

**Rusumo dam-social challenge in Kagera River Basin:  
Participation of the affected people**

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## **Abstract**

From long ago, rivers have always sustained livelihoods of the peoples through the utilisation of different natural resources available in the basin. All over the world, many rivers have been dammed in the spirit of performing various purposes: agricultural irrigation, domestic water supply and power generation or flood control.

By the year 2001, the World Commission on Dams brought into focus the debate on dam-related impacts on local economies, societal cultures, livelihoods security and environmental conservation. The outcome of the World Commission on Dams consultation strongly recommended the governments to involve all stakeholders to address appropriately all issues associated with dams.

The overall focus of this master thesis is the projected Rusumo Falls dam in the Kagera River Basin (East Africa). Based on literature documentation completed by on-ground observations and qualitative interviews at Rusumo, various issues connected with the dam are presented.

In the first part, the Kagera River Basin background information is provided. It gives an overview of the physical and human characteristics of the Kagera watershed and sub-catchments. A brief history and socio-economic indicators are given to enlighten the outsiders about the development challenges of the riparian countries of Burundi, Rwanda, Tanzania and Uganda. Regional frameworks for the development and management of Kagera Basin natural resources are presented: The Kagera Basin Organisation and the Nile Basin Initiative.

Section two analyses the likely social problems around the Rusumo Hydro Electric Project resulting from the land issue and the electricity needs and posing a dilemma for the governments committed to reverse the poverty and developing the economies. Benefits and drawbacks of the dam as perceived by the beneficiaries are thoroughly listed.

Based on the overwhelming supports from the Rusumo people, the governments of Burundi, Rwanda and Tanzania together with the international community, a public participation scenario is suggested in the last chapter. It encourages the governments to come together with all interested groups and the affected people of Rusumo and address any matters associated to the dam management process.

The conclusion of this study draws some strategies and methods to ensure full popular participation in the dam management. It provides some ways to involve all stakeholders to address the related issues. As the Rusumo people perceptions of the dam possible effects might not be realistic, the popular participation can offer them a good opportunity to handle socio-economic problems such as the land issue, the economy restructure and the nature conservation. In this case study, the government of Rwanda is therefore responsible for the establishment of platforms for a broad popular consultation.

**Key words:** World Commission on Dams, dam management, affected people, stakeholders' participation, information access, communication platforms scenario, land issue in Rwanda, poverty, social and environmental impacts.

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## Table of contents

<b>Abstract</b> .....	i
<b>Acknowledgements</b> .....	ii
<b>Table of contents</b> .....	iii
<b>List of figures</b> .....	v
<b>List of tables</b> .....	vi
<b>Acronyms and abbreviations</b> .....	vii
<b>Chapter one: Introduction and purpose of the thesis</b> .....	1
1.1. Introduction .....	1
1.1.1. The dam debate .....	1
1.1.2. Popular participation concept .....	2
1.1.3. Levels of participation .....	4
1.2. Purpose of the thesis .....	6
<b>Chapter two: Method and material</b> .....	8
<b>Chapter three: A presentation of Kagera River Basin</b> .....	10
3.1. Geographical location .....	10
3.2. Historical and political profile .....	11
3.3. Socio-economic indicators .....	13
3.4. Kagera sub-catchments .....	15
3.4.1. The Ruvubu River .....	15
3.4.2. The Nyabarongo River .....	16
3.5. Regional River Basin Management .....	17
3.5.1. Kagera Basin Organisation (KBO) .....	19
3.5.2. The Nile Basin Initiative (NBI) .....	21
3.5.2.1. The Nile Equatorial Lake Subsidiary Action Project (NELSAP) .....	23
<b>Chapter four: Rusumo Falls HEP project</b> .....	28
4.1. Location .....	28
4.2. Climate and hydrological data .....	29
4.3. The land issue in Rwanda .....	31

4.4. The projected Rusumo dam .....	35
4.4.1. A challenging dilemma and the social cost .....	36
4.4.2. The Rusumo dam benefits and drawbacks .....	37
<b>Chapter five: Participation of the affected people .....</b>	<b>44</b>
5.1. Communication platforms in Rusumo .....	44
5.2. Participation framework scenario .....	44
<b>Chapter six: Conclusion .....</b>	<b>47</b>
<b>References.....</b>	<b>50</b>
<b>Internet literature.....</b>	<b>52</b>
<b>Appendix.....</b>	<b>54</b>

## List of figures

Figure 1.1: Levels of participation .....	4
Figure 3.1: Kagera watershed .....	10
Figure 3.2: The Ruvubu River .....	16
Figure 3.3: The Nyabarongo River in Rwanda .....	17
Figure 3.4: Kagera River in Burundi and Rwanda.....	18
Figure 3.5: The Nile River Basin .....	21
Figure 3.6: The Nile Basin Strategic Action.....	22
Figure 3.7: The Shared Vision program .....	23
Figure 3.8: The NELSAP member states .....	24
Figure 4.1: Kibungo Province in Rwanda .....	28
Figure 4.2: Rusumo Falls on Kagera River .....	29
Figure 4.3: Water discharge at Rusumo Falls station.....	31
Figure 4.4: Land distribution throughout Rwanda .....	33

## List of tables

Table 2.1: The interviewees' categorisation .....	8
Table 3.1: Distribution of Kagera river basin in riparian countries .....	10
Table 3.2: Socio-economic indicators of KBO member states (year 2000) .....	13
Table 3.3: The NELSAP development indicators .....	25
Table 3.4: NELSAP priority areas and shared projects .....	25
Table 4.1: Water runoff quantity .....	30
Table 4.2: Land related indicators for Burundi and Rwanda .....	31
Table 4.3: Electricity consumption in Burundi and Rwanda .....	35
Table 4.4: Occupation and density of lands (ha) and displacement of holders .....	36
Table 4.5: Benefits and drawbacks as expressed by Rusumo people .....	38
Table 4.6: Opinion about the Rusumo dam by people in Kigali .....	41
Table 4.7: Mapping the views of the affected people .....	42
Table 5.1: A participation framework scenario of Rusumo dam .....	44

## **Acronyms and abbreviations**

<b>ACIAR</b>	: Australian Centre for International Agricultural Research
<b>a.s.l</b>	: above sea level
<b>BUR</b>	: Burundi
<b>COMESA</b>	: Common Market for Eastern and Southern Africa
<b>DRC</b>	: Democratic Republic of Congo
<b>EGY</b>	: Egypt
<b>EIA</b>	: Environmental Impact Assessment
<b>ENSAP</b>	: Eastern Nile Subsidiary Action program
<b>FAO</b>	: Food and Agriculture Organisation
<b>GRDC</b>	: Global Runoff Data Centre
<b>IRC</b>	: International Relief Committee
<b>KEN</b>	: Kenya
<b>IUCN</b>	: International Union for Conservation of Nature and Natural Resources
<b>Km</b>	: Kilometer
<b>KBO</b>	: Kagera Basin Organisation
<b>NA</b>	: Non available
<b>NBI</b>	: Nile Basin Initiative
<b>NELSAP</b>	: Nile Equatorial Lakes Subsidiary Action Program
<b>NGO</b>	: Non Governmental Organisation
<b>PID</b>	: Project identification Document
<b>RWA</b>	: Rwanda
<b>SIA</b>	: Social Impact Assessment
<b>Sq. km</b>	: Square kilometres
<b>SUD</b>	: Sudan
<b>TAN</b>	: Tanzania
<b>UGA</b>	: Uganda
<b>US \$</b>	: United States Dollars
<b>UNDP</b>	: United Nations for Development Program
<b>WCD</b>	: World Commission on Dams
<b>WFP</b>	: World Food Program
<b>WHO</b>	: World Health Organisation

# **Chapter one: Introduction and purpose of the thesis**

## **1.1. Introduction**

Water as a natural resource is used for multiple purposes in households, industries, mining, tourism, farming and transport. Its determinant role in development policy planning and international relations between countries is obvious. However, societies and communities can be adversely affected by development schemes and hence evolve in disruption if appropriate measures are not taken into consideration from early project planning. Open and inclusive participation and transparency in decision-making processes are proposed by scientists and researchers as the new framework leading to improved projects management.

To date, many international-wide environmental and development conventions and declarations put an emphasis on the urgent need for popular participation and information access in development projects in all the spheres of the society. The governments are therefore expected to play the central role of information spreading, consultation process and fully involvement of all the stakeholders interested in development projects.

In the water sector, multipurpose dams might be foreseen as the key for development of the society. Currently, much attention and multidisciplinary research is being focused on the dam side-effects analysis.

### ***1.1.1. The dam debate***

Today, the worldwide debate about dams is very intense in many power and environmental conferences and workshops but also in scientific articles and newspapers. Despite the pros and cons expressed in dam debates, the World Commission on Dams' main starting points encourage all the interested parties (governments and other stakeholders) to utilise waters in a holistic and sustainable way so that the economic growth matches with the social needs and the environmental protection (WCD, 2001).

Dam schemes present both benefits and drawbacks that affect the communities and ecosystems at local, national and international levels. Referring to the Cross-Check Survey run throughout the world, *“almost 60% of the impacts identified were unanticipated prior to project construction and, of the 34 dams in the survey that involved resettlement of displaced people, only 7 required participation as part of the decision-making process”* (WCD, 2001).

Furthermore, the 1992 Earth Summit in Rio de Janeiro clearly established the critical link for all countries between a healthy environment and an economic development. To date, developing countries believe that damming a river could be a way of improving their subsistent economies by enhancing agriculture and industry sectors, and hence boost the development, no matter the damage to the environment and the livelihoods.

One example is the projected hydroelectricity power station on Rusumo Falls, which is likely to cause tremendous effects in the over-populated Great-Lakes countries of Rwanda, Burundi and Tanzania. As Kagera River and its tributaries support natural habitats and social lives of hundreds of thousands people within the river basin, cultural and societal values need to be preserved as much as possible in order to insure the intergenerational equity.

### ***1.1.2. Popular participation concept***

The concept of public participation in development planning project is not new. From the most important conventions and declarations, one should note the Rio World Conference on Environment and Development in 1992 (in Brazil), followed by the Aarhus Convention in 1998 (in Denmark), public participation in environmental matters became like a human right: *'Free access to information for the public and active participation in development project processes'*. Moreover, the World Commission on Dams encourages a stakeholders' involvement to be ensured by governments in all stages of the projects starting from early planning.

#### **- Rio Declaration (or Agenda 21)**

From the Rio Declaration, it is important to recall the chapter 23, section III about the need for Public Participation:

*"One of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making. This includes the need of individuals, groups and organisations to participate in decisions, particularly those which potentially affect the communities in which they live and work. Individuals, groups and organisations should have access to information relevant to environment and development held by national authorities, including information on products and activities that have or are likely to have a significant impact on the environment, and information on environmental protection measures"* (Agenda 21, 1992).

Concerning the levels of participation and the effectiveness of the process, the Principle 10 of Rio Declaration on Environment and Development (1992) states that:

*"Environmental issues are best handled with participation of all concerned citizens at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided."*

#### **- Aarhus Convention**

In 1998, a Convention now known as the Aarhus Convention was signed in the town of Aarhus, Denmark. It gives the public the right to obtain information on the environment, the right to justice in environmental matters and the right to participate in decisions that affect the environment (Stec S. and Casey S., 2000).

The Aarhus Convention can be referred to as an international tool for a better public involvement and participation in governmental projects. It outlines the importance of public participation, the preparation and the difficulties of programs management and recommends 'the public participation in decision-making' on special activities as applicable in any

program which requires information access. Aarhus Convention might help to initiate the 'bottom-up' approaches in policy-making for development planning and to raise the contribution of all the stakeholders.

The Aarhus Convention Preamble (1998) considers "the public participation as a human right and recognizes every person the right to live in an environment adequate to his or her health and well-being, and the duty, both individually and in association with others, to protect and improve the environment for the benefit of present and future generations".

In the same spirit, the Convention states that:

*"In the field of the environment, improved access to information and public participation in decision-making enhance the quality and the implementation of decisions, contribute to public awareness of environmental issues, give the public the opportunity to express its concerns and enable public authorities to take due account of such concerns (Aarhus Convention, 1998).*

Referring to the Article 5 on "**Collection and dissemination of environmental information**", the parties shall ensure that:

*"In the event of any imminent threat to human health or the environment, whether caused by human activities or due to natural causes, all information which could enable the public to take measures to prevent or mitigate harm arising from the threat and is held by a public authority is disseminated immediately and without delay to members of the public who may be affected" (Aarhus Convention, 1998).*

In addition, the article 7 about "**public participation concerning plans, programmes and policies relating to the environment**" states that:

*"Each Party shall make appropriate practical and/or other provisions for the public to participate during the preparation of plans and programmes relating to the environment, within a transparent and fair framework, having provided the necessary information to the public. Within this framework, article 6, paragraphs 3, 4 and 8, shall be applied. The public which may participate shall be identified by the relevant public authority, taking into account the objectives of this Convention. To the extent appropriate, each Party shall endeavour to provide opportunities for public participation in the preparation of policies relating to the environment." (Aarhus Convention, 1998)*

To highlight the importance of popular participation and its implications, Stec and Casey (2000) argue that *"Public participation can lead to better decisions. That is, decisions that better meet the needs of more people, decisions that last longer and decisions that have more validity. Better decisions will lead to improvements in everyone's quality of life. By considering the issue as widely as possible, improvements in social conditions, the economy and the environment can occur at the same time"*.

#### **- The World Commission on Dams**

In the same spirit, the World Commission on Dams Report (1999) stresses the role of the dam-affected people participation through negotiating agreements essential for their future:

*"A clear agreement with the affected people on the sequence and stages of resettlement will be required before construction or any project preparatory works begins."*

As the main problems reside in negotiating the mitigation measures, but also the dialogue framework, it is therefore a must to establish communication platforms. For this matter, the World Commission on Dams suggests a mechanism for direct community involvement in resettlement implementation:

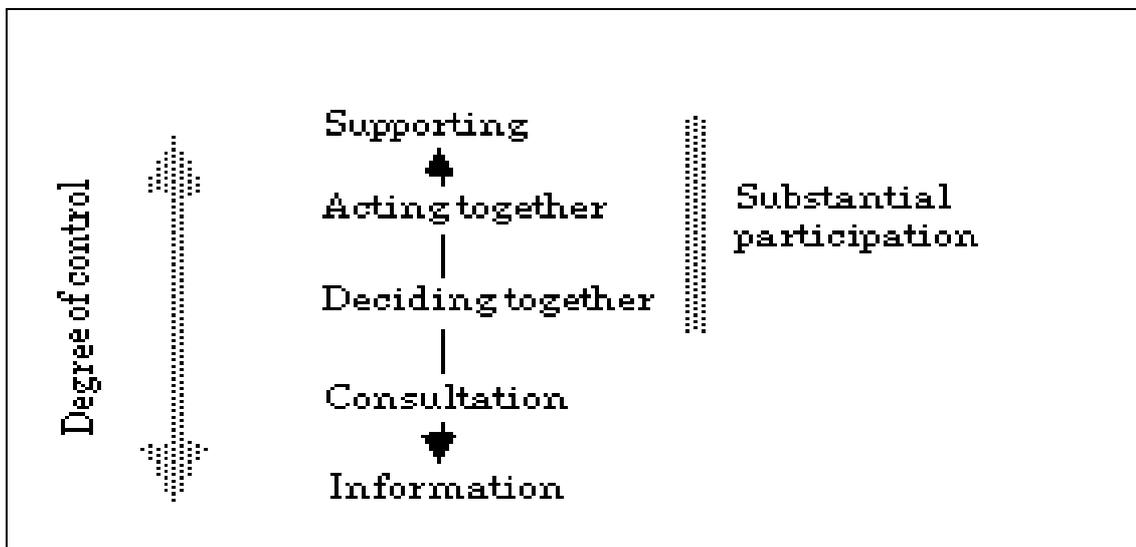
*"Trust Funds could also be used for decentralizing responsibilities to affected communities for planning and implementing their own mitigation, development and resettlement programs"(WCD, 1999).*

Actually, to get an efficient participation framework, it is necessary to define and point out the different levels of participation.

### **1.1.3. Levels of participation**

Popular participation always requires a framework for a better coordination. According to the Guide to Effective Participation, Sherry Arnstein (2003) from International Association for Public Participation suggests five levels as shown in the figure below:

**Figure 1.1: Levels of participation**



**Source:** Framework for participation, [www.partnerships.org.uk/guide/frame.htm](http://www.partnerships.org.uk/guide/frame.htm), July 2003

#### **- Information:**

The most important step for practitioners is to tell people what is planned. People get to know and feel as a part of the process. The medium used can be Radio, TV, newspaper or at a public meeting in the region. The information flow is a one-way directed and does not require any feedback.

### **- Consultation:**

This phase offers many project options. The feedbacks are recorded in forms of surveys, opinion pools, public enquiries and meetings with interested parties. This step leads to active participation.

### **- Deciding together:**

The public is encouraged to provide many additional ideas and possible options. Together, all gather for deciding the best way forward and appropriate methods are determined to achieve the pre-set goals.

