

**Report No. 44977-UG**

**The Inspection Panel** 

**Investigation Report**

**Uganda: Private Power  
Generation (Bujagali)  
Project  
(Guarantee No. B0130-UG)**

**August 29, 2008**

## About the Panel

The Inspection Panel was created in September 1993 by the Board of Executive Directors of the World Bank to serve as an independent mechanism to ensure accountability in Bank operations with respect to its policies and procedures. The Inspection Panel is an instrument for groups of two or more private citizens who believe that they or their interests have been or could be harmed by Bank-financed activities to present their concerns through a Request for Inspection. In short, the Panel provides a link between the Bank and the people who are likely to be affected by the projects it finances.

Members of the Panel are selected “*on the basis of their ability to deal thoroughly and fairly with the request brought to them, their integrity and their independence from the Bank’s Management, and their exposure to developmental issues and to living conditions in developing countries.*”<sup>1</sup> The three-member Panel is empowered, subject to Board approval, to investigate problems that are alleged to have arisen as a result of the Bank having ignored its own operating policies and procedures.

### Processing Requests

After the Panel receives a Request for Inspection it is processed as follows:

- The Panel decides whether the Request is *prima facie* not barred from Panel consideration.
- The Panel registers the Request—a purely administrative procedure.
- The Panel sends the Request to Bank Management, which has 21 working days to respond to the allegations of the Requesters.
- The Panel then conducts a short 21 working-day assessment to determine the eligibility of the Requesters and the Request.
- If the Panel recommends an investigation, and the Board approves it, the Panel undertakes a full investigation, which is not time-bound.
- If the Panel does not recommend an investigation, the Board of Executive Directors may still instruct the Panel to conduct an investigation if warranted.
- Three days after the Board decides on whether or not an investigation should be carried out, the Panel’s Report (including the Request for Inspection and Management’s Response) is publicly available through the Panel’s website and Secretariat, the Bank’s Info Shop and the respective Bank Country Office.
- When the Panel completes an investigation, it sends its findings and conclusions on the matters alleged in the Request for Inspection to the Board as well as to Bank Management.
- The Bank Management then has six weeks to submit its recommendations to the Board on what actions the Bank would take in response to the Panel’s findings and conclusions.
- The Board then takes the final decision on what should be done based on the Panel’s findings and the Bank Management’s recommendations.
- Three days after the Board’s decision, the Panel’s Report and Management’s Recommendation are publicly available through the Panel’s website and Secretariat, the Bank’s Project website, the Bank’s Info Shop and the respective Bank Country Office.

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<sup>1</sup> IBRD Resolution No. 93-10; IDA Resolution No. 93-6.

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## **Maps**

IBRD 36274: Uganda – Private Power Generation (Bujagali) Project

IBRD 36276: Uganda – Private Power Generation (Bujagali) Project – Project Site

## Abbreviations and Acronyms

AESNP	AES Nile Power Corporation
AfDB	African Development Bank
APRAP	Assessment of Past Resettlement Activities and Action Plan
BEL	Bujagali Energy Limited
BIP	Bujagali Interconnection Project
BIU	Bujagali Implementation Unit
BNWPP	Bank-Netherlands Water Partnership Program
BP	Bank Procedures
BST	Bulk Supply Tariff
CDAP	Community Development Action Plan
CIDA	Canadian International Development Agency
CPMP	Cultural Properties Management Plan
CRMU	Compliance Review and Mediation Unit (CRMU) of the African Development Bank (AfDB)
DANIDA	Danish International Development Agency
DSP	Dam Safety Panel
DWD	Directorate of Water Development
EAP	Environmental Action Plan
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
EPC	Engineering, Procurement and Construction
EPRP	Emergency Preparedness and Response Plan
ERA	Electricity Regulatory Authority
ERT	Energy for Rural Transformation
ESMAP	Energy Strategy and Management Action Program
FIRRI	Fisheries Resources Research Institute (now known as National Fisheries Resources Research Institute-NAFIRRI)
GCM	General Circulation Models
GoU	Government of Uganda
HPP	Hydroelectric Power Plant
IA	Implementation Agreement
IBP	International Best Practice
IDA	International Development Association
IFC	International Finance Corporation
IOH	Institute of Hydrology of the United Kingdom
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Project
IUCN	World Conservation Union
LC	local government council representatives
LVEMP	Lake Victoria Environmental Management Project
MIGA	Multilateral Investment Guarantee Agency

NAPE	National Association of Professional Environmentalists
NBI	Nile Basin Initiative
NBTF	Nile Basin Trust Fund
NELSAP	Nile Equatorial Lakes Subsidiary Action Program
NGO	Nongovernmental organization
NPV	Net Present Value
OP	Operational Policy
PAD	Project Appraisal Document
PAP	Project Affected People
PCN	Project Concept Note
PCDP	Public Consultation and Disclosure Plan
PEAP	Poverty Eradication Action Plan
PPA	Power Purchase Agreement
PSDO	Power Sector Development Operation
RAP	Resettlement Action Plan
RCDAP	Resettlement and Community Development Action Plan
ROW	Right of Way
SEA	Social and Environmental Assessment
SEAP	Social and Environmental Action Plan
SSEA	Strategic/Sectoral Social and Environmental Assessment
T-Line	Transmission Line
TOR	Terms of Reference
UETCL	Uganda Electricity Transmission Company Limited
UMEME	Electricity distribution company

### **Units and Measures**

USD	United States Dollars
USh	Uganda Shilling
GWh	Gigawatt hour
kWh	Kilowatt hour
MW	Megawatt

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## Executive Summary

**Introduction.** In March 2007, the Inspection Panel received a Request for Inspection related to the Private Power Generation Project, commonly known as Bujagali Hydropower Project (the “Project”). The Request was submitted by the Ugandan National Association of Professional Environmentalists (NAPE) and other local organizations and individuals.

The Project consists of the construction of the Bujagali hydropower plant on the Nile River near the Bujagali Falls, downstream from the existing Kiira – Nalubaale Hydropower Plants. It is designed to provide an increase of 250 MW of power generation capacity to the national grid in Uganda. The Project would inundate Bujagali Falls and other natural habitats, which are sites of cultural and religious significance to a large community of people, and involve displacement and resettlement of people and families from their lands.

The Project is a Public-Private Partnership between private sponsors and the Government of Uganda (GoU) that is supported by private lenders and multilateral and bilateral development agencies. World Bank Group support includes a partial risk guarantee from the International Development Association (IDA, also referred to as the Bank), loans from the International Finance Corporation (IFC), and a guarantee from the Multilateral Investment Guarantee Agency (MIGA).

A separate request relating to this Project was submitted to the independent recourse mechanism (IRM) of the African Development Bank (AfDB). The Panel and the IRM collaborated by sharing experts and conducting a joint field mission. The conclusions of the Panel and the IRM are, however, independent and based on different applicable policies.

**Context.** Uganda is facing a serious power supply crisis. The Panel wishes to place on record that it considers energy a crucial factor in Uganda’s development. However, as this Report shows, energy production requires considerable care in order to ensure that social, economic and environmental aspects are properly considered, in line with Bank policy, to adhere to sound development practices and avoid situations where costs, including social and environmental costs, outweigh the benefits expected from what are usually sizable investments.

The Request raises a number of environmental, hydrological, social, cultural, economic and financial concerns, and contends that a failure of the Bank to follow its own operational policies and procedures in the design and appraisal of the Project will result in serious harm to the people living in the Project area and to the environment. The Management Response of April 2007 states that experienced Bank staff and consultants were engaged to work on the preparation of this Project, that economic, financial, safeguard, technical and other analyses were done to a high standard, and that they took

into account the findings of the Panel's 2002 Investigation of the previous Bujagali project in the design and preparation of the Project.

**Environmental Issues.** In the context of the Bank's policies on Environmental Assessment, OP 4.01 and on Natural Habitats, OP 4.04, the Panel found areas of compliance, including that the Project had been appropriately classified as category "A" and that the Kalagala Falls had been established as an offset for the natural habitats to be inundated by the Project. The Panel also found that the Bank complied with the procedures set forth in Bank policy OP 4.37 on the Safety of Dams.

However, there were several important areas of non-compliance with Bank policies. The Project did not appoint an independent panel of environmental experts, as required under Bank policy for this type of complex project, nor did it support needed capacity building for implementation of social and environmental aspects of the Project. The Project Social and Environmental Assessment (SEA) did not adequately make reference to the Strategic/Sectoral Social Environmental Assessment (SSEA) of the separate Nile Basin Initiative, which analyzed issues such as climate change and cumulative effects. As a result, important information required under Bank policy was not disclosed in a timely manner as an integral part of the Project's documentation.

In addition, neither the SSEA nor the SEA addressed the cumulative effects of the existing and planned projects in a meaningful way. And while the Kalagala Falls have been established as an offset, in light of institutional weaknesses there is no evidence that this offset site will be maintained in accordance with appropriate conservation and mitigation measures in conformity with sound social and environmental standards.

**Hydrological and Climate Change Risks.** The Panel examined a range of issues, including the impact of hydrologic risk on energy output, the potential impact of the Project on the levels of Lake Victoria, and the risks from climate change. The Panel noted the substantial body of analysis under the Project, and found that the hydrologic data sets used in Project design constitute a reliable data series and an appropriate baseline for analysis in compliance with OP 4.01. The Panel also found, however, important areas of non-compliance with OP 4.01 and OP 10.04.

In particular, there is a discrepancy between the PAD and the Economic Study as to which water release regime will be in effect once Bujagali becomes operational. This brings into question the data basis for the Project's economic analyses and is likely to have resulted in a more positive conclusion to the Economic Study than would have been warranted. The SEA also considered that the Project's area of influence ends downstream of the Kiira – Nalubaale dams and therefore did not assess the Project's potential impacts on the changing levels of Lake Victoria, as it should have. This is particularly important because the lowering of water levels in the Lake, as has occurred in recent years, brings significant social and environmental impacts. In addition, the PAD's categorical assertion, without any reference to risk and uncertainty, that there will be no adverse effect on water release due to climate change during the Project life fails to express a potential risk factor, which was identified in the SSEA, as required.

**Economic and Environmental Analysis of Alternatives.** The terms of reference (ToR) for the Economic Study called for a comprehensive update of the first round of the Bujagali Project. The Panel found, however, that the ToR encouraged a focus on relatively large grid-connected plant and did not draw attention to the evaluation of smaller scale or off-grid alternatives. In a country where only 5 percent of the population is connected to the grid, it would be reasonable to expect attention to be paid to such options which might in theory more directly address local and rural poverty. The Panel found that the information in the Economic Study and the PAD on these options did not demonstrate full compliance with OP 10.04's requirement to evaluate alternatives.

As part of its assessment of least-cost options, the PAD asserts that tariff rates may drop by up to 10 percent. The Panel found, however, that this should have been qualified to take into account the increases in Engineering, Procurement and Construction (EPC) costs and transmission costs after the Economic Study was prepared. The issue of electricity tariffs and affordability is of high importance to the people and communities.

It is the Panel's view that Management did not ensure that cultural and spiritual matters of high significance at Bujagali Falls were adequately considered in Project preparation, and when comparing the Bujagali and Karuma alternatives. Alternative project configurations were unduly narrowed on the basis of a-priori judgments rather than exploring all technically feasible options, including those that would not involve flooding the Bujagali Falls and thus have lower social and environmental costs, and laying them out in a systematic way along with their economic, social and environmental benefits and costs, so that judgements on optimal alternatives could be made with a full understanding of the trade-offs involved.

**Economic Evaluation: Poverty Reduction and Risks.** The Panel examined poverty reduction issues and the risks and consequences associated with the Power Purchase Agreement (PPA) in the context of OP 1.00 on Poverty Reduction and OP 10.04. The quantitative assessments of costs and benefits in the Economic Study suggest that the Project would have largely positive direct impacts on Uganda's economy and thus appears to have complied with the requirement to show that the Project is likely to contribute to "broad based growth."

The Panel notes, however, that the tariff figures provided in the Economic Study are likely to be based on an underestimate of the cost of electricity with the Project. In addition, much of the expected direct benefit from Bujagali, especially in the early years, is likely to be experienced by the better-off urban households, and electricity would still be too costly for many, especially poorer households. Neither the Economic Study nor the PAD, however, provides estimates of the economic impact of the Project on low-income households.

The Panel found that, as with the previous Bujagali project, the PPA capacity charge is not related to output, so that the payment by the government-owned power purchaser, UETCL, will be the same under low hydrology as high hydrology, and also invariant to reduced plant availability. More generally, the Panel found that the introduction of a cost-

based formula in the 2005 PPA (as amended) represents a significant shift in risk away from the Project investors and lenders to UETCL. The high allocation of risk to the power purchaser and eventually the GoU increases the possibility that the GoU will have to make payments under its guarantee and/or increase tariff subsidies. In this context, the Project may not achieve the broad objective of sustainable development and poverty reduction embodied in Bank Policies. The potential consequences are described in the Report.

**Involuntary Resettlement.** This Project involves the rather unusual circumstances of an ongoing, incomplete resettlement program developed under the prior plan for a dam at Bujagali Falls, based on a policy no longer applicable. The policy now applicable, OP 4.12 on Involuntary Resettlement, nevertheless has the same overall objectives, and both the old and new policy call for preparation of a Resettlement Action Plan (RAP). Management chose to develop an “*Assessment of Past Resettlement Activities and Action Plan (APRAP)*”, rather than a new RAP, with the justification that affected people had already been relocated and others had already received compensation under the prior project.

The Panel considers that the overriding issue is whether the approach taken meets the objectives and requirements of Bank policy. The way the APRAP was substituted for a full RAP, however, had far ranging consequences in terms of complying with Bank policy. The Panel found that the critical policy requirement to census all displaced persons was neglected – a decision undermining much of the policy objectives. The public consultation process was truncated, and the APRAP failed adequately to assess and update the previous RAP to ensure compliance with Bank standards. The Panel found that the effects on the people of the original displacement, and of the ensuing delay, were not fully reflected in the APRAP.

On the critical question of livelihood restoration, the Panel concluded that the Project did not comply with the mandate of Bank policy to improve or at least to restore, in real terms, the livelihoods and standards of living of the people displaced by the Project. Many affected people also believe that other promises made under the prior project were not kept.

The Panel did not find any evidence that Bank Management violated the provisions of the Bank’s policy on Indigenous Peoples, with regard to the Basoga people.

**Cultural and Spiritual Values.** The Project is moving into a neighborhood long inhabited with strong, complex cultural and spiritual traditions. To the Basoga people, the Bujagali Falls area, which is to be inundated by the Project, is inhabited by ancestral spirits. The Panel notes that studies prepared in 2001 for the prior project mapped individual and community level spirits. Problems emerged, however, with the so-called “appeasement of community spirits”, which failed to lead to a lasting solution.

Under the current Project, the consultation process has not yet led to satisfactory outcomes and mitigation efforts, required by Bank policy, and cannot be considered

completed. The Panel found that the Bank misjudged the Bujagali Falls as a cultural resource of importance only to those living in the vicinity of the Falls, and that the consultation process excluded key spiritual leaders of the wider Basoga community.

In addition, Bank Management failed to prepare a Cultural Properties Management Plan, as required by policy. Such a plan should have identified Bujagali Falls not as a localized cultural site but as a significant cultural resource for the whole Kingdom of Busoga, triggering rigorous safeguards for specific avoidance, consultation and mitigation as required under the Bank's Policy.

OP 4.04 on Natural Habitats also contains provisions that are relevant to these issues. It provides that the Bank does not support projects that in the Bank's opinion involve the significant conversion or degradation of critical natural habitats, a crucial question which requires considered judgment. The Policy states that "critical natural habitats" include "areas initially recognized as protected by traditional local communities (e.g., sacred groves)."

Management took the view that the Project is not significantly converting or degrading a "critical natural habitat," without providing adequate justification for this determination. Considering the known spiritual importance of the Bujagali Falls area, without such an explanation, one could also arrive at the opposite, i.e., that the inundation may be regarded as resulting in the significant conversion of a critical natural habitat which would be in violation of OP 4.04. The Panel found that there is an overriding need to address this issue to ensure compliance with Bank policies.

**Systemic Issues Affecting Policy Compliance.** In closing, the Panel would like to emphasize that energy is a crucial factor in Uganda's development. As this investigation shows, generating energy for development in a way that is economically efficient, socially equitable and environmentally sustainable is hugely complex and one of the major sustainable development challenges of today.

The results of the Panel's investigation illuminate some of these complexities in the Bujagali Project, which may also be relevant to other similar projects. These include addressing legacy issues from preceding projects, difficulties in achieving transparency on economic and other impacts in public-private partnership projects, incorporating climate change issues into project design, and issues regarding the application of Bank policy on natural habitats to sacred groves and sacred places.

# Summary Report

## I. Introduction

Right at the outset, the Panel wishes to go on record that it considers energy a crucial factor in Uganda's development. The findings of this Report do not dispute this fact but show that energy production requires considerable care in order to ensure that social, economic and environmental aspects are properly considered, in line with Bank policy, to achieve sound development practices and avoid situations where costs, including social and environmental costs, outweigh the benefits expected from what are usually sizable investments.

On March 5, 2007, the Inspection Panel received a Request for Inspection related to the Uganda: Private Power Generation Project, also known as Bujagali Hydropower Project (the "Project" or the "Bujagali Project"). The Project includes the proposed construction of the Bujagali hydropower plant as well as the Interconnection Project, (which will construct transmission lines, a new substation at Kawanda, and the extension of the substation at Mutundwe financed by the African Development Bank (AfDB)). The Request was submitted by the Ugandan National Association of Professional Environmentalists (NAPE) and other local organizations and individuals.

The Request of 2007 followed a similar Request in 2001 when the Panel was asked to investigate the prior Bujagali Hydropower Project. The Panel issued its Investigation Report on May 23, 2002. Due to difficulties encountered by the former project sponsor, the first Project was terminated in September 2003. The subject of the 2007 Request is the current, second effort of the Government of Uganda (GoU) to develop the Bujagali Hydropower Plant.

### The Project

The Project consists of the construction of the Bujagali hydropower plant on Dumbbell Island on the Nile River, at the Bujagali Falls, about 8km downstream from the existing Nalubaale and Kiira Hydropower Plants. The Nile River has its headwaters in Lake Victoria. Under the Project, a powerhouse complex providing a maximum capacity of 250MW and a rock filled dam of about 30 meters high with spillway and other associated works is to be developed. Adjacent to the powerhouse, a high voltage substation, the Bujagali Substation, through which all power generated from the Project will flow, is to be constructed on the west bank of the Victoria Nile. The reservoir will inundate the Bujagali Falls.

The overall Bujagali Project also includes the construction of 100 km of transmission lines, a new substation at Kawanda and the extension of the substation at Mutundwe financed by the African Development Bank (AfDB) under the Interconnection Project. A private sector company, Bujagali Energy Ltd. (BEL), is to develop the Project. BEL is

responsible for financing, constructing and operating the Project “*on a Build-Own-Operate-Transfer basis.*”

The Project is a Public Private Partnership between the private project sponsors, the GoU, multilateral and bilateral development agencies, and commercial lenders as beneficiaries of the proposed IDA Guarantee. The total Project cost is estimated to be around US\$798.6 million. The International Development Association (IDA) supports the Project through a partial risk guarantee of US\$115 million. The Project is also financed through, *inter alia*, International Financial Corporation (IFC) loans and a Multilateral Investment Guarantee Agency (MIGA) guarantee. In total, the World Bank Group’s financial support to the Bujagali Project is around US\$360 million. IDA’s Board of Executive Directors approved the IDA Guarantee on April 26, 2007.

### **The Claims of the Requesters**

The Request contends that the Bank has failed to follow a number of its operational policies and procedures in the design and appraisal of the Project, and that this will result in serious harm to the people living in the Project area and to the environment, in particular the Nile River and Lake Victoria, and to the customers of the generated electricity and to Uganda citizens in general.

**Hydrological and Climate Change Risks, Cumulative Impacts.** The Requesters claim that the Project Social and Environmental Analysis (SEA) does not properly address hydrological changes and their effect on power production, nor the potential impacts of climate change which they claim will lead to drier conditions, lower lake levels, and therefore lower power production. The Requesters contend that the SEA lacks an analysis of the cumulative effects is based on “*flawed assumptions and computations*” related to hydrological risks, and does not adequately consider Project alternatives. The Request also asserts that the guarantee that the Kalagala Falls will be put aside as an offset and not be developed for hydropower is not binding on the GoU.

**Economic Analysis, Options and Affordability.** The Requesters raise the concern that the electricity from the Bujagali hydropower plant will not be affordable, will not meet the needs of the majority of Ugandans, and will reduce the funding available for rural electrification. They state that there is no evidence that a comprehensive economic analysis of the Project has been done, and that alternative energy options have not been adequately studied to provide evidence that Bujagali dam is the least-cost option.

**Disclosure and Consultation, Use of Data, and Dam Safety.** The Requesters further claim that the Power Purchase Agreement (PPA) between the Project Sponsor and the GoU, crucial to the Project’s economic viability, was only released shortly before they submitted their Request. They also allege that the public version in Kampala was not the actual version used to negotiate loans. The Requesters say that no evidence exists that the PPA was debated and approved by the Ugandan parliament. They also raise concerns about the Project consultation process and the use of old and inconsistent data in key Project documents. The Request also claims that the Sponsor has failed to adequately

address dam safety issues or determine whether Bujagali would be able to withstand a failure of the Nalubaale dam.

**Social and Cultural Issues.** The Requesters claim that the Project did not recognize the presence of indigenous peoples in the Project area nor deal adequately with cultural and spiritual issues of the affected community. The Requesters say that the compensation and resettlement frameworks need to be updated to reflect the current economic situation and that the sponsor needs to create a detailed compensation and detailed community development action plan.

### **Management Response**

In its response of April 5, 2007, Management maintains that the proposed project is being developed to provide the needed capacity in a least-cost manner. With respect to the previous Bujagali project and the Inspection Panel's 2002 investigation, Management notes that an action plan was prepared and approved by the Board on July 17, 2002. A matrix describing the 2002 Panel's investigation findings and the status of implementation of the action plan was included in the Management Response.

Related to Kalagala Falls, Management claims that the GoU has reiterated a commitment to the offset and that the Bank will include the commitment as part of the indemnity agreement. Management also reports that a Dam Safety Panel was created to provide advice and ensure consistency with Bank policy and that the Project's legal agreements will require the preparation of an Emergency Preparedness and Response Plan (EPRP), which includes failure scenarios for Nalubaale, Kiira and Bujagali dams.

Management acknowledges that past resettlement was not completed. To address these issues, the Assessment of Past Resettlement Activities and Action Plan (APRAP) and Community Development Action Plans (CDAP) were undertaken to assess the current conditions. BEL and the Bujagali Implementation Unit (BIU) are resolving outstanding issues. In response to the claims that the Basoga people in the project area should be considered indigenous people, Management asserts that the Basoga are not considered indigenous people under the Bank's definition because the Basoga do not meet criteria such as marginalization and vulnerability in addition to criteria on ancient origin, self definition and land.

Management maintains that experienced Bank staff and consultants were engaged to work on the preparation of this Project and that economic, financial, safeguard, technical and other analyses were done to a high standard. Project analyses considered a wide range of electricity demand scenarios and the impacts of both low and high hydrology scenarios. Management regards the environmental and social work carried out thus far to have appropriately considered the issues that emerged in the previous Bujagali investigation and the new issues outlined in the current request relate to resettlement, cumulative impacts, and consultations.

Management claims that the Project will bring benefits to many. According to Management, providing least-cost power is expected to increase the number of connections of residential users to the national grid, including in rural areas, and will allow industrial and commercial users to increase output and efficiency and, therefore, profits. Management also states that the Project will bring local job opportunities during construction and following tourism development in the Kalagala offset.

### **The Investigation Report and the Applicable Policies and Procedures**

This Report concludes the Panel's investigation into the matters alleged in the Request for Inspection. Panel Chairperson Werner Kiene served as the Lead Inspector for the Panel's investigation. The Panel was assisted in its investigation by expert consultants Prof. Theodore Downing, anthropologist, Prof. Richard Fuggle, environmental specialist, Mr. Graham Hadley, economic and commercial consultant, Prof. Peter Pearson, economist, and Prof. Carlos Tucci, hydrologist.

The Requesters submitted their Request for Inspection to the World Bank Inspection Panel as well as the Compliance Review and Mediation Unit (CRMU) of the African Development Bank (AfDB). The Panel and the CRMU coordinated their field investigations of the Bujagali projects and shared consultants and technical information during this investigation in order to enhance the efficiency and cost effectiveness of each of their investigations. While this collaboration between the Panel and the CRMU worked to the mutual benefit of both parties, each Panel focused its compliance review on its own policies and procedures and each Panel has made its own independent judgments about the compliance of its Management and staff with its respective policies and procedures. The Panel wishes to express its appreciation to the CRMU for this fruitful and precedent-setting cooperation.

The Panel reviewed relevant Project documents and other relevant materials provided by the Requesters, Bank Staff, Government officials, local authorities, individuals and communities living in the areas affected by the Project, as well as scholarly literature. The Panel organized a site visit in collaboration with CRMU of the AfDB in November-December 2007. During its mission, the Panel met with Requesters and other individuals and communities, local and national government authorities, representatives of the Busoga Kingdom, spiritual and religious leaders, representatives of civil society, and representatives of inter-governmental organizations, relevant experts and others. The Panel also interviewed Bank Staff in Washington, D.C. and Kampala. The Panel wishes to express its sincere gratitude and appreciation to all those with whom it met for their time and cooperation.

With respect to this Project, the Panel assessed whether the Bank complied with the following applicable operational policies and procedures:

OP 1.00	Poverty Reduction
OP/BP 4.01	Environmental Assessment
OP/BP 4.02	Environmental Action Plans

OP/BP 4.04	Natural Habitats
OP 4.07	Water Resource Management
OP/BP 4.10	Indigenous Peoples
OP/BP 4.11	Physical Cultural Resources
OP/BP 4.12	Involuntary Resettlement
OP/BP 4.37	Safety of Dams
OP/BP 7.50	Project on International Waterways
OP/BP 10.04	Economic Evaluations of Investment Operations
World Bank Policy on Disclosure of Information	

## II. Context

### Electricity and Power Needs in Uganda: The Power Supply Crisis

Uganda is experiencing serious power capacity constraints. Only five percent of the total population, less than one percent in rural areas, has access to grid-supplied electricity. **The Panel notes the critical importance of providing affordable electricity to the people of Uganda, as an integral element of national development and of Uganda's poverty reduction efforts.**

Uganda's main source of electricity currently is the Nalubaale/Kiira dam complex, located just below the source of the Nile River at Lake Victoria. The complex consists of two dams, Nalubaale and Kiira. Over recent years, however, the electricity produced by Nalubaale and Kiira has dropped substantially below capacity due to the hydrological limitations on the release of water into the Nile from Lake Victoria, and the interactions between the dams and the water levels of the Lake. Two additional large hydropower projects are being proposed and/or developed along the Nile in Uganda: the Bujagali Hydropower Plant and the Karuma dam, downstream from Bujagali Falls.

A critical issue raised by the Request is whether the Bujagali dam, if built, will meet its economic projections and provide affordable electricity to the people of the country, in comparison to other alternative means for doing so. **During its visits to the Project area, the Panel heard strong expressions of concern from local people and their representatives that they will not benefit from the Project but will, nevertheless, have to bear its social, economic and environmental costs. In addition, they are concerned that, if Project costs are not properly estimated and accounted, the burden of below-capacity production will be passed to the people of Uganda.**

### Environmental and Social Setting

The Project area is home to several ethnic groups living in and around the Project site, including the Busoga and Busanga people whose lives and livelihoods will be affected. The Bujagali dam would create a reservoir that floods an area of 388 hectares, require the taking of 238 hectares of land and would require additional takings for transmission lines, all of which involve displacement and resettlement of people and family from their lands.

The dam's reservoir would inundate Bujagali Falls and other natural habitats, which are sites of cultural and religious significance to surrounding peoples.

Prior to the construction of the existing dams on the Victoria Nile, the amount of water flowing from Lake Victoria was naturally determined by the level of water in the Lake—the higher the level of the lake, the more water poured out from the Lake into the river. However, the successive development of the Nalubaale and Kiira dams at the entry point from the Lake to the upper Nile changed all that. At the time that Nalubaale dam started operating, it was agreed that it must be operated in accordance with the Agreed Curve (a mathematical relationship between Lake levels and outflow) that stipulated how much water should be released from the Lake. The Agreed Curve aims to ensure that the outflow from the lake mimics the natural conditions of the Lake before the Nalubaale dam (formerly Owen Falls dam) was constructed.

A significant question raised by the Request is the extent to which the proposed Bujagali Dam will or might create incentives to depart from the Agreed Curve, and contribute to a lowering of Lake water levels and corresponding serious impacts for the Lake's riparian states. An important related question is the extent to which the future hydrology of Lake Victoria may be influenced by climate change. Since the Lake's water balance is dominated by rainfall and evaporation over the surface of the Lake, the Requesters are concerned that even relatively small long-term decreases in rainfall and/or increases in temperature could have significant impacts on Lake levels and on outflows via the Victoria Nile and, in turn, on the economic and politics of operating the dams.

Another important element of the Request is the potential impacts of the Project on the economy of the area around the waterfalls, including through fishing and tourism. In addition, the Project is being proposed for an area long inhabited with strong, complex cultural and spiritual tradition. Although the peoples of other ethnic groups inhabit the project area, the Basoga claim spiritual dominion of both sides of the Nile, its islands, the water and its waterfalls. The Bujagali Falls dam would inundate places of high cultural and spiritual significance to local people

### **III. Environmental Issues**

#### **(1) Adequacy of the SEA**

In the Requesters' opinion, the social and environmental studies supporting the Project are generally inadequate, based on old data that do not reflect the current situation of the Project area, in violation of the Bank Policy on Environmental Assessment OP/BP 4.01. Management responds that the Project is a new operation and, as a result, social and environmental aspects have been reassessed. It adds that the current Project was designed to build upon earlier data and additional studies were undertaken as needed, to confirm or update that baseline.

The Panel notes that the Project Sponsor contracted international consultants to prepare the required SEA for the Bujagali Hydropower and Bujagali Interconnection Project with

appropriate input from Bank Management. **The Project has appropriately been classified as category “A”, the category under Bank policy used for projects with the most serious level of impacts. This complies with OP 4.01.**

The Panel finds that, apart from the omission of an Environmental Management Plan (EMP), the SEA includes the elements required by Annex B of OP 4.01. The Project is fully described and set in an appropriate policy, legal and administrative framework. **However, the fact that the EMP is not an integral part of the SEA that has been disclosed is a deficiency. This is not in compliance with the requirements of OP 4.01.**

OP 4.01 also requires that when there is inadequate legal or technical capacity to carry out key EA-related functions (e.g., review of EA, environmental monitoring, inspections, or management of mitigatory measures), the Project includes components to strengthen that capacity. **This requirement to support needed capacity building, which is important in the implementation of the social and environmental aspects, has not been complied with in this Project**

The Panel also finds that an independent panel of internationally recognized environmental specialists has not been appointed for the Project (or a single panel to cover both the Hydropower and the Interconnection projects). **As the Project is contentious and involves complex multidimensional environmental concerns, appointment of an environmental panel of international experts is warranted and the lack of such a panel is not in compliance with OP 4.01.**

## **(2) Disclosure of Project Documentation**

The Requesters contend that the Project SEA does not address significant issues relating to hydrology, climate change and cumulative impacts. The Management Response cites the Strategic/Sectoral Social and Environmental Assessment (SSEA) of the separate Nile Basin Initiative as the source of data and analysis on issues of climate change and cumulative effects of the Project.

The Panel notes that the Bujagali SEA makes only a passing reference to the SSEA, and the SSEA makes no mention of the Bujagali SEA. **It is clear from reading the two reports, and the lack of cross-references between them, that they do not form part of the same suite of documents.** The Panel is of the view that, in the interests of efficiency, an EA may, in principle, refer to and/or incorporate, as appropriate, other relevant studies. However, as the purpose of both the sectoral and project specific EA is to disclose information relevant to a decision, the fact that one study is reliant on another must be clearly stated and disclosed in project documentation. Without this, information important to a project is obscured even if it is disclosed independently, which weakens or undercuts the achievement of the key elements of OP 4.01 on informed decision-making, public consultation and disclosure.

The Panel finds justifiable the Requesters complaint that some aspects of the Project, i.e. effects of climate change and the cumulative effects, have not been properly addressed in

the Project SEA. **The Panel acknowledges that the necessary studies have been conducted and disclosed, albeit independently, and considered by Management and referred to specifically in the PAD. However, the failure to disclose the SSEA or its relevant parts as an integral part of the Bujagali Hydropower Project's documentation in a timely manner is not consistent with OP 4.01.**

### **(3) Cumulative Impacts**

In the Requesters' opinion, the SEA does not discuss cumulative impacts, and BEL did not attempt to identify issues arising from building a cascade of dams on the River Nile, especially with respect to the health of the Lake Victoria. Management argues that cumulative impacts of the currently proposed Bujagali project are addressed as part of the Project's SEA and in the SSEA.

The Bank's OP.4.01 Annex A states that a "[s]ectoral EA pays particular attention to potential cumulative impacts of multiple activities." The analyses in the SSEA allow a comparison amongst the various proposed portfolios of power development options in the Nile Equatorial Lakes Region. **They do not, however, provide a systematic examination of the potential consequences of the Nalubaale and Kiira facilities, the Bujagali Project, and the planned Karuma project all being situated on the Victoria Nile between Lake Victoria and Lake Kyoga.** In addition, there is no examination of the impact of additional transmission lines between the hydropower stations and Kampala. **Although section 14 of the SSEA is headed "Assessment of Cumulative Impact" the Panel finds that the analyses are not sufficiently backed by evidence and include opinions rather than careful fact-based examinations of the additive effects of impacts from present and foreseeable projects.**

The SEA seems to address cumulative effects in more detail. However, it makes statements that are not substantiated by data or factual analysis. There is no determinations of how many people stand to be affected, how much agricultural land is to be lost, the extent to which riverine forest habitat will be lost, or the extent to which tourism will be affected. **The Panel finds that neither the SSEA nor the SEA has addressed the cumulative effects of the existing and planned projects in a meaningful way. This is not in compliance with OP 4.01.**

### **(4) Transmission Lines**

The transmission lines that will transport electricity from the hydropower site pass through areas where people live, wetlands, and the ecologically important Mabira Forest. As noted above, the SEA fails to address the cumulative effects of transmission lines; neither does it propose mitigation to reduce additive effects.

The Panel was not furnished with documentation indicating that the Project considered ways to mitigate or reduce the amount of land taken for the second (Bujagali) transmission line. Rather, the Project assumed that the size of the existing right of way needed to be doubled, which is technically incorrect. **The Panel finds that the failure to**

**consider mitigation measures, which would reduce the social and environmental impacts of the transmission line, does not comply with OP 4.01 and OP 4.12.**

**(5) Environmental Impacts on Fisheries and Aquatic Systems**

The Requesters express concern as to the accuracy of the surveys of endemic fish species and claim that the data on which the EA is based is flawed and outdated, in non compliance with OP 4.01 on Environmental Assessment and OP 4.04 Natural Habitats. Management responds that the Project builds on relevant work conducted for the prior Bujagali Project and on updated information gathered in further field studies and analysis, including studies on fisheries conducted for the prior project and updated for the current Bujagali Project.

**Based on its review of relevant research studies, the Panel observes that the status of the fish species inhabiting both Lake Victoria and the Victoria Nile is disputed and that ongoing research is desirable. However, significant effort has been devoted to study these fish in the reaches of the Victoria Nile that will be affected by the Bujagali Hydropower Project.**

Studies undertaken by the Ugandan National Fisheries Resources Research Institute (NAFIRRI, previously known as FIRRI) show that fish ladders suggested by the Requesters would not be scientifically justifiable because a barrier in the upper reaches up to Dumbbell Island would not significantly affect the stability of fish populations in Lake Victoria and neither would a fish ladder be relevant. The studies undertaken by, and the formal indicative position of, NAFIRRI are persuasive and the conclusions logically drawn. Bank Management exercised appropriate diligence in using these documents in its decision-making. **The Panel consequently finds Bank Management acted consistently with the provisions of OP 4.01 and OP 4.04 in so far as these relate to assessment of the likely consequences of the Bujagali Hydropower Project on fish stocks in the Upper Victoria Nile and Lake Victoria.**

**(6) Mitigation Measures: The Kalagala Offset Agreement**

Mitigation measures for the Project call for the Kalagala Falls to be established as an appropriate offset for the natural habitats that would be inundated by the Bujagali project. Kalagala Falls originally had been identified as the site of a potential future hydropower project. In 2006, however, the Government stated that: *“The Government position on the site is that it continues to be frozen for development purposes.”* This offset is now provided for in the Indemnity Agreement between the Bank and the GoU.

The Requesters express concerns about the agreement between the World Bank and the GoU because, in their opinion, this agreement is not a guarantee that Kalagala Falls will never be developed for hydropower. At the time of its Response, Management claimed that the offset provision related to the Kalagala Falls to be included in the Indemnity Agreement *“... will be binding throughout the life of the Indemnity.”*

The Panel found that that the “Kalagala Offset” has come to be accepted as a site to be used to “offset” a variety of the features that are to be lost by inundating the Bujagali rapids, but there is almost no mention of the core purpose of a conservation strategy for lost natural habitats as provided by Bank policy on Natural Habitats. During its investigation visit, the Panel observed uses at Kalagala Falls that are not necessarily consistent with this conservation purpose. The World Bank stance has been nevertheless clear in the sense that : “...*the long term protection of the Kalagala Falls and the preclusion of development of hydropower potential at Kalagala is a necessary offset for World Bank Group participation in the proposed project.*”

The Panel wishes to note and highlight the Bank’s efforts in cooperation with the government to develop the commitment to set-aside and protect Kalagala Falls as an offset to impacts produced by the dam. Although certain important issues in this regard are noted in the Report, the Panel notes and appreciates that the action to develop and strengthen this commitment in light of issues raised in the Panel’s previous investigation report and relevant Bank policy.

**The Panel finds that there is evidence that an offset has been created to meet the requirement of OP 4.04. On the other hand, the Panel finds that there is evidence that the offset site is not being subject to appropriate conservation and mitigation measures in conformity with sound social and environmental standards. The Project is thus not in compliance with OP 4.04 on this point.**

Given present institutional weaknesses and lack of proper training arrangements, the Panel finds that the capacity of local institutions to plan and manage the Kalagala offset has not been developed and that no provision has been made to rectify this. As a consequence **the Kalagala offset may not achieve the purpose for which it was set aside, and this is not consistent with the provisions of OP 4.04.**

**The Panel notes with concern that the proposed Environmental Mitigation and Monitoring Plan is silent on the need for monitoring of enhancement and offset plantings. Also, monitoring of replacement plantings has not been included in the terms of reference of the witness NGO that has been appointed to monitor Project compliance with IDA conditionalities. This is not consistent with the provisions of OP 4.04.**

## **(7) Safety of Dams**

The Request claims that safety issues possibly emanating from the existing Nalubaale dam at the Owen Falls are not taken into consideration in the Bujagali dam design. Management responds that a Dam Safety Panel has been established to provide advice through design, construction, filling, and start-up to ensure that the project is consistent with Bank policies.

The Panel visited the Nalubaale complex in December 2007 and was shown the cracks in the powerhouse as well as the routine measurements of structural movement and of pore-

water pressure that are undertaken and reported. The Panel is satisfied that Eskom (Uganda) is undertaking and reporting the monitoring of the Nalubaale complex that the Bank requires. The Panel notes that the cracks are in the powerhouse structure and not in the wall of the dam. **The Panel finds that Management has complied with the procedures set forth in OP 4.37.**

#### **IV. Hydrological and Climate Change Risks**

According to the Requesters, BEL's SEA does not adequately address the issues of possible hydrological changes affecting power production at the Nalubaale, Kiira and the proposed Bujagali facilities, especially at a time when Lake Victoria water levels are declining. In its Response, Management states that the impact of hydrological flow rates on the planned Bujagali dam has been addressed extensively in the SEA and in the Project Economic Study. According to these studies, *“the proposed 250MW project is not expected to significantly alter or affect the hydrology of Lake Victoria or the Victoria Nile.”* Analyses used to assess the hydrology of the Lake comprise 106 years of data, including several hydrological cycles.

Management acknowledges that in recent years the Government has over-abstracted water for power generation because of a general drought, lack of generation investments to use available water more efficiently, and a demand growth of eight percent. However, Management also states that the *“GoU has steadily decreased hydropower generation in an effort to return to the Agreed Curve operating regime.”*

##### **(1) Appropriateness of Hydrological Data Series used in Project Design**

Observers generally divide the history of Lake Victoria's water levels into three main periods. In general, the period before 1960 is characterized as a period of relatively low water levels. Between 1960/61 and 1999, Lake Victoria level rose, while starting in 2000 and until very recently, lake levels decreased to a level observed before the 1960s. The Project Economic Study concluded that the whole period of record from 1900 should be used to determine the future dependable flow for power generation at hydro power stations on the Victoria Nile.

**The Panel's hydrology expert concluded that the hydrologic data sets used in Project design constitute a reliable data series and its variability over time is a natural condition, which can be observed in other hydrologic series of different parts of the world, when the hydrologic series is long enough. The Panel finds that this provides an appropriate baseline for analysis of environmental and economic issues, in compliance with OP 4.01.**

##### **(2) Lake Victoria Water Levels and Power Plant Operations on the Victoria Nile**

The Agreed Curve has been used to specify the outflow that should be released from Lake Victoria down the Victoria Nile following the construction of Nalubaale dam. After 2000, the entry into operation of Kiira dam (in a side-channel constructed parallel to

Nalubaale dam) increased generation capacity. **Since these two dams operate in parallel, the system required more water to flow downstream and through the turbines to generate energy.** In the period 2001–2005, the increase of the water release of the Lake above the Agreed Curve has resulted in increased energy production downstream but had negative upstream effects of lake depletion and resulting impacts.

The Panel notes that the Agreed Curve constrains the ability to use the lake to store “excess” water for later use when inflow exceeds outflow. During its field visit in December 2007, the Panel was given documentation showing what appears to be a new release policy – the “Constant Release” rule. The Panel received information suggesting that this new rule, which allows for a constant release to be applied when the lake level fluctuates within a certain range, has been in effect since June 2006, and it is the basis for the analysis in the Economic Study.

### **(3) Impact of Hydrologic Risk on Energy Output**

The Requesters and Management Response include contrasting statements as to whether the Economic Study adequately addresses the Project’s economic viability in relation to hydrological risks.

The PAD states that the assessment of the energy output was based on the flow released from Lake Victoria through the Nalubaale/Kiira dam complex in accordance with the Agreed Curve, and that the Project is designed in accordance with the Agreed Curve release rule. The Economic Study states that it adopted the “Constant Release” rule to determine the energy generation capability of the hydro options considered. **This discrepancy between key Project documents brings into question the data basis for the Project’s economic analyses, and is likely to have resulted in a more positive conclusion to the Economic Study than would have been the case under the Agreed Curve scenario. This is inconsistent with OP 10.04.**

In March 2007 an internal Management Review had proposed that the PAD should confirm that the plant would be operated under Lake Victoria’s Agreed Curve release strategy, rather than under a constant release regime, *“and should confirm that this regime does not affect the conclusions of the economic evaluation of the project....”* **The PAD does not appear to have followed this latter recommendation. In the Panel’s view, the provisions of OP 10.04 require Management to provide an accurate picture of the Economic Study (based on the Agreed Curve), and indicate whether this affects the relevant conclusions.**

**The Panel notes that this contradiction in Project documents has a material implication not only for the economic viability of the Project and the provisions of OP 10.04, but also on the lake levels of Lake Victoria, since different operational rules result in different time-profiles and variance of water levels.** While the Panel recognizes that, over a certain period of time, the mean outflow under the “Constant Release” rule may be identical to that under the “Agreed Curve” rule, the time-profile and variance in lake levels under the two regimes will be different.

#### **(4) Potential Impact of the Project on Lake Victoria**

The Requesters are concerned about over-draining of Lake Victoria, and believe that the issue of the long-term health of the Lake has not been addressed in Project documents. Management indicates that the operation of the Bujagali/Kiira/Nalubaale system is not expected to affect the hydrology of Lake Victoria because the water released from Lake Victoria and the timing of these releases will still be controlled by the operation of the Nalubaale and Kiira dams. Bujagali will use the same water already utilized by the parallel upstream dams of Nalubaale and Kiira.

The Panel notes that the SEA study was based on the assumption that the Project's upstream area of influence ends downstream of Kiira-Nalubaale dams. The SEA did not take into account the potential impacts of the Project on Lake Victoria. The SEA expected and the PAD stated that the Project would be operated in accordance with the Agreed Curve. The Panel notes that this approach does not take into account the contradiction between the PAD and the Economic Study regarding the Project's operation rule and the recent history of 2003–2005 when the Nalubaale-Kiira system was operated above the Agreed Curve, which contributed to a severe depletion of the Lake.

The Panel also notes that the operation policy of Lake Victoria could be other than the Agreed Curve, using the lake as reservoir regulating the flow. However, the Panel observes that such change in operating regime and its impact upstream and downstream need to have been assessed in the Project environmental assessment. **The Panel notes the importance of assessing such a situation and extending the area of influence of the Project to Lake Victoria.** This is also important because the lowering of water levels in Lake Victoria brings significant social and environmental impacts upon the Lake ecology and the people and countries that rely on it for resources and livelihoods.

**The Panel notes that the SEA study considered that the Project's area of influence ends downstream of the Kiira-Nalubaale dams. As a result, the Panel finds that the SEA analysis did not comply with OP 4.01 in defining the area of influence of the Project because the Project impacts on the changing levels of Lake Victoria were not assessed.**

**In light of its relevance to the analysis of the Bujagali Project, the Panel notes the importance of making the structure for governance of water releases from Lake Victoria clear and transparent to all stakeholders.**

#### **(5) Climate Change Risks**

The Requesters aver that the project preparation and assessment reports do not address climate change and its possible impact on power production at Bujagali. Management, on the other hand, claims that climate change aspects were addressed in different studies, such as the SSEA, which includes a detailed analysis of the impacts of climate change in the Nile Equatorial region comprising Bujagali.

The PAD states that both the Economic Study and the SSEA conclude that there will be “*no adverse effect on water release due to climate change during the life of the proposed project.*” The Economic Study states in the main text that the influence of climate change was not found to be significant enough in the medium term. Further brief discussion is included in Appendix B of the Economic Study. **In the Panel’s view, the brevity of this discussion of a highly complex issue with the potential to influence significantly the Project’s economic outcomes does not demonstrate compliance with OP 10.04’s paragraph 5, which requires proper assessment of the robustness of the Project with respect to environmental risks.**

In contrast, the SSEA assesses potential impacts on hydroelectric generation and examines whether such impacts might affect new power options being evaluated. An independent review of the hydrology of Lake Victoria, financed under the Bank-Netherlands Water Partnership (BNWP) which also peer-reviewed the Project Economic Study with respect to hydrological risk, states that “*there is considerable variability in the results of the individual models and caution should be used when applying these results to make operational decisions.*”

**The SSEA appraisal appears to be the result of a thorough, detailed study that draws on its own analysis and a range of other international studies. The Panel finds that the possible effect of climate change on hydropower projects on the Victoria Nile has been seriously considered in the SSEA. This analysis meets the requirements of OP 4.01. As noted above, however, the SSEA was not properly disclosed as a Project document.** It is important to note that the results of the SSEA analysis show that there are few identifiable hydrological risks to the hydro-power options studied, and overall for the Northern and Central West regions of the Nile Equatorial Lakes there is a higher probability of increases in runoff, and thus power generation, than determined from historic flow data.

The Panel notes, however, that the Economic Study does not cite or draw on the results of the SSEA. **Management does not appear to have ensured that the Economic Study drew on the much more thorough analysis in the SSEA. The Panel finds that this does not comply with paragraph 5 of OP 10.04. Considering that the PAD draws on the authority of both studies, particularly the SSEA, the Panel finds it surprising that the PAD concludes that, “[...] there will be no adverse effect on water release due to climate change during the life of the proposed project.”**

**The Panel is aware of the limitation of the known technology in evaluating climate change scenarios and that the analysis of climate change is an evolving science, where gaps remain. Indeed, this situation makes all the more troubling the PAD’s categorical assertion, without any reference to risk and uncertainty, that there will be no adverse effect on water release due to climate change during the Project life. This failure to express a risk factor is not consistent with OP 10.04. The Panel notes the importance of continued attention and analysis to the effect of climate change on flows and hydropower generation on the Victoria Nile.**

## V. Economic and Environmental Analysis of Alternatives

The Requesters argue that energy alternatives to Bujagali were not adequately addressed in the SEA and that the Economic Study does not include an adequate assessment of the economic alternatives to support the statement that the Bujagali dam is the least costly option. Management believes that the economic, financial, safeguard, technical, governance, and other required analyses meet high professional standards and are in compliance with applicable Bank policies. Management adds that these analyses take into account the findings of the previous Bujagali Inspection Panel Report and result from the overall project due diligence, which adequately takes into consideration best practice.

Bank Economic Evaluation policies applicable to this Project are OP/BP 10.04 on Economic Evaluation of Investment Operations and OP 1.00 on Poverty Reduction. OP 10.04 provides that *“For every investment project, Bank staff conduct economic analysis to determine whether the project creates more net benefits to the economy than other mutually exclusive options for the use of the resources in question.”* The Policy then sets out specific provisions in seven areas: criterion for acceptability, alternatives, non-monetary benefits, sustainability, risks, poverty and externalities.

### (1) Demand Forecasts and Electricity Tariffs

The forecasting of demand and its interaction with likely tariffs is a necessary element in the process of analysing project alternatives. Thus, the analysis of the future “expansion path” of an electric power system should explore both the likely evolution of the demand on the system and the least cost means of satisfying that demand through existing plant and new investments.

The Requesters argue that the demand forecast analysis for the Project is unrealistic, as only a small part of the population of Uganda can afford electricity that is unsubsidized. Management notes that the risks related to future uncertainties of variables have been evaluated.

The Inspection Panel Report on the first Bujagali project criticized aspects of the load forecasts used for that project, including the assumption of narrow ranges. **In the Panel’s judgment, Management addressed demand forecasting for the current Project seriously, in that it commissioned a detailed, sophisticated review in 2004, which stressed the importance of a thorough revision of the load forecasts.** The forecasts for the current project show a much broader range between the high and the low cases. This reflects in particular significant variations around the base assumptions about residential connections and the rates of growth in household income and commercial and industrial GDP. All other assumptions remain the same as for the base forecast, however.

The economic study assumes that connections of new consumers will rise significantly in one year after Bujagali’s commissioning. **The Panel notes that although the availability of reliable electricity supply at the time the Bujagali plant is commissioned might reasonably be expected to stimulate new connections, the**

**Economic Study appears to assume a more sudden increase in connections than seems likely to occur. A more gradually phased trajectory of connections to the grid after 2011 would seem more plausible, both for the base forecast and the low and high variants.**

Given the difficulties inherent in reducing commercial and technical losses in the electricity system in Uganda, and in particular in light of the challenges recently experienced by the electricity distribution company (UMEME), the Panel finds that the demand forecast should have varied the assumptions on losses and the collection ratio (i.e. the ratio between UMEME's billed sales collected and billed sales) as part of the sensitivity analysis and of a more complete appraisal of risks, in conformity with OP 10.04. Indeed, somewhat lower values might also have been appropriate for the base forecast, as an alternative to assuming that the targets set for the electricity distribution concession would be fully achieved.

## **(2) Economic Analysis: Alternatives Considered**

The PAD states that major generation alternatives to Bujagali considered in the Economic Study include: small and medium-sized hydropower projects, large hydropower projects studied beyond the feasibility stage (i.e. Karuma), thermal options, bagasse based cogeneration and geothermal.

### **(a) The Geothermal Potential**

The Request claims that Uganda potential for geothermal energy is up to 450MW but that hydropower generation studies took precedence over thermal energy. Management Response states that a “*detailed review of geothermal prospects was conducted as part of the project analysis of alternatives.*” The analysis concluded that only 10 percent of the potential 450MW claimed by the Requesters is feasible and a geothermal 40MW plant was assessed in the least-cost analysis. The Economic Study reaches its conclusion by questioning existing estimates of temperature for Katwe and Buranga contained in a 2005 paper, whose authors' affiliations include Uganda's Department of Geological Survey and Mines.

**The Panel notes the statement in the Management Response that additional studies and shallow drilling are included under the ongoing Power IV Project, to assist the Government in assessing geothermal prospects at several sites in Western Uganda. The additional information resulting from this work would help resolve conflicting views regarding geothermal potential in Uganda, and may have a significant bearing on the economic analysis of alternatives.**

### **(b) Small and Medium Scale Alternatives**

In the Requesters' view, only a limited energy potential at various hydropower sites has been developed. Management responds that the Bank is supporting development of mini-hydro potential and states that projects providing power to the grid or suitable for grid

connection were considered in the economic study. However, the ToR for the Economic Study encouraged a focus on relatively large grid-connected plants and did not draw attention to the evaluation of smaller scale or off-grid alternatives. The Economic Study does not discuss any other renewable sources of electricity, such as municipal solid waste, solar or wind. **In a country where only 5 percent of the population is connected to the grid and there is widespread poverty, it would be reasonable to expect attention to be paid to small and/or distributed generation options (not only hydro) which might in theory more directly address local and rural poverty.** It is noteworthy that the Management Response to the Request contains a much fuller discussion and appraisal of the smaller scale and/or distributed generation options than was contained in the Economic Study and the PAD.

The Panel notes that the information in the Economic Study and the PAD relating to knowledge about and the potential of smaller scale and/or distributed generation alternatives did not clearly establish that the available studies and data had been identified and evaluated in a way that would have enabled decision-makers to decide whether further consideration was required. **The Panel finds that the Economic Study and the PAD did not demonstrate full compliance with OP 10.04's requirement in paragraph 3 to evaluate alternatives.**

#### (c) Oil Resources

In January 2006, an oil company announced "*the existence of a working petroleum system in the Albertine Basin,*" while warning that it was too early to determine its size or potential commerciality. Other reports convey more scepticism about the scale of the discoveries. **While the oil resource discovery was at a very early and unproven stage at the time when the Economic Study Final report was completed (February 2007), the Panel finds that the existence and potential of this resource should have been reviewed in the discussion of alternative supply options.**

### (3) Project Costs

#### (a) Bujagali Project Costs

The PAD acknowledges that by the time of its publication, estimates of Bujagali's Engineering Procurement and Construction (EPC) costs were substantially higher than those for the prior Bujagali project. The Panel notes that power plant costs have increased in real terms internationally. Nevertheless, **because EPC costs form a key element in determining the Project's economic and financial viability, the Economic Study and the PAD should have supplied fuller explanations of the details of this cost increase, supported by appropriate analysis and quantitative evidence.**

In addition to the cost increase noted above, there is evidence of significant cost increase during and after the appraisal process for the current Project. Management responded to a question from the Panel about differences between the cost estimates used for the Economic Study and the PAD, stating that: "*it was not practical to consider restarting*

*this analysis when each new/refined estimate of project costs became available, since the new estimates were such that all parties involved in the study considered that they would not [to] alter the conclusions of the study.”* **The Panel finds that, although certain parts of the analysis were carried out thoroughly, to meet all of the requirements of OP 10.04, the PAD should have included an explanation and supporting evidence of why the substantial project cost variations would not alter the conclusions of the Economic Study.**

**(b) Karuma Project Costs**

The Requesters claimed that the Karuma construction costs were inflated to gear the analysis of alternatives in favour of Bujagali. Management stated that the analysis has in fact shown that Bujagali has lower construction costs than Karuma.

Project documents estimate costs for Karuma and Bujagali as of 2001 and as of 2007. A comparison of the rate of increase in the EPC cost estimates during this period suggest that Karuma’s EPC cost estimates grew by a smaller percentage than those of Bujagali. Therefore, **the Panel observes that the updating of the EPC cost figures in the PAD does not obviously disadvantage Karuma relative to Bujagali.**

At the same time, the Panel found conflicting and incomplete reports on cost estimates for Karuma at the time of the prior project. Thus, the Panel could not fully assess these estimates.

**(4) Assessment of Least Cost Options for Expanding Power Generation and Supply**

The Economic Study devised and compared alternative generation expansion plans with and without Bujagali as a candidate plant. **The process of testing the sensitivity of the least cost expansion plans with and without Bujagali appears to have been carried out thoroughly. The assumed increase of 10 percent for the “high Bujagali capital cost scenario” compared with the “base scenario”, with an assigned probability of only 20 percent, was inappropriately low. Nevertheless, a sensitivity test suggested that the Economic Study’s conclusions that Bujagali was the least-cost option were robust for an increase of almost 50 percent in capital costs.**

The PAD states that the Economic Study for the power system as a whole suggested that, when compared with the assumed tariff underlying the demand forecast, “[...] *the tariff may drop by up to 10% in real terms after the commissioning of the proposed project.*” The Economic Study suggests that from 2011 the average long term cost of supply, 16 c/KWh, is 1.2 c/KWh lower than the assumed constant tariff level (a 7 percent difference).

The PAD’s statement simply asserts that the Economic Study shows that the tariff may drop by up to 10 percent, without qualifying the statement in light of the increases in EPC and transmission costs after the Economic Study was prepared and that were recorded in the

PAD. The issue of electricity tariffs and affordability is of high importance to the people and communities. **The Panel finds that, in order to comply with the requirements of OP 10.04, the PAD should have qualified its statement about the projected drop in tariffs to take into account the impact of EPC and transmission cost increases.**

The PAD presents its own estimates of the projected levels of the weighted average retail tariff path, based on a financial analysis that is different, and presumably later, from that of the Economic Study. The PAD does not compare these figures with those in the Economic Study; neither does it explain why they differ. It also does not comment on any implications.

**The Panel notes that the Project's impact on tariffs and their affordability was known to be a key concern. In this light, the Panel considers that the relationship between the estimates in the Economic Study and those from the PAD's financial analysis should have been presented more clearly and transparently in the PAD.**

#### **(5) Externalities**

Paragraph 8 of OP 10.04 requires the economic evaluation to take into account domestic and cross-border externalities, which are in large part environmental. The Economic Study states that a field mission to Uganda in July 2006 was carried out to collect data on the environmental and social costs of the Bujagali and Karuma projects. It adds that the Economic Study for Bujagali also used data gathered in the preparation of the SEA. **The Panel finds that the limited presentation and discussion of these costs in the Economic Study did not succeed in demonstrating full compliance with OP 10.04. In the Panel's view, to meet all the requirements of Paragraph 8 of OP 10.04, the Economic Study should have examined, in more detail, the potential of changes in damage from pollutants other than CO<sub>2</sub>, such as sulphur and nitrogen oxides, particulates and noise, even if it might have proved difficult to value them.**

#### **(6) Environmental Analysis of Alternatives**

The discussion below reviews the analysis of alternatives to the proposed Bujagali hydropower facility by looking into the evaluation of these options with a focus on environmental and social considerations and the decision-making process that led to the selection of the Project design.

##### **(a) Hydropower in Comparison to other Technologies Within the Region**

An analysis of power options within the Nile Equatorial Lakes Regions, funded under the Nile Basin Initiative and done as part of the SSEA, indicated that among four options considered for Ugandan base-load supply, the most appropriate was large-scale hydropower. This conclusion put a focus on large-scale options in the analysis of alternatives, both within Uganda and at Bujagali Falls in particular.

##### **(b) Hydro-power Location Alternatives within Uganda**

Twelve alternatives at seven different sites in Uganda were considered for large-scale hydroelectric projects in the Nile Equatorial Lakes Region study. Only two alternatives—Karuma and Bujagali—were found to be both cost-effective and socially and environmentally acceptable. **The Panel finds that Management did not ensure that cultural and spiritual matters were properly considered when comparing the Bujagali and Karuma alternatives, as required by OP 4.01. This is especially relevant in light of the significant cultural and spiritual importance of the Bujagali Falls to the Busoga people. The lack of proper consideration of cultural and spiritual matters in this comparison had important consequences, in that it appears to have led to the conclusion that there was little difference between the Bujagali and Karuma sites and that therefore the economic and financial aspects of the options should become the determining factor in selecting the preferred option.**

### **(c) Alternative Project Configurations at Bujagali**

The SEA undertaken for the prior Bujagali project included an analysis of alternative impoundments to utilize the drop provided by the falls at Kyabirwa, Bujagali, Buyala and Busowoko. For each alternative the power that could be generated, costs, and both socio-economic and environmental impacts were evaluated. This analysis was revisited for the SEA in 2006 for the second Bujagali project. The SEA for both the prior and current Bujagali project conclude that the optimal least-cost option for generating large-scale hydro-power at the Bujagali site, without major socio-economic or environmental consequences, would be to construct a 30m high dam across Dumbbell Island.

**The Panel notes that a range of alternatives have been considered in these studies. The Panel is concerned, however, that the analysis unduly narrowed its consideration of alternatives on the basis of *a priori* judgments rather than exploring all technically feasible options, including those that would not involve flooding the Bujagali falls and thus have lower social and environmental costs, and laying them out in a systematic way along with their economic, social and environmental benefits and costs, so that judgments on optimal alternatives could be made with a full understanding of the trade-offs involved. This is not consistent with OP 4.01's provisions that feasible alternatives should be explored systematically to meet the basic Project objectives, and may have led to inadequate consideration of alternatives that met Project objectives while avoiding the social and environmental costs associated with flooding the Bujagali Falls.**

## **VI. Economic Evaluation: Poverty Reduction and Risks**

The Requesters believe that the Project is economically risky, a risk that has been worsened by changing hydrology. They are concerned that because of the cost increase in the Project, the majority of Ugandans will not be able to afford unsubsidized electricity from the Bujagali dam and, as a result, the Project will undermine Uganda's efforts for poverty eradication. In addition, the Requesters indicate that the population living in rural areas is far from the national grid and will not benefit from the Project. Management claims that the Project is expected to *"have positive impacts on poverty alleviation in Uganda"* directly through the availability of power and indirectly through employment

creation. It adds that the Project will help Uganda to continue its broad based growth in support of poverty reduction.

### **(1) Affordability and Poverty Reduction**

The Economic Study provides quantitative assessments of both costs and benefits, which suggest that the Project would have largely positive direct impacts on Uganda's economy and enhance national economic activity. **In this sense, and bearing in mind the reservations about the cost estimates of the Economic Study, from a macroeconomic perspective, the analysis appears to have complied with the requirement in OP 1.00 to show that the Project is likely to contribute to "broad based growth."**

In terms of the affordability of electricity generated under the Project for the people of Uganda, Management Response acknowledges that "*end-user tariffs in Uganda almost doubled in 2006*" and that the "*increased price still does not fully cover the cost of generation, transmission and distribution, estimated at US¢25/kWh, requiring government subsidies for the difference.*" Still, Management claims that, with the Project, the cost of power would fall to US¢16/kWh in 2006 money.

