustainable intensification of production and more crop/livestock per drop

THE OPPORTUNITY. Agriculture is the largest consumer of water resources in all Nile riparian countries – and responsible for the greatest overall losses to the system. Overall it is the most important economic sector in terms of providing livelihoods and employment a majority of the 400 million people in the basin countries, much of whom rely on small-scale rainfed and irrigated farming. Egypt and parts of Sudan are the exception, where large-scale irrigated agriculture dominates and yields are far higher. Overall, however, per capita yields are very low, which affects food security at local and national levels. At the same time, several countries depend on international food (in particular cereal) imports from beyond the region, including as food aid. Several countries have a long history of period food shortages, in some cases overlying chronic food production problems – the causes of which go beyond water availability alone and include declining soil fertility, dwindling farm sizes and the impacts of conflict.

Despite all this, parts of the region display great potential for agricultural expansion, in particular Sudan, South Sudan, Uganda and parts of Ethiopia. This potential is increasingly catching the eye of foreign companies looking for arable land (and available water resources) to develop large-scale commercial agriculture. The big question is: how can best use be made of the land and water resources in the basin to increase food security levels in the 11 Nile riparian countries and to underpin local and national sustainable development? The answer might be regional in scope, and requires thinking and action to seize existing opportunities, attract investment and deal with complex and sensitive social and political development issues.

AGRICULTURE REGIONAL POTENTIAL. The potential for agriculture production in the Nile Basin is large. As a region, it would be possible to produce and trade sufficient agricultural outputs to ensure the food security of millions of people within the region, and possibly to become a major producer of certain crash-crops (such as tea and coffee) within global markets. At the moment much of this potential remains out of reach for a number of reasons – natural (related to the resource base, such as erratic rainfall levels and poor agricultural water management), social (resistance to change in particular in terms of assisting subsistence farmers to make rapid transformations to more productive agriculture, and the increasing food demands of growing populations), economic (including issues with incentives, markets, and price stability), institutional (poor policy and regulatory frameworks) and political (lack of harmonisation between local and national plans and between countries, and an absence of long-term strategies at all levels). All these obstacles coupled with poor infrastructure to support supply and value chain processes including agro-industries and transport, make it extremely difficult to transform potential opportunities into real investments.

Improvement of water-related infrastructure, institutions and policies is crucial for the development of agricultural potential in the Nile Basin. Increasing water-use efficiency, in both irrigated and rainfed systems, is of critical importance, particularly as the push continues to extend agricultural systems in response to demand for products and pressures driven by population growth. Debates on the right measures to be taken to increase water productivity and efficiency can generate are extensive. What the NBI and other regional institutions argue is that only regionally-oriented solutions will be sustainable in the long-run and be of sufficient scope to address the bigger picture of where it is most economically feasible and environmentally sustainable to development

future agriculture in the basin.

Boost food production. One cannot trade what one does not have. Currently most of the Nile Basin States do not produce enough to meet national demands and therefore do not have a surplus to trade. Increasing food production will need a basket of strategies to address the current challenges – bio-physical, socio-economic, legal, etc. – which includes policies, institutions and infrastructure. Increased food production may be achieved through improved agricultural productivity in local communities (impact of watershed management interventions) as well as through increased investments in commercial farming.
Boost investment. Long-term sustainable 'new' policies, institutions and infrastructure require investment in studies, planning, implementation, maintenance, reforms and/or supervision. Improvement and development of infrastructure (including water storage, irrigation canals, rainwater harvesting, transportation and storage facilities) is particularly demanding in financial terms.

Boost regional food trade. The trade balance of all Nile countries shows a strong dependence on food imports from global markets, which also means large virtual water imports. Intra-regional trade in food is very low, in particular between the upstream and downstream neighbours. Increasing food trade within the region could address the two problems above, and at the same time increase the allocative efficiency of Nile water utilisation – i.e. where it is apportioned in the basin to maximise value. However, in order to boost intra-regional food trade, countries will have to increase food production at a national level.

WHAT HAS BEEN ACCOMPLISHED TO DATE. The capacity of the NBI and its regional centres to intervene and support agriculture sector institutions has always been limited, partially because the NBI is mainly a regional water-focused institution which and has as its main counterparts nationally the water sector institutions. At the same time, the NBI has mainly focused on the water-management perspectives summarised below:

1. Increasing investment in irrigation development in Nile countries (improving existing schemes downstream and expanding land under irrigation upstream);
2. Improving scheme management and agricultural productivity downstream, and avoiding additional water demands on the system;
3. Increasing investment in rainwater harvesting and small-scale irrigation in upstream countries and catchments;
4. Increasing investment in watershed management upstream to reduce soil erosion and to increase water availability.

The significance of regional trade is recognized by countries, and Regional Trade and Agriculture Productivity was prioritized as a NELSAP project. Issues relating to promotion of regional trade are varied and complex, however, and conjoin policy issues with institutions, capacities and the nature of national and regional political economies. Nevertheless, the NBI can play a critical role in bringing countries together with elevated mutual trust and confidence.

The idea, rather simple to elaborate but formidable to implement, links agricultural production and crop choice with envisaged regional trade. The argument is that there is a need to revisit crop types grown in the different countries, and to identify 'comparative advantage' where, for example, crops with high water requirements are cultivated upstream rather than downstream. Downstream demands are then met by upstream exports. This has two aspects. On the one hand, small and commercial farmers upstream may not need to continue with their traditional export products (e.g. tea and coffee) for which rewards are not attractive in the international market, instead they shift to crops that are in demand within the basin generally and downstream (Sudan and Egypt) in particular, with regional markets becoming more reliable and stable than conditions in world markets. Such a shift, however, does not amount to 'de-linking' from international markets and viable exports may continue (e.g. livestock, flowers). On the other hand, downstream countries may be relieved from producing crops (such as fodder and white onion) that are characterized by high water requirements and, instead, can secure their needs from upstream markets and concentrate on production of exportables (e.g. citrus). Industrialized countries such as Egypt may also find upstream export markets easier to access than international markets where barriers are sometimes substantial.

FUTURE: Enhancing the Opportunities. The agricultural sector in the Nile basin remains vastly untapped yet capable of delivering very significant development

BOX 6. AGRICULTURE OPPORTUNITIES IN THE NILE BASIN (EQUATORIAL+EASTERN NILE)[13]

AGRICULTURE
Portfolio

Regional Agricultural Trade and Productivity Project

Focal areas for Pre-feasibility studies for irrigation schemes

Pre-feasibility studies for five irrigation schemes have been prepared covering the following focal areas: Sake – 2073 hectares, Akagera NP – 6558 hectares, Kigali –2694 hectares, Muyira/Butare – 8618 hectares, Nyabitekeri –12927 hectares

Project Preparation Cost
USD 7.0 million (Phase 1 & 2)

Participating Member States

The Regional Agricultural Trade and Productivity Project will conduct studies that will highlight potential agriculture and agricultural trade opportunities in the Nile basin countries and beyond. It will also increase knowledge of basin agriculture in NBI institutions and promote more efficient and sustainable use of water resources and economically viable investment in agriculture. The Project is coordinated under NELSAP-CU and the Project Management Unit is located in Bujumbura, Burundi.

Project objectives
- Define NBI future agricultural functions.
- Support productive water-use in basin agriculture.
- Incorporate agricultural trade into basin water resource planning.

Before
- Absence of decision support tools for Agricultural Investments.
- No consistent information on irrigation potential.
- Lack of user friendly training materials on best practices in water harvesting and small scale irrigation.
- Scattered information on trans-boundary agricultural trade Issues.
- Water footprint and comparative advantage not documented and used by countries.

NBI Role
- Defining Nile Basin Member States' core agricultural functions.
- Extending the Nile Basin Decision Support System (Nile-DSS) to agricultural decision tools and integrating agricultural data and information into the Nile-DSS.
- Assessing irrigation potential in selected Nile Equatorial Lakes countries and preparing pre feasibility studies for at least four irrigation schemes per country.
- Preparing and disseminating training materials on best practices in rain water harvesting and small scale irrigation.
- Conducting analysis of selected cross border trade corridors and identifying potential investments in Agricultural cross border trade.
- Analyzing and documenting virtual water and water foot print for major commodities.

Benefits/ Potential Benefits
- Informed decision making in agricultural policies and investments.
- Pre-feasibility studies for four to five irrigation schemes prepared for each Member State for resource mobilization.
- Trained people and prepared materials on best practices in water harvesting and small scale irrigation.
- Policies and investment profiles available to beneficiary Member States to improve regional trade.
- Policy options on virtual water/ water footprint developed and used in investment decision making by Nile Basin countries.

