

POWER AND DEVELOPMENT: CONTROVERSIES OVER THE BUJAGALI HYDROPOWER PROJECT ALONG THE NILE RIVER IN UGANDA.

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Abstract

Mega projects are in most cases considered as the necessary evil of development. Before their benefits can be reaped, a lot of sacrifices and tough choices have to be made. The fear and uncertainties surrounding such projects range from the impacts on the local people, on the environment, the costs of investment, and to, if the project will deliver the promised benefits. Because of these fears and uncertainties, it is not unusual that most if not all such projects meet a lot of critics and resistance before their success or failures are witnessed. Today, it is more of a requirement than a belief (although without a guarantee) that stakeholders' involvement and their active participation in all decision-making process concerning a project is the surest way of minimizing conflicts and ensuring justice. The Bujagali hydropower project being an example of such projects and without immunity to the problems faced by other mega project around the world has been a case study for this thesis. This study has therefore focused on institutional arrangements that governed the management and utilization of water resources in connection to hydropower development along the Nile River in Uganda, the procedures and stages of the negotiations for hydropower infrastructure development in Uganda, identified the major stakeholders that take part in such negotiations and looked in detail for what their issues and interests are. It has also examined the attitudes and opinions of stakeholders on the potential and benefits of hydropower against (solar, bio-fuel and geothermal) energy sources in the context of Uganda, taking into consideration the need for socio-economic development, preservation of culture and environmental protection. Finally, it has analyzed the conflicts/controversies that have arisen in the Bujagali hydropower project.

Key words: water resources, hydropower, stakeholders, negotiation, rights, risks, and responsibilities.

A thesis written and submitted in partial fulfillment for the award of a degree of master of science in Water Resources & Livelihood Security.

Dedication

This work is dedicated to Ylva Nyberg. You know I could not have done it without your support. Much as I cannot give back to you what you gave me and I know that is not what you want, I will always remember that you gave/or made me learn this and that. I am truly grateful for your kindness. Good luck and be happy in whatever you do!

Acknowledgement

Let me start by expressing my sincere gratitude to my supervisor (Associate professor Hans Holmén) for the continued support and guidance that he gave me through out this work. Hans Holmén has always been available whenever I needed help, responded very timely to my queries and made the whole mountain became the size of a football. I would also like to extend the same respect and honor to all the staffs of the department of water and environmental studies (Linköping University). More especially, to Associate professor Åsa Danielsson and Dr. Julie Wilk who, throughout the program inspired me and honestly made me believe more in my work and myself. Unlimited thanks also go to every individual, ministries and organizations that supported me during my data collection in Uganda. Professor Gaddi Ngirane Katashaya of Makerere University, faculty of technology dedicated a lot of his valuable time and provided me with a lot of useful information and guidiances throughout my fieldwork. The MEMD for example, gave me two full months for my industrial training where I got continued support from Mr. Michel Kiza, Madam Nafuna Shara, Mr. Banabe, Eng. Mubiru to mention but a few. Last but not least the love and trust from my mum, brothers and sisters, and all my friends is my source of hope and happiness. Sarah you have been a good friend and you will always be. Karin and Emma we met randomly as you are aware. But we did have a good time in Kampala and that was a very big motivating factor during my fieldwork. I am looking forward to meet you again. Ob, Sam, Okech and Miriam thank you for rescuing me. Finally, Hans and Britt-Louise Nyberg, I have enjoyed being part of your family (APWOYO MATEK)!!

List of abbreviations

ACCU	Anti-Corruption Coalition Uganda
AFIEGO	African Finance Institute for Energy Governance Organization
DLC	District Local Council
DRD	Declaration on the Right to Development
DWD	Directorate of Water Development
DWO	District Water Office
EADB	East African Development Bank
EIA	Environmental Impact Assessment
EIB	European Investment Bank
IDA	International Development Association
IFC	International Finance Corporation
IRN	International River Network
IWRM	Integrated Water Resources Management
LC	Local Councils
LGC	Local Government Chief
MDG	Millennium Development Goals
MWLE	Ministry of Water Land and Environment
NAPE	National Association of Professional Environmentalists
NBI	Nile Basin Initiative
NBS	Net Basin Supply
NEA	National Environment Act
NEMA	National Environment Management Authority
NGOs	Non Governmental Organizations
NRC	Natural Resources Committee
NRM	National Resistance Movement
NWP	National Water Policy
PAP	Project Affected People
PCE	Policy Committees on the Environment
PEAP	Poverty Eradication Action Plan
PEG	Prayas, Energy Group
PPA	Power Planning Associate
RDED	Rio Declaration on Environment and Development
SDIN	Sustainable Development Issues Network
SID	Society for International Development
UBOS	Uganda Bureau of Statistics
UDHR	Universal Declaration of Human Rights
WB	World Bank
WBG	World Bank Group
WCD	World Commission on Dams
WCU	World Conservation Union
WPC	Water Policy Committee
WRR	Water Resources Regulation
WSPS	Water Sector Support Program
WSSD	World Summit on Sustainable Development

TABLE OF CONTENTS	PAGE
<i>Abstract</i>	1
<i>Dedication</i>	2
<i>Acknowledgement</i>	3
<i>List of abbreviations</i>	4
1. General introduction and background	6
1.1. Introduction	6
1.2. An overview of the Bujagali hydropower project	6
1.3. A short geography and demography of Uganda	7
1.4. Energy consumption and poverty situation in Uganda today	8
1.5. The current issues on water resources.	10
1.6. Problem statement.....	10
1.7. Aim.....	11
2. Analytical concept, Methods and Materials	12
2.1. Analytical concept	12
2.2. <i>Methods</i>	13
2.3. <i>Materials</i>	14
2.4. Literature review	15
3. Water management structure	17
3.1. National level	17
3.2. Major institutions and their roles	19
4. Negotiations processes	23
4.1. Environmental Impact Assessment (EIA) in Uganda	23
4.2. Major stakeholders	25
4.3. Water allocation and energy sources choices	36
4.4. Balancing conflicts and tradeoffs.....	43
4.5. Challenges and controversies in the Bujagali Project:	44
5. Conclusion and Recommendations	52
REFERENCES	55

LIST OF TABLES

Table 1 3R analysis of stakeholder identification, participation and negotiation processes (Adopted from Bird et al, 2005).....	27
Table 2: Variations in recent Net Basin Supply (NBS) compared to long-term average, Source: PPA, 2007	48

LIST OF FIGURES

Figure 2 A survey of 30 randomly selected affected people's resident households.	30
Figure 3: Stakeholders ranking of water use importance.....	38
Figure 4: Stakeholder's ranking of energy sources.....	40
Figure 5: Historical water levels of Lake Victoria, source: Nicholson, 1998	49

1. General introduction and background

1.1. Introduction

The millennium development goals like goal 1 “Eradicate extreme poverty and hunger”, and goal 7 “Ensure environmental sustainability”, may prove more challenging than speculated, to meet in developing countries. Today, it is estimated that 1.6 billion people lack access to electricity and that 2.4 billion rely on traditional biomass fuels for cooking (Saghir 2005). The majority of this population lives in sub-Saharan Africa and Asia. Availability of reliably cheap energy is a prerequisite for economic growth and development. “Economies that have replaced human and animal labor with convenient and efficient source of technology, have grown faster” (Saghir 2005 p. 1). Indeed, in modern times no country has managed to substantially reduce poverty without greatly increasing the use of energy, he adds. On the other hand, projects aimed at increasing hydropower generation (dams) have met a lot of critics and oppositions in modern times. The World commission on Dams (WCD 2000) recognized the important and significant contribution dams have had on human development, but Dubash et al (2003) also stressed that in too many cases, an unprecedented and often unnecessary price has been paid to secure these benefits.

Policy makers in developing countries like in sub-Saharan Africa and Asia where there are chronic poverty, serious problems of environmental degradations and who are still thirsty to meet their energy needs are therefore faced with tough choices and decision to make. In most developing countries, efforts to bring modern energy services to the poor are normally jeopardized by institutional and regulatory barriers, and conventional energy strategies generally allow poor people little say (Saghir 2005). It continuous to say regulatory policies should allow rival technologies to be selected on the basis of their economic merits and regulatory or market barriers should not discriminate against any technologies. Above all, to ensure that decision making process relating to water and energy development deliver improved outcomes for all stakeholders, WCD (2000) recommended that the five principles test i.e. equity; efficiency, participatory decision-making, sustainability, and accountability must be applied to decisions. It is worth appreciating that the process and kind of negotiations or dialogue directly or indirectly determines these principles.

1.2. An overview of the Bujagali hydropower project

The Bujagali Hydropower project is a proposed 250 MW hydropower project along the River Nile in Uganda. The site is located about 8 km downstream of the existing Owen Falls Dam, which serves as a reservoir for Kirra and Nalubaale power stations see <http://go.worldbank.org/bpgxe2hmgo> The Bujagali power plant is expected to use the water released from these tow power stations without requiring extra water withdrawal from Lake Victoria. This project is the largest private sponsored hydropower project in the whole of sub-Saharan Africa and the largest investment in the East African region. Acres International (Canada) proposed the project site in 1991, the Ugandan government then signed an agreement with AES Nile Power, a subsidiary of AES Corporation an American global power company, to develop the dam in 1994 and the Uganda parliament approved the project in 1999 (IRM Inc 2006). This approval marked the first phase of the project sometimes referred to as the Bujagali I. The original design by AES was to generate 200MW.

However, the Bujagali I project did not kick-off successfully. The project name was stained locally and internationally with a lot of controversial issues. In fact, the Bujagali project is considered among one of the most controversial hydropower projects in the world today (PEG 2002). Due to the confusion and controversial nature of the project, the Bujagali I ended in 2003 when AES, the principle sponsor of the project, pulled out. The departure of AES was amid allegation that the local people had not been properly consulted, that environmental, social and economic impacts would not be sufficiently mitigated, that resettlement had been botched, that the project would not provide the promised economic benefits to Uganda, that project proponents had bribed an official, that the project costs had been misrepresented, that the dam's economic analysis had not explored the most feasible alternatives, and that the project was not in compliance with lenders safeguard policies (IRM Inc 2006). The World Bank Group ordered for investigations into these allegations. As the investigations were going on, AES pulled out of the deal due to economic reasons. Part of the reasons was that the parent company AES Corporation was faced with financial difficulties that affected most of the American energy companies at the time.

The confusion and conflicts of interests surrounding the project has seen it go through serious financial losses as well as going to court. In 2001, the World Bank Group (WBG) responded to requests from pressure groups (on behave of local people) for investigation of the project matters. The Inspection Panel found not only that the project was not in compliance with five WBG safeguard polices (economic evaluation of investment operations, involuntary resettlement, environmental assessment, natural habitats, and information disclosure), but also that the situation in Uganda was characterized by lack of good will, poor communication, mistrust, widespread confusion, acrimony and serious public relation problems (IRM Inc 2006). Some efforts towards restoring trust/transparency was the court ruling of the 12th November, 2002 where the Uganda High court ruled in a case submitted by the Ugandan None Governmental Organization (NGO) Greenwatch that the Bujagali Power Purchase Agreement must be released to the public (PEG 2002).

The withdrawal of AES from the project did not erase government interest in the project. If anything, it was an eye-opener for the government. Government became very concerned about the issues raised. As a matter of fact, government was prompted to set up a special team to look specifically into the plight of the Project Affected People (PAP). This team has since 2003 till now maintained close contact with the PAP. The PAP commendable acceptance of the project's phase II (the Bujagali II), which got green light from the World Bank in April 2007, is a sign of this good relationship. Before analyzing the Bujagali case further, it needs to be put in context.

1.3. A short geography and demography of Uganda

Uganda is a landlocked country located in east Africa between latitude 30° south and 4° north and longitude 29°30' east and 35° east. The Republic of Kenya boards it in the east; Tanzania and Rwanda in the south, the Democratic Republic of Congo in the west, and Sudan in the north see <http://go.worldbank.org/bpgxe2hmgo> Uganda covers an area of 241,500 km² of which approximately 15.3% is open water, 3.0% permanent wetlands and 9.4% seasonal wetlands (MWLE, 2001). Most parts of the country experience seasonal rainy pattern characterized by wet and dry seasons. The wet and dry seasons are fairly well marked except for areas around Lake Victoria, which receive rainfall throughout the year. Mean monthly values of water vapor in Uganda show that generally a minimum value occurs in January

with a second minimum in July except for northern Uganda where there is only the first minimum. Similarly, the first maximum values of water vapor occur in April or May with a secondary maximum occurring usually in October or November particularly in areas characterized by two rainy seasons (MWLE, 2001)

Uganda lies fully within the Lake Victoria basin and the Nile basin. The Nile flows through Uganda starting from Jinja until it enters Sudan and through Egypt on its way down to the Mediterranean Sea. As such, Uganda experiences both upstream and downstream phenomena. In a simple term, the quantity and quality of the water including the health of the ecosystem that the community who lives in the part of Uganda where the Nile exits into Sudan enjoy, depends entirely on the kind of activities going on upstream for example, at the source in Jinja and in and around Lake Victoria. Like many of the countries within the Lake Victoria basin, Uganda population is one of the fastest growing in the region. At current and based on the 2002 census, the total population is estimated to be 27.4 million and growing at a rate of 3.2% (UBOS, 2006). The rapid population growth is putting direct pressures on the natural resources of the country especially on water, wetlands, land and vegetation. As a result, there are various forms of environmental degradation taking place in the country, which is affecting the quantities and qualities of the available water resources.

Lake Victoria is one of the largest fresh water lakes in the world. Lake Victoria basin is found within the Nile basin and is home to over 30 million people. The population depends directly or indirectly on the water resources of the lake to support their livelihoods. SID (2006), referred to the lake as the very definition of a shared resource for the East Africans and that the lake is also of great geopolitical interest to the downstream users of its waters in the Nile basin, especially Egypt and Sudan, for whom the Nile is a lifeline. Lake Victoria is shared by Tanzania (51 %), Uganda (43 %) and Kenya (6 %). The lake water resource is used for drinking, irrigation, fishing, transport, and water supply for households, Industries and urban centers. Lake Victoria is also home/habitat to many flora and fauna species. Today, the water resources of Lake Victoria are under pressure due to rapid population growth in the lake basin. Population growth around Lake Victoria, the largest lake in Africa, is said to be higher than that of the whole of Africa (UNEP 2006). The same source also suggests that the lake area is one of the most densely populated and poorest rural regions in the world. Let alone the fear that climate change is already negatively impacting on the water resources of Lake Victoria (Phoon et al 2004, Yin and Nicholson, 1998)

The lake is a reservoir, which is the sole provider of the water of the White Nile. The White Nile is the only major outflow from the lake. Starting from Jinja in Uganda, the White Nile flows through Uganda into Sudan, where it joins with the Blue Nile from Ethiopia and flows through Egypt and into the Mediterranean Sea. The Nile is the second longest river in the world and one of the major trans-boundary rivers of Africa. The Nile basin covers ten countries, i.e. Burundi, the Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda. In 1999 the Nile riparian states formed an initiative (NBI), whose secretariat is in Uganda. The main purpose of NBI is to provide a forum where the riparian countries sit and discuss, and educate themselves on how to sustainably manage the Nile water resources and to allow for benefits sharing among these countries.

1.4. Energy consumption and poverty situation in Uganda today

Of the 27.4 million people in Uganda, over 23 million live in the rural area (UBOS, 2006).

Agriculture forms the backbone of the economy of the country. It has been noted that Uganda has the lowest per capita electricity consumption (44KWH/year) in East Africa (Kahangire et al, 2005). Uganda is also among the poorest countries in the world. Currently, the government of Uganda is implementing policies on Poverty Eradication Action Plan (PEAP). The main aim of PEAP is to eradicate poverty in Uganda and transform the country into a middle-income country. To that effort, some of the crucial issues being addressed in Uganda currently include the modernization of agriculture, infrastructure reform, and rural electrification to mention but a few.

Despite the fact that Uganda is well endowed with energy resources, especially hydro and biomass, most of these have not yet been developed. Currently, there is wide spread energy poverty in the country. "Only 9% of Uganda's population is supplied with grid electricity, and 70% of these customers reside in the major towns of Kampala, Entebbe and Jinja. Approximately 20% of the country's urban population is connected to the national grid while only 3% of the rural population is connected to the grid" (Kahangire et al, 2005). Worst still, the generation capacity of the existing Kiira and Nalubaale power plants have declined tremendously due to low water level of Lake Victoria. The drop in the lake level has limited the amount of water that could be available for power generation at Kiira and Nalubaale. In attempts to abet the power crisis, the government of Uganda has resorted to hiking power tariff and installation of thermal generation. This is an expensive alternative given the fact that Uganda spends a lot of money on importation of fossil fuels. In 2002 for example, the petroleum import bill was \$US 160 million. This constituted about 8% of total national imports and represented slightly more than 20% of total export earnings (MEMD, 2002). Not to mention the negative impacts of thermal generation on to the environment. The problem does not end there as Mr. Abid Alam, the chairman of the Uganda Manufacturers Association puts it, "the power tariff hike slapped on the industry, which is already overburdened with high production costs, is devastating. Many of the industries will close or relocate to nearby countries" (the New Vision Kampala 2006-11-1).