**The Panel notes, however, that the US¢16/kWh figure provided in the Economic Study is likely to be an underestimate of the cost of electricity with the Project.** As explained in this Report, the Bujagali Engineering-Procurement-Construction (EPC) costs used in the Economic Study were nearly a fifth below the EPC values cited in the PAD. Further, the transmission cost estimates used in the Economic Study were low. **The Management Response does not mention these differences in cost estimates or make clear their implications for the tariff estimates of the Economic Study, on which the estimate of US¢16/kWh and Management's above statement about improved affordability are based.**

Much of the expected direct benefit from Bujagali especially in the early years, is likely to be experienced by the better-off urban households and particularly the industrial and to a lesser extent the commercial sectors and their stakeholders. As noted previously, the Project supplies to the grid but only five percent of the population, and less than one percent in rural areas, is connected. Existing poorer households that could afford to connect would benefit from the delivery of a more reliable and possibly relatively cheaper service. Nevertheless, the electricity would still be very costly for poorer households and too costly for many.

The ToR for the Economic Study discuss the calculation of the ERR for Bujagali, outline the broad range of benefits and costs to be included, and say that "*the direct impact of the project on poverty alleviation will be identified by estimating the economic impact of the project on low income households.*" **The Panel did not find evidence in the Economic Study or the PAD of any estimates of the economic impact of the Project on low-income households. The Panel considers that such analysis, in addition to the broader macroeconomic analysis undertaken in the Economic Study, should have**

been made during appraisal to provide a better understanding of whether the objective of poverty reduction envisaged by OP 1.00 would be achieved.

## (2) Revenue Projections and the Institutional Framework

Sensitivity tests were performed on the base case financial projections to 2016. The tests cover five “downside risks” and three “upside potentials” scenarios. The PAD states, however, that, “[e]ach of the sensitivities is considered in isolation, with all other assumptions in the base case remaining unchanged.” It would have been helpful to have applied these tests using a more comprehensive probability-based analysis (e.g. the “Monte Carlo procedure”), which would have enabled wider distributions of the values of each variable and their simultaneous variation to be taken into account, along with other variables such as changes in the US\$/US\$ exchange rate.

More specifically, the PAD projects specific amounts of GoU support to power utilities that will be needed over the period 2005-2016, and indicates that the government is projected to collect net revenues of \$US217 million over this period. The PAD states that “[t]he power sector will be a drain on the Treasury until the proposed project is commissioned but a net contributor after.”

**The Panel notes that this statement in the PAD appears misleading and seriously at odds with the projected revenue stream of the Bujagali Project**, given a large shortfall until 2022 between revenue to be raised by the tariff for Bujagali proposed in the PAD, and the requirements of the capacity charge, as also indicated in the PAD. **The Panel Report provides additional detail on the revenue gap that UETCL, in particular, will face, which may lead to large, urgent demands on the GoU Treasury and potentially on the Bank via its Guarantee.** The possibility of both higher Project costs and significantly lower revenues will have a major bearing on whether the GoU guarantee of capacity payments under the PPA agreement is likely to be triggered.

**The likely tariff variations and the possible revenue shortfalls or surpluses and their implications for UETCL, UMEME and government net revenues are key sustainability concerns;** they matter for the future of the power sector, for electricity consumers, actual and potential, and for the GoU’s ability to invest in other key sectors and services.

On the institutional side, the PAD recognises as a critical risk the possibility that UMEME terminates its concession. The PAD further notes that following large increases in tariff rates, UMEME billing collection rates declined. The decline in fee collection rates suggests that UMEME’s actual performance is likely to remain potentially vulnerable to tariff increases from a variety of causes, both external and internal. There are also risks that the technical and commercial losses will not be reduced as projected in the PAD.

The Project revenue forecasts assume recovery rates will rise from 54 percent of the energy sent out in 2006 to 75 percent by 2013 and thereafter. **The Panel expert considers that it would have been realistic to use a lower forecast recovery rate.**

Bank Management lists various approaches taken to address the potential risks to UMEME, including a restructuring of its concession contract to protect it from the impact of power shortages and reduced revenue streams. It remains to be seen, however, whether the requirement of OP 10.04, to verify that the institutional framework is or will be in place to ensure that the Project functions as designed, can be met. As noted above, UMEME faces vulnerabilities, and the restructuring might have weakened their incentives to achieve the targets for reduced losses, enhanced collection rates and new connections envisaged in the load forecast and economic evaluation in the Economic Study.

### **(3) Infrastructure Funds**

The Country Economic Memorandum cited in the PAD states that, “*Special or extra-budgetary infrastructure funds have increasingly been started as a means to “protect” public funds from funding specific targets.*” Of the five funds listed, three are in the electricity sector. The Memorandum then says, “*In general the proliferation of Extra-budgetary funds poses a serious fiscal threat in a poor country with weak governance systems and capacity. [...] Uganda is no exception: the Tariff Stabilization Fund which was designed to smooth tariffs until the Bujagali hydropower project comes on stream is already being utilized to subsidize higher tariffs from thermal power generation. This Fund is also being used to fund selective rural electrification projects, despite the existence of a separate Rural Electrification Fund. Fiscal liabilities and contingencies created through extra-budgetary funds are not accounted for in the Government’s budget.*”

**In light of these comments and of the scale of the revenue requirements, the financial risks accepted by UETCL and the Government, and the scale of the subsidies and guarantees involved in Bujagali, the Panel notes that Management should have explored further ways of managing and addressing these financial and governance risks, in the interests of project sustainability in accordance with OP 10.04.**

### **(4) The Power Purchase Agreement and Associated Risks**

Physically and in its electrical, economic and social impacts, the Project closely resembles the prior Bujagali project. Although there are some changes in the loan and guarantee structures, the key contract documents (PPA and Implementation Agreement) are similar in many respects, but with some important differences highlighted below.

In the Panel’s opinion, a meaningful analysis of the adequacy of the current financial arrangements requires a comparison with those established under the prior Project. This section examines the current PPA, signed in December 2005 and amended and restated in 2007 (the 2005 PPA), and associated documents, and compares it in certain aspects with the PPA for the prior project (the 1999 PPA).

(a) **Terms of the PPA**

In general terms, a power purchase agreement is a long-term contract between a generator of electricity and a purchaser. In the present Project, the PPA is a 30 year contractual arrangement between the Project Sponsor, BEL, and the GoU's entity in charge of transmission, UETCL. Under the PPA, the Sponsor is to sell the contracted capacity of 250 MW exclusively to UETCL.

The terms of the PPA are critical in understanding how financial and economic risks of the Project are allocated, including who would bear the risk of low water flow and, correspondingly, low energy output (below capacity) of the hydropower facility.

**In the Panel's opinion, the introduction of a cost-based formula in the 2005 PPA, instead of the maximum capacity charge specified in the 1999 PPA, is probably the single largest adverse contractual change for the power purchaser (UETCL) and its guarantors. The new contractual basis for the Project represents a significant shift in risk away from the project investors and lenders to the power purchaser.**

In short, the cost provisions and their effects can be described as follows. The formula for determination of the **monthly capacity payment (charge)** is in Annex D to the 2005 PPA. It is very complex, since the components are defined rather than assigned a specific price, and all are subject to variation. In broad terms, the components are: development costs; engineering, procurement and construction (EPC) costs; tariff debt service reserve; working capital, taxes and fees payable by the Sponsor- all of these constituting "Tariff Project Costs" (TPC)—plus equity repayment and return; debt repayment; GOU Equity (representing past development costs), and Operation and Maintenance (O&M) fees.

Some of these components are treated as pure pass-through (fees, and elements of the O&M charge). Others are carefully defined as to the make-up of their "base" cost, and in some cases – including EPC costs - increases on the base are subject to a quantified percentage "cap". The costs are subject to accountants' inspection. However, the fact remains that, leaving aside debt repayment, the Sponsor has considerable scope to shape the base costs and in some cases the increases also, to deliver a higher capacity charge. In addition, potential for considerable delay is built in to the determination of the capacity charge (before which payments are to be made on an interim basis). In fact, up to 26 months may elapse after the start of operations before there is a determined capacity charge and, curiously, there are no specific provisions for dispute resolution for this particular item.

As was the case with the 1999 PPA, **the capacity charge is not related to output, so the payment will be the same under low hydrology (when the output may be halved) as with high hydrology.** Of course, hydrology is outside the Sponsor's control. But the payments also remain relatively invariable in cases of reduced plant availability, which is under the Sponsor's control. A percentage reduction in availability (say, 5 percent) would have to be sustained for an entire year before there was an equivalent reduction in the monthly capacity charge.

**The Panel finds that for the Sponsor and its lenders, the terms and conditions of the 2005 PPA, especially those set forth in Annex D, seem to represent a low-risk (though potentially disputatious) means of managing and recovering costs which are, by definition, subject to uncertainty. For UETCL, the power purchaser, and its guarantors, by comparison, it means that there is no ceiling on capital costs and whether or not the Project delivers the direct economic benefits offered over 30 years, in terms of costs and tariffs, is to a significant extent, outside their hands.**

**(b) Risks and Consequences Associated with the PPA**

The increased risk borne by the power purchaser and its guarantors (the GoU and the World Bank); discussed above, has significant consequences. Although some matters are discussed elsewhere, it is important to highlight them succinctly in this section. The risks to which the Project is exposed, how the risks are shared, mitigation measures and possible consequences, are summarized below.

**Capital cost escalation.** If the capacity payment is set higher than present estimates, or rises subsequently, either tariffs must increase or additional subsidies are to be paid by GoU to UETCL, as discussed elsewhere in this Report.

**Currency depreciation.** For the current Project as for its predecessor, capacity payments are denominated in US dollars. As noted in the Inspection Panel's 2002 Investigation Report on the prior Bujagali project, a 10 percent *per annum* depreciation of the Uganda Shilling (USh) against the US dollar (USD) would double the price of the Project to Uganda in seven years. This would lead to tariff increase or additional GoU subsidies to UETCL.

**Prolonged low hydrology.** Substantial uncertainty remains about future hydrological conditions, as discussed in detail in this Report. The PAD illustrates how the cost of a unit from Bujagali rises dramatically in a "low-water" year. A "levelized" tariff may be set *ex-ante*, but if the actual hydrological pattern falls below that assumed for the "levelized" tariff, then the capacity payment shortfall will widen and the consequences will be those described above.

**Lower demand growth.** Demand growth projections rest both on continuing growth of demand from existing customers, and a high rate of new connections/customers, such that the number of customers almost doubles by 2012. If this growth does not occur, UETCL's revenues would fall, with the already discussed consequences.

**Lower or static proportions of supply costs recovered from customers.** It has been assumed that this ratio will have risen to 75 percent by 2013. If it were to remain at the 2006 rate (54 percent), sector revenues would be 28 percent lower.

**Affordability.** While the capital costs and total costs for the power plant have increased significantly in real terms (including 8 percent since the PAD was issued and the final price was fixed), the Economic Study of the Project assumes that Bujagali's introduction

will allow a reduction in (real) retail tariffs of at least 5 percent compared with current levels. As noted above, this tariff reduction may prove to be too optimistic.

**Collection rates.** As described previously, there are risks as to whether the distributor (UMEME) will be able to reach and maintain high collection rates and to reduce the technical and commercial losses. The Economic Study forecasts that by 2012, UMEME will have reduced its technical losses to 16 percent and its commercial losses to five percent. Failure to achieve these reductions in losses may impair the GoU's ability to fully cover the costs of new energy investments through the tariff system. If the risks noted above arise, this may (in the absence of subsidies) result in a tariff increase which would affect the affordability of electricity.

**Construction Delay.** Despite Liquidated Damages provisions penalizing the contractor, the costs of delay would likely in practice be shared via the 2005 PPA with the power purchaser, UETCL. The main consequence of delay would be to defer expected consumers' benefits from the Project. In the Panel's opinion, overall, this may be regarded as one of the lesser, or more manageable, economic risks.

**Withdrawal of the Developer/Operator.** This risk has been mitigated when compared with the 1999 PPA. The contractor is bound for the construction phase, and subsequently would be replaceable as operator if not so easily as investor. The Panel notes that the 2005 PPA provides for the Project to be bought out if necessary.

**Poor Plant Performance.** Although when compared with international best practice, the 2005 PPA seems generous to the owner-operator in the scale of penalties for low availability, this may be regarded as a low-risk. In the extreme, existing provisions for Company Default provide a safety net.

### (c) Risk Mitigation Measures

As described in the previous section, there have been important changes between the 1999 and 2005 PPAs that have had the effect of increasing the risk on the purchaser as compared to the project sponsor. In the Panel's opinion, however, some other changes represent potential improvements regarding reduction of risk. Some of the changes most relevant for project costs and risks are:

**Award of the Project by Competition.** The Panel acknowledges Management's statements that competitive solicitation of Independent Power Producer (IPP) projects is an international best practice aimed at ensuring the lowest market price consistent with technical fitness to carry out a project. This procedure is a marked improvement over the prior project. In this case, however, the benefits of competition were largely lost by post-bid negotiations, which allowed the price to rise by at least 28 percent before it was established. Further, the recent amendments to the PPA provide specific contractual scope for further upward revision.

**Buy-back in case of Low Hydrology.** Both the 1999 and 2005 PPAs and Implementation Agreements provide for a buy back of the plant by UETCL under default

conditions and certain *force majeure* events. In general terms, these provisions follow international norms. However, the 2005 PPA adds a new provision: UETCL may terminate the PPA and buy back the plant in the event of 30 consecutive months of “low water”. In this scenario, the cost of power from Bujagali, per unit, may become prohibitively high, and it may be preferable for the public authorities to assume control, stop paying the fixed capacity charge, smooth tariff effects and ensure that funds were available for alternative generation.

While this new provision is to be welcomed, the Panel notes two areas of concern: first, the low water trigger may have been defined too restrictively from the power purchaser’s perspective. Second, the terms and conditions for the buy-out, which appear to allow the Sponsor to set the price broadly to equate to capacity payments foregone, seem relatively generous to the Sponsor, given that the plant will be in real trouble if this scenario occurs.

#### **(d) Conclusions—Distribution of Risks**

It is clear from the review of the Project documents that the greatest share of economic risks lies with the power purchaser. The capacity charge may be adjusted upwards if the developer/operator hits unforeseen costs, but not downwards if demand or supply conditions deteriorate for the purchaser. The Panel notes that in fact the lenders especially but also the investors are held harmless against all or most eventualities. However, in a crisis of non-affordability in Uganda such as might be produced by currency devaluation or very low hydrology, the investors and lenders may also be at risk, if the money to pay the capacity charge is not available. In these circumstances, buy-out may provide the best solution.

**The Panel observes that the high allocation of risk to the UETCL, the power purchaser, and eventually the GoU increases the possibility that the Project may not achieve the broad objective of sustainable development and poverty reduction embodied in Bank Operational Policies and Procedures. This also increases the possibility of the Bank (IDA) Guarantee being called. The Panel is concerned that any additional GoU resources that are spent in the financing of the development and operation of this Project may lead to decreased resources available for social and other priority development programs.**

## **VII. Involuntary Resettlement**

The Requesters claim that resettlement under the Project is not complete. They raise multiple, interrelated involuntary resettlement issues, including loss of livelihood, under-compensation, inability to obtain secure land titles, lack of consultation, and request to share in Project benefits. Management believes that this Project has been well prepared in accordance with Bank policies. At the same time, Management in its Response “*agrees with the Requesters’ contention that past resettlement is incomplete.*”

## **(1) The Assessment and Action Plan**

The Panel notes that this Project involves the rather unusual circumstance of an ongoing, incomplete resettlement program which was developed under a previous Bank-financed operation and was based on a policy that is no longer applicable, OD 4.30 on Involuntary Resettlement. The policy now applicable to the Project, OP/BP 4.12, nevertheless has the same overall objectives, and both the old and new policy call for the preparation of a Resettlement Action Plan (RAP) consistent with the policy objectives and in compliance with specific policy and procedural requirements.

In the current Project, Management chose to develop and build on an “Assessment of Past Resettlement Activities and Action Plan” (APRAP), rather than to develop a new RAP. The justification for this approach was that affected people had already been relocated and others had already received compensation under the prior project.

The Panel observes that such an “Assessment” is not a resettlement instrument referenced in Bank policy. Setting aside questions of terminology, the Panel considers that the overriding issue is whether the ToR and subsequent Action Plan meet the objectives and requirements of Bank policy on Involuntary Resettlement. Accordingly, to achieve compliance, the APRAP should have included the elements of a RAP as defined in the policy (and used by Management in the T-Line part of the Project).

The way an Assessment and Action Plan was substituted for a full RAP had far ranging consequences. Following the TORs, BEL prepared an assessment of the progress in the execution of the Bank-approved old RAP, and recommended recovery activities where it observed gaps. The assessment did not include an evaluation of the impact of the delay on the socio-economic conditions of the Project or an assessment of whether or not the previous Sponsor’s complied with either the former or current Bank’s resettlement policy objectives. Consequently, the new Sponsor’s resettlement responsibility to the people who were in the process of being resettled was circumscribed to certain outstanding commitments that the new Sponsor wished to recognize.

As reviewed below, the critical policy requirement to census all displaced persons as of the project baseline was neglected—a decision undermining much of the policy objectives. The public consultation process, an integral part of a RAP, was truncated, predefining the consultations to on-going issues, rather than including all aspects of the Project. The Panel also found that the approach to consultations with people who had moved and had been compensated is not consistent with Bank policy on Involuntary Resettlement.

## **(2) Baseline Socio-Economic Data**

One central requirement of Bank Policy on Involuntary Resettlement is to develop socio-economic data on affected communities and households, as a basis to assess risks of impoverishment and develop measures to safeguard affected people, including vulnerable groups, against these risks. The assessment of risks and related mitigation measures

should be based on an accurate census survey with details on current occupants, displaced households, livelihood, expected loss (total and partial) of assets, and vulnerable groups.

The Panel could not find an adequate “*socio-economic survey of the project-affected area at the hydropower site to characterize the socio-economic conditions and livelihoods of the people living in the eight project-affected communities*” as required by the SEA’s TOR. Situations not adequately considered at the time of the prior project, or that arose in the interim period, were not appropriately dealt with because of the lack of an adequate baseline assessment. **This does not comply with OP 4.12. This led to action plans that did not meet the policy objectives and requirements.**

**The Panel notes that the survey conducted by BEL cannot be considered a census of economic or social conditions as defined in OP 4.12. In this sense, the Management’s claim that the Project took the first Panel’s report findings into account in the preparation of the current Project is not accurate because significant weaknesses in the process of gathering baseline data information were similarly identified in the 2002 Panel Investigation Report.**

The Panel also found no formal monitoring or evaluation report supporting the assertion that the involuntary resettlement was “largely completed,” the reason stated for forgoing a full RAP preparation, as required by OP 4.12. **The Panel finds that the hydropower APRAP failed adequately to assess and update the previous 2001 RAP and provide additional new information as required to complete the RAP requirements to current standards (OP/BP 4.12). This does not comply with OP 4.12.**

### **(3) Livelihood restoration**

The restoration of livelihoods of displaced people is a core objective of OP 4.12 on Involuntary Resettlement. The policy provides that “*displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.*”

In its investigation, the Panel learned that livelihoods of affected people have been disrupted for some seven years, stemming back to the beginning of relocation and resettlement actions under the prior Bujagali dam project. During this period, many of the people that were originally displaced were essentially left in limbo, and did not receive key elements of the resettlement process to which they were entitled under Bank policy. Also, as a consequence of the project’s “hiatus”, certain of AESNP’s commitments to regulators and the communities under its resettlement and community development plans were not fulfilled

The Panel observes that the effects on the people of the original displacement, and of the ensuing delay, have not been fully reflected in the APRAP. Specific issues relating to livelihood restoration are reviewed in more detail below.

(a) **Method to Assess Livelihood Restoration and Address Project Delay**

The Panel notes that the methodology used to assess livelihood restoration did not compare the 2006 livelihood status of the resettlers to their previous conditions. Nor did it set a new 2006 baseline for future actions. This methodology was ambiguous as to what was and was not being measured and, as a result, it produced only a list of unfulfilled promises left over by the prior project. **In the Panel’s view the methodology used to assess livelihood restoration in the context of this Project, while suggestive of issues, cannot substitute for an economic analysis of the livelihood risks and restoration. The Panel also finds that Management did not assess and include into the APRAP a methodology for restitution of the unintended socio-economic costs incurred by displaced persons resulting from project stoppage/delay. This is not consistent with OP 4.12.**

(b) **Real or Perceived Unfulfilled Promises in the Prior Bujagali Project**

At the hydropower site, the APRAP survey found that the people believe that a number of promises made by the previous Sponsor were left unfulfilled. Management claims that BEL and the BIU “*are now resolving all outstanding issues*” and have committed to address the issues left unfulfilled by the previous sponsor. The Panel notes a lack of method for deciding what promises were or were not made, which would or would not be honored and the timeframe for completing the resettlement activities, while the Bank’s safeguard policies require that the resettlement plan define clearly these activities and provide a schedule for their implementation. **The Panel notes that lack of clear communication with affected people to address the concerns of the displaced persons with regards to the commitments made by AESNP, risks leaving the Bujagali project with contentious, unresolved issues.**

(c) **Specific Livelihood Risks: Fishing and Agriculture**

**During its investigation, the Panel learned that fisherman who were relocated at the time of the prior project have faced severe obstacles to restoring and maintaining their livelihoods.** Among other problems, they were settled much farther from the fishing areas, lacked transport to get there, and have had their access even to these areas restricted by fencing connected with Project activities. There are also questions as to whether they were paid for fish ponds that were taken. There is a strong belief that promises to restore their livelihoods were not kept, and feelings of great frustration.

The Panel notes that the 2006 APRAP contains a two-page “plan” to address livelihood restoration in fishing, developed by BEL, sets laudable general goals such as training that will address preparation of fisherman for change in the river characteristics following impoundment. However, this planning is not associated with any studies on the economics and nutritional importance of fishing despite being called for in TORs of the SEA. Moreover, no additional support was allocated to what was called an underestimated, critical activity: the 2006 budget for fishing activities remains at the 2001 level.

**During its investigation, the Panel also learned of productive and locational disadvantages for relocated farmers**, e.g.: land fertility was not considered in livelihood restoration planning, but surfaced as a major concern in subsequent consultations; diminished ability to cultivate cash crops (coffee, vanilla); far distances between residences and agricultural land.

The Panel observes, however, that the approach taken to restore damaged agricultural livelihoods, set forth in the APRAP, follows a pattern similar to that for fishing. No baseline census of the displaced persons and a socio-economic analysis was carried out. The Panel has found that insufficient information was available to permit the new Sponsor to assess whether or not landlessness increased or decreased under this strategy. The Panel further notes that the 2001 RAP lacked any livelihood restoration plan or budget for agricultural activities. The Panel finds that the 2006 APRAP attempts to mitigate this situation, but its provisions will most likely be insufficient to meet Bank policy requirements.

Management failed to ensure that the Project would institute or assure financing to mitigate these losses, exposing the displaced to on-going impoverishment risks that are now approaching eight years. **The Panel finds that the Project failed to provide adequately for loss of livelihood associated with the loss of fishing and agriculture, in non compliance with OP 4.12.**

#### **(d) Compensation**

The Panel notes that the agro-economic analysis of livelihood restoration is weak, particularly with reference to compensation. Underestimation of the establishment periods for coffee and other crops, including vanilla and cocoa, made it economically unfeasible for the displaced to reestablish their lost incomes. **The Panel concurs with the APRAP's findings, which validate the claims of the project affected peoples (PAPs), that full replacement value compensation may have not taken place in the prior project.**

#### **(e) Land Titles**

Most of the displaced lacked security of land titles before displacement, but they may have had established, informal security with usufruct rights recognized by others. According to the APRAP, while many people who were interviewed stated that they received land titles, it also appeared that some Project affected persons (PAPs) did not receive the titles. During its visit to the Project area, the Panel team witnessed Project-generated insecurity among displaced persons as a consequence of resurveying and proposed readjusting of the boundaries within the settlement. The Panel expects that this situation will be dealt with during the implementation of the APRAP. **The Panel finds that the APRAP conclusion related to the necessity of issuing land titles to people resettled under the prior project is consistent with OP 4.12. The Panel notes however that there seems to be no agreed timetable for the issuance of these titles.**

**(f) Vulnerable Peoples**

The APRAP determined that there was no proper identification of vulnerable people up until 2007. The Panel notes that a group of vulnerable people, the landless tenants and sharecroppers, may have been left out from receiving compensation as a result. The APRAP notes that “*the situation of tenants and sharecroppers (who were compensated only for crops as they did not own land) appears to be worse in this respect than that of landowners.*” **The Panel notes that the absence of a focus on livelihood risks to the vulnerable is evident in that none of the proposed assistance measures addresses the vulnerable tenants/sharecroppers or children. Additionally, the proposed assistance measures do not address the question of sustainability beyond the limited Project support. The Panel finds the Project is out of compliance with the vulnerable peoples provisions of OP 4.12.**

**(g) Housing and Electricity for Affected People**

**Housing:** The APRAP states that the houses built for the resettled population met with the design criteria that were set out in the 2001 RAP and were therefore generally compliant with the commitments made. It states that the resettlers felt that the houses were better than the ones they had, but still complained about deficiencies in the buildings. **During its field visit, the Panel verified that the standard of living of the displaced households who resettled in Naminya and Nansana has improved with respect to housing.** On the other hand, the APRAP discovered some shortcomings in housing condition and the Panel observed physical problems and deterioration with some of the houses and structures. **The Panel is concerned that no physical action is planned with regard to houses at the resettlement site (apart from repairing the taps from the rain water harvesting system).**

**Electricity:** A high voltage line crosses Naminya. Throughout the process to conduct the Assessment, numerous displaced persons, those who took cash compensation, and local leaders stated that they believed AESNP made a commitment to provide electricity to Naminya and other communities. The APRAP says that “*it does not seem*” that such a commitment was planned under the 2001 RAP. On this point Management Response states that “*BEL together with UMEME is exploring possibilities for the provision of electricity. BEL will also finance a feasibility study for electrical distribution to the resettlement community, which may convince UMEME to provide a supply.*”

However, during its visit, the Panel learned that AES had made the following commitment to affected communities in 2001: “*AES Nile Power is committed to provide step-down transformers in eight villages in the affected area and in the new resettlement land allowing for access to power by residents who have never had the opportunity.*” The Panel has found evidence that displaced persons were also told that “*you have a right to electricity as do all Ugandans.*” **Given the context and previous expectations, this broad statement may have reasonably been interpreted as a promise to deliver**

**electricity connections to affected households. The Panel notes that this is an outstanding controversy of high importance to the affected communities.**

**(h) Investment Resources for Livelihood Restoration**

The Panel's review of the limited scope of the livelihood restoration programs indicates that they may be under-budgeted. As information on livelihood conditions of the displaced persons, including those who were economically or physically displaced but took cash compensation, has yet to be determined, the costs of livelihood recovery are unreliable. As livelihood restoration instruments develop, Bank policy provides that Management is to monitor the resettlement budget to ensure sufficient resources.

**(i) Overall Conclusions on Livelihood Restoration**

The Panel's review of the livelihood assessment method and other Project data shows that the Bujagali Project is facing substantial problems in measuring, monitoring, and mitigating livelihood risks, especially among vulnerable peoples. **The Panel finds that the Project is in non-compliance with the mandate of Bank Policy on Involuntary Resettlement to improve or at least to restore, in real terms, the livelihoods and standards of living of the people displaced by the Project.**

**(4) Sharing in Project Benefits and Community Development**

Sustainable development, the sharing of project benefits, is one of the principal objectives of the Policy on Involuntary Resettlement. The Panel believes that it is likely that the community development programs, once executed, will provide positive benefits for Uganda. However, the Panel identified compliance issues related to the Community Development Action Plans (CDAP).

**Lack of Focus on Displaced Persons:** The Panel notes that the CDAP, though an important demonstration of the Sponsor's corporate social responsibility, is not necessarily related to benefit sharing for displaced persons as required by the objectives of OP/BP 4.12.

**Lack of Program Specificity:** The problem identified by the first Inspection Panel Report over five years ago persists. The Panel finds that in the area of sustainable development and benefit sharing, the CDAP focuses almost entirely on short-term exercises; its targets are poorly laid out; and it makes no significant or systematic effort to ensure that resources are directed to institution building or social fundamentals rather than only short-term construction projects.

**Imbalances in Allocations between the T-line and HPP:** CDAP budgets show sharp differences. The T-line has a higher number of physically and economically displaced peoples than the HPP, but a smaller proportion of the resources devoted to CDAP activities. **The Panel finds that budget of the two components were not properly coordinated and this may lead to social discord among the displaced.**

**Decrease in Investment Resources to this Effort.** The previous Panel also found that “*the net present value of the resources to be contributed over a 35-year period seems very low.*” While the decision to reduce investment resources is not a compliance issue, the current Panel does not understand why Management decided to further reduce its effort. Even discounting for inflation, eliminating the second phase raises questions as to Management’s responsiveness to the previous Panel’s findings. **The fact that the same problems are surfacing with two different sponsors is of concern to the Panel. The Panel finds that with limited funding, broad criteria for eligibility and lack of specificity, the CDAP programs do not assure compliance with OP 4.12.**

## **(5) Indigenous Peoples**

The Requesters claim that the provisions of OP 4.10 on Indigenous Peoples have not been applied to the Project because the SEA does not consider the Basoga inhabitants of the Project area as indigenous people, in spite of the fact that the Third Schedule of the Constitution of the Republic of Uganda expressly considers the Basoga as such.

The Response states that Management respects local legislation but draws a distinction between the definition of indigenous people according to the Constitution of Uganda and that provided in OP 4.10. Under the Ugandan Constitution, in order to be considered an Ugandan citizen by birth—**regardless of socio-economic status**—one must belong to one of the 56 “indigenous communities” listed in the above-referred Third Schedule (or have a parent or grandparent who does); while under the Bank Operational Policy, the term indigenous is used “in a generic sense to refer to **a distinct, vulnerable, social and cultural group**” (emphasis added) possessing “in varying degrees” the characteristics listed in paragraph 4 of the OP 4.10.

Although the Basoga people meet some of the criteria necessary to be regarded as indigenous people in the context of Bank-financed projects pursuant to OP 4.10, they are a large and influential group with political, social and economic standing in Uganda’s society, and the Panel did not find any indication that they are regarded as a “*marginalized and vulnerable segment*” of the population that is unable to “*participate in and benefit from development.*” **The Panel did not find any evidence that Management violated the provisions of the Bank’s policy on Indigenous Peoples, with regard to the Basoga people.**

## **VIII. Cultural and Spiritual Values**

In its earlier Investigation report, the Panel indicated the efforts of the Bank to address the cultural and spiritual issues that the project raises, and Management’s good faith attempts to mitigate these issues. At the same time, the Panel also noted the importance of including all key stakeholders in consultation and taking steps to minimize the possibility of disturbance to the local communities that might arise from excluding any faction from such consultations as the project went forward. For the purpose of the present Investigation Report, the Panel conducted a careful research and analysis of

relevant materials, including numerous studies by the Cultural Research Center in Jinja, which focuses on Busoga culture.

The studies prepared in 2001 for the prior Bujagali Project mapped individual and community level spirits. These studies also identified a general protocol for moving spirits according to the tradition of the Busoga. The 2001 Cultural Properties Management Plan (CPMP) sets out a six month, US\$125,000 program of consultation, compensation of individuals for disturbed graves and shrines (*amasabo*), appeasement and relocation of the Bujagali spirits. Three individuals were identified as stakeholders for consultation about the spirits at Bujagali Falls. Problems, however, emerged with the so-called “*appeasement of community spirits.*” Later, the implementation of the CPMP stopped for the next four years.

During the preparation of the present Project, BEL committed to detailed consultation with locally affected communities regarding cultural properties management work undertaken by the prior project, with follow-up and a revised CPMP, as necessary. BEL’s consultations led it to conclude that, rather than a localized cultural site, the Bujagali Falls are of spiritual significance to the Kingdom of Busoga as they are considered a place inhabited by spirits. The Kingdom’s leadership expressed support for the Project and BEL committed to continue consultations to determine what needs to be done prior to the flooding of the Falls. For the Basoga, the traditional religious structure is distinct from the cultural structure.

### **Busoga Spiritual Domain**

Although the peoples of other ethnic groups inhabit the Project area, the Basoga claim spiritual dominion of both sides of the Nile, its islands, the water and its waterfalls. Their language, Lusoga, predominates in this area, on the East bank of the River Nile. The Basoga share a common dialect and ideological, spiritual history, sharing a cluster of eight or more high status spirits, including *Budhagaali*, the spirit residing at the Bujagali Falls site. To the Basoga, the project area—like their entire region—is inhabited by ancestral spirits and living humans who are constantly interacting – from birth to death and beyond.

The key elements of Busoga spiritual cosmology are: (a) the spirits are innumerable, powerful and frequently cross over into the world of the living and may do both good and bad; (b) they inhabit the same world as the living and are associated with animate and inanimate objects throughout the landscape; (c) they can move freely without the need for human permission; (d) they have differential power, influence, and interests; (e) they are hierarchical, somewhat comparable to the ancient Greek Pantheon; (f) they influence the health, well-being and the livelihood of the living; (g) more powerful spirits communicate through mediums who do not view themselves as capable of negotiating or predicting spirit behavior—they are mediums of the spirit who possesses them; and (h) the mediums are selected by the spirits, not by the cultural (political) leaders.

## Busoga Cultural Domain

In terms of cultural structure, the Busoga Kingdom is a cultural institution that promotes popular participation and unity among the people of Busoga through cultural and development programs for the improved livelihood of the people of Busoga. Unlike the typical monarchies in Africa, the Busoga did not have a central authority at the advent of British rule. Nevertheless, it had developed small principalities, each with its own hereditary ruler. These principalities were later to be consolidated under a King called “*Isebantu Kyabazinga*” who ruled the Busoga Kingdom. This secular institution, which is a stakeholder on Busoga cultural issues, makes no claims to hold spiritual power. **The Panel finds that Management and the Sponsor have increasingly recognized and involved the Kyabazinga Institution as an important guardian of the Busoga cultural tradition.** The Panel also recognizes that the Kyabazinga Institution is not empowered to speak as surrogates in consultations for the Basoga spiritual stakeholders.

### Panel’s Analysis—Physical Cultural Resources

During Project design, BEL’s consultations led it to conclude that, rather than a localized cultural site, Bujagali Falls is of spiritual significance to the Kingdom of Busoga as it is a place inhabited by spirits. A CPMP, in compliance with OP/BP 4.11, should have identified Bujagali Falls as a significant cultural resource, triggering rigorous safeguards for specific avoidance, consultation and mitigation as required under the Bank’s Policy. In terms of avoidance, the Panel can find no evidence, since the initiation of the Bujagali Project of Management considering avoidance of the significant cultural resource impacts at Bujagali Falls. **The Panel finds that Management failed adequately to consider or implement alternatives to avoid the project-related impacts on Busoga spirituality and culture in violation of OP/BP 4.11.**

As for consultation, the Panel considers that the consultation methodology used in the Resettlement and Community Development Action Plan (RCDAP) was detailed, but structurally flawed. First, the survey included mostly laymen many of whom were not sufficiently knowledgeable of the traditional religion. Second, it excluded key spiritual leaders (*baswezi abadhagaali*) of the Busoga clan. The consultations did not recognize that mediums of the Nabamba Budhagaali spirit derive their power through recognition by the traditional clan priests (*muswezi*) as agents of their believers. A medium of the high Busoga spirits is incapable of commanding his/her followers, meaning that the appropriate consultation strategy is participatory, as this is common among traditional religions.

Third, the survey was limited to the people in the project area, many of whom were non-Busoga migrants who had moved into the area following a disease-linked depopulation. **Most of those who believe in the significance of the Bujagali Falls spiritual site do not live in the immediate vicinity of the Project.** The terms of reference for the cultural consultations were not revised after interviews discovered that the spiritual sites in the project area were of major significance to a religious tradition that extended beyond the immediate area of the study.

The limited consultation creates on-going uncertainties as to affected people's acceptance of the project's cultural resource impacts. **The Panel finds that the Project failed adequately to consult with the Busoga spiritual clan leaders associated with one or more high status Spirits about the significant cultural patrimony of the Bujagali Falls. This is not in compliance with OP 4.11.**

The Sponsor's approach had been to identify three interested "stakeholders" in the "Bujagali spirit(s)" and fund either appeasement or relocation ceremonies. The Sponsor focused on obtaining written consent from three stakeholders that compensation had been adequate and that construction of the dam at Dumbbell Island and the resulting inundation could proceed.

Following a ceremony financed by the first Sponsor on September 28, 2001, to relocate the Bujagali spirits, Management claims that all three interested mediums acknowledged in writing that compensation had been adequate and construction of the dam could proceed with the partial inundation of Bujagali Rapids as a result. The witness NGO contradicts this account; they claim that the October 2, 2001 negotiations with the Nabamba Bujagali withheld his endorsement.

Another medium, Lubaale Nfuudu, felt the spirits had been moved to a temporary location, on his property and will be relocated again nearby the project site. The Nabamba Bujagali medium seems to have remaining claims over the site. The Panel notes that 2001 Project documents identify the Lubaale Nfuudu as a diviner (*muswezi*) who asserts that the spirit Lubaale is the father of Nabamba Budhagaali spirit. He conducts occasional ceremonies with *busweszi* at the Bujagali Falls to communicate with Lubaale, one of the highest spirits within Busoga cosmology, but different from the Bujagali spirit. This opens the possibility that Bujagali Falls, as a cultural property may be the site of two high spirits of the Busoga, not one.

Panel interviews with the Nabamba Bujagali, cultural experts, the Sponsor, and Management show that the consultation process has not yet led to satisfactory outcomes for all and that mitigation efforts cannot be considered completed.

**Misidentifying the Bujagali Falls as a local cultural resource, misaligning its consultation strategy, and failing to prepare a new Cultural Property Management Plan compounded errors and muddled mitigation. Resultant problems included loss of objectivity of the Sponsor, impatience, assignment of pecuniary motives to stakeholders, cost cutting, culturally inappropriate mitigation efforts, and most importantly, a misunderstanding that the Bujagali Project is ensconced in a long-term relationship with its new neighbors and their spirit world.**

**The Panel finds that Management unnecessarily and inappropriately took sides in a spiritual controversy of a religion in which millions of Ugandans believe. The Panel finds this action by Management to be non-compliant with the OP 4.11.**

With reference to the islands, the Sponsor felt it was impossible to locate graves located there with certainty and, therefore also impossible to exhume and relocate remains. The new Sponsor took over the mitigation strategy developed by the previous one to hold an inter-denominational remembrance service to honor the memories of those buried in the islands. No consultation or ethno-archaeological work had established the provenance of the remains to determine the culturally appropriate mitigation. The Panel obtained information that the islands may be the location where previous spiritual media are buried. Noting that appropriate consultation and mitigation has yet to be done for the Bujagali Falls spiritual site, the Panel observes that the island areas must be included in the mitigation strategy to reach compliance with OP/BP 4.11.

**The Panel finds that Management assumed that what they called the “Bujagali spirits” were restricted to the Project construction and flooding area, in contravention to the BP 4.11 requirement that they work with and assist the Borrower to identify the spatial and temporal boundaries of the cultural resources affected by the project. This did not comply with avoidance and mitigation requirements of OP/BP 4.11.**

Narrowing its size, location, and scale, Management discounted the significance of what should have been identified as the Bujagali Falls spiritual site to all of the Busoga, not just to those living in close proximity to the Project area. It appears that Management defined the project-affected-people under OP 4.11 on Physical Cultural Resources as those covered under OP/BP 4.12 on Involuntary Resettlement. In the case of the Bujagali project, the groups are distinct. **Consequently, the Panel finds that the culturally and spiritually affected people were not adequately identified as required by Bank policy.**

### **Critical Natural Habitats**

Given the importance that the Requesters attach to the spiritual aspects of the Falls, the Panel examined in detail the Bank’s consideration of this issue in light of different policies. In the Project, these issues have mainly been considered under the Bank policy on Physical Cultural Resources (OP/BP 4.11). However, OP 4.04 also contains provisions that are relevant to these issues, as discussed below.

Project documents recognize that the inundation of the Bujagali Falls will destroy a natural habitat of significance to the people of Uganda, and identify specific actions to offset this impact. At the same time, Management takes the view that the Project is not significantly converting or degrading a “*critical natural habitat*” as defined in OP 4.04. The Panel analyzes the various dimensions of that decision in light of provisions contained in the Bank policy.

Since OP 4.04 states that the “*Bank does not support projects that, in the Bank’s opinion, involve the significant conversion or degradation of critical natural habitats,*” the Panel reviewed what constitutes a critical natural habitats. Annex A of OP 4.04 defines “critical natural habitats” as

“(i) existing protected areas and areas officially proposed by governments as protected areas (e.g., reserves that meet the criteria of the World Conservation Union [IUCN] classifications [footnote omitted]), **areas initially recognized as protected by traditional local communities (e.g., sacred groves)** and sites that maintain conditions vital for the viability of these protected areas (as determined by the environmental assessment process; or, ...

(ii) sites identified on supplementary lists prepared by the Bank or an authoritative source determined by the Regional environment sector unit (RESU). **Such sites may include areas recognized by traditional local communities (e.g., sacred groves).**” (Emphasis Added)

Thus OP 4.04 indicates that socio-cultural factors do have a bearing on the assignment of “criticality” to a natural habitat. The Panel further observes that there is substantial literature and practice recognizing the important relationship between sacred places and the conservation of natural habitats and protected areas, a subject of much attention in recent years. IUCN Guidelines for Protected Area Management Categories, referred to in the definition of Critical Natural Habitat under OP 4.04, state that a Category III Protected Area is an “[a]rea containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities **or cultural significance.**” (emphasis added).

The Panel notes that “*areas initially recognized as protected by traditional local communities (e.g. sacred groves)*”, as referred to in OP 4.04, include areas recognized as protected for their cultural significance and ecological functions by traditional peoples. In the Bujagali Falls area, Project studies and the Panel have identified islands, sacred groves, rocks, waterfalls, and numerous Busoga spiritual sites. The persistent resistance to disturbance of the site by the Busoga spiritualists and the expressed concerns of the Kyabazinga Institutions is evidence that Bujagali Falls are a natural habitat of great importance to the Basoga that is being protected by them, as provided in OP 4.04. The Panel found evidence and documents describing the cultural and spiritual significance of the Bujagali Falls site to the Busoga people. In addition, studies conducted by AESNP for the prior Bujagali project suggest a strong ethno-botanical use of the Bujagali Falls project area, in particular the islands, for healing and mental well-being. These studies include an ethno-botanical survey with these numerous healers to identify the flora associated with their practices.

As mentioned above, OP 4.04 states that the Bank does not support projects that, in the Bank’s opinion, involve the significant conversion or degradation of critical natural habitats. The Panel notes that this aspect of the text (“*in the Bank’s opinion*”) indicates, *inter alia*, the need for and importance of the considered judgment of the Bank on this crucial question. This phrasing does not imply or give Management a blank check to apply or not certain policy provisions to a specific project but rather requires Management to form and provide expressly an opinion on the issue in question, which must be consistent with the objectives of the applicable policy. This is particularly

relevant in view of the controversy surrounding these issues in the present Project. The Panel did not find sufficient documentation that would have permitted Management to make such a considered judgment.

The Panel finds that the Bujagali Falls area is a sacred place, like a sacred grove, recognized by the Basoga, a traditional local community, for its high cultural and spiritual significance and inter-related ecological features and values. **In this context and for the reasons described above, the Panel finds that the Bujagali Falls area may be regarded as a critical natural habitat for purposes of OP 4.04.** The Project entails flooding of the Bujagali Falls area. Bank policy regards inundation as a form of significant conversion or degradation.

In light of the above, the Panel finds that the Project record does not provide sufficient discussion as to why the area was not considered a critical natural habitat. Nor do Project documents explain the Bank's "opinion" that the Project would not involve significant conversion or degradation of a critical natural habitat. **Considering the known spiritual importance of the Project area, without such an explanation, one could also arrive at an opposite conclusion, i.e. that the inundation may be regarded as resulting in the significant conversion of a critical natural habitat which would be in violation of OP 4.04. The Panel finds that omitting the reasons behind an opinion of not declaring the Falls a critical natural habitat is not consistent with the objectives of OP/BP 4.04. The Panel finds that there is an overriding need for the Bank to address these issues in a coherent and well-founded manner to ensure compliance with Bank policies.**

### **The Cultural Property Management Plan (CPMP)**

It remains uncertain whether or not key stakeholders (consulted and as yet to be consulted) in the spiritual community comprehend the fact that their sacred site will be inundated and inaccessible for their traditional ceremonies. This issue extends well beyond the two spiritual mediums.

Management was also on untested grounds by substituting an abbreviated procedure, not provided for in Bank Policy whereby the new Sponsor would find out what remains to be done from the previous plan, which was assumed to be correct. The prior Sponsor's plan was designed under OPN 11.03, a policy framework that had been replaced by 2006. **The Panel finds that insufficient competence was dedicated to an examination of this issue for the Appraisal.**

There are livelihood impacts directly associated with the disruption of the cultural resources sites that were ignored. Contemporary ethnographic accounts and the RCDAP 2001 describe many categories of traditional practitioners (diviners, interpreters, gourd players, immunizers, exorcists, dispensers, herbalists, caretakers/mediums, bone sitters, and more) who require payment in money or in-kind for their services, as in any other religion. Within the context of a traditional society, these transactions are substantial, and they should have been included in the CPMP as specified in OP 4.11. **The Panel finds**

**that Management failed to prepare a Cultural Properties Management Plan, assuming that the work of the previous Sponsor was sufficient to meet OP/BP 4.11 guidelines.**

In summary, the Project misidentified the Bujagali Falls spirits as localized, with Project impacts limited to people nearby the Project site. The TOR for the Cultural Properties Management Plan omitted the need for consultation with the spiritual leaders (*baswezi*) of approximately 340 Busoga clans with spiritual ties to the cultural property that was to be affected by the Project. **The Panel finds that Management is in non-compliance with OP 4.11, by misjudging the size, location, scale as well as the nature and magnitude of the cultural and spiritual significance of Bujagali Falls. The Panel also finds that Management did not consult with key stakeholders throughout the Project cycle and is, therefore, in non-compliance with OP 4.11. The Panel also finds that mitigation measures were not adequate because the scope of the impact and the consultation process were incomplete.**

### **Opportunities to Address Cultural and Spiritual Issues**

The Panel observes that there are important opportunities available to address the cultural and spiritual issues within the context of the Busoga and the specifics of OP/BP 4.11. The Panel's investigation of Busoga culture suggests that the task ahead is one of restoration of cultural harmony and developing an appropriate consultation process, not simply of appeasement. Management's cultural resource strategy of the prior project has focused on closure, relocating, or appeasing the spirits, compensating when necessary, documenting spiritual appeasement through signed certificates, and setting a finite timeline (originally six months in 2001). The current Project continued this strategy of appeasement by honoring the memories of those buried on the island. Such a service might prove valuable for some residents in the project area, but does not appear to have been developed through consultations with the Busoga spiritual stakeholders.

Similarly there does not exist yet a long-term strategy for sustaining a relationship between believers and the Project, nor have arrangements been negotiated allowing worship at alternative sites in the future. Panel interviews with Basoga cultural experts revealed that an outcome of a spiritual consultation may be for the spirits to stay in place and permit the project to proceed. **The Panel finds that Management has thus far failed to support negotiations that would allow enduring coexistence with spiritual elements of Busoga traditional religion and the Bujagali dam.**

## **IX Systemic Issues Affecting Policy Compliance**

This investigation, like some earlier ones, has revealed certain systemic issues that have affected the Bank's overall compliance with its Policies and Procedures. The first of these, noted at the beginning of this Report, is the need for considerable care to apply Bank policies in the complex area of energy production, to promote sound development practices and ensure Project costs, including social and environmental costs, do not exceed benefits. Others are summarized below.

## Legacy Issues from Preceding Projects

This investigation encountered a situation of adverse effects on people due to a failure to assess, correct and complete resettlement actions initiated in the previous effort to develop the Bujagali dam. When the implementation of this earlier project was halted, following withdrawal of the sponsor, many of these people were essentially left in limbo, and they did not receive key elements of the resettlement process to which they were entitled under Bank policy.

**The experience with the Bujagali Dam highlights the significant problems that may arise when actions of previous projects are not carried to completion or corrected in accordance with Bank policy. The Panel notes the importance to affected people of timely actions to address any such situations that might arise.**

## Incorporating Climate Change into Project Design

The Panel Report indicates that important studies were done to analyze the question of climate change. At the same time, the Panel discovered that the conclusion was drawn from this analysis, as presented to the Board of Directors in the PAD, was that “[. . .] *there will be no adverse effect on water release due to climate change during the life of the proposed project.*”

The Panel is troubled by this conclusion - - it failed to include a risk or uncertainty factor, was inconsistent with the underlying analysis, and appears to provide an overly optimistic reading of the potential effects of climate change. The Panel considers that climate change requires a change in mindset towards thinking in probabilistic rather than deterministic terms, recognizing the inherent uncertainty that surrounds climate related issues, and avoiding categorical, deterministic statements. The approach noted above is not in line with the objectives of Bank policies in support of informed decision-making.

**The Panel notes, in this regard, the Bank’s increased role in supporting action to address climate change, and its systems-level efforts to ensure that climate change risks are mainstreamed and integrated into Bank’s strategic analysis and project decision making. The proper reporting of risks is of central importance in this larger context.**

## Timely Disclosure of Information within the Project Cycle

The Requesters have expressed concern that it was not possible for them to bring the Request at an earlier time because of the lack of transparency and disclosure during the discussions of reviving plans for a second round of investment in the Bujagali dam project.

This point finds support in the record of disclosure of Project documents. Project files show that the Bank was involved in the preparation of this Project since early 2005. However, the Project Information Document, which is supposed to be issued early in the

Project cycle to provide factual information to the public about a project as it evolves, was not issued until January 30, 2007. The Project appraisal took place shortly thereafter in March 2007, and the Board approved the Project on April 26 of the same year. **While the Panel notes ongoing efforts to streamline procedures, this should not be at the expense of providing adequate information to the public in a timely way.**

Related to this, the Requesters have also raised concerns about the implications of the Project moving forward to such a degree during the investigation of their claims, which they note might result in significant issues of non-compliance and harm.

**The Panel observes that these concerns have given the impression to affected people that the Project is a *fait accompli*, notwithstanding the possibility of findings of non-compliance and harm.** The Requesters have expressed concern that this could prevent the Project from addressing significant findings in this regard. **The Panel notes that this is an important process and systemic issue raised by the present Request, particularly in projects where it is alleged that irreversible harm may occur as a result of Bank's non compliance.**

### **Transparency Issues and Public-Private Partnerships**

During its field investigation, the Panel noted considerable concern among Ugandan citizens and a number of their representatives about the lack of transparency on the economic impacts of the project. While realizing the complexity of this project, and the resulting agreements that were made between private and public partners, it is of concern to the Panel that so little is known about the impact of these agreements not only by the average Ugandan citizen, but also by persons in position to comprehend the implications of the various arrangements made.

**Given the increase in private-public partnerships, and issues relating to access to information in this context, IBRD and IDA might incur reputational risks that are thus far not adequately handled.** Similar issues were raised with regard to the prior Bujagali project and other projects reviewed by the Panel in the past. **In this regard, the Panel notes the importance of clarifying Bank policy concerning the disclosure of all project-related documents. This is of particular relevance in public-private partnership projects where some of the documents may be concluded among private parties relying on Bank financial support.**

In the present context, the Panel found that there was an unduly optimistic assessment of the costs, benefits and risks of the Project, including under-estimation of its capital costs, of its likely impact on tariffs, and of key risks. In each case, Bank Management was substantially dependent on the work of others. The Panel also found that the assessment of alternatives was insufficiently transparent, making it difficult for Bank Management authoritatively to address claims that it was inadequate and biased in favor of the Project. **As it stands, the net benefits of the Project could be substantially less than Bank Management has claimed.**

## Critical Natural Habitats and Sacred Places – Guidance to Staff

As described above, OP.4.04 defines critical natural habitats to include existing and proposed protected areas, “*areas initially recognized as protected by traditional local communities (e.g., sacred groves)*” and sites that maintain conditions vital for the viability of these protected areas. Internal guidance to staff for the application of the Natural Habitats policy, by comparison, describes “*critical natural habitats*” as “*those Natural Habitats which are either legally protected, officially proposed for protection, or unprotected but of known high conservation value.*”

In practice, this particular guidance seems to suggest a more limited interpretation and application of the policy than a plain reading of its terms would warrant. As a result, areas recognized as sacred and protected by traditional local communities, but considered to be lacking a unique biodiversity and/or official protection, may not have been regarded as “*critical natural habitats.*” As described in the Panel’s Report, the Project provides an illustration of an overly restrictive application of the Policy that puts the Bank at risk of a serious violation of its policy.

The Panel notes that, in contrast to this apparently narrow application of the Policy, there is a strong and increasing recognition over the years, for example through the IUCN process, of the importance of sacred places both for their spiritual and cultural values, and for and as part of broad conservation objectives, both individually and collectively. The Panel also addressed these same provisions of OP 4.04 in its recent investigation of the Cambodia forest project. In that Investigation Report, the Panel noted the presence of spirit forests and spirit trees important to the cultural identity of local people, and stated that “. . . Thus, there are many areas within the general forest estate that **need to be considered as critical natural habitats.**...” [emphasis added] The Management Response to the Panel’s Report does not dispute the Panel’s finding.

**The Panel considers that such internal guidance given to staff working in Bank-financed projects involving natural habitats and possibly critical natural habitats, like the current Project, may have sent an inadequate and overly-narrow signal on the application of the Policy. Project stakeholders would benefit from clarification on these matters.**

# Chapter I

## Introduction

### A. Events Leading to the Investigation

1. On March 5, 2007, the Inspection Panel (the “Panel”) received a Request for Inspection (the “Request”) dated March 1, 2007, related to the Uganda: Private Power Generation Project, also known as the Bujagali Hydropower Project (the “Project” or the “Bujagali Project”) (Guarantee No.B-0130-UG). The Ugandan National Association of Professional Environmentalists (NAPE) and other local organizations and individuals (collectively, the “Requesters”) submitted the Request to the Panel.<sup>2</sup>
2. The Inspection Panel registered the Request and notified it to the World Bank Board of Executive Directors and to Management on March 7, 2007.<sup>3</sup> On April 5, 2007, Management submitted its Response to the Request (the “Management Response”).<sup>4</sup>
3. The Project provides for the construction of the Bujagali hydropower plant on Dumbbell Island on the Nile River, which has its headwaters in Lake Victoria. The Bujagali Dam will be located about 8km downstream from the existing Nalubaale and Kiira Hydropower Plants. The Project is to be implemented by Bujagali Energy Limited (BEL), a private sector company.<sup>5</sup> The Project’s main objective is to provide least-cost power generation capacity that will eliminate power shortages at the time of its commissioning. The Project would represent an increase of 250 MW of installed power generation capacity to the national grid.

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<sup>2</sup> Request for Inspection Re: Lodging a Claim on the Proposed Bujagali Hydropower Dam and Interconnection Projects in Uganda, March 1, 2007, (hereinafter “Request”). The Request is available at the Panel’s website: <http://www.inspectionpanel.org>.

<sup>3</sup> The Notice of Registration is available at <http://www.inspectionpanel.org>.

<sup>4</sup> Bank Management Response to Request for Inspection Panel Review of the Uganda: Private Power Generation Project (Proposed), April 5, 2007, (hereinafter “Management Response”). The Management Response is available at <http://www.inspectionpanel.org>.

<sup>5</sup> The Project Appraisal Document (PAD) describes BEL as “a special purpose company incorporated under the laws of Uganda by the project sponsors, who will be responsible for financing, building and operating the proposed project on a Build-Own-Operate-Transfer basis. BEL will sell electricity to UETCL under a 30 year PPA. The project sponsors are: (a) Industrial Promotion Services (Kenya) Ltd. (IPS (K)) 7, the Kenya subsidiary of IPS, the industrial development arm of the Aga Khan Fund for Economic Development (AKFED); and (b) Sithe Global Power LLC (US) (Sithe Global), an international development company formed in 2004 to develop, construct, acquire and operate strategic assets around the world, which is controlled by Blackstone Capital Partners, an affiliate of the Blackstone Group. Reservoir Capital Group, LLC, a privately held investment firm, and Sithe Global’s management are also Sithe Global’s shareholders.” Project Appraisal Document for the Private Power Generation (Bujagali) Project in the Republic of Uganda. Report No 38421-UG, April 2, 2007 (hereinafter “PAD”), p. 29.

4. This is the second effort of the Government of Uganda (GoU) to develop the Bujagali Hydropower Plant. As described in more details below, in 2003 the earlier Bujagali Project was abandoned and the Government terminated its agreements with the World Bank Group, the other financiers and the sponsor AES Nile Power (AESNP)<sup>6</sup>, a US company.
5. The dam would create a reservoir that floods an area of 388 hectares, requiring the taking of 238 hectares of land to construct the dam, 52 hectares for transmission lines, all of which will involve displacement and resettlement of people and family from their lands.<sup>7</sup> The dam's reservoir would also inundate the Bujagali Falls and other natural habitats, which are sites of cultural and religious significance to the Busoga peoples.
6. The Request raises a number of environmental, hydrological, social and economic concerns related to the Project as designed, and contends that a failure of the Bank to follow its own operational policies and procedures in the design and appraisal of the Project will result in serious harm to the people living in the Project area and to the environment, in particular the Nile River and Lake Victoria. Management indicates in its Response that it takes seriously the Requesters' concerns. It also states that the Project was well prepared and the Requesters' concerns properly addressed in compliance with the applicable Bank policies.
7. The Requesters' claims and Management Response are briefly summarized below and thoroughly examined in the following chapters of this Investigation Report.<sup>8</sup>

## 1. The Request

8. The Request raises a number of concerns regarding the Project, in relation to: hydrological risks and climate change; environmental assessment, cumulative impact assessment and terrestrial and aquatic fauna; the proposed Kalagala Falls offset; economic analysis, options, and affordability assessment; information disclosure, transparency and openness regarding the Project; dam safety; indigenous peoples, cultural and spiritual issues; compensation, resettlement and consultations.
9. According to the Requesters, the claims they present in the Request constitute a violation of several Bank Operational Policies and Procedures, including OP/BP 4.01 (Environmental Assessment), OP/BP 4.04 (Natural Habitats), OP/BP 4.02 (Environmental Action Plans), OP 4.07 (Water Resource Management), OP/BP 4.10 (Indigenous Peoples), OP/BP 4.11 (Physical Cultural Resources), OP/BP

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<sup>6</sup> Also referred to as "AES" in this Report.

<sup>7</sup> The process of resettling these people commenced in 2001 at the time of the previously proposed Bujagali dam project, as discussed in Chapter VII (Social Compliance—Involuntary Resettlement, pp. 137–8) even though the dam was not constructed and no flooding had yet occurred.

<sup>8</sup> The Panel notes that in August 2005 NAPE published a report restating its concerns about the Project. This report can be found at <http://www.ifitransparency.org/doc/napereport.pdf>.

- 4.12 (Involuntary Resettlement), OP/BP 4.37 (Safety of Dams), OP/BP 7.50 (Projects on International Waterways), OP/BP (Economic Evaluations of Investment Operations), OP 1.00 (Poverty Reduction), and World Bank Policy on Disclosure of Information.
10. In December 2001, the Board of Executive Directors approved an IDA Guarantee to support an earlier proposal for the Bujagali Hydropower Project.<sup>9</sup> In July 2001, before Board approval, NAPE submitted a Request for Inspection to the Inspection Panel in relation to this previous Bujagali proposal and the Owen Falls Extension (Kiira). After approval on a non-objection basis by the Board of Directors, the Panel conducted an investigation of the issues raised in the 2001 Request.<sup>10</sup>
  11. The Bank cancelled the IDA Guarantee after AESNP pulled out of the Project. The Requesters noted, *inter alia*, that “*performance shortfalls, controversies related to social, economic and environmental aspects, evidence of corruption*”<sup>11</sup> had contributed to the cancellation. The Requesters claim that due to increased electricity demands and the inability of Nalubaale and Kiira to supply enough electricity to meet those demands, the GoU “*has revived and is in the process of fast-tracking the Bujagali hydropower dam project under different proponents...this has resulted in many shortcuts being taken to ensure that the project is approved as fast as possible, ignoring outstanding and new concerns raised on the project.*”<sup>12</sup>
  12. The Requesters raise several concerns related to hydrological risk, climate change, and cumulative impact assessments. They claim that the Project’s Social and Environmental Assessment (SEA) does not address hydrological changes and their effect on power production. The Requesters claim that Kiira has contributed to an over-drawing of water from Lake Victoria and that the SEA does not address the long-term health of Lake Victoria. They claim that changing hydrology may be a major limitation on Bujagali’s power production and that the SEA does not examine the potential impacts of climate change, which they claim, will lead to drier conditions, lower lake levels, and therefore lower power production. The SEA also lacks an analysis of the cumulative effects of having a cascade of dams along the Nile. Finally, the Requesters claim that because the analysis is based on “*flawed assumptions and computations*”<sup>13</sup> related to hydrological risks, the Project’s economic viability is at risk. In addition to these concerns, they claim that the guarantee that the Kalagala Falls will be put aside as an offset and not be developed for hydropower is not binding on the GoU.

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<sup>9</sup> Also referred to as the “prior Bujagali Project.”

<sup>10</sup> Inspection Panel Investigation Report, Uganda: Third Power Project (Credit No. 2268-UG), Fourth Power Project (Credit No. 3545-UG), and Bujagali Hydropower Project (PRG B 003-UG), 23 May 2002. The Report is available at the Panel’s website: <http://www.inspectionpanel.org>.

<sup>11</sup> Request, p. 1.

<sup>12</sup> Request, p. 1.

<sup>13</sup> Request, p. 4.