### **- Acting together:**

Once the decision is made, the stakeholders come together and form a partnership to carry out the final decision. Structured bodies and sub-committees can be formed if deemed necessary. This phase is opened up for a full collaboration between stakeholders. Planning and decision-making responsibilities are shared e.g. through joint committees.

### **- Supporting initiatives:**

As stakeholders operate in a partnership and networks, some mutual supports in terms of funds or advice support can be provided by the resource holder. This step is for people empowerment by capacity and skills sharing.

Public participation is not easy to achieve since there is an involvement of power in the society, money and interests from different stakeholders. People's self-confidence and the skills play an important role also especially when it comes to making decisions for the steps forward. Here comes the control and ownership of the process project by the beneficiaries.

In such cases, people's participation should be strengthened through power delegation for representatives in technical committees and decision-making meetings. A commitment of reporting back to the affected people could be a suitable way of keeping the balance during negotiations.

According to Jan Lundqvist (2003), public participation is generally envisaged for three main reasons:

- (a) To get social acceptance
- (b) To improve the project performance
- (c) To find solution to side-effects of projects such as resettlement issue, structural change of economy

In the case of Rusumo Falls Hydropower project, participation is not for the sake of motivating the importance of the dam. Public participation might however cool down the people's expectations about the benefits and set a pathway for reasonable solutions to the socio-economical problems that might occur during and after the dam construction. In other words, the participation of the affected people would help to seek consensus of suitable solutions and determine mitigation measures to the likely negative impacts of the dam.

Since the populations have an overwhelming positive picture of the dam, a participatory process in the “dam debate” would be a good opportunity to face the reality and get a more realistic view and hence, adjust their expectations.

Under these circumstances, the paper will analyse the Rusumo peoples’ views in the angle of the third alternative. The idea behind is again to set the framework scenario for a full participation of all the stakeholders in the Rusumo dam process.

## 1.2. Purpose of the thesis

Before completing the Master Programme in Water Resources and Livelihood Security at Linköping University, I assumed it relevant to raise a sensitive and political issue which has been almost a taboo in most developing countries for many years: “***Public participation and participation of the affected people in governmental projects***”.

The scope of this thesis concerns “public participation as a suitable way of mitigating adversely social effects of Rusumo hydroelectric project”. It checks out communication both of factual sides of a project and of peoples’ perceptions of the projected Rusumo dam. The research and field-work carried out in Rwanda were designed to find out answers to the following core questions:

- (a) At present, what is the picture of the Rusumo Falls dam that the people have?
- (b) What are their views and concerns about the dam?
- (c) What kind of information (right picture) on Rusumo dam is spread to the public?
- (d) How the government and decisions-makers communicate with the affected people?
- (e) What kinds of platforms are set to ensure the public participation?

To answer to the above set questions, a broad presentation of the Kagera River Basin development opportunities will be provided and the Rusumo Falls project literature outlined. A social analysis will be presented showing the potential participation of the affected people and analyse their potential participation in the dam process given the actual socio-political situation in Rwanda. Since the ‘bottom-up’ approach in projects scheme planning and management is foreseen to be more efficient and less prejudicial to rural development comparing to ‘top-down’ approaches, the Rwandese decentralisation policy will be brought up.

As the Kagera River Basin is vast, this study had to be narrowed down to the Rwandan side. Thus, the fieldwork has been carried out on the Rwandan site for the following reasons:

1. The dam site is located on the border between Rwanda and Tanzania
2. Rwanda is likely to be the most negatively affected country (inundated areas, floods)
3. Rwanda is overpopulated and the relocation scheme of the populations might be a problem because of the lack of land.
4. The documentation centre and scientific documents and reports could be found in Kigali at the Kagera Basin Organisation headquarter.
5. For security reasons, it is much safer travelling to rural areas in Rwanda than in Tanzania or in Burundi.

The thesis is structured into six chapters: Chapter one provides a general introduction to the dam debate and the public participation concepts and also the scope of the thesis. The chapter two shows the methodology and describe the material used for the entire study. The general background information of Kagera River Basin will be given in chapter three.

The findings analysis of the Rusumo hydropower project as conceived in previous studies will be covered in chapter four. Chapter five will consider a scenario of dam management as designed by the affected people of Rusumo.

Based on the World Commission on Dams Final Report recommendations, the Rio Declaration Principles and the Aarhus Convention, some conclusions will be drawn up in chapter six and suggested to all interested parties in Rusumo dam project as a suitable way to address all matters related to the dam side-effects management.

## Chapter two: Method and material

During the preparation of this master thesis, the overall structure and scope together with the research methodology had been identified and discussed beforehand with Professor Jan Lundqvist at the Department of Water and Environmental Studies of Linköping University. A triangulation method consisting of qualitative interviews, observation on the ground together with statistical information has been used.

To apply the triangulation method, firstly, the Kagera River Basin background material, information and statistical data from various literatures on the one hand and Rusumo Falls Hydroelectric project documentation on the other have been consulted from different offices, ministries and electronic libraries.

Relevant materials such as scientific documents, journals, projects reports and geographical maps have been acquired from the Kagera Basin Organisation documentation centre; Department of Geography at the University of Burundi; Kigali Institute of Science, Technology and Management library; the Rusumo district library; the National Population Office; Cartography centre of the Ministry of Infrastructures, Energy and Water; Ministry of Youth and Sport information centre and Nile Basin Initiative Secretariat.

To complete my data analysis, the literature review consisted also of many books, journals and articles borrowed from Linköping University library, the Nordic African Institute and the Swedish Parliamentary Information centre.

Secondly, the qualitative interviews were based on a detailed and comprehensive questionnaire that had been established in order to address the Rusumo dam- social challenge to a wide and varied range audience.

The information gathering in form of interviews was run in 3 periods:

Firstly, the pilot interviews to test randomly the questionnaire understanding by the population in Rusumo.

Secondly, the main interviews through the questionnaire with sampled interviewees.

Lastly, the validation of findings analysis with the affected people of Rusumo.

The sample was selected according to the involvement level in Rusumo Falls Hydropower project in terms of planning and the direct or indirect likelihood affectability as well. The table 2.1 categorises of the interviewees as follows:

**Table 2.1: The interviewees' categorisation**

<b>Category</b>	<b>Interviewees</b>
1. Governmental officials and local administration	<ul style="list-style-type: none"><li>- Policy-makers in the Ministry of Infrastructure, Water and Energy;</li><li>- Development Planning department in Kibungo Province</li><li>- Local governors in Rusumo District (Mayor of Rusumo, Vice-Mayor in charge of Gender and Youth issues)</li><li>- Heads of villages at Rusumo (Kigarama and Nyamugari)</li></ul>
2. Academic bodies	<ul style="list-style-type: none"><li>- National University of Rwanda</li><li>- Kigali Institute of Science, Technology and Management</li></ul>

3. International organisations (donors, lenders)	<ul style="list-style-type: none"> <li>- The World Bank office in Kigali</li> <li>- The UNDP</li> </ul>
4. Media and local NGOs:	<ul style="list-style-type: none"> <li>- Radio and Rwanda TV</li> <li>- Akagera National Park project</li> <li>- Nile Basin Discourse Focal Point</li> <li>- Gazette "Times"</li> <li>- ARAMET, ...</li> </ul>
5. Politicians and members of parliament	<ul style="list-style-type: none"> <li>- Activists in political parties</li> </ul>
6. The Rusumo affected people	<ul style="list-style-type: none"> <li>- farmers</li> <li>- tradesmen</li> <li>- fishermen</li> <li>- cultural and community organisations (handcraft development)</li> </ul>

**Source:** Field-work, April-June 2003

Besides, informal contacts with interested groups have been established and individually-based discussions held either at the dam site Rwandan-Tanzanian border of Rusumo, in buses with passengers on my way to/or from Rusumo and also with students in the fields of land-use planning, Environment, Law and Economics and various people in order to complete my knowledge on Rusumo and its people.

Thirdly, the on-ground observations were done along with the fieldwork while on-site reconnaissance through Rusumo district and the dam-site in the vicinity of the Kagera River. As an outsider, the observations of the landscape once in the field widened my understanding of the region that was mostly based on topographic maps analysis and geographical data collected earlier.

In addition to observations and interviews, I have had useful discussions with a dozen of participants gathered in a two-day workshop run by the Nile Basin Discourse in the framework of the Civil Society involvement of the Nile Basin Initiative organised in Kigali/Rwanda early June 2003.

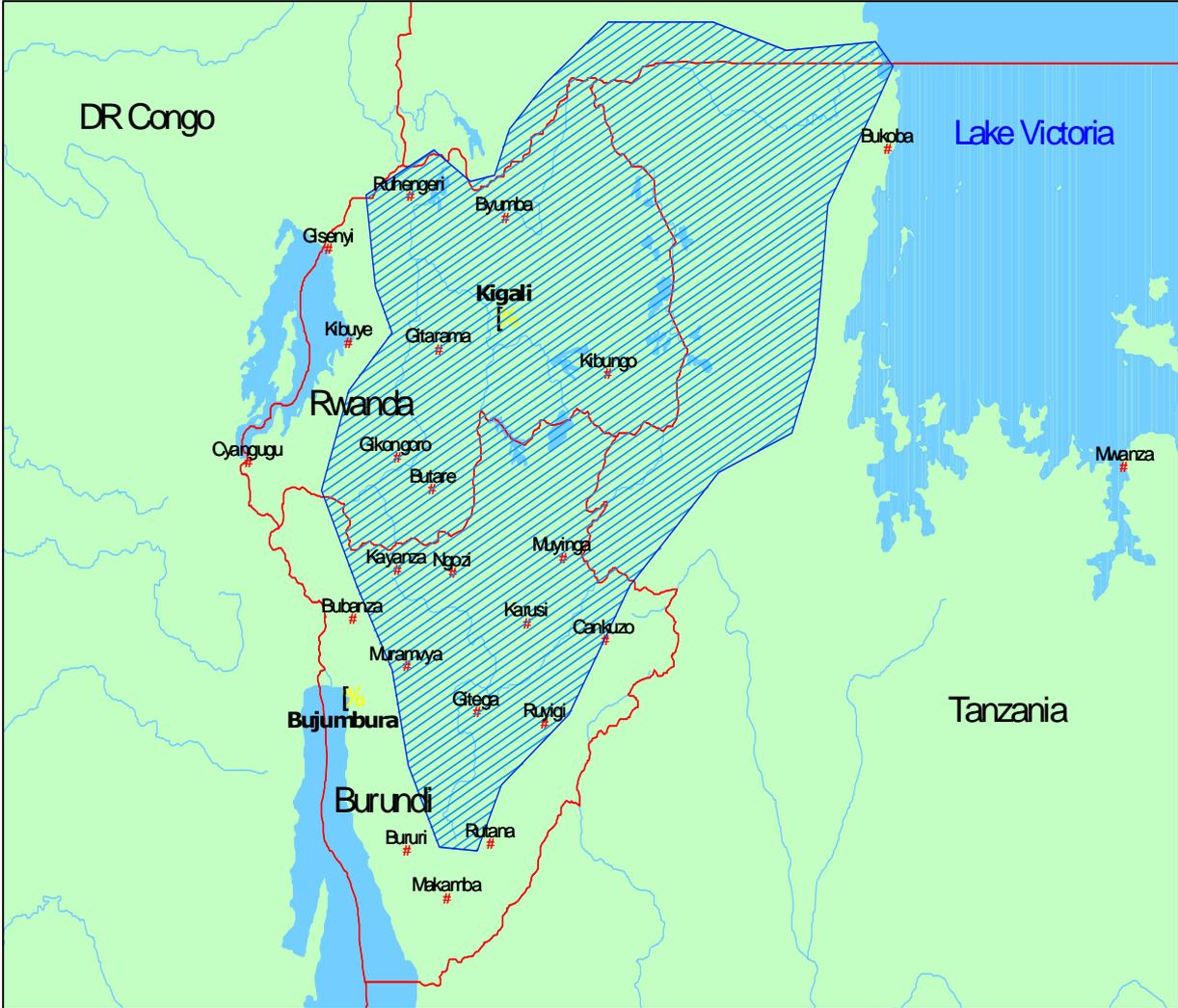
# Chapter three: A presentation of Kagera River Basin

## 3.1. Geographical location

Located in the Great Lakes Region of Africa, the Kagera River Basin covers an area between the immense Lakes of Victoria, Tanganyika and Kivu. The river basin lies between 0° 45' and 3° 35' south latitude and 29° 15' and 30° 51' longitude east. Figure 3.1).

The Kagera River drains a basin area of 59,800 sq. km distributed among the countries of Burundi (22%), Rwanda (33%), Tanzania (35%) and Uganda (10%) as shown in table 3.1:

*Figure 3.1: Kagera watershed*



Source: NBI/NELSAP, 1999

*Table 3.1: Distribution of Kagera River Basin in riparian countries*

Country	Surface area (sq. km)	Total area (sq. km)	% of Kagera River Basin
Burundi	27,834	13,300	22
Rwanda	26,340	19,900	33

Tanzania	945,100	20,800	35
Uganda	241,000	5,800	10
<b>Total</b>	<b>1,240,274</b>	<b>59,800</b>	<b>100</b>

**Source:** Kagera Basin Organisation Development Program, Final Report, 1982

The Kagera watershed occupies two major topographical zones namely the West Rift Scarp and the Lake Victoria Basin that derives largely from regional features of the geologic structure (Ndayiragije, 1992). The West Rift Scarp zone encompasses the terrain on the eastern side of the West Rift that was involved in the up-warping and associated volcanism during the development of the rift. It rises to elevations of 2,600 metres in Burundi and 3,000 in Rwanda both located on the Congo-Nile Divide that forms the western boundary of the Kagera Basin.

The highest land in the basin is in northern Rwanda where volcanic activities associated with the rift faulting has produced steep sided volcanic cones rising 1,500 metres or more a.s.l. and the scarp uplands to elevations above 4,000 metres. The highlands fall away to the East into the swampy lowlands of the Nyabarongo, Ruvubu and Kagera valleys whereas the altitude is about 1,300 metres (Atlas of Rwanda, 1981).

In the Lake Victoria Basin, landforms largely reflect the lithologic environment. The Bukoba sandstone form a number of broad- round topped ridges separated by long valleys that trend northerly to their outlets in the Kagera river valley. Summit levels range between about elevation 1,370 to 2,625 metres with high altitude occurring in the south. To the West of the Bukoban sandstone terrain, the general northerly trend of the topography is expressed in the broad, straight, rather swamp valleys of the Mwisu River. Summit levels are rather low ranging from just over 1,220 metres in north to a maximum of about 1,530 metres in the south.

The Kagera River flows north and east, forming part of Tanzania's borders with Rwanda and Uganda, before emptying into Lake Victoria and is commonly regarded as the remotest source of the White Nile (Columbia Encyclopaedia, 2003). The most southern headwaters of Kagera River are located at Rutovu in southern Burundi.

### **3.2. Historical and political profile**

The Kagera riparian countries are bounded on the north by Sudan, on the east by Kenya and the Indian Ocean, on the south by Mozambique, Malawi and Zambia and on the west the DRC (World Encyclopaedia, 1999). The riparian countries size is approximately 1,240,274 sq. km and the population is estimated at more than 72,9 millions people (World Bank, 2001).

Anthropologists and ethnologists generally classify the people residing in the Kagera region as formed by Hutu, Tutsi/Hima and Twa. Lots of similarities between culture, languages and way of living are evident throughout the region. For example, the people of Burundi, Rwanda and South Uganda speak similar Bantu languages, respectively the Kirundi, Kinyarwanda and Runyankole. Even the people from the western side of Tanzania along the border with Burundi and Rwanda speak dialects generated from either Kirundi or Kinyarwanda. Today, Kiswahili is widely spoken in trade centres and towns. It has a tendency of becoming an East African common language (Tusabe G., 2003).

The similarities in culture and music (folk dance, songs and chants) are apparent: a wide range of handicrafts including pottery, basketry, painting, jewellery, wood carving, metalwork, and the making of gourd containers.

The land tenure and agricultural practices are similar. Food assortment made of bananas, beans, sweet potatoes, irish potatoes, cassava and vegetables is the staple diet in the region. Traditional rules and legislations long before colonial time are respected and recognized as local judiciary institutions (Ubushingantahe and Agacaca respectively in Burundi and Rwanda). To explain the similarities in traditions and way of living, it is probable that, within the African oral history context, the Great Lakes kingdom' leaderships preserved traditional mythologies and rites through different generations.

After the Berlin Conference in 1894-96, Burundi, Rwanda and Tanzania were incorporated into German East Africa while Uganda was a British colony. As Germans lost the First World War in 1918, Burundi and Rwanda (the so-called Ruanda-Urundi) became a mandate territory of the League of Nations under the administration of Belgium whereas Tanzania (so-called Tanganyika Territory) became a British protectorate under the colonial system known as "indirect rule" in East-Africa. All the four countries obtained their political independences in the early 1960s.