Apart from the compelling demand for electricity within Uganda, the East African countries as well as most if not all of the Nile basin countries, are also facing acute shortage of electricity. To make the situation better at home and to enjoy other benefits like regional power trade, the Uganda government will do everything possible to see that all potential hydropower sites within the country are developed in the near future. The World Conservation Union (WCU) has quoted the president of Uganda as follows "Nobody should interfere with our project of hydropower or electrification of Africa [...] I have no time to talk with any environmental NGO who wants to oppose electrification of Uganda. Hydropower is the solution that will save the biomass that is currently being destroyed for firewood" (IUCN 2005). But as a matter of fact, even the Bujagali, which has recently been given green light by the World Bank, Karuma etc, still face strong critics from environmental, local and downstream communities. While opening the first sensitization workshop organized by the Nile Basin Initiative (NBI) for non-government stakeholders in Uganda at Hotel Africana on October 24, 2006 Ms. Maria Mutagamba the Uganda minister for Water and Environment said. "By virtue of Uganda having all her water practically in the Nile Basin, Uganda has multicultural interest in River Nile water resources. Unfortunately, the trans-boundary nature of the Nile water resources presents problematic interlinked phenomena," (the Daily Monitor Kampala 2006-11-02).

1.5. The current issues on water resources.

In recent time, clean water is considered to be a vital resource for economic and social development, especially for the developing countries. In Uganda, the importance of fresh water as a key strategic resource for socio-economic development, sustaining life and for a healthy environment is recognized in the country's water sector goal "to manage and develop the water resources of Uganda in an integrated and sustainable manner so as to secure and provide water of adequate quantity and quality for all social and economic needs for the present and future generation with the full participation of all stakeholders". Fresh water supply and good sanitation is also one of the key issues emphasized in the PEAP.

"With total renewable water resources estimated at 66 km³/person/year, Uganda may be considered endowed with significant fresh water resources. However, their uneven spatial and temporal distribution coupled with ever increasing pressure on the resources due to rapid population growth, increased urbanization and industrialization, un controlled environmental degradation and pollution still remain big challenges to sustainable management and development of the country's fresh water resources (UN 2006) p. XIV. DWD (2005) strongly pointed out that in addition to increased claim on Uganda's water resources due to the predicted population growth, the current stock of water infrastructure and the necessity to deal with the influence of climate variability exacerbates this situation even further. It goes on to highlight water shortages, quality deterioration and flood impacts as areas requiring immediate attention and action.

These challenges, has since 1990s set Uganda on the move to adopting the principles of Intergrated Water Resources Management (IWRM). To create an environment for IWRM, Uganda embarked on a Water Resources Action Plan in 1993-1994 which laid down the basic principles and actions for a long-term sector reform and the Water Action Plan has been provided for in the National Water Act (DWD 2005). The outcome of the Water Action Plan includes the reform of the water sector in four sub-sectors of Rural Water, Urban Water, and Water for Production and Water Resources Management. The Sub-Sector Reform is aimed at supporting long term strategic intervention of the government of Uganda for improved WRM to contribute to poverty alleviation and economic development objectives through the provision of review, analysis, recommendations and outline strategic action plan towards 2015 (DWD 2005).

1.6. Problem statement

The looming opportunities in hydropower and growing pressure for socio-economic development in Uganda require a lot of knowledge and studies to be done in this area. More so, existing literatures at the moment point at many loopholes in the Bujagali project on top of apportioning the blame of the declining water levels of Lake Victoria on the operations of the Kirra and Nalubaale power stations. In addition to that, some people have a feeling that large hydropower development will not benefit the rural poor. As if that is not enough, the situation is even escalated by the fear that climate change is bound to have serious impact on the water resources and energy sector of most third world countries. Finally, the continuous oppositions and critics regarding Bujagali and other proposed sites like Karuma, Kalagala etc from different groups and communities indicate that there is a knowledge gap. The gap could be a result of, but may not necessarily be limited to, poor communication channeling and/or lack of stakeholders' participation. It is therefore, important to examine the (various institutions

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and their roles are, negotiation processes, major stakeholders and their interests) in hydropower development in Uganda.

1.7. Aim

The aim of this study is to gain a better understanding of the issues relating to water resources management in connection to hydropower infrastructure development along the Nile River in Uganda and the involvement of the various stakeholders in this process, focusing on the Bujagali project as a case study. It should be noted here that the study is not intended to open up debate or petition on how to correct the wrongs and past mistakes if any, concerning the project. Rather, it should be treated together with any other relevant information and contributions as stimulants for better handling of future issues on water resources management, hydropower and energy development in Uganda.

Research Questions

1. What are the institutional settings that govern the management and utilization of water resources in relation to hydropower development in Uganda?
2. How are the negotiations for hydropower infrastructure development along the Nile River in Uganda done, who gains, who loses and why?
3. Who are the major stakeholders who take part in such negotiations, what are their stakes and what issues do they fight for?
4. Is it worth going for hydropower development, solar or other sources of energy to solve the problem of energy poverty in Uganda and, how do we justify the choices?
5. What are the major contrivances/challenges in the Bujagali project and what are their causes?

2. Analytical concept, Methods and Materials

2.1. Analytical concept

The conceptual framework that the analysis of this study has been based on is the *Rights, Risks and Responsibilities* (3Rs) approach (Bird et al 2005). While these 3Rs form the basis of the framework, the five strategic priorities tests i.e. equity, efficiency, participatory decision making, sustainability, and accountability as recommended by the WCD 2000 have also been the reference benchmark throughout this thesis. It is however important to note here that the WCD 2000 report have been under scrutiny by some organizations over the past few years. There are emerging thoughts that countries should translate the report to accommodate the socio-economic, cultural and environmental needs that suit their local development conditions.

“With increasing pressure to develop new dam projects, in particular in developing countries, now is the time to ensure a more systematic implementation of the WCD’s recommendations. They are as important for reducing the extensive social and environmental damage caused by dams today as they were five years ago. WWF is convinced that applying the WCD’s framework, adapted to individual country’s situations, will result in better decision-making and projects that have less impact. The world’s ailing rivers and the communities that depend on them face a bleak future without prompt action.” (WWF 2005:14) quoted from Anders Hiort-af-Ornas 2006 p.11

In fact, some countries have already made this move, an example of which is South Africa. In Uganda, attempt has been made to translate the WCD 2000 report to suite the development need of the country as analyzed in the Uganda Dam Dialogue (UDD 2006), scooping report. However this scooping report has not yet fully come into force. On the other hand, Bird et al (2005) recognized that there has as well been extensive support for the Commission’s report for the overall framework based on the five core values (priorities tests above) and seven strategic priorities.

Rights and risks approach as a tool that should be used in development projects found their origin mainly from the WCD 2000. Ideally, the Commission recognized that there is an overwhelming increase in tensions between parties involved in water and energy project. The tensions have normally come as a result of conflicting interests of the different groups of actors. This induced the commission to derive new strategies that seek to balance the competing interest and manage conflicts, in order to make large projects (dams) more acceptable. “To improve development outcome 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 decision reached” (WCD 2000 p. 197)

Support for the WCD framework implicitly recognizes the value of the “right and risks” approach and that past problems with dam projects often derive from a lack of recognition of the rights of the adversely affected population, (not only those resettled, but other affected such as downstream communities), the “involuntary” risks to which they have been subjected, and their associated rights at risk (Bird et al 2005). The same source suggests that more

support for the rights and risks approach also come from internationally agreed principles as embodied in the Universal Declaration of Human Rights (UDHR) 1948, the UN Declaration on the Right to Development (UNDRD) 1986 and the Rio Declaration on Environment and Development (RDED) 1992. A right based approach is holistic in nature, it recognizes the individuality of civil, political, economic, cultural and social rights – it broadens the range of basic human rights beyond the socio-economic sphere of needs to include rights to life, health, education, shelter, food, water, remedy, security, subsistence and livelihood (WCD 2000 p. 200)

To ensure equity, efficiency, participatory decision-making, sustainability, and accountability to the agreed decision outcome, it became inevitable that the parties involved should take responsibilities. Moreover, the concept of responsibilities covered in the WCD report, was not emphasized as much as were rights and risks. However, the post WCD agenda started focusing on responsibilities giving it equal weight as rights and risks. Adaptation of the Millennium Development Goals (MDGs) by the UN General Assembly in 2000, reinforced and amplified by the Plan of Implementation of the World Summit on Sustainable Development (WSSD) has refocused attention on access to water, reducing poverty and hunger, integrated water resources management and renewable energy (Bird et al 2005). Achieving these goals will not happen in a dream, they entail responsibilities on governments, citizens, nations and the world alike. Narrowing down to water and energy projects, all interested parties have their rights, they do take risks either voluntarily or involuntarily and therefore they all have responsibilities to see that their rights are respected and that they are willing to share risks. Addition of responsibilities as elaborated above still agrees with the demonstration that an approach based on recognition of rights and assessment of risks can lay the basis for greatly improved and significantly more legitimate decision making on water and energy development and as such, it provide an effective way to determine who has a legitimate place at negotiation table and what issues need to be included in the agenda (WCD 2000 p. 210)

2.2. *Methods*

This research has been carried out by conducting a three months (July - October) field survey in Uganda focusing on the Bujagali project as a case study. Yin (2003), defined a case study as “an empirical enquires that investigates a contemporary phenomena within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” quoting from (Magdalena Kuchler 2007 p. 13). The whole study was necessary to enable the researcher assess the contradicting literatures, especially those regarding the conditions of the project affected persons, falling water levels of lake Victoria, the degree of stakeholders participation in the project and many others.

The research method has been face-to-face interviews, questionnaires and literature review. The researcher conducted face-to face interviews in 30 households of the PAP. In addition, 27 (stakeholders)/key informants were also interviewed face-to-face. Face-to-face interviews were supplemented with questionnaires to 4 key informants who could not get the time so that they could be interviewed face-to-face. In total, 31 key informants were interviewed. Face-to-face interviews approach allowed for in depth information. Open-ended questions were used inviting the interviewee into discussion. Face-to-face interview gave the interviewer the opportunity to make observations, rank responses and develop trust with the interviewees. Observation was particularly important as it exposed data that could not be verbally communicated. The researcher with the help of the interpreter explored all relevant

information without being suggestive.

The key informants/stakeholders that the researcher interviewed includes high ranking figures from The Nile Basin Initiative (NBI) that has its secretariat in Entebbe Uganda (2 people), and various ministries ((energy and mineral development (3 people), trade and industries (2 people), water and environment (3 people), tourism, trade and industry (2 people), land housing and urban development (1), agriculture animal industry and fisheries (2 people), finance, planning and economic development (1 person)). Not to mention the (2 people), from National Environment Management Authority (NEMA), (1 person) from Uganda Bureau of Statistics (UBS), (1 person) from the World Bank Uganda, (4 people) from NGOs, (4) politicians, (2 people) from Makerere university and (1 person) from the Inter-University Council for East Africa. Apart from those, the researcher also had a lot of interactive talks on this subject with the civil society. However, the result of these talks has not been reflected in quantitative form anywhere in this study. The research work has been carried out in Entebbe, Kampala and Jinja, the site location of Bujagali power plant. Entebbe was chosen because of the location of the secretariat and the Directorate of Water Development (DWD) and Kampala because it is the capital where most if not all the ministries are located.

2.3. Materials

The body of this thesis consists of primary and secondary data. Primary data were generated from the interviews and observations made during interviews and field survey. Typical primary data includes the observed impacts of the project on the livelihood of the local residents, seen impacts on the environment and the responses of interviewees. Secondary data were obtained from the review of existing literature, laws and policies regarding water resources management and utilization in relation to hydropower development in Uganda. Most importantly, government and ministerial publications such as the *constitution* of the republic of Uganda, the *energy policy* of Uganda, the *national water policy*, the *PEAP*, etc have been extensively utilized in this thesis.

This research has handled both qualitative and quantitative data. Therefore, data analysis has also been both qualitative and quantitative. Britha Mikkelsen (2002) observed that there are no strict formulas for analyzing qualitative data from interviews. In regards to the qualitative part of the data for the thesis, preliminary analysis started as soon as interviews began. According to Cordell (2005) issues that require further consideration prior to analysis include: the transcription process, language interpretation and respondent reviews. In Uganda, English is the official language and the interviews for this research were conducted in English. However, in some situations, English was translated into Luganda, Lusoga or other native languages found in Uganda. Which, brings the researcher to acknowledge and appreciate to the highest degree, the help obtained from the interpreter Mr. Majaza.

Quantitative analysis of results produced figures and tables. From the findings of this study, areas that require further research have been suggested. The researcher has strived to incorporate emerging research and policies from the international communities as well as in Uganda. This thesis has therefore analyzed and integrated both the primary and secondary data sources, and give recommendations and conclusion in the last chapter.

2.4. Literature review

This study needed to examine the strengths and nature/extent of the oppositions from downstream communities, environmentalist, tourism sector, etc. These would in other words serve as indicators for possible conflicts that might arise from such a project. Especially, when we consider how such a development contradicts with old policies that are still in place like the “Agreed Curve” adopted long before even the two dams Kiira and Nalubale were constructed on the Nile. The “Agreed Curve” is the adopted water release policy, which ensures that the releases through the dam correspond to the natural flow of the river Nile before the Jinja dam was constructed in 1954. It was adopted by the British and Egyptian governments to guarantee that water is released from Lake Victoria at Jinja for downstream users, as was the case without the dam, thereby following a natural trend. The water of Lake Victoria originally drained over natural rocks and weir at the outlet in Jinja, Uganda.

“In 1952 British colonial engineers blasted out the weir and reservoir. A standard for mimicking the old rate of outflow called the ‘Agreed Curve’ was established, setting the maximum flow rate at 300 to 1,700 cubic meters per second (392-2,224yd³/s) depending on the lake water level (Wikipedia 2007).

Agreements such as power trade and benefit sharing within the Nile riparian countries are also most likely to influence the negotiations and okaying of such projects. Knowing to what extent such term is understood and how much they implicate on a country having the resource should also not be under-narrated.

The National Association of Professional Environmentalists (NAPE) objects the Bujagali project on the ground that it is a threat to biodiversity and that it does not address the impacts of hydrology. NAPE also believes that dams have contributed to draining of Lake Victoria (see also Tsournos, 2007, Kull, 2006). The other critic comes from the fact that damming up rapids that have become a leading rafting destination will be a big blow to tourism in Uganda. Not surprising, the 2002 energy policy goal of Uganda is “to meet the energy needs of Uganda’s population for social and economic development in an environmentally sustainable manner”. This is in line with the 1995 constitution of the republic of Uganda, which categorically spells out the role of the state to promote and implement energy policies that will ensure that people’s basic needs and those of the environmental preservation are met in a sustainable manner. On the other hand, UBOS (2006) recognized that Uganda has achieved strong economic growth with GDP growth rate averaging about 6.3% per annum. This performance can only be sustained by increased investment and creation of employment opportunities, which can only be realized with adequate energy supplies. It is therefore important that the tradeoffs between economic development and environmental protection be critically analyzed. Weighing such tradeoffs is important if a balance should be struck and the past mistakes made in many different parts of the world be avoided.

Most importantly, such a project should aim at improving the livelihood of the local population. However, in many cases it is made to look like they are just to get internal and external supports. The World Bank Board of Directors issued a press statement on (April 26, 2007) announcing its approval of International Development Association (IDA) credit of US\$ 300 million to support a Power Sector Development Operation in Uganda. A part of this fund is to support the Energy for Rural Transformation Project (\$ 50 million) to develop rural areas' access to renewable electricity. "We believe that by investing in this project and supporting the development of the Bujagali hydropower plant, the World Bank is working

with Uganda to address its urgent energy needs and bridge a very critical gap that will help the country meet its economic growth and poverty reduction goals," Ms. Grace Yabrudy, World Bank Country Manager for Uganda was quoted as saying (East African Business Week, Kampala 30th April 2007). The question however remains if hydropower development is the right approach to meeting the energy need of the poor without much harm to our environment.

Tsournos (2007) analyzed the report of the Power Planning Associate (PPA) on the evaluation of the economic and financial aspects of the Bujagali II project. The aim of the (PPA) study was to evaluate the economic viability of this project in Uganda, while taking into account the economic, financial, social and environmental aspects. The two most important questions for Tsournos's analysis were:

- Can Bujagali operate economically during times of low water without more release from Lake Victoria?
- What would be the economic implication of following the Agreed Curve (or is this information that not be extracted from the report)?

The report did not come up with a concrete stand on the economic implication of the Agreed Curve. However, it pointed out that the project did not take an up-to-date consideration of the impact of climate change on the Lake Victoria level and the flow of the Nile. According to the report, if the operation rules of the power plants should be restricted to the "Agreed Curve", other than the "Constant Release" model as proposed in the PPA report, and especially if climate change should have an impact, then the estimated benefits of the Bujagali are overstated. Furthermore, it predicts that the Bujagali will have a very moderate effect on the economy at best. Finally, the analysis clearly states that the project poorly addresses the social and environmental impacts.

The Bujagali Hydropower Project, Social and Environmental Assessment Terms of Reference (June 2006) gives the framework under which the assessment should be/is being done. On 26 April 2007 the project was given a green light by the World Bank. That means if the assessment has already been done to completion, then it was within a period of only a few months. That alone raises a question of how well it was done.