13. The Requesters also claim that the SEA does not adequately consider, *inter alia*, Project alternatives such as small hydro, the Karuma Dam, geothermal, efficient lighting, and wind power. In their view, the analysis of alternatives was overly pessimistic while the hydrological data for the Bujagali Project was overly optimistic. The Requesters also raise concern that the electricity from Bujagali will not be affordable, will not meet the needs of the majority of Ugandans, and will reduce the money available for rural electrification.
14. The Requesters raise other concerns as well. They claim that the Power Purchase Agreement (PPA), a key agreement related to the Project's economic viability, was only recently released and they allege that the public version in Kampala was not the actual version used to negotiate loans for the Project. The Requesters say that no evidence exists that the PPA was debated and approved by the Ugandan Parliament. Related to safety, the Requesters claim that the Sponsor has failed to adequately address dam safety issues or determine whether Bujagali would be able to withstand a failure of the Nalubaale dam. Furthermore, the Requesters claim that the Project did not recognize the presence of indigenous peoples in the Project area nor did the Project deal sufficiently with cultural and spiritual issues. The Requesters say that the compensation and resettlement frameworks need to be updated to reflect the current economic situation and that the Sponsor needs to create a detailed compensation and detailed community development action plan. Furthermore, the Requesters raise concern over the consultation process, the use of data, which they claim is old and inconsistent, and the quality of the Environmental Impact Assessment (EIA) related to fauna. The Requesters also complain that the World Bank failed to respect the Constitution of Uganda because it did not consider the Busoga people living in the Project area as Indigenous Peoples for purposes of this Project, and thus did not apply the provisions of OP 4.10, which is aimed at protecting vulnerable minorities in Bank-funded Projects.
15. In addition to the letter from NAPE, the Request also includes a letter from the people who were displaced by the prior Bujagali Project and resettled in the Naminya area. The Naminya residents claim that they were promised many things as part of the terms and conditions of their resettlement, but that many of those promises remain unfulfilled. They outline unfulfilled promises and problems related to land titles, a primary school, a health center, water, housing, latrines, electricity, sources of income and food, a community center, a market, environmental protection, employment, and infrastructure maintenance.

## **2. Management Response**

16. Management submitted its Response to the Request for Inspection on April 5, 2007. Management maintains that the Project is being developed to provide needed power generation capacity in a least-cost manner. In the past three years, Uganda has been suffering severe power shortages due to lack of generation capacity, prolonged drought in the region, increases in annual electricity demand,

- and technical losses in the distribution system. Management indicates that currently the country's growth is strained by the electricity crisis, which has caused routine power cuts affecting small and large businesses. Management maintains that the Project is expected to eliminate power shortages by 2011 by providing an additional 250MW of generation capacity to the national grid.
17. With respect to the Inspection Panel's 2002 investigation of the prior Bujagali Project, Management notes that an action plan was prepared and approved by the Board on July 17, 2002. The action plan related to the sectoral EA, cumulative impacts, the Kalagala offset, load forecast scenarios, affordability risks, power generation alternatives, a socio-economic survey, the community development plans, and compensation for tourism aspects of the Panel's investigation. The response includes a matrix describing the 2002 Panel's investigation findings and the status of implementation of the action plan. Management notes that if the Bujagali Project had been constructed under the prior Project, the reduction in Lake Victoria water levels due to over-drawing may not have happened and power would have been produced at a lower cost than Uganda is currently paying for supply from thermal plants. In Management's view, the Project is overdue and Uganda is paying a high price for the delay brought about by the failure of the prior attempt. However, Management maintains that the GoU has learned lessons from the prior experience and the GoU is better able to understand the concerns of stakeholders.
  18. In response to the issues raised by the current Request, Management states that they take the Requesters' concerns seriously and that they believe the Project *"adheres closely to Bank policies and more importantly, that the project developers and financiers have been conscientious in pursuing the welfare of project affected persons as well as Uganda as a whole."*<sup>14</sup> Related to Kalagala Falls, Management claims that the GoU has reiterated a commitment to the offset as part of the Indemnity Agreement and that Management will engage with the GoU prior to the termination of the Indemnity Agreement about identifying mechanisms or instruments to continue the GoU obligation for the Kalagala offset. Management also reports that a Dam Safety Panel was created to provide advice and ensure consistency with Bank policy and that the Project's legal agreements require the preparation of an Emergency Preparedness and Response Plan (EPRP), which includes failure scenarios for Nalubaale, Kiira and Bujagali dams.
  19. On the social concerns raised, Management acknowledges that the past resettlement program was not completed. To address these issues, the Assessment of Past Resettlement Activities and Action Plan (APRAP) and Community Development Action Plans (CDAP) were undertaken to assess and address the current conditions. Management indicates that BEL and the Bujagali

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<sup>14</sup> Management Response, ¶47.

Implementation Unit (BIU)<sup>15</sup> were resolving outstanding issues. In response to the claims that the Busoga people in the Project area should be considered indigenous people, Management asserts that the Busoga are not considered indigenous people under the Bank's Indigenous Peoples Policy definition.

20. Management maintains that experienced Bank staff and consultants were engaged to work on the preparation of this Project and that economic, financial, safeguard, technical and other analyses were done to a high standard. Project analysis considered a wide range of electricity demand scenarios and the impacts of both low and high hydrology scenarios. Management regards the environmental and social work carried out thus far to have appropriately considered the issues that emerged in the previous Bujagali investigation and the new issues outlined in the current Request related to resettlement, cumulative impacts, and consultations. They note that the environmental and social documents were disclosed along with the economic and financial analysis on December 21, 2006. Additionally, Management claims that Project preparation took into account the Inspection Panel's investigation findings of the issues raised in the 2001 Request for Inspection.
21. Management claims that the Project will bring several benefits. Providing least-cost power is expected to increase the number of connections of residential users to the national grid, including in rural areas, and will allow industrial and commercial users to increase output and efficiency and, therefore, profits. The Project will bring local job opportunities during construction and tourism development in the Kalagala offset. Additionally, the Project is expected to have environmental benefits since the same water already released through Nalubaale and Kiira dams will be used for Bujagali, thereby reducing the pressure to over-extract water from Lake Victoria.

### **3. Eligibility of the Request**

22. To determine the eligibility of the Request and the Requesters, as set forth in the 1993 Resolution establishing the Panel<sup>16</sup> and the 1999 Clarifications,<sup>17</sup> the Panel reviewed the Request for Inspection and Management Response. The Panel Chairperson at the time, Prof. Edith Brown Weiss, together with Executive Secretary Peter Lallas and expert consultant Eduardo Abbott visited Uganda from April 18–25, 2007. During their visit, the Panel Team met with the Requesters, other members of civil society and locally affected communities, Bank staff, national and local authorities, Project authorities, members of Parliament and others.

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<sup>15</sup> The BIU is a unit of the Uganda Electricity Transmission Company Limited (UETCL), the country's national transmission company. The BIU is responsible to monitor the resettlement program under the Project.

<sup>16</sup> International Development Association (IDA) Resolution 93-6, dated September 22, 1993.

<sup>17</sup> Conclusions of the Board's Second Review of the Inspection Panel, April 1999.

23. The Panel determined that the Request fulfilled the eligibility requirements for inspection. The Panel recommended an investigation to the Board of Executive Directors because the Request and the Management Response contained conflicting assertions and interpretations of the issues, facts, compliance with Bank policies and procedures, and actual and potential harm.
24. On May 18, 2007, the Board approved the Panel's recommendation to conduct an investigation into the matters alleged in the Request for Inspection. The Request, Management Response, and the Panel's Report and Recommendation were made public shortly after the Board authorized the inspection sought by the Requesters.

#### **4. The Investigation**

25. The purpose of the investigation was to establish whether the Bank complied with its own policies and procedures in the design, appraisal and implementation of the Project, and whether, if instances of non-compliance were found, they caused, or were likely to cause, harm to the Requesters and the people they represent.
26. The Panel conducted a two-part investigation. The first part involved detailed research into Bank records related to the Project, interviews with Bank Staff both in Washington DC and in Kampala, Uganda, and a review of relevant documents and scholarly literature. The second part took the form of an in-country fact-finding visit. To assist in the investigation, the Panel retained five consultants, who are internationally recognized experts on the environmental, social, economic and technical issues raised in the Request. The Panel was assisted in its investigation by Prof. Theodore Downing, anthropologist, Prof. Richard Fuggle, environmental specialist, Mr. Graham Hadley, economic and commercial consultant, Prof. Peter Pearson, economist and Prof. Carlos Tucci, hydrologist.
27. Panel Chairperson Werner Kiene, Panel Members Tongroj Onchan and Roberto Lenton, Executive Secretary Peter Lallas, Operations Officer Serge Selwan, and the expert consultants Ted Downing, Richard Fuggle, Peter Pearson and Carlos Tucci visited Uganda from November 27 until December 7, 2007. During its mission, the Panel met with Requesters and other individuals and communities, local and national government authorities, representatives of the Busoga Kingdom, spiritual and religious leaders, representatives of civil society, and representatives of inter-governmental organizations, relevant experts and others. The Panel also interviewed Bank Staff in Washington, D.C. and Kampala. In addition to Kampala, the Panel visited the towns of Entebbe and Jinja, the villages and areas of Mutundwe, Kigwanya, Nakuwade, Nansana, Wasiko, Nimanye, Naminya, Kalagala, and Bujagali falls, the dams of Kiira and Nalubale, and Mabira forest.
28. This Report presents the results of the Panel's investigation regarding the issues the Requesters raised in their submission to the Panel.

29. **Collaboration with the Compliance Review and Mediation Unit (CRMU) of the African Development Bank (AfDB):** The Requesters submitted their Request for Inspection to the World Bank Inspection Panel as well as the CRMU of the AfDB, as the AfDB is co-financing the Project. The Panel and the CRMU coordinated their field investigations of the Bujagali Project and shared consultants and technical information during this investigation in order to enhance the efficiency and cost effectiveness of each of their investigations. This collaboration between the Panel and the CRMU worked to the mutual benefit of both parties. Each Panel focused its compliance review on its own policies and procedures and each Panel has made its own independent judgments about the compliance of its Management and staff with its own policies and procedures. Accordingly, while there may be common elements and language in the respective reports, the findings in this report are based on the independent judgment of the Panel and exclusively on the World Bank's Operational Policies and Procedures.



**Picture 1 Panel - CRMU Meeting with Requesters**

30. The Panel wishes to express its thanks and appreciation to the CRMU for this fruitful and precedent-setting cooperation.

## **5. Bank Operational Policies and Procedures Applicable to the Project**

31. With respect to this Project, the Panel assessed whether the Bank complied with the following applicable Operational Policies and Procedures:

OP 1.00	Poverty Reduction
OP/BP 4.01	Environmental Assessment
OP/BP 4.02	Environmental Action Plans
OP/BP 4.04	Natural Habitats

OP 4.07	Water Resource Management
OP/BP 4.10	Indigenous Peoples
OP/BP 4.11	Physical Cultural Resources
OP/BP 4.12	Involuntary Resettlement
OP/BP 4.37	Safety of Dams
OP/BP 7.50	Project on International Waterways
OP/BP 10.04	Economic Evaluations of Investment Operations
World Bank Policy on Disclosure of Information	

## **B. Request for Inspection related to the prior Bujagali project**

32. In 2001 the Panel received a Request for Inspection related to the prior Bujagali Hydropower project. The Request for Inspection related to the Uganda: Bujagali Hydropower Project concerned three Projects: the Third Power Project, the Fourth Power Project and the then proposed Bujagali Hydropower Project.<sup>18</sup> The Third Power Project, referred to as the Owen Falls Extension (now known as Kiira), supported by IDA, included the construction of a powerhouse, the installation of two 40-megawatt generating sets, the provision of remedial works at the Owen Falls Dam, and the provision of technical assistance to the Uganda Electricity Board. The Owen Falls Extension is now known as Kiira and with the Owen Falls dam, known today as Nalubaale, forms the Nalubaale–Kiira system addressed in various parts of this Report. The Fourth Power Project, financed by IDA as well, aimed at expanding Uganda’s power supply to meet the country’s electricity demand and to strengthen its capabilities for managing the energy reform and privatization process. The Bujagali Hydropower Project involved the joint participation of the IDA and the International Finance Corporation (IFC) to develop a 200-megawatt run-of-the-river power plant at Bujagali Falls, a small reservoir, and a rock fill dam spillway, as well as the construction of approximately 100 kilometers of transmission lines and associated substations.
33. At the time the Request was filed, the World Bank Group’s package of financial assistance had not been approved. The Bujagali Project’s financing plan envisioned an equity contribution of US\$111.3 million from a private sponsor, the AES Corporation, as well as contributions from other financiers such as the AfDB (US\$55 million) and export credit agencies (US\$219.5 million). The proposal envisioned that a privately owned and operated Project company, AES Nile Power (AESNP), would construct the hydropower plant on a build-own-operate-transfer basis and would sell electricity to a fully state-owned company under a 30-year power purchase agreement.
34. Project preparation raised strong concerns from parts of the country’s civil society because of the cultural and spiritual significance of the Bujagali Falls to the Busoga peoples, the involuntary resettlement of people living on the shore of the

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<sup>18</sup> These projects, subject to the 2002 Investigation Report, are hereinafter referred to as the “prior Bujagali project” or the “prior project”.

falls and along the transmission lines, and other reasons. In this environment, the Request for Inspection was submitted to the Panel on July 27, 2001.

35. **The Request:** The Requesters claimed that the Bank's failures in the design, appraisal, and implementation of the prior projects had materially affected their rights and interests and were likely to jeopardize their future social, cultural, and environmental security. More specifically, they alleged that the Owen Falls Extension and the proposed implementation of the Bujagali Hydropower Project had resulted—or were likely to result—in social, economic, and environmental harm to the local population, such as negative effects on tourism activities, adverse impacts on fisheries, and increased electricity tariffs. The Request cited the failure to require an environmental assessment of the Owen Falls Extension, the lack of a cumulative environmental assessment related to the existing and proposed dams, and an inadequate involuntary resettlement plan (including inadequate compensation arrangements). The Request questioned the Bank's supervision of the involuntary resettlement of people in the project area. Some of the displaced people claimed that they had been intimidated so as to help guarantee their support for the project. Moreover, the resettlement process had already started in 2000 and it was not brought into compliance when the Bank approved financing for the project. The Request also claimed that the economic and technical analysis, especially the analysis of economic alternatives, and particularly with respect to the Owen Falls Extension, was inadequate. They also alleged inadequate consultation and disclosure of information. According to the Request, the World Bank was not in compliance with its own policies and procedures on Environmental Assessment (OD 4.01), Involuntary Resettlement (OD 4.30), Natural Habitats (OP/BP 4.04), Safety of Dams (OP 4.37), Poverty Reduction (OD 4.15), Indigenous Peoples (OD 4.20), Forestry (OP 4.36), and World Bank policy on Disclosure of Information.
36. After determining the eligibility of the Request and Requesters, the Panel recommended that the Board of Executive Directors authorize an investigation of the matters raised in the Request. On October 26, 2001 the Board approved the Panel's recommendation. On December 28, 2001, while the ongoing investigation was underway, the Board approved a guarantee facility not to exceed US\$115 million to support the Bujagali Hydropower Project.
37. **The Panel Investigation Report:** The investigation focused on environmental, economic, social, and spiritual issues regarding the prior projects to determine whether the Bank followed its own policies and procedures.
38. The Panel's investigation covered issues related to cultural property, particularly in relation to recognized spiritual forces in the project area. The Panel acknowledged the Bank's efforts at consulting local people and religious leaders, as well as the good faith attempts to mitigate the cultural consequences of losing the Bujagali Falls, which have a highly religious significance for Uganda's Busoga people. However, the Panel expressed concern that no arrangements had

been made to minimize the realistic possibility of disturbance to the local communities.

39. The Panel's investigation revealed that the socio-economic baseline studies were deficient, displaced peoples were not involved in the preparation of the environmental assessment for the Third Power Project and an environmental advisory panel was not instituted and consulted. The Panel therefore found only partial compliance on the part of the Bank with its policy on environmental assessment (OD 4.01). The Panel's Report also pointed out that the Bank had failed to perform a sectoral environmental assessment for the Third Power Project, which not only constituted a violation of the terms and conditions under which the Board of Executive Directors had approved the credit, but also a failure to comply with the sectoral environmental assessment requirement of OD 4.01. The Panel also found that the Bank was not in compliance with OD 4.01 with respect to the Bujagali Hydropower project. In this context, the Panel expressed concerns that a cumulative impact assessment of hydroelectric projects on the Nile was not properly completed. In terms of dam safety issues, the Inspection Panel found the World Bank in compliance with its policy (OP 4.37). Under the Fourth Power Project, the Panel found that appropriate consultations were not carried out to meet the requirements of the applicable Bank policies.
40. Another topic discussed in the Panel's report concerned the protection of the Kalagala Falls as a natural habitat in view of its religious, cultural, and tourism importance. The Panel concluded that the Bank had failed to ensure adequate mitigation measures to preserve Kalagala Falls as an offset, thereby failing to comply with its policy on Natural Habitats (OP/BP 4.04).
41. The Inspection Panel also focused on the economic and financial appraisal of the prior project and found that the forecast of future electricity demands and the analysis of tariff affordability used by the project were flawed and, therefore, not consistent with the Bank's policy. The Panel raised several concerns as to whether sufficient consideration was given to project alternatives, to the project's risks and the mitigation thereof during the appraisal of the project. The Panel identified, as a key area of concern, the narrow range of the load forecast. It concluded that a wider range of the load forecast would have been needed to fully satisfy the requirements of the Bank's policy on economic evaluation of investment operations (OD 10.04). Furthermore, the Panel also found that the economic appraisal lacked a thorough examination of the institutional risk of a delayed or under-performing privatization of the distribution system and its impact on the robustness of the prior Bujagali project's affordability. Such an examination was needed for full compliance with OD 10.04.
42. Another concern raised by the Panel was related to the power purchase agreement between the GoU and the private investor, AESNP. Included in the agreement was a clause which required the Ugandan government to buy all the power that could potentially be produced, based on the plant's capacity for 30 years,

- regardless of whether the power was actually produced or needed. In this regard the Panel also highlighted two strategic risks of the agreement to the Ugandan Electricity Tariffs Committee and its guarantors: (a) the shortfall in the projected demand for electricity; and (b) the non-affordability of the electricity rates. The report also suggested two possible additional risk mitigation measures to provide flexibility as well as a mutually acceptable way of sharing and reducing stranded costs.
43. The Panel questioned whether a depreciation of the Ugandan currency against the U.S. dollar, leading to an increase in the electricity tariff, would be affordable for Uganda's population and pointed out that the effects of any currency depreciation should have formed part of the risk analysis with regard to affordability in the prior project appraisal document.
  44. The Panel noted serious problems in the initial implementation of the Resettlement Action Plan (RAP) especially in the determination of legitimate claimants and the valuation of land and crops. It also found that the Bank's community development program set out neither long-term targets nor projects for institution building. In this respect, the Panel found the Bank not in compliance with its policy on involuntary resettlement (OD 4.30).
  45. Regarding cultural and spiritual issues, the Panel indicated the efforts of the Bank and Management's good faith attempts to mitigate these issues. At the same time, the Panel also noted the importance of including all key stakeholders in consultation and taking steps to minimize the possibility of disturbance to the local communities that might arise from excluding any faction from such consultations as the prior project went forward. With respect to the indigenous peoples policy, the Panel found the Bank's policy on indigenous peoples (OD 4.20) did not apply.
  46. The Request also alleged that the Bank failed to disclose relevant documents related to the prior projects. The Panel found that by failing to disclose the November 2001 report entitled "*Economic Review of Bujagali Hydropower Project*," the Bank had failed to comply with its obligation under BP 17.50 on disclosure of information.
  47. The Inspection Panel found no evidence of serious efforts on the part of the World Bank to actively engage with project-affected groups or NGOs and accordingly found that the Bank was not in compliance with its policy on environmental assessment with respect to public consultations regarding the Fourth Power Project.
  48. **Management Action Plan in response to the Panel's findings:** In response to the Panel's findings, the Management of the Bank proposed in its report a number of actions to remedy instances of noncompliance. The actions included a commitment to amend the agreement between Uganda and the Bank with respect

- to the protection of the Kalagala Falls. Furthermore, the GoU reaffirmed its commitment not to develop the Kalagala Falls for hydropower but to set it aside exclusively as a natural habitat and for tourism. Management also agreed to provide support for multi-stakeholder consultations on the three hydropower Projects and to promote informed and comprehensive discussions.
49. In its response to the Panel’s investigation report, the Bank Management also affirmed its support for a strategic and sectoral environmental assessment, as well as social assessments that would be a prerequisite to any future World Bank financing of investments in Uganda’s power generation facilities. The Bank would also monitor future growth in electricity demand and the implementation of agreements to be signed with tourism operators. The Bank would further support measures to address reemployment of Ugandan citizens affected by loss of tourism-related jobs. Management agreed to assist the government in examining alternatives in power generation and proposed financing of geothermal exploration and possible drilling in western Ugandan areas.
50. On the topic of social issues addressed by the Inspection Panel, the Bank agreed to request that AESNP conduct surveys that would support implementing and monitoring the Project’s Community Development Action Plan.
51. **Subsequent developments:** On June 17, 2002, the Board of Executive Directors met to discuss the Panel’s Investigation Report and the Management Report and Recommendations in response to the Panel’s findings, and endorsed Management recommendations. However, in 2003 the execution of the Project was halted due to financial difficulties of the Project sponsor.
52. Following Board approval of the prior project, the project encountered several difficulties which eventually led to a pull-out of AES and termination of the project with the Government in September 2003.<sup>19</sup> At the same time, the Bank discussed with the Government of Uganda “*its options, transition arrangements including the integrity of the Project site and intellectual property, and the maintenance of a unit to monitor the project, including the environmental and social aspects.*”<sup>20</sup> In January 2004, the Government “*initiated a transparent and competitive process soliciting the interest of prospective private sponsors in the Bujagali Hydropower Project. This led to the selection of a new project sponsor consortium (Industrial Promotion Services (Kenya) of the Aga Khan Group and Sithe Global (US)) in April 2005.*”<sup>21</sup> On October 3, 2005, Management sent to the Board a Project Completion Note summarizing the Project and explaining why it was not implemented.
53. The current investigation, addressed in the present Report, focuses on the second round effort to develop and complete the Bujagali Hydropower Project.

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<sup>19</sup> Project Completion Note, p.1, ¶ 5.

<sup>20</sup> Project Completion Note, p.1, ¶ 6.

<sup>21</sup> Project Completion Note, p.1, ¶ 7.

## Chapter II

### The Project and its Context

54. This chapter presents an overview of the economic, social and environmental context relevant to the Project and this investigation. The discussion considers the electricity crisis in Uganda and presents an overview of the environmental and social setting in and around the Project area. It concludes with a more detailed description of the Project that is the subject of this Panel's investigation and of the World Bank's involvement in related projects in Uganda, Lake Victoria, and the Nile River Basin.

#### A. Poverty and Energy in Uganda: The Power Supply Crisis

55. Uganda is among the world's poorest countries, with poverty striking particularly rural areas. In recent years the country has experienced economic growth but the fast-growing population rate (the third fastest in the world) is one of the main challenges to the future economic growth of the country. Poverty has been increasing in rural areas along with a rise in inequality.<sup>22</sup>

56. A 2006 Bank Poverty and Vulnerability Assessment indicates that high poverty levels stem primarily from limited access to land and other assets, high rate of disease (though Uganda has made good progress in fighting HIV/AIDS), lack of control over productive resources by women, high fertility rates, and insecurity.<sup>23</sup> Though improvements have occurred, the poorest people have still very limited access to essential services, including education, health services, water and sanitation, roads and electricity, especially in rural areas.<sup>24</sup>

#### 1. Shortages and Lack of Access to Electricity

57. The power sector is presently experiencing serious capacity constraints in relation to needs and demand, and Uganda is facing a major power crisis. This has strained the recent economic growth, as both consumers and businesses, in particular manufacturing and processing industries and high-value agriculture, have suffered prolonged cuts of service.

58. According to Project documents, the crisis and these severe power shortages are considered to be rooted in four main factors: 1) delay in developing power infrastructure, 2) low levels of water in the Lake Victoria, caused by regional

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<sup>22</sup>United Nations Consolidated Appeal for Uganda 2008, Dec 10 2007, p.2. Available at <http://ochaonline.un.org/cap2005/webpage.asp?Page=1632>. See also PAD, p. 1

<sup>23</sup>World Bank Africa Region, Uganda Poverty and Vulnerability Assessment, Report No. 36996-UG, October 12, 2006. ¶ 3.47

<sup>24</sup> UNDP, Human Development Report 2007-2008, Human Development Index. Uganda Poverty Assessment, p. 23.

drought and over abstraction of water for hydropower 3) high levels of losses of the power distribution system and 4) a substantial increase of about 8 percent of the annual demand for power.<sup>25</sup> The Report considers these and other factors in detail in subsequent chapters.

59. Access to electricity in Uganda is generally very low. Only five percent of the total population, less than one percent in rural areas, has access to grid-supplied electricity.<sup>26</sup> Around 72 percent of electricity is consumed by twelve percent of the population living in the Kampala metropolitan area, the capital, and in nearby towns, Jinja and Entebbe. Electricity is very costly, particularly for poorer households. According to a World Bank study, poor urban dwellers consume little if any electricity, while most rural households are not close to a grid connection: “*electricity use by households in Uganda is stunningly low, but even worse in rural areas.*”<sup>27</sup> **The Panel notes the critical importance of providing affordable electricity to the people of Uganda, as an integral element of national development and of Uganda’s poverty reduction efforts.**
60. Management states that the Government is addressing the power crisis through a “*power sector strategy*” which aims at promoting legal, regulatory and structural sector reforms, increasing the role of the private sector in its operations and future development; providing adequate, reliable and least cost power generation to meet increasing demand and guarantee increased access; and scaling up rural access to electricity. Thus far, the GOU has promulgated a new Electricity Act and established the Electricity Regulatory Authority (ERA) in 1999, established a Rural Electrification Agency in 2002 and granted concessions on power generation and distribution.
61. The Rural Electrification Agency established the Rural Electrification Programme to expand electricity coverage, but the ability of these communities to afford this electricity may be an issue. As a result, biomass is projected to remain the principal source of energy for people in rural areas.<sup>28</sup> An additional study conducted in 2006 reported that the cost of connections, especially in rural areas are very high, mainly because of the low capacity of the national distribution company, lack of planning methodology and tools, and lack of appropriate information and ability to compare technical options.<sup>29</sup>
62. Issues of pricing and affordability are critical to access to electricity, in particular the tariff rates (cost) of electricity to users (including families and households).

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<sup>25</sup> PAD, p. 4.

<sup>26</sup> Energy Sector Management Assistance Program (ESMAP), Sub-Saharan Africa: Introducing Low Cost Methods in Electricity Distribution Methods, Technical Paper 104. /06, October 2006, p. 1. [hereinafter, “ESMAP”]

<sup>27</sup> Uganda - Moving Beyond Recovery: Investment and Behavior Change for Growth, Report No. 39221-UG, World Bank, Sept 2007, V. 1, p. 25.

<sup>28</sup> UNDP, Uganda Human Development Report 2005, Linking Environment to Human Development: A Deliberate Choice, Section 4.10, p. 49.

<sup>29</sup> ESMAP, p. 2.

Chapter VI of this Report identifies key factors affecting the cost and affordability of electricity.

63. In the present context, a critical issue raised by the Request is whether the Bujagali dam, if built, will meet its economic projections and provide affordable electricity to the people of the country, in comparison to other alternative means for doing so. **During its visits to the Project area, the Panel heard strong expressions of concern from local people and their representatives that they will not benefit from the Project but will, nevertheless, have to bear its social, economic and environmental costs. In addition, they are concerned that, if Project costs are not properly estimated and accounted, the burden of below-capacity production will be passed to the people of Uganda.** In their own words, they fear “*being taken for a ride*” by a project that does not meet their needs, harms things of importance to them, and enriches somebody else. This issue is examined in more detail in later sections of this Report.

## 2. Current and Planned Sources of Electricity

64. Uganda’s main source of electricity is the Nalubaale–Kiira dam complex, located just below the source of the Nile River in Lake Victoria. The complex consists of two separate dams: the Nalubaale dam constructed in the 1950’s across the upper Nile (also referred to as the Owens Falls dam); and Kiira dam, constructed in 2000 in a side-channel artificially created next to the main flow of the Nile, and nearly parallel with the Nalubaale dam.
65. The combined potential operating capacity of the Nalubaale and Kiira dams is 380 MW. Over recent years, however, the actual electricity produced by Nalubaale and Kiira has dropped substantially below capacity, reaching 120MW (equivalent to water discharges of 750m<sup>3</sup>/s) between August 2006 and 2007. This contrasts with a 380 MW peak system demand and a 290 MW base load demand, only 50 percent of which is met by the current power supply. Unmet energy demand in 2006 amounted to 364 GWh.<sup>30</sup>
66. A key reason that these two dams have been performing so far below their capacity relates to the release of water into the Nile from Lake Victoria, and the interactions between the dams and the water levels of the Lake. These issues, which are at the technical core of this Investigation as they relate to the Bujagali Dam, are described in more detail below.
67. To increase Uganda’s hydroelectric power capacity beyond that provided by Nalubaale and Kiira, the Bujagali Hydropower Plant, addressed in this Report, has been approved and is under construction. In addition, Karuma dam, a run of the river plant significantly downstream from Bujagali Falls and upstream of the limit of Murchison National Park, has been proposed. Other existing and potential sources of energy include small and micro-hydropower sites, bagasse (cane

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<sup>30</sup> PAD, Annex 1, ¶ 7, 11, p. 48-50.

residue) from sugar factories, biomass resources, geothermal, wind power, municipal solid waste, newly discovered oil resources, as well as approaches to conserve energy and reduce losses at all levels.<sup>31</sup> The question of alternative sources of energy for Uganda is considered in some detail in later sections of this Report.<sup>32</sup>

68. In 2005 and 2006, to increase power supply, the government leased two 50 MW thermal plants, while in 2007 IDA financed an additional temporary 50 MW under the Bank-funded Power Sector Development Operation (PSDO). The PAD also sets out an Interim Generation Expansion Plan from 2006 to early 2011 (when the Bujagali project would be commissioned). About 44 MW of mini-hydropower capacity and 15 MW of co-generation (using bagasse) were planned for commissioning between 2007 and 2009, while reliance on 150 MW of diesel and fuel oil power generation was expected to continue until 2011.<sup>33</sup>

## **B. Environmental and Social Context and Setting**

69. The Bujagali dam is within the Nile Equatorial Lakes region, consisting of a number of interconnected lakes providing a natural storage for the Nile River, including Lake Victoria – the largest (69,000km<sup>2</sup>) – and Lake Albert, Lake Kyoga and Lake Edward, which are linked to Lake Victoria by the Victoria Nile. The Bujagali hydropower facility would be located on the Nile River about 8 kilometers downstream (north) of Nalubaale and Kiira and the source of the Nile at Lake Victoria. Since the flow of the Victoria Nile is regulated by Lake Victoria and is relatively steady from season to season, the Bujagali dam is designed as a “run-of-the-river” dam.<sup>34</sup>

70. The sections below provide an overview of the hydrology of Lake Victoria and the Victoria Nile and the environmental and social setting relevant to understanding the Project.

### **1. Hydrology of Lake Victoria and the Victoria Nile, and Hydropower Implications**

71. The hydrology of Lake Victoria and the Victoria Nile is a key influence on the potential energy output of hydropower plants on the Victoria Nile. The Lake’s

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<sup>31</sup> The Government has reported that an oil resource was discovered in western Uganda but that no impact on power generation is predicted until 2011.

<sup>32</sup> The Request and Project documents provide different descriptions and views on the availability and potential of these alternative sources of energy.

<sup>33</sup> PAD, p. 26 and PAD, Annex 1, p. 66.

<sup>34</sup> Hydropower projects can be either storage projects or run-of-the-river projects. Storage projects are usually built on rivers with significant variability in flow, whereas run-of-the-river projects suited to rivers with a fairly steady flow. Storage projects aim at capturing river flow during high flow periods and releasing it during low flow periods; run-of-the-river plants, by contrast, rely on a river’s natural flow. While run-of-the-river projects sometimes have a small amount of storage to regulate flow during a 24-hour period to help meet peak power demands, the volume of water that needs to be stored, and consequently the area that needs to be flooded, is generally much smaller than that of storage projects.

water balance<sup>35</sup> is the essential link among lake levels, water flows and hydropower production. As explained below, changing lake levels affect water flows in the Victoria Nile River, which in turn affect hydropower generation.

72. Studies of Lake Victoria have shown that rainfall is the principal contributor to the Lake's inflow, and evaporation and outflow via the Victoria Nile are the principal contributors to the Lake's outflow. The Lake's water balance is thus dominated by rainfall over the lake, evaporation from the lake, and outflows via the Victoria Nile. When the net volume of inflow into the Lake (that is, rainfall plus basin inflow minus evaporation, referred to as the "Net Basin Supply") exceeds the net volume of outflow via the Victoria Nile, the amount of water stored in the Lake and thus the Lake's level will increase. However, when the Net Basin Supply is less than the amount outflowing via the Victoria Nile, the amount of water stored in the lake will decrease and the Lake's water level will drop.
73. The Net Basin Supply in any given time period is determined by climatic variables, and varies considerably from season to season and year to year. The outflows from the Lake to the Victoria Nile, however, are subject to human control. Prior to the construction of dams on the Victoria Nile, the amount of water flowing from Lake Victoria was naturally determined by the level of water in the Lake – the higher the level of the lake, the more water that poured out from the lake into the Victoria Nile. However, the successive development of the Nalubaale (formerly Owen Falls) and Kiira dams at the entry point from the Lake to the upper Nile changed all that. Before the completion of the Nalubaale dam in 1959, the outflow from Lake Victoria into the Nile was at Rippon Falls, a rock barrier at the outflow point of the Lake that naturally regulated the water levels. During construction of the dam in the 1950's, this rock barrier was blasted and lowered, providing more outflow of water to the dam. Since 1959, when the Nalubaale dam started operating, the dam has regulated the outflow of Lake Victoria into the Victoria Nile, transforming the Lake into a quasi-reservoir.<sup>36</sup> At

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<sup>35</sup> The water balance of a lake (or other body of water) establishes that the difference between the total volume of water flowing into the lake in any given time period and the total volume flowing out during that same time period will be equal to the change in the volume of water stored in the lake during that time period. The volume of water flowing into the lake generally consists of surface water inflow (from rivers or streams or direct runoff), groundwater inflow (from aquifers), and precipitation in the form of rainfall or snowfall on the surface of the lake, while the volume flowing out will consist of the evaporation from the lake, storage losses including seepage, and water flowing out via downstream rivers or streams. If inflow volume exceeds outflow volume, the difference between the two will be added to the volume of water stored in the lake, while if the lake's outflow volume exceeds its inflow volume, the difference between the two will reduce the water stored in the lake by that amount. Mathematically, this relationship can be expressed as  $C = S + G + P - (E + L + R)$ , where C is the change in the volume of water stored in the lake or reservoir, S is the volume of surface water inflow (from rivers or streams or direct runoff), G is the volume of groundwater inflow (from aquifers), P is the volume of precipitation (rainfall or snowfall) on the surface of the reservoir, E is the volume of evaporation from the reservoir, L is the volume of storage losses including seepage, and R is the volume of water flowing out via rivers or streams.

<sup>36</sup> Daniel Kull, 2006, "Connections Between Recent Water Level Drops in Lake Victoria, Dam Operations and Drought." Available at <http://www.irn.org/programs/nile/pdf/060208vic.pdf>

that time, it was agreed that the dams must be operated in accordance with the so-called Agreed Curve, described below.

74. The Agreed Curve is the result of agreements between Egypt and the British Government that stipulated how much water should be released from the Lake. The agreements provide that the Nalubaale dam should be operated pursuant to a rating curve (the Agreed Curve)<sup>37</sup> aiming to ensure that the outflow from the lake mimics the conditions of the Lake before the Nalubaale dam was constructed. This meant restoring the natural behavior of the lake by allowing fluctuation in rainfall and evaporation to determine the amount of water flowing out. With the Agreed Curve, low water levels determine a lower outflow to the Victoria Nile and thus a lower input of water to the hydropower plants; conversely, high lake water levels determine a higher outflow to the Victoria Nile and thus a higher input of water to the hydropower plants.
75. In the 1990s, the need to increase power production led the government to examine possible alternatives for additional power generation. According to 1990 studies, two “feasible” options were identified: the Owen Falls Dam extension project (Kiira), which was designed to operate in parallel with Nalubaale, and the construction, downstream of Nalubaale, of the Bujagali hydropower plant.<sup>38</sup> The former, Kiira, was chosen<sup>39</sup>; its turbines are only a few meters lower than those of the Nalubaale and use the same water drop (referred to technically as “head”), from Lake Victoria, plus some additional “head”, which results in increased relative production capacity. A canal above Nalubaale diverts water to Kiira in a way that allows the two dams to control the water level and the outflow from the Lake.<sup>40</sup> Because Kiira operates in parallel to Nalubaale, power generation from Kiira requires additional outflows from Lake Victoria over and above those required for Nalubaale. One study states that when Kiira was built, the discharge into the Victoria Nile was increased “possibly by as much as 50%”, and “it became impossible for Uganda to adhere to the Agreed Curve.”<sup>41</sup>

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<sup>37</sup> Rating curve is the relationship between river level and flow. The “Agreed Curve” relationship is:  $Q = 132.924(h - 8.486)^{1.686}$  where Q is discharge in cubic meters per second and h is water level (stage) in meters at the Jinja Pier.

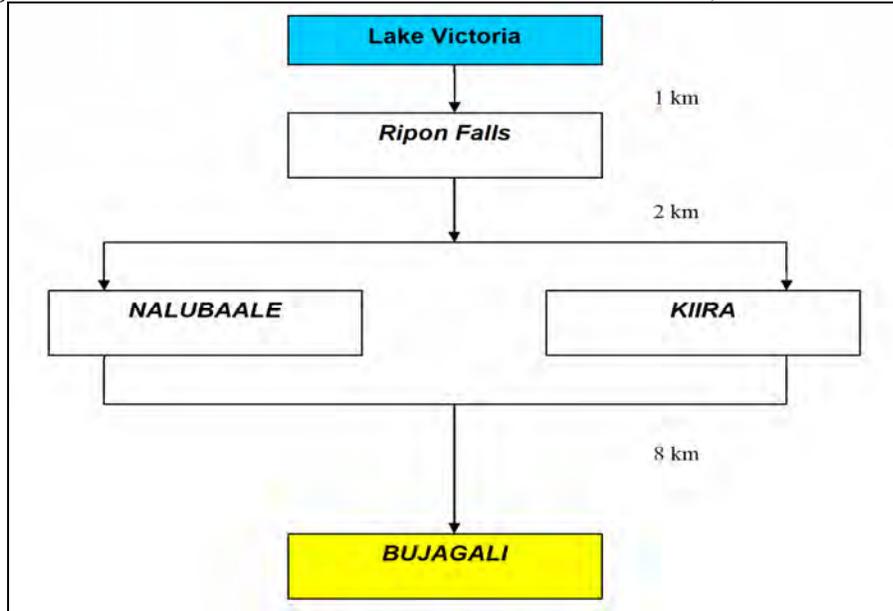
<sup>38</sup> Acres International Ltd. “Proposed extension to Owen Falls Generating Station: Feasibility Study Report,” Oct. 1990.

<sup>39</sup> The Panel’s expert considers that this decision was biased by the hydrologic series that was used. During the period of 1961-1989 the mean outflow of water was 1,200 m<sup>3</sup>/s while before 1961 the mean outflow was 660 m<sup>3</sup>/s. The hydrological studies analyzing the two possible alternatives, the Owen Falls dam extension (Kiira) and the Bujagali Falls dam, concluded that the flow observed before 1961 would not occur in the future and, as a result, considered as valid only the hydrological series 1961-1989. This led to the decision of constructing the Owen Falls dam extension (Kiira) rather than the Bujagali plant and to rely on data showing an averagely high discharge of water. According to the Panel expert, this solution was less expensive but relied on a mistaken assumption: as noted in the text since 2000 the Lake Victoria’s water levels have decreased and the Nalubaale/Kiira system’s energy output has been lower than planned.

<sup>40</sup> Kull 2006, p. 4. It was also in this context, amidst an electricity crisis and rising demand for electricity, the Bujagali dam was first proposed in late 1999 early 2000.

<sup>41</sup> Kiwango and Wolanski, “Papyrus wetlands, nutrients balance, fisheries collapse, food security and Lake Victoria level decline in 2000-2006.” *Wetlands Ecol. Management*, Nov. 2007. p. 90. The study notes that other sources attributed the decrease of the lake level between 2000 and 2006 “to both lack of rain and

**Figure 1 Water Flows from Lake Victoria to Nalubaale, Kiira and Bujagali<sup>42</sup>**



76. Over the past 100 years the water levels of the Lake Victoria have shown significant changes in regimes. In general, the period before 1960 is characterized as a period of relatively low water levels and outflows to the Victoria Nile. Between 1960/61 and 1999, Lake Victoria rose, nearly doubling the average outflows in comparison to the previous period. In contrast, from 2000 until recently, lake levels again decreased to reach a level observed before the 1960s. Experts are divided as to the causes of the recent drops of levels of the Lake Victoria. Bujagali Project documents claim that a “*main cause of the drop in lake level in the past few years was the exceptionally dry period 2003-2005.*”<sup>43</sup> On the other hand, it is clear that from 2003 to 2005, the water from Lake Victoria was over-abstracted (that is, released above the Agreed Curve) to expand power generation and meet the increased demand for electricity.<sup>44</sup> Some authors conclude that this over-abstraction is the main cause of the low levels of

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*excessive water extraction at Kiira dam, although their relative contribution was not quantified.”* (90) It should be noted, however, that had Kiira been commissioned at a time of sufficiently high Lake levels, the discharge according to the Agreed Curve could have been high enough to permit the operation of both Kiira and Nalubaale at capacity.

<sup>42</sup>This figure was adapted from the figure “Hydrology and Lake Victoria” on p. 19 of the Technical Briefing “UGANDA: Bujagali Hydropower Project.” Presented by IDA, IFC, and MIGA on April 2, 2007.

<sup>43</sup> Management Response, Annex III, ¶ 10. Management also states the “analysis of Lake Victoria water levels during 2003-2005 period concluded that the main origin of the drop in the lake level during this timeframe is an exceptionally dry period...” Management Response, Annex 1, p. 18.

<sup>44</sup> The PAD, for example, states that during the period 2003 and 2005, “. . . the power demand in Uganda required a sustained release that was above the net inflow, thus accelerating the drop in lake level, and automatically increasing the departure from the Agreed Curve.” (PAD, Annex 10, ¶ 9.) The Request notes, among other things, that “[w]ithout doubt, Kiira has contributed substantially to the over-draining of Lake Victoria, causing a lot of misery and economic loss to Uganda and neighboring countries.” (Request, p. 2)

the Lake's waters.<sup>45</sup> In Management's view, both drought and over-abstraction are to blame; as stated in the Management Response, changing water levels are the "*consequence of this low inflow [due to lack of rainfall in the recent dry period], combined with the over-release of water for power generation.*"<sup>46</sup>

77. Since lake levels determine river flows, which in turn determine the amount of water that flows through the power turbines, lake levels and power generation are strongly inter-linked. The World Bank – Netherlands Water Partnership (BNWPP)<sup>47</sup> background description for the "Victoria Nile -- Independent Hydrological Review" activity, which was carried out in 2006 as part of the "River Basin Management" window of the Partnership states that the amount of power that can be supplied by water from Lake Victoria:

*“ . . .depends importantly on the Lake level and its management through the operating regime of the hydroelectric facilities, **which until recently depended upon an Agreed Curve** governing water releases from the Lake for power production. If Uganda over-draws the Lake for power production, as it has been doing, this could impact on the usable volumes of water relative to what they would have been under the “Agreed Curve” policy. Also, **when the Lake level deteriorates, it can affect, and apparently has affected a number of other economic activities that the riparian countries depend upon, such as agriculture, fishing and transportation.**”<sup>48</sup> (emphasis added)*

78. The same 2006 World Bank – Netherlands Water Partnership source notes that Uganda is gradually reducing its hydropower output to be more aligned with the Agreed Curve, but in the meantime "*is suffering major day-long power cuts that are adversely affecting economic, public service and household activities.*"<sup>49</sup> In its response to the Request, Bank Management states that "[s]ince the end of 2005, the GoU has steadily decreased hydropower generation in an effort to

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<sup>45</sup> Kull 2006, estimates that that the level drops are 45 percent due to drought and 55 percent to the over-releases (p. 7).

<sup>46</sup> Management Response, Annex 1, p. 18.

<sup>47</sup> The Bank-Netherlands Water Partnership Program (BNWPP) aims at improving water security by promoting innovative approaches to Integrated Water Resources Management (IWRM), and contributing to poverty reduction. The BNWPP currently operates through a framework of 14 sub-programs or windows. Each window is a sub-component of a broad framework that embraces comprehensive, cross-sectoral water management; water-user participation; transparent and efficient institutions; the treatment of water as a social and economic resource; the importance of water to the natural environment; and the link between water management and poverty alleviation. Available at <http://www-esd.worldbank.org/bnwpp/> (Last accessed on June 30, 2008).

<sup>48</sup> World Bank - Netherlands Water Partnership (BNWPP), background description for the "Victoria Nile-Independent Hydrological Review" activity, [http://www-esd.worldbank.org/bnwpp/index.cfm?display=display\\_activity&AID=439](http://www-esd.worldbank.org/bnwpp/index.cfm?display=display_activity&AID=439), accessed on 23 July 2008

<sup>49</sup> World Bank - Netherlands Water Partnership (BNWPP), background description for the "Victoria Nile-Independent Hydrological Review" activity, [http://www-esd.worldbank.org/bnwpp/index.cfm?display=display\\_activity&AID=439](http://www-esd.worldbank.org/bnwpp/index.cfm?display=display_activity&AID=439), accessed on 23 July 2008

*return to the Agreed Curve operating regime. Water flows for power production are being scheduled so as to return to the Agreed Curve as soon as reasonably possible.”*<sup>50</sup>

79. A significant question raised by the Request is the extent to which the proposed Bujagali Dam will or might create incentives to depart from the Agreed Curve, and contribute to a lowering of Lake water levels and corresponding serious impacts for the Lake’s riparian states. This issue, and related issues of hydrology and water flow, is addressed in Chapter IV of this Report.
80. An important related question is the extent to which the future hydrology of Lake Victoria may be influenced by climate change. Since the Lake’s water balance is dominated by rainfall and evaporation over the surface of the Lake, the Requesters are concerned that even relatively small long-term decreases in rainfall and/or increases in temperature could have significant impacts on Lake levels and on outflows via the Victoria Nile and, in turn, on the economic and politics of operating the dams. An analysis of potential climate change effects, and the extent to which they were taken into account in Project analyses in line with Bank Policies, is included in Chapter IV of this Report.

## **2. Lake Victoria and the Impact of Declining Lake Levels**

81. Lake Victoria is the largest fresh water lake in Africa and a most important natural resource. The Lake and its 3,450km of shoreline are shared by Kenya, Tanzania and Uganda; its basin includes Rwanda and Burundi, which are part of the upper watershed draining into the Lake through the Kagera River. The Lake is part of the Nile River Basin system that is shared by ten countries, including the aforementioned countries as well as the Democratic Republic of Congo, Egypt, Ethiopia, Eritrea, and Sudan.<sup>51</sup>
82. Lake Victoria is an inland transport linkage for Uganda, Kenya and Tanzania. It is also a major natural reservoir and source of water for domestic, industrial and commercial purposes, serving major cities, towns and urban and rural centers within the basin. The Lake is considered the “*largest inland water fishery sanctuary in Africa*”, its fishery resources supporting livelihoods for around three million people involved in the fisheries industry.<sup>52</sup> Lake Victoria and the rivers flowing from it also are seen as a major potential source for hydropower generation, as discussed earlier.

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<sup>50</sup> Management Response, Annex 1, p. 18.

<sup>51</sup> World Bank - Netherlands Water Partnership (BNWPP), background description for the “Victoria Nile-Independent Hydrological Review” activity, [http://www-esd.worldbank.org/bnwpp/index.cfm?display=display\\_activity&AID=439](http://www-esd.worldbank.org/bnwpp/index.cfm?display=display_activity&AID=439), accessed on 23 July 2008

<sup>52</sup> East African Community (EAC), Lake Victoria Basin Commission, Special Report on the Declining of Water Levels of Lake Victoria, Arusha, Tanzania, January 2006, p. 2, [hereinafter “EAC Report 2006”].

83. Many studies have examined the extraordinary ecology, wildlife and habitats of the Lake Victoria region, its importance to the life and livelihoods of its people, and also the history of change and biodiversity loss in the region.<sup>53</sup> Over time, factors and pressures on the natural systems include intensified fishing methods, the introduction of non-indigenous species such as the Nile Perch, pollution and eutrophication of the Lake itself from agricultural and industrial activity, and the loss of riverine migratory routes important to potamodromous fishes due to, among other things, the construction of dams such as those at Owens Falls.<sup>54</sup> To these should be added a potentially new set and scale of impacts associated with climate change (discussed later in the Report).

84. Various studies have also addressed changes that have occurred over time in the lake level, its chemistry, ecology, sedimentation and water quality.<sup>55</sup> The Lakes Basin Development Authority, established by the Government of Kenya in 1979 to spearhead development in the Lake Victoria Basin Catchments area in Western Kenya, recommends the following measures to restore the health of the lake:

- *Catchment protection – re- afforestation, agro forestry, soil and water conservation and good agricultural practices promotion in the catchments.*

- *Develop a sustainable regional conservation and management plan for fishery resources. Enhance environmental-friendly fish harvesting practices, protection of breeding sites, enforcement of quality control and all other fisheries regulations.*

- *Rehabilitate and maintain waste treatment facilities in all municipalities and industries in the region, so as to reduce pollution and eutrophication in the lake. Industries should endeavour to initiate cleaner production technologies as a way of safeguarding and protecting the environment.*

- *Develop a long term comprehensive and well coordinated river and lake water quality monitoring programme as a tool for water quality*

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<sup>53</sup> Balirwa et al (citing many studies) note the more than 100 endemic species of large, “magnificent” (705) piscivorous haplochromine cichlids, most of which vanished at about the time of the increase in the Nile perch; the over 200 species of mormyrids, a family including the elephant-nose fish which is well known for their “remarkable electrosensory and electroreceptive capabilities” (705); the African lung fish, and others. See also publications listed on the home page of NaFFIRI at <http://www.firi.go.ug/>.

<sup>54</sup> Balirwa et al. 2003.

<sup>55</sup> See Lehman J T (Ed). “Environmental Change and Response in East African Lakes.” Kluwer Academic Publishers, 1998. Specific data on present day Lake Victoria may be obtained from the World Lakes Database maintained by the International Lake Environment Committee. (Available at: <http://www.ilec.or.jp/database/database.html> ) This committee has also published a report on Lake Victoria Issues specific to the health of Lake Victoria and its Management. Report also appears in a paper presented to the Living Lakes African Regional Conference held in Kisumu, Kenya in October 2005. See Nzomo, R. “Sustainable Development of African Lakes, The Case of Lake Victoria.” Living Lakes African Regional Conference, Kisumu, Kenya, 2005.

management. Regional water quality standards should be adopted and enforced.

- Enhance water hyacinth control, and eradication of other obnoxious weeds e.g. *Striga* weed in the region. A long term regional monitoring programme for this invasive aquatic weed is important.
- Communities should be made aware on the significance of environmental management and conservation. As stake holders they should participate in decision making and implementation of environmental conservation and management projects in the basin.<sup>56</sup>

85. Similarly, the International Lake Environment Committee records the major threats to Lake Victoria as:

- “Population pressure, contributing to the existence of “hot spots” caused by human waste, urban runoff, and effluent discharges from such industries as breweries, tanning, paper and fish processing, sugar, coffee washing stations and abattoirs;
- Nutrient (phosphorous, nitrogen) inflows, including atmospheric deposition, causing a five fold increase in algal growth since the 1960s, resulting in deoxygenation of water that threatens the survival of deep water fish species;
- Residual inflows from the use of chemical herbicides and pesticides and, to a limited extent, heavy metals resulting from gold mining operations that cause localised pollution;
- Proliferation of water hyacinth, resulting in biodiversity and economic losses in the lake’s near shore areas;
- Unsustainable use of the major wetlands for agricultural activities and raising of livestock, which has greatly compromised the buffering capacity of the wetlands; and
- Introduction of two exotic species (*Nile perch*, *Nile tilapia*), and use of unsustainable fishing practices and gears, altering the composition of the lake’s fauna and flora species.”<sup>57</sup>

86. Neither report mentions hydropower generation nor changing lake levels as a problem affecting the lake or deems them responsible for the problems that the

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<sup>56</sup> Lehman J T (Ed). “Environmental Change and Response in East African Lakes.” Kluwer Academic Publishers, 1998.

<sup>57</sup> Kayombo, Sixtus; Jorgensen, Sven Erik. “Lake Victoria: Experience and Lessons Learned Brief.” Published by the International Lake Environment Committee as part of the Lake Basin Management Initiative. Available at [http://www.ilec.or.jp/eg/lbmi/pdf/27\\_Lake\\_Victoria\\_27February2006.pdf](http://www.ilec.or.jp/eg/lbmi/pdf/27_Lake_Victoria_27February2006.pdf)

Lake is experiencing. Nevertheless, there is no doubt that lake levels do vary over a range of almost two meters and that this has a real impact on socio-economic conditions on the lake's shoreline<sup>58</sup>.

87. Clearly low water levels<sup>59</sup> have had serious environmental, social and economic impacts on Uganda and the other riparian states and the lives of about 30 million people using the lake water. Water intakes for Kampala and Jinja are affected, as are docking facilities at Jinja. During the recent period of low lake levels, fish landing and water supply structures at riparian communities were left literally high and dry and this increased the cost of living and reduced access to clean water. Many people began using non-purified water from shallow shoreline areas, which poses a health hazard from water based and water borne diseases. In addition, hydraulic and civil structures along the shoreline required modification or began being abandoned due to the low water levels. The PAD describes the impact of these recent low water levels in Lake Victoria as follows:

*“Because of low water levels, these benefits have been threatened by environmental degradation manifested in reduced fish stocks, the drying out of fish breeding areas and the loss of livelihood to many fishing communities; a decline of biodiversity; increased sedimentation and nutrient loads resulting in eutrophication; the drying out of wetlands and loss of littoral habitat; increased lake transportation costs, since ports and piers are left hanging on dry land, and water shortages for shoreline towns and farmers.”*<sup>60</sup>

88. There are, moreover, serious problems in developing responsive actions to address these problems. The PAD notes that: *“Efforts to regulate and manage the activities threatening the lake are clearly insufficient at present, and widespread poverty in the basin exacerbates environmental stress.”*<sup>61</sup> A study by Kiwango and Wolanski,<sup>62</sup> referred to earlier, focused on the potential impacts of lower water levels in Lake Victoria on papyrus wetlands and the nutrient balance around the Lake and concludes by stating: *“If Uganda resumes overdrawing water from the lake and permanently dries out the papyrus of Lake Victoria, the resultant eutrophication of Lake Victoria may be large-scale and could also result in the collapse of artisanal fisheries and threaten food security for the impoverished fraction of the population living on the lake's shores, while also possibly*

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<sup>58</sup> Changing lake levels and their effects are well outlined in EAC Report 2006 and Lake Victoria Basin Commission, April 2006 See also Chapter II Context.

<sup>59</sup> Lake Victoria has undergone significant changes in both paleo- and historic-times. An authoritative source documenting changes that have occurred is *Environmental Change and Response in East African Lakes*. This volume produced by the International Decade for the East African Lakes discusses changes that have occurred in *inter alia* Lake Level, Chemistry, Ecology, Sedimentation and Water Quality. Specific data on present day Lake Victoria may be obtained from the World Lakes Database maintained by the International Lake Environment Committee. This committee has also published a report on Lake Victoria. Issues specific to the health of Lake Victoria and its Management appear in a paper presented to the Living Lakes African Regional Conference held in Kisumu, Kenya in October 2005.

<sup>60</sup> PAD, Annex 1, p. 49.

<sup>61</sup> PAD Annex 1, p. 49.

<sup>62</sup> Kiwango and Wolanski 2007, p. 95

*exacerbating the infestation of the water hyacinth exotic weed. Global warming may also be accelerated.”*

89. Low water levels also lead to a decline in electricity generated from hydropower. Load shedding<sup>63</sup> disrupts industrial activity and reduces revenue from taxation; emergency thermal generation raises the cost of electricity to consumers.<sup>64</sup>

### **3. Bujagali Falls and Surrounding Habitats**

90. The network of lakes within which the Bujagali project is located is rich with floodplains and wetlands and supports a diversity of animals and plants and many water-dependant ecosystems. It is also one of the most important areas in Africa for biological diversity.
91. The Project requires the flooding of important natural habitats including the Bujagali Falls, the riverbank portions of the Jinja Wildlife Sanctuary and the Nile Bank Central Forest Reserve, a protected area, and the island between the sections of the Bujagali rapids. In addition, the associated transmission lines would run through the important and valuable Mabira Forest, and an area of important and productive wetlands.



**Picture 2 Bujagali Falls**

92. The Jinja Wildlife Sanctuary, established in 1953, is a protected area which is home of several bird species, reptiles and a diversity of insects. When the Sanctuary was established, there were hippopotami in this section of the river.

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<sup>63</sup> Load shedding is a controlled way of rotating the available electricity between all customers.

<sup>64</sup> EAC Report 2006, Section 3.4.3.

The Nile Bank Central Forest Reserve is a protected area held in trust by the national government for the people.

93. Many studies also document the diverse fish species, populations and fisheries in the Lake Victoria region, and the history of change and loss over the last decades due to human activities and interventions.<sup>65</sup> According to the Project Environmental Assessment, the Victoria Nile “originally had a very rich assemblage of fish dominated by riverine species.” The EA states that while the dams have created a physical barrier for fish movements, “*viable population of many fish continue to exist in the Victoria Nile.*”<sup>66</sup> Hundreds of species have evolved to fill almost all of the major niches available to freshwater fishes.<sup>67</sup> Other studies, by comparison, raise significant concerns about the situation of fish species in the upper Nile, and the potential effects of the existing dams and the Project on these species. These studies and related issues of environmental impacts are considered in Chapter III (Environmental Issues).

#### 4. The Project’s Socio-economic and Cultural Setting

94. Most of the people living in and around the Project area are farmers, though fishing is also a very important economic activity for the area. In addition, the particular site of Project site is very attractive to tourists because of the scenic topography of the area and the rapids of the Bujagali Falls, which offer white water rafting opportunities. The potential impacts of the Project on the economy of the area, including through fishing and tourism, is a highly important element of the Request and is examined in Chapter VII (Involuntary Resettlement), which also examines the displacement of people within the area that would be flooded by the Bujagali dam.<sup>68</sup>

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<sup>65</sup> Balirwa et al. 2003. See also fn 65.

<sup>66</sup> R J Burnside International Limited, Bujagali Hydropower Project Social and Environmental Assessment Main Report, December 2006. (D102) [hereinafter “HPP-SEA”] Executive Summary, p. 18. See also Salzburger W *et al* “Out of Tanganyika: Genesis, explosive speciation, key-innovations and phylogeography of the haplochromine cichlid fishes.” *BMC Evolutionary Biology* 2005, 5:17. Available at <<http://www.biomedcentral.com/1471-2148/5/17>> The cichlid fishes of East Africa are “well known for their spectacular diversity and their astonishingly fast rates of speciation ... virtually all cichlid species from Lake Victoria (~500 species) ... are haplochromines”(1).

<sup>67</sup> Nile perch (*Lates niloticus*) is a large predatory fish that was introduced into Lake Victoria by man in the 1950s. An estimated 150-200 cichlid species from Lake Victoria are thought to be extinct as a consequence. Not all haplochromines are lacustrine (lake dwellers) and close to 200 species inhabit rivers. They are known to inhabit almost every available lake and river habitat. Rocky shores and islands are important refuges for a number of cichlid species that were formerly not restricted to rocky substrates, but now survive there to escape Nile perch predation.

<sup>68</sup> The process of resettling people in the area of inundation and other land areas taken as a result of the Project commenced in 2000 at the time of the prior Bujagali dam project, as discussed in Chapter VII even though the dam was not constructed and no flooding yet occurred.



**Picture 3 Rafting at the Bujagali Falls**

95. Another very important social aspect is that the Bujagali Project has a strong, complex cultural and spiritual tradition. The Busoga make up 46 percent of those living immediately adjacent to the dam site compared to 17 percent of the Buganda people. Although the peoples of other ethnic groups inhabit the Project area<sup>69</sup>, the Busoga claim spiritual dominion of both sides of the Nile, its islands, the water and its waterfalls.<sup>70</sup> According to a 2002 census, there are about 2.7 million Busoga in Uganda, whose territory lies to the east of the Project site.<sup>71</sup> Their language, Lusoga, predominates in this area, on the East bank of the River Nile.
96. The Busoga share a common dialect and ideological, spiritual history, sharing a cluster of eight or more high status spirits – including *Budhagaali*, the spirit residing at the Bujagali Falls site – who are invoked in their specific ceremonies. The Busoga are distinct from the Buganda, Uganda’s largest ethnic group - whose traditional realm reaches to the west bank of the Nile. The potential implications of the Project on places of cultural and spiritual significance to local people, and whether the Bank has complied with its operational policies and procedures on these matters, is addressed in Chapter VIII (Cultural Property)

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<sup>69</sup> Several ethnic groups live in and around the Project site, including the Busoga and Busanga people whose lives and livelihoods will be affected by the Project.

<sup>70</sup> The 2001 RAP states its baseline survey identified 22 ethnic groups living in the project area (HPP-SEA, p. 161). The region was repopulated by migrants from throughout Uganda and other central African countries in the 1940’s after being nearly abandoned by the Busoga at the turn of the century due to sleeping sickness. (Bujagali Power Project - Hydropower Facility - Resettlement and Community Development Action Plan, March 2001 (D001) [hereinafter “RCDAP 2001”], p. 98).

<sup>71</sup> Obwa Kyabazinga Bwa Busoga Online: <<http://www.busoga.com/aboutBusoga.php>>

### C. The Project Description

97. The Project consists of the construction of the Bujagali hydropower plant on Dumbbell Island on the Nile River, just below the Bujagali Falls, about 8km downstream from the existing Nalubaale and Kiira Hydropower Plants. Under the Project, an intake powerhouse complex providing a maximum capacity of 250MW and a rock filled dam about 30 meters high with spillway and other associated works will be developed. On the west bank of the Victoria Nile, adjacent to the powerhouse, a high voltage substation, the Bujagali Substation, through which all power generated from the Project will flow, is to be constructed.<sup>72</sup>



Picture 4 Panel team at Bujagali Dam Construction Site

98. The reservoir, which will inundate the Bujagali Falls and the islands, is to have an estimated surface area of 388 hectares (ha) at full supply level, which will provide a total volume of water at full supply level of 54 million m<sup>3</sup>. The Project requires 238 ha of land take to construct project facilities and thus will cause the involuntary resettlement of affected people living in and around the site. The flooding for the reservoir will also cause the loss of white water rafting opportunities over 2.5 km from the Bujagali Falls to Dumbbell Island.