The colonial era (1890s-1960s) was generally characterised by the "*divide-and-rule system*" that bred violent ethnic conflicts and social unrests. During the post-independence times, tough military-dictatorial regimes installed single political parties and lots of divisions led to wars and massive movements of refugees throughout the Great Lakes and the world. For instance, a first tragedy in the African modern history had been the 1994 genocide in Rwanda where around 800,000 Tutsi were killed; about four millions fled the country (USAID, 2002). As a social consequence, "about 34 percent of all households are headed by women or children" (WFP, 2001).

Regarding the former British colonies, the United Republic of Tanzania has so far remained stable and peaceful. No significant internal conflict had been recorded to date. After the reign of terror until late 1980s, Uganda has a political stability with a significant economic growth. Today, after decades of internal conflicts in Rwanda and Burundi, there is a synergetic political commitment towards peace, security, stability, democracy and regional development. Concerning durable peace and stability in the region, together with the support of the international community, Tanzania has played an important role in order to put an end to internal conflicts in both Rwanda and Burundi by hosting and managing peace talks between belligerents. For Rwanda, the so-called Arusha Peace Agreement signed in august 1993 (Mpungwe R., 1999) while Burundi politicians involved in peace talks for power sharing and institutional reforms was signed in august 2000 under the facilitation of President Nelson Mandela (Arusha Peace and Reconciliation Agreement for Burundi, 2000).

Regarding the political governance, all the four countries follow the universal democratic values consisting of free elections for leaders at all levels in accordance with respective constitutions. Access to power is obtained through multiparty systems and the electoral codes. While elections are held on a regular basis in Uganda and Tanzania, Burundi and Rwanda are still in transitional periods.

Moreover, the decentralisation system has been recently introduced in the administrative structures in the Kagera region. In Rwanda for instance, the decentralisation program was

launched in May 2000. The general purpose is to empower people through self- decision-making. It consists of people's free and democratic elections of heads and representatives/delegates in communities, villages, districts, provinces and nationwide management.

### 3.3. Socio-economic indicators

According to the World Bank database by the year 2000, all these countries are classified as developing countries. The socio-economic indicators of Kagera Basin Organisation member states are shown in the table 3.2.

*Table 3.2: Socio-economic indicators of KBO member states (year 2000)*

Indicators	Burundi	Rwanda	Tanzania	Uganda
Population, total (million)	6.8	7.7	33.7	22.2
Population growth (annual %)	1.9	2.4	2.3	2.7
Life expectancy at birth (years)	42.0	39.9	44.4	42.1
Fertility rate, total (birth per woman)	6.0	5.9	5.3	6.2
Mortality rate, under 5 (per 1000 of total)	175.8	202.9	148.6	161.0
Urban population, % of total	9.0	6.2	32.3	14.2
Illiteracy rate, adult male (% of males + 15)	43.8	26.3	16.1	22.5
Illiteracy rate, adult female (% of females aged + 15)	59.6	39.8	33.5	43.2
Freshwater resources per capita (cubic meters)	528.9	740.5	2,641.3	2,971.6
GNI per capita (current US \$)	110.0	230.0	270.0	300.0
GDP growth (annual %)	-0.9	6.0	5.1	3.5
Agriculture, value added (% of GDP)	50.7	43.7	45.1	42.5
Industry, value added (% of GDP)	18.5	21.2	15.8	19.1
Services, value added (% of GDP)	30.8	35.1	39.1	38.4
Fixed lines and mobile telephones (per 1,000 people)	5.3	7.2	10.0	11.2
Personal computers (per 1,000 people)	-	-	2.8	2.7
Internet users	3,000.0	5,000.0	115,000.0	40,000.0

**Source:** World Development Indicators database, April 2002

The development indicators pointed out in the table above clarify the disproportion and provide a comparative idea of some socio-economic indicators within the Kagera riparian countries. The case of Burundi and Rwanda posed in terms of populations and water resources availability are alarming compared to Uganda and Tanzania.

Firstly, the two countries present high concentration of populations (322 inhabitants per sq km for Rwanda and 263 people per sq km for Burundi) compared to the neighbouring countries of Uganda (105 persons per sq km) and Tanzania (37 people sq km) (Census Rwanda 2002, February 2003). Hence, the consequences are numerous like pressure on arable land,

biodiversity and reserved areas. Undoubtedly, over-cultivation, deforestation and overgrazing lead to agricultural land and pastureland scarcity and hence, threaten the physical environment. To shift the trend from subsistence farming to service based income-generating activities is a must in order to restructure the economic policies. New ways like the tourism industry might be explored to enhance livelihoods of the populations. Urbanisation is still low which means that rural development needs to be efficiently planned holistically in order to meet food security taking into account the land availability and the population growth.

Secondly, according to the international norms for freshwater resources availability per capita (1,000.0 cubic meters), it is obvious that the population do not have access to enough water (528.9 cubic meters for Burundi and 740.5 cubic meters for Rwanda). Potable water is still a problem in rural areas. According to the World Health Organisation, water borne diseases such as malaria, diarrhoea, typhoid fever, bilharzias are a major source of sickness in the region (WHO, Health situation in Africa, 2002).

Moreover, about 90% of the population live in rural areas in Burundi and Rwanda where more than 20% of the sexually active adults in the urban areas were infected with the HIV virus (The Economist Intelligence Unit, 1995).

The economies are based on subsistence agriculture and the major components are: pulses, cereals (sorghum, maize, wheat and rice), roots and tubers (potatoes, taro, yams and cassava), export crops (coffee, tea and cotton), livestock and fisheries. Banana plays a very important role in food security. In Rwanda for example, it made up for 60% of the total food crop in 1997 (Rwanda development Indicators, 1998).

Agriculture has always been the main source of living in the region and sustained lives for centuries. Studies undertaken from the early 1980s by the Kagera Basin Organisation experts recapitulated the following constraints to agricultural enhancement in the basin:

- Heavy demographic pressure on agricultural land, which leads to land scarcity and thus the deterioration of soil fertility due to overexploitation and insufficient conservation measures.
- Rural poverty and therefore inability to purchase inputs and other items
- Marketing of surplus production made difficult by inadequate means of transportation and commercial outlets
- Declining land productivity due to various unfavourable factors such as erosion and shorter fallow periods
- Low prices for the agricultural produce
- Post-harvest losses due to improper handling, inadequate storage and preservation.

To overcome the above-mentioned hindrances, the regional organisation scope was to find out measures to improve the agricultural methods and productivity to sustain livelihoods of thousands households. However, overpopulation in both Burundi and Rwanda made the land issue tremendously complex and sensitive. Actually, the land has had a social and cultural significance in the minds of people: the land size implies the wealth and respectability of the owner. The land issue is therefore worsened on one hand by land ownership traditions that split up plots of lands into smaller ones among members of families within generations and on the other hand by cyclical ethnic conflicts that lead to uncontrolled refugee movements and settlements with their cattle.

Since more than 90% the population were involved in the agriculture sector, the Kagera riparian countries had an ambitious of developing also the sectors of transport, energy and industry connected sectors to boost the regional development. Transports and hydroelectric power had to be planned and implemented for the regional development (KBO, 1992).

- **Transport:**

The Kagera basin region is situated at more than 1000 km from the Indian Ocean and has no railway for transportation of imports and exports nor for people movements. So, for being landlocked and without improved regional interconnected roads grids, the transport sector is in a critical situation and needs to be reversed. Moreover, the prospected important mines of nickel at Musongati in south-eastern Burundi and gas deposits in Lake Kivu in western Rwanda need transport infrastructure (railways and asphalted roads) from the mining areas to the exportating ports of Dar-Es-Salaam in Tanzania or Mombassa in Kenya.

- **Energy:**

Currently, the Kagera region countries import all the requirements for oil and oil-based derivatives from the Middle East. The average annual expenditure on the oil imports represents an important portion of the national budget. As the petrol price and petrol by-product is increasing at a rate of about 10% per annum, it might be a big load for the governments, which are already among the most indebted countries. That is why the decision of replacing all the thermal power stations by hydroelectric power through exploiting all possible water resources including the Kagera waters had been endorsed by the governments (KBO, 1992).

### **3.4. Kagera sub-catchments**

The Kagera River has its main sources in north-eastern side of Congo Nile Divide in Burundi (Ruvubu) and in the western highlands of Rwanda (Nyabarongo). It stretches about 800 km from its remotest source in the Virunga region in Rwanda to its outlet on the western shores of Lake Victoria in Uganda (Ndayiragije, 1992). The main tributaries of the Kagera River are the Ruvubu River gathering the waters from Burundi and the Nyabarongo River flowing from Rwanda.

#### ***3.4.1. The Ruvubu River***

The Ruvubu River (figure 3.2) rises in the southern part of the Congo-Nile Divide in the tropical rain forest of Burundi in the province of Kayanza. Its head lies in the Kibira National Park at about 2,000 metres a.s.l. and traverses about 350 km to its confluence with the Kagera River on the border between Rwanda and Tanzania (Ndayiragije, 2001). It is estimated that the Ruvubu River drains an area of ca 12,300 sq. km in central and northern Burundi. It traverses some slopes of about 150 cm per km upstream and less than 20 cm per km downstream at its confluence with the Kagera.

The main tributary of Ruvubu River is the Ruvyironza which runs from south Burundi at Rutovu in Bururi province, meanders through the central plateaus and collects other waters mainly from the Mushwabure, Waga, Mubarazi rivers to name but few. In fact, Ruvyironza is referred to as the southernmost course of the Nile River (Ndege, 1996).

The other tributaries of Ruvubu River are: Nyakabindi, Nyawisesera, Nkokoma, Kinyankuru, and Ndurumu.

**Figure 3.2: The Ruvubu River**



**Source:** Microsoft Encarta, 1999

### **3.4.2. The Nyabarongo River**

The Nyabarongo River (figure 3.3) flows over 300 km from its source in western Rwanda southwards to its outlet to Lake Rweru in south-eastern Rwanda along the border with Burundi. Its main tributary is Kanyaru River that flows from the highlands of Nyungwe National Park on the Congo-Nile Divide in Ruhengeri province along the border between Rwanda and Burundi until the junction with Nyabarongo at about 50 km south of Kigali after its turn to the mainland in Rwanda (Ndayiragije, 2001).

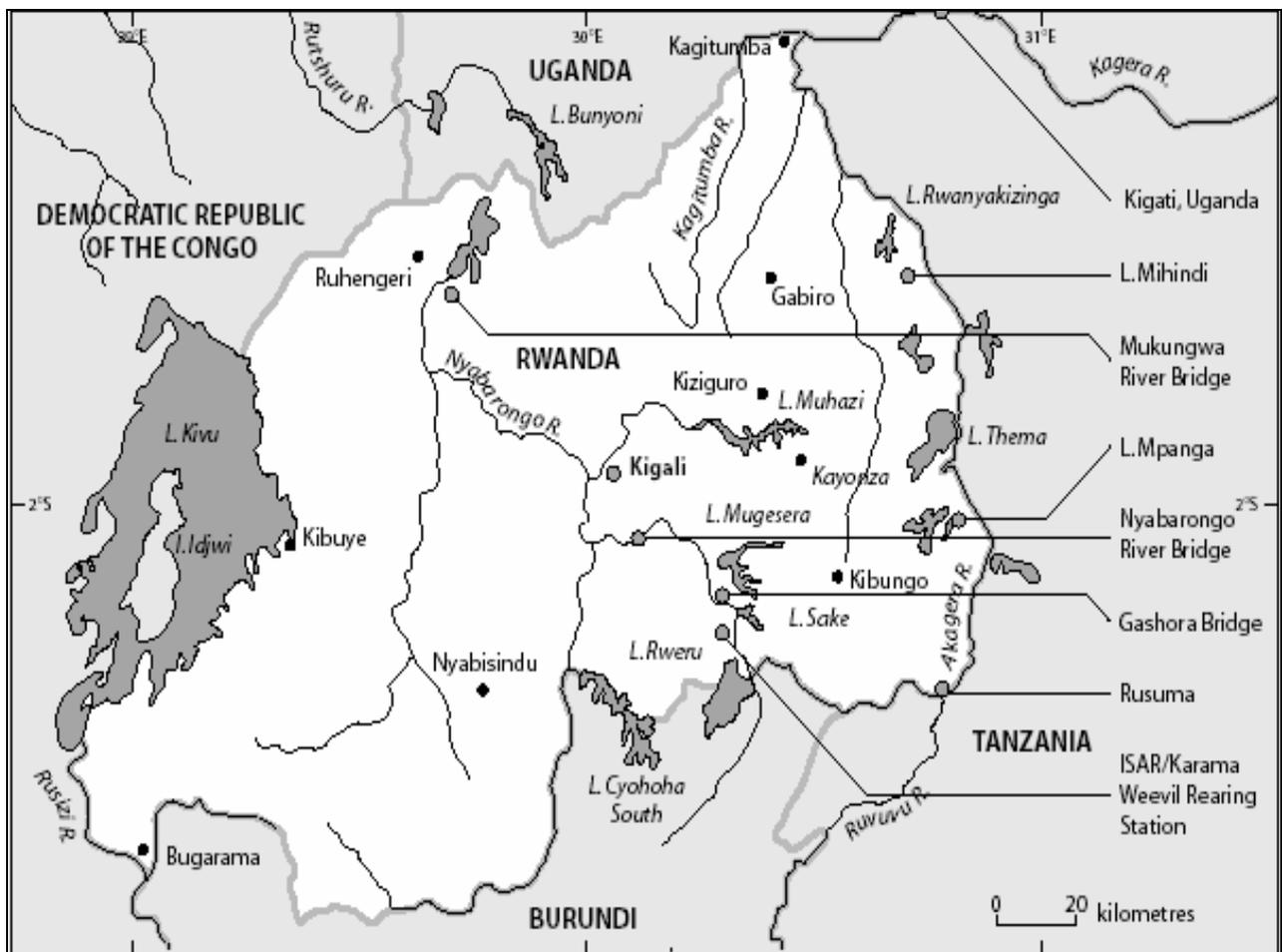
From that confluence, the Nyabarongo River flows eastwards through swampy valleys and small lakes in the lowlands of Bugesera-Gisaka in south-eastern Rwanda. From the Lake Rweru outlet, the Nyabarongo River changes the name to Akagera and meanders through a

swampy terrain for about 60 km and meets the Ruvubu River flowing through the Tanzanian plateaus.

At about two kilometres downstream from the Akagera-Ruvubu confluence, the Kagera River enters into the gorge of Rusumo Falls and drops about 30 metres over a distance of less than one kilometre. Below the water falls, the valley widens and the Kagera River is again enclosed by papyrus swamps.

For the next 230 km, to within a few kilometres upstream of the junction with the Kagitumba River, the Kagera waters flow northwards through lakes and swampy terrain of the Kagera National Park along the Rwandan–Tanzanian border. Downstream the Kagitumba junction (which marks the border between Uganda and Tanzania), the Kagera changes direction and trends eastwards for 260 km to Lake Victoria.

**Figure 3.3: The Nyabarongo River in Rwanda**



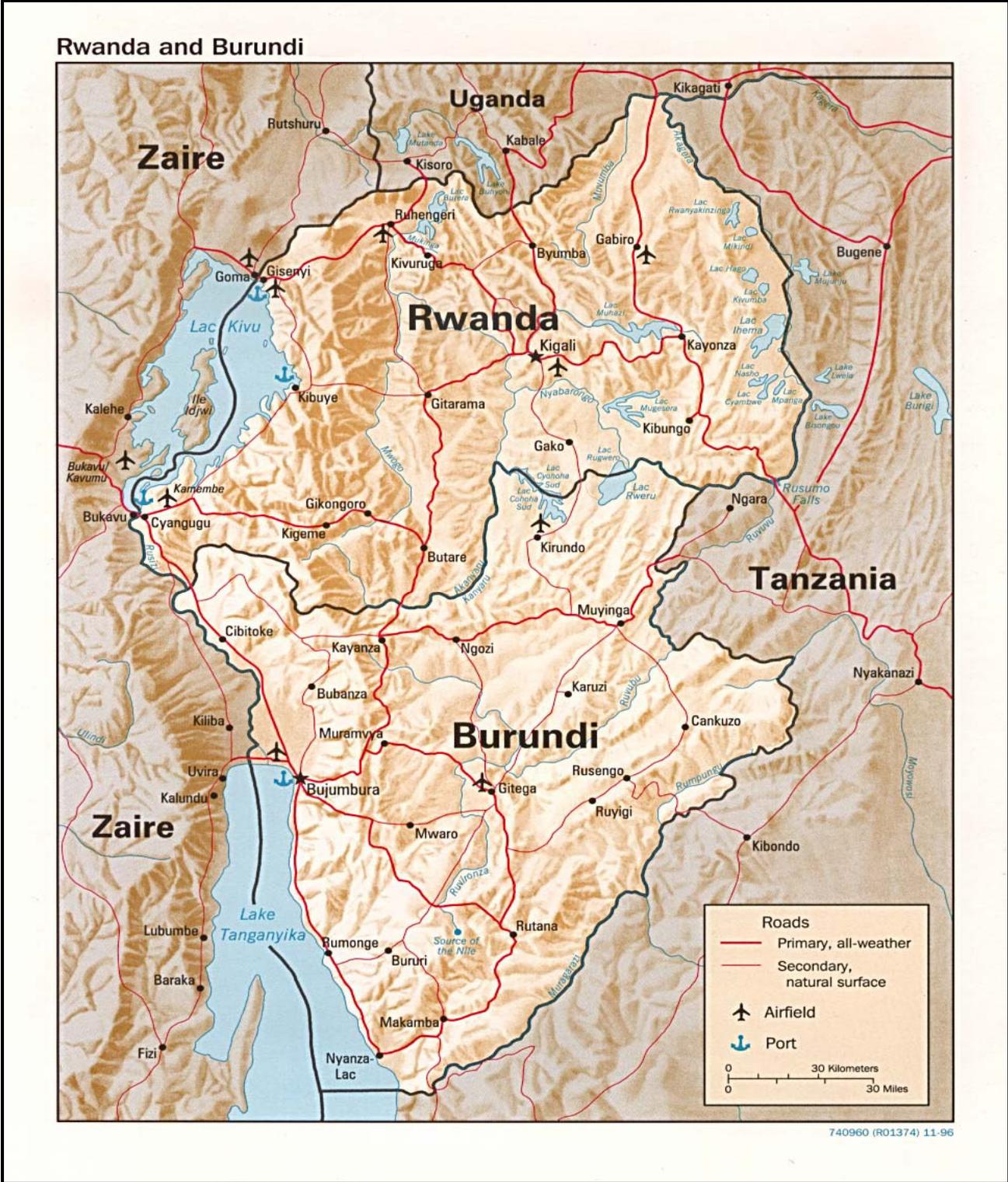
Source: ACIAR, 2001

### 3.5. Regional River Basin Management

The Kagera River Basin is located within a landscape made of thousands of hills, dozens of lakes and hundreds of rivers and streams. Existing roads network infrastructures between riparian countries allow free movements of people and goods between the capitals cities and

major towns. The map of Rwanda and Burundi (figure 3.4) gives an overview of the basin landscape and the communication infrastructures. The Kagera River is visible on north of Rusumo Falls on the top right of the map)

Figure 3.4: Kagera River in Burundi and Rwanda



Source: University of Texas, 2003

From early 1970s, numerous studies and surveys for the exploitation of the natural resources within the Kagera River Basin have been undertaken. So far, two important regional development frameworks had been established by the governments of riparian countries to manage water and land related resources for the improvements of national economies and livelihoods: the Kagera Basin Organisation the Nile Basin Initiative.