[13]*Source of the box: NBI Country Papers: Rwanda, the NBI and the Benefits of Cooperation (2011) – p. 12*

benefits for generations to come. A key facet of regional thinking is balancing upstream rainfed development with downstream largely irrigated farming and livestock production. There are key trade-offs involved, particularly in terms of overall water use losses to the system in evaporation and evapotranspiration, but also very substantial potential development and trade benefits. The following ideas underline how investments can enable the enhancement of opportunities through agricultural development viewed and acted upon at the basin scale, in the context of national policies and plans.

- Undertaken an updated mapping exercise on opportunities to increase food production and to boost regional trade;
- Target national governments with advocacy messages on the meaning and opportunities involved in regional food markets by focusing on comparative advantage and its role in increasing agriculture water productivity;
- Promote a package of policies to be adopted progressively by countries that increase intra-regional trade such as reduced tariffs, removal of export bans, easing the application process for trade permits, and increasing information sharing between local markets.
- Work together with Regional Economic Communities (RECs) such as the EAC and COMESA to create awareness on the benefits and advantages of wider regionalisation of the agricultural sector, and create enabling conditions for wider regional food policies;
- Synergise with private sector investors (national and foreign) to create incentives to increase regional food production, with a particular focus on increasing regional food trade;
- Undertake lobbying activities that target financial institutions (international and regional banks, foundations, and other financial institutions) to finance investments in infrastructure to improve agricultural and water-use efficiency.

However, a realistic and updated assessment and scoping of opportunities for intra-regional agriculture trade will be key to the future of cooperative management and development of the Nile water resources, as discussed in the last sub-section of 'Opportunities'.

3.7. Opportunity 6: Mobilising investment in a fast-growing region

Many international investors wish to invest in the NIle Basin's fast growing economies, particularly given the huge market represented by the 11 basin states

THE OPPORTUNITY. In the past decade, the Nile Basin region and its countries have become a major attraction for foreign investment, including in water-related infrastructure such as hydropower dams and large-scale irrigation schemes. Several of the Nile riparian countries, including Ethiopia, Rwanda, Uganda and Tanzania, are indeed amongst the countries that have capitalised most from Foreign Direct Investment. The current economic and political momentum should be to harness the potential to extend this investment beyond national-based projects towards ones that are regional (or transboundary) in nature.

Despite existing accomplishments, to date investment in water-related infrastructure in the region is only a small fraction of the potential. Beyond what has been already identified by countries themselves in national water plans, and also through the SAPs, many more opportunities for regional projects, whether multilateral, trilateral or bilateral level, remain. Taking into account the current low level of development, and in particular infrastructure development, in the region, the potential is very large. Transboundary cooperation offers the opportunity for facilitating financial resource mobilisation through preparation of multi-country bankable projects and cost-sharing agreements, benefitting at the same time from the investment-friendly environment that many countries are currently already enjoying.

What has been accomplished to date. Since its inception, through SVPs the NBI has contributed to creating enabling environments for investment projects that can produce tangible benefits for Nile countries. ENTRO and NELSAP-CU have identified and prepared studies on sectoral investment opportunities, with the goal of unlocking the cooperative regional potential. These investment projects

were selected because for their transboundary dimension and regional significance – they could generate win-win benefits for at least two riparian countries, and contribute to both national and regional development. Pre-feasibility and feasibility studies were conducted in areas considered instrumental to unlock the cooperative opportunities: including power production, interconnections and trade, development of agriculture including irrigation, river basin planning, and watershed management.

One of the three core functions of the NBI is to promote 'water resources development' (see Box 7). This function is pursued by the SAPs, which assist their member countries in the identification, preparation and implementation of joint investments. Assistance includes efforts to mobilize resources for project finance and capacity building for effective implementation by the countries. SAP projects are typically multi-country investment projects of regional significance such as the Rusumo Hydroelectric Project (see Box 8 at the end of this sub-section), although a few may be national but with regional benefits.

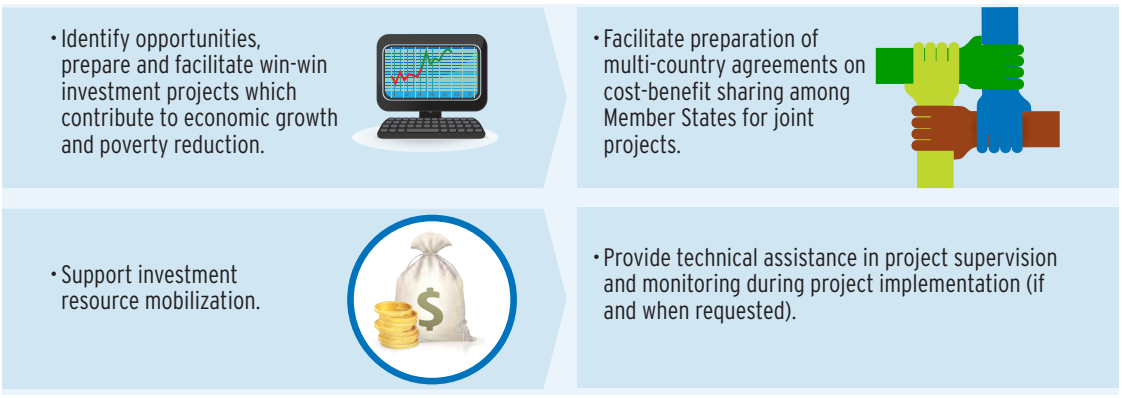
The high level results achieved so far and with which to build on are:

- More than 20 bankable investment projects (ratio of pre-investment finance to investment finance of USD 1: USD 10); others worth USD 5 billion under preparation;
- Regionally significant investment projects worth USD 1.4 billion at different stages of implementation by member states.
- A pool of investment opportunities identified for further study.

For the past 15 years the NBI has contributed to the identification of the existing and potential cooperation opportunities in the several sub-basins of the Nile Basin. But now countries are demanding that these opportunities materialise and deliver concrete outputs. There is significant push to moving pre-investment projects already identified to implementation. Concrete investments 'on the ground' have to be expanded to respond to the demands of the NBI member states. At this particular moment of the NBI lifecycle, advancing investment projects to the implementation stage is essential for three reasons. First, because only implemented investment projects can clearly demonstrate and provide evidence of the tangible benefits of joint planning (vis-à-vis unilateral planning). Second, because concrete benefits need to be generated to ensure the continuity of commitment and buy-in of countries to the cooperation process. Third, because the NBI needs investment projects to be successful in order to demonstrate its growing credibility for project preparation standards and its ability to attract substantial international financing.

FUTURE: ENHANCING THE OPPORTUNITIES. According to stakeholders consulted for this Paper, the potential expansion of the Investment Portfolio of the NBI (and the would-be NBC) should include regional projects that take into account the 'new' national contexts and projects – be they hydropower, reservoirs, or irrigation for commercial agriculture. A mapping exercise that assesses all newly implemented hydraulic projects (unilateral, bilateral and multilateral through other regional institutions) as well as those under implementation should be conducted. An estimation of planned projects for the short and medium-term could also inform an updated scoping study of potential

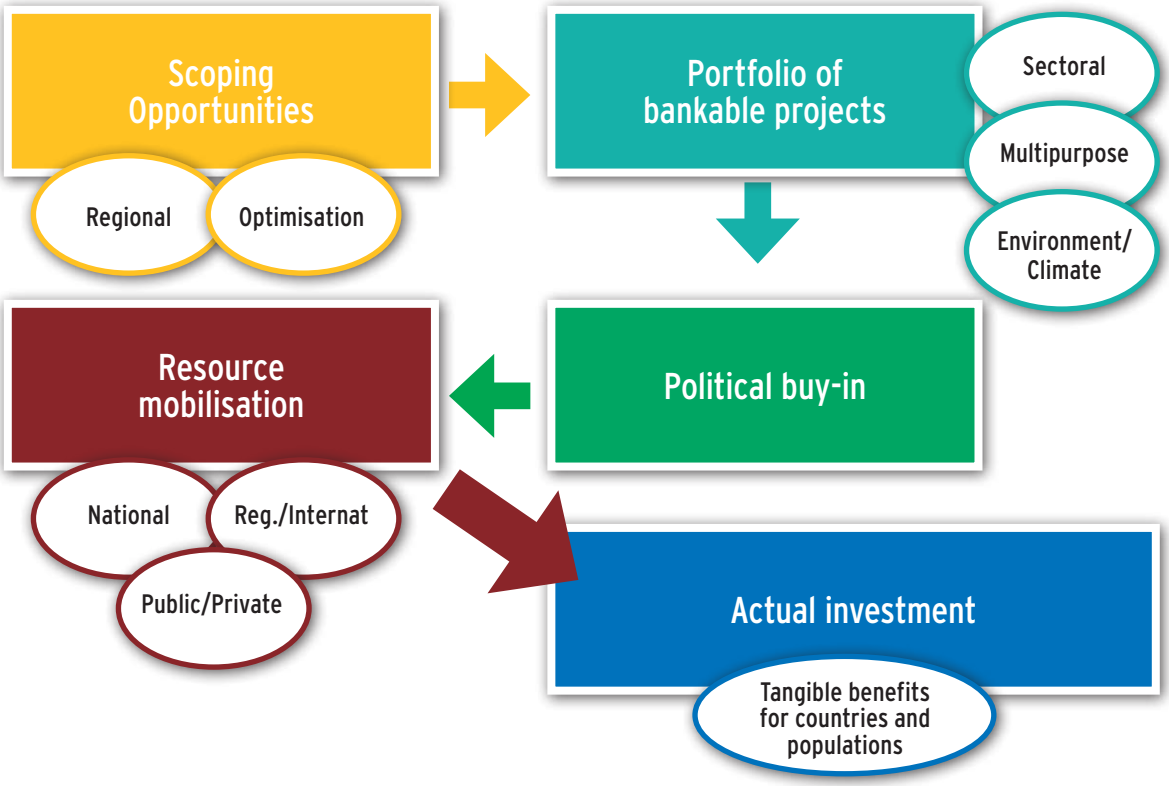
BOX 7: ROLE OF NBI IN CAPTURING INVESTMENT FOR WR DEVELOPMENT[14]