99. The Bujagali hydropower system also includes the construction of 100 km of transmission lines, a new substation at Kawanda and the extension of the

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<sup>72</sup> PAD on a Proposed International Development Association Partial Risk Guarantee in the amount of up to US\$115 million for a Syndicated Commercial Bank Loan and on a Proposed International Finance Corporation Financing consisting of: an “A” Loan in the amount of up to US\$100 million and a “C” Loan in the amount of up to US\$30 million, and on a Proposed MIGA Guarantee in the amount of up to US\$115 million for Sponsor’s Equity to Bujagali Energy Limited for the Private Power Generation (Bujagali) Project in the Republic of Uganda, April 2, 2007, p. 9.

substation at Mutundwe, all financed by the African Development Bank (AfDB) under the Bujagali Interconnection Project (BIP).<sup>73</sup>

100. The PAD states that Dumbbell Island was chosen as the Project location because at this point the river is divided into two channels, a division that provides support for the dam and facilitates the construction of cofferdams. The embankment is to be located across the eastern channel at the downstream end of Dumbbell Island, and the powerhouse and spillway will be in the western channel.<sup>74</sup> Located downstream from the Nalubaale and Kiira plants, the Bujagali dam is to use water released from Lake Victoria that passes through the two existing hydropower plants.
101. As noted earlier, Bujagali Energy Limited (BEL) is to develop the Project. BEL is responsible for financing, constructing and operating the Project “*on a Build-Own-Operate-Transfer basis.*” On December 13, 2005, BEL and the Government signed the Implementation Agreement (IA), which defines the rights and obligations of BEL and the Government.
102. BEL is to sell the contracted capacity of 250MW exclusively to the Uganda Electricity Transmission Company (UETCL), which agreed to purchase the Project’s contracted capacity under a 30-year Power Purchase Agreement (PPA), also signed on December 13, 2005. This agreement was amended and restated on May 25, 2007.<sup>75</sup> The Government will guarantee UETCL’s payment obligations to BEL.<sup>76</sup>
103. The Project is a Public Private Partnership between the private project sponsors, the GoU, multilateral and bilateral development agencies, and commercial lenders as beneficiaries of the proposed IDA Guarantee. The total Project cost is estimated to be around US\$798.6 million.<sup>77</sup> The International Development Association (IDA)<sup>78</sup> supports the Project through a partial risk guarantee of US\$115 million, guaranteeing the commercial lenders involved in financing the Project against debt service and payment defaults of the Government in relation to the Government’s payment obligations set forth in the Implementation

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<sup>73</sup> Bujagali Interconnection Project is closely related to the Bujagali Hydropower Project and will provide the transmission infrastructure to interconnect the new Bujagali hydropower station to the national electricity grid. A loan in the amount of approximately \$28.6 million USD from the African Development Fund of the African Development Bank (AfDB) was approved by its Board of Directors on June 28, 2007.

<sup>74</sup> PAD, Annex 4, p. 63.

<sup>75</sup> The Requesters claim that there is no evidence that the Power Purchase Agreement (PPA) was debated and approved by the Ugandan Parliament. In his legal opinion dated May 31, 2007, the Attorney General of the Republic of Uganda issued an opinion stating that the Power Purchase Agreement “...*was duly authorized, signed, executed, and delivered*” and was legally binding on the Parties “*in accordance with the terms and conditions contained therein*”, adding that “*there are no more legal formalities required to be fulfilled to make...the Power Purchase Agreement...more binding on the Parties.*” It should be noted that the PPA was amended and restated once more on December 6, 2007.

<sup>76</sup> PAD, p.19. The terms of this guarantee are included in the Implementation Agreement.

<sup>77</sup> PAD, Annex 5, p. 67.

<sup>78</sup> In this Report, the terms “IDA” and “the Bank” are used interchangeably.

Agreement. Under an Indemnity Agreement signed between IDA and the Government, the latter would reimburse IDA of any claims and expenses suffered if IDA were called upon to make payments under the Guarantee Agreement. The Project is also financed through, *inter alia*, an International Financial Corporation (IFC) loan and a Multilateral Investment Guarantee Agency (MIGA) Guarantee. In total, the World Bank Group's financial support to the Bujagali Project is up to US\$360 million. IDA's Board of Executive Directors approved the IDA Guarantee on April 26, 2007.

104. As noted earlier, the Project is the second effort to develop the Bujagali Hydropower Project. On December 18, 2001 the World Bank Group approved its support to the prior Bujagali Project, which was to be undertaken by the AESNP. However, AESNP later withdrew because of, among other things, the company's "*weakening financial position.*"<sup>79</sup> The Government terminated the Project-related agreements in 2003. Though the Project under investigation in the present Report is considered a new financial operation, its design is practically the same as that of the project stopped a few years back.<sup>80</sup> In the first effort to develop the Bujagali dam, certain activities were initiated but not completed, such as the resettlement program leading to "legacy issues" for the current Project, discussed below.
105. The current Project presents a number of significant social and environmental issues and challenges. Two of these, relating to resettlement and cultural property, are noted briefly below. These and others, including those relating to environmental impacts and the Kalagala Falls offset, are dealt with in detail in subsequent chapters of this Report.

## 1. The Resettlement Program

106. Under the first Bujagali project, AESNP – the previous sponsor – began the physical resettlement of people whose land was to be taken by the Project, and paid compensation as part of the Resettlement and Community Development Action Plan (RCDAP).<sup>81</sup> The PAD states that the previous sponsor "*completed the planned compensation*" and that "*the resettlement housing was also completed and the 34 families have moved into it.*" However, "*several activities under the RCDAP were not completed at the time AESNP departed the project; these were primarily income generation activities.*"<sup>82</sup> Under the new Bujagali Project, the new sponsor BEL prepared an Assessment of Past Resettlement Activities and Action Plan (APRAP), which identifies the new Sponsor involuntary resettlement responsibilities.

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<sup>79</sup> Management Response, ¶ 20.

<sup>80</sup> As described in Chapter V, the power generation capacity of the Project is 250 MW, while that of the prior project was 200 MW.

<sup>81</sup> PAD, Annex 15, p. 142.

<sup>82</sup> PAD, Annex 15, p. 142.

107. To help complete the pending income restoration activities at the hydropower site, the Project documents state that BEL has committed to three programs: “*agricultural improvement, fisheries and small business support and microcredit.*”<sup>83</sup> BEL also developed a Community Development Action Plan (CDAP) which includes actions aimed at improving livelihoods of Project affected people; improving the overall quality of life by expanding on basic services such as water and sanitation, health and education; and providing mechanisms for dealing with vulnerable people.<sup>84</sup> These issues are addressed in Chapter VII (Involuntary Resettlement).

## 2. Cultural Resources

108. In the context of the prior Bujagali project, AESNP prepared a Cultural Property Management Plan (CPMP), which identified the project affected sites that are culturally significant for the local population: rocks, trees and land sites associated with spiritual forces, which, the local population believes, speak through medium or traditional spiritual leaders. Under the prior project, traditional leaders stated that the spirits would have accepted changes to the landscape of the area if appropriate ceremonial procedures were undertaken and financed by AESNP. AESNP carried out the ceremonies. According to the PAD, however, the consultations that BEL carried out with the Kingdom of the Busoga and the Busanga people revealed that additional ceremonies were necessary. These ceremonies are to be carried out under the current Project. This issue is addressed in Chapter VIII of this Report.

### D. World Bank Involvement in Uganda Power Sector, the Lake Victoria and the Nile River basin

109. World Bank involvement in the Uganda power sector, through IDA, dates back twenty years, with projects supporting, among other things, the rehabilitation of the Owen Falls Dams (Nalubaale), the construction of the Owen Falls Extension (Kiira) and expansion of rural electrification. The World Bank Group’s role in general aims at supporting infrastructure development and mobilization of private investments, the Government’s power sector reforms, the structuring the project financing and the implementation of environmental and social policies acceptable to the World Bank.
110. According to Management, “*Uganda’s Renewable Energy Policy and Plan provides for “off-grid” electricity options such as solar PV and micro-hydro, as well as biofuels for cooking and industrial applications. The Bank and other donors are actively supporting these programs as well.*”<sup>85</sup> Currently the World Bank Group is involved with three ongoing power projects, the Fourth Power Project, the Energy for Rural Transformation Project, the Private Power

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<sup>83</sup> PAD, Annex 15, p. 143.

<sup>84</sup> PAD, Annex 15, p. 143.

<sup>85</sup> Management Response, p 27.

Generation/Bujagali Project. The Energy for Rural Transformation (ERT) Project (FY02) has supported preparation of a renewable energy resource database and capacity building plan<sup>86</sup>. It is also supporting investments in renewable energy power generation, including bagasse based cogeneration, mini-hydro, and micro-hydro. The Fourth Power Project (FY08) is supporting geothermal exploration in western Uganda (Kibiro and Katwe), including shallow-well drilling which is required to assess the resource. In addition several projects, including the Thermal Generation Project and the Karuma Hydropower Plant, are being proposed.<sup>87</sup>

111. The World Bank has also supported the Lake Victoria Environmental Management Project (LVEMP), a regional project, carried out under a Joint Project Agreement involving Uganda, Tanzania and Kenya. The LVEMP was the first phase of a longer-term program, intended to maximize benefits for riparian countries from using resources within the lake basin for food, employment etc, to conserve biodiversity, and to build scientific and institutional capacities to stop the environmental deterioration of the lake and its surrounding ecosystems. This effort comprised separate projects, implemented by national secretariats in the three countries and coordinated by a small regional secretariat, established in Arusha, Tanzania.<sup>88</sup> The LVEMP was launched in 1997 and funding for it totaled around US\$ 75 million over a seven year period until 2005.

112. **Nile Basin Initiative.** The World Bank is also a partner of the Nile Basin Initiative (NBI), a regional partnership led by all ten Nile Basin countries: Burundi, Democratic Republic of Congo (DRC), Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda. NBI was launched in 1999 as a basin-wide framework to “*develop the river in a cooperative manner, share substantial socioeconomic benefits, and promote regional peace and security.*”<sup>89</sup> The Nile riparian countries agreed on a “*shared vision*” to “*achieve sustainable socioeconomic development through the equitable utilization of, and benefit from, the common Nile Basin water resources.*” NBI’s structure consists of the Council of Ministers of Water Affairs of the Nile Basin Countries, the Technical Advisory Committee and the Nile Basin Secretariat. The World Bank has been involved in the Nile Basin Initiative since 1997 in partnership with UNDP and the Canadian International Development Agency (CIDA), “*to facilitate dialogue among the NBI countries and to chair the International Consortium for Cooperation on the Nile (ICCON) Consultative Group Meeting in Geneva, Switzerland in June 2001.*” About US\$130 million were initially committed by the partners to the

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<sup>86</sup> Most recent report: Fourth Interim Report for Renewable Energy Resource Information Development and Capacity Building Assessment, Kamfor Company Ltd. April 2006.

<sup>87</sup> The issue of alternative energy generation options is further analyzed in Chapter V of this Report.

<sup>88</sup> PAD for the Supplemental Credit Document International Development Association Proposed Supplemental Credit To The United Republic Of Tanzania For The Lake Victoria Environmental Management Project, September 17, 2004.

<sup>89</sup> Nile Basin Initiative (NBI) Background at [http://www.nilebasin.org/index.php?option=com\\_content&task=view&id=13&Itemid=42](http://www.nilebasin.org/index.php?option=com_content&task=view&id=13&Itemid=42), (accessed on July 10, 2008).

Initiative and a multi-donor Nile Basin Trust Fund (NBTF), currently administered by the World Bank, was established to channel these funds to NBI.

113. One of the programs carried out under the NBI is the Nile Equatorial Lakes Subsidiary Action Program (NELSAP), the mission of which is “*to contribute to the eradication of poverty, to promote economic growth, and to reverse environmental degradation in the NEL [Nile Equatorial Lakes] region.*”<sup>90</sup> The NEL region includes the six countries in the southern portion of the Nile Basin—Burundi, Democratic Republic of Congo, Kenya, Rwanda, Tanzania and Uganda—as well as the downstream riparian states Egypt and Sudan. Under the NELSAP a Strategic/Sectoral, Social and Environmental Assessment (SSEA)<sup>91</sup> was prepared “*to provide guidance on the power generation options available in the region, based on an assessment of electricity demand, project costs, and environmental and social issues surrounding such projects.*”<sup>92</sup> The SSEA is analyzed in Chapter III of this Report - Environmental Issues.

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<sup>90</sup> Nile Basin Initiative (NBI): <http://www.nilebasin.org/> (accessed on July 10, 2008).

<sup>91</sup> Strategic/Sectoral, Social and Environmental Assessment of Power Development Options in The Nile Equatorial Lakes Region, February 2007.

<sup>92</sup> PAD, p. 43.

## Chapter III

### Environmental Issues

114. The Request submitted to the Inspection Panel presents a number of claims centered on the social and environmental studies supporting the Project. In the Requesters' opinion, these studies are generally inadequate and violate the Bank's Policy on Environmental Assessment (OP/BP 4.01). The Request develops from the overarching claim that the Project's SEA is based on old data—some of these data are allegedly 10 years old—which have “*little or no bearing to current situation*” and “*do not reflect the current environmental realities*” of the Project area. In the Requesters' view, the SEA also does not take into consideration specific important aspects of the Project, such as the hydrology of Lake Victoria and the Lake's long term health; the need for a cumulative impact assessment, and the consideration of climate change effects, all of which may have a significant impact on the production of hydropower.
115. In general, Management responds that the Project is a new operation and, as a result, social and environmental aspects have been reassessed. It adds however, that drawing upon former studies, the Project benefited from the baseline social and environmental data gathered for the prior Bujagali Project by AESNP. Management states that the current Project “*has also retained its original environmental footprint*” and the work conducted was designed to build upon earlier data and additional studies were undertaken as needed, to confirm or update that baseline.<sup>93</sup> Management considers that the baseline data gathering was satisfactory. Management also argues that the SEA addressed social and environmental issues related to the Project while “*the broader climate change (and hydrology) aspects were addressed in different studies,*”<sup>94</sup> in particular the SSEA prepared under the Nile Basin Initiative (NBI).<sup>95</sup>
116. Paragraph 2 of OP 4.01 states that the: “*EA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. EA evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation. The Bank favors preventive measures over mitigatory or compensatory measures, whenever feasible.*”

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<sup>93</sup> Management Response, p. 22.

<sup>94</sup> Management Response, p. 19.

<sup>95</sup> The Nile Basin Initiative was described in Chapter II of this Report.

117. This chapter of the Report begins by examining the general claim related to the adequacy of the social and environmental assessment studies related to the Project. The analysis of the specific issues, especially in relation to cumulative assessment and fisheries follow. Further sections of the chapter address issues related to the Kalagala offset and the safety of dams. Specific issues relating to the hydrology of the Lake Victoria and climate change are analyzed in Chapter V. Issues of involuntary resettlement, and cultural issues, are examined in Chapters VII and VIII.

#### **A. The Environmental Component of the Social and Environmental Assessments**

118. The objective and the main provisions of the policy on Environmental Assessment have been laid out in the preceding paragraph and will serve as the guiding norm for the Panel's analysis. As needed each section will also point to other specific provisions of OP 4.01 relevant for the discussion.

#### **1. Adequacy of the studies**

119. The Panel notes that the Sponsor, with input from Bank Management, has contracted international consultants to prepare the required SEA for the Bujagali Hydropower Project<sup>96</sup> and the Bujagali Interconnection Project.<sup>97</sup> The Panel has found evidence that the Regional environment sector unit as well as the Environment Department were actively involved in guiding the preparation of the SEAs.<sup>98</sup>

120. Because of the Project's history and the prior attempt to develop the Bujagali Hydropower Project, initial social and environmental studies, prepared under the previous sponsor AESNP, preceded the SEA studies required for the present Project. **The Project has appropriately been classified as category "A", the category under Bank policy used for projects with the most serious level of impacts. This complies with OP 4.01.** This classification together with key environmental issues and an Environmental Data Sheet are recorded in the Project's Concept Note, Appraisal Document and implementation documents.

121. OP 4.01 requires that an EA report on a project include the following: an executive summary; a survey of the policy, legal, and administrative framework within which the project will be undertaken; a concise description of the project; appropriate baseline data; and an assessment of environmental impacts taking into account human health and safety and social aspects, including involuntary resettlement, indigenous peoples and cultural property. It also requires

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<sup>96</sup> HPP-SEA

<sup>97</sup> Bujagali Interconnection Project, Social and Environmental Assessment Report, December 2006 (hereinafter "IP-SEA")

<sup>98</sup> World Bank Management interviews, September 2007.

identification of mitigation measures and residual negative impacts that cannot be mitigated; a systematic comparison of feasible alternatives to the Project site – technological, design, and operation; and an environmental management plan to cover mitigation measures, monitoring, and institutional strengthening if required. These requirements are outlined in Annex B of OP 4.01

122. The Panel finds that, apart from the omission of an EMP, discussed below, the SEA includes the elements required by Annex B of OP 4.01. The Project is fully described and set in an appropriate policy, legal and administrative framework. Baseline data are provided, as is an assessment of the environmental impacts of the proposed alternative. Feasible technological, design and operational alternatives are examined. The study takes a holistic approach to environmental issues and considers natural aspects in an integrated way. The country's overall environmental policy framework, national legislation, and obligations under relevant international treaties and agreements are considered.
123. The preceding finding relates to the SEA in its entirety. Separate parts of the study are considered in the following sub-sections of this chapter.

## 2. Environmental Management Plan

124. The first paragraph of Annex C of OP 4.01 reads:

*A project's environmental management plan (EMP) consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The plan also includes the actions needed to implement these measures. [footnote omitted] **Management plans are essential elements of EA reports for Category A projects ...** (emphasis added)*

125. The Panel notes that the SEA lacks of a detailed EMP for the Bujagali Hydropower Project. Although fourteen action plans are outlined in the SEA (seven sponsor plans and seven contractor plans) those that relate to Environmental Mitigation and Monitoring have yet to be drawn up for implementation.<sup>99</sup> **The fact that the EMP is not an integral part of the SEA that has been disclosed is a deficiency. This is not in compliance with the requirements of OP 4.01.**

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<sup>99</sup> See Sections 8.3.7 and 8.4.7 of HPP-SEA and Sections 8.3.6 and 8.4.1 of the IP-SEA.

### 3. Institutional Capacity

126. The Panel notes that the need for strengthening country institutional capacity in the social and environmental sectors<sup>100</sup> was identified in the Project Concept Note (PCN) under the heading “Technical Assistance to the Government,” among other things to assist the Government with monitoring the environmental and social compliance aspects of the Project. This requirement however was not carried through into the Project Identification or Project Appraisal documents. In the Panel’s view adequate capacity to implement the social and environmental aspects of a project is critical for its success. OP 4.01 requires that when there is inadequate legal or technical capacity to carry out EA functions, the Project includes components to strengthen that capacity.<sup>101</sup> **This requirement to support needed capacity building, which is important in the implementation of the social and environmental aspects, has not been complied with in this Project.**

### 4. Independent Panel of Experts

127. The Panel also finds that although there is evidence that both the World Bank and the Sponsor have engaged the services of independent experts to review and advise on many aspects of the Project,<sup>102</sup> an independent panel of internationally recognized environmental specialists has not been appointed for the Project. This is not in accord with Paragraph 4 of OP 4.01, according to which in “*Category A projects that are highly risky or contentious or that involve serious and multidimensional environmental concerns, the borrower should normally also engage an advisory panel of independent, internationally recognized environmental specialists to advise on all aspects of the project relevant to the EA.*”<sup>103</sup> **As the Project is contentious and involves complex multidimensional environmental concerns, appointment of an environmental panel of international experts is warranted and the lack of such a panel is not in compliance with OP 4.01.**

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<sup>100</sup> Particular concern is expressed and advice sought on: (a) Bujagali and transmission line project management; (b) contingent liabilities management; (c) financing second stage of geothermal drilling; (d) funds to foster potential tourism/other investments at the Caligula offset site; (e) to assist NEMA to monitor the environmental and social compliance aspects of the project; and/or (f) funding of community development activities that the sponsors may not be willing to finance through either debt or equity.

<sup>101</sup> OP 4.01 ¶13.

<sup>102</sup> Bujagali Hydropower Development Uganda Project Review and Assessment Report for IFC, prepared by Colenco Power Engineering Ltd., February 2007 (hereinafter “Colenco 2007”); Power Planning Associates, Economic and Financial Evaluation Study, December 2006; Bujagali Hydroelectric Power Project Transmission Interconnection Study System Analysis Report for TRC Global Management Solutions LP, prepared by Siemens Power Transmission & Distribution, Inc. Power Technologies International, August 2006 (hereinafter “Siemens 2006”).

<sup>103</sup> OP 4.01 ¶4. The policy also reads: “The role of the advisory panel depends on the degree to which project preparation has progressed, and on the extent and quality of any EA work completed, at the time the Bank begins to consider the project.”

## 5. Disclosure of Project Documentation

128. The Requesters believe that the Project SEA does not address significant potential impacts of the Project in relation to hydrology, the long term health of Lake Victoria, climate change and cumulative impacts. They also complain that the only document they had the chance to review was the Project’s SEA while the *“World Bank has also recently refused to publicly release information on the Nile hydrology and the impacts of Kiira Dam’s operations on the levels of Lake Victoria.”*
129. Management states that the SEA addressed social and environmental issues related to the project while climate change and hydrology were addressed in different studies—in particular the SSEA prepared under the Nile Basin Initiative—which were all publicly disclosed. Management states that *“learning from the past”* the Government *“implemented a stronger program of public disclosure.”* The Bank has disclosed the Project’s Economic Study, the SEA and the SSEA, along with other environmental and social documents in the InfoShop in Washington and in various locations in Uganda.<sup>104</sup> It is Management’s position that *“many of the information-related questions of the current Request are addressed within the body of information and analysis made available to the public.”*<sup>105</sup>
130. Paragraph 7 of OP 4.01 states that a range of instruments—environmental impact assessment (EIA), regional or sectoral EA, environmental audit, hazard or risk assessment, and EMP—can meet the policy’s EA requirement, and these are used as appropriate. In addition, a sectoral or regional EA is required if the Project is likely to have sectoral or regional impacts.
131. This is qualified by a sentence from paragraph 8(a) of OP 4.01: *“For a Category A project, the borrower is responsible for preparing a report, normally an EIA (or a suitably comprehensive regional or sectoral EA) that includes, as necessary, elements of the other instruments referred to in para. 7.”* In the section headed “Disclosure” OP 4.01 also requires that *“For a Category A project, the borrower provides for the initial consultation a summary of the proposed project’s objectives, description, and potential impacts; for consultation after the draft EA report is prepared, the borrower provides a summary of the EA’s conclusions.”*
132. The Panel notes that the Bujagali SEA makes only a passing reference<sup>106</sup> to the SSEA.<sup>107</sup> The latter study was managed and supervised by the World Bank and financed by the Canadian International Development Agency (CIDA) for the Nile Equatorial Lakes Subsidiary Action Program of the NBI. It was completed in

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<sup>104</sup> Management Response, ¶ 39.

<sup>105</sup> Management Response, ¶24.

<sup>106</sup> HPP-SEA, Sections 4.3.4 (p. 183–4) and 7.6.6 (p. 436–7).

<sup>107</sup> SSEA.

February 2007, two months after the Bujagali SEA. The SSEA makes no mention of the Bujagali SEA.

133. The SSEA was undertaken, according to the PAD, “*to provide guidance on the power generation options available in the region, based on an assessment of electricity demand, project costs, and environmental and social issues surrounding such projects.*”<sup>108</sup> The PCN (the first document the Bank makes public containing essential information about a proposed project and financing), preceding the PAD, had also pointed to the 2002 Inspection Panel Investigation Report related to the prior Bujagali Project stating that the Project would take note of the issues raised in the Panel’s report, including “*paying particular attention to undertaking a Strategic Sectoral Environmental Assessment and Cumulative Impacts Study.*”<sup>109</sup>
134. **It is clear from reading the two reports, the SEA and the SSEA, and the complete lack of cross-references between them, that they do not form part of the same suite of documents**—the link between them being that they both deal with the topic of electrical power in East Africa and were both supervised by the World Bank. Nevertheless the Management Response to the Request for Inspection gives the Nile Basin SSEA as the source of data and analysis of the potential effect of climate change on the Bujagali Project<sup>110</sup> as well as for Cumulative Effects of the project.<sup>111</sup>
135. Although the policy does not contemplate reports from one project/program being used to fulfill the requirements of another project—in this instance studies conducted under the NBI—the Panel is of the view that, in the interests of efficiency, an EA may, in principle, refer to and/or incorporate, as appropriate, other relevant studies. However, as the purpose of both the sectoral and project specific EA is to disclose information relevant to a decision, the fact that one study is reliant on another must be clearly stated and disclosed in project documentation.<sup>112</sup> Without this, information important to a project is obscured even if it is disclosed independently, which weakens or undercuts the achievement of the key elements of OP 4.01 relating to informed decision-making, public consultation and disclosure. The Panel finds justifiable the Requesters complaint that some aspects of the Project, that is effects of climate change and the cumulative effects,<sup>113</sup> have not been properly addressed in the project SEA. **The Panel acknowledges that the necessary studies have been conducted and**

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<sup>108</sup> PAD, p. 18 states that the SSEA was undertaken to “*provide an overview analysis of the social and environmental issues surrounding possible regional power development options in the Nile Equatorial Lakes Region of Africa based on demand scenarios up to 2020, taking into account potential climate change and cumulative impacts from multiple investments.*”

<sup>109</sup> PCN, Section B(e), p. 5.

<sup>110</sup> Management Response, Annex 1, Section 4, p. 19.

<sup>111</sup> Management Response, Annex 1, Section 6, pp. 20–1.

<sup>112</sup> A clear statement and graphic showing the inter-relationships and entire suite of documents that constitute the studies making up the SEA should be included as a preface to all such related documents.

<sup>113</sup> For a discussion of climate change and cumulative effects, see Chapter V.

**disclosed, albeit independently, and considered by Management and referred to specifically in the PAD. However, the failure to disclose the SSEA or its relevant parts as an integral part of the Bujagali Hydropower Project's documentation in a timely manner is not consistent with OP 4.01.**

## **6. Cumulative Impacts of Bujagali and Existing and Future Hydro Projects**

136. Cumulative effects are changes to the environment that are caused by an action (a project) in combination with other past, present and reasonably certain future human actions irrespective of who undertakes such actions. Consideration is given to effects on: (i) bio-physical components of ecosystems and (ii) socio-economic and cultural characteristics of the affected space. The stress is on analyzing known or probable additive or synergistic interactions, and not simply the direct effects of the particular action under assessment.<sup>114</sup>
137. The Requesters claim that the issue of cumulative effects “*remains unresolved*” in spite of the Inspection Panel’s 2002 finding that “*the issue of cumulative effects, addressed by Management and raised by the Requesters, is of real significance and is deserving of greater attention.*” In the Requesters’ opinion, the SEA does not discuss cumulative impacts, and BEL did not attempt to identify issues, especially with respect to the health of the Lake Victoria, arising from building a cascade of dams on the River Nile, including Bujagali.
138. Management argues that cumulative impacts of the current Bujagali Project are addressed as part of the Project’s SEA and in the SSEA. BEL’s SEA examines the cumulative impacts of Bujagali, the hydropower plants at Nalubaale, Kiira and Karuma along with the transmission facilities on the Victoria Nile in Uganda. It focuses specifically on the reach of the river between Lake Victoria and Lake Albert and takes into account other initiatives such as environmental offsets, natural areas, parks, reserves and so on. The SEA concludes that the socioeconomic impacts of Bujagali, generally, would be local because the existing Nalubaale–Kiira power plants and Bujagali are separated by Lake Kyoga from Karuma Falls and other potential hydropower sites downstream on the Nile River. In addition, the SSEA analyzes the cumulative impacts of several hydropower development alternatives under differing scenarios of regional grid integration. It concludes that developing Bujagali and other sites in the Victoria Nile Basin (excluding Kalagala) will not have significant cumulative environmental impacts. The SSEA analyzes and ranks potential future power options, based upon multiple criteria. These are: assessment of direct, indirect/induced and cumulative impacts of multiple activities; additional costs and benefits through multi-purpose use of

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<sup>114</sup> See for example: Larry Canter & Barry Sadler, *A Toolkit for Effective EIA Practice—Review of Methods and Perspectives on their Application: A Supplementary Report of the International Study of the Effectiveness of Environmental Assessment*, (International Association for Impact Assessment 1997) at, Chapter 5. See also *Considering Cumulative Effects under the National Environmental Policy Act: Handbook on Cumulative Effects Analysis*, (Council on Environmental Quality 1997), and *Cumulative Effects Assessment Practitioners Guide* (Canadian Environmental Assessment Agency 1999).

storage reservoirs; risk of rainfall variability; and sharing of benefits at the local and regional level. Management also claims that the studies conducted to inform the decision making process of the first Bujagali Hydropower Project served as part of the information base for the SSEA.<sup>115</sup>

139. Annex A of OP 4.01 states that a “[s]ectoral EA pays particular attention to potential cumulative impacts of multiple activities.” The Management Response draws attention to section 14 of the SSEA. This section is headed “Assessment of Cumulative Impacts,” covers 33 pages and provides an overview of the consequences of various portfolios of regional power options being adopted. However, the Panel notes that there is neither detailed analysis of the existing and proposed hydropower projects on the Victoria Nile nor of the Transmission Lines linking these projects to load centers.<sup>116</sup>
140. The analyses in the SSEA allow a comparison amongst the various proposed portfolios of power development options in the Nile Equatorial Lakes Region. **They do not, however, provide a systematic examination of the potential consequences of the Nalubaale and Kiira facilities, the Bujagali Project, and the planned Karuma project all being situated on the Victoria Nile between Lake Victoria and Lake Kyoga.** In addition, there is no examination of the impact of additional transmission lines between the hydropower stations and Kampala. **Although section 14 of the SSEA is headed “Assessment of Cumulative Impact” the Panel finds that the analyses are not sufficiently backed by evidence and include opinions rather than careful fact-based examinations of the additive effects of impacts from present and foreseeable projects.**
141. The Bujagali Hydropower SEA seems to address cumulative effects in more detail. For example a paragraph of section 7.7.3 of the Bujagali Hydropower SEA reads:

*The following impacts are considered to be negative cumulative impacts of the Bujagali HPP ... all are judged to be of minor significance:*

- *Relocation of people with compensation to accommodate the project’s construction, facilities and operations;*
- *Aesthetic impacts from the presence of another dam with the potential for knockon tourism impacts (potentially positive, as well, however);*

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<sup>115</sup> Management Response, pp. 6 and 20.

<sup>116</sup> SSEA sections 14.7.1.5, 14.7.2.3 and 14.7.4 come closest to an analysis of the cumulative effects of adding the Bujagali and Karuma Hydro-power facilities to those already existing at Nalubaale and Kiira. Section 14.7.1.4 provides a brief statement on the potential cumulative effects of transmission lines.

- *Some disruption of the natural flow regime over an ~8-km stretch of the river Nile downstream of and as a result of Nalubaale and Kiira: with associated impacts on aquatic organisms and communities (also potentially positive if productivity of reservoir increased); and, river users (fishers) – also potentially positive if increased productivity in reservoir is reflected in fishers’ catches.*

- *Losses of wildlife populations and habitats, as well as agricultural lands, due to inundation of terrestrial habitats.*

142. However, no data or arguments are provided to substantiate the above statements, including the judgment that the negative cumulative impacts of the Project are of minor significance. There is no determination of how many people stand to involuntarily lose access to their assets, how much agricultural land is to be lost, the extent to which riverine forest habitat will be lost, or the extent to which tourism will be affected.

143. **In light of the foregoing, the Panel finds that neither the SSEA nor the SEA has addressed the cumulative effects of the existing and planned projects in a meaningful way. This is not in compliance with OP 4.01.**

## **6.1 Cumulative Impacts of the Transmission Lines**

144. Section 7.3.9 of the Interconnection Project SEA reads as follows with respect to the cumulative effects of transmission lines from Jinja to Kampala:

*Cumulative effects resulting from the proposed interconnection project include the following:*

### ***Ecological Features***

- *Wayleave width through Mabira and Kifu CFRs will increase from current 30 m to 65 m, but future potential incremental increase to 90 m (3-132 kV x 30 m) wayleave is avoided ...;*
- *Access to, and within, Mabira CFR may be improved and control measures implemented in collaboration with the NFA and UETCL, facilitating improved management of the forest; and,*
- *Recreational facilities within Mabira CFR will be relocated within the reserve and improved, resulting in a net positive benefit to the reserve and its users.*

### ***Social Features and Conditions***

- *By locating the transmission line between Bujagali and Kawanda substation parallel to the “northern route” versus the Danish International Development Agency (DANIDA) or 66 kV transmission corridor to the south, involuntary resettlement is minimised and sensitive compensation issues are not*

*aggravated further. (Siting a new line adjacent to the DANIDA line could potentially displace some families for a second time as a result of transmission line construction.); and,*

- *Landowners will receive compensation to meet World Bank Group requirements including in certain cases, a “top-up” over Government of Uganda requirements. In general, landowners may receive a small net positive benefit due to the project.*

#### ***Aesthetics***

- *Visual impact of the interconnection project will be greatest in the vicinity of Lubigi Swamp where no major transmission infrastructure presently exists and along the Bujagali substation to the Tororo line connection (as seen from the eastern bank of the Nile River). Here, several transmission lines already come in/out of the Nalubaale switchyard.*

145. The Panel notes that these statements fail to address the cumulative effects of transmission lines or to propose mitigation to reduce additive effects. The cumulative loss of forest habitat from the transmission lines has not been determined and the statements relating to access and recreational facilities are not expressed in terms that allow determination of the overall cumulative effect of the multiple transmission lines. Cumulative impacts on social and aesthetic parameters are also not determined. The statement “*several transmission lines already come in/out of the Nalubaale switchyard*” is used to dismiss the possible aesthetic effect of yet another transmission line rather than to examine the cumulative effect of numerous lines emanating from the same switchyard.

## **6.2 Alternatives and Mitigation Measures—the Transmission Lines**

146. The transmission lines that will transport electricity from the hydropower site pass through areas where people live, wetlands, and the ecologically important Mabira Forest. The Panel notes that the SEA fails to address the cumulative effects of transmission lines; neither does it propose mitigation to reduce additive effects.
147. The Panel was not furnished with documentation indicating that the Project considered ways to mitigate or reduce the amount of land taken for the second (Bujagali) transmission line. Rather, the Project assumed that the size of the existing right of way needed to be doubled, which is technically incorrect.<sup>117</sup> Considerate planning of the new transmission line to take into account the required minimum distance from the outside phases of the lines to the ROW edge, the minimum horizontal clearance required between phase conductors of the two

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<sup>117</sup> See for example *Design Manual For High Voltage Transmission Lines*, Rural Utilities Service Bulletin 1724e-200, Electric Staff Division U.S. Department of Agriculture, May 2005.

lines, the spans and sags of the lines, as well as how structures of the two lines match up with one another, could significantly reduce the width of the required wayleave thus reducing the cumulative impact on Mabira and Kifu forest habitat as well as the number of families to be resettled. **The Panel finds that the failure to consider mitigation measures, which would reduce the social and environmental impacts of the transmission line, does not comply with OP 4.01 and OP 4.12.**

## 7. Environmental Impacts on Fisheries and Aquatic Systems

148. The Requesters express concern that the data on which the EA is based are dated and that such studies as were done were conducted over unrepresentatively short time periods. They express concern as to the accuracy of the surveys of endemic fish species.
149. Management responds that the Project builds on relevant work conducted for the prior Bujagali Project and on updated information gathered in further field studies and analysis, including studies on fisheries conducted for the prior project and updated for the current Bujagali Project. The Response adds that the Fisheries Resource Institute (FIRRI) conducted four surveys in 2000 and additional studies were carried out by the same institute (now known as National Fisheries Resource Research Institute—NaFIRRI) for BEL in 2006. The two sets of surveys (2000 and 2006) differ in number of species they found but according to Management “*this is to be expected*” and do not necessarily indicate species loss or extinction; it may be due to variations in data collection, migration or location of species. The overall conclusion is that the “*reach of the Victoria Nile that will be affected by Bujagali is not considered to be critical habitat for any fish species of conservation importance.*”<sup>118</sup>
150. As noted, OP 4.01 requires a project EA to evaluate potential environmental risks and impacts of the Project in its area of influence and to include a process to mitigate and manage adverse environmental impacts throughout project implementation, favoring preventive measures over mitigatory or compensatory measures if possible. OP 4.04 on Natural Habitats states that the Bank “*supports the protection, maintenance, and rehabilitation of natural habitats ... and expects borrowers to apply a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development.*” When a project would significantly convert or degrade a natural habitat, mitigation measures have to be provided for in the Project, measures such as minimizing habitat loss as appropriate.
151. The endemic cichlid fishes of East Africa are “*well known for their spectacular diversity and their astonishingly fast rates of speciation ...virtually all cichlid species from Lake Victoria (~500 species) ... are haplochromines.*”<sup>119</sup> Hundreds

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<sup>118</sup> Management Response, p. 23.

<sup>119</sup> Salzburger W *et al* 2005.

of species have evolved to fill almost all of the major niches available to freshwater fishes. Not all haplochromines are lacustrine (lake dwellers) and close to 200 species inhabit rivers. They are known to inhabit almost every available lake and river habitat. Rocky shores and islands are important refuges for a number of cichlid species that were formerly not restricted to rocky substrates, but now survive there to escape Nile perch predation.<sup>120</sup> The cichlids that inhabit rocky shores were less subject to Nile perch predation. Consequently, rocky habitats in Lake Victoria are important to the survival of some endangered cichlids. It may be construed that rocky habitats (rapids) are similarly important in the Victoria Nile, where the Nile perch is also a predator.

152. A baseline aquatic ecology and fisheries survey of the Victoria Nile was carried out by FIRRI in 2000.<sup>121</sup> The survey was based on quarterly surveys of water quality, aquatic plants, invertebrate animals and fish. Twenty sites were sampled using routine field and laboratory techniques. These sites covered all habitats present in the upper Victoria Nile from slower-flowing vegetated margins, to fast-flowing rapids. The field studies were carried out in February, May, August and October/November 2000 to assess seasonal conditions during Uganda's short and long rainy seasons, and the short and long dry seasons. Each survey used four transects, one above<sup>122</sup> and three below,<sup>123</sup> the Dumbbell Island site of the Bujagali Dam. Gill nets of graded mesh sizes as well as beach seines were used to sample habitats at each transect. This study found that the Upper Victoria Nile has two zones, each with a characteristic fish population. An upstream zone (transects 1, 2 and 3) is characterized by swift mid-channel current with rock outcrops and rapids such as Bujagali and Kalagala. Further downstream (transect 4), a zone with more gentle flow that is uniform across the channel occurs. In the upstream zone fish populations are better adapted to the rocky fast-flowing habitat than the fish populations occurring downstream. The study recommended further investigation of possible potamodromous<sup>124</sup> migratory behavior between the two zones and the role of the natural barriers (such as the falls at Bujagali and Kalagala) in separating fish species and causing different populations in the upstream and downstream reaches of the Victoria Nile. It also recommended a feasibility study of a fish pass at Bujagali to allow in-stream fish migrations from below to above the dam.

153. In 2001 an additional more detailed investigation of the haplochromine fishes was commissioned in response to the concern that the previous study had not adequately addressed the potential loss of rocky, fast-flowing habitats. Fieldwork for this supplementary study was carried out during July and August 2001. Eleven

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<sup>120</sup> Nile perch (*Lates niloticus*) is a large predatory fish that was introduced into Lake Victoria by man in the 1950s. An estimated 150–200 cichlid species from Lake Victoria are thought to be extinct as a consequence.

<sup>121</sup> The National Fisheries Resources Research Institute (and the same institute under its former name—FIRI) is a reputable established research institute that has specialized in the study of Ugandan fisheries.

<sup>122</sup> Kalange-Makwanzi.

<sup>123</sup> Buyala-Kikuba Mutwe; Matumu-Kirindi; Namasagali-Bunyamira.

<sup>124</sup> Migration within streams or rivers.

sites were sampled to cover the range of fast-flowing and rocky habitats in the upper Victoria Nile, from Ripon Falls to Kakindu, 63 km downstream of Ripon Falls. Experimental fishing was carried out at each site, with equipment designed to target the haplochromine fishes, which are generally small fish less than 100 mm in length. Angling was also carried out by local fishermen with hooks and rods. In addition, sets of gill-nets (ranging in mesh size from 25 mm to 203 mm) were set overnight.

154. A final report of this haplochromine study was included as an appendix to the AES Nile Power Environmental Assessment. Part of the study's conclusion reads:

*A total of 35 haplochromine cichlid species were recovered from the upper Victoria Nile by experimental fishing in rocky, rapidly-flowing habitats. All of the specimens recovered from sites upstream of Busowoko were previously known to science, and none are listed as threatened on the IUCN Red List for Uganda. The fact that they are relatively well known is probably due to the species flock in the upper reaches of the Victoria Nile being closely related, if not a continuation of, the well-studied Lake Victoria flock. All of the species recovered from the area between Owen Falls and Dumbbell Island are well known from sites in Lake Victoria, including the Mwanza Gulf (Tanzania), and the Napoleon Gulf (Uganda). These findings are similar to the findings of the FIRRI (2001) study.*

*It is concluded that fast-flowing, rocky areas are not the principal habitat for haplochromine fishes in the upper Victoria Nile. Although the Bujagali Hydropower Project will result in a reduction in flow velocity in a 4 km stretch of the river, this area is not considered an important site for haplochromines. Reduction in flow velocities may in fact result in increased haplochromine abundance. Therefore it is concluded that the Bujagali Hydropower Project will not have a significant negative impact on haplochromine cichlids in the Victoria Nile.<sup>125</sup>*

155. The taxonomy of the East African haplochromines is the subject of ongoing debate in the fisheries literature. It has been found that species thought to be extinct are re-emerging in Lake Victoria.<sup>126</sup> The IUCN 2005 study *The Status and Distribution of Freshwater Biodiversity in Eastern Africa*<sup>127</sup> reports:

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<sup>125</sup> *Haplochromine Habitat Study*, Report No. AF6097/70/dg/1215 Rev. 2.0 (WS Atkins International Ltd and FIRRI 2001).

<sup>126</sup> Balirwa, J. et al 2003 p.703.

<sup>127</sup> Will Darwall, K. Smith, T. Lowe, & Jean-Christophe Vié, *The Status and Distribution of Freshwater Biodiversity in Eastern Africa* Occasional Paper of the IUCN Species Survival Commission No. 31 (IUCN 2005).

*Many of the Lake Victoria cichlids were previously thought to be extinct but, following additional and more extensive surveys, it appears that a number of these species still exist in small pockets in the lesser-known parts of the main lake and in the smaller satellite lakes (e.g., Bisini, Kanyaboli and Nabugabo).*

156. The IUCN 2005 study also concedes that assessments of the status of fish based on the 2003 Red Lists were not representative.

*Two-hundred-and-fifty-two of the 901 fish taxa assessed at the global level (mostly endemic to the region) are threatened (28% of the total number of fish taxa assessed), with two species (*Aplocheilichthys* sp. “Naivasha” and *Barbus microbarbis*) thought to be extinct. This assessment provides a significantly improved picture for the regional level of threat than that previously obtained from the 100 species assessed for the 2003 IUCN Red List of which 87% were assessed as either threatened or extinct. These earlier assessments focused on the Lake Victoria fish community in an effort to highlight the apparent large-scale decline and loss of cichlid species due to the combined impacts of invasive species, eutrophication and possibly overfishing. Clearly this picture was not representative of the threatened status for fish throughout the region.*

157. **Based on its review of relevant research studies, the Panel observes that the status of the fish species inhabiting both Lake Victoria and the Victoria Nile is disputed and that ongoing research is desirable. However, significant effort has been devoted to study these fish in the reaches of the Victoria Nile that will be affected by the Bujagali Hydropower Project.**

158. As the FIRRI report on its Bujagali surveys had recommended a feasibility study of a fish pass, the Ugandan National Environmental Management Authority formally requested FIRRI to provide an indicative position on the necessity for a fish ladder at the Bujagali dam. In the FIRRI response, dated September 14, 2001, the Director writes as follows:

*The Lake Victoria and Lake Kyoga basins are connected by the Upper Victoria Nile flowing out of Lake Victoria northwards to Lake Kyoga downstream, and, eventually through Lake Albert, the Albert Nile and beyond.*

*The fish fauna of both lakes Victoria and Kyoga for the most part share a similar evolutionary origin. This means that many species of fish in Lake Victoria have also been recorded in Lake Kyoga.*

*It is also well known that many species of fish in the lakes undertake longitudinal upstream migrations on a seasonal basis for spawning... These migrations have been well studied in fish from Lake Victoria migrating to inflowing rivers and streams... The Victoria Nile with respect to Lake Victoria is an OUT-FLOWING river. It becomes IN-FLOWING with respect to Lake Kyoga. [Emphases in original] This means that it is the in-flowing influence at the Victoria Nile–Lake Kyoga mouth where we would expect upstream migration.*

*The investigated transects of Dumbbell Island had a fish fauna which was in many respects similar to the Lake Victoria fish fauna. There was a transition zone from the third transect downstream of Dumbbell island merging into more typically Lake Kyoga fish fauna.*

*The most downstream transects also contained the highest density of anadromous (i.e. migrant species)... It was thus noted that from a fish migratory point of view, the Upper Victoria Nile behaved more as an IN-FLOWING river for fishes in Lake Kyoga.*

*... their occurrence throughout the system proved that there were riverine fish populations that breed within the river irrespective of the natural physical barriers. Such populations especially upstream were unlikely to be affected by other barriers in terms of breeding.*

*It was observed that inspite of the present Owen Falls Dam barrier, the fishes known to be migrants occur in Lake Victoria (where they migrate UPSTREAM) and also occur in sections of the river where breeding specimens have been found.*

*This indicates that these fishes breed within the river.*

*The present Owen Falls Dam is already a barrier to assumed migration towards Lake Victoria. Migrant fishes are found upstream and downstream of this barrier but the same species occur throughout the Upper Victoria Nile towards Lake Kyoga.*

*It is not justifiable that a fish ladder or pass would improve the stocks of migrating fish in the Upper Victoria Nile. Were this to be so (which it is not), the present Owen Falls Dam would need a fish pass, as would Owen Falls Extension. This is not necessary and **a Bujagali Fish ladder is not scientifically justifiable.** (emphasis added). A barrier in the Upper reaches up to Dumbbell Island would not significantly affect the stability of fish populations in Lake Victoria and neither would a fish ladder be relevant.”*

159. The studies undertaken by, and the formal indicative position of, the Ugandan NaFIRRI are substantial and professional. Bank Management exercised diligence

in using these documents in its decision-making. **The Panel consequently finds Bank Management acted consistently with the provisions of OP 4.01 and OP 4.04 in so far as these relate to assessment of the likely consequences of the Bujagali hydropower Project on fish stocks in the Upper Victoria Nile and Lake Victoria.**

## **B. Mitigation Measures: The Kalagala Offset Agreement**

160. The Requesters express concerns about the agreement between the World Bank and the GoU stating that the “*Government of Uganda undertakes that any future proposal which contemplates a hydro power development at Kalagala will be conditional upon satisfactory EIA being carried out which will meet the World Bank Safeguard Policies as complied with in the Bujagali Project. Government and the World Bank will jointly review and jointly clear such an EIA.*” In the Requesters’ opinion this agreement is not a guarantee that the Kalagala Falls will never be developed for hydropower.
161. In its Response, Management claims that the offset provision related to the Kalagala Falls “*will be included as a GoU obligation in the IDA Indemnity Agreement for the Bujagali project, and will be binding throughout the life of the Indemnity.*”<sup>128</sup> This, in Management’s view, is in compliance with OP 4.04 on Natural Habitats. Management also notes that, because the Bank’s legal resort to enforce the Government’s commitment is not available after the termination of the Indemnity Agreement, this agreement “*includes a provision that, prior to the termination of the Indemnity Agreement, the World Bank and the GoU will pursue discussions to identify mechanisms or instruments to enable the continuation of the GoU obligation to set aside the Kalagala Falls site.*”<sup>129</sup>
162. According to OP 4.04 on Natural Habitats, the policy of the Bank is to support the protection, maintenance, and rehabilitation of natural habitats and their functions in the Bank’s work. The policy further states that in project design and implementation “*the Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs.*”<sup>130</sup> Further, it states that “*if the environmental assessment indicates that a project would significantly convert or degrade natural habitats, the project includes mitigation measures acceptable to the Bank. Such mitigation measures include, as appropriate, minimizing habitat loss (e.g., strategic habitat retention and post-development restoration) and establishing and maintaining an ecologically*

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<sup>128</sup> Management Response, p. 22 and p. 10 ¶ 28

<sup>129</sup> Management Response, p. 22 and p. 10 ¶ 28

<sup>130</sup> OP 4.04 ¶5.

*similar protected area.*<sup>131</sup> The Bank, however, “*may accept other forms of mitigation measures only when they are technically justified.*”<sup>132</sup>

163. According to Project documents, the inundation of the riverbank portions of the Jinja Wildlife Sanctuary and Nile Bank Central Forest Reserve, as well as the islands between the sections of Bujagali rapids, is technically necessary for the hydropower project. As a result, there will be an irreversible impact to natural riverine forest as well as aquatic habitats. For natural habitats, OP 4.04 allows such impact to be mitigated by establishing and maintaining an ecologically similar protected area. The phrase “establishing and maintaining an ecologically similar protected area” has come to be known as “an offset.”<sup>133</sup> Kalagala Falls, a site with hydropower development potential, was agreed between the GoU and the Bank to be an appropriate offset for the natural habitats that would be inundated by the Project.



**Picture 5 Kalagala Falls**

164. Considerable correspondence pertaining to the so-called “Kalagala offset” took place between the GoU, the project sponsor and the World Bank at the time of the 2001 proposal to develop a hydropower facility at Bujagali. This correspondence is reproduced as Appendix D1 of the SEA for the Bujagali Hydropower Project. Appendix D2 of this SEA provides a copy of a letter dated September 15, 2006 from the Ugandan Electricity Regulation Authority refusing a potential project sponsor permission to conduct investigations at Kalagala with a view to establishing the site’s power generation potential. In this letter it is stated that:

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<sup>131</sup> OP 4.04 ¶5.

<sup>132</sup> OP 4.04 ¶5.

<sup>133</sup> Management Response, pp. 21–22, 24.

*“The Government position on the site is that it continues to be frozen for development purposes.”*<sup>134</sup>

165. However, the Requesters believe that the assurances given by the GoU in the correspondence with the World Bank “...are not a guarantee that Kalagala Falls would never be developed for hydropower. The commitment on Kalagala Falls as an ‘Off-set’ by government of Uganda is not binding. It does not completely remove Kalagala as a future dam site.”<sup>135</sup>
166. In order to meet the requirements of OP 4.04 the World Bank has conditioned its participation in the Project as follows: “...the long term protection of the Kalagala Falls and the preclusion of development of hydropower potential at Kalagala is a necessary offset for World Bank Group participation in the proposed project.”<sup>136</sup>
167. In this context, an Indemnity Agreement was entered to between the Republic of Uganda and IDA on July 18, 2007, in consideration of IDA providing a guarantee in connection with the Project.<sup>137</sup> The Indemnity Agreement provides that

*Uganda shall:*

*(a) set aside the Kalagala Falls Site exclusively to protect its natural habitat and environmental and spiritual values in conformity with sound social and environmental standards acceptable to the Association. Any tourism development at the Kalagala Falls Site will be carried out only in a manner acceptable to the Association and in accordance with the aforementioned standards”* The same paragraph of the Indemnity Agreement provides, however, that “.. Uganda also agrees that it will not develop power generation that could adversely affect the ability to maintain the above-stated protection at the Kalagala Falls Site **without the prior agreement of the Association.** (emphasis added)

In other words, the possibility of a power generation development at the Kalagala site is not precluded but rather subject to the Bank’s agreement.

168. During Panel interviews with Bank Management, Government of Uganda officials and the Bujagali Project Sponsor,<sup>138</sup> it was evident that the “Kalagala

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<sup>134</sup> In a November 2007 interview with the Inspection Panel the official responsible for drafting the Kalagala Offset agreement stated that this provided a Ugandan Government commitment that no hydropower facility would be developed at Kalagala and that it effectively takes Kalagala “off the desks of planning officials”.

<sup>135</sup> Request, p. 5.

<sup>136</sup> PAD, Annex 15, p. 155.

<sup>137</sup> Indemnity Agreement (Partial Risk Guarantee for the Private Power Generation (Bujagali) Project) between the International Development Association and the Republic of Uganda, dated July 18, 2007 (hereinafter “Indemnity Agreement”).

Offset” has come to be accepted as a site to be used to “offset” a variety of the features that are to be lost by inundating the Bujagali rapids, but there is almost no mention of the core purpose of a conservation for lost natural habitats as provided by Bank policy on Natural Habitats.<sup>139</sup> During its investigation visit, the Panel observed uses at Kalagala Falls that are not necessarily consistent with this conservation purpose. The visit to the site served to confirm that tourism is actively being promoted but that the natural habitats at Kalagala are not being maintained as required by paragraph 5 of OP 4.04. Removal of natural vegetation and subsequent burning and cultivation of the western bank of the Nile was seen, as was an apparently new structure on one of the islands.

169. The Project SEA also reports that a rafting company has “*been awarded a concession from the National Forestry Authority to operate a high quality eco-tourism Lodge on Kalagala Island, within the Kalagala-Itanda Offset area, which will involve an investment of USD 1 million in association with international partners...*”<sup>140</sup> **The Panel finds that there is evidence that an offset has been created, to meet the requirement of OP 4.04, and notes the efforts of Bank Management to this end. On the other hand, the Panel finds that there is evidence that the offset site is not being subject to appropriate conservation and mitigation measures<sup>141</sup> in conformity with sound social and environmental standards. The Project is thus not in compliance with OP 4.04 on this point.**
170. Paragraph 6 of OP 4.04 provides that: “*if there are potential institutional capacity problems, the project includes components that develop the capacity of national and local institutions for effective environmental planning and management.*” The Panel finds that the capacity of local institutions to plan and manage the Kalagala offset has not been developed and that no provision has been made to rectify this. As a consequence **the Kalagala offset may not achieve the purpose for which it was set aside, and this is not consistent with the provisions of OP 4.04.**
171. In addition to the Kalagala offset, mitigation measures that will be undertaken within the Jinja Wildlife Sanctuary and Nile Bank Central Forest reserve include enhancement planting on the residual islands and in the 100 m riparian strip along the reservoir margins. This is for erosion control and general catchments protection, but also to offset the loss of ecological habitat on the Bujagali islands and riverbanks as a result of the Project. This planting will be undertaken in consultation with landowners and with National Environmental Management Authority (NEMA), the government authority charged with management of this

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<sup>138</sup> Interviews in Washington DC and in Uganda, December 2007.

<sup>139</sup> In an interview with the Inspection Panel (Entebbe, November 2007) an official of the National Environmental Management Authority stated that he understood the Kalagala Offset was primarily to accommodate tourism activities displaced from Bujagali and that the offset agreement allowed for eco-tourism development on the Kalagala islands. Replacement plantings for lost riverine forest were seen to be the responsibility of BEL, overseen by the National Forestry Authority.

<sup>140</sup> HPP-SEA, p. 148

<sup>141</sup> OP 4.04 ¶6.

area.<sup>142</sup> Seedlings are to be sourced from NGOs as well as from the National Forest Authority and local people—especially women—will be employed to plant and tend the plantings. To encourage positive engagement of local people fruit trees for their use will be included in the mix of trees to be planted.<sup>143</sup>

172. The success of such enhancement planting will be heavily dependent on adequate husbandry being provided until the seedlings are established and thereafter to ensure that saplings are not harvested for poles or firewood. Appropriate management and oversight of the enhancement plantings will be required. **The Panel notes with concern that the proposed Environmental Mitigation and Monitoring Plan<sup>144</sup> is silent on the need for monitoring of enhancement and offset plantings. Also, monitoring of replacement plantings has not been included in the terms of reference of the witness NGO that has been appointed to monitor Project compliance with IDA conditionalities. This is not consistent with the provisions of OP 4.04.**

### C. Safety of Dams

173. The Request claims that the safety issues regarding the Nalubaale dam at the Owen Falls are not taken into consideration in the Bujagali dam design. The Requesters raise the issue of whether the Bujagali dam would be able to survive a failure of the Owen Falls dam. The Requesters do not consider sufficient the proposal to form a dam safety panel, because they believe a comprehensive plan and strategies to address these issues should be integrated into the Project design. They argue that these strategies are very important, since there was no Environmental Impact Assessment for the Kiira Dam or a post-construction audit for the Nalubaale Dam.
174. Management responds that dam safety is an integral part of the review of any hydropower development, that a Dam Safety Panel has been established to provide advice through design, construction, filling, and start-up to ensure that the project is consistent with Bank policies.
175. For large dams such as Bujagali OP 4.37 requires:

*a) reviews by an independent panel of experts (the Panel) of the investigation, design, and construction of the dam and the start of operations;*

*b) preparation and implementation of detailed plans: a plan for construction supervision and quality assurance, an instrumentation plan, an operation and maintenance plan, and an emergency preparedness plan;*

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<sup>142</sup> HPP-SEA, Section 7.5.2.3.

<sup>143</sup> HPP-SEA, Section 7.5.2.3.

<sup>144</sup> HPP-SEA, Section 8.3.7.

*c) prequalification of bidders during procurement and bid tendering.*<sup>145</sup>

Paragraphs 7 and 8 of the Policy provide that

*The Bank may finance ... diversion dams or hydraulic structures downstream from an existing dam or a DUC [dam under construction], where failure of the upstream dam could cause extensive damage to or failure of the new Bank-funded structure;  
...*

*If such a project ... involves an existing dam ... in the borrower's territory, the Bank requires that the borrower arrange for one or more independent dam specialists to (a) inspect and evaluate the safety status of the existing dam ... its appurtenances, and its performance history; (b) review and evaluate the owner's operation and maintenance procedures; and (c) provide a written report of findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam ...to an acceptable standard of safety.*<sup>146</sup>

The OP further states that

*The Bank may accept previous assessments of dam safety or recommendations of improvements needed in the existing dam or DUC if the borrower provides evidence that (a) an effective dam safety program is already in operation, and (b) full-level inspections and dam safety assessments of the existing dam or DUC, which are satisfactory to the Bank, have already been conducted and documented.*<sup>147</sup>

176. As part of the dam safety review required for the Bank-supported Uganda Power III Project<sup>148</sup> a review of the safety of the original Owen Falls dam indicated that the 1940's design of the dam was inadequate to meet current safety standards. Remedial work to bring the dam up to modern safety standards was thus required: this was financed by the Bank under a supplemental credit to complete the Power III project. In all Bank projects related to the Owen Falls Dam and to the Owen Falls Extension Project (Power II, Power III, Power III supplemental credit, and Power IV), the Inspection Panel found in 2002 that the provisions of the Policy on

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<sup>145</sup> OP4.37 ¶4.

<sup>146</sup> OP4.37 ¶¶ 7& 8.

<sup>147</sup> OP4.37 ¶9.

<sup>148</sup> The Uganda Power III Project is also referred to as the Owen Falls Extension (now known as Kiira). Supported by IDA, the project included the construction of a powerhouse, the installation of two 40-megawatt generating sets, the provision of remedial works at the Owen Falls Dam, and the provision of technical assistance to the Uganda Electricity Board.

Safety of Dams had been fully addressed. Appropriate professionals had been appointed for design and construction, an independent panel of experts had been appointed and used to advise on the best way to bring old structures up to modern standards, operational and maintenance plans had been prepared and implemented, an emergency preparedness plan was in place and routine independent safety checks were being carried out. The Bank had also appointed its own experts to review the reports of the project's independent panel of experts.

177. Similarly, for this Project, the lenders appointed their own expert advisors to review the report of the project's expert panel on dam safety. The Inspection Panel's expert has reviewed this report and accepts that "*the situation at Owen Falls does not pose an unusual risk to the Bujagali project.*"<sup>149</sup>
178. The Panel expert also studied the report commissioned by the lenders to review preliminary dam design, including an evaluation of flood risks in the event of catastrophic failures. The report finds that the design of Bujagali is consistent with industry design practice. Nevertheless it recommends that further studies be conducted to determine whether any human settlements would be affected by flood waters consequent upon a catastrophic dam failure or from sudden increases in river flow that may occur when the siphon spillway operates.
179. The Panel visited the Nalubaale complex in December 2007 and was shown the cracks in the powerhouse as well as the routine measurements of structural movement and of pore-water pressure that are undertaken and reported. The Panel expert is satisfied that Eskom (Uganda) is undertaking and reporting the monitoring of the Nalubaale complex that the Bank requires. The Panel notes that the cracks are in the powerhouse structure and not in the wall of the dam. **The Panel finds that Management has complied with the procedures set forth in OP 4.37.**

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<sup>149</sup> Colenco Power Engineering Ltd., Bujagali Hydropower Development, Uganda: Project Review and Assessment Report (second draft), Feb. 2007.

## Chapter IV

### Hydrological and Climate Change Risks

#### A. Introduction

180. This chapter analyzes the issues of hydrological and climate risk raised by the Requesters, specifically the impact of hydrological regimes on energy output, the impact of the Project on lake levels, and the impact of climate change on the hydrology of Lake Victoria and the Victoria Nile River and thus on energy output.
181. According to the Requesters, BEL's SEA does not adequately address the issues of possible hydrological changes affecting power production at the Nalubaale, Kiira and the Bujagali facilities, especially when Lake Victoria water levels decline. The Requesters state that BEL has little or no control on the manner in which Nalubaale and Kiira will be operated and cannot control the outflow of water from the power stations upstream. Further, BEL had not taken into account Lake Victoria's diminished hydrological state and its flow regime changes. As a result, the Requesters believe power-generating capacities of the Bujagali Dam are overestimated and the dam will not be able to operate to achieve its designed capacity under the current hydrological regime because there will not be enough water for this purpose. They also contend that the environmental studies do not assess the possible scenario of the Bujagali Dam providing further incentives to release higher flows.
182. Management states that the impact of hydrological flow rates on the planned Bujagali Dam has been addressed extensively: an analysis of the lake's hydrology and its impact on power generation at Nalubaale, Kiira and Bujagali, which complements the SEA, is included in the study "Bujagali II—Economic and Financial Evaluation Study" (Section 2: Hydrology and Energy Generation of Hydropower Plants), known as the Economic Study.
183. According to the abovementioned studies, "*the proposed 250MW project is not expected to significantly alter or affect the hydrology of Lake Victoria or the Victoria Nile.*" The Bujagali Dam and its energy output are based on water releases from Lake Victoria consistent with the Agreed Curve and on the assumption of a low flow regime occurring during the first 20 years of operation at about 79 percent probability. The amount of water released from the Lake and the timing of this release will be controlled through operating the Nalubaale and Kiira facilities. Data used to assess the hydrology of the Lake comprises 106 years of data, including several hydrological cycles, which were considered adequate and sufficient to determine the hydrological risk for energy generation.
184. Management acknowledges that in recent years the "*GoU over-abstracted water for power generation*" because of a general drought, lack of generation investments and a demand growth of 8 percent. However, it also states that the

*“GoU has steadily decreased hydropower generation in an effort to return to the Agreed Curve operating regime. Water flows for power production are being scheduled so as to return to the Agreed Curve as soon as reasonably possible.”*<sup>150</sup>

Management also recognizes that BEL will not control water released from the Lake but argues that the Government has an interest in ensuring that the three facilities are operated in an efficient way.