### ***3.5.1. Kagera Basin Organisation (KBO)***

Since 1971, numerous studies have been carried out in order to get a comprehensive development of the Kagera River Basin. In 1976, an Indicative Basin Plan provided a good compendium of potentialities of the Kagera basin. After many experts and officials missions throughout the basin, the four riparian countries took a political commitment to jointly exploit the water-based natural resources in order to develop their economies.

On the 24 august 1977, the Heads of States of Burundi, Rwanda and Tanzania met at Rusumo to sign the creation of the Organisation for the Management and Development of the Kagera River Basin. Uganda became the fourth Member State of the organisation on 16 October 1981.

Numerous conferences of donors and multidisciplinary studies were carried out and a Master Plan drawn up. The sectors of agriculture, energy, transport, communications and human resources development were chosen to be the priority sectors.

The member states set up two joint organs for the co-ordination of Kagera Basin Organisation projects: the Commission and the Secretariat.

- **The commission:** four representatives possessing the necessary powers to enable them to make decisions on behalf of their governments.
- **The Secretariat:** the Executive organ of the organisation headed by the Executive Secretary.

The Secretariat composed of 3 departments headed by directors (one from each state):

- Department of Research and Statistics
- Department of Projects, Planning and Execution
- Department of Administration and Management

The KBO secretariat had focused on the following projects documentation:

#### **a- Transport and communication project:**

A technico-economic feasibility study of a railway project had been carried out in order to link by rail the landlocked countries of Burundi and Rwanda towards the different ports on Lake Victoria and finally towards the ports of Dar Es Salaam, Tanga, Mombasa on the Indian Ocean. In addition, KBO had identified roads that are regional in nature covering 914 km. They had to be built under the responsibility of the respective governments of Tanzanian and Ugandan administrations.

Moreover, technical researches were initiated to find out the navigability of the Kagera River. According to the studies outcome, the navigable distance had been estimated at 580 km between Lake Rweru on border between Burundi and Rwanda and Lake Victoria. Today, the Kagera Navigability project is in focus by politicians and commerce chambers as an

alternative to current road axle policies implemented in Uganda which are considered by heavy truck transporters as low and hence, time and money consuming.

One of the achievements of the KBO is the communication project that could set up a regional telephone utilising a local area network system for the member states operational from the year 1994 up to date.

#### **b- Rusumo Falls HEP**

Under the co-ordination of the UNDP, the KBO Executive secretariat and the Kingdom of Belgium consulting groups, well documented studies for constructing a hydroelectric dam on Rusumo Falls were presented for funding in 1995.

The institutional and tariff studies, feasibility studies of interconnecting electricity, transport networks had been carried out in details. However, the Social and Environmental Impact Assessments and Power-Option Analysis were lacking. The socio-environmental losses together with the Resettlement Action Plan had not been studied beforehand.

#### **c- Tsetse fly and trypanosomiasis control pilot project**

On the whole, FAO (1983) had estimated that 40% of the natural grazing lands in Rwanda and Burundi were in tsetse infested areas. In Tanzania, 4,500 sq. km of the ranches in the basin were infested while 200,000 heads of cattle in Uganda were considered to be under permanent threat of tsetse flies. About 17% of the 59,800 sq. km of the basin (almost 10,000 sq. km) were infested by tsetse flies. Recent studies have shown that the infested area has extended up to 20,000 sq. km. For this project, experiments were carried out with positive results, which could make it possible to pass on the operational phase.

#### **d- Agricultural projects**

The proposed projects were (1) the draining of Mulindi valley that is shared by Rwanda and Uganda, (2) Kagera Basin Reforestation Program including a pilot site of 10,000 ha in Uganda and (3) Rubaare ranch with 2,400 cattle keepers with 5,000 heads of cattle on a grazing area of 40,640 ha. Extensions to other areas were envisaged in order to increase livestock productivity throughout the region.

#### **e- Kagera Polytechnic Institute Project**

The scope for the Polytechnic project was to train and produce highly skilled local civil engineers in the field of electricity, civil engineering and mechanics capable of managing and co-ordinating efficiently the basin development programs.

Unfortunately, due to lack of political will and support by the Heads of States to fulfil their commitments by financing the projects and staff on one hand, and regional instability and war in Burundi and Rwanda on another hand, the KBO programs are at a standstill.

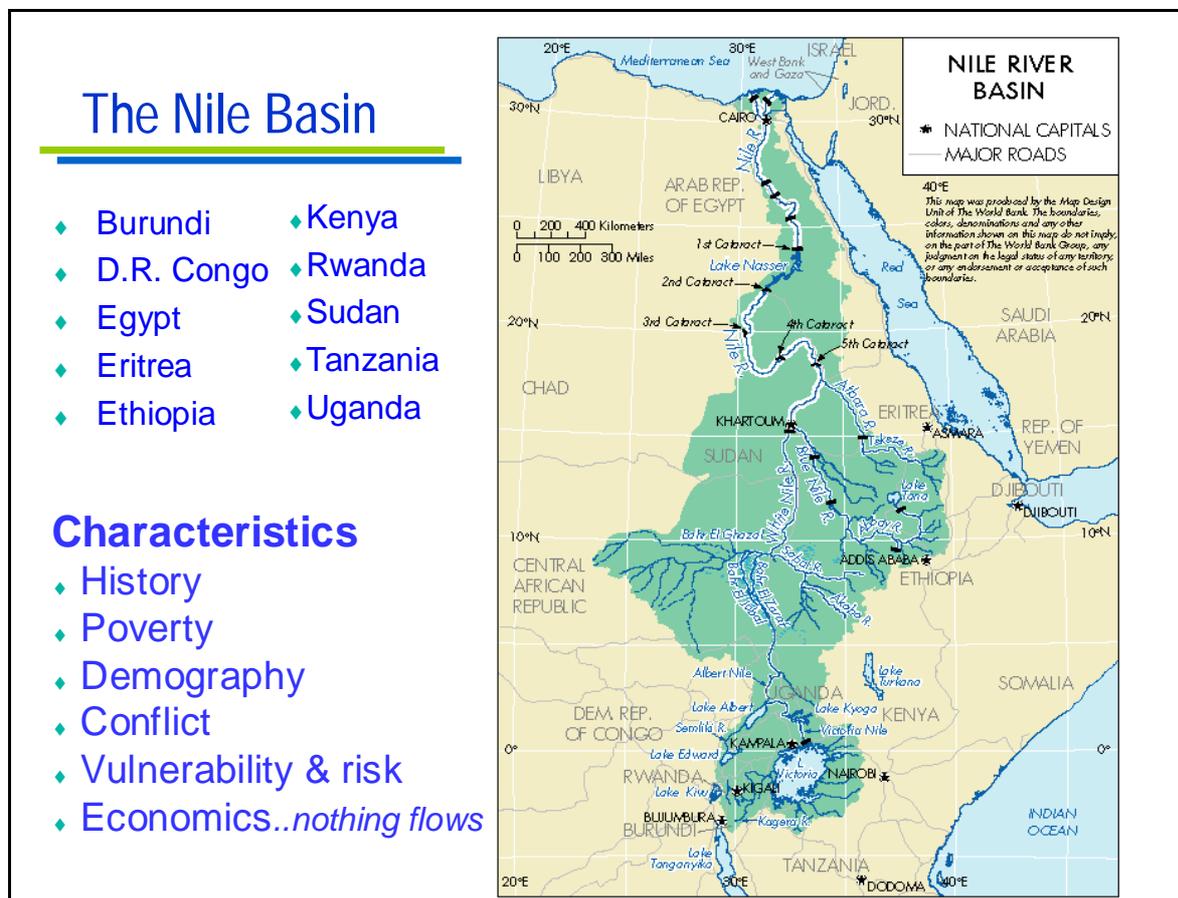
According to the KBO staff in Kigali, all planned activities might be run under the auspices of East African Community, a more business oriented regional framework that regroups Burundi, Rwanda, Uganda, Kenya and Tanzania. An exception had been made for the Rusumo Falls Hydroelectric Power Project which had been incorporated within the Nile Basin Initiative strategic action projects.

### 3.5.2. The Nile Basin Initiative (NBI)

The Nile River (figure 3.5) is one of the world’s greatest assets running through 10 countries: Burundi, DRC, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda (NBI, 1999). The region encompasses an area of 3 millions sq. km and the countries of the Nile serve as a home for to an estimated 300 millions people (World Bank, 2000). The Nile River traverses ca 6,700 km from its remotest source in the highlands of Burundi to the delta at the Mediterranean Sea in Egypt.

As most other sub-Saharan African countries, the Nile riparian countries are facing poverty, political instability, rapid population growth, AIDS/HIV, environmental degradation, to name but a few. From the economic perspective, the World Bank had characterised the Nile basin as a zone where “nothing flows” (figure 3.5 below).

**Figure 3.5: The Nile River Basin**



**Source:** World Bank, 1999

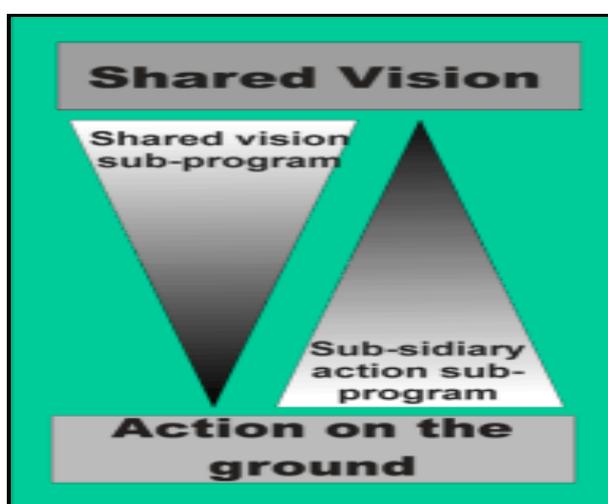
The Nile Basin Initiative is a process that resulted from a number of meetings and workshops between high governmental officials and water experts from early 1990s. In 1993, a technical Committee for the Promotion of the Development and Environmental Protection of the Nile Basin was formed in an effort to focus on a development agenda. With the support from the international community, new mechanisms for riparian dialogue and the exchange of views between countries was launched to provide an international framework for cooperation and benefit sharing of the water resources. All parties recognised Nile waters as a transboundary

resource which needs to be utilised equitably and reasonably. For the feasibility of the joint efforts to work together for the people of the Nile, the riparian governments established a cooperative framework called the “Nile Basin Initiative” with a demanding goal of *“achieving sustainable socio-economic development through the equitable utilisation of, and benefit from, the common Nile Basin water resources”* (NBI, 2001).

At the political level, Ministers in charge of water affairs meet on a regular basis to discuss all matters related to the Nile waters management and transboundary issues as outlined in the Nile Basin Initiative program.

The Strategic Action Program for the Nile Basin had been designed as a *“Shared Vision”* among the riparians that should lead to *“Actions on the Ground”* in forms of subsidiary programs involving different stakeholders with direct profits to the populations at the sub-basin level as it is shown by the figure 3.6 below:

**Figure 3.6: The Nile Basin Strategic Action**



**Source:** Nile Basin Initiative, 1999

The purpose of the Shared Vision Program, as articulated by the Council of Ministers of Water Affairs for the Nile Basin States (Nile-COM) in their policy guidelines for the Nile River Strategic Action Program, is to *"create a coordination mechanism and an 'enabling environment' to realize their shared vision through action on the ground."* The program is therefore intended to be a broad-based basin-wide program of collaborative action, exchange of experience, and capacity building to ensure a strong foundation for regional cooperation (NBI, 2001).

The Shared Vision Programme portfolio includes seven projects that address the major water related sectors and cross-cutting schemes deemed critical by Nile riparian countries to ensure an integrated and comprehensive approach to water resources management (figure 3.7).

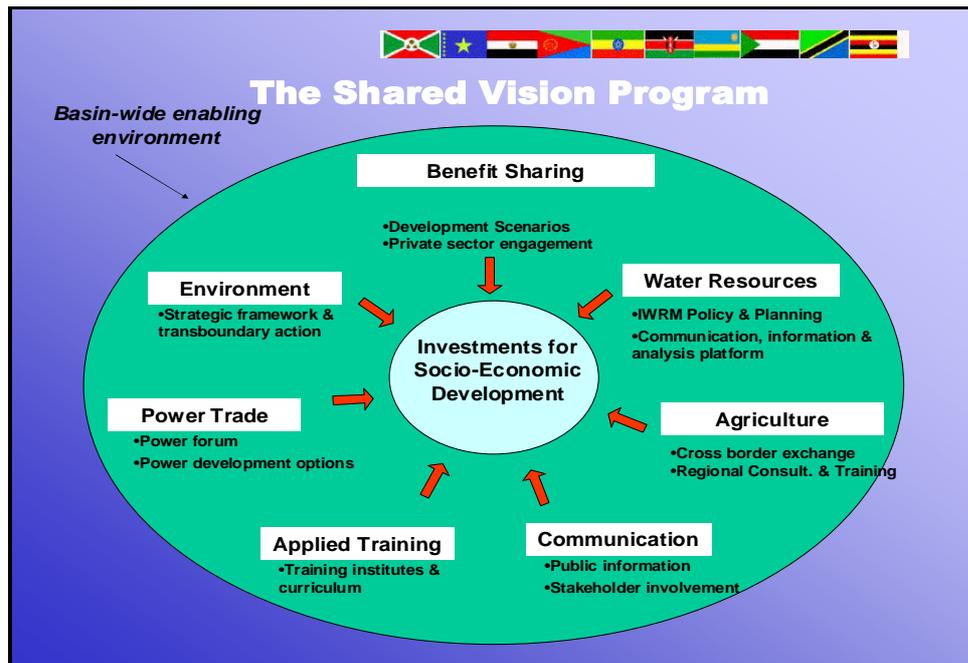
The key projects as scoped by the Nile riparian countries as follows:

1. Nile Transboundary Environmental Action
2. Nile Basin Regional Power Trade
3. Efficient Water Use for Agricultural Production
4. Water Resources Planning and Management

5. Confidence Building and Stakeholder Involvement (Communication)
6. Applied Training
7. Socio-Economic Development and Benefit-Sharing.

According to NBI Shared Vision, the above mentioned projects should contribute to building a strong foundation for regional cooperation by supporting basin-wide engagement and dialogue, developing common strategic and analytical frameworks, building practical tools and demonstrations, and strengthening human and institutional capacity.