3. Water management structure

The National Water Policy (NWP) of 1999 recognized that the institutional and management structure were not adequate to address all challenges relating to the management of Water Resources in this country. It pointed out the trans-boundary nature, the demand on the resources for development activities, the increasing population threats and the decentralization and devolution of powers to lower levels Government as being the major challenges.

In line with the above, it proposed a management structure, which derived support from the water statute, 1995. The main idea of this structure was to streamline the management of the water resources of this country to meet the challenges it faces. This structure was then acknowledged by the Water Act Cap 152 and is now in operation. The structure is divided into three components and is headed by the minister for water and environment.

3.1. National level

This is the top-most level of the structure where the minister responsible sits as the head. The minister responsibilities include among other things initiating the national policies, setting standards and priorities for water resources of Uganda. Then we have the Water Policy Committee WPC. This committee has its members who are representatives from the different ministries and organization. The Directorate of Water Development is the secretariat of the (WPC). The permanent secretary for WPC comes from the ministry responsible for water resources and NEMA is the executive director. Also, there exist within this committee the director responsible for irrigation, fisheries, industries and two persons having special qualifications or experience relevant to the WPC. Finally, we have the commissioners for Industries and Hydropower development.

The functions of the WPC can be summarized to include,

- Assisting the minister in the coordination of hydrological and hydro-geological investigations. Coordinating the preparation, implementation and amendment of water action plan and to recommend the water action plan to the minister.
- Whether on request or otherwise, to review the laws relating to water and advice the minister on any amendments that may be required for the improvements of administration of laws.
- To advice the responsible ministers, as the case may require on any dispute between agencies involved in water management.

3.1.1 District level

At this level we have the District Local Council (DLC) in charge of water, DLC in charge of environment, Natural Resources Committee (NRC), District Water Office (DWO) under the department of environment and natural resources, extension services from the various departments, NGOs and the private sector. Additionally, one district council chairperson and one chief administrative officer get appointed by the head minister to joint the WPC team. These two appointed members are required to hold their office in the WPC for a period of three years.

It is intended that at this level the structure should ensure coordinated management of water resources. As a result, the districts have the responsibility to coordinate the extension staffs in the areas such as water, community development, health, agriculture, fisheries and livestock. The underlining objective is to ensure that water resources and environment form part of an integrated extension strategy (MWLE 1999). This is the point where capacity building is very much needed to allow for strong linkage of the local level (through the district level) to the national level.

3.1.2 At local level

The local level arrangement consists of the Local Councils (LC) I-III, user groups, village water and sanitation committees and individuals. The LCs and the Local Government Chief (LGC) have the responsibility to guide their subordinates on issues relating to the management and utilization of natural resources within their communities.

3.1.3 Loopholes in the structure and its functionality

In the overall arrangement, the WPC has been considered as the most important component of the structure. This is because it deals directly with all the issues pertaining WRM that concern this study. By its composition, the WPC should provide the most harmonious forum for stakeholders dealing with WRM. Its membership starts with the head ministry at the national level and degenerates to district and local levels. Let alone the fact that the members at national level are representative from the different ministries, coming from different sectors with different backgrounds and expatiates. However, this young and promising forum needs to be accorded the necessary support and goodwill to allow it to grow and establishes its full capacity.

In the Water Act, it is clearly stated that the DWD should provide the secretariat for the committee. However, it is only by guesswork that one can locate the department under which this committee/secretariat is located at DWD. If it is located under the department of water resources management, as the researcher has been made to understand, then you wonder which office or section of the department is home for the secretariat. To those who are used to the system, it may appear irrelevant to raise this issue. But this study has shown that if you put yourself in the shoe of an outsider who is not part of the system, then you can appreciate the point. It is therefore important that this arrangement be made clear for easy access and coordination of information or better still, to show transparency in the system.

One other problem comes from the composition of the committee. In the eye of an ordinary man, the composition of this committee may seem very elaborate and sufficient enough for its functions. But when we are talking about hydropower development, one does not need a magnifying glass to identify the missing components. This is more of an oversight attributed to by the Water Act and Water Resources Regulation (WRR), which set the composition and functions of this committee. MWLE (2005) noted that the composition of this committee does not include the ministries of Finance and Foreign Affairs or the private sector/NGOs, which are considered vital but can only be considered as part of the subcommittees under the WRR. Yet, the two missing ministries are among the most important stakeholders when it comes to hydropower dialogue in this country. Still, the same document has noted that the Water Act provides provision for the minister to delegate power and at the same time be able to execute the power delegated. All these are stumbling blocks that undermine consistency, smoothness

and easy flow of commutations.

3.2. Major institutions and their roles

Dam development in Uganda is principally under the national development vision known as the “Vision 2025”. The Vision 2025 is a government long-term development strategy whose major objective is to achieve a prosperous people, harmonious nation and a beautiful country by the year 2025. Poverty Eradication Action Plan (PEAP) being the most important tool that gives directives on how government policies should guide actions in order to eradicate poverty in this country based on private sector-led industrial development and export-led growth therefore becomes the framework to achieving Vision 2025. Above all is the constitution of the Republic of Uganda. The constitution has given birth to many laws and policies governing environmental protection. At this point it is important to bring to light the section of the constitution that stresses the need and importance of environmental protection in this country. The section states “the state shall protect important natural resources, including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Uganda” (the 1995 Constitution sect. XIII). It is from this section of the constitution that we now have the National Environment Act (NEA) Cap 153. The NEA Cap 153 is the mother law that governs environmental protection and management in Uganda. This Act has given birth to all institutions of both local and national nature responsible for overseeing the protection and management of environment and enforcing the various laws with regards to environmental protection (NEMA 2006). Institutions created by this Act are the National Environment Management Authority (NEMA), the Policy Committees on the Environment (PCE), District Policy Committees (DPC) and Local Government Committees (LGC).

3.2.1 The Cabinet

This is a legislature arm of government whose members are directly appointed by His Excellency the president of the Republic of Uganda. The cabinet is responsible for the formulation and implementation of government policies as specified in article 111 of the constitution. In dam development the cabinet must be consulted to seek their approval of the establishment of the project. It is also important to note that it is the cabinet that designs policies relating to such development.

3.2.2 The Parliament

Under the National Resistance Movement (NRM) government, members of parliament are democratically elected from the various constituencies in this country. Each elected member is required by law to serve for a period of (5 years) one term. After the expiry of the first term, members go back to their respective constituencies to campaign and be re-elected for second term and so on. While in office, they have the mandate to channel the voices of the people they represent to the government. The parliament makes laws concerning all matters in this country; it reviews the constitution and amends it if necessary. Above all, in the issues of dam development, the parliament discusses it to see that the rights of the civil society are protected and the project is intended for the betterment of this country before they can approve budget and loans for such a project.

3.2.3 The Attorney General

When it comes to National matters that require following legal procedure like hydropower

infrastructure development (dams), the office of the Attorney General cannot be by-passed. The post of Attorney General is provided for in the constitution of Uganda. The Attorney General's function is to give legal advice to government on any subject, drawing and perusing all government documents and representing government in court. The judicial advice inputs start at the very first stage of negotiation between government and the dam developers. For that reason, this organ of government becomes one of the very first players in dam dialogue in this country.

3.2.4 Ministry of Water and Environment

Water and environment are two variables that cannot be separated. As a result, in Uganda matters relating to these two variables are directly handled under one ministry, i.e. Ministry of Water and Environment. It is the responsibility of this ministry to ensure that the environment and water resources of this country are protected. The constitution of Uganda also gives the responsibility of protecting the water resources on the government. It clearly spells out that government shall take practical measures that promote a good water management system at all levels, i.e. at national and local government levels. NEMA (2006) recognized that the immediate dangers that threaten the water resources of this country include rapid population growth, increased industrial activities, environmental degradation due to soil erosion, drainage of wetlands and pollution of rivers and lakes.

In commitment to protect the water resources of this country, Water Act Cap 152 was established. The Water Act Cap 152, together with Regulations made under it which include the Water Resources Regulations 1998, the Water (Waste discharge) Regulations 1998, and the Water Supply Regulations 1998 has four major objectives given below:

- To promote reasonable (national) management and use of water through modern management and scientific techniques.
- To promote the provision of clean, safe and sufficient supply of water for domestic use to all persons in Uganda.
- To provide for well organized development and use of water for other purposes such as providing water for domestic animals, irrigation, industrial use, commercial use, navigation, fishing etc. in such a manner that prevents harm to the environment.
- To control pollution and to promote the safe storage, treatment, discharge and disposal of waste, which may pollute water, damage the environment or harm human health.

The Water Act Cap 152 is the origin of institutional arrangement that govern the management and utilization of water resources in relation to hydropower development. This Act gives government the absolute right to investigate, control, protect and manage the water resources of this country. It is in recognition of the above task that we now have the Water Policy Committee (WPC). WPC plays a very important role in hydropower dialogue process. Based on its composition, the WPC provides an important stakeholders' forum for hydropower dialogue especially, at the Environmental Impact Assessment (EIA) stage.

Under this ministry exists a very important organ, the Directorate of Water Development (DWD) who is the secretariat to WPC. The main function of DWD is to promote the rational management and use of waters of Uganda through the introduction and application of

standards and techniques, the coordination of all public and private activities that may influence water quality and quantity, and to allow for the orderly development and use of water resources including such activities as irrigation and water for industrial use (UDD, 2006). In dam development for hydropower, DWD acts as an observer. It does not participate in the active negotiations processes. However, its role cannot be underestimated, as it is the one who grants water and waste discharge permit.

3.2.5 National Environment Management Authority (NEMA)

NEMA is an institution created under the National Environment Act Cap 153. The main mandate of NEMA is to coordinate, monitor, supervise and advice government on matters pertaining to sound management of the environmental resources of this country. Above all, it is NEMA, which is fully in charged of EIA. Any development activity that requires an EIA cannot kick-off unless NEMA has approved it. For the case of hydropower development, NEMA is obliged to call for a public hearing before it can approve it. NEMA also works in close collaboration with other government institutions to execute its responsibilities. This arrangement, separating authority over development of water resources (DWD) from approving EIA (NEMA) could be seen as a measure to enhance transparency. However, NEMA has delegated its activities on environmental issues relating to water resources to DWD (MWLE 2005).

3.2.6 Ministry of Land, Housing and Urban Development (MLHUD)

This is the ministry that is directly responsible for the sustainable use and management of land in Uganda. The constitution gives direct power to the government to acquire any piece of land in the country. However, the conditions for the acquisition must be in the best interest of the public and must be done according to the law. The constitution has therefore, entrusted the power to the Uganda Land Commission (ULC) to hold and manage land in Uganda, which is vested in or acquired by the government in accordance with the law. The Land Acquisition Act (LAA) guides ULC's operations. LAA is the mother law that clearly spells out all the conditions and procedures required in acquiring land in Uganda. Some of the most important requirement of this law in dam development is the issue parenting to compensation and involuntary resettlement.

3.2.7 Ministry of Tourism, Trade and Industry (MTTI)

Wildlife conservation, the development and promotion of trade in the tourists industry in Uganda are all the responsibilities of this ministry. As a result, this ministry therefore has a keen interest in dam development. This is because some of the sites for dam development may fall within a national park or protected areas for wildlife conservation. If not, it could be that the access roads or transmission lines are passing through areas of such categories. This therefore makes this ministry, especially its organ the Uganda Wildlife Authority (UWA), a key participant in dam development dialogue. UWA is responsible for setting EIA guidelines to mitigate impacts of such development on wildlife and tourism. It is very important that technical input from this authority be sought early enough to avoid conflicts.

One of the reasons why some stakeholders are opposing the Bujagali project is that it will jeopardize a rapidly growing tourist industry. However, this ministry ruled that Bujagali is/was never among the gazetted areas. It went ahead to clearly state in the EIA report for Bujagali project that the site would be relocated in another place and allowed to develop.

3.2.8 Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)

Dam development has got many impacts ranging from the physical environment to the livelihood of the affected persons. Lands originally used or intended for farming may have to change to meet other infrastructure needs like erecting transmission lines, construction of access roads and houses for dam workers. In the aquatic environment, the dam may hinder free movement of fish and other aquatic organisms; it may affect water quality as well as quantity. This may lead to a change in the immediate and downstream ecosystem compositions. All these changes are therefore bound to affect the livelihood of the local communities in the neighborhoods of the dam. For example, those who used to earn their livings through fishing may have to look for other alternative economic activities.

It is therefore, for the good of the environment and the affected persons that technical inputs from this ministry be critically integrated in the whole process. Moreover, if the dam in question is to serve multipurpose tasks like hydropower generation and irrigation, then this ministry even has a doubled interest in such a project. First, to safeguard the health of the aquatic environment, ecosystem and the well-being of the people and secondly, to ensure the sustainability of the dam to serve the purpose of hydropower generation and irrigation. It should be noted that water harvesting for irrigation purposes is the responsibility of MAAIF.

3.2.9 Ministry of Energy and Mineral Development (MEMD)

The MEMD has a mandate to establish, promote the development, strategically manage and safeguard the rational and sustainable exploitation and utilisation of energy and mineral resources for social and economic development. It's role is to plan, supervise the construction and the operation of all energy facilities including hydropower.

3.2.10 Ministry of Finance, Planning and Economic Development (MFPED)

This ministry is concerned with the planning of the economy and the overall development of this country. It is one of the ministries that represent government at the very start of hydropower development negotiations. Cost of the project and the socio-economic gains to be derived from a dam are some of the most outstanding areas of interest of this ministry. Within this ministry is the National Planning Authority (NPA) established under article 125 of the constitution of Uganda. The primary responsibility of this authority is to encourage and support national economic development and to provide a forum for dialogue between government and the private sector (UDD, 2006).

3.2.11 Uganda Investment Authority (UIA)

Uganda is currently one of the most fertile grounds for investors in sub-Saharan Africa. The current government took full responsibility to make the atmosphere conducive for investors by going for full-scale liberalization of the economy in the 1990s. Society for International Development (SID 2006) revealed that by 2003, Uganda's economy was the most stable and steadily growing in the East African region. The industrial, agricultural and service sector all registered a remarkable increase of their shares in the GDP. UIA is a legally established and reorganized institution. In dam development UIA is the body that issues the investment permit to the dam developer.

4. Negotiations processes

Hydropower projects are unique in that they cut across all sectors. The different sectors have their own interests. In one way or another, these sectors or their representatives have to get involved in dialogue and decision-making process so that their interests and rights are protected. In Uganda under normal conditions, i.e. where the feasibility study has already been done, key informants from ministry of energy, ministry of water and environment and NEMA have explained that negotiation takes the form below:

First the government goes public and advertises for the project in the media. Willing and competent developers then show their interest. The government then shortlists and screen them to select the most appropriate developer. The selected developer then enters into negotiation with the government. This is typically what happened for the case of Nyagak Hydropower Project in west Nile. However, for most of the small sites and those along the Nile in Uganda, no feasibility studies have been carried out yet. As a result, the above procedure does not hold in all cases.

The Bujagali, which had two phases started with the government inviting the first investor in 1999. He came, did the feasibility study and started negotiation with the government. At some stage of the process, he had to pull out in 2003. When the second phase was kicking off, government already had the feasibility study done by the first developer who pulled out. "For that matter, the government advertised for the project in the media," said a relevant source from MEMD. Interested parties were then short-listed and screened and the current Bujagali Energy Limited (BEL) was selected. BEL carried out independent feasibility studies and Environmental and Social Assessment Studies for the project. Since then the Bujagali Energy Limited has been in negotiations with the government and the various stakeholders.

There are two categories of negotiations that take place. The first and the most important in this case is that between the government and the developer. This negotiation between government and the developer encompass both financing and designing of a project. The other category is that between the developer and his banks or financiers, insurances companies etc. This second type of negotiation is of less importance as far as this study is concerned and will therefore not be discussed.

Normally, there is a team made up from different sectors that represent government at the very first stage of the negotiation process. This team includes ministry of energy and mineral development, Transmission Company, Electricity Regulatory Authority, Judicial and Finance. Ministry of energy will want to see that the development is in line with the requirement laid down in the energy policy and relevant laws. Transmission Company brings terms and conditions for the transmission and feeding of the generated power into the national grid at reasonable tariff. The electricity regulatory authority mostly looks at power purchase agreement, and the Judicial and Finance look at the legal and financial aspect respectively. Later at the Environmental Impact Assessment (EIA) stage, NEMA, DWD, NFA, UWA, NGOs, project affected people and the Civil Society then join the team above.

4.1. Environmental Impact Assessment (EIA) in Uganda

Concerns that some development activities are bound to impact negatively on the

environment were aired in Uganda as far back as 1995. This alert prompted the enactment of the National Environment Statute (now Act Cap 153). As a result of the enactment and formation of the National Environment Act Cap 153, NEMA was created. NEMA is the organ of government that controls all issues relating to EIA in this country. NEMA has since 1995 taken the inactive to develop institutional EIA capacity among the various stakeholders. It has trained managers of EIA process in sectoral agencies and at local government levels. In Uganda, it is a requirement that EIA be considered as part of the planning and project design. To synchronize this objective in practical terms the following steps are taken in the Uganda EIA.