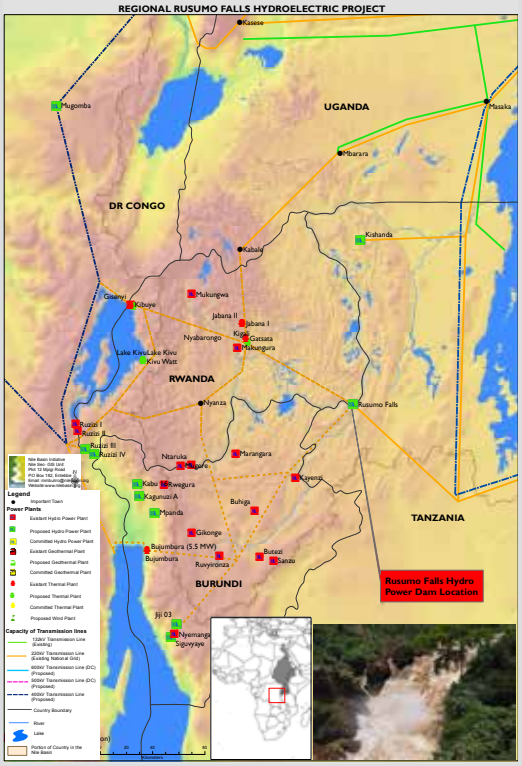
[14]*Source of the picture: NBI High-Level Results Poster on Water Resources Development Program (2013) http://www.nilebasin.org/images/docs/Water%20Resources%20Development.pdf*

regional projects to be supported by the NBI, including complementarity and harmonisation with ongoing national projects. A new generation of cooperative investment project should enter the political agenda of countries and cooperative institutions.

BANKABLE PROJECTS AND RESOURCE MOBILISATION. One of the main opportunities of regional management and development of water resources is related to preparing bankable projects, i.e. projects that can easily be financed by international and regional financial institutions such as the World Bank or African Development Bank (but not exclusively). These institutions have strict operational directives, namely in what concerns consultation and agreement of all Nile Basin States concerned. A regional project, prepared under the auspices of a permanent river basin institution can more easily receive the financial support of those financial institutions. Effective mobilisation for financial resources of investment projects is crucial for transforming an opportunity for regional collaboration/cooperation into a reality, an investment and a fact-on-ground. Resource mobilisation carried out by regional organisations is entering a new era of infrastructure financing – the streams of funding are more diversified and more multi-partner. Traditional loans from international and regional banks are now combined with loans from non-traditional partners (such as the BRICS countries or private banks), financial participation of the private sector (national and foreign), and larger contributions from the riparian countries themselves.
In order to enhance the opportunities for investment, the Nile cooperative institutions (be it the NBI or the future NBC) needs to broaden its resource mobilisation strategies in order to include a whole range of new investor partners that are present in the region.



BOX 9. REGIONAL RUSUMO FALLS HYDROELECTRIC PROJECT – A NBI/NELSAP FLAGSHIP INVESTMENT PROJECT



A DREAM TURNED REALITY. After more than 20 years, construction of the Regional Rusumo Falls Hydroelectric Project (RRFP) power plant and its associated transmission lines is slated to start in the first quarter of 2015 with commissioning of the first power unit expected in December 2018. The US$470 million project will be financed through a World Bank loan of US$340 million for constructing the generation facility and US$130 million from the African Development Bank and other development partners for constructing the associated transmission lines.

The objective of the Regional Rusumo Falls Hydroelectric Project is to address the acute periodic shortage of electricity experienced in Burundi, Rwanda and Tanzania. Shortage of electricity in these countries and indeed the entire Nile Basin region has resulted into an underdeveloped manufacturing industrial sector hence limited options for business development necessary to increase income and reduce poverty; and limited opportunities for modernizing and improving the quality of key infrastructure (water supply, health care,

BENEFITS OF THE PROJECT. The RRFP is recognized by the three beneficiary countries as a good buy that will share its socio-economic benefits. Once operational, the project will bring 8 megawatts of renewable, clean, relatively low-cost power to the national grids of Burundi, Rwanda a Tanzania with each receiving an additional 26 megawatts. The additional power will benefit aN estimated 1,146,000 people in the three countries and an estimated increase in electricity access rates of; 5.4% (520,000) in Burundi, 4% (467,000) in Rwanda and 0.34% (159,000) in Tanzania. Improved access to renewable clean energy will lead to an increase in economic activity as well as private sector development in areas such as agriculture and related processing, water supply, health, education, commerce and tourism as well as substitute thermal generation. The alternative energy sources will save the biomass/deforestation. Furthermore, the relatively inexpensive electricity will contribute to foreign exchange savings and improved balance of payments since the power generated will replace imported petroleum products. Also envisaged is improved access roads – usually done during construction as well as job creation during and after construction - it is estimated that 1000 people will be employed by the project.

At the regional level, the transmission lines will form a 'backbone system' that will link the Great Lakes region allowing power exchange with Eastern DR Congo as well as other East African Community countries and later to the Southern Africa Power Pool, thus facilitating power trade among member countries and beyond and improving regional power supply reliability. In addition, the project will support regional and political cooperation, enhance regional integration, facilitate trade, peace and stability among the Nile Equatorial Lakes countries through shared facilities and development of common energy and water policies.

ROLE OF THE NILE BASIN INITIATIVE

Trans-boundary in nature, the RRFP caught the attention of the Nile Basin Initiative (NBI), which is interested in investment projects of regional significance. Through its Nile Equatorial Lakes Subsidiary

Action Program Coordination Unit (NELSAPCU), NBI provided a platform for regular dialogue and information exchange, creating an atmosphere of trust and confidence among the three governments and building an enabling environment for joint investments. To enable the countries to dialogue, NELSAPCU invested resources in building capacity in Burundi and Rwanda given that the two countries had not yet established their departments for water resources. Associated with this is capacity building of staff to support project preparation, which is key to comply with timelines and agreed deliverables while improving the quality of the outputs.

NELSAP-CU further coordinated the preparation and signing of several important agreements by the three beneficiary countries. Indeed in March 2005, Ministers in charge of Energy Affairs in Burundi, Rwanda and Tanzania signed a Communiqué declaring their commitment "to jointly develop the Regional Rusumo Falls Hydroelectric Project and accompanying activities such as water resources management, catchment management and environmental management". A year later in 2006, the Ministers signed a Joint Project Development Agreement (JPDA) to carry out optimization and feasibility studies, a decision which was implemented by NBI. Other key agreements include the Tripartite Agreement signed in February, 2012 in which the partner states reaffirmed and recorded their commitment to jointly develop, finance, own and operate the project in accordance with the principles of the Agreement. The Agreement also paved way for NELSAP-CU to continue the pre-implementation arrangements for the project. This was followed by the signing of the most crucial documents namely the 'Implementation Agreement' and the 'Shareholders Agreement' in September, 2013.