**Figure 3.7: The Shared Vision program**



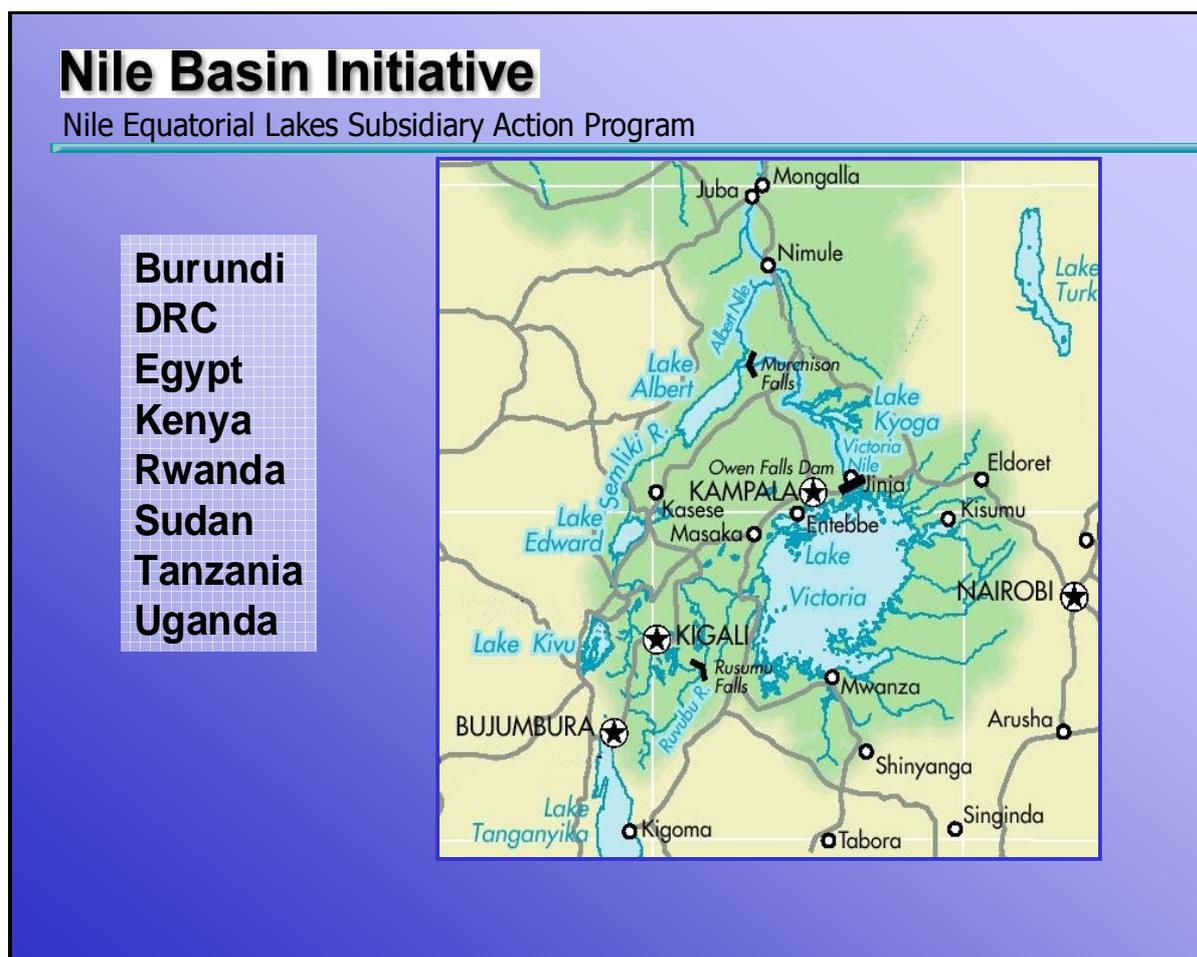
**Source:** NBI, 1999

While the Shared Vision Program is considered as a high political commitment framework, the Subsidiary Action Programs or the “Action on Ground” are set to enhance the implementation of the programs for the immediate benefits of people from the basin. In other words, these programs are meant to cooperatively identify and implement investment projects that might confer mutual benefits. Two subsidiary actions programs have been identified in order to be operational at the lowest level close to the beneficiaries: the Eastern Nile Subsidiary Action Program (ENSAP) including Egypt, Ethiopia and the Sudan; and the Nile Equatorial Lakes Subsidiary Program (NELSAP) bringing together the countries of Burundi, DR Congo, Egypt, Kenya, Rwanda, Sudan, Tanzania and Uganda.

### 3.5.2.1. The Nile Equatorial Lakes Subsidiary Action Program (NELSAP)

As mentioned previously, the NELSAP encompasses the upstream and downstream countries of the Nile River as shown in the figure 3.8. According to the NBI (2001), the Nile Equatorial Lakes is a region whose water resources include one of the world's greatest complexes of lakes, wetlands, and rivers. The sub-basin includes the headwaters of the White Nile, which are located in the upland plateau, from which water flows northwards via lakes and rivers to landforms at lower altitude.

Figure 3.8: The NELSAP member states



Source: World Bank, 1999

The Nile Equatorial Lakes sub-basin is characterised by overpopulation, subsistence farming, extreme poverty, economy highly dependent on rain-fed agriculture and poor development of infrastructures. The population residing within the sub-basin total about 135 million people. According to the World development indicators in the year 1998, the member states of the DRC and Burundi were ranked among the five poorest countries in the world by the World Bank (Table 3.3).

Moreover, the environmental threats in the region are mainly overgrazing, deforestation, soil erosion, agricultural chemicals and pesticides, urban and industrial waste, uncontrolled development along lake shores and river banks, nutrient water hyacinth and refugees and internally displaced people.

To address this situation in the region, the Nile Equatorial Lakes countries came together and set up a framework with a common purpose of “contributing to the eradication of poverty, promoting economic growth and to reversing environmental degradation” (NELSAP, 2001).

**Table 3.3: NELSAP development indicators**

Country	Population		Average Annual Pop. Growth	Estimated Population in the Basin		GNP/Capita		Labour Force in Agriculture		Contribution of agriculture to GDP		
	millions			%	% of total country	millions	US\$	WDI rank	% of total		%	
	1998	2030		1980-98		1998	1998	1998	1970		1990	
Burundi	7	12	2.6	52	3	140	5	94	92	54		
DRC	48	114	3.2	5	2	110	2	75	68	12		
Egypt	61	92	2.3	95	58	1290	86	52	40	17		
Kenya	29	47	3.1	40	12	350	34	86	80	26		
Rwanda	8	15	2.5	80	6	230	15	94	92	47		
Sudan	28	50	2.3	85	24	290	24	77	69	39		
Tanzania	32	56	3.0	20	6	220	13	90	84	46		
Uganda	21	41	2.7	100	21	310	27	90	85	45		
<b>Total</b>	<b>300</b>	<b>548</b>			<b>158</b>							

**Source:** World Development Indicators, World Bank, Washington, DC, 2000.

To achieve these goals, the NELSAP projects scope is to target investments in agricultural development, fisheries development, water resources management, water hyacinth control and hydropower development and transmission interconnection bearing in mind the win-win solutions and sharing the benefits.

The table 3.4 recapitulates the priority areas of the projects, the objectives and the countries involved. All projects mentioned below are set within the sectors of Water Use in Agriculture, Sustainable Management and Conservation of Lakes and Linked Wetlands, Watershed Management, Water Hyacinth and Water Weed Control, Hydropower Development, Transmission Interconnection.

**Table 3.4: NELSAP priority areas and shared projects**

Priority areas	Countries	Project	Objectives
1. Water Use in Agriculture	BUR, DRC, KEN, RWA, TAN, UGA	Enhanced Agriculture Productivity Project	to improve the productivity of small scale agriculture and animal industry through a program co-ordinated across the participating NEL countries to improve and develop water use.
2. Sustainable Management and Conservation of Lakes and Linked Wetlands	DRC, UGA EGY, SUD	Fisheries Project for Lake Albert and Lake Edward	to establish a sustainable framework for the joint management of the fisheries in Lake Albert and Lake Edward to improve the living condition of the people and to protect the environment.

3. Watershed Management	KEN, TAN	Development of a Framework for Co-operative Management of the Water Resources of the Mara River Basin	to establish a sustainable framework for the joint management of the water resources of the Mara River Basin, in order to prepare for sustainable development oriented investments to improve the living condition of the people and to protect the environment
	BUR,RWA, TAN, UGA, KEN, EGY, SUD	Kagera River Basin Integrated Water Resources Management	to develop tools and a permanent institution for the joint, sustainable management of the water resources in the Kagera River Basin in order to prepare for sustainable development oriented investments through improvements of the living conditions of the people and to protect the environment.
	KEN, UGA	Development of a Framework for Co-operative Management of the Water Resources of the Malakisi-Malaba-Sio River Basins	to reverse the environmental degradation trends in the catchments by supporting the rural communities in adopting appropriate technologies in catchment management
4. Water Hyacinth and Water Weed Control	BUR, RWA, TAN, UGA, EGY, SUD	Water Hyacinth Abatement in the Kagera River Basin	to eliminate adverse effects on environment, health and socio-economic activities, caused by water hyacinth infestation, by reducing to manageable levels the infestation of water hyacinth in the Kagera River basin.
5. Hydropower Development	BUR, RWA, TAN	Rusumo Falls Hydro-Electric Power Development, HEP	to supply new energy and capacity to the existing power grid based on renewable hydropower energy, to foster international cooperation in hydropower project development, and to electrify new areas and improve regional power supply reliability by interconnecting the power networks of DRC-East/ Burundi/ Rwanda and the national network of Tanzania.
	BUR, DRC, KEN, RWA, TAN, UGA, EGY, SUD	Ranking and Feasibility Study of HEPs in the NEL Region	to rank proposed hydropower development options larger than 50 MW with a view to supplying the future interconnected transmission system of the NEL region, to update the costs of past studies and project proposals, and determine a common ground for comparing projects and to provide sufficient documentation enabling financing, licensing, procurement and construction of one or more hydropower projects having benefit to more than one NEL country.
6. Transmission Interconnection	KEN, UGA	Interconnection between Kenya and Uganda	to strengthen the existing interconnection between Kenya and Uganda to permit the export of more power from Uganda to Kenya after the Bujagali HEP come into operation

	BUR, DRC RWA	Inter-connections between DRC- Burundi and Rwanda	to interconnect Mugomba in DRC with Gisenyi in Rwanda and Ruzizi II with Bubanza in Burundi to permit power exports from Mugomba and the Ruzizi schemes
	BUR, RWA	Interconnection between, Burundi and Rwanda	to strengthen the interconnection between Kigoma in Rwanda and Rwegura in Burundi to supply both extremities of the existing lines, as well as to provide grid power to Butare in Rwanda and possibly other small district centres along the route.
	RWA, UGA	Interconnection between Uganda and Rwanda	to establish an interconnection between Mbarara in Uganda and Gikondo in Rwanda, to expand and strengthen the grids in northern Rwanda and south western Uganda, and enable exchange of power

**Source:** NBI/NELSAP, 2001

In the framework of the NELSAP, Kagera riparian countries have given high priority to “*Rusumo Falls Hydro Electric Power project*” in the Hydropower Development component. From the 1970s, well documented studies carried out by Tractebel, Norconsult and KBO experts were at advanced level in the 1990s.

Recently, updated studies have been commissioned in order to investigate further stages of Rusumo dam project. From May to July 2003, Acres International, a Canadian Company, prepared a draft review report on the Rusumo Falls Hydroelectric project for the World Bank. It contains a review of existing documents, studies and reports performed previously in order to assess the status of the project and determine next steps in preparing the project. However, a thorough analysis of the potential effects of the Rusumo Falls is lacking (Acres, 2003).

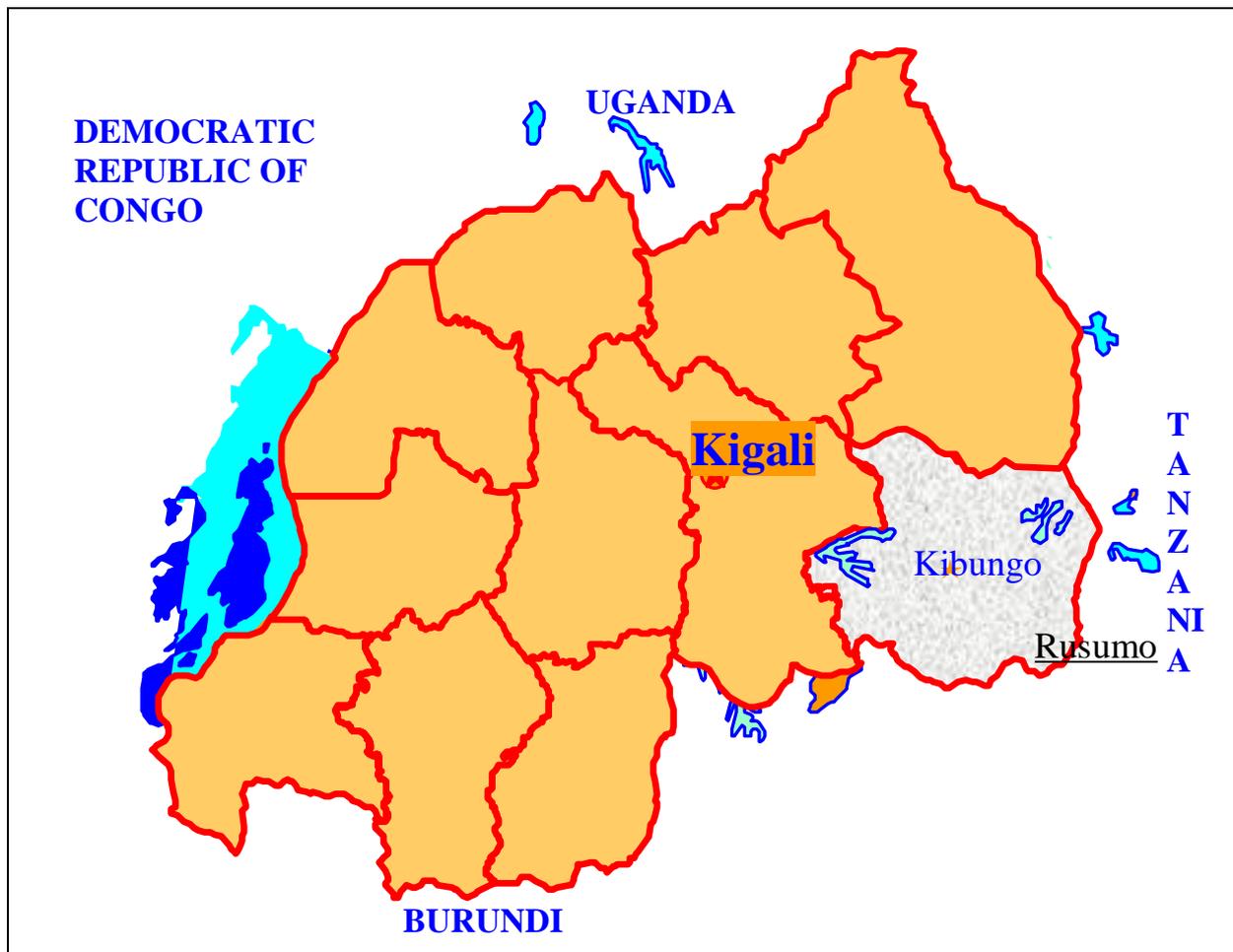
Even though there is an overwhelmingly positive reception about the dam by the population and international support from the international community and lenders institutions, Rwanda has to balance the gain and the displacement of the population that are firmly attached to their lands. In the next chapter, the land issue in Rwanda will be thoroughly analysed in the context of high pressure on lands and also the meaning of the land in people’s mentality.

## Chapter four: Rusumo Falls HEP project

### 4.1. Location

Rusumo Falls project site is situated in south-east Rwanda in the administrative entity of Rusumo district in Kibungo Province at about 144 km from Kigali, the capital city of Rwanda (figure 4.1). Rusumo district is bordered by the United Republic of Tanzania in East and South, in north by the districts of Rukira and Nyambuye and in west the districts of Kigarama and Kibungo town (Rusumo district monograph, 2003).

*Figure 4.1: Kibungo Province in Rwanda*



Source: IRC, 2000

The relief is made up of plateaus with shaped valleys and rounded hills that are covered by scattered savannah woodlands and grassland, recalling the vegetation of the semi-arid East African plateaus. The dominant hills rise up to 1,350 m a.s.l. such as the mountains of Mihima and Migongo. The medium altitude in Rusumo is 1,500 m but the dominant tophill is at 1,750 m (Gatwe Mountain).

The dam site is located in a gorgeous landscape of Kagera River along with water falls at about 1,300 m a.s.l. as shown in the figure 4.2. The picture was taken by Bonobo Tourist Company.

*Figure 4.2: Rusumo Falls on Kagera River*



**Source:** Rusumo Falls in Rwanda, Bonobo Tourist Company, May 2003

The Kagera river banks are natural habitat for a number of birds, monkeys and lots of plant species. Income-generating activities are developed also in the vicinity of the river: agriculture, livestock, fishing, border trading, transport and smuggling, baking bricks, lodging and accommodation.

#### **4.2. Climate and hydrological data**

The local climatic data observed at Rusumo station reflects the general climatic trend of East-Africa specifically the region of north-western Tanzania, south-eastern Rwanda and north-eastern Burundi characterised by low precipitation volumes per annum and rain deficits (WFP, 2001).