185. The remainder of this chapter is divided in four sections. Section B analyzes the hydrology of Lake Victoria and the Victoria Nile, with particular attention to the appropriateness of the hydrological data used in project design and the recent changes in Lake Victoria levels and their relationship to power plant operations. Sections C, D and E analyze, respectively, the impact of hydrology on energy output; the assessment of the impact of the project on lake levels, including the impact of the Project on lake levels, and climate change risks.

## **B. The Hydrology of Lake Victoria and the Victoria Nile**

186. This part of the Report analyzes the adequacy of the Project’s assessment of the hydrological risk and impact of the Project on Lake Victoria and the Victoria Nile. To do so, the Report first examines whether the 1900–2005 hydrological data series used in Project design is appropriately representative of long-term lake level and flow conditions—Section 1 below. A discussion of the changing conditions of the Lake’s water levels in the last few years (2000–2005) and the extent to which this may be related to the operation of the Nalubaale–Kiira system follows in Section 2.

### **1. Appropriateness of Hydrological Data Series used in Project Design**

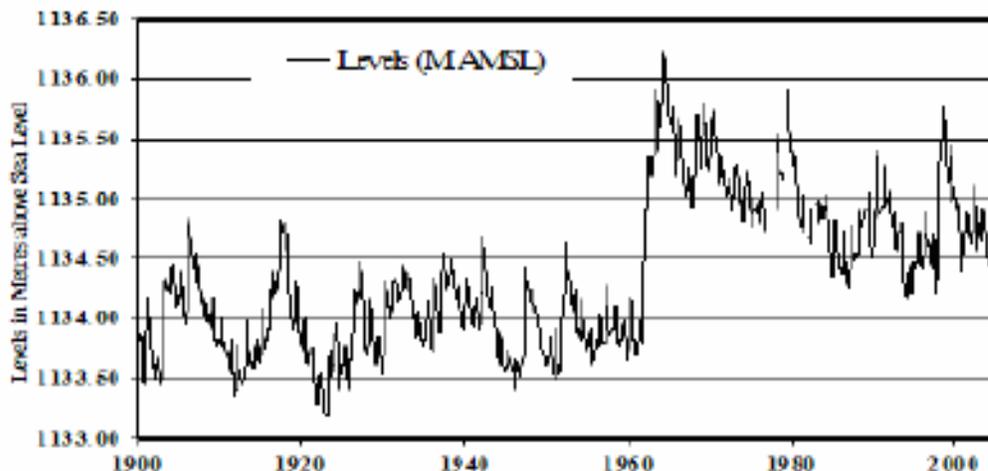
187. To determine whether the 1900–2005 hydrological data series used in Project design is truly representative of long-term lake level and flow conditions, it is important to take into account that, as noted in Chapter II, observers generally divide the history of Lake Victoria’s water levels into three main periods (though the hydrology of the Lake and the outflow from the Lake Victoria have long been a topic on which hydrologists and engineers disagree<sup>151</sup>).
188. In general, the period before 1960 is characterized as a period of relatively low water levels. Between January 1960 and June 1964, the lake level increased about 2.5m for a total volume increase of  $170 \times 10^9 \text{m}^3$ . Between 1960/61 and 1999, Lake Victoria had much higher average inflows (around  $1200 \text{m}^3/\text{s}$ , or nearly double the average inflows in the previous period), and the Lake level rose. In contrast, starting in 2000 and until very recently, Lake levels and net inflow again decreased to a level observed before the 1960s (see Figure 2).

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<sup>150</sup> Management Response, p. 18.

<sup>151</sup> Inspection Panel Investigation Report 2002, ¶80. See also Kull 2006, p. 10.

189. Between 2001 and 2004, outflows from Lake Victoria, which were 15 percent above the average inflow for 1950–2000, exceeded net inflows and lake levels declined.<sup>152</sup> The lake cannot maintain its water level, if human controlled outflows are higher than naturally occurring inflows.



**Figure 2 Lake Victoria Water Levels from January 1900 to January of 2005 (Source: Lake Victoria Basin Commission)**

190. As also noted in Chapter II, the main input of water to Lake Victoria is rainfall directly onto the Lake’s surface (significantly greater than basin inflow), and the main loss of water from the lake is evaporation (significantly greater than outflow down the Victoria Nile). The amounts of direct rainfall, basin inflow, evaporation from the lake, and outflow via the Victoria Nile from 1950 to 2004 are provided in Table 1 below, which summarizes the water balance for Lake Victoria during this period.

**Table 1 Summary of Water Balance for Lake Victoria<sup>153</sup>**

Process	1950-2000 Average Flow m <sup>3</sup> /s	%	2001-2004 Average Flow m <sup>3</sup> /s	%	1950-2004 Average Flow m <sup>3</sup> /s	%
<i>Inflow</i>	<b>4416.8</b>		<b>4330.2</b>		<b>4410.4</b>	
Direct Rainfall	3611.5	81.8	3644.0	84.2	3613.8	81.9
Basin inflow	805.3	18.2	686.2	15.8	796.6	18.1
<i>Outflow</i>	<b>4376</b>		<b>4539.4</b>		<b>4387.9</b>	
Evaporation from lake	3329.8	76.1	3337.5	73.5	3330.3	75.9
Victoria Nile Outflow	1046.2	23.9	1201.9	26.5	1057.6	24.1
<i>Balance</i>	<b>+40.8</b>		<b>-209.2</b>		<b>+22.5</b>	

<sup>152</sup> Lake levels at the Jinja gauge reached a low point of 10.4m in October 2006. Since that date lake levels have been rising.

<sup>153</sup> Table 2, p. 8 *Special Report on the Declining of Water Levels of Lake Victoria*, East African Community, Lake Victoria Basin Commission (2006).

191. After reviewing the striking variations in the net inflow of water into the lake<sup>154</sup> between the three key periods dating back to 1900, the Project Economic Study concluded that “[...] *the whole period of record from 1900 should be used to determine the future dependable flow for power generation at hydro power stations on the Victoria Nile.*”<sup>155</sup>



**Picture 6 Monitoring the Levels of Lake Victoria**

192. Hydrology studies conducted by Acres in 1990,<sup>156</sup> which analyzed the feasibility of two hydropower plant alternatives, the Owen Falls dam extension (Kiira) and the Bujagali Falls Hydropower Plant, concluded that the low flows observed before 1961 (when the mean outflow was 660 m<sup>3</sup>/s) were **not** truly representative of long-term flow conditions; as a result, these studies considered only the hydrological series 1961–1989, during which the mean outflow of water was 1,200 m<sup>3</sup>/s, as a valid basis for Project design. In contrast, the 1993 studies of the Nile Basin by the Institute of Hydrology of the United Kingdom (IOH, Wallingford, England) concluded that the increases recorded in the period 1961–1964 were due to an increase of rainfall in the basin rather than an error in the hydrological series. This period was therefore considered not representative of a

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<sup>154</sup> As explained earlier, the net inflow of water into the lake is often termed Net Basin Supply (NBS). NBS = rainfall – evaporation + basin inflow, and indicates the net amount of water which enters in the lake after accounting for evaporation. In a dry year evaporation increases and rainfall decreases, which can result in a near zero or negative value of NBS.

<sup>155</sup> Power Planning Associates Ltd, Bujagali II - Economic and Financial Evaluation Study, Final Report, February 2007 (hereinafter “Economic Study”) Executive Summary, p. 4. The review was carried out by Power Planning Associates (UK), in consultation with Coyne et Bellier (France) and ECON (Norway). The study also concluded that the Institute of Hydrology of the United Kingdom (IOH) series was a reliable one since other rivers showed conditions similar to those observed in the periods 1900–1961 and 1960–1964.

<sup>156</sup> Acres International Ltd., Proposed extension to Owen Falls Generating Station: Feasibility Study Report, Oct. 1990.

long term hydrology for the Lake: both low and high flows could occur in the future. Subsequent studies by EDF (Electricité de France) in 1998 and Knight Piesold in 1999 confirmed this analysis.

193. The Project's Economic Study compared the outflow hydrologic series obtained by IOH and Acres and analyzed it based on the flow of other rivers in the region. It concluded that the IOH series was more reliable, since the data recorded during the period 1900–1961, and the changes in 1960–1964, reflected similar conditions in these other rivers. Other studies<sup>157</sup> also showed that the net inflows of water into the Lakes Victoria, Kyoga and Albert exhibited similar behavior for the period of high flow as compared to the previous period. Other authors showed that a period of high levels had also occurred in the 19<sup>th</sup> century, though most of the time the levels were similar to those in the period 1900–1960 or lower<sup>158</sup>.
194. The Management Response indicates that a *peer review* analysis of the Economic Study was prepared by Prof. Juan Valdés from the University of Arizona.<sup>159</sup> This independent review was financed under the BNWPP,<sup>160</sup> *inter alia*, to “*expand the knowledge on the projections pertaining to Lake Victoria hydrology, [and] provide an important second opinion on some of the key assumptions with regard to hydrology for both the proposed Bujagali and Thermal Generation operations.*” This independent analysis studied the hydrological series and compared it to other rivers in the regions and concluded that the variability exhibited in the data series was natural and recommended the use of the full series in the future analysis.
195. **The Panel's hydrology expert has concluded that the hydrologic data sets used in Project design constitutes a reliable data series and its variability over time is a natural condition, which can be observed in other hydrologic series of different parts of the world, when the hydrologic series is long enough. The Panel finds that this provides an appropriate baseline for analysis of environmental and economic issues, in compliance with OP 4.01.**

## 2. Lake Victoria Water Levels and Power Plant Operations on the Victoria Nile

196. The Requesters contend that the Project will have severe negative impact on the long-term health of Lake Victoria because the addition of the Bujagali

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<sup>157</sup> Johan Grijzen, *Potential Impacts of Hydrologic Uncertainty and Climate Change on Regional Power Options in the Lake Victoria Basin* Presentation made at World Bank Water Week, February 27—March 2, 2007 (hereinafter “Grijzen 2007”), available at:

[http://siteresources.worldbank.org/INTWRD/Resources/Johan\\_Grijzen\\_Hydrologic\\_uncertainty.pdf](http://siteresources.worldbank.org/INTWRD/Resources/Johan_Grijzen_Hydrologic_uncertainty.pdf) (date accessed July 30, 2008).

<sup>158</sup> Nicholson, S.E., Yin, X.; BA, M.B. 2000. On the feasibility of Using a Lake Water Balance Model to Infer Rainfall: An Example from Lake Victoria. *Hydrological Sciences Journal*, N.1 Vol 45, February, p 75-95.

<sup>159</sup> Juan B. Valdés, *Evaluation of Hydrology of Bujagali (Uganda) Hydropower Project*, Sept. 17, 2006.

<sup>160</sup> Further information about the BNWPP in “Hydrology of Lake Victoria and the Victoria Nile, and Hydropower Implications” in Chapter II of this Report.

- hydropower plant to the plants already operating—Nalubaale and Kiira—will serve to increase social and political pressure for water to be released above the Agreed Curve so as to meet electrical demand.
197. This is denied by Management, which argues<sup>161</sup> that the Bujagali project uses the same water as the plants already operating and thus would have no additional impact on the levels of water in Lake Victoria. Management indicates that: *“Since the project is located downstream from the Nalubaale/Kiira dam complex, it will use the same water that has already been released through Nalubaale/Kiira and, given the project’s higher head, will allow Uganda’s generation output to more than double without any additional release of water.”*<sup>162</sup>
  198. This section analyzes the changing conditions of the Lake’s water levels in the last few years, and the extent to which this may be related to the operation of the Nalubaale/Kiira system.
  199. As indicated earlier, the Agreed Curve (a mathematical relationship between Lake level measured by a gauge at Jinja and outflow), has been used to specify the outflow that should be released from Lake Victoria down the Victoria Nile.<sup>163</sup> Between 2000 and 2006, outflow exceeded the Agreed Curve due to Ugandan demand for electricity.<sup>164</sup>
  200. In the period immediately before 2000, flow releases from Lake Victoria were less than those required by the Agreed Curve, in order to minimize the effects of floods downstream;<sup>165</sup> water not released was thus held in storage in the Lake. In addition, since the only dam operating during this period was Nalubaale, not all the flow released went through the turbines, meaning that part of the flow was released downstream through the spillways without generating energy. During this “high Net Basin Supply”<sup>166</sup> period, therefore, the Lake was used as a reservoir for dampening floods.
  201. After 2000, the entry into operation of Kiira increased the generation capacity of the Nalubaale–Kiira system. **Since these two dams operate in parallel to one another, the system required more water to flow downstream and through the turbines to generate energy.** Unfortunately, this development coincided with a period of low Net Basin Supply, and the lack of inflow water combined with the need for greater releases started to decrease the lake levels. In July 2001, the

<sup>161</sup> Management Response, pp. 18–19

<sup>162</sup> Management Response, ¶40.

<sup>163</sup> The relationship is:  $Q = 132.924(h - 8.486)^{1.686}$  where  $Q$  is discharge in cubic meters per second and  $h$  is water level (stage) in meters at the Jinja Pier.

<sup>164</sup> In June 2006 outflows were cut back to align these with a fixed 750 m<sup>3</sup>/s discharge.

<sup>165</sup> Dropping Water Levels of Lake Victoria, Technical Note, Ministry of Water Lands and Environment, Directorate of Water Development (DWD), Water Resources Management Department, 2005, p. 27 (hereinafter, “DWD 2005”).

<sup>166</sup> As noted in Chapter II, rainfall plus basin inflow minus evaporation is referred to as the “Net Basin Supply.”

additional volume retained in 1998–2001 period began to be released and the lake started to decrease more than it would have if its flow had been regulated by the Agreed Curve. All releases went through the turbines and the total flow was greater than the flow which would have been released under the Agreed Curve.

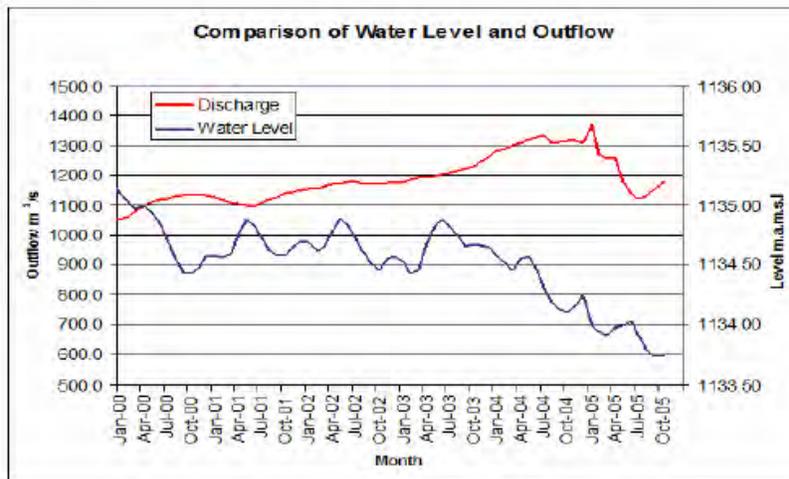
202. Table 2 below shows the yearly reduction of water levels in Lake Victoria during the period 2002–2005 and the flows released during these years in comparison with the Agreed Curve. The large differences were in 2004 and 2005—and mainly in 2005, because in that year, the Net Basin Supply was near zero due to drought conditions, which meant that a large volume of water from the lake was released downstream over and above the Agreed Curve amount.

**Table 2 Changes in Lake Levels, and Flow Releases Over and Above the Agreed Curve<sup>167</sup>**

Year	Lake level decrease (cm)	Increase of mean flow release over and above the Agreed Curve (m <sup>3</sup> /s)	Proportion of total release (%)	Net Basin Supply (m <sup>3</sup> /s)	Net Basin Supply as proportion of long term mean (%)
2002	6	170	14.5		
2003	10	238	19.8	693	80
2004	26	538	41.5	461	53
2005	27	561	47.7	31	4

203. Figure 3 shows the lake levels and outflows for the period. It can be seen from any of the points of the curve that the outflows are above the Agreed Curve. For instance, in July 2004, when the Lake level was 1134.25 m, the flow released according to the Agreed Curve should have been 802 m<sup>3</sup>/s, while the actual outflow exceeded 1300 m<sup>3</sup>/s.

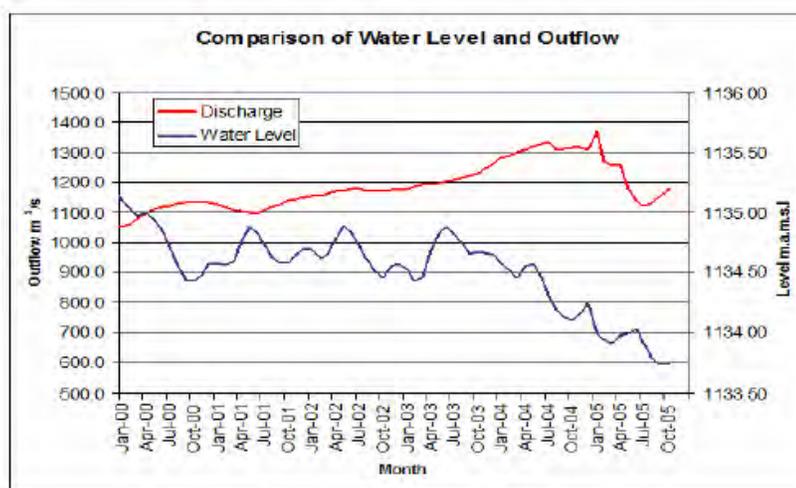
**Figure 3 Levels at the Lake and Outflow (2000-2005) (Lake Victoria Basin Commission, 2006)**



<sup>167</sup> Economic Study

204. The PAD states that: “Since the end of 2005, the Government has steadily decreased hydropower generation in an effort to return to the Agreed Curve operating regime. Water flows for power productions are being scheduled in such a way that the return to the Agreed Curve is achieved as soon as reasonably possible.”<sup>168</sup> (emphasis added)

**Figure 4 Comparison of Water Level and Outflow**



205. An analysis of the long term hydrologic data series<sup>169</sup> shows that approximately 5 percent

of the time the Net Basin Supply to Lake Victoria is negative—meaning that any outflows to the Victoria Nile come from water stored in the lake. In these years, if the waters released are according to the Agreed Curve, the lake level would decrease, since outflow would be greater than net inflow. The dam operation effect—that is, beyond the natural conditions—would occur when the release is greater than that specified by the Agreed Curve.

206. The effect of the release policy during the period 1998–2001, which resulted in holding the flow in the lake, had downstream benefits in mitigating floods. Likewise, in the period 2001–2005, the increase of the water release of the lake above the Agreed Curve had downstream benefits (increased energy production), but negative upstream effects (lake depletion).

207. The Panel notes that the Agreed Curve constrains the ability to use the lake to store “excess” water for later use when inflow exceeds outflow. During Panel interviews in December 2007, responsible authorities in the Government of Uganda noted the need for the Agreed Curve to be understood as a tool for water resource management rather than simply a mechanism to determine volumes of water to be released, and indicated that a new mechanism for determining water release from Lake Victoria to the Nile, based on maximum benefit to all riparian countries, is in the process of being developed. The World Bank–Netherlands

<sup>168</sup> PAD, p. 37.

<sup>169</sup> DWD 2005.

Water Partnership (BNWPP) background description for the 2006 “Victoria Nile-Independent Hydrological Review” activity, referred to earlier, states that “*partly because of pressure from the riparian states, Uganda has been sensitized to the importance of making cogent choices between reverting to the Agreed Curve policy, or adopting some other water management policy that would be no more harmful to its neighbors.*”<sup>170</sup>

208. In Panel discussions with the NBI, it was indicated that the notion of managing the waters of Lake Victoria as a resource for all riparian countries was integral to a new treaty that is being drafted to replace the numerous existing treaties and accords that relate to use of Nile waters. This would mean a move away from water releases dependent on lake level to variable releases based on water demand management and an increase in the “balancing times” from 10 days—as at present—to seasonal or even annual accounting.
209. During its field visit in December 2007, the Panel was given documentation showing what appears to be a new release policy, whereby discharge was fixed at either 850 or 750 cubic meters per second depending upon the level of the lake. The Panel received information suggesting that this new rule, which allows for a constant release to be applied when the lake level fluctuates within a certain range, with mean outflow the same as under the Agreed Curve rule, has been in effect since June 2006, and it is the basis for the analysis in the Economic Study.

### **C. Impact of hydrologic risk on energy output**

210. The Requesters state that: “*Even the recently (26<sup>th</sup> February, 2007) released economic analysis does not adequately address the economic viability in relation to hydrological risks.*”<sup>171</sup> Management considers that “*The Economic Study [...] addresses the economic viability and risk analysis of the Bujagali project. [...] The key elements assessed in the economic analysis include: [...] (iv) the hydrology of Lake Victoria and its impact on hydropower generation....*”<sup>172</sup> Management also says “*that the economic [...] and other required analyses to date are compliant with relevant World Bank Group policies [...]*”<sup>173</sup> IFC appointed consultants to carry out the Economic and Financial Evaluation Study, in this Report referred to as the “Economic Study,” in January 2006 and the final report is dated February 2007.<sup>174</sup>

211. Bank Economic Evaluation policies applicable to this Project are OP 10.04 on Economic Evaluation of Investment Operations. OP 10.04, provides in paragraph

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<sup>170</sup> World Bank–Netherlands Water Partnership (BNWPP), background description for the “Victoria Nile-Independent Hydrological Review” activity, available at: [http://www-esd.worldbank.org/bnwpp/index.cfm?display=display\\_activity&AID=439](http://www-esd.worldbank.org/bnwpp/index.cfm?display=display_activity&AID=439) (accessed on 23 July 2008).

<sup>171</sup> Request, pp. 3–4. See also p. 7.

<sup>172</sup> Management Response, Annex 1, p. 25.

<sup>173</sup> Management Response, ¶33.

<sup>174</sup> Economic Study.

- 1 that “*For every investment project, Bank staff conduct economic analysis to determine whether the project creates more net benefits to the economy than other mutually exclusive options for the use of the resources in question.*” The Policy then sets out specific provisions in seven areas: Criterion for acceptability, alternatives, non-monetary benefits, sustainability, risks, poverty and externalities.
212. Paragraph 2 of OP 10.04 defines the Criterion for Acceptability of a Project on economic grounds in the following way: “*a project must meet two conditions: (a) the expected present value of the project's net benefits must not be negative; and (b) the expected present value of the project's net benefits must be higher than or equal to the expected net present value of mutually exclusive project alternatives.*” Note 3 states that “*standard practice has been to calculate the expected internal rate of economic return [...].*” Paragraph 3 lays out the importance of the analysis of alternatives “*to ensure that the project maximizes expected net present value,*” while Paragraph 5 calls for an analysis of the sustainability of a project to make sure that its “*benefits will materialize as expected and will be sustained throughout the life of the project.*”
213. The hydrology of Lake Victoria, along with the water release regime, is a key influence on the potential energy output of hydropower plants on the Victoria Nile. Annex 10 of the PAD discusses the detailed review of Lake Victoria hydrology in the Economic Study (100 pages, including tables and charts).<sup>175</sup> The main objective was “*to assess the performance of Lake Victoria, by deriving the longest reliable series of Net Basin Supply (or net inflow into the lake) that should be used for the evaluation of energy generation of the existing and foreseen hydro power projects on the Victoria Nile [...].*” The second objective was to investigate the causes of the recent drop in lake level because this analysis would be “[...] *helpful in understanding the key drivers in the hydrological performance of Lake Victoria.*”<sup>176</sup>
214. **Hydrology scenarios and their probabilities:** as noted earlier, the Economic Study concluded that “[...] *the whole period of record from 1900 should be used to determine the future dependable flow for power generation at hydro power stations on the Victoria Nile.*”<sup>177</sup> To reflect the variations in Net Basin Supply among the three key periods since 1900, the study defined two hydrology scenarios for the 20 year period that would follow the commissioning of Bujagali: the *Low Hydrology Scenario* (average net inflow 660 m<sup>3</sup>/s) and the *High Hydrology Scenario* (average net inflow 1200 m<sup>3</sup>/s). The analysis assessed the probability of their occurrence at 79 percent for the Low Hydrology Scenario and 21 percent for the High Hydrology Scenario.<sup>178</sup> The evaluation of the generation alternatives used these scenarios and probabilities.

<sup>175</sup> Economic Study, Appendix B

<sup>176</sup> Economic Study Main Text, ¶3.1, p.41.

<sup>177</sup> Economic Study, Executive Summary, p. 4.

<sup>178</sup> Economic Study Main Text, p. 45. The process, which averages the results of two different approaches, is set out in Economic Study, Appendix B.5.2, pp. 38–41.

215. With respect to **Agreed Curve** the PAD states that, “*The planning of the proposed Private Power Generation (Bujagali) Project and the assessment of the energy output have been based on the flow released from Lake Victoria through the Nalubaale/Kiira dam complex in accordance with the Agreed Curve (Annex 10). [...] The proposed project is designed to be viable with water flows in accordance with the Agreed Curve release rule, since the Nalubaale/Kiira dam complex regulates the flow of water from Lake Victoria.*”<sup>179</sup> (emphasis added)
216. The Economic Study explains that operating according to the Agreed Curve means that “*the lower the lake level, the lower the release, and the higher the lake level, the higher the release.*” This in turn has a “*diminishing*” effect in long dry periods because if the net inflow is lower than the long term average, and the release is higher than the net inflow, the lake level drops faster and the departure from the Agreed Curve is augmented, all of which occurred in the period 2003–2005.<sup>180</sup> The Economic Study goes on to state that reservoir operation modelling was carried out to calculate the “*firm*” release and the “*firm*” energy generation in each of the hydrology scenarios. The main options were: “*(i) to return to the strict commitment to the Agreed Curve, and (ii) to follow the Agreed Curve but in a broader sense, allowing for a constant release to be applied when the lake level fluctuates within a certain range.*” It also suggests that the advantage of the “*Constant Release*” rule is that it “*allows for a better planning of additional means of power generation in the country [...]*”.<sup>181</sup>
217. After describing several features of this Rule, including “*the fact that the firm energy of the “Constant release” rule is much higher than for the “Agreed Curve” rule, although the mean outflow and mean energy of both operations are identical,*” the Economic Study states that, “***Owing to all these advantages, for the purpose of the economic evaluation of Bujagali, the “constant release” (or “Agreed Curve by steps”) rule was adopted to determine the energy generation capability of each of all hydro options on the Nile downstream of Owen Falls.***”<sup>182</sup> (emphasis added) The Economic Study then summarises the results of the reservoir modelling and estimates of firm energy generation for Bujagali and Karuma for the Low and High Hydrology scenarios in Table 3-1, reproduced as Table 10.1 in the PAD. The Economic Study and the PAD confirm that these figures, modified for maintenance (Economic Study Table 7-6), were “*used in the economic evaluation and expansion plan modelling.*”<sup>183</sup>
218. On the one hand, the PAD states that the planning of the Bujagali Project and the assessment of the energy output was based on flows released in accordance with

<sup>179</sup> PAD, p. 37.

<sup>180</sup> Economic Study, Main Text, p. 47.

<sup>181</sup> Economic Study, Main Text, p. 47.

<sup>182</sup> Economic Study, Main Text, p. 50.

<sup>183</sup> PAD, Annex 10, p. 99. See also Economic Study, Main Text, p. 51.

the Agreed Curve. On the other hand, the Economic Study states that the economic evaluation of the Bujagali Project to determine energy generation capability was based on the Constant release rule. **The Panel notes that this discrepancy between key Project documents brings into question the data basis for the Project’s economic analyses, and is likely to have resulted in a more positive conclusion to the Economic Study than would have been the case under the Agreed Curve scenario. This is inconsistent with OP 10.04.**

219. In March 2007 an internal Management Review had proposed that the PAD should confirm that the plant would be operated under Lake Victoria’s Agreed Curve release strategy, rather than under a constant release regime, “*and should confirm that this regime does not affect the conclusions of the economic evaluation of the project;*”<sup>184</sup> **The PAD does not appear to have followed this latter recommendation. In the Panel’s view, the provisions of OP 10.04<sup>185</sup> require Management to provide an accurate picture of the economic analysis (based on the Agreed Curve), and indicate whether this affects the relevant conclusions.**
220. **The Panel notes that this contradiction in Project documents has a material impact not only on the economic viability of the Project and the provisions of OP 10.04, but also on the lake levels of Lake Victoria, since different operational rules result in different time-profiles and variance of water levels.** While the Panel recognizes that, over a certain period of time, the mean outflow under the “Constant release” rule will be identical to that under the “Agreed Curve” rule, the variation in lake levels under the two regimes will be different. These issues are discussed further in Section D below.

#### **D. Potential Impact of the Project on Lake Victoria**

221. The Requesters are concerned about over-draining of Lake Victoria, which they state causes misery and economic loss to Uganda and neighboring countries. They believe that the issue of the long-term health of the Lake has not been addressed in Project documents “*other than to assert that Bujagali Dam could lead to more sustainable flows out of the lake as it will ‘make use of the same water’ released by the existing dams.*” However, they argue that neither the SEA nor other documents take into consideration the possibility that the opposite will happen because a new dam may create incentives to release higher flows.
222. The Response acknowledges that “*since 2003 the GoU over-abstracted water for power generation*” but notes that the government has in the past few years “*steadily decreased hydropower generation in an effort to return to the Agreed Curve operating regime. Water flows for power production are being scheduled so as to return to the Agreed Curve as soon as reasonably possible.*” Management also indicates that with the operation of the Bujagali/Kiira/Nalubaale system

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<sup>184</sup> QER Review, March 2 2007 (hereinafter “QER 2007”).

<sup>185</sup> Which address acceptability, the analysis of alternatives and sustainability.

*“generation of the same energy output as currently generated by Nalubaale and Kiira would only require 45% of the current water release from Lake Victoria.”* Though BEL does not control the release of water, in Management’s view, *“it is in the interest of the GoU to ensure that Bujagali and the Nalubaale/Kiira dams are operated efficiently.”*<sup>186</sup>

223. The Bank policy on Environmental Assessment requires a Project EA to evaluate *“a project’s potential environmental risks and impacts in its area of influence.”* A project EA *“[p]redicts and assesses likely positive and negative impacts in quantitative terms”* and *“identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions....”* The area of influence is defined in OP 4.01, Annex A (Definitions) as

*The area likely to be affected by the project, including all its ancillary aspects, such as power transmission corridors, pipelines, canals, tunnels, relocation and access roads, borrow and disposal areas, and construction camps, as well as unplanned developments induced by the project... The area of influence may include, for example, (a) the watershed within which the project is located; (b) any affected estuary and coastal zone; ... (e) migratory routes of humans, wildlife, or fish, particularly where they relate to public health, economic activities, or environmental conservation ...*

224. The Panel notes that the SEA study was based on the assumption that the Project’s upstream area of influence ends downstream of Kiira–Nalubaale dams. The SEA does not take into account the Project’s potential impacts on Lake Victoria.<sup>187</sup>

225. The SEA states that *“... it is expected that the flow of the Nile downstream of Bujagali will be very similar to the flow downstream of Nalubaale/Kiira, which itself is still regulated, as it has been since the construction of Owen Falls dam in 1954, by the agreed curve.”*<sup>188</sup> As noted earlier, the PAD adds that the ***“project is designed to be viable with water flows in accordance with the Agreed Curve release rule, since the Nabulaabe–Kiira complex regulates the flow of water from Lake Victoria.”***<sup>189</sup> (emphasis added)

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<sup>186</sup> Management Response, p. 18.

<sup>187</sup> HPP-SEA, p. 55, Section 3.2 Project Area of Influence, defines the Project’s area of influence as *“including areas affected by: (i) the primary project site, (ii) associated facilities; (iii) cumulative effects, and (iv) unplanned but predictable developments.”* A subsequent table (Table 3.1 Bujagali Hydropower Project Area of Influence) lists ten *“primary project sites”* as follows: *“1. Land/water areas for dam, its facilities & reservoir; 2. Land for resettlers’ houses & livelihoods, as specified, for # 1 (above); 3. Resettlers’ houses, if any; 4. Off-site facilities (quarries, storage, waste disposal, access roads), if any; 5. Air quality & noise effects radii (off-site); 6. Upstream water areas (below Nalubaale/Kiira; mainly in Bujagali reservoir) & users; 7. Downstream water regime (water quality & flows); 8. Communities (including host communities) as specified in PCDP; 9. Stakeholder groups (including vulnerable groups) as identified in PCDP; 10. Project personnel when off-site in project vicinity/region...”*

<sup>188</sup> HPP-SEA, p. 361.

<sup>189</sup> PAD, p. 37.

226. The Panel notes that these statements assume that the natural conditions of lake level will be maintained in the future. This in some way may argue for restricting the Project area of influence upstream at Kiira–Nalubaale and not studying the impact on Lake Victoria changing levels. However, the Panel also notes that this approach—reduced Project area of influence—does not take into account two important factors: (1) the contradiction between the PAD and the Economic Study regarding the Project’s operation rule discussed in the previous section, and (2) the recent history of 2003-2005 when the Nalubaale–Kiira system was operated above the Agreed Curve, which contributed to a severe depletion of the Lake.
227. The Panel notes that the operation policy of Lake Victoria could be other than the Agreed Curve, using the lake as reservoir regulating the flow. However, the Panel observes that any such change in operating regime and its impact upstream and downstream need to have been assessed in the Project’s EA. The Panel also notes that not following the Agreed Curve, with releases greater than the Agreed Curve, could lead to a decrease in the lake’s level during a drought period, as happened during 2003–2005. **The Panel notes the importance of assessing such a situation and extending the area of influence of the Project to the Lake Victoria.** As indicated in Chapter II, the lowering of water levels in Lake Victoria brings significant social and environmental impacts upon the Lake ecology and the people and countries that rely on it for resources and livelihoods.
228. In this context, the Panel notes a recent Project Performance Assessment Report for the Uganda Power III Project (Owens Falls Extension – Kiira), prepared by the Bank’s internal Independent Evaluation Group (IEG). The Report determined that the project appraisal for Kiira underestimated the criticality of the hydrological risk related to water level in Lake Victoria. According to the Report, the appraisal concluded that “. . . *the likelihood of this risk was less than 1 percent.*” The Report adds that “[t]his risk has now been realized.”<sup>190</sup>
229. **The Panel notes that the SEA study considered that the Project’s area of influence ends downstream of the Kiira–Nalubaale dams.**<sup>191</sup> **As a result, the Panel finds that the SEA analysis did not comply with OP 4.01 in defining the area of influence of the Project because the Project impacts on the changing levels of Lake Victoria were not assessed.**
230. **In light of its relevance to the analysis of the Bujagali Project, the Panel notes the importance of making the structure for governance of water releases from Lake Victoria clear and transparent to all stakeholders.**<sup>192</sup>

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<sup>190</sup> Independent Evaluation Group (World Bank), Project Performance Assessment Report Uganda Third Power Project (Credit No. 22680-UG); and Supplemental to Third Power Project Credit (No. . 22681-UG) June 26, 2008 *Independent Evaluation Group (World Bank)*

<sup>191</sup> HPP-SEA, p. 55.

<sup>192</sup> The Panel was variously informed that at present the ultimate authority for determining water releases was: (a) The Commissioner for Water Resources Management; (b) An Inter-Ministerial Committee; (c) The

## E. Climate Change Risks

231. The Requesters aver that the project preparation and assessment reports do not address climate change and its possible impact on power production at Bujagali. They also hold the view that climate models indicate hotter, drier conditions, lower lake levels and lower river flows. Management counters this, stating, “*the broader climate change (and hydrology) aspects were addressed in different studies which have also been publicly disclosed.*”<sup>193</sup> Management states that the SSEA includes a detailed analysis of the impacts of climate change in the Nile Equatorial region comprising Bujagali.<sup>194</sup>
232. The Requesters also suggest, that “*No study released to date analyses the risks to Bujagali performance from climate change-induced drought and other hydrological changes.*”<sup>195</sup> Management states, however, that the analyses: “*Assessed the impacts of both low and high hydrology scenarios, and separately determined that climate change is not predicted to have a negative impact on water availability.*”<sup>196</sup>
233. Climate change risk analysis is important under various Bank policies. OP 4.01 requires that the Project EA evaluate potential environmental risks and impacts in its area of influence,<sup>197</sup> paragraph 5 of OP 10.04 provides that “[t]o obtain a reasonable assurance that the project's benefits will materialize as expected and will be sustained throughout the life of the project, the Bank assesses the robustness of the project with respect to economic, financial, institutional, **and environmental risks.**” (emphasis added).

### 1. The PAD

234. On the question of climate change, the PAD states that, “*The risk of climate change on the hydrology of Lake Victoria was taken into consideration: the conclusion of both the economic study and the Strategic/Sectoral, Social and Environmental Assessment (February 2007) under the Nile Basin Initiative, is that there will be no adverse effect on water release due to climate change during the life of the proposed project.*”<sup>198</sup>

### 2. The Economic Study

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Department for Water Development; (d) The Ministry of Water and Environment; (e) The Ugandan Minister of Water Affairs.

<sup>193</sup> Management Response, Annex 1, Section 4, p. 19.

<sup>194</sup> Management Response, p. 6.

<sup>195</sup> Request, p. 4.

<sup>196</sup> Management Response, p. 12

<sup>197</sup> OP 4.01 ¶2.

<sup>198</sup> PAD, p. 28.

235. In relation to climate change and whether and how it was taken into account in the economic study and modelling, the Economic Study Main Text states boldly that, “*The possible influence of climatic changes was found not to be significant enough in the medium term (to 2030) to influence [in] one way or the other the hydrological scenarios.*”<sup>199</sup> The further discussion of climate change in the Economic Study is in Appendix B, where it occupies only one page and two tables. Drawing on papers by Tate, Sutcliffe *et al.*,<sup>200</sup> it concludes, “*For both baselines, the 2021–2050 future climatic conditions result in average future outflow smaller than observed outflow [...]. Conversely, the 2070–2099 future climatic conditions result in average outflow greater than observed outflow [...]. For the overall period 2000–2099, the Lake Victoria outflow would be of the same order than the present outflow; [...] Thus, taking the whole of the 1900–2005 period of record to define hydrological scenarios is acceptable for modelling of future hydrological conditions.*”<sup>201</sup> **In the Panel’s view, the brevity of this discussion of a highly complex issue with the potential to influence significantly the Project’s economic outcomes does not demonstrate compliance with OP 10.04’s paragraph 5, which requires proper assessment of the robustness of the Project with respect to environmental risks.**

### 3. The SSEA

236. The scope of work of the SSEA, as defined in the terms of reference, includes the following key task: “...*(7) Assessment of the potential impact of climate change.*”<sup>202</sup> Further, one of the key-elements in the analytical approach adopted in the SSEA was “*Assessment of (calculated/forecasted) climatic changes and runoff due to climate change.*”<sup>203</sup> According to the SSEA, this was done because one of the major risks that were identified was climate change and its possible impact on runoff, which in turn affects the output of the hydropower development options.<sup>204</sup> The PAD says that, “*The SSEA undertook a thorough analysis of the possible climate change impacts on power development options in the Nile Equatorial Lakes Region, including Bujagali. [...] It used the best available general circulation models to assess the potential changes in temperature and precipitation in 2050 and 2100 relative to 2000. [...] Overall, for the northern and central-west regions of the study area, including Bujagali, there is a high probability of increases in runoff, and thus power generation potential, compared to historic data. Staff believes that the SSEA incorporated the best currently available climate change science and data in its analysis.*”<sup>205</sup>

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<sup>199</sup> Economic Study, Main Text, p. 45. See also PAD, Annex 10, p. 97.

<sup>200</sup> E. Tate, J. Sutcliffe, D. Conway & F. Farquharson, *Water balance of Lake Victoria: update to 2000 and climate change modeling to 2100*, 49(4) *Hydrological Sciences–Journal–des Sciences Hydrologiques*, 563, 572 (2004).

<sup>201</sup> Economic Study, Appendix B.4, p. 33.

<sup>202</sup> SSEA, p. 1-2.

<sup>203</sup> SSEA, Executive Summary, p. S-5.

<sup>204</sup> SSEA, p. 2-3.

<sup>205</sup> PAD, p. 46. See also PAD, Annex 15, p. 156.

237. In contrast with the Economic Study, section 12 of the SSEA presents a 12-page assessment of, *“the potential impacts on hydroelectric generation that could result from climate change, and consequently whether any such impacts could affect the selection and scheduling of new power options in the portfolios being evaluated in the SSEA study.”*<sup>206</sup> This section draws on Appendix K of the SSEA, which contains a detailed 50-page assessment and modeling, carried out by the Stratus Consulting team, drawing on results from the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). The final section of Appendix K includes this statement, *“There are few clearly identified hydrological risks to the hydro options included in the indicative plan, and overall for the Northern and Central West regions there is a high probability of increases in runoff, and thus generation, than presently identified from historic flow data.”*<sup>207</sup> The Executive Summary of the SSEA repeats the second phrase and goes on to state: *“As most of the power development options that have been retained are located in the northern part of the region, the impact of climatic change will be positive for the development of the portfolios of generation options. No sensitivity analyses for climate change will be carried out, since they would only present higher energy availability than current conditions indicate.”*<sup>208</sup>
238. The Panel has examined the SSEA. The sixteen Global Climatic Models in the NCAR<sup>209</sup> suite of models were examined and seven were selected<sup>210</sup> as they provided the most representative results to estimate potential changes in temperature and precipitation for the Nile Equatorial Lakes region.<sup>211</sup> The main conclusions from the outputs predictions were that temperature, rainfall, evaporation and runoff are all predicted to increase. The study mentions similar results obtained using other models.<sup>212</sup>

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<sup>206</sup> SSEA, p. 12.

<sup>207</sup> SSEA, Appendix K, p. K-49.

<sup>208</sup> SSEA, Executive Summary, p. S-20. SSEA also notes that: “Results show that for all regions flood flows may increase significantly, thus designs for flood discharge during construction and over a permanent spillway should take this potential into account. Project costs would also be affected.” (p. 12-12).

<sup>209</sup> National Centre for Atmospheric Research, Boulder, Colorado, USA.

<sup>210</sup> The seven models selected were:

- CERG – The European Centre for Research and Advanced Training in Scientific Computation (CERFACS), France;
- CCSR – National Institute for Environmental Studies, Japan;
- CSIRO – Commonwealth Scientific Industrial and Research Organization, Australia;
- ECHAM3 – Max Planck Institute for Meteorology, Germany;
- ECHAM4 – Max Planck Institute for Meteorology, Germany;
- HadCM2 – Hadley Model, United Kingdom Meteorological Office;
- HadCM3 – Hadley Model, United Kingdom Meteorological Office.

<sup>211</sup> This determination was based on a statistical comparison of model ability to simulate current climatic conditions. For the seven selected models a spatial correlation of 0.94 with a root mean square error of 0.416 and a difference from the mean of –0.228 was achieved. This is a better correlation and smaller error and difference from the mean than for all 16 GCMs taken together.

<sup>212</sup> Grijzen (2007) presents the results of climate analysis for the Lake area taking into account the baseline series of 1956-1978 and for a drought scenario of 40 percent of the long term NBS. Rainfall increased by

239. Using the mean output of the seven selected models, general directions and magnitudes of expected variations were estimated. The expected impacts on power outputs were then considered by assessing the risk that hydrological conditions would be less favorable than conditions estimated using conventional hydrological analyses based on past records of climatic conditions.
240. Chapter 12 of the SSEA provides an assessment of the potential impacts on hydroelectric generation that might result from climate change, and examines whether such impacts might affect new power options being evaluated. The objective was not to define whether global warming will take place, but rather to use the results of existing analyses and predictions in a risk analysis to allow plausible changes from climate change to influence planning.<sup>213</sup>
241. The results of this climate change risk assessment show that there are few identifiable hydrological risks to the hydro-power options studied, and overall for the Northern and Central West regions of the Nile Equatorial Lakes there is a higher probability of increases in runoff, and thus power generation, than determined from historic flow data.<sup>214</sup> The peer review analysis of the Economic Study, prepared by Juan Valdés and referred to earlier, in its analysis of the climate change simulation, notes that most of the models showed an increase between 7 and 12 percent for precipitation, and temperature increases from 2°C to 3.5°C in the region for 2100, but concluded “*There is considerable variability in the results of the individual models and caution should be used when applying these results to make operational decisions.*”<sup>215</sup>

#### 4. Other Documents

242. The Panel examined the Regional Analysis of the IPCC. Climate Change 2007 presents three working reports: I. The Physical Science; II. Impacts, Adaptation and Vulnerability; III. Mitigation of Climate Change.<sup>216</sup> In report II, Impacts, Adaptation and Vulnerability, there are two important chapters: Freshwater Resources and their Management<sup>217</sup> and Africa.<sup>218</sup> The Freshwater report includes

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10 percent in both scenarios and NBS increased 32 percent for the historic scenario and 83 percent for the drought scenario.

<sup>213</sup> Details of the approach and methods used are provided in Appendix K of the SSEA.

<sup>214</sup> SSEA, p. 12-12

<sup>215</sup> Valdés, Juan B. “Evaluation of Hydrology of Bujagali (Uganda) Hydropower Project, September 17, 2006, p. iv.

<sup>216</sup> Available at: <http://www.ipcc.ch/ipccreports/assessments-reports.htm> (accessed July 31, 2008).

<sup>217</sup> Z. W. Kundzewicz, L. J. Mata, N. W. Arnell, P. Döll, *et al.*, *Freshwater Resources and their Management in Climate Change 2007: Impacts, Adaptation and Vulnerability*, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 173–210 (M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden and C. E. Hanson, eds., Cambridge University Press 2007).

<sup>218</sup> M. Boko, I. Niang, A. Nyong, C. Vogel, *et al.*, *Africa*, in *Climate Change 2007: Impacts, Adaptation and Vulnerability*, Contribution of Working Group II to the Fourth Assessment Report of the

an index of vulnerability or stress to water scarcity: according to the report, the study area of Lake Victoria is not under stress. The Panel notes that the report does not mention any major stress for the Lake Victoria basin as a result of climate change. In addition, in its specific section related to Africa the report mentions the inability of the climate models to represent the observed rainfall in the continent.<sup>219</sup>

243. The Panel also examined the Climate Change Impact Assessment carried out as part of the Study of Water Management of Lake Victoria by Water Resources and Energy Management International Inc. (WREM), which was cited by the Requesters. This study, which used an integrated assessment methodology, concluded that “*the future climate implies drier hydrologic conditions, lower lake levels, lower outflows, less energy generation, smaller wetland areas, and lower downstream river flows.*”<sup>220</sup> However, the Panel’s expert on hydrology has pointed out that the study was based on observed data from 1960–1980, a period during which most years were high rainfall/high flow years as compared to the 1900–1960 period. This biases the conclusions of the study, because climate change assessments put forward a relative rather than an absolute scenario, and in this case the relative analysis put forward is with respect to a period of high flow. The other analyses used in the SSEA were carried out for the full 1900-2005 series.

## 5. Conclusions on Climate Change Risks

244. The Panel finds that the possible effect of climate change on hydropower projects on the Victoria Nile have been considered and well evaluated in the project documents. However, the Panel reiterates that in the context of climate change, the Bujagali SEA does not refer to the Nile Basin SSEA and does not direct the reader’s attention to this important parallel study. **In addition, as noted earlier, the brevity of the discussion of climate change in the Economic Study does not demonstrate compliance with paragraph 5 of OP 10.04.**
245. **The SSEA appraisal appears to be the result of a thorough, detailed study that draws on its own analysis and a range of other international studies.**<sup>221</sup> **The Panel finds that the possible effect of climate change on hydropower projects on the Victoria Nile has been seriously considered in the SSEA. This analysis meets the requirements OP 4.01. As noted above, however, the SSEA was not properly disclosed a Project document.** While both the Economic Study and the SSEA reviewed the potential influence of climate risks, and

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Intergovernmental Panel on Climate Change, 433–467 (M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden and C. E. Hanson, eds., Cambridge University Press 2007).

<sup>219</sup> It should be noted, however, that regional simulation analyses, as in the report SSEA (2007), have more specific simulation and output data than the IPCC reports.

<sup>220</sup> WREM International Inc. "Climate Change Impact Assessment – Technical Report 10," Study on Water Management of Lake Victoria, prepared by Water Resources and Energy Management International Inc. for the Uganda Ministry of Energy and Mineral Development, September 2005, p. v.

<sup>221</sup> Including the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

concluded that they would not exert a significant negative influence on the hydrological scenarios, the analysis of the Economic Study does not demonstrate the detailed, sophisticated analysis and modeling that underlay the SSEA appraisal. The Economic Study does not cite or draw on the results of the SSEA risk appraisal or the detailed reviews in Section 12 and the study in Appendix K that underlay them. **Management does not appear to have ensured that the Economic Study drew on the much more thorough analysis in the SSEA. The Panel finds that this does not comply with paragraph 5 of OP 10.04. Considering that the PAD draws on the authority of both studies, particularly the SSEA, the Panel finds it surprising that the PAD concludes that, “[...] there will be no adverse effect on water release due to climate change during the life of the proposed project.”**

246. **The Panel is aware of the limitation of the known technology in evaluating climate change scenarios** and that the analysis of climate change is an evolving science, where gaps remain. Indeed, **this situation makes all the more troubling the PAD’s categorical assertion, without any reference to risk and uncertainty, that there will be no adverse effect on water release due to climate change during the Project life. This failure to express a risk factor is not consistent with OP 10.04. The Panel notes the importance of continued attention and analysis to the effect of climate change on flows and hydropower generation on the Victoria Nile.**

## Chapter V

### Economic and Environmental Analysis of Alternatives

#### A. Introduction

236. This chapter first addresses the economic analysis of alternatives, including the demand forecast, the consideration of supply alternatives, the project costs, the assessment of least cost options for expanding power generation and the economic rate of return on the Bujagali Project. It then examines macroeconomic impacts and environmental and social costs, and the environmental analysis of alternatives. Chapter VI addresses poverty reduction, power sector finances and sustainability, the PPA and associated risks.
237. In general the Requesters argue that energy alternatives to Bujagali were not adequately addressed in the SEA. For example, in the Requesters' opinion, a hydropower project at Karuma, downstream from Bujagali, would cause less social and environmental harm than Bujagali but was not appropriately taken into consideration as an alternative option. Furthermore, the Economic Study does not include an adequate assessment of the economic alternatives to support the statement that the Bujagali dam is the least costly option.
238. The Request describes eleven alternatives to the Project that were allegedly dismissed because of their costs and difficulties of connection to the national grid. These options are: bagasse (sugar cane); small hydro (less than 10MW); micro hydro (less than 100 kilowatts); geothermal; municipal solid waste; solar; efficient lighting and transmission losses as demand reducing options; wind power and efficient stove and biogas digesters. The Requesters believe that rather than dismissing options for the difficulty of connecting to the national grid, the analysis should have focused on reducing the burden on the national grid and on developing independent grids.
239. Management believes that the economic, financial, safeguard, technical, governance, and other required analyses meet high professional standards and are in compliance with applicable Bank policies. It adds that these analyses take into account the findings of the previous Bujagali Inspection Panel report and result from the overall project due diligence, which adequately takes into consideration best practice. Management is convinced that the analysis undertaken was appropriate and wide-ranging enough to identify and assess all potential alternatives for expansion of Uganda's power sector. Management indicates that the analyses "*Assessed a wide range of supply options, including alternative hydropower sources, such as geothermal power and thermal power (e.g., oil based); small-scale renewable options (e.g., mini-hydro and biomass); oil imports; and other supply options.*"<sup>222</sup>

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<sup>222</sup> Management Response, ¶33.

240. The following paragraphs present the analysis and the Panel findings with respect to the Requesters' claims on the Project evaluation of alternatives. The analysis will examine first the economic evaluation of options and will follow with the environmental and social evaluation.

## 1. The Context: Power Sector Developments and the Power Supply Crisis

241. As noted in Chapter II, there have been significant developments in the Ugandan power sector since the prior attempt to develop and implement the Bujagali Hydroelectric Project: continuing demand growth; the acquisition of new high-cost stop-gap thermal generation; big tariff increases; part-privatization of distribution; and increased dependency of UETCL on Government funds. The Panel observes, however, that some conditions remain broadly unchanged, notably that only about 5 percent of the population is connected to an electricity supply and only about half the cost of electricity units sent out from power stations is recovered from customers.

242. The Project PAD states that while Uganda's main power source, the Nalubaale/Kiira dam complex, has a potential capacity of 380 MW, over recent years production has dropped to 120MW between August 2006 and 2007.<sup>223</sup> In response, in 2005 and 2006 the Government leased two 50 MW thermal plants and in 2007 IDA financed an extra temporary 50 MW.<sup>224</sup> The PAD sets out an Interim Generation Expansion Plan for 2006 to early 2011 (the commissioning year of the Bujagali Project). In this plan, about 44 MW of mini-hydropower capacity and 15 MW of co-generation (using bagasse) are scheduled for 2007–2009, while 150 MW of diesel and fuel oil power generation are required until 2011.<sup>225</sup>

243. The consultants reviewed thermal generation requirements for 2006–2010. The PAD states that *“The total cost of the fossil-fuel components of the 2006–10 interim power plan is about US\$700 million. By comparison, the expected economic cost of the proposed project is about US\$520 million. [...] if commissioned in 2011, the proposed project would immediately displace about 738 GWh of fossil-thermal production (about 35% of total 2010 generation)—a substantial portion of the proposed project's expected output, estimated at 1,165 GWh and 1,991 GWh for the low and high hydrology scenarios, respectively.”*<sup>226</sup>

244. The table below, extracted from the PAD,<sup>227</sup> shows some key aspects of power sector performance for 2001–2005. It illustrates challenges relating to technical and non-technical (“commercial”) losses and to the collection of billed sales (indicating, as noted, that only about half of the electricity sent out from the grid was paid for during this period).

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<sup>223</sup> This contrasts with a 380 MW peak system demand and a 290 MW base load demand. 364 GWh of load were shed in 2006 (PAD, Annex 1, ¶¶7 & 11).

<sup>224</sup> Under the Power Sector Development Operation (PSDO).

<sup>225</sup> PAD, Annex 1, ¶8 and ¶83.

<sup>226</sup> PAD, Annex 9, p. 78.

<sup>227</sup> PAD, Annex 9, p. 79.

**Table 3 Power Sector Performance (2001-05)**

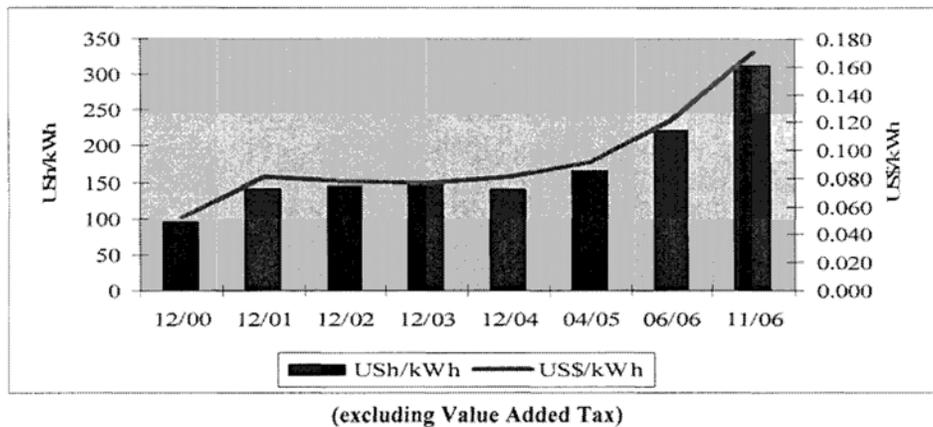
**Table 9.2: Power Sector Performance (2001-05)**

	2001	2002	2003	2004	2005
Net generation for domestic market (GWh)	1,425	1,426	1,542	1,687	1,827
System technical losses (GWh)	287	281	301	331	354
Technical losses (% of net generation)	19.7%	19.4%	19.5%	19.6%	19.4%
Commercial losses (GWh)	271	212	309	325	397
Commercial losses (% of net generation)	19.0%	14.9%	20.0%	19.3%	21.8%
billed sales (GWh)	867	933	1035	1031	1075
Collection ratio	83%	83%	77%	82%	86%
billed sales collected (GWh)	720	774	797	845	924
sales collected as % of net generation	50%	54%	52%	50%	51%

245. The PAD’s Figure 12.1 reproduced below,<sup>228</sup> illustrates how end-use customer electricity tariffs (exclusive of 18 percent Value Added Tax)<sup>229</sup> have risen since 2005, including a near doubling of 2006 average tariffs to accommodate the high cost of thermal generation. The PAD states that tariffs are expected to fall once Bujagali is commissioned “[...] and the benefits of the loss reduction and efficiency improvements [to be achieved by UMEME, the private distribution company that began work in March 2005] are realized. In real terms, under the base case scenario, the projected weighted average electricity tariff declines from the present US\$17.2c/kWh to US\$13.8c/kWh by 2011.”<sup>230</sup>

**Figure 5 Weighted Average Retail Tariff December 2000 – November 2006**

**Figure 12.1: Weighted Average Retail Tariff December 2000 – November 2006**



<sup>228</sup> PAD, Annex 12, p. 105.

<sup>229</sup> PAD, Annex 12, p. 105, fn 1.

<sup>230</sup> PAD, p. 7. See also PAD, Annex 12, Table 12.2, p. 106.

## 2. Demand Forecasts and Electricity Tariffs

246. The forecasting of the demand and its interaction with likely tariffs is a necessary element in the process of analyzing alternatives. Thus, the analysis of the future “expansion path” of an electric power system should explore both the likely evolution of the demand on the system and the least cost means of satisfying that demand through existing plant and new investments. This in turn carries implications for the tariffs needed to recover the costs and whether they are consistent with the forecast demand.
247. In the Requesters’ opinion, the demand forecast analysis for the project is unrealistic. Only a small part of the population of Uganda can afford electricity that is unsubsidized. Therefore, the Requesters are convinced that even if the whole country is covered by the national grid, the electricity generated by Bujagali will not be affordable by the population. The Requesters maintain that the high cost of the Project will further limit the amount of subsidies for electricity tariffs for users connected to the grid, leading to even higher tariffs and pushing more people out of an already limited power market.<sup>231</sup>
248. Management notes that the risks related to future uncertainties of variables such as the level of electricity tariffs, the “*end user tariff path and its affordability*” have been evaluated. The Economic Study also projected three demand scenarios: base, low and high.<sup>232</sup> The Response indicates that these were developed taking into account data of the past several years and also the comments made by the Inspection Panel in its 2002 Investigation Report.<sup>233</sup>
249. OP 10.04 acknowledges that the Economic Study of projects is based “*on uncertain future events and inexact data*” and as such “*inevitably involves probability judgments.*” The analysis must take into consideration the “*sources, magnitude, and effects of the risks associated with the project by taking into account the possible range in the values of the basic variables and assessing the robustness of the project’s outcome with respect to changes in these values.*” This analysis aims at identifying whether it is possible to improve the project design, increasing the expected value of the project and reducing the risk of failure.<sup>234</sup>

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<sup>231</sup> Request, pp. 8–9.

<sup>232</sup> Management Response, p. 7, reads: “[b]y 2011, the base case generation requirement for the domestic market would be 2,208 GWh, with a spread around the base case of about 14 percent above (high case) and 18 percent below (low case). By 2015, the base case demand would be 2,959 GWh, with a spread around the base case of about 24 percent above (high case) and 30 percent below (low case).”

<sup>233</sup> 2002 Investigation Report, ¶213, p. 62, reads, “In the Panel’s view an analysis of the sensitivity of the key findings of the due diligence to a widening of the load forecast ranges would have been and could still be appropriate and valuable, and was needed in order fully to satisfy the requirements of paragraph 6 (Risk) of OP 10.04.”

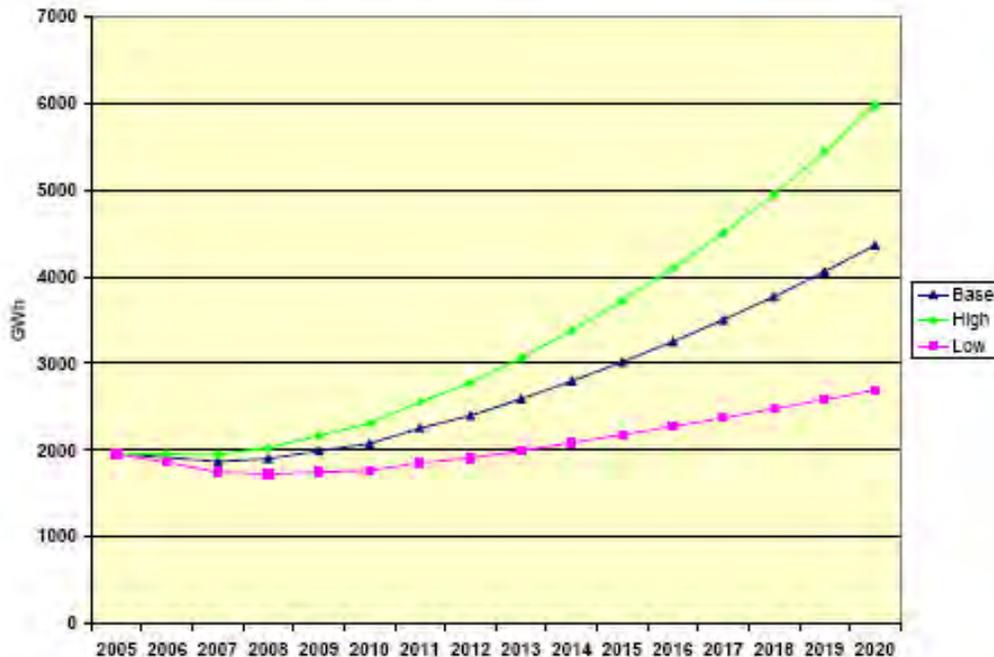
<sup>234</sup> OP 10.04 ¶6

250. As noted, the Inspection Panel Report on the first Bujagali project criticised some aspects of the load forecasts used for that project. **In the Panel’s judgment, there is evidence that Management addressed demand forecasting for the current Project seriously, in that it commissioned a detailed, sophisticated review in 2004, which stressed the importance of a thorough revision of the load forecasts.**<sup>235</sup> One of the criticisms of the first Inspection Panel report related to the narrowness of the range on the prior project’s forecasts, given the uncertainties relating to several of the key underlying variables. The forecasts for the current project show a much broader range between the high and the low cases, reflecting in particular significant variations around the base assumptions about residential connections and the rates of growth in household income and commercial and industrial GDP. It is noted, however, that all other assumptions remain the same as for the base forecast.

251. The two figures below, both extracted from the Economic Study<sup>236</sup> illustrate the base, high and low generation forecasts and the electricity sales forecasts and the ranges across them.