In addition, NELSAP-CU mobilized grants for preparation of the project which was key to reaching financial closure and assisted the three partner states with detailed and thorough project preparation ensuring international best practice and in fulfillment of the various requirements by both the World Bank and the partner states; mobilized the much needed investment finance; harmonized policies of the three countries (which is relevant for the success of regional projects) by assisting Rwanda and Burundi to develop their national water policies and strategies with reflection on trans-boundary dimensions of development. It also centralized financial management, procurement, consultant coordination; improved country coordination; facilitated decision-making processes; as well as coordinated national and local consultations, all of which facilitated and strengthened the process. The NBI approach that puts emphasis on integrated and coordinated planning created hitherto good relations among all the three countries' relevant ministries of water, energy and agriculture, at the technical and political level as well as local government, civil society and the communities.

3.8. Opportunity 7. Expanding the Cooperation Platform

The existing cooperation platform built under the NBI is the result of efforts dating back to the early 1990s. This represents a solid foundation on which to build

THE OPPORTUNITY. Nile riparian countries commonly agree that multilateral cooperation is the best way of managing common water resources (in order to maximise benefits and minimise risks and costs), but for that they need an institutional platform to enable dialogue. In the past, the cooperation process (NBI and D3/CFA) have offered this platform for both technical and political dialogue, but this platform now needs to be extended so it can actively contribute to establishing, maintaining and strengthening the capacity of the riparian countries to advance the cooperation agenda, including joint projects,

by facilitating high-level stakeholders engagement and coordination. In order to make this opportunity successful, the new political realities on the ground cannot be ignored – changes of actors, changes of governments, new priorities, new external partners, new modus operandi for investment and foreign relations, and new regional dynamics. In order for the NBI/NBC to play a significant role as a cooperation platform, the opportunity to engage in new types of hydro-diplomacy should be taken now.

WHAT HAS BEEN ACCOMPLISHED TO DATE. A primary NBI goal has been the promotion of enhanced regional cooperation, peace and stability in the Nile Basin region. In order to attain this important goal, the NBI has facilitated, supported and nurtured cooperation amongst the Nile Basin countries so as to promote timely and efficient joint actions required for securing benefits from shared Nile Basin water resources. Through the SVPs and SAPs, the NBI actively provided and operated a unique platform for inter-country dialogue, consultations, negotiation and consensus-building led by Nile-COM, Nile-TAC and other senior officials on issues of sustainable water management and development. Through its different programmes, the NBI facilitated regional liaison among water-related interests and rendered it effective through the provision of strategic information. One of the three core functions of NBI is exactly the promotion of Basin Cooperation (see Box 10), mainly led by Nile-SEC, although NELSAP and ENSAP have parallel responsibilities concerning their respective governance structures (NELCOM and ENCOM).

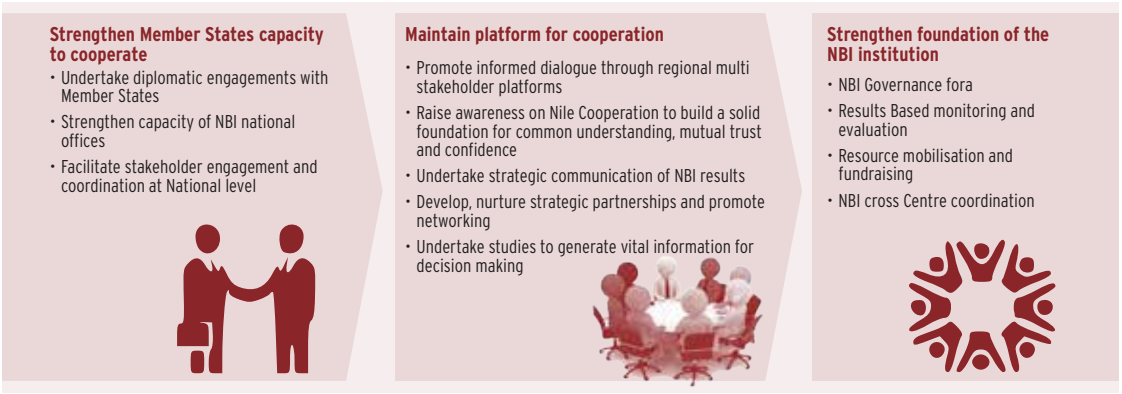
Despite the challenges in this particular core function, there are high level results that should be mentioned:

- Trust and confidence between countries, based on an on-going basin—wide dialogue on joint transboundary water resources management and development;
- A cooperative institution that provides the only all-inclusive platform for riparian countries to dialogue at technical level;
- Increased capacity of riparian countries to advance the cooperation agenda;
- An enabling investment climate for joint projects in the fields of power, agriculture and regional trade, as well as river and watershed management.

FUTURE: ENHANCING THE OPPORTUNITIES. Nile riparian countries have moved a long way together since the mid-1990s, establishing a solid foundation for technical and political cooperation at a multilateral level. Along the way, they have overcome several challenges (high expectations, legal and institutional disagreements, financial issues, and political/diplomatic tensions, as discussed in Section 5) that need to be addressed in very specific terms. But the very existence and persistence of those challenges demonstrate the need (more than ever) for a cooperation platform that plays a bridging role, promoting and providing incentives for the continuation of dialogue. The separation between technical and political tracks is now narrower than ever, and the NBI (and the would-be commission) will be called to play a more active and flexible political role in order to expand the cooperation platform.

There are two areas that will need to be developed: one is the engagement of business and private investment in the basin, increasingly a source of financing for infrastructure development (and here we

BOX 10. PROMOTING BASIN COOPERATION[15]



[15]*Source of the picture: NBI High-Level Results Poster on Basin Cooperation Program (2013) http://www.nilebasin.org/images/docs/Basin%20Cooperation.pdf*

mean national investors rather than FDI); the second is to strengthen – and 'smarten' – engagement with civil society, the media and academia. In the past too much of the latter has been on an ad hoc basis, devoid of strategic insight and planning. This now needs to move up a notch so that business becomes integral to understanding and advocating for cooperation and the wider basket of stakeholders becomes integral to its future design and implementation, including evaluating for results.

It is suggested, therefore, that the NBI urgently develops a private business engagement strategy and institutional 'unit' to scope out opportunities for engagement including, if necessary, for sponsoring specific activities. In addition, a stakeholder engagement strategy 'with a purpose' should be developed that strategically manages the inclusion of the broader basin community in cooperation processes – reducing the technocracy, broadening the political understanding and embedding the process far more extensively in countries, societies and networks. Everyone should understand the vision and contribute to its success.

4. Implementation Challenges

The previous sections of this report have looked at the achievements of the NBI until now, as well as the numerous opportunities that transboundary cooperation process offer to the countries in order to increase benefits and contribute to the growth and development of national and regional political economies, while contributing to increase regional trade, integration and even regional security. In spite of all the recognised achievements and opportunities, it is important to understand that some key challenges have curtailed the progress and the speed of implementation of regional cooperation in the Nile, and that some of them are structural challenges that will not be not easy to overcome but that need to be tackled. Ignoring them might prevent cooperation to be fully implemented and optimisation of resources management to be achieved.
It is consensual that cooperation in complex river basins takes time to materialise, which is usually a long and complex process, in particular in river basins with so many riparian states and with so many complexities. But in order to make cooperation attractive and effective, we need to identify and understand the very specific challenges in the Nile. This section looks at the main five challenges identified during the consultation: 1) high expectations; 2) understanding scope of benefits; 3) financial; 4) legal and institutional, and 5) political.

4. 1. High expectations towards cooperation

One of the main challenges identified by many of the stakeholders consulted is related to the high expectations concerning the regional cooperation process, and how difficult is the management of these expectations. When the current two-track cooperation process was initiated in the mid-1990s, there were three very strong expectations for most of the countries, in particular for the upstream Nile Basin States. The first expectation was the process of cooperation would be incremental, starting by working together in a solid and robust shared vision for the basin (through the SVPs) based on mutual trust and confidence, while a new legal and institutional agreement based on principles of equitable utilisation of water resources was being negotiated. The second expectation was that in the

medium-term the tangible benefits in terms of investment projects and its socio-economic benefits would be identified by the SAPs, and some of them could be implemented. The third expectation was that the CFA negotiations would be finalised in a good time and in a spirit of cooperation, and the transitional institutional arrangement (the NBI) could be replaced by a permanent river basin Commission (the NBC). This institutional strengthening process would lead to the consolidation and delivery of the cooperation benefits, namely through large-scale investment projects. Were the expectations too high?

The SVP have delivered the numerous very relevant products through its seven programmes (e.g. Applied Training, Transboundary Environmental Action, Efficient Water Use for Agriculture, Water Resources Management including the establishment of a DSS), that were later mainstreamed in the work of the SEC and

SAPs through the Institutional Strengthening Project (ISP). The programmes have been foundations to build a Shared Vision to the Nile Basin, but several of those consulted considered they were close too soon. In particular, they would expect a programme like the Confidence-Building and Stakeholder Involvement to have continued in order to consolidate what has been achieved. In a region characterised by decades of mutual mistrust, continuous confidence-building measures are indispensable for a robust Vision shared by all countries. Continuity on confidence and trust building activities is key if all-inclusive cooperation is the ultimate goal.