The mean daily temperature is close to 24°C. Most of the country has minimum night temperatures of around 10°C and maximum daytime temperatures of around 34°C. Regarding the precipitations, the average monthly rainfall on the central plateau is 85 millimetres. Four seasons are recorded throughout a year: (1) a short dry season in December-January, (2) a major rainy season from February through May, (3) a major dry period from June to

September and (4) a short rain season from late October to early December (Atlas of Rwanda, 1981).

The hydrological data monitored in a catchment area of 30,200 sq km during the period 1958-1984 (a total of 316 months) give a short overview of the monthly average inflows of water at Rusumo Station. The table 4.1 shows the water runoff quantity for a mean observation period of 316 month-monitoring.

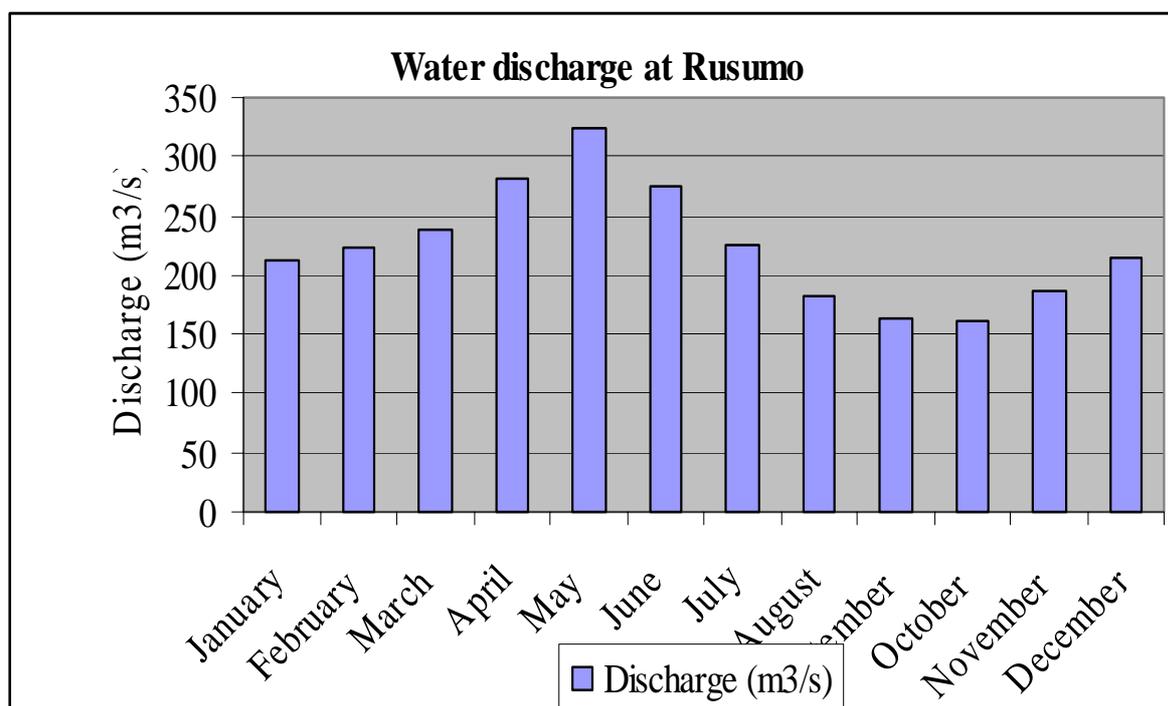
**Table 4.1: Water runoff quantity (monthly average for the monitoring period: February 1958 - December 1984)**

Months	Minimum quantity m <sup>3</sup> /sec	Maximum quantity m <sup>3</sup> /sec	Mean Quantity m <sup>3</sup> /sec
January	168.0	249.0	211.8
February	178.0	303.0	223.1
March	174.0	342.0	238.7
April	185.0	477.0	280.4
May	180.0	536.0	324.4
June	166.0	477.0	275.9
July	150.0	356.0	225.4
August	126.0	248.0	182.2
September	118.0	206.0	163.6
October	117.0	190.0	160.8
November	158.0	215.0	187.3
December	174.0	292.0	214.5

**Source:** UNH/GRDC, 1984

The hydrograph (figure 4.3) shows the monthly inequalities in terms of water discharges at Rusumo hydrographical station for the monitored period between 1958 and 1984. One should note that the peak of 324.4 cubic meters per second is obtained during the month of May. According to the climatic data for the region, the maximum precipitations are recorded in April-may. So, as the Kagera waters inflow comes mainly from the Ruvubu and the Nyabarongo sub-catchments whose heads lie in the Nile-Congo Divide that receives an annual average rainfall of 1,800 mm because of high altitude and vegetation covered with tropical forests.

**Figure 4.3: Water discharge at Rusumo Falls station** (Average monthly inflow for the period 1958-1984)



Source: UNH/GRDC, 1984

### 4.3. The land issue in Rwanda

To address the development matters in Rwanda and in Burundi, it is advisable to consider key indicators about the land presented in table 4.2. In fact, the two countries are characterised by little size of arable lands; the economies are highly dependent on agriculture; the majority of the population (more than 90%) is involved in subsistence farming and the raw materials are not exploited yet.

Obviously, the arable land in both countries is scarce (29.98 % for Burundi and 32.43 % for Rwanda) and the agriculture might not sustain the livelihoods for current and coming generations since the mean arable land per household averages 0.60 ha in Rwanda (Rwanda Development Indicators, 2001).

**Table 4.2: Land related indicators for Burundi and Rwanda**

Indicators		Burundi	Rwanda
Area (sq km)	Total	27,834	26,338
	Water	2,180	1,390
	Land	25,654	24,948
Land use (%)	Arable land	29.98	32.43
	Permanent crops	12.85	10.13
	Other	57.17	57.44
Irrigated land (sq km)		740	40
Labour force (millions of people)		1.9	3.6

Labour force in agriculture (%)	NA	90
Exports commodities	Coffee, tea, sugar, cotton, hides	Coffee, tea, hides, tin ore
Imports commodities	Capital goods, petroleum products, food stuffs	Food stuffs, machinery equipment steel, petroleum products cement and construction material
Natural resources	Nickel, uranium, rare earth oxides, peat, cobalt, copper, platinum, vanadium, arable land and hydropower	Gold, cassiterite (tin ore), wolframite (tungsten ore), methane, hydropower and arable land
Natural hazards	Flooding, landslides and droughts	Periodic droughts, volcanic mountains
Environmental current issues	<ul style="list-style-type: none"> <li>- Soil erosion as a result of overgrazing and the expansion of agriculture into marginal lands,</li> <li>- deforestation (little forested land remains because of uncontrolled cutting of trees for fuel),</li> <li>- habitat loss threatens wild life populations</li> </ul>	<ul style="list-style-type: none"> <li>- Deforestation results from uncontrolled cutting of trees for fuel</li> <li>- Overgrazing</li> <li>- Soil exhaustion</li> <li>- Soil erosion</li> <li>- Widespread poaching</li> </ul>

**Source:** The CIA World Factbook2002, April 2003

Today, different institutions and researchers provide alarming facts and figures about the population pressure on land in Rwanda. For instance, the preliminary results of the recent General Population and Housing Census run in August 2002 revealed a total population of 8,162, 715 people that is expected to double by the year 2025 (Rwandan Ministry of Finance and Planning, 2003). Rurangwa E. (2002) estimated the arable land to total 1,3 million hectares and the marshland 165,000 hectares from which only the half is available for agricultural purpose.

Larsen J. (2003) from Earth Policy Institute in San Diego estimates that “the experience in Rwanda, Africa's most densely populated country, highlights the potentially serious ramifications of land scarcity. Between 1950 and 1990, Rwanda's population tripled from 2.1 million to 6.8 million. The per capita grainland availability fell to 0.03 hectares”.

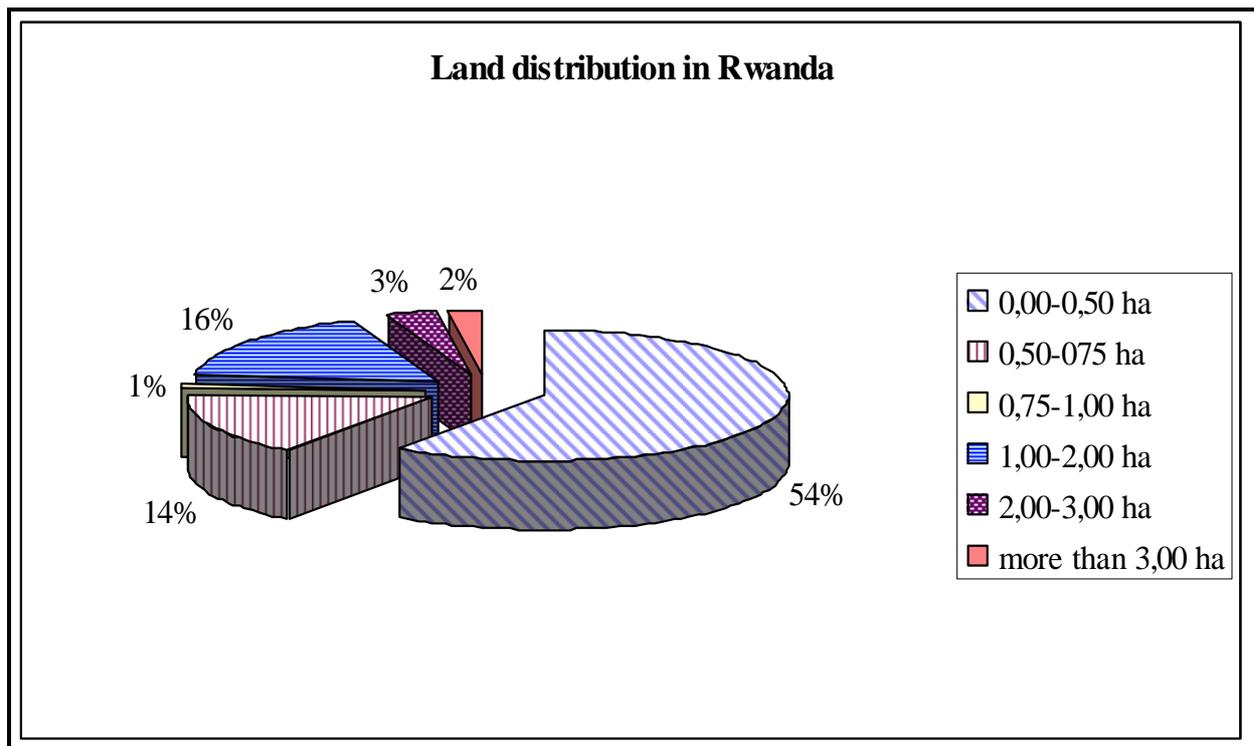
A study conducted in early 1980s estimated the arable agricultural land area about 17,600 square kilometres. For example, in 1984, 57% of rural households farmed less than one hectare of land and 25% had less than half a hectare, from which they had to feed an average family of five people (République Rwandaise, 1993:II).

Furthermore, a World Food Program report stated that “the country has the highest population density in Africa, averaging 746 people per arable square kilometre. Approximately 92 percent of all Rwandans live in rural areas, with a substantial proportion of that population engaged in subsistence farming. More than 60 percent of the population lives below the

internationally accepted poverty line and the UNDP Human Development Index ranks Rwanda 164<sup>th</sup> of 174 countries” (WFP, 2001).

By the year 2000, a land survey conducted by the Ministry of Agriculture, Livestock and Forestry (2000), revealed that 69% of the population exploited less than a one hectare of land. The figure 4.4 presents the land distribution among the homesteads among the Rwandese populations.

**Figure 4.4: Land distribution throughout Rwanda**



**Source:** Ministry of Agriculture, Livestock and Forestry survey, May 2003

Dr Kabayija E. (2002), the Rwandan Minister of Agriculture, Animal Resources and Forestry stated that *“at the moment, people produce merely to feed themselves and their families, and for the country to progress economically, some drastic changes are needed. We must empower the 94 % who live on the land”*.

Undoubtedly, the consequences are tremendous as agriculture is the strongest sector in the economy since it employs over 90% of the population and represents 44% of the GDP. But still, according to the Ministry of Finance and Planning (2002), it remains essentially an unprofitable subsistence-level industry carried out on small plots seldom larger than half an acre.

Recently, the massive repatriation of refugees from Burundi, DRC and Tanzania and other countries between 1994 and 1996, had worsened the land ownership according to certain traditional customs.

Quoting Sellström T. and Wohlgemuth L. of the Nordic Africa Institute at Uppsala, Sweden (1996), *“With the growth of the population, the inheritance laws - dividing a family's rights to*

*use land among all the remaining sons - ensured that the size of the holdings would continue to fall and be increasingly fragmented into small plots, scattered over wider areas. Thus, in the beginning of the 1990s, the average Rwandese household farmed at least five plots of land, each with its specific characteristics of fertility, accessibility and form of tenancy”.*

From the environmental conservation point of view, the 1993 Arusha Accords between the Government of the Rwanda and the Rwandan Patriotic Front did not take into account the resettlement adversely side-effect on the biodiversity. Concerning the repatriation of Rwandan refugees and the resettlement of displaced persons, the Article 2 of Arusha Peace Agreement stated the following:”...each person who returns is free to settle in any area, within the country, of his/her choice, as long as he/she does not infringe on somebody else’s rights.”

In that spirit, the returning refugees received state-owned lands and communal lands mainly from the Umutara Game Reserve, a two-third land of the Akagera National Park and the Gishwati Mountain Forest to enable them to produce food (Rurangwa E, 2002).

As a matter of fact, the lack of arable land and pastureland have led to exploitation of marginal lands such as wetlands, steeply slopes, river banks and the encroachment of protected natural areas such as the Akagera National Park by the populations seeking for more lands for farming and settlement. This park was formerly reserved for wildlife ranging from lions, giraffe, elephant and hippopotamus to hyena and gazelle.

Apart from the land size and availability, climate variability plays an unfavourable role to the population relying on subsistence agriculture especially in the eastern part of Rwanda which faces periods of severe rain deficits. It has been reported that in Rusumo district for a total population of 119,084, about 8,574 households were affected and food supply was urgently needed.

The World Food Program Report (2001) recalls also that “*during the first quarter of 2000, deficient rainfall in the Bugesera region of Kigali Rural province and the west of Kibungo resulted in considerably lower maize and bean yields*”.

As a consequent adaptive capacity, the populations got used to harvest rain waters for domestic consumption. In dry seasons, wetlands serve as reservoirs for small agricultural plots irrigation and cattle catering.

The population need water and the utilisation of the Kagera waters to get power from the water falls at Rusumo and hence pump water for irrigation and domestic use. In Kibungo province, 5% drink tapped water, 25% get water from creeks or rivers, 12% from the swamps and 10% pumped water from boreholes (Rwanda Development Indicators, 1998).

In Rusumo district, a recent survey assesses that “drinking water is a very scarce resource and 10% of the population have to walk for almost 12 km to fetch water from public taps (Rusumo Monograph, 2003).

Besides, the population of Rusumo is very keen to get electricity because it is estimated that electricity will boost the development in the region. The table 4.3 indicates the current imbalance between electricity production and consumption for the countries of Burundi and Rwanda.

**Table 4.3: Electricity consumption in Burundi and Rwanda**

<b>Indicators</b>		<b>Burundi</b>	<b>Rwanda</b>
Electricity production (million KWh)		148	113
Electricity production by source (%)	Fossil fuel	1	3
	Hydro	99	97
Electricity consumption (million KWh)		166.64	174.09
Electricity import (million KWh)		29	70

**Source:** The CIA World Factbook 2002, April 2003

Briefly, based on the figures presented in the table above, Rwanda seems to be in a greater need of electricity supply than Burundi. Actually, Rwanda imports a large quantity of electricity from Burundi because the former has a high demand of electricity and the latter has low power consumption due to civil war that minimised the industrial activities.

So, the projected Rusumo dam is awaited with much anxiety by the sub-region in general and by the Rusumo people in particular. The dam is foreseen as a catalyst of a new era for standards improvement and a regional development.

#### **4.4. The projected Rusumo dam**

Under the auspices of the NBI and the NELSAP component, the proposed Rusumo Falls HEP has a planned capacity of 40-60 MW utilising a head of 20-30 m in a concentrated falls lying in the territory of Tanzania and Rwanda where the river forms the boundary between both countries. The project involves a tunnel water way, surge chamber and a small gated dam which raises upstream river level by up to 15 m, thus creating a large reservoir which extends upstream into the territory of Burundi. Transmission lines will be built as well to the riparian countries (NBI/NELSAP, 2001).

The objectives of the project as scoped by the countries of Burundi, Rwanda and Tanzania are (1) to supply new energy and capacity to the existing power grid based on renewable hydropower energy, (2) to foster international cooperation in hydropower project development, and (3) to electrify new areas and improve regional power supply reliability by interconnecting the power networks of DRC-East/Burundi/ Rwanda and the national network of Tanzania.

From the previous studies carried out by the KBO, it was foreseeable that the dam construction would affect the environment and livelihoods of hundreds of households. However, considering the current needs of power supply, the governments involved in the dam process feel a real dilemma between power production and social cost.