- The developer submits a project brief to NEMA and any other appropriate lead agency. The project brief outlines basic information on the proposed activity to be established whether or not the activity is likely to impact significantly on the environment.
- At this point, it then becomes the responsibility of NEMA and the agency in question to take a critical analysis of the project brief and see if it meets the requirement in the EIA terms of reference.
- NEMA then informs the developer of the outcome of their analysis and decision. If the project has been found to address the environmental issues as is expected, approval is normally done without the need for further IEA. Otherwise, the project developer will be required to carry out a full and certificatory EIA.
- Based on the terms of reference and the analytical result of NEMA and the lead agency, a public hearing may be called, especially where there are impacts of trans-boundary nature, or very outstanding social concerns.

4.1.1 National EIA guidelines

Activity	Duration working days (Upper limits)
Reviewing of Applicant's Project Brief (Initial Screening)	14
Scooping process	14
Preparation of EI Statement	not fixed
Circulation & comment on EIA by lead Agency	21
Public Display of EIS for public review & scrutiny (where public hearing is to be held)	28
Decision making after review	14
Source Justine Ecaat (2004)	

4.1.2 Weaknesses and point of departure of EIA process from set objectives

Much as the procedures and objectives of EIA has been clearly set, in this study (especially from the respondents of interviews), it has been clearly noticed that there is a wide gap between principles and reality in this process. Whereas the World Commission on Dams calls for active stakeholders' participation in EIA process, the Ugandan case is more of a passive consultative process. Apart from the public hearing, which is normally conducted by NEMA just before approval of a project, the practice is dominated by memorandum writings. This process has been referred to by some of the major stakeholders as being a trap and unfair means of soliciting for constructive ideas and critics. They continue to say; "the practice is that you get a letter addressed to you requiring your response within few days. No matter if you disagree with some concept, if your views are considered or not, tomorrow your name appears among the list of stakeholders that have actively and fully participated in the process".

Some stakeholders have also expressed great concerns on the process of site selection. Important sectors like fisheries, wildlife and tourism only come in at the point of EIA. If the practice is that way, what about the risks that dam projects pose on these sectors? When is it the right moment to bring to awareness these risks? The general feeling is that some of these key stakeholders should be involved early enough so that their technical inputs can be considered at time of site selection. It is evidently true that once a site has already been selected, other technical input cannot challenge that site. Here the question of who's right is at risk and who is responsible to minimize the risk becomes very important. If it happens so like in the case of Bujagali, such challenges will be considered as intimidation and undermining of government effort for development. This kind of secret planning behind closed doors is one of the reasons for lack of public acceptance of the Bujagali project and many others. The Uganda case then resembles the Mekong River Commission, a UNDP-sponsored project, widely reported in the press to have not fully embraced transparency and participation on several occasions in the 1994-96, but flying in the name of UNDP's promotion of transparency (Dorcey et al 1997).

Justine Ecaat (2004) attributes the increase in local EIA expertise/practitioners enhanced public participation in EIA, increasing number of civil society groups that are emerging who play an advocacy role for EIA to the result of the tremendous work being done by NEMA. He, however, stressed that these achievements are not enough and argued that there is need for more awareness campaign and capacity building among developers and stakeholders, maintenance of political support, the need to further develop approaches to ensure effective public participation in EIA and a need to create and strengthen regional and sub-regional EIA networks to compliment national efforts for promotion of EIA.

To raise dust on a rainy day, section 11(8), 16(2), 30(2), 38(1), 65(2) and 66(5) of the Water Act provided for deadlines in the EIA process for respective authorities to execute certain tasks. Yet, it does not provide for any action to be taken in case of failure to meet the set deadlines (MWLE, 2005). This kind of weakens undermines the enforcement process and confident of some stakeholders. A case in point is the current saga of the Bujagali project in which NAPE filed a petition (in march 2007) on so many grounds, of which inconsistency in the EIA process was one (NAPE 2007).

4.2. Major stakeholders

4.2.1 Stakeholders' identification

Understanding of the dynamics of stakeholders' participation in negotiation and consensus/trust building in the process requires careful scrutiny of who should be present at the negotiation table as a legitimate stakeholder, and why such a stakeholder should be considered legitimate (WCD 2000). Without such consideration, attempts to foster a proactive decision-making process will always trigger a time bomb, which ends up blowing it apart. Dubious as most of the processes of dialogue have always turned out to be, the term stakeholder is also as ambiguous and difficult to understand, as are the interests of those who sometimes claim to be legitimate actors. Perhaps the origin of the term 'stakeholder' from a narrow business perspective explains why it is not easy to put in a social science context. As Grimble and Chan (1995 p. 114) put it in the words of Carroll (1989), "the modern business organization has evolved to the extent that 'what was once viewed as a specialized means of providing profit through the manufacture and distribution of goods and services has become a multipurpose social institution that many people and groups depend on for their livelihoods and prosperity'"

According to Grimble and Chan (1995), stakeholders are defined as all those who affect, and/or are affected by policies, decisions and actions of the system. In this study, the (3Rs) approach has been a very useful tool in the identification and analysis of the major stakeholders involved in the Bujagali project. Here, stakeholders are understood as those who have *rights* to the use and benefits derived from a natural resource (water), and as such, they take/bear *risks* voluntarily or involuntarily due to the decisions made on how to use and manage the natural resource (water), which therefore, puts *responsibilities* on them to see that their rights as well as those of the other parties are respected. In a nutshell, stakeholders should be willing to share risks, participate individually (where applicable) or through legitimate representation in decision-making processes and above all respect the outcome of the agreed decisions. Existing literatures like the Bujagali Hydropower Project Social and Environmental Impact Assessment Report (SEIAR), the scooping report on the Uganda Dam Dialogue (UDD), etc have also provided significant inputs in this process. Grouping the stakeholders on the left, right or middle was done based on information obtained from interviews and existing literature.

Analysis highlights the complex situation in which politician act in. There are those whose job is to advocate for full transparency and stakeholders participation in negotiation. The question to ask is, full transparency to whom and on what issue? If we say all stakeholders' participation does that mean for example, that every single citizen should be consulted before we can call it a negotiated agreement? Do some votes from some stakeholders matter more than others? Or, should some voices be louder than others? How/why should full transparency and stakeholders participation be achieved? All these questions are food for thought incorporated in the 3Rs, with some highlighted here below.

"Applying a 3R analysis to stakeholder identification, participation and negotiation processes provide a structured vehicle to move beyond the often rather arbitrary categorization of stakeholders into directly/indirectly affected groups or primary/secondary interests. In contrast, it introduces a focus on the underling issues of rights, rights at risk, and the broader portfolio of risk. In doing so it also draws out the differences of perspective, tensions and challenges that underlie such processes and exist between the different interest groups" (Bird et al 2005 p.13).

Table 1 3R analysis of stakeholder identification, participation and negotiation processes (Adopted from Bird et al, 2005)

Stakeholder group	Rights	Risks	Responsibilities
Government/ government agencies	Constitutional rights, right to development, right to sustainable development, right to develop water/energy resources and protect the environment pursuant to national laws and regulations, etc	Risks related to the right and duty to formulate national development policies, risks inherent in undertaking dam projects against those of other initiatives and 'do nothing' options, risks of public rejection of government choices, macro-level and external risks e.g. (regional security, global economy and climate change), etc	Responsible for creating a conducive atmosphere that allows for the protection and provision of basic services to all citizens, providing enabling environment for information access, transparency, explicit procedure for stakeholder interaction, and enforcing national laws and agreements including environmental protection and water resources management, etc
Affected people, local communities, cultural groups, business operators and the national public	Right to (livelihood, access to basic services and natural resources), to information and participation, UN right to development, right to sustainable development (Rio Principle), customary right, human right to water, etc	Risks to civil and political rights, social and economic rights (livelihood, development, property rights and loss to cultural identity), risks to upstream and down stream communities, beneficiaries right of access to water/electricity being at risks due to project delay or canceling, etc	Responsible to participate in and respect outcomes of, negotiated decision-making process, comply with negotiated agreement including resettlement, monitor implementation and notify authorities of compliance issues, etc
NGOs and other interested parties	Right to freedom of expression, access to information, consultation and participation in decision-making process, seek redress in cases of violations of national or international laws/policies or of the right of interest groups, etc	Risks to environmental degradation, public health, climate change, pollution, commercial and reputation risks etc	Accurate representation of the views of interest groups, commitment to objective monitoring and analysis in their work, comply with corporate code of conduct and professional ethics, comply with negotiated agreements, etc

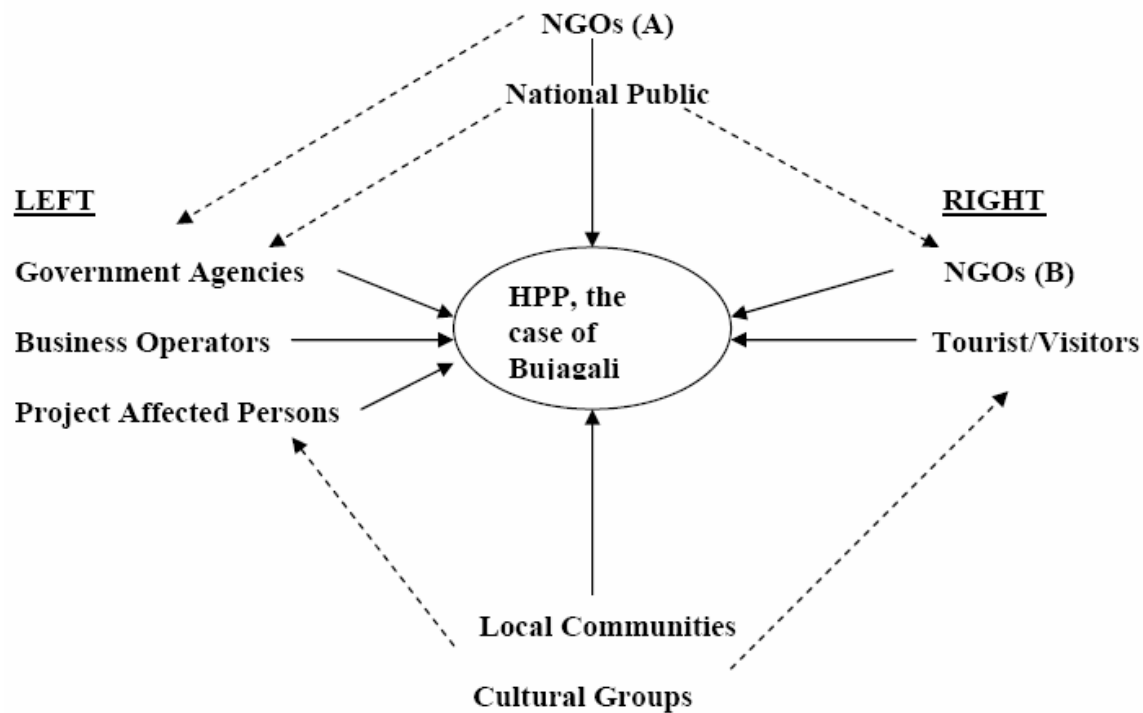


Figure 1 Diagram showing the major stakeholders and where they belong.

4.2.2 Stakeholders analysis

In general, this study has identified nine major stakeholders as shown in figure 1 above. The Bujagali Hydropower Project's Social and Environmental Assessment Report (SEAR) identified ten stakeholders of which NGOs was one without any categorization and the Vulnerable Groups and Indigenous People included. In that document, the vulnerable groups were the women and children and the indigenous people are what are sometimes known as the ethnic group. These two groups, which otherwise proved difficult to clearly identify and which the researcher comfortably feel either belong to the Local Communities or Project Affected People (PAP), have not been reflected separately in this analysis. From the findings of this study, it became clear that these nine identified stakeholders could easily be divided into three main groups. Those stakeholders that are in favor of the project on the **(LEFT)**, those against on the **(RIGHT)** and finally those undecided/neutral in the **MIDDLE**. Those against have their concerns raging from protecting the rights and interests of the PAP and the good of the environment. At the same time, it is also questionable if some of the actors in this group are acting in the best interest of fellow legitimate stakeholders, or if they are dragging their colleagues to dance to the music played by non-legitimate stakeholders.

From the finding of this study, the researcher was able to decide upon the LEFT, RIGHT and MIDDLE groupings. As mentioned above, stakeholders on the left and right represent those for and against the project respectively. Those in the middle are stakeholders that are either for the project, against it or indecisive. This categorization coincidentally can be translated to reflect the current democratic situation in Uganda. In the local concept, the grouping is more or less like the movement opposition slogans of the Ugandan democracy. In Uganda today, the National Resistance Movement (NRM) mostly referred to as movements, are those in favor of the current government while the oppositions are the multiparty that are yearning for a change of government.

Ironically, this political (movement-opposition) affiliation has also polarized the Uganda population and penetrated most issues of national development. In some cases, some individuals or groups just oppose anything as long as it is not coming from their political technocrats. And in other cases, there has also been clear discrimination, intimidation and abuse of powers by those in office. More often than not, people's ideas, qualifications and capabilities are screened based on their political colors, a fever that has attacked the Bujagali projects many times. The Weekly Observer wrote, 'No NRM card, no Bujagali job, ' reflecting on the recommendation required when looking for a job in the Bujagali project (The Weekly Observer September 13-19, 2007).

Last but not least, it shows the mixed opinion of stakeholders in prioritizing the use of the water resources of the Nile; the energy sources that they feel will meet the need of the poor, the Bujagali project and Uganda's hydropower development and democracy at large. Then we find those who normally cast invalid votes because they are undecided on where to belong. Similarly, there are those stakeholders who do not see the importance of prioritizing the use of the water resources of the river Nile in Uganda now or even in the future, and those who are undecided about the Bujagali project or the whole energy situation in the country. Some people feel it is none of their business while others are less concerned because they feel their ideas or contributions do not matter.

4.2.3 Those in favor

Of the entire stakeholders group on the left, middle and right, government agencies are the most established group in as far as hydropower negotiation in Uganda is concerned. All the institutions discussed above are all sets of government machineries and are therefore component of this stakeholder group. Moreover, they have a very strong foundation and connection with the NGOs (A). Given the fact that these NGOs (A) are in most cases the financers of such project, this relationship gives the government agencies group of stakeholders an extraordinarily good stake and better hand in hydropower negotiations. At the same time the government, apart from having powerful weapons accorded to it legally like the power to acquire any piece of land as long as it is in the best interest of the public (Land Acquisition Act), it can also sometimes become one of the major donors for hydropower projects. For example, in July 2007, the Uganda government made available US \$ 75 million to the project developer of Bujagali to allow a quick kick-off of the project (WB 2007). These are just a few examples of the mechanisms used by government agencies to overcome the oppositions of the stakeholders on the other side of the equation in the negotiation process.

On the other hand, the business operator group of stakeholders also has a very good backing from the government and as such they are indirectly an extended part of government agencies. Business operators include industrial, Information Technology companies, private hospitals and clinics, hotels, restaurants to mention but a few. They are the stakeholders whose operations rely exclusively on availability of electricity. As such, they are therefore, the one most affected group by power crisis and fluctuations. Hospitals and clinics for example require constant supply of electricity to ensure safe storage of vaccines, run X-rays and other machines, facilitate operations in the theatres, etc. Whereas industries require electricity for industrial productions, minimize losses of power sensitive raw materials and products, and the overall income. This fact clearly explains why this group of stakeholders is on the left. They also have a better hand in hydropower negotiations because their operations and existence is

one avenue to poverty eradication in Uganda and achieving the overall Vision 2025. In Uganda today, the industrial sector employs some 90,000 people representing 5 % total registered workforce and contributes up to about 23 % of Uganda total GDP (MTTI)

To summarize stakeholders on the left hand side we have the project-affected person. These are people who live/have lived in the project site's immediate surrounding, which include the East and West banks and the Islands. Their total population as of the 2001 EIA report was 5732 people and a total of households of 682 consisting of both resident and non-resident households. The most recently published Bujagali Hydropower Project SEAR (2006) does not give any details on the current number of affected households. Therefore, it is assumed here that the old information is accurate and consistent. Part of the reason is that most of the PAP were compensated during Bujagali I and had resettled elsewhere.

The degree to which these people have been affected differs from household to household. Some of them lost all their lands, buildings and had to be relocated, whereas some lost just part of their plots and could still continue to live in their original homes. The resident households were the most affected and that is why this survey has focused mainly on this category of the project affected people.