But it is in what concerns delivery by the SAPs that expectations of some of the countries seem to be have been frustrated. As analysed in the previous sections, the NBI and the SAPs have implemented several fast-track projects, that have served to show cross-cutting and cross-border benefits of jointly planned and implemented water-related projects. However, the fast-track projects, by design, were of small-scale and not large-scale multipurpose million-dollar infrastructure projects. For many countries, at the end of 15 years of cooperation, they were expecting more and bigger projects, more finance and more infrastructure projects on the ground. The frustration can be partially explained by the lack of an initial clear logframe – when would the NBI really be expected to move ahead with large-scale projects such as the Rusumo Falls or the JMP.

It was the third expectation that was perhaps too high, and that ended up having snowball effects. Until 2007/2008, the negotiations for a new legal and institutional framework were moving in a positive manner, informed not only by a Shared Vision but as well by agreed principles of international water law. In 2008, the NBI has started moving towards an interim phase – the institutional strengthening – that would be in place to prepare the ground for the permanent arrangement, with mandate and core functions defined. However, disagreements between countries have had negative impacts: it prolonged the transition phase (until now), contributed to the erosion of the mutual trust and even some of the pillars of the shared vision, and put on a hold some of the investment projects. Expectations that the past hydropolitical fears and hurdles would be easily and quickly overcome were perhaps based on overestimations.

4.2. Conceptual challenges: Understanding benefits of cooperation

The assumption that cooperation is something always wanted by all parties/countries that prefer a cooperation scenario to a non-cooperation scenario, and the assumption that cooperation implies gains to all parties/countries when compared to a scenario of non-cooperation, can be both incorrect. And both have been basic assumptions informing the multilateral cooperation process in the Nile Basin, namely at the inception stage of the NBI. There is extensive literature about international cooperation, based on real case-studies and in particular international river basins, which put in evidence that:

- For some of the parties, a scenario of non-cooperation can be more advantageous than a scenario of cooperation and as such those parties might have little or no incentives to cooperate;
- Cooperation will only be the preferred scenario when benefits from cooperation exceed the gains from non-cooperation;
- Cooperation will only materialize (or be implemented) if the major stakeholders perceive cooperation as a better option than non-cooperation;
- If cooperation is a better alternative than non-cooperation, transboundary water management will progress. If not, it will stall.

Taking the above into account, one needs to understand what has been less successful in the conceptual foundations of the NBI. Looking at it from a merely discursive perspective, all (without exception) the Nile Basin States have stated that cooperation was the preferred option, that presented more gains/advantages/benefits for all parties (the 'win-win' solution, and often cooperation was presented as "the only way" due to the enormous environmental and socio-economic challenges faced by the countries in the Nile Basin. Again, in discursive terms, it looked like the benefits of cooperation exceed the benefits of non-cooperation for all countries, even taking into account that countries wanted different things (more water or more infrastructure or more financing, etc.). The benefits have been identified under several different programmes (both Shared Vision and Subsidiary Action Programmes) – economic and non-economic benefits, including environmental and political benefits.

But if benefits were "win-win" and all

would gain, then what was it that was not fully understood by the countries and its stakeholders and what can be done? This report, based on consultations, identifies four main challenging areas that the NBI together with the countries needs to work on, through awareness, advocacy and diplomacy:

UNDERSTANDING THE BENEFITS. Although benefits of multilateral cooperation might be multifold, they were not fully understood by the decision-makers of the countries – rather abstract conceptualisations such as benefit-sharing need to be 'translated' into real examples. The NBI should develop its Benefit Sharing Framework further and try to reach the highest political echelons in the Nile countries. The exercise should include quantification of benefits, costs and trade-offs using existing, under construction, planned and potential investment projects (unilateral, bilateral and multilateral) as examples.

MAKE BENEFITS ATTRACTIVE. The exercise above described should contribute to highlight the benefits of multilateral cooperation vis-à-vis unilateral development, but that might not be enough to make those projects attractive. The NBI and its centres need to work on outreach strategies, including advocacy and diplomacy, to reach those in the countries that take decisions on investment options – be it politicians and advisors in various governmental departments, private sector or financiers. In this particular case, the NBI with the support of the Nile governance structure will need to take a more pro-active behaviour. Show-casing benefits in other examples of transboundary river basins in Africa and elsewhere as proved to be insufficient – real examples from the Nile sub-basins need to be used.

PERCEIVED BENEFITS FOR MAJOR STAKEHOLDERS. In multi-party cooperation, usually governed by decisions by consensus, the most difficult can be to convince the major stakeholders that cooperation is more beneficial than non-cooperation and their resistance to cooperation can block the whole process, even when others are ready to move ahead; by major stakeholders we mean the countries that are the majors water users or major water contributors, that have more infrastructure in place or potential; or simply have more economic and political power than the neighbours. Benefits to these major stakeholders need to prevail over the benefits they already have – in simple terms, major stakeholders will not enter into cooperation in the case of a 'lose-win' situation. In the specific case of the Nile Basin, countries such as Egypt and Sudan (at the moment the major users of Nile waters) need to perceive what are their gains beyond the 'status quo' situation that currently benefits them. In order to get these countries fully on board of the cooperation process, they need to perceive clear and attractive benefits (economic and non-economic) of cooperation. Current and future work of the NBI might need to take this into account: produce/provide/show clear benefits of multilateral cooperation to the downstream Nile Basin States.

UNDERSTANDING RISKS/COSTS OF NON-COOPERATION. Besides the understanding and quantification of the benefits of cooperation, it is also necessary that the NBI promotes a comprehensive multi-stakeholders exercise that looks at the risks and costs (in the short, medium and long-term) of a scenario of non-cooperation. Section 5 of this report initiates a discussion on this point.

Transboundary cooperation will only be the preferred alternative when benefits from cooperation will exceed the gains from non-cooperation; the biggest challenge is to make the benefits clear, visible and attractive, in particular for the major stakeholders, such as the countries that utilise more Nile water resources (e.g. Egypt and Sudan) and those that has more potential for infrastructure development (e.g. Ethiopian and Uganda).

4. 3. Legal and Institutional challenges

As explained in the Introduction section of this report, one of the main challenges in the Nile River Basin is the lack of a comprehensive legal agreement that guides the management and development of the shared water resources. Multi-stakeholder negotiations for a new legal and institutional framework (the CFA) have been conducted with all countries participating in it since 2007. The new framework is informed by the principles of international water law, such as equitable utilisation, no harm and obligation to cooperate (see box). The second part of the framework deals with the institutional structure of the permanent river basin commission to be established. Although it is consensual that a framework is needed in order to move cooperation forward, the CFA is waiting adoption since 2014. It is recognised that there are still numerous legal and

institutional challenges to be tackled.

CFA adoption is a long process. In 2010, the final document of the CFA was signed by six riparian countries. As per August 2014, two countries have ratified (Ethiopia and Rwanda) and five others are in the process of ratification/accession (Uganda, Kenya, Tanzania, Burundi and South Sudan). The CFA will only be adopted when six Nile Basin States deposit the instruments of ratification at the African Union. Ratification processes by national parliaments are long political processes. It might take additional months for the CFA to enter into force and for the permanent NBC to be established.

Lack of consensus between countries. Egypt and Sudan have reservations to the CFA document and its process, and have suspended its participation in the NBI activities in 2010, although Sudan is now back to all the NBI and ENTRO activities, and have resumed paying its national financial contributions to the institutions. But between 2010 and 2012, the absence of the downstream Nile Basin States in meetings and projects has had several snowball effects for the normal operations and decision-making process of the NBI institutions (see two next points). Since 2013, Sudan had resumed its participation in all NBI institutions and decision-making processes, but Egypt not yet. The absence of Egypt is a major challenge for the cooperation process, as the establishment of an all-inclusive NBC is still the major goal of the countries (see last point in this section). Countries and NBI should work together to bring Egypt back on board.

Shared Vision lost momentum. For several years the NBI, its centres and Nile countries have worked together to build a Shared Vision based on several pillars; due to the split upstream/downstream on the issue of adoption and ratification of the CFA, it had been losing momentum. The Shared Vision needs to be revived and brought back to the political agendas of the countries.