#### **4.4.1. A challenging dilemma and the social cost**

Within the framework of the NELSAP, the governments of Rwanda, Burundi and Tanzania, as they need more power have set is Rusumo project in other portfolio regional programs and are keen to make it operational. From the economic benefits perspective, the Rusumo dam is likely to boost the regional development and contribute to the poverty reduction in the region.

However, the costs of the socio-environmental loss might be significant. From on-site observations in Rusumo valley and referring to KBO existing studies, the dam will definitely affect the physical environment and the social lives upstream and downstream the river. Based on previous studies, it was estimated that a reservoir required for a 61.5 Mega Watts Hydroelectric Project option development at 1325 m a.s.l. was 1,200 million cubic meters and would impound an area of 390.27 sq. kilometres creating an artificial lake extending the waters to Lake Rweru in northern Burundi and flooding a total land area of 1,508 sq. kilometres in the three riparian countries (KBO, 1996). This means a loss land of less than 1 % in Rwanda (table 4.4).

In addition, the hydropower plant, the transmission lines and the reservoir will cause directly or indirectly the displacement of the people, their movable belongings such as cattle and poultry among others. A certain number of flora and fauna in the wetlands and swampy valleys will perish. The woody natural habitat for hundreds of birds and monkeys are likely to be inundated since the water level might rise up to 7-10 metres high. Besides, there is also risk of clogging of intakes and outlets with floating plants such as papyrus and water hyacinth present in large quantities in the Kagera river basin (NELSAP/PID, 2002).

For Rwanda, the loss in the upstream comprises the existing road infrastructure; the customers building post; the linear trade centre along the Kagera river bank; the settlements along the road Kibungo-Bukoba; the mosque; the Marembo Motel and Restaurant; the bridge; the 305 ha agricultural lands exploiting banana, cassava, beans, sorghum, tomatoes, palm tree, sweet potatoes and pineapple. Some incoming generating activities will be affected such as the trans-border trade, fisheries and brick production.

The table 4.4 points out the floodable geographical area, the agricultural losses and estimates the number of households that might be resettled on other lands.

**Table 4.4: Occupation and density of lands (ha) and displacement of holders**

<b>Land (in ha) and land users</b>	<b>Burundi</b>	<b>Rwanda</b>	<b>Tanzania</b>	<b>Total</b>
Geographical area below 1325 m	210	403	895	1,508
Exploited agricultural lands	139	305	159	603
Households to be displaced	59	190	80	321

**Source:** KBO/Rusumo Falls HEP, Synthesis document, 1996

In the three countries, as some cultural, social and economical facilities located in the vicinity of the reservoir will be destroyed and the communities displaced, the project has to assess the loss and design the compensation plan.

Regarding the displacement of people, the KBO (1996) pessimistically noted that “*in Rwanda, the occupation of the land is such that it is impossible to identify on the immediate*

*edge of the valley large enough areas to organise resettlement of the peasants deprived of land by flooding”.*

So, bearing in mind the perceptions of lands in minds of the populations, then some alternatives should be offered to sustain their livelihoods. Even though the Rusumo populations interviewed in April-May 2003 responded overwhelmingly the full support of the project, new sources of income are urgently required; otherwise the land related problems could jeopardize the dam process and probably the economy might collapse.

Nevertheless, the recent land reforms occurred in Rwanda that adopted new laws and land policy to ensure proper land management are likely to pave the way to a successful resettlement plan if some new plots were required. The new housing policy that adopted villages or “imidugudu” as better settlements in rural areas might apply in the Rusumo dam relocation process.

However, providing new lands to the affected people might not sustain properly the socio-cultural lives as it was before the dam construction. It is therefore relevant to get the picture of how the people understand the positive and negative effects of Rusumo dam.

#### **4.4.2. The Rusumo dam benefits and drawbacks**

The current opinion about the projected Rusumo dam is very positive among the rural populations of Rusumo and the governmental officials as well.

For a sampled population of 78, about 80% of the respondents strongly support the project and estimates that the dam construction should commence as soon as possible. 18% are also for the dam but suggest a thorough analysis of the possible negative impacts that might affect the communities and the biodiversity. Only 2% did not want to make any particular comments since, according to them, the government might have a fixed plan and a dam design for a long time ago.

The final analysis from the interview run in Rusumo and elsewhere in Rwanda (mainly in Kigali) are presented respectively in tables 4.5 and 4.6. The selection and categorisation of the respondents, on one hand, were based on the level of involvement in the dam project (governmental officials, ministries in charge of water and energy), the interest of certain groups and organisations in social and environmental matters (NGOs, media and the academic bodies) and also the “affected people” living near the Rusumo dam site.

On the other hand, the sampling purpose was based on the age, gender and social position in order to get various ideas and views from people of different background and personal interests in the field of rural development.

- Age: the respondents were aged between 15 and 55
- Gender: 27 women and 51 men
- Social position: only 19 respondents hold a university degree and live in Kigali.

To obtain a balanced argumentation, from the 78 people that took part in the interviews, 30 people interviewed were found in Kigali, the capital city of Rwanda and 48 others were residing in Rusumo district where there is lack of electricity.

In Rusumo district, it was amazing to hear what the people think about the dam outcome. Their views were quite diversified and mostly reflected the social position in the community, the source of revenues and the age of the respondents.

The local governors (Rusumo district councillors and heads of villages) for instance were convinced that with generation of electricity, new jobs would be created and hence, big marketing centres will be built. The tourism industry will definitely raise the incomes of the Rusumo people. A 55-year-old head of village said *“This is a real time for our development. No one should be against that sign of modernity because having electricity in the homesteads is the development we have been waiting for and other people have it in other provinces of Rwanda”*.

The farmers and the tradesmen expressed their support to the Rusumo dam. However, they had some reserves about the farming and grazing lands that might be inundated because of the water level required for the electricity production. During the discussions, there was a clear argument that they would be able to handle all the matters connected to the dam since they have a traditional institution to handle all local matters in a juridical way. The institution is called Agagaca, a kind of local court of justice.

In addition, the tradesmen believed that external investors would come to Rusumo, bankers might open their agencies in the area and small industry schemes might start because of the electricity availability and the labour force available in the region. On the other hand, they believe that smuggling and “foreign exchange” would be much controlled.

For the fishermen, they hoped for the better since there would be much water and much fish. According to the youngsters in the fishing profession, the fish industry might start introducing new species and modernise the fishing system on the “artificial lake”. So, more jobs would be created, people will get animal proteins and money. As for the drawbacks, the fishermen fear the extension of waterborne diseases such as malaria, trypanosomiasis and tsetse fly.

The community organisations were more positive and enthusiastic than the farmers because they knew that once the dam was built, the artificial lake will serve as a recreational area and then the tourists might come. They might be able to sell their handcrafts and get more money to sustain their lives. On one hand, they thought that vocational training centres would be built and help to increase their skills and hence, improve their livelihoods. On the other hand, they feared about the expansion of HIV/AIDS since outsiders (workers and tourists) will be coming to the dam site in the dam construction phase or as tourists.

As a summary of the discussions with the Rusumo people, the table 4.5 presents the main views expressed by the Rusumo people.

**Table 4.5: Benefits and drawbacks as expressed by Rusumo people**

<b>Category</b>	<b>Sample</b>	<b>Benefits</b>	<b>Drawbacks</b>
Local governors (Rusumo district council and heads of villages)	7	<ul style="list-style-type: none"> <li>- Electricity supply</li> <li>- External investors</li> <li>- Economic growth</li> <li>- Income generation through taxes</li> <li>- Employment</li> <li>- Big marketing centre</li> </ul>	<ul style="list-style-type: none"> <li>- Inundated farming areas</li> <li>- Loss of public infrastructures</li> </ul>

		<ul style="list-style-type: none"> <li>- Tourism activities</li> <li>- Protection of the environment</li> <li>- Modernisation of agriculture and fisheries</li> </ul>	
Farmers	20	<ul style="list-style-type: none"> <li>- Creation of big markets</li> <li>- Farming modernization</li> <li>- Intensive farming possibility</li> </ul>	<ul style="list-style-type: none"> <li>- Loss of good arable and grazing land</li> </ul>
Tradesmen	10	<ul style="list-style-type: none"> <li>- Big market</li> <li>- Restaurant development for tourists and merchants</li> <li>- External investors</li> <li>- Small industry schemes</li> <li>- Banking opportunities</li> </ul>	<ul style="list-style-type: none"> <li>- Loss of the kiosks and boutiques</li> <li>- Much control against smuggling and foreign currency exchange</li> </ul>
Fishermen	4	<ul style="list-style-type: none"> <li>- Increased fish production and supply</li> <li>- Jobs opportunities</li> </ul>	<ul style="list-style-type: none"> <li>- Fishing competition with outsider fishermen</li> <li>- Extension of waterborne diseases (malaria)</li> </ul>
Community organisations (handcrafts, folkdance, ...)	7	<ul style="list-style-type: none"> <li>- Tourists</li> <li>- Income generation</li> <li>- Employment</li> <li>- Vocational training centres</li> </ul>	<ul style="list-style-type: none"> <li>- Loss of some of our materials (inundated)</li> <li>- Disruption of the social groups and clubs</li> <li>- AIDS/HIV increase</li> </ul>

**Source:** Interview analysis, June 2003

From the table 4.5, it is clear that the benefits of the dam were more expressed than the drawbacks. In fact, during the discussions and debates, intensive lively ideas and supportive opinions about the dam benefits were spontaneously and lively expressed. At several occasions, the Rusumo people emotionally and vigorously stated that *“we need electricity to bring development and our living standards shall be shifted”* (Heads of Villages at Rusumo, 2003). However, among the Rusumo people, it was noticeable that the tradesmen and local governors were more eager and urged for the immediate debut of the dam construction phase since the promise had been made for a long period by governmental officials.

On the other hand, the outsiders’ opinions interviewed in Kigali, the capital-city of Rwanda, seemed more balanced and reflected different angles of analysis depending on their positions in the governmental bodies, the missions of their institutions or their role in the Rwandan society in general. The interviewees were from the government, academic bodies, university students, local NGOs and the media, most of them welcomed the Rusumo dam project.

As their knowledge about the steps forward differed from the institutions and level of involvement in the Rusumo dam project, most of them expressed the feeling of impatience about the construction phase. For instance, a student at Kigali Institute of Science, Technology and Management in the Department of Civil Engineering and Environmental Technology, nearly cried when she knew that the dam construction could require acceptance of different parties and the affected people among others. In the middle of our debate about Rusumo dam and possible negative effects on the people, she emotionally argued: *“Look! Rusumo district does not have electricity. This is unfair. No reasonable person would refuse such big step towards development. We do not need to live like our ancestors. People should*

*understand that we need to sacrifice our lands in order to get power in return. If I was a decision-maker, I would only plan the relocation process appropriately so that people can settle somewhere else. What the Rwandans need today is the immediate construction of the Rusumo dam for electricity supply in Rusumo and elsewhere in Rwanda and the neighbouring countries as well."*

Based on the strong belief expressed by the respondents, it seemed clear that the Rusumo dam was surely going to bring a new era of poverty alleviation and sustainable development. It was not surprising why the interviewees unanimously supported the dam construction without reserve.

Another example was a respondent from the ministry of Infrastructure, in the Energy Directorate. He smilingly said: *"people should not focus on the side-effects of the proposed Rusumo dam but instead, look upon the large manpower absorption throughout the country since the electricity generated from the dam will surely boost the industry sector"*.

This point of view was shared by some politicians who responded that Rusumo dam was likely to boost the regional development and tighten the country's relations and open up new ways of cooperation. A politician activist argued that Burundi, Rwanda and Tanzania would jointly work on a comprehensive basis in order to efficiently utilise the power and manage the dam plant for a continuous power generation.

Another remark was made by an academician, a Professor at the National University of Rwanda (Butare, southern Rwanda) I met in a two-day workshop hosted by Kigali Institute of Science, Technology and Management and run by the Nile Basin Discourse Desk in early June 2003. He believed that the Rusumo dam project was likely to open up new fields for scientific research to find out how the dam can contribute to environmental protection and remediate the land issue and the deforestation problems in the country. He added that some new ways should be explored to find out alternatives apart from the farming which had been the basis of the livelihoods of the population of Rwanda from the ancient times. As drawbacks, he mentioned that wildlife might be severely affected and possible upstream-downstream conflicts could arise between the water users at the local scale between Rwandans themselves and also between riparian countries at the international level.

The local NGOs and the media I interviewed mostly believed that rural electrification and the new activities should enhance the purchasing power of the populations. A 30 year-old journalist mentioned the fact that outsiders, westerners mostly or international organisations and companies, might get into the Rusumo dam process, try to influence the local governors and heads of villagers and hence orientate the dam management in order to fulfil their interests. Unanimously, they were convinced that the best was the dam construction no matter the environmental and social impacts that could be connected to the dam process.

The table 4.6 on the next page recapitulates the arguments about the positive and negative impacts of the projected Rusumo dam.

**Table 4.6: Opinion about the Rusumo dam by people in Kigali**

Category	Sample	Benefits	Drawbacks
Governmental officials (Policy-makers from ministries of water and energy)	5	<ul style="list-style-type: none"> <li>- International cooperation</li> <li>- National and regional development</li> <li>- Manpower absorbed</li> <li>- Power market</li> <li>- Water Hyacinth control</li> </ul>	<ul style="list-style-type: none"> <li>- Inundated agricultural lands</li> <li>- Public infrastructure (Rusumo bridge, customer post at the border) demolition</li> <li>- Resettlement cost</li> </ul>
Academic body and university students	12	<ul style="list-style-type: none"> <li>- Boost the national economies</li> <li>- New research fields</li> <li>- Tourism activities</li> <li>- New economic incentives</li> </ul>	<ul style="list-style-type: none"> <li>- Displacement of people</li> <li>- Harm to biodiversity</li> <li>- Social life disruption</li> <li>- Inundation and floods</li> <li>- AIDS/HIV contamination</li> </ul>
International institutions	2	<ul style="list-style-type: none"> <li>- Electricity supply for the region</li> <li>- Regional cooperation</li> </ul>	<ul style="list-style-type: none"> <li>- Wildlife affected</li> <li>- Social and ecological adversely affected</li> <li>- Upstream – downstream conflicts</li> </ul>
Local NGOs	5	<ul style="list-style-type: none"> <li>- Rural Electrification</li> <li>- Income generating activities</li> <li>- New socio-economic infrastructures</li> <li>- Public services enhanced</li> <li>- Job opportunities</li> </ul>	<ul style="list-style-type: none"> <li>- Loss of lands</li> <li>- More outsiders interest in Rusumo matters</li> </ul>
Media	4	<ul style="list-style-type: none"> <li>- Labour market</li> <li>- New standards</li> <li>- Adult education</li> </ul>	<ul style="list-style-type: none"> <li>- Water borne diseases</li> <li>- Mix of cultures</li> </ul>
Politicians	2	<ul style="list-style-type: none"> <li>- New incentives for people</li> <li>- Regional cooperation</li> </ul>	-

**Source:** Interview analysis, June 2003

From the findings presented above, one can conclude that the views are formulated in a fair way. The opinions about the dam reflect the diversity of the respondents but give an extensive list of the drawbacks.

The variations in terms of age, gender and social position might have influenced the outcome of the interviews in a one way or another. For example, young males were more open and keen to answer the questions and give suggestions for the dam management. At the end of sessions, the heads of villages wanted their say to be included in the final report. The females were more reserved and reluctant to talk in front of men but rather liked more individual discussions or debates between women from the same organisations. Very few of the interviewees were indifferent and expressed their neutrality because of political reasons.

Furthermore, the table 4.7 recapitulates the expectations of the Rusumo people and highlights the source of income for 10 homesteads chosen randomly in Rusumo district. In fact, the amount of money set in the table below was calculated on the basis of the data recorded from

each homestead that I interviewed according to the source of income. The original data was collected in the local currency and then exchanged into American Dollars for general understanding for the outsider readers. According to the National Bank of Rwanda, the exchanging rate for 1 US\$ was 520 Rwanda Francs in early June 2003.

**Table 4.7: Mapping the views of the affected people**

Homesteads	Income sources	Amount (in US \$ per year)	Expectations from the dam
Homestead 1	Agricultural products (bananas, beans, cassava)	50	Increase of the purchasing power
Homestead 2	Selling food to truck drivers	500	Electricity and food conservation
Homestead 3	Fishing	100	Modernisation of the fishing system and new species introduced in the reservoir
Homestead 4	Hired as manpower	60	More job and more money
Homestead 5	Temporarily employed at the customer post	400	Permanent job as the loading/unloading will be needed every day
Homestead 6	Agriculture & Handcrafts	380	Tourists might buy the handcrafts
Homestead 7	Tradesman	3000	More goods to sell Cheap transport as the trucks will be more available
Homestead 8	Motel/restaurant and lodging	5000	More clients and tourists Build a modern and bigger hotel
Homestead 9	Agriculture and livestock (bananas, tomatoes goats)	630	Sell more items
Homestead 10	Bus driver Rusumo-Kigali	2000	More traffic and more passengers and goods

**Source:** Interview analysis, June 2003

For the majority of Rusumo people, the income generating source is based on agriculture with low income. However, the homesteads whose main activity is trade or related business get higher income than agriculture. The location on the border implies trans-boundary activities that can sustain some lives of thousands households if there is an appropriate framework.