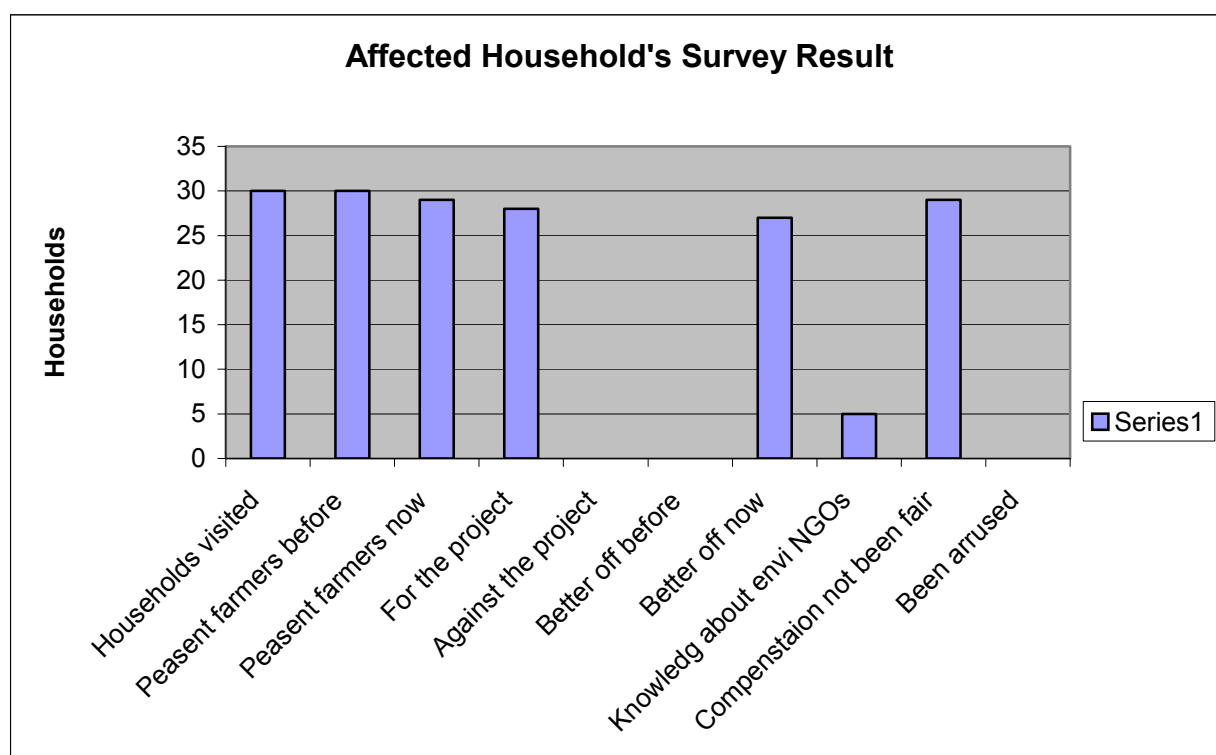


Figure 2 A survey of 30 randomly selected affected people's resident households.

Figure 2 above gives the justification of why the project-affected persons are on the left hand side as shown above in the stakeholders' analysis diagram. The 30 resident households visited were randomly selected from the affected villages in both the East and West banks of the Bujagali project site. Due to time and logistics constraints, the researcher could only manage to discuss the subject areas reflected above with just 30 households. The Bujagali EIA report reveals that there are a total of 180 resident households from both banks and the Islands. That

means the 30 households in this study is only about 17 % of the total affected resident households. However, it is important to note that the result obtained from this survey carries a lot of messages and suggests that this group has been misrepresented many times by some stakeholders. As a result, it would really be interesting to carry out a survey covering most if not all of the 682 households according to EIA report i.e. both resident and non-resident to see if project affected persons are really being misrepresented and if so, derive some means to correct the misrepresentations.

From the interactions with this group of stakeholders, it has been observed that their interest in the Bujagali project is as much as that of the government agencies and business operators. A careful analysis of their responses and living conditions has revealed that these people got their motivation for the project from the compensation they received. For example, out of the 30 households visited, 28 were for the project. All of the households visited were peasant farmers before the project. Currently 29 of them are still peasant farmers, but with some living in much better houses than before. One household, probably the most successful of all, has now upgraded to business. It now does real estates business, poultry farming, pigs rearing and transport business. Many of the other households cited this particular household to emphasize the goodness that the project has brought to the community. They also confessed that many could have reached the level of this outstanding example had it not been because of their poor planning and mismanagement. Important to note, 27 of the 30 households visited said they are better off now than before the project. They said the big sum of money that they got from compensation has enabled them to pay school fees for their children, meet medical expenses, improved their food security situations and some have been able to build modern houses. Apart from bringing direct benefits to specific individuals/households of project affected persons, this group of stakeholder together with the local communities around the Bujagali project site, Jinja and Mukono districts at large are happy and excited that the project will bring employment to the local communities, lead to access to improved infrastructure like roads, clean water, electricity and better health facilities among others.

However, there was a lot of contradicting statements about compensation. An overwhelming majority (29) said it was not done fairly, while one household (the successful one) was very contented and said everything was fair. Digging deep to understand the reasons for the contradictions, it became clear that the problem was that crops, which were three months old and below were not compensated for. These were crops planted after the evaluation exercises had already been completed. There were no more reasons to add to why they thought compensation was not fair.

To the contrary, many of them confessed that they were warned many times and in advance that once a piece of land has already been evaluated, there should not be any development carried out on that land. Further warning was given that whoever goes ahead to develop an evaluated piece of land does so at his or her own risk and that no compensation will be paid for such a development. The question was therefore; if the message was clear to them why should they still complain that the process was unfair? The answers got summarized into the attitudes and socio-economic situations of some of these people. Some of these people are so stubborn that they still insist and stay illegally on the lands that used to belong to them even after having been compensated and given enough time to relocate. The very first household to be interviewed was in this category and even swore to stay until a bulldozer takes down the buildings. The other disease in the process is poverty. Most of these people are ordinary peasant farmers with very low income. They therefore look at compensation and all other issues relating to the project as a shortcut to eradicating their poverty. This is one of the

reasons why some of them went ahead to plant some crops like vanilla; coffee, etc. even after their land had already been evaluated. In their own understanding such a move would increase the amount to be paid to them in compensation. Unfortunately for them, the project developer is not willing to take another stand on this subject. To add salt onto the existing wounds, these people's situations have made them so vulnerable and submissive. They individually think of how to reap maximum gain from the project in all possible ways. As such, their minds have been corrupted so that they respond to questions and situations subjectively rather than objectively. Some of them whose properties were never directly affected and therefore did not get any compensation are so jealous and say a lot of bad things about the project (Mallaby 2004). A fact that has been exploited by some opposition to send wrong signals that does not depict the real truth.

4.2.4 The neutral and/or indecisive

As we move from left to right we come to the stakeholders group falling in the middle. This group has been placed above and below the project as shown. The logic with this placement is to show (in a top bottom approach) the level of powers and influence that each of them have on the project. What the researcher has decided to call NGOs (A) represent the big international financial institutions like the World Bank (WB), European Investment Bank (EIB), the East African Development Bank (EADB) to mention a few. Because these institutions are not accountable to any single government and because they are among the major players in development aid today, they have therefore been baptized NGOs (A). This group is either affiliated to the left, right or both as shown by the broken arrows above. Their positive interests in the project are very clear but they also want to be associated very closely with campaigns for environmental protection, promotion of tourism, preservation of culture and the struggle towards achieving the millennium development goals at large.

In the case of Uganda, this group is the major financier of such a project. They therefore, have a very strong influence on the negotiation process and the overall success of hydropower project. For, against or otherwise, all these institutions have their interest in the Bujagali project. The WB for example was the one who gave a go-ahead for the project on 26th April 2007. It therefore has a very big say in the Bujagali project. This power comes partly from its large financial muscles and partly from its historical role in development projects, especially dam projects. The WB has exercised its power and dillydallied with the project for close to ten years, which makes one wonder if it is for the project, against it or both. Other members of the middle group are the cultural group, local communities and the national public.

The national public is the union set of all the stakeholder groups except for the foreign visitors and tourists. All the 27.4 million Ugandans directly or indirectly belong to this stakeholders group. It therefore means that even those on the left and right are part of this group. Due to its size and complex nature, it has not been possible for this study to identify with confidence specific issues of this group. In more general terms, the people of Uganda are so tired and frustrated with the power crisis that they can nearly with all their feet in the air support any move to see that the situation changes for the better. To be fair and to avoid premature judgment, the other local NGOs who have not been very radical about the Bujagali project have as well been accommodated by this study in this category. These local NGOs include the Uganda National NGO Forum, Anti-Corruption Coalition Uganda (ACCU), and African Finance Institute for Energy Governance Organization (AFIEGO) etc

The local people are those people living around the Bujagali project site, Jinja and Mukono towns at large. In a broader term, they together with the project-affected people are the immediate beneficiaries of the project. The expected benefits include employment opportunities during construction, increased business activity and opportunities and possibility of increased access to improved infrastructure like roads and better services like access to electricity, better health care, schools etc. Some of these people support the project because of the expected benefits that they are likely to get and the overall benefits that the project will bring to the country. Whereas some of them are against the project because they suspect that HIV/aids cases will increase with increasing number of workers for the project. The radically cultural ones feel they cannot sacrifice the falls for the sake of hydropower. And there are those who feel they will not benefit from the project in terms of the promised benefits, especially electricity. No wonder, Owen falls dam has been in existence in this community for over 50 years but still, access to and affordability of electricity is a big problem.

Last but not least, in the middle group we have the cultural group. This is a small section of people representing the Basoga tribe, especially those who have a very strong spiritual attachment to the Bujagali falls. Their beliefs and attachments to the Bujagali falls is part of the culture of the Basoga people and can not be underestimated. They see the falls as a source of happiness, a shrine where the elders can make peace with nature to bring good health and harvest to the people. As a result of the strong spiritual connection of this people with the falls, it was very difficult to get their approval for the project. But finally the differences were settled by compensation and the group gave their approval for the project and accepted that the shrine at Bujagali falls can be transferred elsewhere.

4.2.5 Opponents

Stakeholders on the right are those who are very radical about the Bujagali project. Besides tourist they have been called NGOs (B) because they are truly NGOs in nature and because their stand on the project was very clear. Most important in this category are the NAPE, International River Network (IRN) and the Green-watch Uganda. NAPE is the most vocal and powerful environmental pressure group that we have in this country at current. It was the one who led to the failure of the Bujagali I project and is the one who have petitioned the World Bank and Uganda government on the current Bujagali II project. NAPE was and is at the forefront of the save Mabira company. Above all, it prepared and published “A Guide to Geothermal Development in Uganda”, which the MEMD has not acknowledged. Finally, NAPE was among the major stakeholders who prepared “The Scoping Report on Decision Making Processes in Dam and Development in Uganda”, which has also not been successful yet.

According to NAPE, the government should promote and invest in other renewable energy sources; in particular Geothermal, which has estimated potential of 450 MW in Uganda. This explains why they took the initiative to develop and publish a booklet in 2007 titled “A Guide to Geothermal Development in Uganda”. Or in the worse case, government should have first considered developing other sites downstream of Bujagali like Kalaga, Karuma or Ayago. They feel these sites are redundant if compared to Bujagali, which is already earning foreign currencies for this country. In their argument, Bujagali has got so many activities of tourist interest and as such has a potential of developing into a very powerful tourist destination in Uganda. However, they blame the government for showing lack of interest and support to

allow this site grow to its full potential.

On the contrary, government technocrats in the field of hydrology, wildlife and tourism again have got a different opinion on this issue. For example, some of the hydrologists in this country argue out that it is in the best interest of downstream ecosystems and community that Bujagali, being upstream of these other sites gets developed first. They reason that this will allow for mitigation measures to be designed in such a way that will minimize impacts on downstream ecosystems, community and the overall river hydrology. They also feel in that way, we can be sure of the survival and sustainability of the dam even in the feared world of climate change. Their main reason for support of the Bujagali project is based on the recent World Bank and Nile Basin Initiative report, which recommended the construction of Bujagali hydropower plant as the best option to address the country's energy problems. The report has the recommendation: "Bujagali hydro power dam needs to be constructed as soon as possible to address the serious power outages. The power option could be installed in the short to midterm, and it is also low cost and with acceptable environmental and social impacts," (NBI & WB, 2007) More so, government experts from wildlife and tourism are confident that this site and the tourist activities can and will be relocated and developed in another place.

Then we have the IRN, an international NGO based in the USA. The guiding principle for IRN operation is to encourage equitable and sustainable methods of water and energy sector development, and promote public participation and transparency in decision-making (PEG 2002). Steaming from their principles, IRN are therefore very keen in all sorts of development on all the rivers of the world. They claim to be working to support local communities and civil society groups to protect their rivers and watersheds. But the amazing thing with this NGO is that they seem to oppose all projects on the rivers of the world. The Aswan High dam, which has been the engine of economic development and is the source of livelihood to the majority of Egyptians, was strongly opposed by IRN because of its ecological impacts (Holmén 1991)

In the case of the Bujagali project, IRN has been opposing the project from the 1990s to date. They have written and posted comments and critics of the project on their website. For example, in 2002, IRN in collaboration with NAPE commissioned Prayas Energy Group of India to analyze the Bujagali Power Purchase Agreement and its implication for Uganda (PEG 2002). The purpose of the independent review was to allow for an informed public debate in Uganda and internationally about the cost of the Bujagali dam and the role of the World Bank and other financial institution in private power projects.

Worth mentioning in this group as well, is the Green-watch Uganda. This is a local NGO who also ranks very high among those in the frontline fighting the proponents of the Bujagali project. Their contribution in advocating for transparency in the project has been remarkable. One notable and very important groundbreaking occasion that at least brought some element of transparency in the Bujagali project according to Prayas Energy Group of India, is the High Court ruling of the 12th November 2002. On that date, the High Court of Uganda ruled in favor of a case submitted by the Green-watch that the Power Purchase Agreement must be released to the public (PEG 2002)

Last category of stakeholders on the RIGHT is the visitors or tourists. This group consists of people coming from within Uganda as well as those from outside Uganda. Those coming from within Uganda are mostly pupils or students, rich families, young couples, organizations

etc going on picnics and tours. Ugandan citizens are required to pay entrance fee of UgShs 500 i.e. about 1/3 of a dollar only per head. Seeing the fall, natural beauty, birds and watching divers, and chilling out in a quiet environment are some of the activities that normally take them there. There are normally couples of young men who dive into the fall at a fee of UgShs 5,000 (1 US\$ = 1,730 UgSh as of July 2007) for each dive. This money goes directly into the pocket of the diver and it is in that way that most of them earn their livings. Some of them said on a lucky day, one can do between 3-5 dives and that is a good business. When asked about the risking nature of their job, they ruled it out that everything can be risky. One of them even had to cite situations like in Iraq where some people have died in hotels, mosques, restaurants, etc due to suicide bombing. To them this activity is a source of their earning and if it is true that the dam will submerge the fall, then they are not willing to support it.

On the other hand, the non-Ugandans who are mostly whites come to Bujali for white water rafting, birds watching, seeing the fall and above all visiting the source of the Nile in the neighborhood of Bujagali. Some of these people also have a mixed feeling about the Bujagali project. However, the numbers of those who are both for and against the project were too few as compared to those who clearly feel that the project is a disaster to tourism industry development in Uganda and should not be allowed to proceed. Due to the small number of those who showed interest both for and against the project in this group, their stand has therefore been neglected leaving the group to belong to the right.

4.2.6 The losers and the winners

The RIGHT hand side groups (the anti Bujagali project) are the losers. In the researcher's own understanding, this group will continue to lose come any Hydropower project in Uganda. But the fact that they have lost however does not mean that the winners do not see any points that these groups have raised. I have categorically summarized the reasons for the loss and win as below:

- They constituted a very small fraction of the total stakeholders that participated in the negotiation. As a result their votes and voices got diffused in the pool and became insignificant.
- They lacked the required resources; logistics and agenda to educate or influence and rally the masses behind them to champion their cause.
- Tourists/Visitors and IRN are not permanent residents of the country. They are therefore little if not totally unaffected by the power crises, unemployment and the chronic poverty that has grounded the majority of Ugandans. As a result, it makes it difficult to acknowledge their stake and appreciate their interest in environmental protection in Uganda. To add onto that, their rights and risks if any on this issue are very minimal and so is their responsibilities. In that regard, when they advocate for environmental protection and oppose projects like the Bujagali, they are easily (wrongly or rightly) understood as trying to use what is known to be a popular thing to unfairly protect their summer destinations without considering or providing tangible alternatives that can benefit the majority of Ugandans. Even NAPE, who is the most vocal pressure group in this country, is considered to be representing foreign interests. For that matter, their struggles for environmental protection especially in the case of hydropower development is much compromised.

On the other hand, stakeholders on the LEFT hand side (pro Bujagali project) have won because of the obvious reasons that,

- They form the majority of the stakeholders in the process and as such they had a better hand in the negotiation, had more votes and their voices could be echoed everywhere.
- Resources were/are at their disposal, they have developed good relationship with the project-affected persons and they have real issues and agenda making them able to overcome bottlenecks like compensation, court petitions, etc.
- There is urgent need for increased electricity generation and supply in the country. This fact is recognized locally, regionally and internationally. For that matter, any effort towards solving this problem like the Buajali project is bound to get over whelming support locally and even from the developed world, which is our major donor.

4.3. Water allocation and energy sources choices

Having identified and analyzed the various stakeholders, it became clear that some of the stakeholders have more knowledge, influence and power than others in policy making. At the same time, the rights of all stakeholders needed to be respected alongside the need to manage conflicting interests. Yet the responsibility of doing so seems to lie more on some of the stakeholders (government agencies) than on others. “The debate about dams is a debate about the very meaning, purpose and pathway of development as well as the role the state plays in both protecting the rights of its citizens and responding to their needs through development policies and projects” (WCD 2000 p198). Bird et al (2005) acknowledged that to date, stakeholders are less empowered to make decisions on whether or not to develop a dam project making them push the responsibilities onto the government. In theoretical thinking, this situation means government should have more say in such projects. Practically, doing so would increase resistance, which only leads to delay of projects and increases financial losses and other risks. “Governments are too often inclined to invoke urgent development needs as a reason for restricting rights, while civil society groups believe that full respect of rights and the search for alternatives represent the surest way of promoting equity and justice in development” (WCD 2000 p 205).