Investment projects affected. The legal and institutional predicaments also represent a challenge to the progress of the NBI Investment projects, in particularly in the Eastern Nile Basin. Some of the projects have been interrupted due to lack of political viability, such as it is the case of the JMP, that was the major project that could show the magnitude of transboundary benefits. It is very unlikely that until the legal/institutional problems are sorted out, the project could be resumed. But other ongoing projects have also been affected, facing additional difficulties for example in terms of mobilising and approval of finance. Jeopardising the implementation and delivery of the NBI investment projects is denying the possibility of displaying tangible results.

Institutional 'vacuum' is risky. Since 2010 that the NBI has experienced a stand-by moment, awaiting decision over the adoption of the Cooperative Framework Agreement (CFA). The NBI can continue to be a transitional arrangement but in the medium-term could lose political momentum and legitimacy at the eyes of the riparian countries themselves and the external actors. The risk of a possible institutional 'vacuum' (no Commission and weakened NBI) can carry operational, financial and reputational risks. Section 5 look at specific institutional risks associated with such a scenario.

4.4. Financial sustainability challenges

A main challenge that NBI and its institutions face is related to financial sustainability. For most of its existence, the NBI operational costs and programmes have been financed by external partners, namely through the Nile Basin Trust Fund (NBTF) managed by the World Bank. This external funding had been vital in the launching and the first stages of cooperation (see box with details on NBTF support), namely the Shared Visions programmes, to bring the countries together in a phase they were still building confidence and capacity to work jointly. The countries were also called to progressively increase their national financial contributions, in particular when the NBTF funds were reaching an end and the NBTF itself was phasing out. Financial contributions from countries were expected to cover the operational costs of the NBI centres. Currently the SEC, NELSAP and ENTRO costs are being covered through the NCORE project and country contributions, but the future financial sustainability of the cooperation process is a major concern. The financial challenges in the Nile Basin can be seen a double-edge sword.

Commitment and Ownership. On the one hand, countries and NBI institutions need to work together to increase countries' commitment and ownership of the cooperation

process, namely by guaranteeing that all NBI countries comply with the Nile-COM decision of progressively increasing national contributions in order to pay for the operational costs of the three institutions. This can be challenging knowing that Nile countries have asymmetric financial capacities, so it is suggested that the bigger economies could agree to cover part of the costs of the smaller economies. By increasing country contribution to the level of being able to finance all NBI operational costs, the Nile countries will also be decreasing their dependence on donors financing. These are very important steps to increase the sustainability of the NBI to perform its core functions, and at the same time the credibility of the NBI when mobilizing additional financial resources.

Resource mobilisation strategies. The end of the NBTF has dictated the end of an era in terms of funding the Nile cooperation, and the NBI institutions need to elaborate new resource mobilisation strategies. The standby legal situation, the prolonged institutional transitional stage and the non-participation of Egypt in the NBI process make it challenging. Traditional financial institutions and donors might be reluctant to financially support a process that is 'dragging' and it is not all-inclusive (in particular excluding the most downstream riparian). At the same time, NBI/C institutions need to make the cooperation projects attractive to new players in the region, such as the BRIC countries – but likely these players are mainly interested in infrastructure (hard projects) but not necessarily in soft projects. It will be challenging to develop resource mobilisation plans that can capture all the new financial complexity and diversity, and at the same make NBI/C projects attractive when they are competing with other attractive projects in other river basins.

4.5. Political: when the obvious cannot be ignored

Water is political, and transboundary water is extremely political – it is very much the case in the Nile Basin. Decisions concerning transboundary waters are often taken by politicians and their advisers, and not necessarily based on technical knowledge or expertise. Capacity of technical people to influence the political level is often limited, and this means that technical and even economic benefits are usually less appreciated by the decision-makers than the political costs that certain decisions might involve. Decisions that involve legal and institutional changes are particularly politicised. Historical mistrust between countries if not properly addressed by the cooperative institutions is bound to resurface in critical moments and contribute to politicise even the merely technical cooperation. The outcome is low levels of political buy-in by the countries, and this is the biggest challenge of all that the NBI together with the Nile Basin countries have to overcome.

The major problems to the implementation of the NBI cooperative agenda are political, and therefore the solution is political. Considerable efforts will have to be made in the political track, and the NBI could invest in good offices and 'water diplomacy'.

One of the controversial issues that have historically hindered the progress of the multilateral cooperation in the Nile Basin is related to legal agreements. In the mid-1990s, the countries have opted for separating technical cooperation (the NBI) and the legal negotiations (the Cooperative Framework Agreement negotiations process), based on the idea they should be parallel tracks. Although one can nowadays be critical of that past approach, but as it is not possible to come back and revert the decision. Then the important is to highlight the lesson: the much politicised nature of the Nile Basin hydropolitics cannot be ignored in any attempt to build sustainable multilateral cooperation in complex transboundary river basins. The future of the technical cooperation process in the Nile Basin is very much dependent on the success of the CFA adoption. The current challenge is that the NBI will still be a transitional cooperative arrangement until the CFA will be adopted, and this does not come without challenges to the implementation of the cooperation objectives.

5. Risks of Non-Cooperation

5.1. Understanding the risks of non-cooperation

Implementation of transboundary cooperation on the ground is a particular challenge in river basins with a long history of mistrust or conflict such as the Nile. Entrenched misperceptions between states, asymmetric information and over-politicised institutions can all form barriers to greater cooperation. An additional challenge is the fact that conceptualisations and discourse on cooperation tend to focus on the opportunities and benefits (the best case-scenarios), and not on the costs and risks to peoples, economies and the environment of non-cooperation. The NBI now considers this discussion urgent and will make it a centrepiece of the Nile Basin Development Forum 2014.

The NBI hopes to see Nile stakeholders reflect on the "risks associated with the failure to manage adverse consequences ensuing from uncoordinated development and lack of agreed management regime" (NBDF Call). Ultimately, it is hoped, this reflexive process will contribute to a more comprehensive understanding of the inevitability of cooperation by all stakeholders involved, but in particular the decision-makers, simply because the costs of non-cooperation will be so great.

The unlikely scenario of non-cooperation, but… At least since 1999, a situation of non-cooperation in the Nile Basin has seemed unlikely, given the seeming entrenchment of basin-wide cooperation processes in thinking on Nile basin development under the NRBAP and then the NBI establishment in 1999. The NBI took particular pains to identify win-win benefits of joint projects between countries and these processes deliberately undertaken as joint exercises. It was not expected, therefore, that states cooperating would allow a reversion to the status quo ante of mutual hostility and mistrust.

Stakeholders consulted for this Flagship Paper were explicit: there is no alternative to cooperation in the Nile Basin; and a scenario of non-cooperation is very unlikely. But at the same time they considered that it is important to collectively address the scale and scope of risks associated with a non-cooperation scenario, to remind Nile riparian countries of the need to invest further political capital in ensuring that cooperation works and is sustainable.

Risks of non-cooperation. When we speak of risks of non-cooperation we should not be only thinking about the most pessimistic scenario (worst-case-scenario) of total absence of cooperation, but also of limited and/or fragile cooperation. Situations of this kind would for example include situations where some Nile Basin States disengage from the cooperation process leading to an impasse or stagnation in the evolution of cooperative mechanisms, contributing to institutional crises and loss of external interest and commitment to invest

in the process as the possibility of achieving significant results recedes.

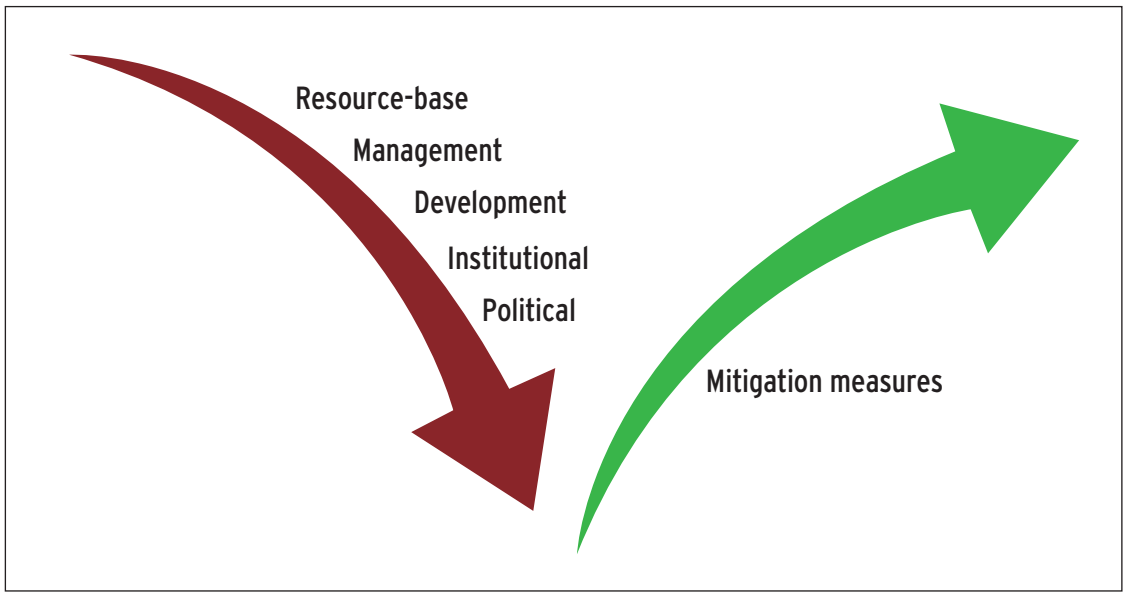
The purpose of including this risk matrix in the Flagship Paper is not to forecast doom-laden scenarios, but to help in identifying risks of a scenario of non-cooperation or limited/fragile cooperation and the mitigation measures that may be taken by countries, institutions of cooperation such as exist, and by other relevant stakeholders including development partners. Ignoring or disregarding the risks (even if they are unlikely) of a non-cooperation scenario could be construed as neglect or deliberate political blindness.