### Figure 6 Generation Forecasts

Figure 2-4: Generation Forecasts (including committed exports – GWh net)

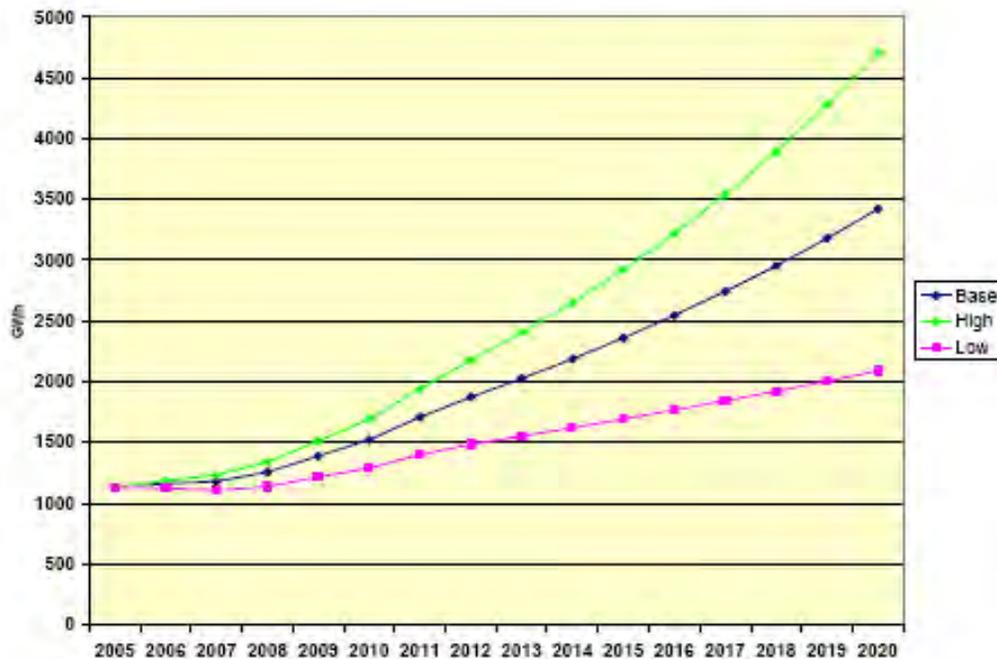


<sup>235</sup> Bujagali Economic Review (BER), March 16, 2004 (hereinafter “BER 2004”).

<sup>236</sup> Economic Study, Main Text ¶2.11, p. 38. A further figure illustrates forecast peak demand.

**Figure 7 Sales Forecast for Uganda**

Figure 2-5: Sales Forecasts for Uganda (GWh)



252. In relation to new connections to the electricity grid, the Economic Study states that the growth rate in all connections over the period 2001 to 2005 was “*high, averaging 9.9% per year over the period. The average number of residential consumers added per year over the period is 21,000.*”<sup>237</sup> For the base forecast, the Economic Study indicates that for 2006–2010 inclusive they assume that new residential connections will be one fifth less than this—that is 17,000 per year. Of these, they assume that UMEME, the privatized distribution company,<sup>238</sup> will connect 12,000, their revised concession target, in urban and peri-urban areas, and that there will be 5,000 per year of grid-connected rural consumers from rural electrification programmes. The Economic Study states that “*Umeme is not expecting to connect more consumers than they are committed to in their concession in view of the shortages of generation and high tariffs that are likely to be experienced until Bujagali comes into service.*”<sup>239</sup> In June 2008 UMEME was reported to have made the, as yet unsubstantiated, claim to have already exceeded their concession target of 60,000 new connections in their first

<sup>237</sup> Economic Study, Main Text, ¶2.2, p. 26.

<sup>238</sup> UMEME is a company, originally owned by Eskom, South Africa (44 percent), who subsequently withdrew, and Globeleq, UK (66 percent), set up to manage the electricity distribution operation and maintenance concession. The 20-year concession began on 1 March 2005, with an option to exit pending an assessment of operations during its first 18 months (see, for example, <http://www.eskom.co.za/annreport06/directorrep1.htm>; accessed 15 July 2008)

<sup>239</sup> Economic Study, Main Text, ¶2.5, p. 28.

five years, by making 63,000 connections since taking over the distribution network in 2005.<sup>240</sup>

253. For the base forecast, from 2011 to 2020, the Economic Study assumes that connections will rise after the ending of “*generation capacity constraints, which will trigger an increase in the rate of connections, both urban and rural. Over this period it is assumed that 25,000 new residential consumers will be connected each year, including both urban and rural connections.*”<sup>241</sup> For the variants on the base forecast, the Analysis assumes that: for the ‘high’ variant, there will be 20,000 new residential connections per year to 2010 and 30,000 per year thereafter, that is 18 percent and 20 percent respectively above the base values; while for the “low” variant there will be 12,000 new connections per year to 2010 and 17,000 per year thereafter, that is 17 percent and 28 percent respectively below the base values.
254. For the base forecast, apart from the reference to the “ending of generation capacity constraints,” the Economic Study does not explain how the study arrived at the sudden jump from 17,000 to 25,000 new connections per year between 2010 and 2011, a 47 percent increase in a year, which is then assumed to remain constant throughout the next decade. Such a sudden increase would surely prove extremely demanding for both management and workforce of UMEME, the distribution company. **The Panel notes that although the availability of reliable electricity supply at the time the Bujagali plant is commissioned might reasonably be expected to stimulate new connections, the Economic Study appears to assume a more sudden increase in connections than seems likely to occur. A more gradually phased trajectory of connections to the grid after 2011 would seem more plausible, both for the base forecast and the low and high variants.**
255. In relation to losses, the Economic Study states that in 2006 estimated total losses were 39 percent, consisting of 20 percent technical losses (transmission 4 percent, distribution 16 percent) and 19 percent commercial losses. The Economic Study assumes that technical losses will reduce to 16 percent for the base demand forecast, a target which it says UMEME have a “*strong incentive*” to exceed. The Study indicates, however, that “*Forecasting attainable levels of commercial losses is more difficult,*” and that if UMEME’s programmes are carried through and supported by the courts with strong penalties, this could lead to a big reduction in commercial losses: “*Residual levels of commercial losses of between 2% and 6% should be achievable, with a base demand forecast assumption of 5%, by 2012.*”<sup>242</sup> It is not explained why 5 percent was selected from within this range, rather than the central value of 4 percent.

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<sup>240</sup> *Demand Overwhelms UMEME*, New Vision (Kampala), June 12, 2008, Posted to the web June 13, 2008 (<http://allafrica.com/stories/printable/200806130045.html>; accessed 15 July 2008). In this report UMEME also said that: “*Demand for new connections from consumers has more than doubled from 1,400 a month to 3,000 currently;*” and (b) that UMEME had hired 1000 technicians in order to clear the backlog. This latter would represent about a doubling of UMEME’s 2007 workforce, as recorded by the Electricity Regulatory Authority.

<sup>241</sup> Economic Study, Main Text, ¶2.5, p. 28.

<sup>242</sup> Economic Study, Main Text, ¶2.9, p. 35.

256. Table 2–9 of the Economic Study,<sup>243</sup> reproduced below, sets out their assumed future levels of technical and commercial losses for the base case forecast. They assume that, once reduced, losses will stay at their 2012 levels up to 2020.<sup>244</sup> For the load forecast sensitivity scenarios, however, it is stated without explanation that the assumed values for technical and commercial losses are “as for base forecast.” The Analysis also states that the current collection ratio (i.e. the ratio of sales collected to sales billed) was 80 percent and that UMEME was committed under the concession agreement to improving the ratio to 92.5 percent by 2008. The Economic Study asserts that they based the demand forecast on achieving 90 percent by 2008 and 97.6 percent by 2011, remaining constant thereafter.<sup>245</sup> No reason is given why it was thought appropriate not to test the sensitivity of the “high” and “low” forecasts to potential variations in technical and commercial loss reduction (or in improvements to the collection ratio).<sup>246</sup>

#### Table 4 Forecasts of Technical and Commercial Losses

Table 2-9: Forecasts of Technical and Commercial Losses

	2005	2006	2007	2008	2009	2010	2011	2012
Technical losses	19.4%	20.0%	19.5%	18.8%	18.1%	17.4%	16.7%	16.0%
Commercial losses	21.7%	19.0%	17.0%	15.0%	12.0%	9.0%	7.0%	5.0%
Total losses	41.1%	39.0%	36.5%	33.8%	30.1%	26.4%	23.7%	21.0%

Source: Consultant’s estimates.

257. The PAD confirms that the Government and UMEME renegotiated UMEME’s distribution and supply license in December 2006, “*Since the lack of power severely hindered UMEME’s ability to meet its performance targets [...]*.”<sup>247</sup> The overall collection rate, which had risen from 80 percent on takeover to 92 percent by May 2006, fell to 82 percent in November/December 2006, after a substantial tariff rise in November 2006.<sup>248</sup> In its discussion of Critical Risks, the PAD also confirms that to address the risk that UMEME terminates its concession, IDA and MIGA are providing coverage for regulatory, non payment and breach of contract risks, and that the concession was modified to protect UMEME’s ability to meet its concession obligations.<sup>249</sup>

<sup>243</sup> Economic Study, Main Text, ¶2.9, p. 35.

<sup>244</sup> Economic Study, Main Text, ¶2.9, p. 35, also estimates that 70 percent of commercial losses will be converted into billed sales and the remaining 30% will drop out of the system. They say that, “*this assumption was adopted in deriving the base forecast and the high/low sensitivity forecasts.*”

<sup>245</sup> Economic Study, Main Text, p.31.

<sup>246</sup> QER 2007, p. 12, states: “*Comparing the start and end points of the Base Frame development [...] the ratios of paid end-use to generation are only about one-half, the other half consumed in losses and uncollected bills. The future evolution of this tremendous leakage and the impact on electricity use of its reduction are the most important factors determining generation requirements at least over the remainder of this decade.*”

<sup>247</sup> PAD, Annex 12, p. 104.

<sup>248</sup> PAD, Annex 12, p. 104.

<sup>249</sup> PAD, p. 23.

258. Given the difficulties inherent in reducing commercial and technical losses in the electricity system in Uganda, and in particular in light of the challenges recently experienced by the electricity distribution company UMEME, the Panel finds that the demand forecast should have varied the assumptions on losses and the collection ratio (i.e. the ratio between UMEME's billed sales collected and billed sales) as part of the sensitivity analysis and of a more complete appraisal of risks, in conformity with OP 10.04. Indeed, somewhat lower values might also have been appropriate for the base forecast, as an alternative to assuming that the targets set for the electricity distribution concession would be fully achieved

## **B. Economic Analysis of Alternatives**

259. In general, the Requesters claim “... *that the absence of an adequate and comprehensive economic and alternative (options) assessment of the Bujagali dam Project violates the World Bank’s Policies on Economic Evaluation of Investment Operations (OP 10.04), Poverty reduction (OP/BP 1.00), among others...*”<sup>250</sup>

260. The Requesters state that there is no evidence that a comprehensive economic analysis of the Project was carried out, because the study published on the World Bank website is not “*comprehensive*” and a basis for determining the economic viability of the Project. They believe that the Economic Study is inadequate because it is based on the flawed assumption that the Project will be able to generate 250 MW, which, in the Requester’s opinion, will not happen.

261. The Requesters’ contend that the SEA did not adequately analyze feasible alternatives to Bujagali, and that the Economic Study did not include an adequate assessment of the economic alternatives to support the statement that the Bujagali dam is the least costly option. They maintain that the analysis of alternatives was geared toward proving that Bujagali is the least-cost option and thus there was no balance in this evaluation. The Requesters also claim that the Economic Study does not provide costs, cost-benefit or opportunity cost-scenarios, or calculations for developing these alternatives and for deciding to reject them in favour of the Bujagali option.

262. In its Response to the Panel, Management states that it “*considers that the economic, financial [...] and other required analyses to date are compliant with relevant World Bank Group policies [...]. Moreover, the overall project due diligence adequately accounts for best practice as well as the findings of the previous Bujagali Inspection Panel report.*”<sup>251</sup> Management argues that the economic study includes an assessment of the economic viability of the Project and risk analysis,<sup>252</sup> and maintains that the

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<sup>250</sup> Request for Inspection, p. 9.

<sup>251</sup> Management Response, ¶33.

<sup>252</sup> Management Response, Annex 1, p. 25 includes key points such as “(i) the impact of the current power crisis conditions on the sector and the need for emergency thermal power; (ii) the demand forecast [...]; (iii) the level of electricity tariffs; (iv) the hydrology of Lake Victoria and its impact on hydropower generation; (v) the supply alternatives and their costs; (vi) the environmental and social costs of Bujagali and its main alternative; and (vii) the economic value of electricity to consumers, the end-user tariff path and its affordability.”

analysis also addresses the financial sustainability of the power sector after Bujagali's commissioning.

## 1. Bank Policies

263. Bank Economic Evaluation policies applicable to this Project are OP/BP 10.04 on Economic Evaluation of Investment Operations and OP 1.00 on Poverty Reduction. OP 10.04, provides in paragraph 1 that “*For every investment project, Bank staff conduct economic analysis to determine whether the project creates more net benefits to the economy than other mutually exclusive options for the use of the resources in question.*” The Policy then sets out specific provisions in seven areas: Criterion for acceptability, alternatives, non-monetary benefits, sustainability, risks, poverty and externalities.
264. Paragraph 3 of OP 10.04 refers to the Analysis of Alternatives as “*one of the most important features of proper project analysis throughout the project cycle. To ensure that the project maximizes expected net present value, subject to financial, institutional, and other constraints, the Bank and the borrower explore alternative, mutually exclusive, designs.*” Paragraph 6 on Risk provides that sources, magnitude, and effects of the risks of the Project have to be evaluated “*by taking into account the possible range in the values of the basic variables and assessing the robustness of the project's outcome with respect to changes in these values*” to improve project design where possible, increase the expected value and diminish the risk of failure. Paragraph 8 addresses Externalities and states that “*A project may have domestic, cross-border or global externalities. A large proportion of such externalities are environmental. The economic evaluation of Bank-financed projects takes into account any domestic and cross-border externalities.*”
265. In Bank projects, various key parts of the PAD normally signal compliance with OP 10.04. In the Bujagali PAD these sections include *Strategic Context and Rationale* (Section I), *Project Description* (Section II), *Implementation* (Section III) and especially the *Appraisal Summary* (Section IV), which includes sections relating to the economic and financial analyses carried out as part of the due diligence. Annexes contain further details of the underlying analysis, particularly *Annex 9: Economic Analysis*, but also in others that concern the hydrology of Lake Victoria, the financial performance of BEL and the financial performance of the Uganda power sector.

## 2. Terms of Reference for the Economic Study

266. IFC appointed consultants to carry out the Economic and Financial Evaluation Study, in this Report referred to as the “Economic Study” in January 2006 and the final report is dated February 2007.
267. The analysis is summarised in Section IV, Part A of the PAD; it reviews “[...] *Uganda's power sector, including the impact of the current power shortages, electricity demand growth, the hydrology of Lake Victoria, generation alternatives*

*and an assessment of the least cost power investment program for Uganda [and] the project's economic rate of return, the end-user tariff path and the macro-economic impact of the project.”* The PAD summary of the findings of the Economic Study states that.<sup>253</sup>

- *The Project is needed now, delay in the proposed commissioning date (2011) would be expensive, and its implementation presents minimal economic risk to its status as the least-cost option for the next major Ugandan grid system generation increment;*
- *The 250 MW (megawatt) Bujagali configuration is preferred over 200 MW;*
- *It would be uneconomic to commission the Karuma hydropower project before Bujagali;*
- *Commissioning Bujagali in 2011 has a risk-adjusted net present value (benefits minus costs) advantage of US\$184 million, at a 10% discount rate, relative to the alternative of not implementing the project; and*
- *The economic internal rate of return (EIRR) of the project is 22% in the Base Case and lies within a range of 11.3% to 26.4%, taking account of a broad range of assumptions about demand, costs and hydrology.*

268. The Executive Summary of the Economic Study confirms that their ToR, “[...] *call for a comprehensive update of the previous due diligence work that was carried out in the first round of the Bujagali project [...].*”<sup>254</sup> The ToR remind the consultants of changes in significant key factors since the 2000–2002 due diligence, giving particular attention to potentially sensitive issues including the demand forecast and affordability and hydrological risks. The “Partial List of Studies” appended to the ToR includes the 2002 Management Report and Recommendation in response to the Inspection Panel Investigation report of the prior Bujagali Project.

269. The ToR also have three other significant aspects: (1) while the discussion of supply options includes potential hydro sites, from “mini to major,” a range of thermal alternatives, geothermal potential and bagasse, it does not draw attention to any other potential alternatives; (2) project costs are defined in a specific way “*For purposes of economic analysis, the project cost is confined to incremental economic costs. For purposes of financial analysis, the project cost will be the tariff the sponsor proposes to the power purchaser(s).*”<sup>255</sup>

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<sup>253</sup> PAD, p. 26.

<sup>254</sup> Economic Study, Appendix A—Terms of Reference.

<sup>255</sup> Economic Study, Appendix A—Terms of Reference, ¶16.

270. The ToR state that on acceptance of the inception report, the final report is expected within three months of contract award. The Executive Summary of the Economic Study notes, however, that after the February 2006 interim report and a presentation in Kampala in March 2006, “*Work was then held up for a number of months whilst the World Bank carried out an independent review of the analysis of the hydrology presented in the Interim Report. The demand forecast was also reviewed and amended to include updated GDP estimates and a detailed assessment of the assumptions of future levels of technical and commercial losses.*”<sup>256</sup> In December 2006, the consultants submitted the Draft Final report, and presented it in January 2007 to the Government and other stakeholders (unidentified) in Kampala and to the lenders in London.
271. The following sections of this Report draw closely on materials presented in the PAD and in the Economic Study, and a range of other documents, and examine the Requesters’ claims and Management Response in light of applicable Bank Policies outlined above.

### 3. Alternatives considered

272. The PAD states that major generation alternatives to Bujagali considered in the Economic Study include: small and medium-sized hydropower projects, large hydropower projects studied beyond the feasibility stage (i.e. Karuma), thermal options, bagasse based cogeneration and geothermal.<sup>257</sup> The economic consultants were required to consider the generating capacity profile during the “interim period” until 2011, the proposed commissioning year for Bujagali. Chapter 4 of the Economic Study discusses these arrangements, covering a range of actual and potential thermal (oil-fired), biomass and small hydro projects. The biomass section (4.3) discusses the generation of electricity from bagasse, including the forthcoming supplies from the co-generation plant at Kakira Sugar Works and from the SCOUT sugar estate. The consultants produced an interim generation expansion plan for 2006–2010 and a list of those plants expected to remain operational from 2011, when Bujagali would be due to come into service. Chapter 7 of the Economic Study contains a list with more detail, shown in the table below.<sup>258</sup>

**Table 5 Assumed Generation Capacity Existing in 2011**

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<sup>256</sup> Economic Study, Main Text, Executive Summary, p. 8.

<sup>257</sup> PAD, p. 27.

<sup>258</sup> Economic Study, Main Text, Table 7-7, ¶7.3, p. 107.

Table 7-7: Assumed Generation Capacity Existing in 2011

Station Name	Type	Installed Capacity MW	Available Capacity MW	Date of Installation/Commissioning
Kiira Nalubaale	Hydro	380	203/205 <sup>1</sup>	Existing
Kilembe Mines	Mini-hydros	3	3	Existing
Bugoye/Waki		19	19	January 2009
Buseruka		9	9	January 2009
Kikagati		10	10	July 2008
Ishasha		5.5	5.5	January 2009
IPP	Medium Speed Diesel	50	50	April 2008
Kakira Sugar	Cogeneration	12	12	July 2007
SugarCorp (SCOUL)		3	3	January 2009
Total		488.5	314.5/316.5	
1. Depends on the hydrology case and the operating rule for Nalubaale – Kiira, also on the plants commissioned downstream.				

### 3.1 Conventional Thermal Plants (2011–2020)

273. The Economic Study explored a range of thermal options for electricity generation, all of which were expected to depend on imported fossil fuel. The conventional thermal options considered included diesel plants, gas turbines (open and combined cycle) and steam plants, ranging in size from 10–100 MW, all burning various forms of oil. Coal-fired plants were excluded because of, “[...] *the non-availability of coal in Uganda, the high shipping and rail haulage costs and the higher capital cost of this type of plant* [...].”<sup>259</sup> The study assumed that the plants would be sited close to Kampala and would not require grid connection costs beyond those of the switchyard.

274. The thermal candidate plants also included a geothermal plant of 40 MW, since “[...] *we do not believe that the geothermal potential for power generation in Uganda is sufficiently well proven at this time to rely on more than about 40 MW*” (the analysis of geothermal resource potential is discussed further below). The study undertook a preliminary screening analysis of the thermal plant options, at oil prices ranging from US\$68/bbl (the estimated 2006 price) to US\$35/bbl (the then forecast for 7–8 years ahead), estimates which now appear very conservative. The results suggested that, “*Provided the geothermal resource can be proven, this appears to be the most attractive of the thermal options for base load operation.*”<sup>260</sup>

### 3.2. The Geothermal Potential

275. The Request claims that Uganda’s potential for geothermal energy is up to 450MW but that hydropower generation studies took precedence over thermal energy because BEL claimed that only 45MW of the 450 are actually feasible. The Requesters think

<sup>259</sup> Economic Study, Main Text, ¶5.1, p. 61.

<sup>260</sup> Economic Study, Main Text, ¶5.1, p. 64.

that BEL's assessment is "premature and pessimistic," as experts they have consulted claim that the potential for sites is greater than indicated in the SEA. The Management Response states that a "*detailed review of geothermal prospects was conducted as part of the project analysis of alternatives.*"<sup>261</sup> The analysis concluded that only 10 percent of the potential 450MW claimed by the Requesters is feasible and a geothermal 40MW plant was assessed in the least-cost analysis. According to the Economic study, only one of three potential geothermal resources in Uganda is "*promising*"—at Kibiro—as it "*appears to be a medium grade resource*" with potential for power development.<sup>262</sup>

276. The Economic Study discusses the geothermal potential of Uganda, drawing on a detailed 37-page review of geothermal options in Appendix D. The study suggests that despite a long history of interest and increased recent activity, "*the exploration of these resources remains even today at a pre-feasibility level of investigation.*"<sup>263</sup>
277. The Panel notes that the Icelandic International Development Agency (ICEIDA) has stated that the Ministry of Energy and Minerals Development, "*with support from ICEIDA and the World Bank, carried out a drilling programme for temperature gradient measurement in Kibiro and Katwe geothermal prospects,*" which followed up a surface exploration in 2005. The programme's objective "*was to confirm the existence of the geothermal resource and assist in positioning deep exploration wells.*" ICEIDA reports, however, that "*now the research is drawing to a close with only a few outstanding gradient drilling boreholes in Katwe-Kikorongo. Unfortunately, no viable geothermal prospects have yet been identified.*"<sup>264</sup>
278. In its review, the Economic Study concludes that, "*historical estimates of the geothermal potential in Uganda being as much as 450 MW are substantially overstated.*" The study assesses the three main geothermal resource areas in Uganda, that is, Katwe, Buranga and Kibiro, and interprets the first two "*to be low grade resources with reservoir temperatures of only some 100°C and consequently with nil potential for commercial scale power generation.*" Kibiro, however, "*appears to be a medium grade geothermal resource with reservoir temperatures of about 220°C,*" and hence is "*considered to be the only geothermal resource in Uganda with clear potential for power development.*"<sup>265</sup>
279. The study estimates the cost of a full "greenfield"<sup>266</sup> development of a 40 MW binary cycle geothermal power plant at Kibiro, "*at US\$134 million which equates to a cost of US\$3350 per KW installed,*"<sup>267</sup> which would take around 52 months from when the exploration drilling commenced. Both the estimated costs and the time duration lie within, but at the upper end of, recently cited ranges. For example, expert

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<sup>261</sup> Management Response, p. 30.

<sup>262</sup> Economic Study, Main Text, ¶5.2, p. 65.

<sup>263</sup> Economic Study, Appendix D, ¶D.2, p. 216.

<sup>264</sup> See: <http://www.iceida.is/english/main-activities/uganda/> (accessed 15 July 2008).

<sup>265</sup> Economic Study, Main Text, ¶5.2, p. 65.

<sup>266</sup> A place where no such plant or previous development exists.

<sup>267</sup> Economic Study, Main Text, ¶5.2, p. 65.

participants at a US workshop in 2005 are reported to have suggested that “*most projects currently under development have estimated capital costs between \$3000 and \$3500/kW;*” and the same review states that, “[...] *it takes a minimum of 3 to 5 years to put a geothermal power plant on line [...].*”<sup>268</sup> Consequently, the Economic Study’s estimates of cost and project duration do not seem inappropriate (and, as noted earlier, the Economic Study screening analysis suggested that geothermal plant would be attractive for base load relative to other thermal candidate plants).

280. The Economic Study reaches its conclusion about the limited prospects at Katwe and Buranga partly by questioning existing estimates of temperature for Katwe and Buranga contained in a 2005 paper, whose authors’ affiliations include Uganda’s Department of Geological Survey and Mines.<sup>269</sup> The Analysis also makes a comparison with developed geothermal systems elsewhere in East Africa, suggesting that high temperature volcanic systems are more likely to be found in the Eastern rather than the Western branch of the East African rift and that, “*overall the lack of fumaroles in any Uganda prospects is a negative indication that any high temperature fields are present.*”<sup>270</sup> The Analysis does not report whether their reviewers discussed these conclusions with the aforementioned paper’s authors. Given the significance of the difference in interpretation, the Panel considers that such discussions should have been held and reported.
281. **The Panel notes the statement in the Management Response that additional studies and shallow drilling are included under the ongoing Uganda Fourth Power (Power IV) Project, to assist the Government in assessing geothermal prospects at several sites in Western Uganda. The additional information resulting from this work would help resolve conflicting views regarding geothermal potential in Uganda, and may have a significant bearing on the economic analysis of alternatives.**

### 3.3. Small and Medium Scale Alternatives

282. In the Requesters’ view, only a limited energy potential at various hydropower sites has been developed. Management responds that the Bank is supporting development of mini-hydro potential and states that projects providing power to the grid or suitable for grid connection were considered in the Economic Study.
283. Section 5.6.2 in the Economic Study discusses candidate small and medium scale hydro alternatives in a short paragraph. After noting that the least-cost planning analysis includes six small plants, with capacities of 3–13 MW, which were expected to be on stream before 2011, it states that the least cost planning analysis did not include any other small hydro projects because firm information and studies were not

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<sup>268</sup> *Factors Affecting Costs of Geothermal Power Development*, Geothermal Energy Association for the U.S. Dept. of Energy (2005 ), p. 47

<sup>269</sup> G. Bahati, Pang ZhongHe, H. Ármannsson, E. M. Isabirye, & V. Kato, *Hydrology and Reservoir Characteristics of Three Geothermal Systems in Western Uganda*. 34(5) *Geothermics*, 568 (2005).

<sup>270</sup> Economic Study, Appendix D, ¶D.6, p. 233.

available. The Analysis adds that “*The impact on the least cost plan, and on the Bujagali project, of any other projects that may be developed over the coming years is likely to be relatively small.*”<sup>271</sup> The PAD simply says that the costs and production characteristics of other potential small hydro sites in Uganda are not sufficiently known at present for purposes of long term planning.<sup>272</sup>

284. The Economic Study review of the potential of other biomass alternatives other than Kakira and SCOUT, is limited to the Analysis discussion of Interim Supply Arrangements, where it is asserted that, “*There is some potential in Uganda for the generation of electricity from wood waste, coffee husks and rice husks, as identified in the ESMAP study.*”<sup>[fn: Uganda: Rural Electrification Strategy Study, UNDP/World Bank, ESMAP; Report 221/99]</sup> However, these biomass resources are considered to be too small and spread out to be economically justifiable for large-scale power generation within the timescale of this study.”<sup>273</sup> The Economic Study cites no authority or source for this last statement. Nor is there any indication of whether sources other than the 1999 ESMAP study were identified and consulted. The Economic Study or the PAD might have referred, for example, to the assessment of the state of information emerging from the study listed on the website of the Ministry of Energy and Minerals, which says that in January 2005 MEMD appointed consultants to undertake “*Technical Assistance for Renewable Energy Resource Information and Capacity Building Assessment.*”<sup>274</sup>
285. Thus, the Economic Study examines smaller scale hydro and biomass alternatives, apart from those likely to come on stream before 2011, in little more than four sentences (on pages 53 and 79–80 of the Economic Study Main Text) and one reference, to the 1999 ESMAP study. The Economic Study does not raise or discuss any other renewable sources of electricity, such as municipal solid waste, solar or wind, even simply to confirm that the resources might be unidentified, insufficient or otherwise unsuitable for appraisal in the least cost expansion planning process.
286. A related issue concerns connectability to the grid. The Economic Study does not make clear whether connectability to the grid was viewed as a necessary qualification for including an option in the analysis. If it did, the Economic Study should have explained, first, why distributed generation had been ruled out on principle; and second, how the test of connectability had been constructed and applied.
287. The ToR for the Economic Study states that, in preparing the electricity demand forecast, the consultants should “*...delineate the potential demographic and economic size of the market catchment area for an integrated grid of the type the Bujagali project would serve [...] sight should not be lost of those areas outside of the UMEME concession which are potential grid connectable demand centers which may be supplied within the framework of the Energy for Rural Transformation*

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<sup>271</sup> Economic Study, Main Text, ¶ 5.6.2, p. 79-80.

<sup>272</sup> PAD, Annex 9, p. 82.

<sup>273</sup> Economic Study, Main Text, ¶ 4.3, p. 53.

<sup>274</sup> See <http://www.energyandminerals.go.ug/renenergy/index.html> [accessed 15 July 2008].

*Project [...].*<sup>275</sup> The ToR also indicates, in relation to mini to major hydro alternatives, that the consultants should assess “*whether there is newer and better information about costs and capacity/energy supply potential for serving the grid than previously available.*”<sup>276</sup>

288. Thus, the ToR tended to encourage a focus on relatively large grid-connected plant and did not draw attention to the evaluation of smaller scale or off-grid alternatives. In addition, as noted above, Management has stated that any project providing power to the grid or suitable for grid connection was considered in the economic study. However, in a country where only 5 percent of the population is connected and there is widespread poverty which access to electricity could help to alleviate, it would be reasonable to expect attention also to be paid to small and/or distributed generation options (not only hydro) which might in theory more directly address local and rural poverty.
289. It is striking that the Management response contains a much fuller discussion and appraisal of the smaller scale and/or distributed generation options than was contained in the Economic Study and the PAD.
290. The Panel notes that the information in the Economic Study and the PAD relating to knowledge about and the potential of smaller scale and/or distributed generation alternatives did not clearly establish that the available studies and data had been identified and evaluated in a way that would have enabled decision-makers to decide whether further consideration was required. **Consequently, the Panel finds that the Economic Study and the PAD did not demonstrate full compliance with OP 10.04’s requirement in paragraph 3 to evaluate alternatives.**

### 3.4. Oil Resources

291. In January 2006, an oil company announced that they had proven “*the existence of a working petroleum system in the Albertine Basin,*”<sup>277</sup> while warning that it was too early to determine its size or potential commerciality. Six months after the date of the PAD, this company claimed that “*Preparations for commerciality are well advanced [...] Preparing for Power generation in 2010.*”<sup>278</sup> Other reports convey more scepticism about the scale of the discoveries.<sup>279</sup>
292. The PAD states that, “*The Government has also reported a domestic oil resource discovery in the Lake Albert region of western Uganda, which would need to be proven as economically viable; this is not expected to have any impact on power*

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<sup>275</sup> Economic Study, Appendix A, ¶ 8, p.6.

<sup>276</sup> Economic Study, Appendix A, ¶ 20, p. 9.

<sup>277</sup> See <http://www.tulloil.com/tlw/media/news/2006/2006-01-17/> [accessed 15 July 2008].

<sup>278</sup> See

<http://www.tulloil.com/tlw/ir/reportspres/finreportspres/2007/presentations/analystvisitidx/analystvisitidx/conclusion.pdf> [accessed 15 July 2008].

<sup>279</sup> See, for example, “Oil Hangs on Crude Balance”, posted 2007-11-06: <http://www.myuganda.co.ug/news/?more=196> [accessed 15 July 2008].

generation before 2011.”<sup>280</sup> The PAD later goes on to say that because of the time required to go from proving the reserve to refinery construction, this discovery, “*is not expected to have an impact on power generation options over the medium term,*”<sup>281</sup> although it does not define the medium term.

293. The Economic Study does not appear to discuss the oil discovery at all. **While the oil resource discovery was at a very early and unproven stage at the time when the Economic Study Final report was completed (February 2007), the Panel finds that the existence and potential of this resource should have been reviewed in the discussion of alternative supply options.**

### 3.5. Large Hydro-Electric Power Plants

294. The Nalubaale and Kiira power plants were, of course, included in the modelling of the power system. The coverage of major new candidate hydro projects apart from Bujagali and Karuma is briefly addressed in four paragraphs in S. 5.6.1, which draw on the “*review of the potential large hydroelectric projects in Uganda [...] made in the 2001 Acres study, based on existing studies such as the 1997 Master Plan.*” The Economic Study states that apart from Bujagali and Karuma, “[...] *the only sites that were considered particularly attractive for the development of the Uganda power system were: Kalagala, Ayago, Murchison and Masindi.*” Kalagala is not considered a candidate because of its “offset” status, while the other three projects were “*eliminated by Acres in 2001 for reasons that are still valid today.*” Ayago and Murchison because of environmental impacts in the Murchison Falls National Park and Masindi because it had “*been studied only at a conceptual level, and its large size (up to 3000 MW) makes it a too large project for being considered in the Uganda power system in the next ten years.*”<sup>282</sup>
295. The Requesters claim that Karuma is less socially and environmental destructive than Bujagali and that in the comparison with Bujagali, Karuma lost on economic grounds because the Economic Study for Bujagali “*was based on greatly inflated costs for building Karuma.*” Management states that Karuma was the most likely alternative to Bujagali but also that the analysis showed that the latter is the least cost option between the two as Bujagali has a lower construction cost.
296. The PAD states that apart from Nalubaale and Kiira, Bujagali and Karuma are the only large hydropower projects “*that have been developed beyond the feasibility stage in Uganda.*” Management appears to have focussed on two possibilities for the dimensions of the Bujagali option: the ToR for the Economic Study state that, “*One of the Bujagali project design decisions that needs to be assessed here is project dimensioning—specifically whether to provide for four or five 50MW units, the*

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<sup>280</sup> PAD, p. 5.

<sup>281</sup> PAD, p. 27.

<sup>282</sup> Economic Study, Main Text, ¶5.6.1, p. 79.

*economic viability of the fifth unit depending very much on demand and hydrology assumptions.*<sup>283</sup>

297. In relation to Bujagali, “*The proposed project costs are based on the terms of the bid for its EPC [Engineering-Procurement-Construction] contract and current estimates of the project development, environmental and social and financing costs. Its economic cost is estimated at US\$520.6 million (2006 money). On the same basis, the estimated global cost of the Karuma Hydropower project is US\$587.8 million.*”<sup>284</sup> The PAD summarises the capital costs of the 250 MW Bujagali option and the 200 MW Karuma option in Table 6 below, (the figures are aggregates of those in Tables 5-4<sup>285</sup> and 5-6<sup>286</sup> of the Economic Study).

**Table 6 Economic Cost Estimate for Bujagali and Karuma**

**Table 9.5: Economic Cost Estimate for Bujagali and Karuma**

Item	Bujagali (250 MW) (US\$ million)	Karuma (200 MW) (US\$ million)
Direct construction costs		
- Civil Works	227	315
- Equipment	187	117
Connection to the grid	28	79
Engineering & Coordination	28	33
Environmental & Social Impacts	26	15
Development Costs	25	29
<b>Total Implementation Cost (excluding Interest During Construction)</b>	<b>521</b>	<b>588</b>

### C. The Project costs

#### 1. Bujagali Project Costs

298. The Requesters argue that from an original estimate of US\$430 million, the Project cost has now jumped to US\$735 million. NAPE states that, on February 28, 2007, it met with World Bank officials who acknowledged that the cost increase has been 30 percent.

299. Management claims that the increase since 2000 is due to an increase in Engineering Procurement and Construction (EPC) costs of around 65 percent caused by an increase in the cost of metals and increases in the cost of oil and of transporting equipment to Uganda. However, Management adds that the Bank group as well as the other lenders “*have taken several steps to ensure that costs of Bujagali reflect current market conditions.*”

<sup>283</sup> Economic Study, Appendix A, ¶16, p. 8.

<sup>284</sup> PAD, Annex 9, p. 82.

<sup>285</sup> Economic Study, Main Text, ¶5.4.3, p. 72.

<sup>286</sup> Economic Study, Main Text, ¶5.5.3, p. 78.

300. The Economic Study states that they evaluated the economic cost of Bujagali, taking into account the results of the EPC contract negotiations reached by January 31, 2007, and the unit rates of civil works and power plant equipment.<sup>287</sup> They do not comment here on the very large difference between the EPC costs of the earlier Bujagali proposal and the current proposal. The PAD acknowledges that by the time of its publication, estimates of Bujagali's EPC costs of US\$511million, excluding spares, were substantially higher than those for the prior Bujagali Project (US\$315 million in 2000). The PAD offers three sentences of explanation, with no quantitative information.
301. As noted above, the Management Response offers a somewhat fuller explanation, plus an assurance that the EPC contract price would be reviewed by the lenders. Management ascribes the increase in Project cost by approximately 65 percent to “(i) increase in the cost of metals by an estimated 90% over the last 5 years (metals account for about 40-60% of power generation equipment); (ii) increase in the cost of oil (140% between 2000 and 2006), which raises the cost of transporting equipment to Uganda over more than 1,000 km from the nearest port in Kenya; (iii) a tighter market for power generation equipment: higher global demand combined with consolidation among manufacturers has resulted in higher prices.” The Response also notes that, the procurement of the EPC contractor was conducted under the supervision of the EIB and that, before finalization, the lenders, assisted by their Independent Engineer, will review the bid prices conducted by BEL's Owner's Engineer, the EPC contract price and conditions.<sup>288</sup>
302. The Panel notes that power plant costs have increased in real terms internationally, although the index of this for hydro plant may be less than for thermal plant because of the higher proportion of civil engineering costs in the former, the other more local factors referred to in the PAD may more than offset this. Nevertheless, **because EPC costs form a key element in the determining the Project's economic and financial viability, the Economic Study and the PAD should have supplied fuller explanations of the details of this cost increase, supported by appropriate analysis and quantitative evidence.**
303. In addition to the cost increase noted above, there is evidence of significant cost increase during and after the appraisal process for the current Project. The Economic Study states that “*Just after this report was completed, BEL informed PPA and the Bank Group of the most recent results of on-going negotiations with the EPC contractor [...] bringing the total EPC cost increase into a range of \$30 to \$35 millions, nominal and undiscounted.*” The Analysis argued, however, that an incentive scheme to accelerate commissioning was being negotiated, which would yield, “*a real economic cost saving on thermal plant operation estimated at \$30 to*

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<sup>287</sup> Economic Study, Main Text, ¶5.4.2, p. 70. These figures are obtained from international bidding on similar works, taking into account the recent trend of tightening of the market in the hydro power sector and a substantial increase in the price of some construction material.

<sup>288</sup> Management Response, p. 35.

\$40 million (in dollars of 2006).” Consequently, the Economic Study judged the net impact on the project’s economic viability to be “*minimal*.”<sup>289</sup>

304. In April 2007, the PAD<sup>290</sup> (and later the Management Response<sup>291</sup>) cites an EPC price of US\$520 million (including spares; US\$511 million without spares).<sup>292</sup> This figure suggests an increase over the value shown in the PAD’s Table 9.5 (sourced from the Economic Study Table 5-4), since as noted above, the PAD states that the US\$521 million total in that table is based on the EPC contract bid terms *and* estimates of the project development, environmental and social and financing costs. The PAD does not specify which elements in Table 9.5 constitute the EPC cost, nor does it state clearly the price of the original October 2006 EPC tender.<sup>293</sup> If the EPC element of PAD Table 9.5 is the sum of *Direct Construction Costs (Civil Works*, US\$227 million; and *Equipment*, US\$187 million) and *Engineering and Coordination* (US\$28 million), then the EPC costs would be US\$442 million (or US\$441 million from the source, the Economic Study Table 5-4). The PAD’s US\$521 million EPC figure is US\$79 million higher than this.
305. In January 2008, a communication from Management to the Panel stated that the final EPC price was US\$564.4 million. Thus, the expected cost of the “*fixed price EPC contract*” had risen significantly during the appraisal process between tender evaluation and the April 2007 PAD estimate of US\$511 million. By December 2007 the final price was US\$123 million (28 percent) above the Economic Study value and US\$97 million (21 percent) above the tender value.
306. Overall, leaving aside financing costs, the EPC costs have changed significantly since October 2006, as indicated in the table below:

**Table 7 Bujagali EPC Cost Evolution**

Source	EPC Costs (US \$million)	Percentage of Economic Study Value
Tender Price, October 2006	467 <sup>a</sup>	106%
Economic Study, February 2007 (estimated)	441 <sup>b</sup>	100%
PAD, April 2007 (estimated)	520 <sup>c</sup>	118%
Final EPC price, December 2007	564 <sup>d</sup>	128%

**Notes:** (a) Colenco Project Review and Assessment Report, February 2007, p. 12.2 (evaluated price US\$477 million); (b) Items 1 and 3 in the Economic Study Table 5-4, p. 72; (c) PAD, para. 53, p. 15; (d) Communication from Management, January 2008.

<sup>289</sup> Economic Study, Main Text, fn 5, p. 70.

<sup>290</sup> PAD, p. 26. See also PAD, Annex 9, p. 78.

<sup>291</sup> Management Response, p. 30.

<sup>292</sup> PAD, p. 16.

<sup>293</sup> Colenco Project Review and Assessment Report, (February 2007) (hereinafter “Colenco 2007”) records that the tender EPC price of the successful bidder was US\$467.2 million, excluding spare parts (Colenco 2007, p. 12.2). Colenco notes that while the October 2006 tender price was US\$467.2 million, the evaluated price was raised by US\$10 million, “to account for technical deviations.”

307. The February 2007 Independent Engineer’s Report estimated the “*total project implementation budget*,” excluding financial costs, based on the EPC tender price, plus estimates of spares, environment costs, engineering and management costs and contingencies at company level but excluding transmission line engineering and associated environmental and social costs.<sup>294</sup> The total was US\$624 million, (including US\$60 million of contingencies at company level), significantly higher than the estimate of US\$476 million (US\$521 million minus US\$28million for grid connection and US\$17 million for transmission line environmental and social costs) in the Economic Study Table 5-4 (PAD Table 9.5).
308. The Economic Study cost estimates for Bujagali and Karuma both included an estimate for “*Connection to the grid (line and substations)*.” For Bujagali, the Economic Study Table 5-4 (also PAD Table 9.5) indicates a cost of US\$28 million. The Economic Study states that these costs were based on the designs and the cost estimates proposed by the Project sponsor’s consultants. The US\$28 million was an underestimate, however.<sup>295</sup> The May 2007 African Development Fund Appraisal Report for the Bujagali Interconnection Project (BIP) produced an estimated total cost of the project of US\$75 million (of which US\$17 million were for resettlement/compensation).<sup>296</sup> The PAD says that, ahead of the competitive tender and EPC contract, the “*construction cost of the Interconnection Project is estimated at approximately US\$55 million*.”<sup>297</sup> This estimate is almost double the US\$28 million used in the Economic Study and reproduced in Annex 9 of the PAD.
309. **Two considerations may be drawn.** First, EPC costs have increased by US\$123 million (28 percent) from the Economic Study estimate to the point where the contract price was fixed. Second, the Economic Study, which appears to be the only economic appraisal addressing the total project costs, uses the lowest numbers, for both the hydropower and the interconnection projects. The PAD relies heavily on this study in confirming the judgement that this is the lowest cost option for generation and should enable retail tariffs to be reduced. The PAD adds a financial appraisal of Bujagali Hydropower Project (BHP) (using higher costs), but omits Bujagali Interconnection Project (BIP) from this analysis altogether, on grounds that—as the Panel was recently informed—the Bujagali Interconnection Project’s wider role in the system would make it “*inappropriate to attribute the transmission line costs solely to the Bujagali project*.”
310. In addition, in considering tariff effects, the full recoverable costs of the Project must be included. In this case, it is not clear to what extent it is intended to recover the cost of the BIP through the Bulk Supply Tariff. The loan repayment terms would

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<sup>294</sup> Colenco 2007, p. 13.7.

<sup>295</sup> Siemens 2006 evaluated several options, recommending option “3aR.” This option had estimated initial capital costs of US\$41 million, a present value of capital cost for 2010–2030 of US\$52 million, and NPV of total costs (including losses and O & M) of US\$64M: Siemens 2006, Executive Summary, Table 3, p. 3-2.

<sup>296</sup> AfDB, Appraisal Report for the Bujagali Interconnection Project, 30 May 2007, ¶ 4.8.1 and Table 4.1, p. 21. Later communications suggested that the final figure might turn out to be less than US\$75 million.

<sup>297</sup> PAD, p. 17.

theoretically allow a relaxed attitude to this; but even if the total cost of BIP is omitted for the purpose of tariff calculation, the Economic Study still appears significantly to underestimate costs as shown in the PAD's Table 3. It thus seems likely that the Economic Study underestimated both the costs (for comparative purposes) and the tariff effects of the BHP/BIP project.

311. Management responded to a question from the Panel about differences between the cost estimates used for economic analysis in the Economic Study and the PAD, stating that: *“Although it may have been possible to revise the analysis mid-stream to incorporate emerging new data, it was not practical to consider re-starting this analysis when each new/refined estimate of project costs became available, since the new estimates were such that all parties involved in the study considered that they would not [to] alter the conclusions of the study. In contrast, the financial analysis, which drew from the same data set as well as results of the economic analysis, was more nimble. The financial analysis therefore represents the most up-dated information at the time of appraisal and issuing the PAD.”*<sup>298</sup>
312. **The Panel finds that, although certain parts of the analysis were carried out thoroughly, to meet all of the requirements of OP 10.04, the PAD should have included an explanation and supporting evidence of why the substantial project cost variations would not alter the conclusions of the Economic Study.**
313. Paragraph 41 of the PAD states *“... there is limited likelihood of EPC cost increases once the EPC contract is finalized.”*<sup>299</sup> Section 5.4.4 of the Economic Study explains that for the risk analysis of the Net Present Value calculations they defined two cases, *“Low Bujagali capital cost”* and *“High Bujagali capital cost.”* The values for the lower and upper cost scenarios for the items in Table 9.5, above were aggregated to minus 5 percent and plus 10 percent of the base capital cost, with each scenario assigned a 20 percent probability, with the base case at 60 percent. The Economic Study states, *“It should be noted the relatively high probability assigned to the base cost estimate takes cognisance of the advanced stage of development of the Bujagali project and the fact that the EPC contract has already been tendered and is under the final stages of negotiation.”*<sup>300</sup>
314. The judgments of the PAD and the Economic Study may be optimistic, however, for the following reasons:
- (a) After the price is set, contractors are adept at pleading unforeseen geology/geotechnical grounds to justify an increase. In this case, the winning bid price was significantly lower than the next best, but between the time in which the

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<sup>298</sup> Communication to Panel, January 09, 2008. The note also said that, “The remaining differences between the PPA and PAD totals given above resulted largely from exchange rate fluctuations, and hence EPC cost fluctuation, which occurred after the economic analysis was largely complete, but which were accounted for in the financial analysis.”

<sup>299</sup> PAD, p. 11.

<sup>300</sup> Economic Study, Main Text, ¶5.4.4, p. 74–75.

contract was awarded and the formal price was fixed, there was an increase of 28 percent.

- (b) Although the Project may be technically straight-forward by international standards, the challenge in Uganda of pulling together international and local contractors in an integrated project program will be significant
- (c) In a 2006 review of the draft contract, attention was brought to some provisions, which appeared to relax the discipline on the contractor (on defect restitution, warranties, and scope to resist Liquidated Damages in the event of delay). It is not clear to the Panel that these comments have been taken into account.
- (d) The PAD puts weight on the incentive on BEL to contain EPC costs. This may also be optimistic, in that there is scope for cost increases to be recovered via the PPA (see later comments on the PPA).

315. The Panel notes that these factors, as well as the increases noted in the Bujagali EPC costs, suggest that the confidence in the base scenario was misplaced and that the 10 percent increase in the “High Bujagali capital cost” scenario was insufficiently cautious.

## **2. Karuma Project Costs and Comparative Costing**

316. As noted above, according to the Requesters, Karuma construction costs were inflated to gear the analysis of alternatives in favor of Bujagali. Management states, on the other hand, that the analysis has showed that Bujagali has lower construction costs than Karuma. The Panel has reviewed this question.

317. The Economic Study states that the economic construction costs of Karuma with 200 MW capacity (shown in Table 9.5 of the PAD – Table 6 above) were evaluated on the basis of the design and drawings in the March 1999 Project Definition Report issued by a company which has been promoting a project at Karuma since the 1990s, plus a February 2006 memo showing the main volumes of works. The Economic Study states that the estimates were based on, “*Unit rates of civil works and power plant equipment obtained from recent international bidding on similar works, consistent with the rates used for Bujagali cost estimates.*”<sup>301</sup>

318. Table 8 below compares the estimates of EPC cost from the Acres 2001 study for the prior Bujagali Project<sup>302</sup> with those from the PAD’s Table 9.5 (Table 6 above) (and Economic Study Table 5-4). The columns showing the percentage changes between the Acres 2001 and the PAD/Economic Study 2007 figures suggest that Karuma’s EPC cost estimates grew by a smaller percentage than those of Bujagali.

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<sup>301</sup> Economic Study, Main Text, ¶5.5.2, p. 76.

<sup>302</sup> Acres International, “Economic Review of the Bujagali Hydropower Project,” 2001.

**Table 8 Comparison of Bujagali and Karuma EPC Cost Estimates: Acres (2001) Study and Bujagali PAD**

Source/ Category	Cost	Bujagali			Karuma		
		Acres (2001) Table 4.4	PAD Table 9.5/ Economic Study	% change	Acres (2001) Table 4.6	PAD Table 9.5/ Economic Study	% change
EPC Cost (excl. Transmission line)	306.4	442	144%	416.5	465	112%	
EPC Cost (incl. Transmission line)	335.3	460	137%	473.5	544	115%	
<b>Total Implementation Cost</b>	<b>364.3</b>	<b>521</b>	<b>143%</b>	<b>427.5</b>	<b>588</b>	<b>138%</b>	

319. **Comparative costing:** The PAD states that “*For illustrative purposes, a comparative costing framework of the major projects described above is shown in Table 9.7 [...] It compares the economic cost of generation of the main long-term options for grid system expansion (in 2006 real terms), indicating that the proposed project is the least cost option under both hydrological scenarios.*”<sup>303</sup>

**Table 9 Economic Comparison of Supply Prices**

**Table 9.7. Economic Comparison of Supply Prices**

Major Projects: Economic Profiles and Cost of Supply							
Item	Value	Bujagali Low	Bujagali High	Karuma Low	Karuma High	Geothermal	MS Diesel
Plant Size	MW	250	250	158	200	40	20
Plant Factor	ratio	0.53	0.91	0.96	0.92	0.84	0.873
Energy	GW/yr	1165	1991	1324	1609	295	153
Investment	USD mm	683.4	683.4	801.4	801.4	170.1	23.0
Investment	USD/kW	2733	2733	5072	4007	4253	1151
Fuel	USc/kWh						8.80
O&M	USc/kWh	0.26	0.26	0.21	0.22	0.93	1.76
<b>Supply Price</b>	<b>USc/kWh</b>	<b>6.17</b>	<b>3.61</b>	<b>6.31</b>	<b>5.24</b>	<b>7.27</b>	<b>12.33</b>
Source: Cost input data for these calculations taken from PPA Report Chapter 7 Notes: "Low" and "High" mean low and high hydrology respectively Investment includes IDC on all capital employed at 10% discount rate Investment includes generation-associated transmission and for hydro E&S costs Karuma Low has less MW available on low vs. high hydrology, but it is 200MW installed O&M includes variable and fixed cost at the stated plant factors							

320. The indicated supply prices of Bujagali under the low and high hydrologies are lower than those of Karuma (and the geothermal and diesel plants). The PAD says that these supply prices are, “*relevant, but the ultimate cost of a system expansion program depends not only on individual project costs, but also on the required sequencing and energy/capacity contribution from each unit dispatching into the system, which varies*

<sup>303</sup> PAD, Annex 9, p. 84. The value of “Investment” in Table 9.7, US\$683.4 million, is significantly above the US\$521 million “Total Implementation Cost” for Bujagali in Table 9.5 of the PAD. The notes explain that the figure includes IDC (interest during construction), which was not in the Table 9.5 estimate. The notes offer no other explanation for the difference.

*from year to year. This is why detailed least cost generation expansion plans for Uganda are derived to analyze if and how Bujagali would fit under such plans.*<sup>304</sup>

321. **The Panel observes that the updating of the EPC cost figures does not obviously disadvantage Karuma relative to Bujagali.**
322. At the same time, the Panel found conflicting and incomplete reports<sup>305</sup> on cost estimates for Karuma at the time of the prior project. Thus, the Panel could not fully assess these estimates, but notes that a recent report funded by the NBI and carried out as part of the SSEA ranks Karuma ahead of Bujagali in comparing costs, socio-economic and environmental considerations.

#### **D. Assessment of Least Cost Options for Expanding Power Generation and Related Considerations**

323. OP 10.04 states that the “*basic criterion for a project's acceptability involves the discounted expected present value of its benefits, net of costs. Both benefits and costs are defined as incremental compared to the situation without the project.*” The policy also requires the economic alternative analysis to compare the project design with other designs but also to compare it with the alternative of not doing the project at all. The analysis also studies “*the switching values of key variables [...] and the sensitivity of the project's net present value to changes in those variables (e.g., delays in implementation, cost overruns, and other variables that can be controlled to some extent)*” to improve the design, increase the expected value and reduce the risk of failure.
324. The Economic Study devised and compared alternative generation expansion plans with and without Bujagali as a candidate plant. The Economic Study explains that, “*The difference in present-worth value between the costs of these two development strategies is defined as the Net Present value (NPV) of Bujagali HPP.*”<sup>306</sup> “*The least cost generation expansion analysis was undertaken for base, low and high demand forecasts; low and high hydrology scenarios; base, low and high fuel price projections; and base, low and high Bujagali cost estimates.*”<sup>307</sup> Seventy two cases were evaluated, 54 with Bujagali and 18 without, to explore the range of risks, with 13 more for further sensitivity analysis.
325. The PAD states that, “*The economic analysis confirms that the proposed project is the next major least-cost generation expansion option for Uganda. [...] In addition, the*

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<sup>304</sup> PAD, Annex 9, p. 84.

<sup>305</sup> Development Today: Nordic Outlook on Development Assistance, Business and Environment, Confidential Report Over-Prices Karuma Falls Projects, December 3, 2003, No.19/2003

<sup>306</sup> Economic Study, Main Text, ¶7.1, p. 97. See also PAD, Annex 9 ¶25, p.84, which states “A set of least cost generation expansion plans was developed for the Ugandan power system beyond 2010 based on candidate plants described above. These plants are then entered as candidates in the WASP software, together with existing generation capacity, the load forecast and the cost of unserved energy. WASP then generates the sequence of plants that meet demand at the lowest combination of capital and energy cost [...]”

<sup>307</sup> PAD, Annex 9, p.85.

*least-cost status of Bujagali was tested for 200 MW versus 250 MW project size, delayed commissioning and the Karuma hydropower project preceding it.*<sup>308</sup> The Economic Study reports a sensitivity test in which Bujagali's capital cost was increased to determine how large an increase in capital cost would need to be so that the least cost expansion plan would no longer choose Bujagali as the next best option for the expansion of the system. Based on these calculations, Karuma would become the best option if the capital cost of Bujagali increased by 49 percent of the base cost estimate, the probability of which was considered very low.<sup>309</sup>

326. The PAD also states that the only cases where Bujagali is not in the least-cost expansion plan *“are those where low demand is combined with high hydrology; such scenarios have a combined probability of occurrence of only 6%.”*<sup>310</sup> The PAD suggests that *“Because the low hydrology has a 79% probability of occurrence versus 21% for the high hydrology scenario, it would not be economic to delay the proposed project.”*<sup>311</sup>
327. **The process of testing the sensitivity of the least cost expansion plans with and without Bujagali appears to have been carried out thoroughly. The assumed increase of 10 percent for the “high Bujagali capital cost scenario” compared with the “base scenario”, with an assigned probability of only 20 percent, was inappropriately low. Nevertheless, a sensitivity test suggested that the Economic Study’s conclusions that Bujagali was the least-cost option were robust for an increase of almost 50 percent in capital costs.**

## 1. Tariffs and Affordability

328. The PAD's Annex 9 states that the Economic Study also showed that under the identified least cost system generation expansion plan, with Bujagali commissioned in 2011, *“the resulting costs of meeting the demand forecast, as well as the incremental costs of transmission, distribution and losses, can be recovered at tariffs no higher than those on which the demand forecast itself was based.”* It also says that the financial analysis for the power system as a whole suggested that, when compared with the assumed tariff underlying the demand forecast, *“[...] the tariff may drop by up to 10% in real terms after the commissioning of the proposed project.”*<sup>312</sup>
329. The Economic Study comparison,<sup>313</sup> suggests that from 2011 the average long term cost of supply, 16 c/kWh is 1.2 c/KWh lower than the assumed constant tariff level of 17.2 c/kWh (a 7 percent difference). This estimate is based on system costs that incorporate the EPC contract costs and transmission costs for each power station, including Bujagali. However, the costs used here by the Economic Study for Bujagali

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<sup>308</sup> PAD, p. 27.

<sup>309</sup> Economic Study, Main Text, ¶7.4.4, p. 120.

<sup>310</sup> PAD p. 27.

<sup>311</sup> PAD, Annex 9, p. 86.

<sup>312</sup> PAD, Annex 9, p. 87.

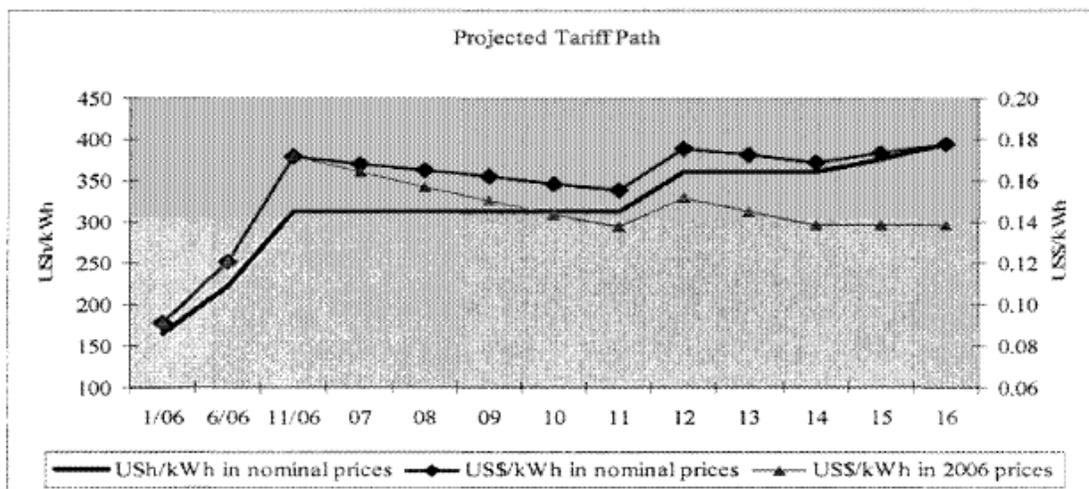
<sup>313</sup> Economic Study, ¶9.4.3, p. 151.

were again based on their EPC estimate of US\$441 million, rather than the 18 percent greater US\$520 million cited in the PAD, as well as on their probably understated figure for transmission connection costs.<sup>314</sup> This suggests that the Economic Study’s 16 c/kWh estimate of post-2011 average long term cost of supply was an underestimate—and that the post-2011 gap between the supply cost and the assumed tariff would have been smaller than the 1.2 c/KWh cited earlier.

330. The PAD’s statement simply asserts that the Economic Study shows that the tariff may drop by up to 10 percent, without qualifying the statement in light of the increases in EPC and transmission costs after the Economic Study was prepared and that were recorded in the PAD (but before it was finalised). The issue of electricity tariffs and affordability is of such high importance to the people and communities. **The Panel finds that, in order to comply with the requirements of OP 10.04, the PAD should have qualified its statement about the projected drop in tariffs to take into account the impact of EPC and transmission cost increases.**<sup>315</sup>
331. The PAD presents its own estimates of the projected levels of the weighted average retail tariff path, based on a different and presumably later Economic Study, shown in Figure 12.2 (below) :

**Figure 8 Projected Electricity Tariff Path (2000-16)**

**Figure 12.2: Projected Electricity Tariff Path (2006-16)**



332. The series in real terms (i.e. at 2006 prices), and exclusive of 18 percent value added tax, is shown in the table below.<sup>316</sup> The PAD does not compare these figures with those in the Economic Study and comment on or explain why they differ. **The Panel notes that the Project’s impact on tariffs and their affordability was known to be**

<sup>314</sup> Economic Study, p. 152, Table 9-6; ¶9.4.3, p. 153; and Table 9-8, ¶9.4.4, p. 154.

<sup>315</sup> The issues of affordability of electricity tariffs and poverty reduction are also addressed in Chapter VI.

<sup>316</sup> PAD, Annex 12, Table 12.2, p. 106.

a key concern. In this light, the Panel considers that the relationship between the estimates in the Economic Study and those from the PAD’s financial analysis should have been presented more clearly and transparently in the PAD.

**Table 10 Estimates of the weighted average retail tariff path 2011-2016**

	2011	2012	2013	2014	2015	2016
kWh at 2006 prices	13.8	15.1	14.5	13.9	13.9	13.9

## 2. A Criterion for Economic Acceptability of the Project: Internal Rate of Return Analysis

333. The Requesters argue that the “*SEA does not give cost, cost benefit, opportunity cost scenarios and calculations for installation and development of these alternative energy options as basis for determining Bujagali as the least-cost option.*”<sup>317</sup> They add that risks to the economy related to hydrology issues, the drought in the region and so on, have not been adequately assessed in the decision making process to choose the best option.
334. In their opinion, there is a need to assess what power options may help reducing the burden on the national grid at competitive costs and prices, and study the feasibility of developing independent grids, which in the Requesters’ view could be more beneficial for the people than being connected to the existing national grid.
335. Management responds that the information regarding costs and benefits is included in the Economic Study rather than the SEA. Management also believes that independent grids are part of the electrification program of the country and both grid and off-grid systems are supported under the Energy for Rural Transformation Program (ERT). The Response says, however, that the expansion of the national grid network is still the least-cost means of connecting the customers.
336. The economic internal rate of return (EIRR) on a project is the rate at which the present value of the project’s series of incremental economic benefits is equal to the present value of its series of incremental economic costs. The PAD notes that “*The benefits are a combination of displacement of more expensive thermal power in the early years of the project’s life and ‘consumer willingness-to-pay’ for incremental electricity supply. The costs include constructing and operating the project and the incremental transmission and distribution works needed for delivering the project’s energy to end-users, as well as managing environmental and social impacts.*”<sup>318</sup> The risks to the EIRR include hydrology, fuel prices (influencing willingness to pay for alternatives to grid power), the demand forecast and the capital cost of the project, for which different cases had been specified as part of the least cost expansion planning.