This background information was used in the selection of specific stakeholder groups (key informants) interviewed. The specific requirements that were looked into to meet selection criteria are shortly given below in this section.

The ranking of water uses, which was done in parallel with energy sources, was not an easy task to most stakeholders. The majority of the stakeholders had the impression that all these uses can take place at the same time without the need to set priorities. Such comments were very amazing to me as a researcher. Of course, the fact that these uses can go on at the same time is the real source of the problem that they were failing to see. Issues on water resources of the country point at some major challenges facing the water resources sector. Some of the sited challenges include rapid population growth, increased environmental degradation, and increased demand for water for energy, industrial, and urban uses. Let alone the fear for climate change and the fact that some watersheds of this country are already water-stressed.

That means at some point in time, we shall be forced to set priorities for water resources allocation in this country so as to balance the different needs. Considerable time was then taken to explain explicitly to the stakeholders the reasons why it was important to do the above task. The reasons for ranking/prioritizing water uses and energy sources were meant to:

- identify the interest of the different stakeholders/sector on water uses, how their interests conflict and if the conflicts do surface in negotiation for hydropower development.
- evaluate stakeholder's awareness on national policies and development strategies like PEAP, the energy policy of Uganda, the national water policy of 1999, etc.
- get their opinion on the Bujagali project and those that are yet to come like Karuma, Kalaga to mention a few.
- examine the energy source that they feel would meet the energy need of the rural poor, have a positive impact on the economy, be culturally and environmentally friendly and above all be sustainable in this challenging world of global warming and climate change.

In that respect therefore, the criteria used in selecting the stakeholders who were finally interviewed on this subject has been based on whether a stakeholder (a) is a big water user like industries, (b) have got political powers and influence, (c) have got technical knowledge on water and energy, (d) works or represent a sector of key importance. Because of this kind of selection, these stakeholders have for a number of times been referred to as key informants in this section. Particularly, most of these key informants are from the big stakeholders group government agencies. They are the representatives from different sectors and/or ministries who under normal scenarios, form part of the team who are directly or indirectly involved in the formulations and implementations of policies on water, energy and environment.

Based on the above criteria, the PAP, local communities and the national public have been left out. The justification has been based on the assumptions that the PAP and the local communities have very little influence on policy formulation. Besides that, it would possibly have been too technical for them to conceptualize the whole idea and give meaningful contributions within a short time. On the other hand, the national public is too large a population, which would need a lot of time and sampling to come up with representative data.

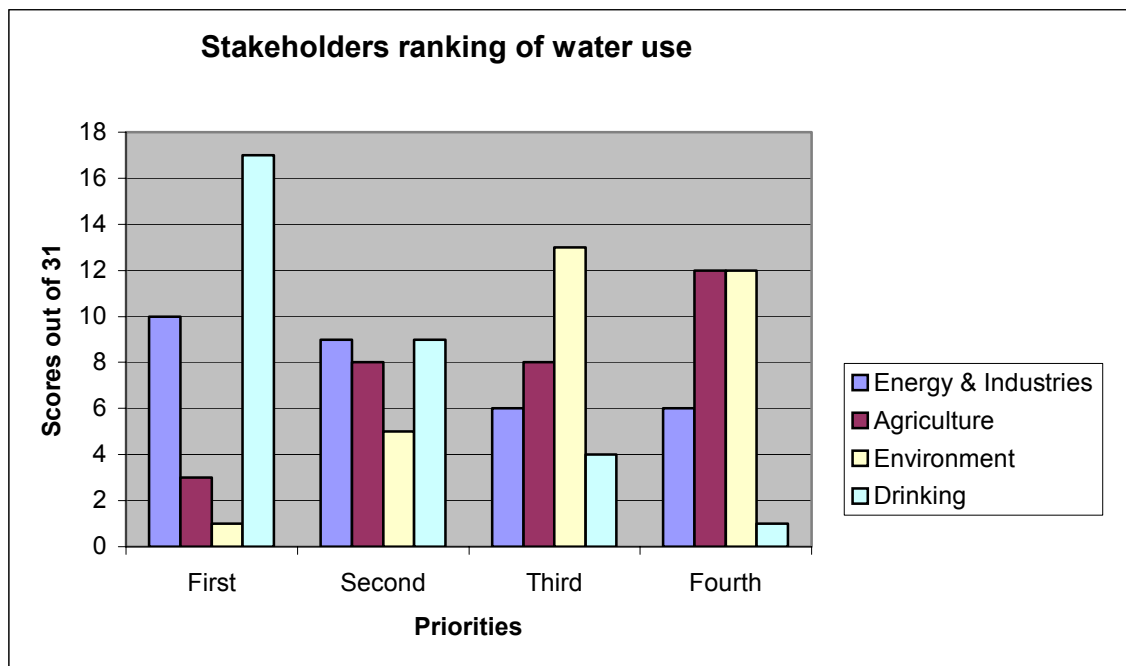


Figure 3: Stakeholders ranking of water use importance.

As seen from figure 3 above, the use of water for drinking scored a unanimous vote with 17 out of the 31 key informants interviewed ranking it as first priority. 9 of them ranked it to be their second priority. Only 4 people and 1 person ranked it third and fourth priorities respectively. Water for energy and industrial production then came second with 10 and 9 persons ranking it as first and second priority respectively. Meanwhile 6 persons each gave it third and fourth ranking. In the third place came water for agriculture with 3 persons giving it first priority, 8 persons each gave it second and third priorities and 12 persons ranked it fourth priority. Finally came water for the environment scoring first priority ranking from only one person, 5 ranked it second and 13 and 12 ranked it third and fourth priorities respectively.

4.3.1 Water for Drinking

This study has recognized that key stakeholders first priority is water for drinking, irrespective of which stakeholder or sector they represent. However, there were also some conflicts of interests as discussed under tradeoffs. The majority expressed concern on issues partnering to water quality and quantity. “Regardless of the source or location we have to make it our responsibility that the waters we are having in this country are of good quality for drinking”. Those were the words of one of the key informants. The result of the voting on water for drinking is an indicator of the strong laws and policies relating to water resources management in this country. The Water Policy 1999, the Water Action Plan 1995, the Water Statute 1995 and the Water Act Cap 152 all form coherent framework for the development and management of the nations vital water resources and clean water to citizens (MWLE 1999). Most of them said that the issues that they look critically in EIA for Hydropower project is that concerning water quality.

When asked about the Bujagali project, the majorities were convinced that the EIA was satisfactorily done. The project developers have also taken initiative to erect some boreholes

for the affected communities to provide them with clean source of drinking water. This is because the project area has now been fenced to allow work to kick off. The communities who have been denied access to the river by the fencing and those for whom the access road is passing through their land now have six boreholes in operation.

4.3.2 Water for energy and industrial production

Using the water of river Nile for the purpose of hydropower generation and industrial purposes came second. From the discussion during interviews the motivating factors recognized for this ranking was the fact that there are so many identified sites along the Ugandan part of the Nile. Countries of the developed world like Sweden, Spain to mention but a few have been cited as those who have developed and explored most of their Hydro sites and are well off with energy. Of the potential sites along the Nile in Uganda, only the Nalobaale and its extension Kirra are in operation. The rest of the sites are still idle and this has a direct bearing on the life of Ugandans. "For example, one of the gateway to eliminate the current power crises, boost industrial, economic and social development, create employment and minimize the problem of degrading the environment by using biomass for energy is by developing these sites as soon as is possible" said a key government figure.

NAPE as a pressure group and one of those opposing the Bujagali project, justifies their course of action in the name of environmental protection and fighting for the interest of the civil society. However, when the other stakeholders were asked about NAPE, their answers summarized to: "NAPE is an NGO representing foreign interests who are their financiers. They make claims and allegations but never given realistic options to solve the problems at hand. They are therefore like comedians exciting the masses to buy time for their existence".

4.3.3 Water for agriculture

The use of water to support agricultural production was recognized as third priority. Most stakeholders are eager to see that the water of the Nile starts being tapped for irrigation. They pointed out the fact that one of the reasons for low agricultural productivity in Uganda is unpredictability of rain. It is true that rain-fed agriculture is totally at the mercy of nature. Some times there is too much rain within a short time and other times there is too little. Whatever the case, this is bound to affect crop yield negatively and hence lowering productivity. Uganda's population is also rapidly growing which in itself is also a motivating factor for irrigation. Motivations for irrigation were centered on the need to increase crop production to feed the growing population. A number of approaches to achieve this were cited example, by increased use of chemical fertilizers, pesticides and irrigation among others. But the use of agricultural chemicals was criticized most of the time due to their negative environmental and economic implications, which made irrigation the most favored.

On the other hand, a few expressed concerns and fear that abstraction of the Nile water for irrigation might trigger conflicts with the downstream countries. This fear is part of the reasons that only 3 people ranked water for agriculture as their first priority whereas 10 gave their first priority vote to energy and industrial production.

4.3.4 Water for environment

In this study water for a healthy environment has been used to include water for a healthy ecosystem, fisheries, tourism and water for recreation. It is always easy to quantify or

translate water use for other activities or from other sectors into economic terms. But it is not easy to do the same, when it comes to water use for a healthy environment. Moreover, a good number of the stakeholders based their ranking on the tangible or easily recognizable benefits of water allocation. No wonder, water for environment scored a third place in majority ranking. It therefore suggests that there exist a gap between knowledge on the existing laws and regulations and the free will to enforce the laws and regulations relating to environmental protection and water resources management. This has been evident in the negative attitudes and biases of stakeholders in ranking water for a healthy environment. Stakeholders are reluctant to acknowledge the importance of water allocation for the environment. The bottom line is that accepting responsibilities for the enforcement of such laws and regulation faces bottleneck, which intern hikes associated risks. In my own analysis, should there be a problem of water scarcity in this country as it already is in some watersheds, the environmental aspect of water use may not even surface in decision makings. One of the millennium development goals that Uganda is also working towards is “to ensure environmental sustainability”. However, we shall not be able to achieve this goal unless we start rethinking about our environment and using critical analysis in tradeoffs.

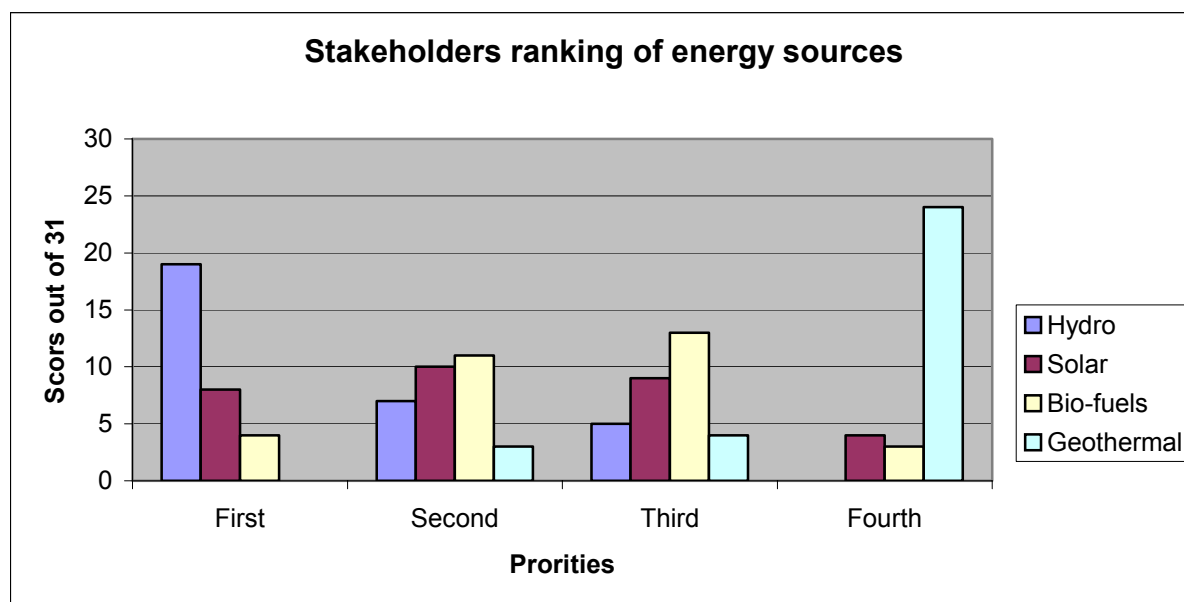


Figure 4: Stakeholder’s ranking of energy sources.

As can be seen from the figure above, there were mixed opinions on the energy source that stakeholders felt would meet the energy need of the rural poor, have a positive impact on the economy, be culturally and environmentally friendly and above all be sustainable in this challenging world of global warming and climate change. However, one thing came out clear in this exercise, i.e. mostly those key informants who ranked water for industrial and energy production as their first priority were also those who were in favor of hydropower development especially, (large hydropower projects like Bujagali). 19 of the 31 key informants ranked hydropower as their number one priority. 7 and 5 preferred it in second and third places respectively and none of the stakeholders’ ranked hydropower in fourth place. Solar energy and bio-fuel were also very popular sources that stakeholders gave interesting

opinions on. For example, 8 people put solar energy as number one option, 10 preferred it in second place, 9 in third place and only 4 ranking it in fourth place. On the other hand, bio-fuel got 4 votes for first place option, 11 votes for second place, and 13 and 3 votes respectively for third and fourth priorities. Of the four alternative sources considered above, geothermal was the most unpopular. No stakeholder could afford to rank geothermal as a number one energy source for consideration. Trickling 3 and 4 votes came in favor of geothermal for second and third places respectively. Amazingly, the remaining 24 people gave their last option votes in favor of geothermal.

4.3.5 Justification of Hydropower

Opinions on hydropower were split into two main categories. The first category came from those in favor of large hydropower project. This category looks at industrial and technological development as the major drivers of a positive economic change and modernization. They, therefore, strongly feel that a move towards large hydropower projects like Bujagali, Karuma and the likes is what is needed in Uganda now. According to this group, large hydropower project will significantly boost electricity generation. This will attract many large investors into the country, create jobs, and improve the socio-economic situations and the quality of lives of Ugandans. When asked about what impacts such a development would have on the rural poor, one of the key informants analyzed the context as below.

“We are talking of an investment that lasts at least fifty years from time of commissioning. Assuming we make all conditions for technological and industrial development favorable today, how many Ugandans do you think would still be living in the rural areas in the next fifty years? Hint, look at the demographic situations of the western world and remember that they were once where we are today!”

Others supported their views that employment and urban center should be the main concern. This is because the nature of African way of living is that there is (are a few) a bread earner(s) for every family. These bread earners mostly live and work in urban places. Making their lives better would mean extending the benefits to their dependants.

On the other side of the coin, there are those who have a totally different opinion on hydropower development. They are more in favor of mini and micro hydropower plants. Their strategy as they presume is oriented towards a more realistic approach to extend energy supply to the rural population. Unlike the large hydropower sites, which are concentrated along the Nile river, the mini and micro sites are scattered all-round the country. More to that, their investment costs are well below those for large projects. One person in this category was optimistic that a project like Bujagali requires an investment costs that would otherwise accomplish more than ten mini hydro projects. Here, they acknowledge the effort of the government in support for mini and micro hydropower development. However, there is a feeling that this effort is not enough. According to their understanding, if the effort is towards rural electrification and poverty eradication as it is normally claimed, then this approach is worth full-scale support.

4.3.6 Justification of solar energy

All the stakeholders favored solar energy. The reasons that they gave in support for solar energy were because it has no negative environmental impacts, has relatively low investment and running costs, is a simple and portable technology, not threaten by fear of climate change, and above all the fact that Uganda receives 6-8 hours of sunshine's everyday throughout the

year. They said solar energy suits both rural and urban settings. In the rural context electricity is mostly used for lighting and other light-duty activities. This is exactly within the limitation of solar energy. On the other hand, those living in urban areas could use solar as a supplement to electricity from the national grid. In such a case, the national grid supply would be used during off-peak seasons. If combined with the culture of energy savings, such a development would lead to low energy bills and a saving on people's income. The drawbacks of solar were stressed and that is why it could not out-compete hydropower. These drawbacks include inability to run big industrial and hospital machines.

4.3.7 Justification of Bio-fuel

Like in many of African countries, there are reasons to believe that bio-fuel has a very promising future in Uganda. A few stakeholders who ranked it first, second or third had very strong backing for their ranking. Their supports have got both urban and rural sides. What came out very clear were the hopes for bio-fuel success in the urban and peri-urban areas. In this field of view, stakeholders mostly acknowledge that if it were possible to set up a bio-fuel production plant in Mpererwe-Kitezi for example, it would play a big role in cleaning up the city of Kampala. Mpererwe-Kitezi is the major dumping grounds for all solid wastes generated in Kampala city and its suburbs. It receives 400-500 tones of waste per day, and the site operates everyday throughout the year (KCC 2006). Here stakeholders were only concerned about the organic waste generation in Kampala and other major towns in Uganda. But still they clearly pointed out that the organic waste that has become a major problem of the major towns of Uganda could actually be turned into useful resources. Solid wastes are problems in all major towns of Uganda.