5.2. Mitigating the risks of non-cooperation

The tables presented below identify five main types of risks – resource-based, management, development, institutional and political. These are likely to emerge in the absence of cooperation (or in the presence of a limited and/or fragile cooperation scenario). The tables highlight not only the main risks but also other risks associated prolonged limited cooperation. It also presents an assessment (although subjective) of how likely certain risks are.

The assumption is that none of these risks is inescapable, and that mitigation measures can be taken in order to avoid them or to decrease their likelihood. The measures presented are mainly indications of what riparian countries and cooperative institutions can do.

RISKS OF NON-COOPERATION



TYPE OF RISK	MAIN RISK	ASSOCIATED RISKS
Resource-based	Resource-use pressure and mismanagement of common natural resources	Negative impacts on water quantity, quality and distribution/allocation
		Increased competition and conflict between uses/users
	Increasing degradation of common natural resources (water, land and environment)	Negative effects on populations' livelihoods across borders
		Intensification of levels of environmental degradation
	Ignoring cross-border dimensions and impacts of climate variability and climate change	Increasing number of people affected by extreme events, with associated socio-economic and financial costs
		Uncoordinated actions to tackle climate issues with limited outreach
Management	Riparians fail to use existing regional management tools (e.g. NB DSS) in their national planning	Overlapping of management tools
		Uncoordinated and non-holistic plans and ill-informed decisions
	Limited coordinated monitoring of the resource-base, its utilisation and changes	Sub-optimal management of common natural resources
	Riparian countries disregard the inclusion of transboundary dimensions in their national water plans/ policies	Failure to include transboundary/regional optimization and cost-efficiency dimensions
		Economic/financial costs that could be otherwise minimised
Development	Increasing unilateral development of large-scale infrastructure in the Nile river and tributaries with little or no cooperation/ collaboration/ consultation with neighbouring riparian	Possible (expected and or unexpected) negative transboundary impacts, including hydraulic, environmental & socio-economic
		Financial burden to the country developing the infrastructure, when financial costs could have been shared
		Loss of opportunity of economies of scales, and of cascade of transboundary benefits that can be achieved (only) through joint projects
	Ideas of joint investment projects lose momentum or relevance for the riparian countries	Background work in terms of joint investment projects reaches a standby stage
		Mobilisation of external financial resources and investment for such projects is at risk due to lack of commitment from countries
Institutional	Disengagement by default of riparian countries from current transitional cooperation process (NBI), by not participating and/ or not paying financial contributions	Slowdown of the activities and programmes of the cooperative institutions, affecting its capacity to deliver and efficiency of operation
		Failure to achieve financial sustainability
		More difficult to engage effectively with key stakeholders in the riparian countries (e.g. civil society, non-water sectors, private sector, etc)

LIKELI-HOOD	MITIGATION MEASURES
M/H	Resume and reinforce Shared Vision type of activities to remind countries, extending understanding of multiple benefits (win-win) of transboundary cooperation (to all kind of stakeholders, but with a particular focus on high-level decision-makers); Intensify awareness campaign of risks and costs of a non-cooperation scenario (loose-loose)
M/H	
M	Promotion of transboundary climate dialogue and action, building up on NBI transboundary frameworks and mainstreaming widely and across countries and sectors
L/M	More incentives to be given to national planning institutions to make use of tools, and the knowledge base that NBI/C is maintaining
L/M	Disseminate widely the advantages and value-added based on experience of joint planning among technical and political decision-makers
L	Increase visibility and relevance of NBI/C products, policies and actions in the countries and institutions through ambitious knowledge-based advocacy actions and media work
H	Ambitious advocacy campaigns focused on the promotion and dissemination of benefits (and costs/risks reduction) of joint identification, planning and development. Countries and cooperative institutions should put additional efforts into having flagship examples of such projects on the ground (e.g. Rusumo, JMP) as soon as possible to co-substantiate evidence that 'jointly' conceived and implemented is more beneficial to all parties than unilateral
M	Cooperative institutions must work together with the countries to bring back to the agenda the advantages of identifying and facilitating multi-country projects, namely advantages in terms of financial resources mobilisation
L/M	Intensification of efforts to promote the urgent need for countries to keep 'investing' in the cooperation process, by showing the specific benefits for each country; Intensification of dialogue with Egypt to de-freeze its participation in the NBI; Increase visibility of NBI at national level.

TYPE OF RISK	MAIN RISK	ASSOCIATED RISKS
Institutional	Delay in the ratification of the CFA and consequent delay in adopting the permanent river basin commission	Transition period is over-prolonged deepening countries' disengagement and ineffectiveness of cooperative institutions (see previous page)
		Delay in the implementation of investment projects that could generate evidence of benefits (for individual countries) of joint action
		Loss of institutional knowledge of previous cooperative achievements, namely in terms of mutual trust and engagement of countries in a 'shared vision'
	Formation of the Nile Basin Commission (NBC) without the participation of all Nile riparian countries	Legitimacy of the institution questioned by riparian countries remaining outside the process, as well as by external partners
		Projects, in particular large-scale, might attract limited funding from 'traditional' development partners, that are supportive of all-inclusive Commission
		Possibility of developing major large-scale infrastructure through the NBC might be jeopardised, but countries might decide to develop them anyway outside the NBC
Political	Significant harm to mutual trust built up between Nile Basin States during the last 20 years	Lack of transparency on the political agendas of countries towards the cooperation process (but mainly technical and political track), and consequent breach in the already-fragile trust between neighbouring basin states
		Negative perceptions and media about relations between countries and waning cooperation achievements
		Reputational risk for the Nile region, the countries and the cooperation process
	Political/diplomatic conflicts that might take years to solve	Increased competition for water resources generates intra-state and/or inter-state conflicts, with serious economic costs for the livelihoods of populations and negative impacts on national development plans
		Generalised political instability with consequent negative effects to national and regional security and peace (and ultimately global security)

LIKELI-HOOD	MITIGATION MEASURES
M	Intensify high-level political consultations between all Nile Basin States in order to upscale understanding of benefits of establishing a permanent institution (when compared to risks of prolonging transitional arrangement); Intensify high-level political consultations and dialogue with the two downstream Basin States (Sudan and Egypt) in order to find a diplomatic solution for the adoption of the CFA and later renegotiation of Article 14b; Promotion of an all-inclusive commission as the best-case-scenario for all the Nile Basin States, and prepare alternative institutional mechanisms for countries to join at different times.
H	
M	Upscale diplomatic engagements between all the Nile riparian states, and between them and the cooperative institutions; Widening of stakeholders involvement in the hydro-diplomacy tracks, namely recognising the extremely important role that media plays in the promotion of the cooperation agenda at regional and national levels.
L	Promotion of an ambitious agenda to increase regional economic and political cooperation between the Nile Basin States, in fields beyond water (such as for example energy, trade, agriculture, environment, Security, etc.), in a way to increase interdependence between countries and decrease the possibility of escalating conflicts

6. Conclusions

6.1. The best case scenario - towards a permanent multilateral institution

The achievements of the Nile Basin Initiative and the cooperation process that it has spearheaded have been considerable in a short space of time. This Paper includes several examples of how the NBI has pushed the envelope on so many fronts – by promoting a novel shared vision, by facilitating the identification of joint projects and in some cases assisting their implementation, and by enabling an environment for investment in infrastructure, among many other achievements. Ambitions and expectations were high at the outset. Although high-level results have yet to be generated, and there is still a long way to go, many of those involved believe in the process and will continue to work towards nurturing cooperation. The alternative is unpalatable.