<sup>317</sup> Request, p. 7.

<sup>318</sup> PAD, p. 29. Additionally, the PAD, Annex 9, p. 90 explains that, “The EIRR is calculated over 2007 to 2061 inclusive, with project benefits and costs stabilized at the level reached by the year the proposed project’s output is fully absorbed, which varies depending on the selected hydrology and demand forecast assumptions.”

337. Potential scenarios were explored, both with and without an estimated “greenhouse gas” benefit of US\$25 per ton of CO<sub>2</sub> emissions reduced through the displacement of thermal capacity using fossil fuel. These calculations suggested that the EIRR “*would be no less than 12.4% and no more than 25.8% in the series without greenhouse gas benefits (or no less than 12.9% or nor more than 26.4% with greenhouse gas benefits). The EIRR for the Base Case is 22.0% without the CO<sub>2</sub> benefits and 22.9% with these benefits.*”<sup>319</sup> In an alternative approach to risk analysis the Economic Study specified probability distributions for the values of project capital cost (Bujagali and incremental transmission and distribution), demand forecast, willingness to pay of newly connected residential consumers, oil prices and hydrology and used the Crystal Ball program to run a Monte Carlo procedure, “*to randomly select any combination of values for each variable within the specified ranges over a series of 10,000 iterations [...]*”<sup>320</sup> The PAD states that, “*The results of the EIRR analysis are that the EIRR without any greenhouse gas credit has zero probability of being less than 11.3% or more than 26.4%.*”<sup>321</sup> The EIRR appeared relatively insensitive to an increase in capital costs although, as noted, the change was over a relatively narrow range.
338. OP 10.04 does not require a specific value for the EIRR, although a frequently cited range for the opportunity cost of capital is from 10 to 12 percent. The Economic Study confirms that they applied a test discount rate of 10 percent in their studies, “*as directed by the World Bank Group.*”<sup>322</sup> The distribution shown in the PAD (Figure 9.3, which differs very slightly from that shown in the Analysis) suggests a zero probability of an EIRR less than 10 percent and a very low probability of an EIRR less than 12 percent. The analysis of the possible effects of different capital costs with and without the Bujagali Project appears to have been carried out thoroughly, as cited earlier in this chapter.

### 3. Macroeconomic Considerations in the Analysis of Alternatives

339. The Economic Study states that through meetings held with various institutions in Uganda, “*It was found that the tools available for analyzing the impact of power sector investments and production on other sectors are not well developed. Forecasts presented by international institutions and the GoU for the Ugandan economy are based on extrapolations and simple accounting formulae. There are no models with relationships representing the responses of various sectors to changes in income and prices.*” The Economic Study states that because of this limitation on modelling tools, the total impact of the two cases they compared, “with Bujagali” (and Karuma in 2017) and “without Bujagali,” could not be “*quantified with precision.*”<sup>323</sup> Consequently, they mainly discuss the direct impacts rather than the full direct and indirect effects.

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<sup>319</sup> PAD, Annex 9, p. 91.

<sup>320</sup> PAD, Annex 9, p. 92.

<sup>321</sup> PAD, p. 29.

<sup>322</sup> Economic Study, ¶7.2.5, p. 101.

<sup>323</sup> Economic Study, ¶10.1, p. 163.

340. Among other effects on components of GDP, the Economic Study claims that the “without Bujagali” case will have 5 percent higher tariffs than the “with Bujagali” case, which has a “small” direct impact on households; and that the effects of changes in power supply will be felt most in the manufacturing and mining sectors. This is because the agricultural sector uses little electricity, while energy intensity is ten times greater in manufacturing than in the commercial sector. The Economic Study ends its review of the government’s financial position thus, *“The Government will through its ownership of UECTL carry substantial risks related to the power sector through UECTL’s payment obligations under the power purchase agreements. However, we assume that the Government will not have to subsidise electricity after 2010 in the Bujagali case and after 2011 in the ‘without Bujagali’ case.”*
341. Management examined macroeconomic effects further in March 2007. An independent consultant assembled a spreadsheet model of the impacts, using data developed by the consultants for the Economic Study and two of their power sector expansion scenarios, one with Bujagali from 2011 and Karuma from 2017, and the other largely thermal but including existing hydro capacity (and different from the Economic Study second case). The PAD states that the Project *“is expected to have a positive macroeconomic impact. Compared to a thermal oil-based expansion plan, the hydro-based expansion plan is expected to save the country’s balance of payments over US\$700 million from 2011 to 2020.”*<sup>324</sup> The independent consultant states that his sensitivity tests show that, *“Even if fuel costs fell by 40%, while at the same time construction costs rose by 25%, the more capital intensive but fuel saving alternative ‘with Bujagali and Karuma’ would still be superior to the ‘without’ alternative by US\$45 million in terms of its net impact upon the BOP [Balance of Payments].”*
342. The independent consultant also argues that the relatively greater increase in external debt associated with capital costs is, *“justified when one recognizes that the value of the investments made in the power sector in the ‘with’ case is US\$1,094 million greater.”* The consultant’s brief report concludes that *“Rather than creating macro problems, meeting much of Uganda’s growing needs for electric power through hydropower development at Bujagali (and subsequently at Karuma) will have major benefits for the balance of payments plus more modest benefits for the budget (the results depending on tax, subsidy and pricing policies).”*<sup>325</sup>
343. Because of rising oil prices, the independent consultant’s judgement about “big thermal” versus “big hydro” in Uganda may be broadly right. However, one advantage of small multi-fuel generation is that it may make more use of both indigenous fuels and indigenous materials and skills than the big Independent Power Producer options, and thus conserve foreign exchange. In discussing balance of payment “benefits,” it should not be forgotten that Bujagali will require payments of over US\$100 million (equivalent) every year for 30 years.

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<sup>324</sup> PAD, p. 29.

<sup>325</sup> Project Files, communication dated March 2007.

#### 4. Externalities

344. Paragraph 8 of OP 10.04 requires the Economic Study to take into account domestic and cross-border externalities, which are in large part environmental.<sup>326</sup>
345. The Economic Study states that a field mission to Uganda in July 2006 was carried out to collect data on the environmental and social costs of the Bujagali and Karuma projects. It adds that the Economic Study for Bujagali also used data gathered in the preparation of the SEA.<sup>327</sup> While the Economic Study Draft Final Report was submitted after the completion of the SEA analysis, the Analysis asserts that “*this Final Report takes account of the results of the ESIA report.*”<sup>328</sup>
346. Chapter 6 of the Economic Study discusses individual social and environmental estimates. Then, through a process that is not clearly presented, it aggregates them into overall totals in Tables 6-2 and 6-6 (the contents of which appear to underlie the numbers in Table 5-4, *Total implementation Economic Cost Evaluation*). The Economic Study draws on data and tables prepared in the December 2006 Social and Environmental Assessment Reports prepared for the Bujagali and Interconnection projects but without citing either table or page numbers. The overall estimates assembled by the Analysis appear, nevertheless, to be broadly consistent with those used in the SEAs.
347. The lenders’ Independent Engineer reviewed the SEA analysis of Bujagali social and environmental costs. While they judged this part of the report to be, “*clear and quite detailed,*” they suggest that, “[s]ome efforts could have been done to better specify the cost estimates, trying also to evaluate the cost of the Social and Environmental Actions to be performed by the EPC Contractor.”<sup>329</sup>
348. The Economic Study prepared estimates of the value of carbon dioxide (CO<sub>2</sub>) that would be avoided by Bujagali through the displacement of thermal plant, valuing the damage avoided by each tonne of CO<sub>2</sub> at US\$25, “*which is in the lower band of the equilibrium level quoted in the recent Stern Report on climate change.*”<sup>330</sup> This was not an unreasonable number to employ, given the great uncertainty and wide range of estimates of the “social cost of carbon.”<sup>331</sup> In relation to other externalities that were potentially relevant, the Economic Study states without explanation that while, “*There may be SOx impacts,*” the study did not quantify their value.

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<sup>326</sup> While global externalities (including greenhouse gases) must be considered only in circumstances that do not appear relevant here. See OP 10.04 ¶8.

<sup>327</sup> Economic Study, Main Text, Executive Summary, p. 12.

<sup>328</sup> Economic Study, Main Text, ¶6.1, p. 81.

<sup>329</sup> Colenco 2007, p. 8.12.

<sup>330</sup> Economic Study, Main Text, p. 84.

<sup>331</sup> See Lord Nicholas Stern, *Stern Review of the Economics of Climate Change*, (Cambridge University Press 2007), in particular, Chapter 13, available at: [http://www.hm-treasury.gov.uk/media/A/2/Chapter\\_13\\_Towards\\_a\\_Goal\\_for\\_Climate-Change\\_Policy.pdf](http://www.hm-treasury.gov.uk/media/A/2/Chapter_13_Towards_a_Goal_for_Climate-Change_Policy.pdf).

349. **The Panel finds that the limited presentation and discussion of these costs in the Economic Study did not succeed in demonstrating full compliance with OP 10.04. In the Panel’s view, to meet all the requirements of Paragraph 8 of OP 10.04, the Economic Study should have examined, in more detail, the potential of changes in damage from pollutants other than CO<sub>2</sub>, such as sulphur and nitrogen oxides, particulates and noise, even if it might have proved difficult to value them.**

#### **E. Environmental Analysis of Alternatives**

350. OP 4.01 on Environmental Assessment states that a project EA analyzes project alternatives. Annex B on the Content of an Environmental Assessment states that the analysis of alternatives “[s]ystematically compares feasible alternatives to the proposed project site, technology, design, and operation--including the "without project" situation--in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements.” The policy requires that this evaluation should quantify the environmental impacts for each option considered and provide economic values where possible.<sup>332</sup> It should also state the basis for selecting one particular option and the proposed project design.
351. The discussion below reviews the analysis of alternatives to the Bujagali hydropower facility in three steps: (a) analysis of hydropower in comparison to alternative power generation technologies within the region; (b) alternative hydro-power locations within Uganda; (c) alternative configurations for the Bujagali option.<sup>333</sup>

#### **1. Hydropower in Comparison to Alternative Power Generation Technologies within the Region**

352. As noted before, Uganda has experienced chronic and acute shortages of electrical power since 2002 when the low water level of Lake Victoria prevented full use of the country’s sole source of base-load power: the Kiira and Nalubaale hydropower complex. This complex has in recent years been operating at less than half of its combined 380MW capacity.
353. A World Bank study under the Energy Sector Management Assistance Program considers that the Ugandan requirement for consistent reliable power generation significantly in excess of 100 MW effectively rules out, on purely technical grounds, power generation alternatives other than conventional thermal, nuclear or large-scale hydropower plants. *“Power generation technologies larger than 100 MW capacity are exclusively conventional power plants burning fossil fuels (coal, heavy oil or natural gas), or are large hydroelectric power plants. In developing countries, power plants of this magnitude are operated by central or state electricity boards or in some*

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<sup>332</sup> OP 4.01, Annex B ¶2(f).

<sup>333</sup> Some of the alternatives considered in (a) and (b) have been noted in Section B above in the context of the Project’s economic evaluation.

*cases by investor-owned utility companies or by independent power operations. The units in this range are always grid-connected and serve urban or peri-urban areas with high-load density.*<sup>334</sup>

354. A separate study carried out as part of the SSEA dated February 2007, funded under the Nile Basin Initiative, analyzed social and environmental issues relating to power development options in the Nile Equatorial Lakes Region of Africa.<sup>335</sup> This study covered four generation technologies—large scale hydro, renewable, geothermal and thermal.<sup>336</sup> The study utilized both the Multiple-Criteria Analysis (MCA) approach and Risk Analysis to compare and rank the various options for providing electrical power to the region. The MCA methodology is semi-quantitative and has the advantage of making the weightings and value judgments that are made transparent and open to questioning.<sup>337</sup> The Risk Analysis was non-quantitative.<sup>338</sup> The two forms of analysis were then combined to produce a final ranking of power generation options.
355. The considerable hydro-power potential of the Upper Nile, together with the country's experience with this form of power generation, appear to be at the base of the GoU according priority to large-scale hydro-power as the electricity generation technology of choice. Uganda's lack of large-scale coal reserves, an existing but unproven oil reserve and its geographical position in the center of Africa (which adds significantly to the cost of generating power using petroleum products) have made the development of conventional thermal power stations less attractive.<sup>339</sup>
356. For the MCA three equally weighted categories of criteria were used for project selection, these were: cost, socio-economic considerations and environmental considerations. The criteria and weightings<sup>340</sup> that were applied are summarized in the table below:

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<sup>334</sup> Technical and Economic Assessment of Off-grid, Mini-grid and Grid Electrification Technologies, Technical Paper 121/07, December 2007, p. 50

<sup>335</sup> The Panel has noted in Chapter III of this Report (Environmental Compliance) that the Bujagali SEA makes only a passing reference to the SSEA and that it is clear from reading the two reports and the complete lack of cross-references between them that they do not form part of the same suite of documents. The Panel continued to say that, as the purpose of both the sectoral and project specific EA is to disclose information relevant to a decision, the fact that one study is reliant on another must be clearly stated and disclosed in project documentation. The Panel found that the failure to disclose the SSEA or its relevant parts as an integral part of the Project documentation in a timely manner was not consistent with OP 4.01, but also noted that the necessary Project studies were conducted and disclosed, albeit independently, considered by Management and referred to specifically in the PAD.

<sup>336</sup> SSEA, Table 1, p. S-8.

<sup>337</sup> The method as well as the criteria and weightings that were used are fully discussed in Chapter 9 of the SSEA.

<sup>338</sup> The method and its conclusions are fully discussed in Chapter 10 of the SSEA.

<sup>339</sup> HPP-SEA, p 172.

<sup>340</sup> The weightings of each category—cost, socio-economic and environmental—each add to 100 percent. In the SSEA analyses in which these three components were not equally weighted are also discussed.

**Table 11 Criteria and Weightings applied in Multiple -Criteria Analysis**

<b>Cost Category</b>	
Economic viability	100%
<b>Socio-economic Category</b>	
Impacts due to population displacement	15%
Promotion of rural electrification	35%
Socio-economic impacts downstream	15%
Land issues	35%
<b>Environmental Category</b>	
Resource depletion	25%
Greenhouse gas emissions	10%
Air pollution	10%
Land-take requirements	25%
Waste disposal	5%
Downstream environmental effects	25%

**Risk Analysis covered:**

- Risks of opposition from internal and external groups;
- Risks related to institutional and legal frameworks;
- Increased risks to public health;
- Risks to designated habitats or natural sites;
- Risks to sites of exceptional biodiversity value;
- Risks in the use of resources;
- Risks of sedimentation;
- Gestation period in delivering benefits;
- Hydrological risk; and
- Financial risk.

357. The MCA and Risk Analysis were qualitatively combined to provide “best evaluated options” for regional power generation. The results of the process in rank order are summarized in the table below:

**Table 12 Results of MCA and Risk Analysis in Rank Order**

Site	Country
Ruzizi III	Rwanda
<b>Karuma</b>	<b>Uganda</b>
Ruhudji	Tanzania
Gas Turbine 60 MW gas - generic x 4units	Tanzania
Combined Cycle gas x 3 units	Tanzania
<b>Bujagali</b>	<b>Uganda</b>
Rusumo Falls	Tanzania/Rwanda
Rumakali	Tanzania
Geothermal	Generic
Kivu methane engines 30 MW x 4 units	Rwanda/DRC
Mombasa – LNG	Kenya
Kabu 16	Burundi
Kakono	Tanzania
Wind	Generic
Mutonga	Kenya

358. The Analysis indicated that on pure technical grounds, as well as a combination of multiple criteria and risk analysis, the power generation option considered to be most appropriate for Ugandan base-load supply among the four options generation options considered (large-scale hydro, renewable, geothermal and thermal) was large scale hydro-power.<sup>341</sup> This conclusion put a focus on large-scale options in the analysis of alternatives, both within Uganda and at Bujagali Falls in particular. It may also be noted that while this analysis focused on comparing hydropower to alternative power generation technologies, it ranked Karuma, as well as thermal plants outside of Uganda, ahead of Bujagali.

## 2. Hydropower Location Alternatives within Uganda

359. Twelve alternatives at seven different sites in Uganda were considered for large-scale hydroelectric projects in the Nile Equatorial Lakes Region study.<sup>342</sup> Only two alternatives—Karuma and Bujagali 1–4<sup>343</sup>— were found to be both cost-effective and socially and environmentally acceptable. The sites that were considered are summarised in Table 13 below:

**Table 13 Alternative Sites Considered for Large Hydroelectric Projects within Uganda**

Location	Installed Capacity (MW)
Ayago North 1-4	228
Ayago North 5-6	76
Ayago South	234
Bujagai 5	50
Bujagali 1-4	200
Kalagala 1-7	315
Kalagala 8-10	135
Karuma	200
Masindi 2	360
Masindi 1	360
Murchison 1-6	315
Murchison 7-8	105

<sup>341</sup> These studies accord with those undertaken for the earlier Bujagali project. The earlier studies were undertaken by Rust Kennedy and Donkin (1997), Electricité de France (1998), Energy Strategy Management Assistance Strategy for a Rural Electrification Strategy Study (1999) and the Assessment of Generation Alternatives (Acres International, 1999, and finalized in May 2000), all of which concluded that large-scale hydropower was the most viable alternative for electricity generation in Uganda.

<sup>342</sup> SSEA, Table 6.1, p. 6-3.

<sup>343</sup> Bujagali 1-4 indicates installation of four turbines, (4 x 50 MW = 200 MW). Bujagali 5 is installation of the 5<sup>th</sup> turbine to bring power generation up to 250 MW. The two alternatives were thus a 200MW or a 250MW installation. This was done to assess economic and financial consequences, and there is no proposed difference to reservoir size, dam height or area flooded. The environmental and social differences between the two options are minimal - retention time of water in the reservoir and speed with which reservoir levels would fluctuate by up to 2 metres.

360. Murchison Falls was identified as the least cost option in terms of capital cost per MW generated—excluding social and environmental impacts.<sup>344</sup> However, both the Murchison Falls and Ayago locations were dismissed on social and environmental grounds as each lies within the Murchison Falls National Park, a proposed World Heritage site. Masindi, a diversion scheme, was also dismissed due to cost. Kalagala, Karuma and Bujagali remained as potential options to meet growing electricity demand. But as the Government of Uganda has agreed that Kalagala should be exempted from power development as part of the Kalagala Offset Agreement this site was also not considered further.
361. According to the Project’s analysis of alternatives, the multi-criteria comparison of the Karuma and Bujagali options showed that on environmental grounds (Table 14) there is little to choose between the two, although Bujagali scores are marginally better, or equal to, Karuma except for land take.

**Table 14 Ranking of Options within the Environmental Category<sup>345</sup>**

	Scores for each criterion						Final score
	Resource Depletion	Greenhouse Gasses	Air Pollution	Land Take	Waste Disposal	Downstream Impacts	
<b>Weighting</b>	<b>25%</b>	<b>10%</b>	<b>10%</b>	<b>25%</b>	<b>5%</b>	<b>25%</b>	
Bujagali	0.37	0.04	-	0.03	-	0.20	<b>0.2</b>
Karuma	0.74	0.04	-	0.02	-	0.34	<b>0.3</b>

**Table 15 Ranking of Options within the Socio-Economic Category<sup>346</sup>**

	Scores for each criterion				Final score
	Population Displacement	Rural Electrification	Impacts Downstream	Land Issues	
<b>Weighting</b>	<b>15%</b>	<b>35%</b>	<b>15%</b>	<b>35%</b>	
Bujagali	0	7.0	0	0	<b>2.5</b>
Karuma	0.1	9.3	0	0	<b>3.3</b>

362. Although the MCA shows Bujagali slightly better than Karuma for all socio-economic criteria used (Table 15), the specific criteria used in the socio-economic category have been contested by the Requesters. Specifically, Requesters state that, “Cultural and spiritual issues in the Bujagali project area were inadequately covered in the SEA.”<sup>347</sup> The Canadian consultant undertaking the study<sup>348</sup> in consultation with stakeholders determined the categories, their constituent criteria and the associated weightings. “*The consultant was guided in the work by [sic] a Project Steering Committee (PSC) that met regularly throughout the process. The committee consisted*

<sup>344</sup> Acres International, Review of Potential Hydropower Development for IFC, May 2000.

<sup>345</sup> Extract from SSEA, Table 9-5, p. 9-12.

<sup>346</sup> Extract from SSEA, Table 9-5, p. 9-12.

<sup>347</sup> Request, p. 11.

<sup>348</sup> Hydro-Quebec International of Canada. The Consultant was contracted by the World Bank. (SSEA ¶ 2.1, p. 2-1)

*of two power experts from each country involved (usually one from the electric utility and one from the ministry responsible for power). In addition, there were observer members from the Sudan and Egypt.”<sup>349</sup>*

363. This committee in turn invited 30 participants to engage in stakeholder consultation workshops. Four stakeholder consultation workshops were held. Stakeholder representatives came from Burundi, DRC, Kenya, Rwanda, Tanzania and Uganda. Representatives came from national and local governments, civil society organizations (including the private sector), and academia.<sup>350</sup> The majority of participants in the stakeholder consultations were drawn from steering committee members attending as power experts; Permanent Secretaries – or their representatives also attending as power and water resource experts; Nile Basin observers from Egypt, Sudan and the Nile Secretariat; representatives of the World Bank and CIDA; independent reviewers; and members of the Consultant team. It is this largely technical grouping rather than Civil Society or Affected Communities in Uganda<sup>351</sup> that was relied upon to validate the Consultant’s determination of categories, criteria and weightings.

*“Within the Socio-economic and Environmental categories, weights are assigned to each criterion to reflect their relative importance using percentage points. These weights were assigned by the Consultant team on the basis of the grouping of criteria into three classes of importance: “Very important”, “Important”, “Less important”. This grouping was initially carried out during Stage I of the SSEA and was approved during the Third Stakeholders Consultation Workshop held at the onset of SSEA Stage II and confirmed during the Fourth Stakeholder Consultation Workshop at the end of SSEA Stage II. For the new criteria proposed during the Third Stakeholders Consultation Workshop, the Consultant selected the class of importance based on the discussions during the workshop.”<sup>352</sup>*

364. The Panel has examined the way in which spiritual and cultural values were considered when comparing project alternatives. Appendix J of the SSEA<sup>353</sup> outlines the decision process. Although retention of the criterion “Impacts on Cultural, Historical and Religious Sites” was part of the revised list of criteria following the Third Stakeholder Consultation, this criterion was not retained in the MCA by the

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<sup>349</sup> SSEA ¶ 2.3.2, p. 2-4, 5.

<sup>350</sup> SSEA ¶ 2.3.2, p. 2-4, 5.

<sup>351</sup> SSEA, Appendix B records involvement of Ugandan NGOs and Civil Society as follows: “Additional meetings were held with national environmental NGOs and representatives of academia in Kenya and Uganda to discuss the proposed stakeholder consultation process, to obtain information on environmental and social issues related to the power options under consideration in each country, and to identify the most relevant sources of information on these subjects. A number of the environmental NGOs selected for these discussions (NAPE, Greenwatch) were vocal and articulate opponents of the Bujagali hydropower project and, as such, were considered as relevant contributors to the discussions.” (Appendix B, ¶ B.3.1, p. B-19) Neither organization is recorded as having been engaged in the stakeholder consultation workshops.

<sup>352</sup> SSEA, Appendix J, ¶ J.1.3, p. J-10

<sup>353</sup> SSEA, ¶ 9, p. 9-1

consultants and was assigned: “to be addressed in the assessment of project risks under ‘Risks of Opposition from External and Internal Groups.’” Here Cultural, Historical and Religious Sites are concatenated with ‘risks of opposition to the project’ which include resettlement, unique habitats, public health and indigenous communities: the weight attributable to spiritual and cultural issues in the risk assessment is consequentially minimal. Further, the significance of Cultural, Historical and Religious Sites was perceived solely in terms of archaeology and graves with no consideration of the current spiritual significance of sites:

*“With regards to potential impacts on cultural, historical and religious sites, available EIA reports on Bujagali, Karuma, Ruhudji and Rumakali hydropower projects mention impacts on archaeological sites and, in the case of Bujagali, impacts on family graves. No sites of exceptional value would be affected. Mitigation measures include the evaluation of archaeological potential in project-affected area, the relocation of elements of infrastructure in order to avoid certain sites, archaeological tests and the excavation of sites with high potential. During construction, in cases of a find by chance of an archaeological site, salvage operations should be undertaken. It is unlikely that other projects considered in the comparative analysis would generate impacts on sites of exceptional value. It is also assumed that the same type of mitigation measures would be implemented for these projects. It is thus considered that risks of potential impacts on cultural, historical, and religious sites are minor and about the same for all options.”<sup>354</sup>*

365. **The Panel finds that Management did not ensure that cultural and spiritual matters were properly considered when comparing the Bujagali and Karuma alternatives, as required by OP 4.01. This is especially relevant in light of the significant cultural and spiritual importance of the Bujagali Falls to the Busoga people. The lack of proper consideration of cultural and spiritual matters in this comparison had important consequences, in that it appears to have led to the conclusion that there was little difference between the Bujagali and Karuma sites and that therefore the economic and financial aspects of the options should become the determining factor in selecting the preferred option.** As discussed earlier in section B, the Karuma and Bujagali sites were subject to a further review in the Economic Study.

### 3. Alternative Project Configurations at Bujagali

366. The Social and Environmental Assessment (SEA) undertaken for the prior Bujagali project<sup>355</sup> included an analysis of alternative impoundments to utilize the head provided by the falls at Kyabirwa, Bujagali, Buyala and Busowoko. Nine variations were considered, one at Kyabira, two at Bujagali, two at Buyala and four at

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<sup>354</sup> SSEA Appendix J, ¶ J.4.2, p. J-29

<sup>355</sup> ESG International Inc and WS Atkins International, Bujagali Hydropower Project Social and Environmental Assessment, Main Report, March 2001.

Busowoko. Two of the Busowoko variations were such as to avoid the inundation of the Bujagali falls—a site of significant spiritual importance — and other rapids used for white-water rafting. One of the Bujagali variants would divert water from above the falls through a headrace canal, thus preserving the falls but with a much smaller volume of water<sup>356</sup> flowing in the natural course. For each alternative the power that could be generated, costs, and both socio-economic and environmental impacts were evaluated. This analysis was revisited for the SEA in 2006 for the second Bujagali project.<sup>357</sup> Both studies reach the same conclusions. A summary of the conclusions is provided in table 4.2 of the SEA.<sup>358</sup>

367. In run-of-the-river hydro-power plants the amount of electricity that is generated is a direct function of the difference in water level (the head) between the surface of the reservoir and the tail-water below the generating turbines.<sup>359</sup> At Bujagali the maximum water level in the impoundment cannot exceed 1111.5 meters above sea level (masl). This is the elevation of the tail-water of the Kiira and Nalubaale plant and a reservoir level above this would reduce power production at these facilities<sup>360</sup>. The maximum water level that would avoid inundation of the Bujagali falls is 1097masl<sup>361</sup> and the level that would preserve both the Kyabirwa and Bujagali falls is 1089.5masl.<sup>362</sup>
368. In the alternatives that preserve the Bujagali and Kyabirwa<sup>363</sup> falls, the analysis assumed that the Nile impoundment would need to be moved downstream to below the Busowoko falls to partially compensate for the loss of head. The consequence of adopting the Busowoko options is reduced power generation due to the reduced head, an increase in the area inundated by the reservoir and an increase in construction costs. The benefits are preservation of the aesthetic and spiritual characteristics of the Bujagali falls and the retention of the falls for white-water rafting. The Bujagali option that envisages diverting 80 percent of the Nile's flow through a canal, in order to maintain some flow over the Bujagali falls, would necessitate excavating a cut some 4 km in length, 150 wide and up to 50 m deep and disposal of the excavated material in an acceptable manner.<sup>364</sup>

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<sup>356</sup> As low as 20% of current rates of flow.

<sup>357</sup> R J Burnside International Limited, Bujagali Hydropower Project Social and Environmental Assessment Main Report, December 2006

<sup>358</sup> R J Burnside International Limited, Bujagali Hydropower Project Social and Environmental Assessment Main Report, December 2006 p. 194

<sup>359</sup> The greater the head the more electricity will be generated for any particular flow rate; if the head is fixed electricity generation is a function of flow rate.

<sup>360</sup> ESG International Inc and WS Atkins International, Bujagali Hydropower Project Social and Environmental Assessment, Main Report, March 2001, pg.183

<sup>361</sup> The Busowoko E3 option

<sup>362</sup> The Busowoko E4 option.

<sup>363</sup> A loss of 14.5 meters – making the Dumbbell Island site non-viable as head would be reduced to about 8 meters reducing power output to about 65 KW without significantly reducing construction costs. This is because a high proportion of Bujagali construction cost is attributable to mobilization, river diversion and equipment. All of which would remain unaffected by the height of the dam wall.

<sup>364</sup> Simple arithmetic shows that disposal of the material excavated from the canal would require a spoil heap covering close to 100 hectares to a height of 15 meters.

369. The SEA for both the prior and current Bujagali project conclude that the optimal least-cost option for generating large-scale hydro-power at the Bujagali site, without in their view major socio-economic or environmental consequences, would be to construct a 30 m high dam across Dumbbell Island.<sup>365</sup> This naturally occurring island facilitates diversion of the river during construction and reduces the volume of constructed dam wall, thus reducing construction costs in the Bujagali dam option<sup>366</sup>. These conclusions follow from serious and wide-ranging considerations of what were judged to be the feasible alternative configurations in the vicinity of Bujagali. Neither the Kyabirwa nor the Busowoko E4 configurations individually would generate the requisite 200MW of power, and were therefore judged to be inferior to the Bujagali dam option. Both Buyala configurations as well as those designated Busowoko E1, E2 and E3 are projected to cost more than \$100 million over the Bujagali dam option, and were therefore also judged to be inferior to the Bujagali dam option. The Bujagali diversion configuration would change the landscape in the proximity of the falls through the creation of a large canal and spoil heaps, and would change the aesthetic appeal of the falls by greatly reducing the volume of water flowing over them, and was therefore judged to be inferior to the full Bujagali dam option. These judgements reflect implicit assumptions of the relative weights of economic, social and environmental criteria which were not made sufficiently transparent. A more transparent approach would have been to lay out the various technically feasible alternatives together with their economic, social and environmental benefits and costs, so that judgements on optimal alternatives could be made with a full understanding of the trade-offs involved.
370. **The Panel notes that a range of alternatives have been considered in these studies. The Panel is concerned, however, that the analysis unduly narrowed its consideration of alternatives on the basis of *a priori* judgements rather than exploring all technically feasible options, including those that would not involve flooding the Bujagali falls and thus have lower social and environmental costs, and laying them out in a systematic way along with their economic, social and environmental benefits and costs, so that judgements on optimal alternatives could be made with a full understanding of the trade-offs involved. This is not consistent with OP 4.01's provisions that feasible alternatives should be explored systematically to meet the basic Project objectives, and may have led to inadequate consideration of alternatives that met Project objectives while avoiding the social and environmental costs associated with flooding the Bujagali Falls.**

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<sup>365</sup> The Bujagali B1 option.

<sup>366</sup> The Bujagali B1 option.

## Chapter VI

### Economic Evaluation: Poverty Reduction and Risk

#### A. Affordability and Poverty Reduction

371. The Requesters argue that the Project does not take into account that the Project's high costs and the country's indebtedness have become contentious issues. They believe that because of the Project's cost increase, it is becoming clear that the majority of Ugandans-- who live in rural areas far from the national grid-- will not be able to afford unsubsidized electricity from the Bujagali dam. Furthermore, the high Project costs will limit the funds for rural electrification and will likely lead to reducing subsidies for grid-connected users. The Requesters claim that the Project will *"negate the country's economic development and efforts for poverty eradication."*<sup>367</sup> Management claims that the expected Project benefits include the provision of reliable least cost power, which is expected to increase the number of connections of residential users per year and allow industrial and commercial users to increase their output and efficiency. This is expected to *"have positive impacts on poverty alleviation in Uganda"* directly through the availability of power and indirectly through employment creation. The Response adds that *"Management views the Bujagali hydropower plant as an important element of the infrastructure backbone needed for Uganda to continue its broad based growth in support of poverty reduction."*<sup>368</sup>
372. In the PAD, Management suggests that *"further delays in augmenting Uganda's electricity generation capacity could undermine the economy."*<sup>369</sup> It cites the recent country Economic Memorandum as supporting evidence. The Memorandum says that *"close to half (45 percent) of potential investors cite electricity problems as a major or severe constraint which negatively compares with average commercial perception in other African countries."*<sup>370</sup> Section 7.4, *Economic and Developmental Benefits*, of the Project's Social and Environmental Assessment (SEA) suggests that the project *"will result in many community benefits at the national, regional and community levels."*<sup>371</sup> However, although the report describes a wide range of potential country wide benefits,<sup>372</sup> it presents very limited quantitative analysis of benefits to individuals and households.

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<sup>367</sup> Request, p. 9.

<sup>368</sup> Management Response, p. 13, 36.

<sup>369</sup> PAD, p.1.

<sup>370</sup> Uganda Moving beyond Recovery, Vol. II, ¶ 6.23, p. 169.

<sup>371</sup> HPP-SEA, ¶ 7.3, p. 333.

<sup>372</sup> Including sub-sections on reduced electricity rationing and associated costs, increased productivity, implementation of rural electrification programs, reduced costs of power, and reduced air and noise emissions.

373. OP 1.00 on Poverty Reduction states that, *“The Bank’s mission is sustainable poverty reduction. Poverty encompasses lack of opportunities (including capabilities), lack of voice and representation, and vulnerability to shocks. The Bank’s support for poverty reduction is focused on actions, consistent with its mandate, to increase opportunity, enhance empowerment, and strengthen security. Within this broad framework, a critical priority is promoting broad based growth, given its proven importance in reducing poverty.”*<sup>373</sup>
374. In its assessment of the economic internal rate of return to the Bujagali Project, the Economic Study provides quantitative assessments of both costs and benefits, including those benefits associated with new connections, reductions in the amount of unserved energy demand and the displacement of relatively expensive thermal generation. The findings of Chapter 10 of the Economic Study, which was peer reviewed by an independent hydrologist, suggested that the Project would deliver largely positive direct impacts on Uganda’s economy, including enhanced electricity supplies, probably at lower cost than they otherwise would be, that would benefit industry, commerce and connected households, thus enhancing national economic activity. **In this sense, and bearing in mind the reservations about the cost estimates of the Economic Study expressed in Chapter V and this Chapter, from a macroeconomic perspective, the analysis appears to have complied with the requirement in OP 1.00 to show that the Project is likely to contribute to “broad based growth.”**
375. In terms of the affordability of electricity generated under the Project for the people of Uganda, Management Response acknowledges that *“end-user tariffs in Uganda almost doubled in 2006”* and that the *“increased price still does not fully cover the cost of generation, transmission and distribution, estimated at US¢25/kWh, requiring government subsidies for the difference.”* Still, Management claims that *“according to the Economic Study, Bujagali’s commissioning in 2011 would enable the cost of power to end-users to fall to US¢16/kWh in 2006 money. This would improve the affordability of power to end users.”*<sup>374</sup>
376. **The Panel notes, however, that the ¢16/kWh figure provided in the Economic Study is likely to be an underestimate of the cost of electricity with the Project.** As explained in Chapter V of this Report, the Bujagali Engineering-Procurement-Construction (EPC) costs used in the Economic Study were nearly a fifth below the EPC values cited in the PAD.<sup>375</sup> Further, the transmission cost estimates used in the Economic Study were low. **The Management Response does not mention these differences in cost estimates or make clear their implications for the tariff estimates of the Economic Study, on which the estimate of US¢16/kWh and Management’s above statement about improved affordability are based.**

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<sup>373</sup> OP 1.00 ¶ 1.

<sup>374</sup> Management Response, p.35.

<sup>375</sup> EPC costs used in Economic Study turned out to be more than one quarter lower than the December 2007 final EPC costs.

377. Much of the expected direct benefit from Bujagali, however, especially in the early years, is likely to be experienced by the better off urban households and particularly the industrial and to a lesser extent the commercial sectors and their stakeholders. The Economic Study estimates, for example, that in 2005 residential users consumed around one third of total electricity sales, with the other two thirds consumed by commercial (12 percent) and industrial (55 percent) users.<sup>376</sup>
378. Existing poorer households that could afford to connect would benefit from the delivery of a more reliable and possibly relatively cheaper service. New connections, in urban and gradually in rural areas, facilitated by UMEME's distribution investments and by better electricity availability, would mean that increasing numbers of households would gain access. Nevertheless, the electricity would still be very costly for poorer households and too costly for many. Poor urban dwellers consume little if any electricity, while most rural households are not close to a grid connection: *"electricity use by households in Uganda is stunningly low outside of Kampala."*<sup>377</sup>
379. The 2004 Bujagali Economic Review<sup>378</sup> noted that a 2002 Uganda Bureau of Statistics (UBOS) survey, with population quintiles defined over household per capita consumption expenditure, showed no recorded spending on electricity by the bottom quintile of urban households. The mean spending on electricity in the fifth quintile by households that consumed it was five times that of those in the second quintile. The Country Economic Memorandum says that, *"The distributional and policy implications of this coverage profile are huge. For instance, the electricity profile according to the income cut [... suggests] that any subsidy to consumption is rather regressive, but also indicating that targeted subsidies to new connections might be the way to go as sufficient power becomes available."*<sup>379</sup>
380. The Terms of Reference (ToR) for the Economic Study discuss the calculation of the ERR for Bujagali, outline the broad range of benefits and costs to be included, and state that *"This section will also identify the direct impact of the project on poverty alleviation by estimating the economic impact of the project on low income households."*<sup>380</sup> **The Panel did not find evidence in the Economic Study or the PAD of any estimates of the economic impact of the Project on low-income households. The Panel considers that such analysis, in addition to the broader macroeconomic analysis undertaken in the Economic Study, should have been made during appraisal to provide a better understanding of whether the objectives of poverty reduction envisaged by OP 1.00 would be achieved.**

<sup>376</sup> Economic Study, Main Text, Table 2-5, p. 26.

<sup>377</sup> Uganda - Moving Beyond Recovery: Investment and Behavior Change for Growth, Report No. 39221-UG, World Bank, Sept 2007, V. 1, p. 25.

<sup>378</sup> Bujagali Economic Review, p. 42.

<sup>379</sup> Uganda - Moving Beyond Recovery: Investment and Behavior Change, for Growth, Country Economic Memorandum, , Report No. 39221-UG, World Bank, October 2007, Vol. II, Overview, p. 169.

<sup>380</sup> Economic Study, Appendix A, ¶ 26, p. 10.

## B. Financial and Governance Risks

381. According to OP 10.04, Bank staff must verify whether “*the legal and institutional framework either is in place or will be developed during implementation to ensure that the project functions as designed*” and whether “*critical private and institutional stakeholders have or will have the incentives to implement the project successfully*.” Assessing sustainability includes evaluating the project's financial impact on the implementing/sponsoring institution and estimating the direct effect on public finances of the project's capital outlays and recurrent costs.

### 1. Revenue Projections and the Institutional Framework

382. Section B of the PAD's Appraisal summary addresses the financial analysis of BEL and suggests that the Project's (i.e. BEL's) ability to withstand downside scenarios is robust against a 30 percent increase in EPC costs that is not fully recoverable by BEL, unrecoverable increases of 25 percent in O & M costs, a 50 MW shortfall in capacity at commissioning, and availability below 90 percent, as well as a project delay of up to 6 months.<sup>381</sup>

383. Section C of the Appraisal Summary and Section 12 of the PAD review the financial situation and prospects of the power sector. They outline the challenges and risks it faces, relating to: tariffs (including the recent increases relating to the costs of thermal plant and UMEME's revenue requirements, and future increases needed to cover system investments); the past and future performance of both UETCL and UMEME, distribution losses and uncollected energy bills; revenue shortfalls and government support through subsidies and debt service deferment; and IDA support under the Power Sector Development Operation.

384. Figure 3 and Figure 12.2 in the PAD depict projected revenue requirements and the projected tariff path to 2016. These graphs indicate the scale of the challenge, and the scale of expected revenue shortfalls. The PAD suggests that “*The projected revenue requirements and tariffs converge by the time the proposed project comes on line in 2011. Electricity tariffs would be fully cost reflective by then and subsidies would be removed, except for duty exemptions on generation fuel and transmission investments.*”<sup>382</sup> It estimates Government support to power utilities at US\$734 million for 2005-2011 and US\$85 million for 2012-16. Over the period 2005-16, the government is projected to collect net revues of \$US217 million: “*The power sector will be a drain on the Treasury until the proposed project is commissioned but a net contributor after.*”<sup>383</sup>

385. **The Panel notes that this statement in the PAD appears misleading and seriously at odds with the projected revenue stream of the Bujagali Project**, given the large shortfall until 2022 between the revenue to be raised by the tariff for Bujagali

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<sup>381</sup> PAD, p. 31.

<sup>382</sup> PAD, p. 34.

<sup>383</sup> PAD, p. 36.

proposed in the PAD, and the requirements of the capacity charge. This gap is explicit in the PAD figures, as is made clear below, and it is not clear from where else but the Treasury this gap will be bridged. In the Project's later years, the tariff revenues will exceed the capacity charge for Bujagali, which will relieve the Treasury of this burden and enable the resources to be re-couped. The statement quoted above, however, appears to be about cash flow, which is negative from the commencement of Bujagali operations until at least 2022. **The revenue gap that UETCL, in particular, will face, may lead to large, urgent demands on the GoU Treasury and potentially on the Bank via its Guarantee.** The possibility of both higher Project costs and significantly lower revenues will have a major bearing on whether the GoU guarantee of capacity payments under the PPA agreement is likely to be triggered.

386. Sensitivity tests were performed on the base case financial projections to 2016. The PAD's Table 12.8 shows the resulting percentage tariff impacts. The tests cover five "downside risks" and three "upside potentials" scenarios. The PAD states, however, that, "*Each of the sensitivities is considered in isolation, with all other assumptions in the base case remaining unchanged.*"<sup>384</sup> It would have been helpful to have applied these tests using a more comprehensive probability-based sensitivity analysis<sup>385</sup>, which would have enabled wider distributions of the values of each variable and their simultaneous variation to be taken into account, along with other variables such as changes in the US\$/US\$ exchange rate. **The likely tariff variations and the possible revenue shortfalls or surpluses and their implications for UETCL, UMEME and government net revenues are key sustainability concerns;** they matter for the future of the power sector, for electricity consumers, actual and potential, and for the GoU's ability to invest in key sectors and services.
387. Paragraph 95 of the PAD gives estimates of BEL's annual project revenues during the life of the senior loans (US\$137-187 million) and of "*the estimated hydropower electricity tariff in nominal and levelized terms [...]*"<sup>386</sup> The levelized tariffs for the low and high hydrologies respectively are 9.7 US\$/kWh and 5.7 US\$/kWh over the years 2011-2027 (Table 5). With expected outputs of 1165 GWh and 1991 GWh in the two hydrologies, these tariffs imply a stream of annual payments of US\$113 million, which UETCL would need to recover through the Bulk Supply Tariff. UETCL will also presumably need to recover at least the construction investment costs of the transmission line for Bujagali, which the PAD estimates at US\$55 million.<sup>387</sup>
388. As noted, the PAD indicates levels of 1165 GWh and 1991 GWh in the low and high hydrology scenarios. Using those figures, the PAD also shows that in a high hydrology scenario, Bujagali's lifetime (30 years) capacity charges could be recovered through a levelized bulk supply tariff (2.5 percent *per annum* inflation

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<sup>384</sup> PAD, Annex 12, p. 114

<sup>385</sup> A standard practice in Operations Research known as "Monte Carlo Analysis."

<sup>386</sup> PAD, p. 30.

<sup>387</sup> PAD, p. 17.

assumed, 2006 prices) of 5.7c/unit (Table 5, para. 95). The equivalent figure under low hydrology, calculated to have the same value, \$113m, is 9.7c/unit. Presumably this charge would be included in UETCL's Bulk Supply Tariff (BST), to be passed on to customers via UMEME and retail tariffs. The actual revenue generated for UETCL would however be less than \$113m, (25 percent less, at a conservative estimate) because of technical and commercial losses. By contrast, during the first 12 years of operation (the period of repayment of senior debt), the Bujagali annual capacity charge is actually estimated at an average of \$155m, with a peak of \$187m in 2022.<sup>388</sup> So the levelized tariff would leave UETCL with a substantial revenue shortfall in paying the Bujagali capacity charge.

389. It is then arguable how a levelized tariff will be set, given hydrological uncertainty.<sup>389</sup> Whichever levelized tariff is set, there will be a significant revenue shortfall, to be paid by UETCL, against the required capacity charge up to 2022, of \$32m, plus compensation for losses, *per annum* on average, peaking at \$74m plus in 2022. If the tariff were set at 8.4c but 2022 was actually a year of low hydrology, the revenue gap that year would rise to \$89m plus. UETCL's revenue shortfall should have been included in the PAD financial, cash flow and retail tariff forecasts. Moreover, the revenue forecasts assume collection rates rise from 54 percent in 2006 to 75 percent in 2013<sup>390</sup>. **The Panel expert considers that it would have been realistic to use a lower forecast recovery rate.** The possibility of both higher costs and significantly lower revenues will have a major bearing on whether the GOU guarantee of capacity payments under the PPA is likely to be triggered.
390. The PAD says that, "*The evacuation of maximum electricity output from the plant would require 100 km of transmission lines, the construction of a new substation at Kawanda, and the extension of the Mutundwe substation (the Interconnection Project).*" It points out that it would be built as a separate project and "*will be financed by ADB.*"<sup>391</sup> In the PAD's financial discussion and projections, it is not obvious where, if at all, the expected costs of the transmission project enter the projections and on what estimates they are based. Detailed consideration of supply options in the PAD's Annex 9 appears to exclude or under-estimate connection costs – see Table 9.5 which repeats the figures in the Economic Study. As noted in Chapter V, the actual bulk supply tariff which UETCL will pass onto the distribution sector, for inclusion in retail tariffs, should include an element for recovery of at least some of the BIP costs, which the PAD estimates at US\$55 million.<sup>392</sup>
391. This issue did not arise with the prior Bujagali project's evaluation because AESNP were investing in both the dam and the required transmission connection. In a communication to the Panel, Management has suggested that some elements of the

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<sup>388</sup> PAD, Annex 11, paragraph 10.

<sup>389</sup> One answer might be to use the low/high hydrology probability estimate of 79/21: on the PAD ¶ 95 basis, this would give an ex-ante levelized tariff of 8.4c/unit.

<sup>390</sup> PAD, Annex 12, p. 117.

<sup>391</sup> PAD, Annex 4, p. 61.

<sup>392</sup> PAD, p. 17.

cost of the new transmission arrangements might contribute to purposes beyond connecting Bujagali to the grid. Even so, in the Panel's view, to demonstrate compliance with OP 10.04, and in light of the varying estimates of the costs of the Interconnection project, the evaluation should have presented identifiable estimates of the impacts on electricity tariffs and of the challenge facing UETCL in recovering these costs, on top of the requirement to meet the capacity payments for the dam project.

392. The PAD states that *“One of the biggest challenges currently facing Uganda’s power sector are the high level of distribution losses (34.1 %) and non-collection rate (18%) as of December 2006.”*<sup>393</sup> Along with transmission losses of up to 5 percent, *“This means that at the end of 2006 approximately 49% of the energy sent out is not paid for. It will be crucial that loss numbers and collection rates improve again.”*<sup>394</sup> Collection rates rose from 80 percent at the start of the concession to 92 percent by May 2006 but after two tariff increases dropped to 82 percent by December 2006. As noted in Chapter V, the PAD recognises as a critical risk, the possibility that UMEME terminates its concession (in May 2006 UMEME was considering using an exit clause that allowed it to exit after 18 months<sup>395</sup>) and lists various approaches taken to address this, including IDA and MIGA risk coverage, and says that the concession structure was modified to protect UMEME from the impact of power shortages and reduced revenues,<sup>396</sup> *“Under the restructured concession, there will be a downside protection for UMEME, and benefits accruing from lower losses will be shared between UMEME and UETCL as long as the power crisis persists.”*<sup>397</sup>
393. The decline in fee collection rates suggests that UMEME's actual performance is likely to remain potentially vulnerable to tariff increases from a variety of causes, both external and internal. There are also risks that the technical and commercial losses will not be reduced as projected in the PAD. It remains to be seen, however, whether the requirement of OP 10.04 to verify that the institutional framework is or will be in place to ensure that the Project functions as designed, can be met. As noted above, UMEME faces vulnerabilities and the restructuring might have weakened their incentives to achieve the targets for reduced losses, enhanced collection rates and new connections envisaged in the load forecast and economic evaluation in the Economic Study.

## 2. Infrastructure Funds

394. The 2007 Country Economic Memorandum cited in the PAD states that, *“Special or extra-budgetary infrastructure funds have increasingly been started as a means to “protect” public funds from funding specific targets.”* Of the five funds listed in its

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<sup>393</sup> PAD, Annex 4, p. 108.

<sup>394</sup> PAD, p. 33.

<sup>395</sup> The World Bank, Implementation Completion and Results Report (Credit #3411-UG) for a Privatization & Utility Sector Reform Project, July 31, 2006, Report No: ICR-000041, p. 34.

<sup>396</sup> PAD, p. 23.

<sup>397</sup> PAD, Annex 12, p. 109.

Table 6-1, three (the Rural Electrification Fund, the Tariff Stabilisation Fund and the Credit Support Facility) are in the electricity sector. *“These special off budget funds are set up with sector specific institutions and regulations, and are partially funded with budget transfers (that rarely materialize) and own funds collected via levies, licenses and other fees administered directly by the fund without going through the budgetary annual process and controls. [...] It is recommended to review the functioning of some of these funds, and make their amounts public. Extra-budgetary funds as fashionable as they may be, bring drawbacks [...]”* The cited potential drawbacks include: misuse for purposes unrelated to the original purpose, potential allocation of excess funds outside the primary fund objective; and governance issues involving inter-temporal trade-offs of staggered spending.

395. The Memorandum then says, *“In general the proliferation of Extra-budgetary funds poses a serious fiscal threat in a poor country with weak governance systems and capacity. [...] Experience in other countries has shown that extra-budgetary funds create opportunities for waste and corruption in countries with weak governance structures. Uganda is no exception: the Tariff Stabilization Fund which was designed to smooth tariffs until the Bujagali hydropower project comes on stream is already being utilized to subsidize higher tariffs from thermal power generation. This Fund is also being used to fund selective rural electrification projects, despite the existence of a separate Rural Electrification Fund. Fiscal liabilities and contingencies created through extra-budgetary funds are not accounted for in the Government’s budget.”*<sup>398</sup>

396. **In light of these comments and of the scale of the revenue requirements, the financial risks accepted by UETCL and the Government, and the scale of the subsidies and guarantees involved in Bujagali, the Panel notes that Management should have explored further ways of managing and addressing these financial and governance risks, in the interests of project sustainability in accordance with OP 10.04.**

### **C. The Power Purchase Agreement and Associated Risks<sup>399</sup>**

397. This section examines the Power Purchase Agreement (PPA) and associated documents, and compares it in certain aspects with the PPA for the prior project (the 1999 PPA).<sup>400</sup>

#### **1. The Power Purchase Agreement**

398. In general terms, a power purchase agreement is a long-term contract between a generator of electricity and a purchaser. In the present Project, the PPA is a 30 year

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<sup>398</sup> Quotations in this paragraph are from Uganda - Moving Beyond Recovery: Investment and Behavior Change for Growth, Report No. 39221-UG, World Bank, Sept. 2007, V.II, paras. 6.75-77, pp. 194-96.

<sup>399</sup> This section is primarily based on the analysis provided by the Panel’s independent expert Mr. Graham Hadley. A summary of his analysis is found in Annex B of this Report.

<sup>400</sup> “Power Purchase Agreement, relating to the Bujagali Hydroelectric Project, between The Uganda Electricity Board and AES Nile Power Limited,” 8 Dec. 1999 (hereinafter “1999 PPA”).

contractual arrangement, signed in December 2005 and amended and restated in 2007 (the 2005 PPA)<sup>401</sup>, between the Project Sponsor, BEL, and the government entity in charge of transmission, UETCL. As indicated in Chapter II, under the 2005 PPA, BEL is to sell the contracted capacity of 250 MW exclusively to UETCL.

399. The terms of the PPA are critical in understanding how financial and economic risks of the Project are allocated, including who would bear the risk of low water flow and, correspondingly, low energy output (below capacity) of the hydropower facility.
400. **In the Panel’s opinion, the introduction of a cost-based formula in the 2005 PPA, instead of the maximum capacity charge specified in the 1999 PPA, is probably the single largest adverse contractual change for the power purchaser (UETCL) and its guarantors. The new contractual basis for the Project represents a significant shift in risk away from the project investors and lenders to the power purchaser.**
401. The formula and its effects can be described as follows. The formula for determination of the monthly capacity charge is in Annex D to the PPA. It is very complex, since the components are defined rather than priced, and all are subject to variation. In broad terms, the components are: development costs; EPC costs; tariff debt service reserve; working capital, and fees payable by BEL. All of these constitute Tariff Project Costs, plus equity repayment and return; debt repayment; GOU Equity (representing past development costs), and Operation and Maintenance (O&M) fees.
402. Some of these are treated as pure pass-through (fees, and elements of the O&M charge). Others are carefully defined as to the make-up of their “base” cost, and in some cases – including EPC costs - increases on the base are subject to a quantified percentage “cap”. The costs are subject to accountants’ inspection. However, the fact remains that, leaving aside debt repayment, BEL has considerable scope to shape the base costs and in some cases the increases too, to deliver a higher capacity charge.
403. Considerable potential delay is built in to the determination of the capacity charge (previous to which payments are on an interim basis). The charge must be set (the Final Declaration Date) within 2 months of production of a Final Cost Report, but that report need not be produced earlier than 6 months after the Final Draw Date, and that event (meaning the earlier of the final draws on equity or debt) in turn may be up to 18 months after the commencement of commercial operation. So 26 months may elapse after the start of operations before there is a determined capacity charge. And curiously there are no specific provisions for dispute resolution. The power purchaser may be relying on BEL to be motivated to move as quickly as possible from an interim capacity charge to the finally determined charge, but equally there is plenty of time as well as scope for BEL to shape the figures.

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<sup>401</sup> “Power Purchase Agreement, relating to the Bujagali Hydroelectric Project, between the Uganda Transmission Company Limited and Bujagali Energy Limited,” Dec. 2005 (hereinafter “2005 PPA” or “PPA”).

404. As was the case with the 1999 PPA, **the capacity charge is not related to output, so the payment will be the same under low hydrology (when the output may be halved) as with high hydrology.** Of course, hydrology is outside BEL's control. But the payments are also relatively invariant to plant availability, which is in BEL's control. A percentage reduction in availability (say 5 percent) would have to be sustained for a whole year before there was an equivalent reduction in the monthly capacity charge.<sup>402</sup>
405. **The Panel finds that for the Sponsor and its lenders, the terms and conditions of the 2005 PPA, especially those set forth in Annex D, seem to represent a low-risk (though potentially disputatious) means of managing and recovering costs which are, by definition, subject to uncertainty. For UETCL, the power purchaser, and its guarantors, by comparison, it means that there is no ceiling on capital costs and whether or not the Project delivers the direct economic benefits offered over 30 years, in terms of costs and tariffs which are, to a significant extent, outside their hands.**

## 2. Risks and Consequences Associated with the Project PPA

406. The increased risk borne by the power purchaser and its guarantors (the GoU and the World Bank) has significant consequences. The risks to which the Project is exposed, how the risks are shared, and possible consequences, include:
407. **Capital cost escalation.** If the capacity charge is set higher than present estimates, or rises subsequently, either tariffs must increase or additional subsidies are to be paid to UETCL.
408. **Currency depreciation.** For the current Project as for its predecessor, capacity payments are denominated in US dollars. As noted in the 2002 Inspection Panel's Investigation Report on the first Bujagali project, a 10 percent *per annum* depreciation of the Uganda Shilling (USh) against the US Dollar would double the price of the Project to Uganda in seven years. This would lead to tariff increase or additional subsidies to UETCL.
409. **Prolonged low hydrology.** A more pessimistic but more realistic view of hydrology has been taken for the Project as compared with Bujagali I. Nevertheless substantial uncertainty remains. Past hydrological patterns have shown great year-on-year volatility, so that both the "high" and "low" numbers used in the PAD are long-term averages only. The PAD illustrates how the cost of a unit from Bujagali rises dramatically in a "low" year. A levelized tariff may be set *ex-ante*, but if the actual hydrological pattern falls below that assumed for the levelized tariff, then the capacity charge shortfall will widen and the consequences will be those described above.

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<sup>402</sup> 2005 PPA, Annex D.

410. **Lower demand growth.** It is assumed that the demand growth rests both on continuing growth of demand from existing customers, and a high rate of new connections/customers, such that the number of customers almost doubles by 2012. If this growth does not occur, UETCL's revenues would fall, with possible abovementioned consequences. To illustrate, if Bujagali were operating today, its average capacity charge during the first twelve years would pre-empt over three quarters of total electricity sector revenues (customer payments) in Uganda.<sup>403</sup>
411. **Lower or static proportions of supply costs recovered from customers.** It has been assumed that this ratio will have risen to 75 percent by 2013. If it were to remain at the 2006 rate (54 percent), sector revenues would be 28 percent lower.
412. **Affordability.** If the PAD's economic analysis is proved correct, Bujagali's introduction will allow a reduction in (real) retail tariffs of at least 5 percent compared with current levels. Collection rates appear not to have been significantly affected by the large (approximately 80 percent) increases in the last three years, so the Project affordability on that basis does not seem to be subject to high risk (though new customers may reveal different price sensitivities – and produce different collection rates – compared with existing customers). However, if any of the risks above arise, this may (in the absence of subsidies) result in a tariff increase which would affect the affordability of electricity. In addition, it could also reduce demand and therefore reduce rather than increase revenues.
413. **Construction Delay.** Despite Liquidated Damages provisions penalizing the contractor, the costs of delay would be likely in practice to be shared via the PPA with the power purchaser. Extreme delay could require additional stop-gap generation. Otherwise, the main consequence of delay would be to defer for customers the main benefit of the Project, namely a reduction in power-cuts. Overall, this may be regarded as one of the lesser, or more manageable, economic risks.
414. **Withdrawal of the Developer/Operator.** This risk has been mitigated compared with the first Bujagali. The contractor is bound in for the construction phase, and subsequently would be replaceable as operator if not so easily as investor. The Panel notes that the Project provides for the Project to be bought out if necessary.
415. **Poor Plant Performance.** Although the PPA is generous to the owner-operator in the scale of penalties for low availability, this may be regarded as low-risk. In the extreme, the provisions for Company Default provide a safety net.

### 3. Risk Mitigation Measures

416. Physically and in its electrical impact, the present Project and its associated transmission project closely resembles the prior Bujagali project. The Project vehicle – a leveraged independent power project (IPP), including building and operating the plant and selling bulk power to the public utility under a long term contract (Power

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<sup>403</sup> PAD, Annex 12, p. 116.

Purchase Agreement - PPA), with IFIs and Government supporting both the loan finance and the PPA - is also conceptually the same. Although there are some changes in the loan and guarantee structures, the key contract documents (the PPA and Implementation Agreement) are also similar, even identical, in many respects.

417. As described in the previous section, there have been important changes in the PPA between the prior and present Bujagali Project that have had the effect of increasing the risk on the purchaser as compared to the project sponsor. At the same time, in the Panel's opinion, some other changes represent potential improvements – reduction of risk - for the present Bujagali Project as compared with prior project. Some of the changes most relevant for Project costs and risk are: 1) the Project was awarded to the developer/sponsor by competitive process, rather than single-track; 2) the World Bank Group has important links, independent of the Project, with one of the equity partners; and 3) increased provision has been made for the public electricity supply system to buy-back the Project in particular, low hydrology, circumstances.

- **Award of the project by Competition** The Panel acknowledges Management's statements that competitive solicitation of Independent Power Producer (IPP) projects is an international best practice aimed at ensuring the lowest market price consistent with technical fitness to carry out a project. This procedure is a marked improvement over the prior project. In this case, however, the benefits of competition were largely lost by post-bid negotiations, which allowed the price to rise by at least 28 percent before it was established. Further, the recent amendments to the PPA provide specific contractual scope for further upward revision.
- **World Bank Group links with the Equity partners.** The PAD notes IFC's equity contributions to one of the Project's sponsors, Industrial Promotion Services (Kenya). The importance of this, together with other safeguards regarding future changes in equity holding, is that it should reduce the medium/long –term risk of collapse precipitated by withdrawal of the sponsors. Since Global is an experienced and respected international IPP company (as was AES in 2001); should they wish to withdraw at a later date, however, it might be expected that IPS(K) could temporarily take over equity leadership and engage another experienced investor/operator – or provide a transition into public ownership. There appears to have been a change of mind-set since the prior Bujagali project – for that project the power purchaser and its guarantors took an arms-length approach, leaving it mainly to AES to overcome the planning and other local problems and propose solutions, whereas for the present Project it has been recognized at the outset that although BEL continues to take the lead, these problems will not be overcome without the involvement and long-term commitment of the public authorities. It is particularly important that public authorities should deal appropriately with the resettlement costs arising from local disruption at the dam and along the interconnecting transmission line. This could be an important factor in gaining public support, and thus reducing political risk.

- **Buy-back in case of Low Hydrology.** For both the prior and present Bujagali Project, the PPA and Implementation Agreements provide for buy back of the plant by UETCL under default conditions and certain *force majeure* events. In general terms, these provisions follow international norms. However, the present Bujagali PPA adds a new provision: UETCL may terminate the PPA and buy back the plant in the event of 30 consecutive months of “low water”. The Panel notes that this is an important safeguard because the cost of power from Bujagali, per unit, as determined by the PPA may become prohibitively high in a sustained low hydrology scenario, and in those circumstances it would be preferable for the public authorities to assume control, when they could stop paying the fixed capacity charge, smooth tariff effects and ensure that funds were available for alternative generation. While this provision is to be welcomed, two specific issues may need to be addressed. First, the low water trigger may have been defined too demandingly from the power purchaser’s perspective. Second, the payment terms for buy-out,<sup>404</sup> which provide that BEL can set the price broadly to equate to capacity payments foregone, seem generous to BEL, given that the plant will be in real trouble if this scenario occurs. The Panel nevertheless acknowledges the need for the sponsors and their lenders to look for protection against loss.