Much as they were very positive about the possible success of bio-fuel in urban settings, they were equally reserved about the future and role of bio-fuel in the rural areas. Due to the researcher's special interest in this subject, the role and possible success of bio-fuel in rural settings has been elaborated more under *looking ahead*. Some of the stumbling blocks that they were able to put to light in regard to bio-fuel development encompassed the technical knowledge for its production, market arenas in relation to fossil fuels and that it can frustrate efforts towards food security. Here some stakeholders pointed out that fossil fuel already has a very stable market. To them there is no way bio-fuel can come to replace fossil fuels and the associated technology. Besides, bio-fuel ranked low because many believe that this is a new area, which still requires a lot of research. But what they missed out is the concern about hitting oil peak and the environmental impacts of fossil fuels. Efforts in the developed world are being centered towards bio-fuels because it is friendly to the environment and it is renewable and because we may run out of oil in the near future.

4.3.8 Justification of Geothermal

Geothermal energy source is the least favored among stakeholder's choices. It is looked at as a source, which does not need a lot of attention at this point in time. Current study reveals that the potential of geothermal in Uganda is not as high as was assumed by early studies and that only about 40 MW of this source can be developed economically, based on present knowledge (PPA 2007). The sites are also only found in the western rift valley so it is unevenly distributed. But since it is a clean source of energy, stakeholders have considered it as an important source for the future. This possibly explains why only 3 and 4 key informants ranked it second and third choices while the others (24) ranked it as fourth choice.

4.4. Balancing conflicts and tradeoffs

4.4.1 In water allocation

There were evidently a lot of conflicting interests regarding water allocations. The conflicts mainly centered on water for Agriculture, water for Energy and Industrial production and to a lesser extend that for the Environment. Some of the conflicts were basically sectors oriented while others were based on radical thinking and viewpoints. It was not so much of a problem to allocate water for drinking as first priority. But still some key informants felt that if we are focusing on the water of the Nile for example, then drinking water should not take first priority. They argue that most people do not get their drinking water directly from the river. Instead, they do so from tributaries and swamps, thereby making it not worthy to be given first priority allocation. This explains why there were only 17 out of the 31 key informants who gave it first place allocation.

Having eliminated water for drinking as first priority, the core of the problem now came on the second third and fourth priorities ranking. Some individuals felt that there should even be no second third or fourth priority. Whereas from the industrial sector, representatives of some ministries and some individuals, their stand were clear. According to them, if water for energy and industrial production must not be given first priority, then there is only one option left for it and that is second place. The thinking here is that industrial sector is showing a very promising growth and is turning to be the real engine of economic development in this country. If this growth should be encouraged, then the only key is through increased water allocation for industrial uses and energy generation. *“If Uganda should ever be transformed into a middle class economy (framework for the PEAP), then the fastest and safest vehicle is through increased water allocation for industrial and energy production. Energy is the driver for most of the socio-economic activities and a sure road to poverty eradication and better life standard”* their statements summarized.

On the other hand, the key informants from agricultural sector and some politicians also took a stand that water for agriculture should be given second priority ranking. They feel that the agricultural sector is the one sector that has a direct bearing on the livelihoods of the poor. It is the main source of employment, which does not segregate between the literates and the illiterates. Above all, it is the source of food security for families and the nation at large. Therefore, increasing water allocation to this sector is a mean of increasing food security, achieving the PEAP in the local context and the MDG 1 “eradicate extreme poverty and hunger” in a global perspective. This is true but what about the environmental aspect of water abstractions? The MDG 7 “ensure environmental sustainability” is equally important as goal 1. The disaster of the Aral Sea should be an unfortunate example that the world should learn from. In the context of Uganda, our thinking of water for irrigation should focus on adoption of cheap and simple technology like rainwater harvesting other than water abstraction from rivers and lakes. We should start looking at the benefits of environmental flows. The bias that still exist in the minds of many that water allocation for a healthy environment should come last in discussions have to be abolished. In that way we shall not be in loggerheads with any of the MDGs and still be able to meet the PEAP and the Vision 2025.

4.4.2 In energy sources choice

There is absolutely no doubt why hydropower was the most popular choice of the key informants. They have given the motivating factors for their choices as elaborated above.

Looking at the bigger picture, Uganda is one of the most blessed African countries when it comes to hydropower resources. MEMD estimates the total country potential of hydropower in Uganda to be well over 2,000 MW. This potential consists of large scale, mini and micro hydropower sites. The large-scale hydropower sites are mostly concentrated along the Uganda part of the River Nile whereas the mini and micro hydropower sites are scattered all around the country. Currently, the installed capacity along the Nile stands at 300 MW and this is entirely from the two power stations (Nalubaale and Kirra) respectively. One way of ensuring equitable energy development and supply is truly by considering these hydro sites.

A handful of the stakeholders emphasized the need to consider all renewable sources of energy as being important. They have a feeling that focusing full attention to only large-scale hydropower, as being advocated for by some stakeholders is a suicide mission. According to them, a move of that kind will create a big (energy poverty) gap, between the rural and urban population, in the socio-economic and the standard of living of the poor and the rich, and not withstanding the fact that it may become a driving force for environmental degradation as the poor will not have any options apart from surviving on biomass to meet their energy needs. To raise dust on a rainy day, it will be seen as the failure of the state to execute its duty of protecting the rights of its citizens and the provision of basic social services. Here some of the key informants have given credit to the current government in its effort to diversify energy sources. The government has transformed the energy sector through energy sub-sector reforms with main focus on renewable energy development, rural electrification program and by encouraging investment from private sectors into the energy sector. It has also created a rural electrification fund forum, aimed at generating funds to facilitate generation and supply of electricity into the rural areas. This statement however, need not be taken to mean thank you government for the job well done. It is more to say the government is looking in the right direction and should go an extra mile. One way could be, for example, by considering the *looking ahead* given on bio-fuel.

4.5. Challenges and controversies in the Bujagali Project:

The challenges in the Bujagali project are so many. Some of them are a result of lack of current knowledge concerning climate change and hydrological risks on the water resources of Lake Victoria and the River Nile. Others are due to a number of reasons including poor communication, misrepresentation, lack of transparency, and project delay, etc. There has also been no public pressure to demand for EIA except from the few pressure groups NGOs. This study has here below, looked into some of the most important challenges/controversies. They include trans-boundary issues, climate change and hydrological risks, which also include (causes of) declining water level of Lake Victoria, and finally, project costs, electricity demand, supply and affordability.

4.5.1 Trans-boundary issues

One of the biggest challenges that Uganda faces in any hydraulic infrastructure development along the Nile is the trans-boundary nature of the Nile. Most important of all is the challenge imposed by the so-called Agreed Curve. The “Agreed Curve” is the adopted water release policy, which ensures that the releases through the dam correspond to the natural flow of the river Nile before the Jinja dam was constructed in 1954. It was adapted by the British and Egyptian governments to guarantee that water is released from Lake Victoria at Jinja for downstream users, as was the case without the dam, thereby following a natural trend.

The Agreed Curve, sometimes referred to as the flow duration curve, is a very technical term that many Ugandans do not understand. From the interaction that I have had with some of the stakeholders during my field survey, it was clear that many of them take this curve as the maximum allowable quantity of water to be released at any one time from the two power stations Kirra and Nalubaale. But the curve need not necessarily be used to mean maximum agreeable quantity of water to be released as a technical source from one of the ministry explained. The only tricky thing with the curve is that it should mimic natural trend. Moreover, the quantity of water released from the power stations in Uganda does not count so much for the down stream communities especially, the Egyptians as most of the White Nile flow from Uganda get lost by evaporation in Sudan.

To date, there has not been any comment/statement from the Egyptian government as pertains the violation of the Curve. Egypt has also made it categorically clear in writing that Ugandan government should go ahead with the Bujagali project as long as the project is not intended for water abstraction (NEMA 2006). Perhaps mostly those who are against the Bujagali project are the ones using the term. If anything, the Egyptian government should even be happier when water is released above the curve. The hydrological risk, which is associated with the aspect of over release above the Agreed Curve, is the impact on the downstream eco-system. If the natural flow is violated by over-release, the down stream eco-systems may be forced to adjust to a flood like situation. On the other hand, if the Agreed Curve is adhered to when the lake and its tributaries are experiencing floods, it might as well lead to flooding downstream. This is bound to cause a tremendous change in habitat and species diversity, which will have remarkable impacts on the livelihood of the people living downstream.

But who actually agreed on the Agreed Curve? It is a known fact that no single Ugandan agreed on the so-called Agreed Curve (NEMA 2006). The British and Egyptian government agreed upon this curve. Therefore, it was rather meant to serve the colonial interest but not that of Uganda. According to some hydrologists and water managers in Uganda, the Agreed Curve has never been a good tool for the management of the Nile and the lake at large. This old policy has for long given Egypt the monopoly use of the water of the Nile at the expense of the upstream countries. The underlying assumption used when determining the Agreed Curve and in the signing of the many treaties between Egypt and Britain was that the upper riparian states were more climatically favored areas and did not need the water from the Nile for irrigation since they could depend on rain-fed agriculture (Appendix B.1. AESNP Hydropower Facility EIA, March 2001). The following examples, extracted from the same source throws more light on some of the treaties.

The treaty of 15th May, 1902 between the UK (acting for Egypt and the Sudan) and Ethiopia defined the boundaries of the Sudan and other British possessions bordering on the Ethiopia and, in addition, obligated Ethiopia not to construct any works on the Blue Nile, Lake Tsana and the Sobat which, would arrest their flow into the Nile except with the Agreement of the UK and the Government of the Sudan. The treaty of 09th May 1906 between the UK and the Independent State of Congo redefined the spheres of influence of the parties and included a provision whereby the Congo undertook not to construct any works on the Semiliki of Isango River which would diminish the volume of water entering Lake Albert except on Agreement with the Sudanese Government.

In recent time, the Nile riparian states started negotiations through NBI to ensure benefits sharing and a more equitable utilization of the Nile water resources. But so far, the negotiation

has not delivered any final agreement on these matters.

The trans-boundary technicality is also believed to be one of the reasons for the delay to get approval for the Bujagali project from the World Bank. This is because of the very influential position of Egypt in the Bank. Experts who represent Uganda on trans-boundary issues have noted that the Egyptian government is having the highest number of water experts in such negotiations. As if that is not enough, they have also posted their own people in most of the high-ranking international positions dealing with water and sanitation around the world. As a result they are the ones who mostly represent Africa in the international arenas. So, once they oppose any project along the Nile, it becomes almost impossible to secure the finance for that project from the World Bank. This also, most likely, reflects Egypt's greater strategic interest for USA-the greatest shareholder and hence most influential member of the World Bank.

4.5.2 Climate change and Hydrological risks

Recently, the East African region has witnessed threatening falling water levels of Lake Victoria, the source of their livelihoods. The water level of 10.89 m as of the 9th September 2005 was reported as being below normal and the lowest level since September 1961 (UNEP 2006). As if hitting historical record was not enough, the water level continued to decline to 10.48 m by the 26th February 2006 where it again rose to 10.92 m by the 1st June 2006 and then dropped steadily to the lowest record of 10.40 m as of 25th October 2006 (Eskom 2007). Note, water levels here reflect the elevation of Lake Victoria with reference to gauge reading at Jinja.

Due to the falling water levels, a number of sectors in Kenya, Tanzania and Uganda have been hit. The diminishing water level has limited the amount of water that could otherwise be available for hydropower generation from the Kirra and Nalubaale power stations in Uganda. The power crisis has indirectly affected the other sectors and in a broader sense retarded the overall economic development in Uganda. In Tanzania, the quantity of urban water supply had to be scaled down, quantities of goods to be transported by ships had to reduce and bigger ships had to be grounded (NAPE 2006). Similar problems were faced in Kenya. Moreover, the problems do not only restrict to these three countries. Phoon et al (2004) noted that Lake Victoria faced abrupt level fluctuation and anomalous hydrological behavior, which in turn affects the Nile flow. They went ahead to stress that changes in the lake water balance would have far-reaching consequences on the downstream countries (Egypt and Sudan), which are dependent on the Nile water resources. The fact that the Nile transverse through Uganda, makes Uganda not an exception from the situations experienced by the other downstream countries.

4.5.3 Causes of the declining water levels

A number of questions have been raised to try to find answers to the causes of the falling water levels of Lake Victoria. Many individuals and some NGOs have given their opinion and answers, mostly pointing accusing fingers at Uganda. Daniel Kull, a hydrological engineer based in Nairobi Kenya, for example, published an article in 2006 titled "The Connection between Recent Water Level Drops in Lake Victoria, Dam operations and Drought". In this article he puts the blame of the falling water level exclusively on the operations of the Kirra and Nalubaale power stations. He estimated that the power stations were responsible for 55% of the drop in lake level and that drought accounted for 45%. As cited by Mubiru (2006), the

media alike joined the arena to spread the gospel by publishing articles in the local newspapers with headlines like “Uganda Draining Lake Victoria” (New Vision 10th Feb 2006), “Uganda over-draining lake Victoria” (Daily Monitor 10th Feb 2006), “the Culprits in lake Victoria drop” (Daily monitor 6th March 2006). Many more interesting headlines kept coming on this subject example, “Pulling the plug on Lake Victoria, Drought aside, Lake Victoria is being sacrificed for the sake of energy”, by Samuel Waweru of Sustainable Development Issues Network (SDIN) Volume 6 Issue 2 Feb 2006.

It is true that the operation of the power stations in Uganda must have had a hand in the falling water levels of Lake Victoria. But is it really worth pointing all fingers at one cause? Are there other factors in play not being talked about? Are we just focusing on the power stations because they are easy and soft targets to pin out? Surely, there seems to be factors in the equation that we are assuming to be negligible when they actually are not! The current research works on lake Victoria basin have focused on the pollution of the Lake Victoria due to human activities (Mwanuzi et al 2003, Kishe and Machiwa 2003, Phoon et al 2004), fisheries and biodiversities of the Lake (Goudsward et al 2002, Geheb and Grean 2003), and wetland management (Kassenga 1997). Phoon et al (2004) stressed that there are only a few research studies exploring the impacts of climate change on the hydrological regime of Lake Victoria.

Other schools of thoughts explaining the causes of the declining water levels of lake Victoria include among others drought, deforestation, encroachment on wetlands and environmentally defective policies (Mubiru 2006). Yin and Nicholson carried out a very extensive scientific work in 1998, where they applied a mathematical (hydrological model) expression that summarizes the factors in the inputs and outputs water balance of Lake Victoria. The expression is given here below.

$$\Delta H = P_w + \text{Inflow} - (E_w + \text{Outflow})$$

Where:

ΔH = Change in Lake level

P_w = Input to the Lake via rainfall

E_w = Lake evaporation

Inflow = Input to the lake from the 17 tributaries

Outflow = Outflow via the With Nile at Jinja

4.5.4 Lake Evaporation and climate change

From the above expression, Yin and Nicholson estimated that evaporation from the lake varies between 1370 mm to 1600. Phoon et al (2004) suggested that the above estimates show that annual evaporation is more or less equal to annual rainfall in the lake making it very interesting when assessing the impacts of climate change. They also noted that “the diurnal cycle of cloudiness is quite different over the lake than at the shorelines stations and the total cloud cover over the lake is probably lower than at these stations, a change from 50% cloudiness to 30% can increase evaporation by about 30%”. According to Mubiru (2006), based on the above observation, it is clear that making the assumption that evaporation remains constant as Kull did, would lead to gross underestimation of its impact on the water balance. He continued to observe that the years 2004-2005 was dry and in such dry conditions, wind speed and surface temperatures are likely to be high and cloud cover over the lake likely to have been low resulting in higher evaporation and hence, having a bigger

impact on the lake level. Similarly, Nicholson (1998) showed that about 90% of the inputs water of Lake Victoria is lost by evaporation, which makes it a very sensitive indicator for climate, change (Phoon et al 2004). The lake enormous size of approximately 68,800 km² compared to the large watershed of about 200,000 km² and its sensitivity to rainfall (Nicholson and Yin 2001) makes its former levels representative of climate variability over much of the equatorial East Africa (Stager et al 2005).

4.5.5 Outflow via the Nile

There are many available data on Lake Victoria outflow via the White Nile at Jinja. According to Phoon et al (2004), the out flow of Lake Victoria via Jinja is probably “the most accurately known component of the water balance” (quoting Yin and Nicholson 1998) as it holds records of discharge for more than a century. To clear the doubt that overshooting the Agreed Curve is the sole reason for the witnessed drop in Lake Victoria water level, Mubiru (2006), compared the average outflow, which occurred during the period 2001-2005 with the average outflow from the period 1962 to 2000. He found that the average outflow for the period 1962 to 2000 and that for the 2001 to 2005 were 1164 m³/sec and 1156 m³/sec respectively. He, however, acknowledged that variation the in ratio of Agreed Curve component to the excess release component has been a function of the lake level even though, the total outflow remained within the 1962 to 2000 range. This led him to calculate the average outflow for the period 2004 and 2005, which he compared with the forty years average. “For the two years 2004 and 2005 the average outflow was 1,252 m³/sec, 88 m³/sec (7.6%) above the 40 year average,” he stated. From this point he concluded that the above deviation resulted into an estimated drop in lake level of 8.3cm with over release accounting for 3.6 cm drop, implying that the 2004 and 2005 lake level drop cannot be explained by overshooting the Agreed Curve. Furthermore, NAPE (2006) also calculated and found that the drop in lake level due to natural causes i.e. evaporation and flow due to Agreed Curve accounted for 96.32 % whereas excess release only accounted for about 3.65 %.