Yet much can be learnt about the sustainability of large multilateral processes, in this case involving 11 different countries and a complex hydrological and hydropolitical system. Many member states have had to manage high expectations of what could be achieved within bounded political constraints, and have had to accept a slower level of institutionalised cooperation than had been expected. Not only that, but in plain sight, many states have continued to develop their own major Nile infrastructure in outside of a 'regionalist', transboundary perspective. This does not engender greater levels of trust and confidence, whatever the development logic.

Nevertheless, in one sense, the NBI has been a remarkable achievement. It has changed the language of cooperation amongst basin states and enabled far greater levels of engagement in technical cooperation and identification of development opportunities than ever has been achieved in the past. It has also brought Nile countries to the brink of a historic agreement that would replace the transitional cooperation arrangement, but only to see political complexity stymie the final few steps necessary for completion of the Cooperative Framework Agreement and the establishment of the Nile Basin Commission. The reasons for this stumble are the oldest challenges of all – the political relations underlying upstream and downstream basin states and an unsteady mutual trust. The Nile 'issue' remains politically charged between key states in spite of the 15 years of NBI cooperative activities, and can easily be resurrected as a populist message when and if required. This report – and the work of the NBI – however, has argued that the reality of challenges facing Nile countries means that cooperation has to rise above politics, but also – and perhaps the ultimate complexity – has to be born of the same politics. And as such it needs endorsement at the highest political levels.

What this suggests is that much has been achieved, but that key barriers have yet to be overcome. These are the issues of cooperation

and political economy that are embedded deep inside the NBI and related processes but that have rarely been adequately understood and articulated. And they probably will not be unless states can make one last push to complete the institutional and legal agreements pending as a result of the NBI and CFA processes. All Nile countries – both upstream and downstream – need to recognise that only by moving from a transitional to a permanent cooperative arrangement can they deliver the high-level results they have all being expecting in the last decade. And that without these results national economic development will be hindered in the long term through increased costs because of the river, lost opportunities because of failure to manage the system in an adaptive and reflexive manner and structural inability to identify future benefits from harnessing the basin's resources. On the other, optimal management and development of the Nile Basin resources will

This paper advocates the multiple layering for sustainability of transboundary cooperation. This includes the establishment of a permanent river basin commission to replace the current transitional cooperative mechanism of the NBI, continuous political commitment to a shared vision for the development of the Nile waters, and the mobilisation of additional financial resources to finance the implementation of regional projects and increase country-ownership of the cooperation process. This enshrining of cooperation in a formal – as opposed to transitional – mechanism will be the key step forward. Central to the mandate of the new organisation will need to be rapid scaling up of opportunities to identify, develop and share benefits at different scales, and the translation of these benefits into packages of programmes across a spectrum of sectors from energy, to agriculture, environment and related cross-cutting programmes on trade, disaster risk reduction and climate change mitigation and adaptation strategies.

6.2. Mitigating risks, Overcoming Challenges and Harnessing Opportunities

In conclusion, there is only one way for the cooperation in the Nile Basin to achieve fully the ambitious goals of socio-economic development, poverty eradication and regional peace and security, as established 15 years ago. And this includes three-stepped approach, as explained in detail in the different sections of this Flagship Paper.

Step 1. A non-cooperation scenario is very undesirable and unlikely, but understanding the risks it implies is important, so that Nile riparian countries and cooperative institutions can collectively address the scale and scope of risks associated with a non-cooperation scenario (or limited/fragile cooperation). This will contribute to remind the Nile riparian countries of the crucial need to invest further political capital in ensuring that cooperation works and it is sustainable in the long-term. In the event that cooperation does not transpire the risks and potential impacts will have been spelt out – no-one could claim not to have received warning of the consequences.

Step 2. Implementing cooperation on the ground does not come without challenges. It is agreed that cooperation in complex river basins takes time to materialise, which is usually a long and complex process, in particular in river basins with so many riparian states, such a long history and encapsulating so many different environments. Key structural, institutional, legal, financial and political challenges have curtailed the progress and speed of implementation of regional cooperation in the Nile. Ignoring the challenges might prevent cooperation being fully implemented and optimisation of resource management achieved. Tackling and addressing them in a strategic joint manner by member countries and cooperative institutions will ended up making cooperation more attractive and more effective in the long-term.

Step 3. Cooperation is about delivering results – and this implies harnessing the panoply of existing opportunities that can provide evidence that transboundary cooperation is the best way of managing and developing common water resources. Continued investment and political commitment by Nile Basin States and institutions in the seven areas of Opportunities identified and analysed in this Flagship Paper will contribute greatly for this endeavour. The end result will be a more equitable, reasonable and optimal utilisation of the Nile water resources, with maximum benefits and reduced costs and impacts for all the basin states. The outcome will pay off for upstream and downstream basin states, hopefully eradicating historical hydropolitical mistrust and providing the foundations for a new 'regional deal' on socio-economic,

environmental and political benefit sharing.

The future is now, and in order to advance with the multilateral cooperation agenda, then the risks of non-cooperation must be recognized and mitigated, implementation challenges overcome and opportunities seized. For the past 15 years the NBI has played to play a fundamental role in these three fronts, and it can continue doing so by pro-actively engaging in most of these activities:

- Reinforce Shared Vision type of activities to remind countries of the multiple benefits (win-win) of transboundary cooperation.
- Promote transboundary climate dialogue and action, building upon NBI transboundary frameworks and mainstreaming across countries and sectors.
- Incentivise national planning institutions to make use of tools, and the knowledge base that NBI is maintaining.
- Disseminate widely the advantages of joint planning among technical and political decision-makers.
- Increase visibility and relevance of NBI products, policies and actions in the countries and institutions through knowledge-based advocacy actions and media work.
- Promotion of mechanisms (management and knowledge tools/frameworks) that emphasise gains in joint operationalization of dams and other infrastructure.
- Intensification of efforts to promote the urgent need for countries to keep 'investing' in the cooperation process.
- Upscale diplomatic engagements between all the Nile riparian states, and between them and the cooperative institutions.
- Intensify high-level political consultations and dialogue with the two downstream basin states (Sudan and Egypt) in order to find a diplomatic solution for the CFA adoption.
- Formation of the Nile Basin Commission (NBC) with the participation of all Nile riparian countries.
- Promote of an agenda to increase regional economic and political cooperation between the Nile Basin States, in fields beyond water (such as for example energy, trade, agriculture, environment, security), in a way to increase interdependence between countries and decrease the possibility of escalating conflicts.

These activities underpin a case for the establishment of a permanent all-inclusive Nile Basin Commission and the current role of the NBI, as the transitional institution, in harnessing the opportunities and addressing the challenges, by catalysing regional integration processes, identifying and promoting joint actions and promoting win-win solutions.

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Nile Basin Initiative Secretariat

P.O. Box 192
Entebbe - Uganda
Tel +256 414 321 424
+256 414 321 329
+256 417 705 000
Fax +256 414 320 971
Email nbisec@nilebasin.org
Website http://www.nilebasin.org

Eastern Nile Technical Regional Office

Dessie Road
P.O. Box 27173-1000
Addis Ababa - Ethiopia
Tel +251 116 461 130/32
Fax +251 116 459 407
Email entro@nilebasin.org
Website http://ensap.nilebasin.org

Nile Equatorial Lakes Subsidiary Action Program Coordination Unit

Plot 6418, KCT Building
Avenue du Commerce
P.O. Box 6759, Kigali Rwanda
Tel +250 788 307 334
Fax +250 252 580 100
Email nelcu@nilebasin.org
Website http://nelsap.nilebasin.org

Nile Basin Initiative

@nbiweb

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ONE PEOPLE
ONE VISION

Nile Basin Initiative Secretariat
P.O. Box 192
Entebbe - Uganda
Tel: +256 414 321 424
+256 414 321 329
+256 417 705 000
Fax: +256 414 320 971
Email: nbisec@nilebasin.org
Website: http://www.nilebasin.org

/Nile Basin Initiative @nbiweb

Eastern Nile Technical Regional Office
Dessie Road
P.O. Box 27173-1000
Addis Ababa - Ethiopia
Tel: +251 116 461 130/32
Fax: +251 116 459 407
Email: entro@nilebasin.org
Website: http://ensap.nilebasin.org

ENTRO

Nile Equatorial Lakes Subsidiary Action Program Coordination Unit
Kigali City Tower
KCT, KN 2 St, Kigali
P.O. Box 6759, Kigali Rwanda
Tel: +250 788 307 334
Fax: +250 252 580 100
Email: nelsapcu@nilebasin.org
Website: http://nelsap.nilebasin.org

NELSAP-CU