Based on recent information delivered by the Tanzanian Minister of Energy at Rusumo border in March 2003 broadcast by Radio and TV of Rwanda, the construction works should start this year 2003. Since then, the populations show some signals of impatience although they are not aware of the dam design and its side effect on their livelihoods. What counts most is the “new era of electricity, jobs and development”.

Considering the eagerness of the Rusumo people, one might question their expectations from the dam project. Will the dam construction solve the poverty issue in the area? How will the

people benefit from the dam construction? Are their expectations realistic? Will the land issue be solved or worsened? Do they realise the other side of the coin?

Currently, it is quite difficult to provide appropriate answers for the above set questions. Here, I would quote the World Bank Director of Energy and Water, Saghir J. (2003), at an opening ceremony on water and energy workshop in Lebanon. He stated:

*"The main concern of the Bank is that water and energy services reach the poor in developing countries with an acceptable quality, at an affordable cost and in a sustainable manner. This can be done efficiently by the private or the public sectors or by public/private partnerships, or by partnerships with civil society organizations. We need to have financially viable utilities".*

From this statement, it is obvious that the World Bank vision about water and energy development projects encourages the necessity of taking into account the benefits of the targeted groups which are the affected people in Rusumo case. The perceptions of Rusumo people may not be the real benefits perceived from the dam construction project even if the respondents unanimously support its implementation. They might be disappointed and frustrated if they realise the difficulties in the long term.

As the purchasing power and the local capacity of self-mobilisation to form partnership institutions are weak, it is important for the government acknowledges the importance of involving the public and all interested stakeholder and hence envisages a broad dialogue with affected people as well.

To assess the exact social cost of Rusumo dam, it is advisable to commission a full and extensive Environmental and Social Impacts Assessment that should involve all interested parties having a stake in Rusumo dam and maybe even an independent body. By doing so, the communities might come across negative implications of the dam and hence get a realistic picture of the dam. This participatory approach might enlighten the population about the double side of the project.

## Chapter five: Participation of the affected people

In developing countries, practitioners argue over the holistic approaches towards sustainable development that might improve the standards of the populations. The “bottom-up” approach is generally considered as more efficient since the public participates in decision-making and ‘owns’ the project schemes. The public participation is therefore conducted in a certain inclusive step-by-step framework where different stakeholders come together to share information, discuss extensively and adopt win-win solutions about different matters at stake.

### 5.1. Communication platforms in Rusumo

In the case of the projected Rusumo dam, public participation is limited to the first step of information spreading so far. In the nearest future, communication about the dam should start. The present study has anticipated the EIA/SIA which might be run to assess the environmental loss and the social cost of the Rusumo dam. The government will have to initiate and manage the process over time. It will have to allow others involved in the dam project to take more or less control over what will happen for the benefits of all the people having a stake in the process.

The displacement of the population and their relocation process on new lands might not pose legal problems as the government has managerial powers over the lands. The new land policy states that *“In Rwanda, the land belongs to the state. Individual farmers have the right only to use the land, not to own it, and the State can reclaim land for its own use, without compensation for the losses”* (Waller, 1998).

From the Waller statement on land policy in Rwanda, it seems the time has not yet arrived to envisage the dam construction. It would be wise to do more calculations on the plus and minus of the whole project. To avoid misunderstandings between the government and the populations, it is important to design a participation scenario that should ensure extensive dialogue between all parties and hence tackle any matter related to the dam construction.

### 5.2. Participation framework scenario

The matrix set in table 5.1 shows the hindrance of the proposed measures to ensure full public participation of stakeholders in Rusumo dam planning as based on the Turkish experience on big dams (TUGRUL I., 2000):

*Table 5.1: A participation framework scenario of Rusumo dam*

<b>Mechanism proposals</b>	<b>Rusumo experience</b>	<b>Foreseeable problems</b>
1. Survey of affected people to find out the socio-economic conditions, problems, attitudes, feelings, possible needs and expectations of the Rusumo people	- The people are used to surveys and other forms of interviews	- Gender imbalances in responses - Few talk in presence of heads of villages
2. Collaboration between UNDP, WHO and FAO in community development programmes	- Enable a new synergy within the river basin communities	- Illiteracy and lack of skills on ground - Project mismanagement
3. Local NGOs involvement in the	- Local organisations	- Less power to lead the

dam planning with focus on the Resettlement Action Plan, initiate a dam debate and work closely to the leadership of the affected people for a fair planning of Rusumo project.	and cultural clubs - Local mediation and conflict resolutions - Existing leadership	debate - Leadership conflicts between the elderly and youth - Influence from outsiders
4. A focus group discussions with different segments of the communities such as women and young people	- Women and youth organisations - Focal points	- Reluctance to talk
5. Communication and consultation centres should be established throughout the region in order to ensure direct contact with affected people and to give information to people about dam design, expropriation and resettlement processes on a continuous basis	- Communication platforms - Public hearings	- Different stakes in the participation process - Imbalanced output and feedback - Fear to changes
6. Community meetings ought to be organised in the affected settlements to inform about their rights, expropriation and resettlement regulation and processes	- Regular meetings are organised	- Imbalanced ideas based on gender and social position - Few attendance to meetings due to transport cost
7. A steering committee should be formed by participation of local groups of related governmental agencies, NGOs, and representatives of affected people such as the mayor, heads of villages and the trade unions	- Structured social life - Decentralised administrative - Democratic elections	- Imbalance in skills and gender - Transport cost - Less contradictory debate
8. A high commission composed of decision makers of related governmental institutions representatives of NGOs, province and district governors and representatives of communities should be formed for coordination	- Elected delegates	- No trust in feed-back

**Source:** Data analysis, July 2003

The table above is meant to materialise a participation framework scenario that can enhance the dam dialogue and hence assess risk and plan together the mitigation measures. An institutional framework should be established to empower all representatives to make choices suitable for all. That high commission should be composed of decision-makers from Ministries of Infrastructure, Water and Energy; Lands, Resettlement and Environment; Health; Public Works; Agriculture, Livestock and Forestry, representatives of NGOs, province and local governors and delegates of communities such as mayors. That organ could also operate for national coordination.

Those mechanisms are participatory-sound but the process seems too heavy to implement because it is time and money consuming. The participatory approach is therefore challenging from early stages. Rusumo project is suggested to be run as following:

In the preparation phase of the Rusumo HEP project,

- intensive information should be provided to the public throughout the country (newspapers, radio, TV, leaflets, churches, ...)
- informal consultations should be held with local authorities and villagers.
- personal contacts should be directed to different interested groups
- Make available and free access all data and information to the public

In the second phase, consultation should launch the two-ways communication with the stakeholders. To do so, some requirements need to be fulfilled:

- Spread nationwide the projects proposals to the public and seek any comments and ideas.
- Launch the dam debate in the media, workshops, schools and use of internet.
- Hire local co-ordinators to be near and maintain close contact with Rusumo affected people and discuss the socio-economic problems connected to the dam
- Record the public feelings and ideas through surveys and inquiries
- Elect local activists to become a lobby group
- Invite all interested groups of NGOs, business sector, farmers, international organisation to join the participation process in order to record diverse views.
- Form sub-committees according to the stakes categories such as farmers, fishermen, tradesmen, to name but a few.

The third step should concern about the work forward by recording all views and concerns about the dam. All issues raised from the hearings, public meetings or any feed-back should be recapitulated, discussed and appropriate measures taken. The Resettlement Action Plan should be tackled and related matters difficult to value should be treated with most consensus.

The fourth phase would be the implementation of a partnership between stakeholders. Appropriate decision might enter into force with immediate execution. The Resettlement Plan implemented and the dam construction might commence.

The last phase would be the support of affected people organisations displaced in their new "homes". According to the time frame fixed by sub-committees and commissions, the relocation process might take long before they get used to the area. Some financial and technical support from the governments and UN agencies (FAO, UNDP and WHO) might be needed.

At this stage, new structures of the economy should be introduced such as developing tourism activities on the dam site and the Recreational parks should be established in the resettlement zones. This will create job and sustain the livelihoods. As it is clear that the land might not feed the whole population, new paths should be established in a sustainable manner.

The government should profit from this opportunity to make restructures of the economy and promote the creation of jobs and services in cities and villages. The new electric facilities should serve as an attractive engine for new incentives for rural development by enhancing creativity and environmental protection. The government should play a central role by supporting local initiatives through subsidies, loans and capacity building.

## Chapter six: Conclusion

As Kagera River is transboundary by nature, to utilise its water resources require a regional cooperative framework and legal joint institutions. From late 1970's up to date, regional organisations have been established to address poverty and improve the development. The Rusumo Falls HEP seems to be the core project which shall boost the economies of the interconnected countries of Burundi, Rwanda and Tanzania.

Although the populations and the governments overwhelmingly support the dam and the international community favour its construction, it has been mentioned in previous paragraphs, that the dam management is likely to produce adversely side-effects on the populations of Rusumo that would result in social disruption and environmental degradation. Some mechanisms to handle this dilemma are suggested through holistic approaches of popular participation.

From the Rio Conference in 1992, a new development trend was shifted up from the “top-down” to “bottom-up” approaches by involving the beneficiaries. The following paraphrase is meaningful: *“real change is most likely to come with the involvement of ordinary people”*(UNCED, 1992).

As development planning is conducted in the name of the people, it is relevant and imperative to find the solutions with the people concerned. Roethlisberger F. (2001) states that *“A human problem requires a human solution... A human problem to be brought up to a human solution requires human data and human tools”*. In other words, development is primarily a learning process - one group cannot develop another; the only type of development possible is ‘self-development’ (Ackoff, 1990).

From those two statements, the appropriate response is self-mobilisation by participating in decision-making. Here the Aarhus Convention principles apply completely when it comes to public participation and access to information. Participation means recording and valuating the social cost in economic terms properly.

For this end, the WCD report (2001) notes that *“Poor accounting in economic terms for the social and environmental costs and benefits of large dams implies that the true economic efficiency and profitability of these schemes remains largely unknown”*. To avoid such problems, different skills and human resources should be utilised in order to address all matters connected to the dam construction.

As mentioned in the third chapter, diffusing knowledge and information to the public and perform a broad and inclusive consultation of all affected people and all interested parties are a must in the short term. However, the set participation scenario could sound costly, time consuming and logistically complicated. To get a wide public participation in a most effective and realistic way, some strategies need to be taken. From experience of the field and bearing in mind the feasibility and the effectiveness of this participation tool, it is important to set a realistic priority list to ensure the best platforms for a better outcome of public communication and consultation process.

1. Conduct surveys of Rusumo with the participation of the local people in order to evaluate together what might be lost in terms of lands or properties and also to look for

about the mitigation measures or how to plan for their future. In the Rwandan case, few experts and professionals might lead that work and the populations do not need to travel a lot since they live in the study area.

2. Display exhibits and advertise the Rusumo dam surveys' outcome through the media, and spread as much information as possible
3. Focus on group discussions and interviews with some key people from different backgrounds.
4. Make available all project progress reports and newsletters for the public consultation.

The active participation of all interested stakeholders is a prerequisite to tackle the dam related issue from different angles and backgrounds. The consultation sessions and workshops should be inclusive, extensive and involve the affected local people (farmers, fishermen and handcrafts organisations), business sector and investors, local and international NGOs, governmental agencies and other interested parties. The government of Rwanda that is at the forefront of the project should initiate a vast program of popular consultation in order to involve all the sectors in the dam debate from early planning stage.

To sum up, the field-work had been an inspiring period that has helped me to draw the conclusions based on on-ground observations, the findings analysis and completed by the literature review. Needless to say, a development plan requires the interest of the benefiting people. If the population are not involved in a project, the impacts can be too high. A full participation scenario and framework has been designed and suggested to the relevant authority as a good way of dealing with the projected Rusumo dam management.

I quote Chapter 7: “Enhancing Human Development: Rights, Risks and Negotiated Outcomes” of the WCD (2001):

*“To improve developments outcomes in the future we need to look at proposed water and energy development projects in a much wider setting – a setting that reflects full knowledge and understanding of the benefits and impacts of large dam projects and alternative options for all parties. It means that we have to bring new voices, perspectives and criteria into decision-making, and we need to develop a new approach that will build consensus around the decisions reached. This will result in fundamental changes in the way decisions are made”.*

Undoubtedly, if all stakeholders get involved in the process, address all the matters actively and properly, no fear that the social and environmental impacts and all related risks of Rusumo dam might be minimised. The mitigation measures adopted will then serve as a tool for a long-term management. Besides, new incentives in terms of restructuring the economy seem to be a good way to address the effects of overpopulation.

Hopefully, the first Rusumo post-project evaluation, as recommended by the World Commission on Dams will confirm that the “lessons learned” from other dams built elsewhere in the past with much effects on livelihoods can be avoided and still supply electricity to the populations through damming rivers.

From the experience of Rusumo dam management, the WCD finding: “*Once a proposed dam project passed preliminary technical and economic feasibility tests and attracted interest from government or external financing agencies and political interests, the momentum behind the project often prevailed over further assessments.* (WCD Final Report 2001, p 168) should then be reversed and serve as an example to other countries whose people are poor and do not have access to electricity.

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## **Appendix**

### **QUALITATIVE INTERVIEWS' QUESTIONNAIRE**

#### **Part one: General questions**

##### **- Hydro Electric power: Design, social impact.**

1. Do you know about the existence of Rusumo Falls and the dam project?
2. What do you think about that project?
3. Do you have any idea about the design? If yes, what do you think about it?
4. According to you, what are the positive and negative impacts of the dam?

##### **- Compensation and Resettlement process**

5. Do you have any idea if you'll be moved away? Where? What do you think about it?
6. How will you get settled on the new plots? How do you plan to move their belongings?
7. How much do you know about the resettlement plan?
8. What about the unmovable items (antiquities, graves...)?
9. What are you upset/ fear/doubt about the resettlement process?

##### **- Dam dialog and affected people participation**

10. How are the social organisations operating here?
11. Do you think most local people are represented in those organisations? How?
12. What type of information do you get from the governments on Rusumo hydropower project?
13. Are there some consultations initiated by the government or any authority?
14. According to you, what can be the role of the affected people and the public in general to influence the dam management?

## **Part two: Individual questions**

### **- Government officials**

15. How is the government spreading the information about Rusumo hydropower project to the public?
16. What kind of information do you provide the affected people?
17. How are you communicating with the affected people?
18. How does the Rusumo population respond to the project? Do you record their views?
19. How is the resettlement master plan structured? Did you consult the Rusumo villagers before you set up the plan?
20. What kinds of stakeholders are involved in the dam dialog process?
21. How is the dialog planned? What are the dialog goals?
22. How are the local organisation structures of the affected people?
23. How do you valuate the inputs of the affected people in Rusumo project? Do you allow them to participate?
24. According to you, what will be the social cost of the Rusumo dam?

### **- Politicians and Members of Parliament**

25. What do you think about the side-effect of the Rusumo project, in your hometown?
26. At what extend local people are they involved in the process? Does the government record their views?
27. What can the legislative institution do to make their voices heard?
28. Where will the affected communities go after being compensated and how will they sustain their livelihoods?

### **- Academics**

29. At what extend the Rusumo hydropower project will affect the local people?
30. At what level is the academic body involved in the Rusumo hydropower process?
31. Do you find any concern about the social impact of that project?

**- International institutions, media, lenders (World Bank), Environmentalist NGOs**

32. How much is your organisation involved in Rusumo hydropower project?
33. What can be the side-effects of Rusumo project?
34. What do you think about the public participation in Rusumo hydropower project?
35. What role can your institution play in order to promote the participation of the affected people?
36. What are the long-term commitments of the constructing company towards the affected communities?
37. How will the building company ensure that the commitments are fulfilled?

**- Farmers**

38. How do you earn your incomes? How do you value your land?
39. How do you think you will be affected by the dam construction?
40. Do you think your life standard will change? How?
41. What are the positive and negative impacts of the dam project?
42. How will you adjust your life standards to the new place (farming and livelihood)?
43. Do you have a farmers' union? What are your views about the project?

**- Tradesmen**

44. How will you handle your business once resettled in the new area? Will you get any subsidies?
45. Do you think your business will run better? Why or why not?
46. What are your wishes for a better dam management?
47. Do you think your union/organisation can influence the dam management? How?

**- Fishermen**

48. How do you picture the side-effect of the dam?
49. How will you shift your way of living after compensation? Will you find some other alternatives?
50. What does the Kagera River mean to you? Do you think you will keep on fishing?

51. How your organisation can take part in the dam dialog process?

**- Socio-cultural and other community organisations (churches, culture, traditional medicine ...)**

52. Are you well informed about changes that will happen in your community?

53. How do you often worry about your current livelihoods? What are your concerns about the resettlement plan?

54. How do you view the sustainability of your community in your “new homes”?

55. What roles can you play in Rusumo dam management?

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