4.5.6 Inputs to the lake

To understand the motivating factors behind the Lake level fluctuations, Mistry and Conway (2003) studied the climatological factors associated with the rise and fall of the lake level. Their finding indicated that there is a significant correlation between the lake rainfall series and the lake level (Phoon et al 2004). The major source of input water into Lake Victoria is from direct precipitation. Nicholson (1998) suggested that the inflow into Lake Victoria from its 17 tributaries only account for about 13%. The fact that there has been a prolonged drought in the region recently means water recharge into the lake through direct precipitation; from its tributaries or even ground water recharge has been hampered. The table below taken from the Bujagali II – Economic and Financial Evaluation Study Final Report (2007) shows the variation in recent Net Basin Supply (NBS) compared to long-term average.

Table 2: Variations in recent Net Basin Supply (NBS) compared to long-term average, Source: PPA, 2007

Period	NBS Million m ³ /year	NBS (m ³ /sec)	% Of long term NBS
Long term Mean 1900-2005	27,338	867	9 100%
2003	21,839	693	80%
2004	14,526	461	53%
2005	967	31	4%

It can be seen from the table (Figure 6) above that there has been a tremendous decrease in net basin supply from the year 2003 to 2005. Comparing with long-term average, in 2003 the net basin supply was 21,839, which represented 80% of the long-term average. Whereas, in 2004 the net basin supply was 14,526 and this represented 53% of long-term average. However, in 2005 the net basin supply reduced drastically from the 2004 value of 14,526 to 967, representing only 4% of the long-term average. This indicates that there was barely any water to recharge the lake from its tributaries. According to the Bujagali II – Economic and Financial Evaluation Study Final Report (2007), in 2005 the NBS was so low (31 m³/s) that, even if no water had been released, the lake level would still have increased only by one centimeter during the whole of 2005.

There is a saying that 'history is the best teacher,' when it comes to the lake level fluctuation, it needs to be understood from history. Lake Victoria water level has never been constant as seen from (Figure 7) below. Since 1800 to date, the lake water levels have been fluctuating with periods of low level and periods of high level. Figure 7 should tell us that, it is not the operation of the PowerStation or the Agreed Curve violation that is leading to the falling water level of Lake Victoria.

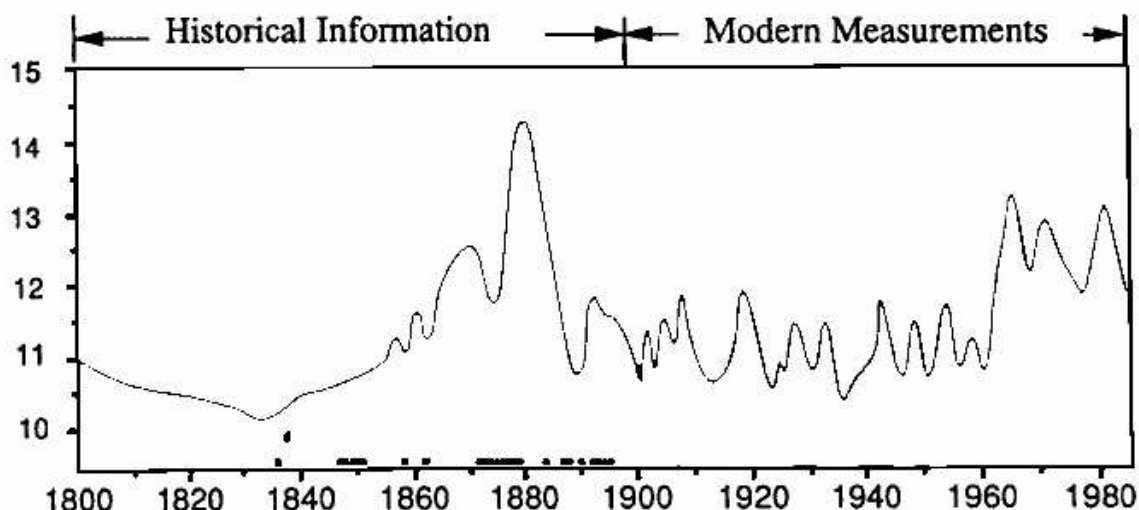


Figure 5: Historical water levels of Lake Victoria, source: Nicholson, 1998

4.5.7 Project costs, electricity demand, supply and affordability

The project costs, electricity demand, supply and affordability have for long been subjects of intense debate among some groups of stakeholders. In 2006 the International Finance Corporation (IFC) appointed Power Planning Associate (PPA) to evaluate the economic viability of the Bujagali II project taking into account economic, financial, social and

environmental aspects. In their analysis special attention was paid to

- demand forecast incorporation into the Gross Domestic Product (GDP) estimates and assumptions of future levels of technical and commercial losses.
- the hydrology of Lake Victoria in relation to the Nile outflow and development of potential future hydrological scenarios both for the short and medium term.

The evaluation of PPA revealed that the Bujagali project will have a significant contribution to the economy, electrical supply, demand and affordability and that climate change is not likely to affect the hydrology of the lake to the extent that will make operation of the Bujagali uneconomical. The PPA also supported that Bujagali was the most cost-effective alternative compared to Karuma.

On the other side of the curtain, Tsournos (2007) on request of the IRN analyzed the report of PPA against the two main teams,

- does the report satisfactorily answer the question: “Can Bujagali operate economically during times of low water without more over-released from Lake Victoria?”
- what would be the economic implications of following the Agreed Curve (or is this information not be extracted from the report)?

His analysis summarized the shortcomings of the PPA’s report that; (a) it was based on constant release of water other than following the Agreed Curve, (b) the economic analysis was based on the lake level observed in the last 100 years other than on the recently observed low lake level, and (c) that the report suggested that climate change will not have appreciable change on the lake’s level during the project life time. He concludes 搠enerally speaking, if the operation rule of Lake Victoria is to be restricted to the Agreed Curve, then the estimated benefits of the Bujagali is overestimated, and especially if climate change has a grater impact on the Nile outflow than the report acknowledges_ (Tsournos 2007 p. 2)

The Bujagali hydropower project costs is now estimated to be US \$ 860 million and still expected to rise further due to exchange rates, if a fresh EIA should be carried out, as some stakeholders are demanding etc. It is a characteristic of most if not all mega projects that there are always problems of costs overruns. Interestingly, costs overruns of a project normally go hand in hand with lower than estimated revenue/benefits. When analyzing the irony of mega project paradox, Flyvbjerg et al (2003) noted that more and more of such projects are being built around the world today, despite the poor performance records of many. “At the US \$ 860 million, the costs per megawatt of constructing Bujagali will be US \$ 3.44 million/MW for the 250MW capacity, yet it is clear that the project is unable to generate to capacity (NAPE 2007 p.3)”. If that is true then it is also most likely true that, much as the Bujagali project will have some positive impact, alone, it will not be the ultimate solution to the problem of demand, supply and affordability of electricity. In addition to that, the currently estimated high cost of investment per megawatt itself makes it unaffordable for most of the poor Ugandans.

NAPE (2007) also compared the project with the Three Gorges Dam, the world’s largest

hydropower project in China, which involved the displacement of over 1.3 million people and only costed US\$ 1.34 million/MW. While interacting with the key informants, the question posed to them was why has the cost of the Bujagali project gone that high? Their answers lingered around delay of the project to kick-off, high cost of compensation and construction materials, and exchange rate problems. But it could also be true that the Bujagali case is like the Øersund project, the world largest cross-national infrastructure project that links Sweden and Denmark and connects Sweden and Norway with continental Europe.

“When the minister of transport proposed the Øersund law to the Danish Parliament on 2nd may 1991, it was told that in terms of forecast viability, the project would create net revenues of DDK 50 million per year. However, the Auditor-General of Denmark later found that internally in the ministry, in the months prior to proposing the law to the parliament, four appraisal of viability had shown the project to be non-viable that is revenues did not cover costs over a required 30-years payback period. Neither were these appraisals nor was information about them made available to the Parliament when it made its decision regarding Øersund” (Flyvbjerg et al 2003 p. 36)

5. Conclusion and Recommendations

5.1.0 Conclusion

The aim of this study has been to gain a better understanding of the issues relating to water resources management in connection to hydropower infrastructure development along the Nile River in Uganda and the involvement of the various stakeholders in this process, focusing on the Bujagali project as a case study

This study acknowledges that, even though there may be weaknesses here and there, the current institutional setting, laws and regulations governing water resources management in relation to hydropower infrastructure development in Uganda are good. The institutions are arranged in a top-down manner, but the management is intended to be bottom-top approach. At current ministry of water and environment, and more specifically its organ DWD, is working to ensure capacity building among the different institutions and ministries so as to allow for sustainable bottom-top management of water resources.

Concerning the current state of hydropower development along the Nile River in Uganda, the problem seems to be concentrated on a few areas. Obviously, there is very poor conflicts management among the various stakeholder groups. They have conflicting interests and in some cases disproportional risks and responsibilities yet, management strategies to overcome and avoid conflicts are very minimal. In the Bujagali case, collaboration (win/win) situation is zero. To a limited extent there has been compromise (win some/lose some) situations, for example the PAP said that compensation was not fair, but still they were very positive for the project. The government is perusing its own agenda for development without or with little transparency, whereas the anti Bujagali team are doing everything to block it. The situation has become very competitive and clearly a win/lose one as the avoidance (lose/lose), i.e. the 'do nothing to the Bujagali,' is no longer an option.

Power struggles, abuse of office, manipulations and political differences have also not been separate variables of the equation. With the intention to block the project, there has been/are serious misrepresentation of the state of the affair especially by NGOs (B) and other parties. In modern time, using the name of the PAP, local communities and civil society in large development projects like Bujagali tend to quickly capture attention of audience irrespective of the intended purpose. It is however not clear that those who claim to be fighting for the rights and interests of these groups are doing so in good faith.

Another point of capturing attention is also from the environmental protection point of view. Uganda has been carrying the blame for the falling water levels of Lake Victoria, which is connected to the operation of the Kirra and Nalubaale power stations and the violation of the Agreed Curve. Considering the graph in Figure 7 above and many other historical data, it is not surprising that we have witnessed lower water levels of Lake Victoria recently. First of all, history tells us that this has happened many times before. Second, it is not worth making lullabies of the falling water levels in the name of the operations of the Kirra and Nalubaale power stations or the violation of the Agreed Curve. Lower water levels were observed between 1800-1860 and between 1885-1960, with levels close to 10 m in 1834 and 10.5 m in 1935 respectively. Were the Kirra and Nalubaale power stations in operation by then? Or was the Agreed Curve being violated?

It is acknowledged here that the operation of the power stations and violation the Agreed

Curve are factors that are contributing to the falling water level. However, this study has revealed that the anti dam lobby is over magnifying these two factors and many others discussed above, to change the face value of hydropower infrastructure development in Uganda to suit their own taste. In all their arguments, they apportion very little blame on the recent drought that affected the East African region from 2004 to 2006. This is not only unfair to Uganda, but it is also dangerous for all the Lake Victoria basin countries as their attention might be diverted from digging into and dealing with the real problems that threaten the existence/survival of the lake and the lives that it supports.

5.1.1 Recommendations

There is a need to develop a mechanism that allows for increased transparency and trust building among the stakeholders. This calls for a conflict management strategy to be developed. In doing so, it is important that proper sharing and coordination of information be facilitated in order to increase awareness. Consensus building and negotiation take time and consensus cannot be forced. It requires capacity to listen as well as to speak, something that stakeholders need to have at heart.

There is also a need to separate good political and or political differences from bad ones when dealing with national development issues, especially when it comes to hydropower infrastructure development. These are huge investments that last for decades. They directly or indirectly touch the life of every citizen. The politician will not be there tomorrow or at least not in office, but the price for their wrong choices will still be paid for even by future generations.

Lake Victoria and its tributaries are under serious pressure from the rapidly growing population in its basin. Instead of diverting attention from the real problem of Lake Victoria through power struggle (fighting for space), misrepresentation and selfish interests, there is a need to stand up and face the problems now.

No single source of energy is the solution to the energy poverty in Uganda. For the energy sector of Uganda to develop on a solid foundation, all renewable energy sources should be considered important. Development strategy should aim at orienting the country towards an energy mix environment. Small and mini-scale projects should as well be considered seriously. This is to avoid putting all eggs in one basket of mega-projects. Small and medium-scale project will bring electricity closer to people, regional production for regional consumption and avoids costly transmission networks.

5.1.2 Looking ahead

Having stressed that Uganda needs to develop her energy resources and that hydropower alone is not enough, an interesting area for future research could be on bio-fuel. If properly studied and considered for development as supplement to hydropower, bio-fuel could have multiple benefits to the country. Moreover, the motivation for bio-fuel development seems to be rooted in the PEAP and the Vision 2025. Thrust 3 & 4 of the Uganda's Poverty Eradication Action Plan (2001-2003), which builds on PEAP (1997) and the Vision (2025), emphasize the need for economic transformation, especially in agricultural sector to increase the ability of the poor to raise their income, and to enhance the quality of their life through promotion of better health, education, housing and other social services. Malena et al (2006) suggest

“While all nations and their farmers will benefit, poor countries stand to benefit most because they suffer disproportionately from the higher price of oil. By investing in bio-fuels, developing nations can produce their own domestic transportation fuel, cut their energy cost, create new jobs in their rural economies, and ultimately, build their export market. If developing nations convert part of their agricultural output to bio-fuel, they will be entering a market with higher prices and rising demand”

Encouraging bio-fuel production especially of biogas, bio-diesels and bio-ethanol can actually provide a turning point in poverty eradication in Uganda. Apart from bringing the associate benefits to the local farmers, bio-ethanol and bio-diesels can provide opportunity for Uganda to enter into the stable ethanol world market. The EU has a goal to replace 5.75% of all fuel used in transportation by bio-fuel by 2010, the US target is 30% replacement by 2030, Japan's target is 10% ethanol blending and other countries such as Australia and China are also following the same track. Yet, most of these countries are at a disadvantage because of higher costs of producing biomass as compared to Uganda and other developing countries. In his opening remark at the All-Africa conference (2004) president Museveni confirmed that there is a lot of land in Uganda and suggested that to eradicate poverty and hunger in Uganda, there is need for modernization of agriculture. This will require among other things capital and technology from both local and foreign investors. The other ingredient in the modernization of agriculture could be to increase value and market for energy crops abundantly produced in Uganda like maize, millet sorghum cassava, banana rice and the like, which can only be realized by encouraging bio-fuels production.

Finally, an element, which is still missing, or not being fully considered in the modernization of agriculture in Uganda, which can go hand in hand with bio-fuels production is the concept of water preservation. There is need to consider and encourage the production of drought resistance crop like cassava and water saving crop like sugar beets. *Tropical sugar beet* for example, is known to require less water, have shorter maturity period and a higher sugar and ethanol yield than sugarcane. Sugarcane production requires higher water inputs and its cultivation in Uganda have destroyed wetlands and natural forest, which is counter to the thrust 4 of Uganda's Poverty Eradication Action Plan (2001-2003). One of the reasons Uganda is among the countries in Africa facing food insecurity is drought (An All-Africa Conference, 2004). This is because farming in Uganda is largely rain-fed. Actually, agriculture activity on 93% of Africa's arable land is dependant on extremely erratic rainfall (ibid 2004). Hence, water not land is generally the scarce factor.

On the international arena, the potential to develop ethanol industry in Thailand was studied by Sriroth. K (et al 2003). Feed crops such as rice, maize cassava and sugarcane were considered as raw material. Cost and conversion ratio criterion were then used to evaluate the potential of each crop. Only cassava and sugarcane emerged as the most potential feed-crops. Environmental impact of cassava production was found to be negligible. Sugarcane showed a significant impact on the environment (green-house) effect due to cane burning. In Germany, a groundbreaking ceremony for the **fuel 21** plants took place on 21 September 2006 (Nordzucker adds new business segment). The new plant is targeted to produce 130m³ of bio-ethanol from October 2007. Operation will entirely run on raw material (raw juice and thick juice) from sugar beet. Immediate beneficiaries are the over 3200 farmers across northern Germany, who have signed sugar beet supply contract for the bio-ethanol plant. Other countries currently producing bio-ethanol from sugar beet include France, Poland and India. Senegal will soon start a bio-fuel production project with support from Brazil and India. The project is part of the government's plan to regenerate its rural economy and eventually replace

the country's daily consumption of 33000 barrels of oil (Africa research bulletin 17-203).

Peter Hazell et al (2006) examined the economic and social issues relating to bio-fuel development on a global scale. Development of bio-fuel in a country benefits that country directly by saving on energy import bill. The Brazil ethanol program (1975) has become a learning cove for bio-fuel development program worldwide Malena Sell et al (2006). Land availability and water are often cited as limiting factors to the success of bio-fuel (Kojima and Johnson 2006). Nyangabyaki and Frank (2003) reported that out of the total of 168,000 km² of arable land in Uganda, only 27% is currently utilized. Good roads and communication infrastructures go hand in hand with bio-fuels development. Uganda is currently addressing issues on infrastructure reform and development. It would be shooting two birds with one stone if bio-fuels could be integrated in this process.

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