418. While these changes represent potential reduction of risk on the purchaser for the present Bujagali Project as compared with the prior project, the fact remains that other changes, in particular those described in section (b) and (c) above (the determination of a capacity charge by application of a cost formula, rather than a maximum charge), have created significant additional risk. Beyond this, the capital costs and total costs for the power plant have increased significantly in real terms

#### 4. Conclusions on Distribution of Risks

419. It is clear from the review of the Project documents that the greatest share of economic risks lies with the power purchaser. The capacity charge may be adjusted upwards if the developer/operator hits unforeseen costs, but not downwards if demand or supply conditions deteriorate for the purchaser. The Panel notes that in fact the lenders especially but also the investors are held harmless against all or most eventualities. However, in a crisis of non-affordability in Uganda such as might be produced by currency devaluation or very low hydrology, the investors and lenders may also be at risk, if the money to pay the capacity charge is not available. In these circumstances, buy-out is likely to provide the best solution.

420. **The Panel observes that the high allocation of risk to the UETCL, the power purchaser, and eventually the GoU increases the possibility that the Project may not achieve the broad objective of sustainable development and poverty reduction embodied in Bank Operational Policies and Procedures. This also increases the possibility of the Bank (IDA) Guarantee being called. The Panel is concerned that any additional GoU resources that are spent in the financing of**

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<sup>404</sup>Implementation Agreement, Annex J.

**the development and operation of this Project may lead to decreased resources available for social and other priority development programs.**

## **5. Disclosure of the PPA**

421. The Requesters state that the PPA was not adequately disclosed. They add that a photocopy was only belatedly (January 8, 2007) released for public review at the Uganda Electricity Regulatory Authority's (ERA) Office in Kampala and that viewers were required to read it only during office hours. The Requesters claim that this is in violation of the Bank's policy on disclosure of information.<sup>405</sup>
422. The Panel notes that OP 14.25 on Guarantees provides that "*Any investment project benefiting from a Bank guarantee must comply with all Bank safeguard and disclosure policies.*"<sup>406</sup> The Bank Policy on Disclosure of Information "*reaffirms its recognition and endorsement on the fundamental importance of transparency and accountability to the development process*"<sup>407</sup> and provides for the timely disclosure of a number of documents involving lending operations. However, there is no reference to the disclosure of third party documents such as the PPA.
423. The Inspection Panel notes that the 2002 Inspection Panel Investigation Report stated that it "*seems evident that (...) full disclosure of the PPA is vital if the intent is to place the public in a position to analyze, understand, and participate in informed discussion about viability of the Project and its impact on the economy and well-being of Ugandans. It is also evident (...) that according to IDA's policy, there is no specific requirement to disclose contracts to which IDA is not a party.*"
424. Management indicated that in learning from this prior Panel Investigation, "*the GoU committed to and implemented a stronger program of public disclosure. This project's Power Purchase and Implementation Agreements have been disclosed by the GoU.*"<sup>408</sup> Management adds that copies of the PPA were made publicly available at the ERA offices for a 30 day period starting on March 6, 2006, and again for an open-ended period, starting on January 8, 2007. Management considers that the GoU public disclosure of the PPA was "*a commendable and unusual step for a private sector transaction.*"<sup>409</sup>
425. Management further states that ERA's disclosure of "*commercial documents of this nature [was] a departure from standard industry practice, since such documents are frequently considered to be sensitive and confidential.*"<sup>410</sup> Concerning the method of disclosure, Management adds that it was understandable that ERA may wish to "*retain a measure of control over the circulation of the documents.*"<sup>411</sup>

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<sup>405</sup> Request pp 9-10.

<sup>406</sup> OP 14.25, para 5

<sup>407</sup> The World Bank Policy on Disclosure of Information (2002) as revised in March 2005, Part II, para 3.

<sup>408</sup> Management Response para 24.

<sup>409</sup> Management Response para 29.

<sup>410</sup> Management Response, Annex 1, item 25, p. 45.

<sup>411</sup> Management Response, Annex 1, item 25, p. 45

426. During its visit to Kampala, the Panel team visited the ERA offices and verified that a copy of the PPA was available to the public in a reading room.

## Chapter VII

### Involuntary Resettlement

#### A. The Requester's Claims and Management Response

427. The Requesters claim that the resettlement under the Project is not complete.<sup>412</sup> They raise multiple, interrelated involuntary resettlement issues, including loss of livelihood, under-compensation, inability to obtain secure land titles, lack of consultation, and request to share in Project benefits. They believe that the existing compensation and resettlement framework is outdated and does not reflect the current economic conditions in the Project area and of affected people. Furthermore, they claim that “There should have been a re-assessment of social costs and benefits of the compensation and resettlement exercise to reflect the current and future realities.”<sup>413</sup>
428. The Requesters assert that the consultations carried out in project preparation were not adequate because people were informed about the project but their participation in the decision-making process did not in fact occur. They believe that “*project proponents confuse consultation with true participation in a decision-making process*”.<sup>414</sup>
429. The Requesters also raise specific issues about the Naminya community, including the lack of secure tenure through land titles, unfulfilled promises made regarding accessibility to potable water and water tanks, defective latrines, schools, health centers, condition of housing, provision of electricity, a community center, a market, road maintenance, employment, and food and income sources such as adequate plots for farming, fish ponds, and more.<sup>415</sup>
430. Management firmly believes that this Project has been well prepared in accordance with Bank policies.<sup>416</sup> Management “*shares*” the Requesters’ concerns about resettlement issues, noting that the withdrawal of the prior project Sponsor left some social aspects “unfinished. The Response goes on to say that in this context the Bujagali Implementation Unit (BIU) maintained an active presence on the ground.
431. Management deals with the Requester’s specific claims using a three part framework they state is “*designed to ensure that local populations are fairly treated and their livelihoods improved.*”<sup>417</sup> They prepared two Assessments of Past Resettlement Activities and Action Plan (APRAPs) to address legacy issues and actions needed to comply with World Bank Group resettlement policies<sup>418</sup>: one for the hydropower

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<sup>412</sup> Request, p. 11.

<sup>413</sup> Request, p. 11.

<sup>414</sup> Request, p. 12.

<sup>415</sup> Request, pp. 15-17.

<sup>416</sup> Management Response, ¶ 51.

<sup>417</sup> Management Response, ¶ 50.

<sup>418</sup> Management Response, Annex 1, p. 38.

plant, the other for the Kawanda resettlement along the T-line.<sup>419</sup> These assessments were for people who had been moved by the prior Sponsor and were in the process of resettlement. In addition, Management had the Sponsor prepare a full Resettlement Action Plan (RAP) for those people who had yet to be moved along the T-line.<sup>420</sup>

432. Management states that “*all outstanding issues*” on the resettlement at the dam site will be resolved because the BEL and the BIU has committed to corrective activities including: completing the land titling process; providing new water supply hand pumps at 17 existing borehole locations in the surrounding communities; improvements to education facilities in the eight affected communities, and improvements to the health facilities at the Naminya resettlement site.
433. With regard to consultations, as part of the SEA Management completed an updated Public Consultation and Disclosure Plans (PCDP) discussing past and planned activities, posting both at the Project website. Management states that the consultation process includes continuous consultations with representatives from communities and clans.<sup>421</sup> The Response adds that, “*While it would be impossible to address “each of the stakeholders’” concerns, at all meetings with stake-holders, the developer has invited community representa-tives and community members to raise issues with regard to their involvement in the project.*”<sup>422</sup>
434. **Bank Policy** The provisions on Involuntary Resettlement constitute an important part of the World Bank’s safeguard policies and poverty reduction mandate. To avoid displacement-induced impoverishment, the Bank policy on Involuntary Resettlement, OP/BP 4.12, sets three objectives, all of which are applicable to the Bujagali project. Resettlement should a) be avoided where feasible, or minimized, exploring all viable alternative project designs. Where it is not feasible to avoid resettlement, b) resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits.<sup>423</sup> Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs, and (c) displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.<sup>424</sup>

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<sup>419</sup> Bujagali Hydropower Project Social and Environmental Assessment Main Report, Appendix I Assessment of Past Resettlement Activities and Action Plan (APRAP) December 2006 (hereinafter, “HPP-APRAP” See also Bujagali Interconnection Project - Assessment of Past Resettlement Activities and Action Plan (Kawanda Sub-Station). 5 Nov. 2006. (D059) (hereinafter “IP-APRAP”)

<sup>420</sup> Bujagali Interconnection Project - Resettlement and Community Development Action Plan. Dec. 2006 (D060). (hereafter “RCDAP”)

<sup>421</sup> Management Response, Annex 1, p. 40.

<sup>422</sup> Management Response, Annex 1, p. 40.

<sup>423</sup> The AfDB adheres to almost identical standards. African Development Bank Involuntary Resettlement Policy, November 2003 (D026) (“hereinafter AfDB IR Policy”) ¶ 3.3 (a).

<sup>424</sup> OP 4.12 ¶2.

435. To achieve these objectives and mitigate impoverishment risks attributable to a project, the borrower prepares a resettlement plan.<sup>425</sup> For the Project, World Bank policies and procedures required the Sponsor to identify impoverishment risk-related impacts and plan measures to mitigate them using an appropriate resettlement instrument.
436. The Panel notes that Management adopted non-standard Bank policy terminology for the Bujagali project, calling what is normally called a resettlement action plan (RAP) on the T-Line the Resettlement and Community Development Action Plan (RCDAP).<sup>426</sup> In their Response to the Panel, Management refers to the three frameworks (two APRAPs and the RCDAP) as Resettlement Action Plans “RAPs.”<sup>427</sup> Unrelated to these three documents and physical and economic displacement, the Sponsor also prepared a Community Development Action Plan.<sup>428</sup>

### **B. Changing Context: from the prior project to the present Bujagali Project**

437. The prior Bujagali project was divided administratively into two infrastructure components, one for the hydroelectric power plant (HPP), the other for the transmission line (T-line). The prior project sponsor, AES Nile Power (AESNP), assigned a single team for both resettlement programs and the same consultant prepared two Resettlement Action Plans (RAPs) under the then applicable Bank policy on involuntary resettlement OD 4.30, one for the HPP and the other for the T-line component.
438. AESNP’s withdrawal from the project in 2003 raised the issue of who would be responsible for the physical, institutional, and fiscal integrity of the on-going and pending involuntary resettlement activities.<sup>429</sup> During the preparation of the new project, Management states that continuity of consultations with project affected populations and villagers surrounding the hydropower site and the associated Interconnection Project was maintained by staff from UETCL, through its Bujagali Implementation Unit (BIU),<sup>430</sup> but other resettlement component investment was almost suspended.
439. When the prior Bujagali project was stopped, the resettlement process at the hydropower site had either physically moved or compensated about 8,700 people (1,288 households) excluding dependents, who lost assets in some form or another.<sup>431</sup>

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<sup>425</sup> OP 4.12 ¶ 6. The AfDB IR Policy refers to this as a “Full Resettlement Plan.” Annex A lists 16 elements.

<sup>426</sup> Management Response, Annex 1, No. 18-23. See also RCDAP and HPP-APRAP. Management use of non-standard Bank involuntary resettlement terminology for the names of their studies creates unnecessary confusion.

<sup>427</sup> Management Response, ¶50.

<sup>428</sup> HPP-APRAP, p. 4.

<sup>429</sup> Project Files, communication dated December 21, 2004.

<sup>430</sup> PAD, p. 40.

<sup>431</sup> The HPP-APRAP (p. 4) states that 8,700 individuals (1,288 households) were affected in one way or another, but discounts “dependents” who were declared as such by the household head during the socio-

Of these, 634 people (85 households) had to move from their domiciles.<sup>432</sup> Thirty-five of the 85 physically displaced households resettled in Naminya, a 48.6 hectare site<sup>433</sup> approximately 5 kilometers from the dam site, the remaining 51 relocated without resettlement assistance using the cash compensation paid by AESNP.

440. In contrast, AESNP had made less progress on the T-Line involuntary resettlement which stretched along a 100 kilometer narrow corridor. In 2001, it had anticipated 5,796 people were to be displaced (1,183 households), of whom 1522 individuals (326 households) were projected to be physically displaced from their residence. Of these, an estimated 900 individuals (184 households) would need to be resettled with the assistance of the Company. As of 2005, only 27 households had relocated, most of whom took cash compensation.<sup>434</sup> Eight households opted for resettlement packages with project-constructed new housing near Nansana about 19 kilometers from Kawanda (although closer to Kampala).<sup>435</sup> On the basis of the figures available in Project documents, the Panel's expert on involuntary resettlement matters has calculated that, through route optimization along the T-line, the new Sponsor reduced the number of physically displaced households from 326 (in 2001) to 120 (in 2006), despite an increased number of displaced persons from 5060 to 5796 individuals along the Right of Way.<sup>436</sup>
441. After the termination of the prior Bujagali project, Management and the GoU restructured the ownership and financing of the T-line to be a public project. UETCL assumed responsibility for the resettlement, compensation, and associated community development, excluding those who had been displaced by the previous Sponsor.<sup>437</sup> Management states that a key reason for this change in the financing and ownership structure was the concern that additional financing for the transmission line could have an impact on the "financibility" of the power plant.<sup>438</sup>

## **1. Management's decision to assess past resettlement activities and prepare action plans**

442. This Project presented a rather unique situation where some of the affected people were relocated or compensated as part of a Resettlement Action Plan approved by the Bank in the context of a prior project with the same location, characteristics and area of impact. What follows is a description of how Management dealt with this issue and the concerns raised by the affected people.

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economic survey, some of whom may be children over 18 years, or other dependents that the Sponsor felt were "not household members in sociologic or economic terms." This deduction adjusts the displaced persons ("project-affected people" in their terminology) down to 5,158 individuals. .

<sup>432</sup> HPP-APRAP, p. 50. In 2001, AES estimated that 714 people (101 households) would be physically relocated.

<sup>433</sup> HPP-SEA, p. 351.

<sup>434</sup> IP-APRAP, p. 7.

<sup>435</sup> IP-APRAP, ¶1.4.

<sup>436</sup> Panel comparison of RCDAP (2001) Table 6.4, pp. 6-11 to RCDAP, pp. 35, 67.

<sup>437</sup> Project Files, communication dated Jan 18 and Jan 23, 2008.

<sup>438</sup> Project Files, communication dated Jan 18 and Jan 23, 2008.

## 1.1. Terms of Reference for the Assessments of Past Resettlement Activities and Action Plans

443. Management divided the displaced peoples into two groups: those who had been displaced in 2001 and those awaiting displacement along the T-line. These groups roughly correspond to the Project's infrastructure components. The Panel notes that the 2006 Social and Environmental Assessment (SEA) applied markedly different involuntary resettlement TOR to each group.
444. Along the T-line, a full Resettlement Action Plan was prepared for those to be displaced (Resettlement and Community Development Action Plan or RCDAP).<sup>439</sup> The TOR called for an assessment and update of the prior 2001 RAP and provide additional new information as required to complete the RAP requirements to current standards (OP/BP 4.12).<sup>440</sup> Elements of the RAP mentioned include standard RAP elements provided for in the Bank policy: identifying affected peoples and their assets, providing a framework for consultation affected peoples and third parties, analysis of the legal and institutional framework, resettlement and compensation approach, impact identification based on satellite images with ground confirmation, provisions for monitoring and evaluation, grievance management, attention to vulnerable people and groups, budget and schedule. The T-Line RAP TOR also required examining the results of compensation strategy and approach and an updated socio-economic baseline, supplementing the 2001 baseline. The TOR further required a distinct socio-economic census and evaluation of those to be physically or economically displaced (center-line survey), consistent with Bank procedures.<sup>441</sup>
445. At the hydropower site and at Kawanda on the T-Line, Management did not require a full Resettlement Action Plan for those who were in the process of resettlement. The TOR for an Assessment of Previous Resettlement Activities and Action Plan (APRAP) stated that based on "*preliminary field observations and consultations with local leadership in project-affected villages and the Bujagali Implementation Unit*" it appeared that the prior project Sponsor had "*largely completed compensation and resettlement work before its departure.*"<sup>442</sup> As part of the SEA, BEL was asked "*to verify this general observation by preparing a detailed monitoring of the status of those compensation and resettlement activities with commitments made in the earlier Resettlement and Community Development Action Plan (RCDAP).*" Should this monitoring identify outstanding issues, a corrective plan was to be prepared in consultation with potential involved stakeholders for subsequent implementation.<sup>443</sup>

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<sup>439</sup> Bujagali Interconnection Project, Uganda Social and Environmental Assessment: Terms of Reference. June 2006, (hereafter, "IP-TOR"), pp. 11-12.

<sup>440</sup> IP-TOR, p. 11.

<sup>441</sup> IP-TOR, pp. 11-12.

<sup>442</sup> Bujagali Hydropower Project, Uganda Social and Environmental Assessment Terms of Reference, June 2006 (D081 (hereafter, "HPP-TOR"), p. 9. The TOR read: "... it appears that the previous project sponsor largely completed compensation and resettlement work ..."

<sup>443</sup> HPP-TOR, p. 10, p. 17.

446. The APRAP Terms of Reference also required BEL to conduct a “*socio-economic survey of the project-affected area at the hydropower site to characterize the socio-economic conditions and livelihoods of the people living in the eight project-affected communities,*”<sup>444</sup> which include many people who were not being displaced, though they are affected by the Project. This should be done by supplementing the 1999/2000 the socio-economic baseline survey. In addition, BEL was asked to “*undertake a socio-economic and livelihood survey to monitor the current status of the previous Sponsor’s resettlement activities*” and check the status of public services in the Project area.<sup>445</sup> This sample survey was to be used to “*assist*” in the establishment of “*the socio-economic baseline*” for the affected communities and “*check the status of livelihood restoration and related commitments made in the 2001 RCDAP.*”

## **1.2. The Assessment and Action Plan: compliance with Bank policy on Involuntary Resettlement**

447. From a policy perspective the Panel notes that this Project involves rather unusual circumstances: an ongoing, incomplete resettlement program which was developed under a previous Bank-financed operation and was based on a policy no-longer applicable, OD 4.30, which had the same overall objectives of the policy now applicable to the Project: OP/BP 4.12.<sup>446</sup> Both the old and new policy call for a Resettlement Action Plan (RAP) consistent with the policy objectives and in compliance with specific policy and procedural requirements. In this Project, Management chose instead to develop and build on an Assessment of Past Resettlement Activities and Action Plan (APRAP) rather than to develop a new RAP, with the justification that affected people had already been relocated and others had already received compensation under the prior project. An “*Assessment of Past Resettlement Activities and Action Plan*” is not a resettlement instrument referenced in Bank policy. However, regardless of the terminology, the Panel considers that the overriding issue is whether the TOR and subsequent Action Plan meet the objectives and requirements of the Bank policy on Involuntary Resettlement.

448. In the Panel’s view to achieve compliance with the Bank policy the APRAP should have included the elements of a RAP as defined in the policy and used by Management in the T-Line part of the Project. The hydropower and Kawanda APRAP TOR and its implementation did not incorporate the policy objectives and specific requirements and did not take into account shortcomings in the design and execution of the previous RAP, and evolving social and economic situations and circumstances.

449. The Panel could not find an adequate “*socio-economic survey of the project-affected area at the hydropower site to characterize the socio-economic conditions and*

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<sup>444</sup> HPP-TOR, p. 9.

<sup>445</sup> HPP-TOR, ¶ 2.3.1, p. 9.

<sup>446</sup> OP/BP 4.12 replaced OD 4.30, *Involuntary Resettlement*; these OP and BP apply to all projects for which a Project Concept Review took place on or after January 1, 2002.

*livelihoods of the people living in the eight project-affected communities*” as required by the TOR.

450. Moreover, Management opted to complete an assessment and action plan based on selective fulfillment of commitments made under an outdated RAP that had been shown by the previous Inspection Panel to have a deficient baseline, rendering inconclusive any findings on livelihood restoration. Situations not adequately considered before or that arose in the interim period were not appropriately dealt with because of the lack of an adequate baseline assessment. **This does not comply with OP 4.12. This led to action plans that did not meet the policy objectives and requirements.**
451. The Panel found no formal monitoring or evaluation supporting the assertion that the involuntary resettlement was “largely completed”, the reason stated for forgoing a full RAP preparation, as required by OP 4.12. **The Panel finds that the hydropower APRAP failed to assess and update the previous 2001 RAP and provide additional new information as required to complete the RAP requirements to current standards (OP/BP 4.12).<sup>447</sup> This does not comply with OP/BP 4.12.**
452. Substantive instances of non-compliance of the APRAP include, *inter alia*:
- The failure to assess and update the previous 2001 RAP disenfranchised any stakeholders not previously identified in 2001, including vulnerable people who slipped through the flawed sampling,<sup>448 449</sup>
  - Information gathered on the displaced persons’ livelihoods and standards of living as required by OP 4.12 ¶ 6(a) was limited to a sample survey, making it very difficult to determine whether the resettlement is achieving its objectives;
  - The shortcomings in the original resettlement plan were carried forward.
  - Livelihood restoration was mainly limited to the people identified in 2001 and the terms and conditions set forth in 2001
453. The Panel notes that resettlement is a process, not a threshold defined by the moving of people or acquisition of land, and the degree of progress of previous resettlement efforts does not exempt the Project from meeting the requirements of a RAP as envisioned in the Bank policy.
454. The way an Assessment and Action Plan was substituted for a full RAP on the hydropower and Kawanda segments had far ranging consequences. Following the TORs, BEL prepared an assessment of the progress in the execution of the Bank-approved old RAP, and recommended recovery activities where it observed gaps. The

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<sup>447</sup> IP-TOR, p. 11.

<sup>448</sup> The AfDB makes explicit references to a situation such as the present Bujagali Project, in which a Category 1 ESIA has been completed prior to Bank involvement in the project, OPs may request the Borrower to carry out additional public consultations and to prepare a disclosure plan, as deemed necessary (AfDB D 021 ¶ 5.8).

<sup>449</sup> HPP-TOR, pp. 13-14.

studies did not include an evaluation of the impact of the delay on the socio-economic conditions of the Project or an assessment of whether or not the previous Sponsor complied with either the former or current Bank’s resettlement policy objectives. Consequently, the new Sponsor resettlement responsibility to the people who were in the process of being resettled was circumscribed to certain outstanding commitments that the new Sponsor wished to recognize. The critical policy requirement to census all displaced persons as of the project baseline was neglected – a decision undermining much of the policy objectives.<sup>450</sup> The public consultation process, an integral part of a RAP, was truncated, predefining the consultations to on-going issues, rather than including all aspects of the Project.



Picture 7 Panel meeting with people to be resettled under the Interconnection Project

## 2. Baseline socio-economic data

455. In the Requesters’ opinion, the existing compensation and resettlement frameworks do not reflect the current economic situations of the people and include out of date information. They believe that the Project should have provided for “*a re-assessment of social costs and benefits of the compensation and resettlement exercise to reflect the current and future realities.*”<sup>451</sup> Management claims that the APRAP took into account new conditions; for example it includes actions to address vulnerable

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<sup>450</sup> OP 4.12 ¶14 and OP 4.12 Annex A, ¶ 6(a). Rather than a full census, Management directed the Sponsor to assess a sample of displaced persons at the HPP in 2006. They divided the PAPs into three groups: resettlers at the Naminya resettlement site, non-resettled physically displaced persons, and non-physically displaced persons. The assessment encountered a limitation. Management required a 100% survey of those resettled in Naminya. The study team identified only 24 of the 34 households (71%). Management set a 50 per cent sample of the non-resettled, physically displaced persons: only 18 of the 51 could be found (35%). Of the remaining non-physically displaced people, Management set and achieved a 5 percent sample (60 of 1203 households). (APRAP, p. 10).

<sup>451</sup> Request, p. 11.

people's needs. In Management's view, BEL's social evaluations are in "*full compliance with World Bank policies.*"<sup>452</sup>

456. OP 4.12 requires gathering of baseline information, including a census survey of current occupants of the affected area, standard characteristics of the displaced households (including production system, labor, and household organization), baseline information on livelihoods and standards of living, the magnitude of expected loss, and information on vulnerable groups.<sup>453</sup> Operationally, a broader survey on the occupants of the affected area is accompanied by a detailed survey of people to be displaced – meaning those who will be physically and/or economically displaced. In addition, the RAP, should also include "*provisions to update information on the displaced people's livelihoods and standards of living at regular intervals so that the latest information is available at the time of their displacement.*"
457. A full RAP also sets disclosure and consultation requirements for projects involving involuntary resettlement,<sup>454</sup> including the requirement that displaced persons and their communities are to be provided timely and relevant information, consulted on resettlement options, and offered opportunities to participate in planning, implementing, and monitoring resettlement.<sup>455</sup> Appropriate and accessible grievance mechanisms are to be established for these groups.<sup>456</sup> Measures are to be in place to ensure that vulnerable groups, such as the landless and are adequately represented.<sup>457</sup> Data collection on the socio-economics of displaced households also offers an avenue for displaced persons to communicate their concerns to Management, and as such is part of the overall consultation strategy.<sup>458</sup>
458. Apart from consultation with the displaced persons themselves, in preparing the resettlement action plan, Management is to ensure that the borrower (or Sponsor in this case) draws on appropriate social, technical and legal expertise and on relevant community-based organizations and NGOs and informs potentially displaced persons at an early stage about the resettlement aspects of the project and takes their views into account in project design.<sup>459</sup> World Bank policy also directs Management to discuss the institutional, legal and consultative arrangements for resettlement with the agencies responsible for implementing the resettlement program.
459. The Sponsor was directed to conduct household interviews with a sample of affected people to assist in establishing the socio-economic baseline of affected people. According to the Assessment and Action Plan a sampling of affected people, based on a 2000-2001 database developed by AESNP and later maintained by the BIU, was interviewed to carry out the survey. Project Affected People (PAPs) were divided into

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<sup>452</sup> Management Response, p. 39.

<sup>453</sup> OP 4.12, Annex A ¶6(a)(v).

<sup>454</sup> OP 4.01 fn 19 and OP 4.12 ¶2(b). See also AfDB IR Policy.

<sup>455</sup> OP 4.12 ¶13(a) and OP 4.12, Annex A, ¶15a.

<sup>456</sup> OP 4.12 ¶13(a).

<sup>457</sup> OP 4.12 Annex A, ¶15(d).

<sup>458</sup> OP 4.12 Annex A, ¶6.

<sup>459</sup> OP 4.12 ¶19.

three groups: resettlers at the Naminya resettlement site, non-resettled physically displaced persons, and non-physically displaced but only a sample of displaced persons at the HPP in 2001 was assessed in 2006.<sup>460</sup>



Picture 8 Panel team meeting with people resettled at Naminya

460. The APRAP indicates that the survey encountered a limitation. Management required a 100 percent survey of those resettled in Naminya but the study team identified only 24 of the 34 households (71 percent). Management also set a 50 percent sample of the non-resettled, physically displaced persons: only 18 of the 51 could be found (35 percent). Of the remaining non-physically displaced persons, Management set and achieved a 5 percent sample (60 of 1203 households). Nonetheless, comparable problems of finding the displaced persons appeared: seven of the eight resettled at Nansana were consulted, and none of the remaining 19 households who opted for cash compensation could be located.

461. Following AESNP's withdrawal, monitoring of affected people was limited by lack of available resources allocated for this purpose.<sup>461</sup> According to Management, the database of affected people, established in 2000/2001 by AESNP was maintained by a unit of the Uganda Electricity Transmission Company Ltd (UETCL)'s, the BIU. The APRAP notes that the BIU has tended to focus on the Naminya resettlement site, while *"for lack of resources, the BIU has been at pains monitoring non resettled affected people, particularly those who have moved out of the area, or those who were not permanent residents of the area, such as the numerous "licensees"(sharecroppers)."*<sup>462</sup>

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<sup>460</sup> HPP-APRAP, ¶2.4, p. 10.

<sup>461</sup> Project Files, communication dated July 21, 2004.

<sup>462</sup> HPP-APRAP, p. 11.

462. The APRAP acknowledges that “the whereabouts of many people, who received compensation in 2001, are unknown” and notes that a concern arose for those who were “significantly affected and were considered as Displaced People but did not opt for AESNP’s resettlement assistance, and chose rather to relocate themselves.”<sup>463</sup> The APRAP also recognizes the need to reestablish monitoring of the non-resettled population.<sup>464</sup>
463. **The Panel notes that the survey conducted by BEL cannot be considered a census of economic or social conditions as defined in OP 4.12.**<sup>465</sup> The profiling of affected people was based not on actual field work but rather on socio-economic surveys that had been undertaken by the previous project Sponsor and on more recent surveys, which were conducted only for select groups to audit past resettlement activities and other affected villages.<sup>466</sup> In fact, as noted above, the TOR approved by Management directed the new Sponsor to assess only a sample of displaced persons.<sup>467</sup>
464. **The Panel also finds that the approach to consultations with people who had moved and had been compensated is not consistent with the involuntary resettlement policy.** The consultation strategy was structurally flawed because it excluded the majority of displaced persons and limiting the scope of consultations to previous commitments.
465. The Panel notes that significant weaknesses in the process of gathering socio-economic data, an activity central to the preparation of a RAP, were also identified in the 2002 Panel’s Investigation Report. In that Investigation Report, prepared following the submission of a Request for Inspection related to the prior Bujagali project, the Panel found that

*While the importance of baseline socioeconomic survey is noted in the RAP as part of the planning process, very little of it is evident in the EIA in way that would be useful in establishing actual planning baselines. Socioeconomic data were collected as part of the land valuation process on a transaction-directed basis. There is no evidence of the utilization of a free-standing survey of affected households including, most importantly, those who were to be physically displaced.*<sup>468</sup>

Based on the foregoing, **the Management’s claim that the Project took the first Panel’s report findings into account in the preparation of the current Project is not accurate because significant weaknesses in the process of gathering baseline**

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<sup>463</sup> HPP-APRAP, ¶2.6.1, p. 11.

<sup>464</sup> HPP-APRAP, p. 31.

<sup>465</sup> HPP-APRAP, p. 10.

<sup>466</sup> Bujagali Hydropower Project Social and Environmental Assessment Main Report, Appendix (hereafter “HPP-PCDP”), Table 3.2.

<sup>467</sup> HPP-APRAP p. 10.

<sup>468</sup> Inspection Panel Report 2001 (D273), p. 77-78.

**data information were similarly identified in the 2002 Panel Investigation Report.**

### **C. Livelihood Restoration**

466. The Requesters question whether livelihood restoration is occurring among the displaced persons. This touches the principal objective of the involuntary resettlement policy. Displaced persons should be assisted in their efforts *“to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher”*.<sup>469</sup> In the policy, the objective is structured as reaching a threshold from a baseline, not a sequence of activities: *“not merely restored, but... improved” “at least to restore...to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher”*.<sup>470</sup>
467. Cash compensation is not a policy objective.<sup>471</sup> Cash compensation alone is insufficient to restore livelihoods. Leading social research has established that cash compensation fails to perform the restorative function that economics and development policies ascribe to it; the number of resettlers who, after compensation is paid, remain worse off and do not recover are the majority in many projects.<sup>472</sup> Policy preference is given to land-based resettlement strategies, particularly among agricultural populations.<sup>473</sup> When compensation is appropriate, policy requires it be made at *“full replacement cost”* for loss of lands and other assets.<sup>474</sup> Compensation should be made prior to their actual move or before taking of land and related assets or commencement of project activities, whichever occurs first.<sup>475</sup>
468. In its investigation, the Panel learned that livelihoods of affected people have been disrupted for some seven years, stemming back to the beginning of relocation and resettlement actions under the prior Bujagali dam project. During this period, many of the people that were originally displaced were essentially left in limbo, and did not receive key elements of the resettlement process to which they were entitled under Bank policy. Also, as a consequence of the project’s “hiatus,” certain of AESNP’s commitments to regulators and the communities under its resettlement and community development plans were not fulfilled.

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<sup>469</sup> OP 4.12 ¶ 2(c)

<sup>470</sup> The annexes to the policies define procedures to guide Management and the Sponsors to achieve these objectives. (OP 4.12 Annex 1, BP 4.12, and African Development Bank Involuntary Resettlement Policy, November 2003. ¶ 4.1)

<sup>471</sup> OP 4.12 ¶ 11 and 12.

<sup>472</sup> Cernea, M. (2001). Development Economics, Sociology, and Displacement: A Vexing Dilemma under Interdisciplinary Dialogue. Draft Paper prepared for the Workshop: “Moving Targets: Displacement, Impoverishment and Development Processes” Cornell University, November 9-10, 2000.

<sup>473</sup> OP 4.12 ¶ 11.

<sup>474</sup> OP 4.12 ¶ 6(a)(iii).

<sup>475</sup> AfDB IR Policy ¶ 3.3(e).

469. The Panel observes that the effects on the people of the original displacement, and of the ensuing delay, have not been fully reflected in the APRAP. Specific issues relating to livelihood restoration, including Project's impact on fisheries and agriculture, compensation, vulnerable people, are reviewed in more detail below.

### 1. Method to assess livelihood restoration

470. The Panel notes that no adequate socio-economic study was carried out. The APRAP methodology identified livelihood issues through interviews and opinion surveys with displaced people. Displaced persons and host communities were asked six to nine open-ended questions in focus groups, as were key informants from the health, education and political sectors. For example, focus groups were asked "*how do you compare your current livelihood (including cash and subsistence) with what it was before compensation and resettlement? Do you think it was equal, better or worse?*"<sup>476</sup>

471. The hydropower APRAP included interviews with 24 households resettled at Naminya and with 18 households physically displaced persons who were compensated, but not resettled by the Project (equally divided by men and women on both banks of the Nile). Both groups reported mixed opinion as to whether their livelihood restoration had occurred. Some people stated that they were better off than before displacement, though this assessment seemed to include all aspects of their life, not only livelihood restoration. Other people claim to be worse off than before, in general because of loss of fishing opportunities, loss of fruit trees and loss of agricultural land and smaller size replacement land.<sup>477</sup> These interviews also qualitatively indicated that key livelihood risks, known to appear in many other involuntary displacements, have materialized in the Bujagali project. Those interviewed told of failed businesses, new costs incurred to procure potable water, local price inflation preventing full replacement costs of land, loss of sustainable incomes, gender inequality, and more.<sup>478</sup>

472. The APRAP for Kawanda concludes that five years after resettlement, livelihood is not restored for three out of the seven of the interviewed resettlers. At the settlement of Nansana, for example, the opinion survey reports again mixed opinions as to whether or not livelihood restoration has occurred. It found that "*livelihoods are not restored, and some households need to be supported in their efforts to restore them: these are not houses living in a household economy anymore (if they ever were), and they need to be supported in non-farming activities.*"<sup>479</sup>

473. The Panel observes that the APRAPs' conclusion is unreliable. Livelihood restoration economics encompasses many dimensions that cannot be evaluated using an opinion survey due to inter-respondent variation in interpretation of such a general question.

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<sup>476</sup> HPP-APRAP, p. 92.

<sup>477</sup> HPP-APRAP, p.17, 21.

<sup>478</sup> HPP-APRAP, pp. 77-93.

<sup>479</sup> IP-APRAP, p.12.

During its visit to the Project area and meetings with affected people, the Panel team observed that those questioned had difficulty focusing their responses to a question that simultaneously asked for opinions on changes to their lives on at least two issues over a six year period.<sup>480</sup> The methodology used to assess livelihood restoration did not compare the 2006 livelihood status of the resettlers to their previous conditions. Nor did it set a new 2006 baseline for future actions. This methodology was ambiguous as to what was and was not being measured and, as a result, it produced only a list of unfulfilled promises left over by the prior project.<sup>481</sup> **In the Panel's view, the methodology used to assess livelihood restoration in the context of this Project, while suggestive of issues, cannot substitute for an economic analysis of the livelihood risks and restoration.**<sup>482</sup>

## 2. Real or perceived unfulfilled promises made in the prior project

474. At the hydropower site, the APRAP survey found that the people believe that a number of promises made by the previous Sponsor were left unfulfilled, including employment, electricity – including transmission lines –, landing sites, good potable water, technical schools, secure land titles, health centers, primary school in Naminya, a market place in Kikubamutwe, durable houses, fish ponds, road repair, five years of support, and monitoring.<sup>483</sup> At Nansana, some resettlers felt there was a promise of a school, a health facility, improved roads, a 30 percent disturbance allowance, and secure titles.<sup>484</sup>
475. Management claims that BEL and the BIU “*are now resolving all outstanding issues*” and have committed to address the issues left unfulfilled by the previous sponsor.<sup>485</sup> The Assessment also claims that its purpose is “*to assess whether AESNP’s commitments to comply with the publicly released RCDAP were met. Where gaps are observed, recovery activities are recommended.*”<sup>486</sup> On the other hand, the Public Consultation and Disclosure Plan (PCDP) states that it is “*committed to resolve certain of these past resettlement issues in the immediate future and prior to construction initiation.*”<sup>487</sup>
476. The Panel notes a lack of method for deciding what promises were or were not made, which would or would not be honored and the timeframe for completing the

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<sup>480</sup> HPP-APRAP, p.21 ¶ 4.3.4

<sup>481</sup> HPP-APRAP, ¶ 4.3.2, p. 11.

<sup>482</sup> Cernea, Michael M. ed. *The Economics of Involuntary Resettlement: Questions and Challenges*. Washington, D.C.: The World Bank, 1999. See also, Cernea, Michael M. and Scott Guggenheim 1994. *Resettlement and Development*. The Bankwide Task Force Review of Project Involving Involuntary Resettlement 1986-1993 (with contributions from task-force members: W. van Wicklin III, D. Aronson, A. Salam, L. Soeffestad, D. Tewari, T. Solo) Washington, DC, the World Bank. Environment Department.

<sup>483</sup> HPP-APRAP, pp. 21, 63, 64,65,68,71, 76, 79, 83, 90, 91, 95, 98, 100, 105,106.

<sup>484</sup> IP-APRAP, p. 16.

<sup>485</sup> Management Response, ¶ 30.

<sup>486</sup> HPP-APRAP, p. 4.

<sup>487</sup> Bujagali Interconnection Project - Public Consultation and Disclosure Plan Dec. 2006 [hereinafter “IP-PCDP”] p. 48, to the T-line and Nansana. The same statement is made with reference to unfulfilled promises in the HPP-SEA, p. 310 and in HPP-PCDP, p. 47.

resettlement activities,<sup>488</sup> while the Bank’s safeguard policies require that the resettlement plan define clearly these activities and provide a schedule for their implementation.<sup>489</sup> The fact that the same promises were mentioned on different occasions, at different sites and by different people who are identified with the Project adds credibility to specific promises. Affected people may misunderstand what they are entitled to. **The Panel notes that lack of clear communication with affected people to address the concerns of the displaced persons with regards to the commitments made by AESNP, risks leaving the Bujagali project with contentious, unresolved issues.**

### 3. Specific Livelihood Risks

477. The APRAP and consultations identified livelihood issues where displaced persons stated that they were “worse off” than before. Key among these were the loss of fishing opportunities and the loss of agricultural land and other sources of livelihood, including concerns about the loss of fruit trees grown for income and personal consumption/nutrition.<sup>490</sup> The APRAP concludes that there were incomplete or insufficient livelihood restoration activities, leading to potential hardship on certain categories of affected people.<sup>491</sup> The Panel examined the most significant livelihood impoverishment risks.

#### 3.1. Fishing

478. The Terms of Reference for the SEA instructed BEL to “*assess fishing practices and livelihoods*” in relation to fisheries in the Nile river. BEL was to do this by reviewing earlier surveys conducted for the prior project and “*assess any significant changes.*” As a result, BEL would “*propose any interventions that may be needed in response to the anticipated effects of the hydropower development, by means of socio-economic surveys of fisheries in the project-affected area.*”<sup>492</sup>

479. The 2006 Assessment found that it is “*quite likely that the significance of fishing has in fact been underestimated when planning resettlement and compensation, particularly for physically displaced peoples on the East Bank.*”<sup>493</sup> The 2001 RAP had estimated that only 10 percent of the displaced persons were fishing, mostly on the East bank of the Nile.<sup>494</sup> No compensation or assistance was made following

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<sup>488</sup> See ¶ 500-503 of this report that discusses the issue of electricity being provided to the displaced.

<sup>489</sup> See also infra “Overall Conclusions on Livelihood Restoration.”

<sup>490</sup> APRAP, p.17, ¶ 3.4.3.

<sup>491</sup> APRAP, p. 31, ¶ 6.1.

<sup>492</sup> HPP-TOR, p. 7, ¶2.2.2.

<sup>493</sup> HPP-APRAP, p.17, ¶ 3.4.3.

<sup>494</sup> HPP-APRAP, p. 17, ¶ 3.4.3. The National Fisheries Resources Research Institute (NaFRRI) completed a study showing its significance a year before the 2001 RAP (NaFRRI Aquatic and fishers survey of the Upper Victoria Nile: A report prepared for AESNP, Second Quarter 5-14 April 2000. p. 104.) Male resettlers in Naminya consistently reported that the loss of fishing opportunities had been their most important loss (HPP-APRAP, p. 33, ¶ 6.3.2). An April 2000 survey of a fishing transect near the dam site discovered a small industry of 50 canoes, 89 fishermen, 22 traders, 6 vendors, a net repairman, and a fish cleaner. Displaced persons expressed a loss of fish in their diet, including among children (Bujagali

resettlement for this loss of livelihood, now stretching into its seventh year. To the contrary, the displaced complained that the Project had further limited livelihood opportunities by restricting their access to the river and may have not even paid for fish ponds that were taken.<sup>495</sup>

480. Among other problems, fishermen were settled much farther from the fishing areas, lacked transport to get there, and have had their access even to these areas restricted by fencing connected with Project activities. There is a strong belief that promises to restore their livelihoods were not kept, and feelings of great frustration.
481. The 2006 Assessment considered a fishery development program for the resettlers to be of “*critical importance*” in livelihood restoration.<sup>496</sup> Despite this categorization, planning for livelihood restoration in fishing was limited to a two page “*plan*”. The Panel also notes that the 2006 Action Plan repeats almost verbatim the so-called 2001 plan.<sup>497</sup> The documents set laudable general goals, such as training that will address preparation of fishermen for change in the river characteristics following impoundment and earmarking training for the displaced persons, within an overall regional project.<sup>498</sup> However, this planning is not associated with any studies on the economics and nutritional importance of fishing, particularly on the East bank of the Nile, despite the TOR’s requirement. Moreover, no additional support was allocated to what was called an underestimated, critical activity: the 2006 budget remains at the 2001 level (US\$ 182,000- budget).<sup>499</sup>

### 3.2. Agriculture

482. The Panel observes that the approach taken to restore damaged agricultural livelihoods follows a pattern similar to that for fishing. No baseline census of the displaced persons and a socio-economic analysis was carried out, allowing only a general overview of the pre-displacement livelihood economics. Based on the regional descriptions in the 2001 RAP and consultation discussions, it appears that the displaced persons worked small plots of land, as peasant farmers and supplemented their income through cash crops (coffee, sugar cane, vanilla) and other income generating activities (e.g. fishing, trade, bicycle taxi driving, etc.).<sup>500</sup> Subsistence crops included bananas, cassava, sweet potatoes, maize, beans, millet and

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Hydropower Project Social and Environmental Assessment Main Report, Appendix C Fisheries Report, December 2006, p. iv]. Data comparing 2000 and 2006 economic activity show a decrease in food vendors, net repairers and an increase in fishermen and fish traders from outside the area in the six years (HPP-APRAP, p. 60).

<sup>495</sup> HPP-APRAP, pp. 72, 74, 83, 88, 92 and 96. General opinion questions during consultations such are not substitutes for socio-economic analysis. When asked of people in the host village, the question assumes the interviewee is an expert on the livelihoods before and after resettlement.

<sup>496</sup> HPP-APRAP, p. 33.

<sup>497</sup> RCDAP 2001, pp.136-139. See also CDAP, pp. 25-26.

<sup>498</sup> APRAP update of 15 October 2007. (D233), p. 8.

<sup>499</sup> The budget appears to have been reduced US\$ 100K as a result of 100K for NaFRRI monitoring being moved to another line in the 2006 budget.

<sup>500</sup> HPP-PCDP, p. 9.

yams. Fruit trees - jackfruit, avocado, mango, oranges, and pawpaws - assured a source of natural sugars before displacement.<sup>501</sup>

483. Bank policy requires that when replacement land is offered, the resettlers are provided with land for which a combination of productive potential, locational advantages (accessibility), and other factors is at least equivalent to the advantages of the land taken.<sup>502</sup>
484. The livelihood restoration strategy focused on the physical size of replacement land rather than its quality or location. For those physically displaced to Naminya, each household was allocated a minimum of an acre residential plot, where the house is located, with additional surface compensated in kind if it was part of the same residential plot in the original location. Any additional agricultural surface was compensated in cash. The result of this policy was that some resettlers were net “winners” – to use the Project’s terminology, and others losers – if the compensation was not used to replace lost land.<sup>503</sup>
485. The Panel has found that insufficient information was available to permit the new Sponsor to assess whether or not landlessness increased or decreased under this strategy.<sup>504</sup> Along the T-line, at Nansana, there was a reduction of 40 percent in agricultural land, with five of the seven households having less land after resettlement.<sup>505</sup>
486. Soils are a critical factor in agricultural productivity. The Panel notes that land fertility was not considered in livelihood restoration planning or execution; however it surfaced as a major concern of the displaced persons during the 2006 Assessment consultations.<sup>506</sup> At Naminya, displaced persons report that they cultivated cash crops (coffee, vanilla) and fruit trees at their former locations, the availability of which diminished in their new surroundings.
487. Management concedes that soil fertility is an issue “*for some*” based on the Assessment’s subjective observations of where banana plantains are growing at Naminya, stating that “*not all plots are adequate for plantain bananas...with some obviously too dry and with a too thin layer of arable soil for this particular crop.*”<sup>507</sup> The Panel notes that these seem to be subjective opinions, which may not substitute for comparative agronomic studies of the former and current sites. The Panel notes that the resettlement site is a former sugar plantation, a monoculture crop that

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<sup>501</sup> In the field, the Panel viewed a few photographs of pre-displacement plots that support this generic description.

<sup>502</sup> OP 4.12 Annex 1, ¶ 11. The Sponsor proposes to consolidate rather disburse the residential areas in the new resettlements, with the commute to agricultural lands being by bicycles. At Naminya, the lack of project provide bicycles to gain access to livelihood activities was a complaint.

<sup>503</sup> HPP-APRAP, p. 16.

<sup>504</sup> HPP-APRAP, p. 17.

<sup>505</sup> IP-APRAP, p. 10

<sup>506</sup> HPP-APRAP, p.17.

<sup>507</sup> HPP-APRAP, p.17.

depletes soil fertility.<sup>508</sup> The Panel is concerned that plans are underway to move T-line displaced families to Naminya without evaluation of this issue.

488. The negative impacts of the productive and locational disadvantages are evident in multiple complaints about the loss of fruit trees. As one mother stated during a consultation, the fruit trees were particularly “appreciated” by mothers of young children as a substitute for purchased, refined sugar.<sup>509</sup> On the East bank of the Nile, resettled people reported that their replacement agricultural land was too far away from their residences and less fertile, effectively reducing their income.<sup>510</sup>
489. The Assessment and Action Plan recognizes the “*critical importance of traditional subsistence agriculture as a safety net for the affected people.*”<sup>511</sup> Nonetheless, mitigation actions are not aligned with an agro-ecological or economic analysis coupled to the livelihood risks. The 2001 RAP lacked any livelihood restoration plan or budget for agricultural activities apart from replacement of or compensation for land. **The Panel finds that the 2006 action plan attempts to mitigate the situation, but its provisions will most likely be insufficient to meet Bank policy requirements.** The 2-page CDAP refers a number of agricultural development options for affected people: organization of producers, increased agricultural extension and animal husbandry services, and farming as a business.<sup>512</sup> However, there is no assessment of the damages to be addressed by these measures nor an economic study justifying the amount allocated in the Plan for these purposes (US\$ 200,000 for “*enhancing livelihood restoration plan*” to intensify agriculture and high value-added crops in 8 communities over 5 years. Furthermore, this succinct plan, which does not focus on displaced persons, provides no implementation details. The Panel notes it is a list, not a plan.<sup>513</sup> This perfunctory treatment of the livelihood restoration problem persists along the T-Line.<sup>514</sup>

### 3.3. Conclusions on fishing and agriculture

490. The Panel notes that Management failed to ensure that the Project would institute or assure financing to mitigate these losses, exposing the displaced to on-going impoverishment risks that are now approaching eight years. Once the peoples were displaced, Management failed to recognize these livelihood risks in multiple supervision missions.<sup>515</sup> **The Panel finds that the Project failed to provide**

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<sup>508</sup> See Alfred Hartemink, ISRIC, ICSU World Data Center for Soils, POB 353, 6700 AJ Wageningen, The Netherlands. fax +31 317 471 700 e-mail Hartemink@isric.nl

<sup>509</sup> HPP-APRAP, p 17.

<sup>510</sup> HPP-APRAP, p 20.

<sup>511</sup> HPP-APRAP, ¶ 6.3.1.

<sup>512</sup> HPP-PCDP, p. 119.

<sup>513</sup> HPP-APRAP, p 39.

<sup>514</sup> On the T-Line, the RAP also proposes a five year “agricultural enhancement package” and a US\$ 600 one time subsidy per household but fails to provide a budget. The T-line agricultural package is part of an undifferentiated, US\$ 305K budget line for “livelihood restoration package” that includes an agricultural package, training, and business support (RCDAP, p.98.)

<sup>515</sup> Project Files, Communication dated May 2. The Jan 15-27 Supervision mission reports its key findings are that “*the project is in compliance with the Bank’s social safeguards policies.*”

**adequately for loss of livelihood associated with the loss of fishing and agriculture, in non compliance with OP 4.12.**

#### **4. Compensation**

491. The Panel notes that the agro-economics of livelihood restoration is weak, particularly with reference to compensation. According to the prior project compensation method coffee, the main cash crop, was compensated at its annual yield times 1.5 to 3 to cover the so-called “*establishment period*” – meaning the time it takes to reestablish the perennial crop.<sup>516</sup> However, coffee takes four to five years, as opposed to 1.5 to 3 years, to restore production, assuming that one has comparable land to plant. Some calculation must be made for the loss of the income stream until production is reestablished, including the labor costs of reestablishing the asset to its previous production. The Uganda rates do not compensate farmers for their labor to bring a perennial crop back into production. Underestimates of the establishment periods for coffee and other crops including vanilla and cocoa made it economically unfeasible for the displaced to reestablish their lost incomes.
492. The witness NGO was reporting unresolved issues in the Mukono district in 2007 with regard to compensation for crops that was viewed to be unfair and not reflective of the realistic values for the crops when compared with rates provided by neighboring districts for the same crops.<sup>517</sup> Issues also arose over differential formula being used to pay for crops of less than four months of age.<sup>518</sup>
493. The APRAP also points to an additional reason that the compensation method may not have achieved the objective of compensating the displaced persons at full replacement value. On both banks of the Nile, local land prices may have doubled after compensation, undercutting the valuation’s estimates for replacement value, reducing the chances that those who received cash compensation were able to replace their lands with lands of equivalent value.<sup>519</sup>
494. **The Panel concurs with the APRAP’s findings, which validate the claims of the project affected peoples (PAPs) that full replacement value compensation may have not taken place in the prior project.**<sup>520</sup>

#### **5. Land titles**

495. Most of the displaced lacked security of land titles before displacement, but they may have had established, informal security with usufruct rights recognized by others.<sup>521</sup>

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<sup>516</sup> RCDAP, Annex 1-6.

<sup>517</sup> AESNP, p. 6.

<sup>518</sup> HPP-APRAP, p 22.

<sup>519</sup> The Assessment points to a case where an acre of land was compensated at between UGX 0.8M and UGX 1.2M, but it was not uncommon to be charged UGX 2.2M for a similar piece of land (HPP-APRAP, p 20).

<sup>520</sup> HPP-APRAP, p. 20.

<sup>521</sup> AESNP, p. 6, No. 7, 8.

Bank missions reported in February 2005 that only 22 of the 69 titles pending in the HPP component had been arranged and all eight households at Nansana were still awaiting titles.<sup>522</sup>

496. According to the APRAP, while many people who were interviewed stated that they received land titles, it also appeared that some PAPs did not receive the titles. However, the APRAP goes on to say that “*this cannot be stated with certainty as in some cases, the person who has received the title was not around during the interview*” and that this situation would have to be checked.<sup>523</sup> On another section the APRAP states that “*several affected people met by the study team claimed that land titles for replacement land provided by AESNP to non-resettlers were not all issued, particularly on the East Bank.*”<sup>524</sup> The underlying reasons for these disputes appear to be acquisition by AESNP of replacement land that was under unresolved conflicts. The Assessment and Action plan then provides that “*the situation must be checked (when the monitoring unit mentioned above is operational), and potential gaps must be fixed.*”<sup>525</sup>
497. During its visit to the Project area, the Panel team witnessed Project-generated insecurity among displaced persons in Naminya as a consequence of resurveying and proposed readjusting of the boundaries within the settlement. The resurveying appears to be the consequence of the original survey layout failing to leave a leeway for the power lines passing through the settlement. As a result, the parcel layouts of displaced persons are being adjusted accordingly, creating new, Project-generated conflicts. The Panel expects that this situation will be dealt with during the implementation of the APRAP.
498. **The Panel finds that the APRAP conclusion related to the necessity of issuing land titles to people resettled under the prior project is consistent with OP 4.12. The Panel notes however that there seems to be no agreed timetable for the issuance of these titles.**

## 6. Vulnerable Peoples

499. The APRAP determined that there was no proper identification of vulnerable people up until 2007, including not providing clear criteria for vulnerability and not identifying assistance actions. The displaced persons included a “*sizable number of orphans, widows, and peoples with disabilities.*”<sup>526</sup> The Assessment and Action Plan states that they were not properly recorded and judged that it is “*virtually impossible to identify, locate and monitor vulnerable people.*”<sup>527</sup>

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<sup>522</sup> Project Files, communication dated February 7-9, 2005.

<sup>523</sup> HPP-APRAP, p 14.

<sup>524</sup> HPP-APRAP, p. 21.

<sup>525</sup> HPP-APRAP, p. 36.

<sup>526</sup> HPP-APRAP, p. 24.

<sup>527</sup> HPP-APRAP, p. 24.

500. The Panel notes that a group of vulnerable people, the landless tenants and sharecroppers, may have been left out from receiving compensation as a result of the strategy noted before.<sup>528</sup> Ineligible for replacement land, they were compensated only for their lost crops. AESNP announced compensation rates, including prices for young seedlings (known as “1-4” for their months of age). Anticipating compensation, some tenants and shareholders purchased and planted seedling. The Sponsor, believing they were observing fraudulent attempts to maximize compensation through the planting of young seedlings, reneged on their compensation commitment and did not pay for the “1-4” crops. AESNP requested and got the support of the GoU on their non-compensation decision.<sup>529</sup> This left landless peoples worse off, with new debt, no crops, and no harvest.
501. Heated disputes arose, some of which are still in court, representing half the current court docket on the resettlement issues of the Project.<sup>530</sup> They were frequently mentioned in consultations.<sup>531</sup> From the perspective of a sharecropper or a tenant position, this represents a substantial loss of income – an issue that after five years is still fresh on people’s minds, surfacing repeatedly during the consultations.<sup>532</sup> The APRAP notes that *“the situation of tenants and sharecroppers (who were compensated only for crops as they did not own land) appears to be worse in this respect than that of landowners)”*.<sup>533</sup> The Panel notes that the APRAP approved by the Bank recommended not paying the claims. In light of Management’s failure to pay particular attention to the needs of vulnerable people, this on-going dispute could constitute a reputational risk for the Bank and the new Sponsor.
502. The APRAP states that *“there is no proper identification of vulnerable people at the moment and it needs therefore to be done (or redone)”* to correct the lack of attention to vulnerability and proposes a posteriori actions.<sup>534</sup> The Assessment sets forth a US\$105,000 plan to use community assistance measures to identify the disadvantaged project-affected peoples and assist them with counseling, food support, health monitoring or medical attention if required, with specific attention to orphan heads of households and other affected orphans – an additional US\$20,000.<sup>535</sup>
503. **The Panel notes that the absence of a focus on livelihood risks to the vulnerable is evident in that none of the proposed assistance measures addresses the vulnerable tenants/sharecroppers or children.**<sup>536</sup> Additionally, the proposed

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<sup>528</sup> HPP-APRAP, p. 20.

<sup>529</sup> HPP-APRAP, p. 20.

<sup>530</sup> HPP-APRAP, p. 22.

<sup>531</sup> HPP-APRAP, pp. 12, 20, 22, 86, 91, 96, 105.

<sup>532</sup> HPP-APRAP, pp. 12, 20, 22, 86, 91, 96, 105.

<sup>533</sup> HPP-APRAP, p. 20.

<sup>534</sup> Management Response, p. 39. See also, HPP-APRAP, p. 32.

<sup>535</sup> HPP-APRAP, p. 32.

<sup>536</sup> Evidence of the inattention to children was brought to the Panel’s attention in discussions with the displaced along the T-line. Panel interviews near the Mutundwe substation discovered people were supportive and prepared to move, but concerned that the displacement might occur after school enrollment, making it difficult if not impossible for displaced children to enroll or transfer between government schools. The demographics may range from several hundred to several thousand children and represents a

**assistance measures do not address the question of sustainability beyond the limited Project support. The Panel finds the Bujagali Project is out of compliance with the vulnerable peoples provisions of OP 4.12.**

## **7. Housing, Public Services, and Electricity**

504. **Housing** The APRAP states that the houses that were built met with the design criteria that was set out in the 2001 RAP and were therefore generally compliant with the commitments made. It states that the resettlers felt that the houses were better than the ones they had, but still complained about deficiencies in the buildings.
505. **During its field visit, the Panel verified that the standard of living of the displaced households who resettled in Naminya and Nansana has greatly improved in the area of housing.**<sup>537</sup> On the other hand, the Assessment discovered some shortcomings in housing condition and the Panel observed physical problems and deterioration with some of the houses and structures. **The Panel is concerned that no physical action is planned with regard to houses at the resettlement site (apart repairing the taps from the rain water harvesting system).**
506. **Public services: water, roads, schools, health facilities.** Restoration of livelihoods and the standards of living includes assisting displaced persons in their efforts to improve or at least restore, in real terms, public services they had prior to displacement.<sup>538</sup>
- **Water:** The APRAP states that AESNP built a well, and improved a spring catchment. Due to some complaints from resettlers, BEL agreed to improve the water drawing system. This is part of the Community Development Action Plan.
  - **Education:** The 2001 RAP included a commitment by AESNP to refurbish an existing school in Naminya. Their pulling out of the Project caused significant concern to the locals. Subject to consultation with the local authorities, BEL proposed to follow through with AESNP's commitments.
  - **Health:** There is a health centre at the site, but resettlers complain that there is poor onsite accommodation for staff which jeopardizes the operations of the clinic. While BEL and the authorities have discussed the situation, BEL cannot make a commitment to assist because it is not the

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substantial loss of human capital which, according to mothers, may be irreparable for teenagers if the disruption derails their studies. Options such as paying for full enrollment and transportation costs of private schools or adjusting the time of the move had not been considered. Enrollment in school is one of the 8 indicators for outcome evaluation, meaning that this problem may negatively skew the overall project evaluation. School fees account for 23 percent of the affected household's spending, underscoring the significance the displaced place on education.

<sup>537</sup> HPP-APRAP, p. 13.

<sup>538</sup> OP 4.12 ¶2(b).

owner of the houses that were built by AESNP. BEL will though be part of the negotiations between the local authorities and the Lands Commission to get housing for the health staff.

507. **Electricity.** A high voltage line crosses Naminya. Throughout the process to conduct the Assessment, numerous displaced persons, those who took cash compensation, and local leaders stated that they believed AESNP made a commitment to provide electricity to Naminya and other communities.<sup>539</sup> The APRAP states that “*it does not seem*” that such a commitment was planned under the 2001 RAP, other than providing power to equip the trading centers of the four Western bank affected villages with transformers and low tension lines.<sup>540</sup> On this point Management Response states that “*BEL together with UMEME is exploring possibilities for the provision of electricity. BEL will also finance a feasibility study for electrical distribution to the resettlement community, which may convince UMEME to provide a supply.*”<sup>541</sup> The budget commitments are limited to this study.
508. The RCDAP of 2001 makes limited commitments to power. It states that local communities have constantly requested power supply during consultation and that “[t]here is clearly an expectation from villagers that AESNP, as a power producer, could easily supply electricity for free.” However, the document goes on to say that “*this expectation is legally impossible, for AESNP is a power generator, not a distributor. Neither is this desirable as it will not be sustainable in the long run when AESNP is no longer in charge of the facility operation.*” The RAP adds that mid-voltage lines were constructed along the main roads with 500m distributions spurs taken off in the vicinity of trading centers at each village. However, while AESNP was to support the costs for developing distribution infrastructure systems to make electricity accessible to the eight villages, AENSP did not intend to “*pay for the cost of any individual connection or any electricity bill.*” Its support was only to help the communities with initial capital costs and in turn communities or individuals would bear connections and consumption costs.<sup>542</sup>
509. The issue is highly controversial and a significant livelihood development issue. During the Panel’s visit to Naminya, a woman handed the Panel a weathered copy of *The Bujagali Power Project* newsletter of 2001, Volume 1, Issue 3, page 7 that in her opinion supported the promise of electricity. The text states “***AES Nile Power is committed to provide step-down transformers in eight villages in the affected area and in the new resettlement land allowing for access to power by residents who have never had the opportunity.***” (emphasis added). The Panel has found evidence that

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<sup>539</sup> HPP-APRAP, pp. 63,76,82,83, 85.

<sup>540</sup> HPP-APRAP, p. 15.

<sup>541</sup> AfDB Management Response to Request for Compliance Review of the Uganda: Bujagali Hydropower Project (Private Sector) and Bujagali Interconnection Project (Public Sector), June 2007 (D029), p. 43 for statement to AfDB Board and Doc 075, page 133 statement to WBG Board.

<sup>542</sup> The affected communities are on the West Bank in Mukono District: Buloba, Naminya, Malindi, Kikubamutwe (RCDAP 2001, p. 132). On the East Bank in Jinja District: Bujagali. Ivunamba, Kyabirwa, Namizi.(RCDAP 2001, p.22). And in two meetings in Naminya with village leaders and the inhabitants anticipated support for power (RCDAP 2001, page 63).

displaced persons were told that “*you have a right to electricity, as do all Ugandans*”. **Given the context and previous expectations, this broad statement may have reasonably been interpreted as a promise to deliver electricity connections to affected households. The Panel notes that this is an outstanding controversy of high importance to the affected communities.**

## 8. Investment resources for livelihood restoration

510. As of the close of the prior project in 2003, the resettlement costs had slightly exceeded budget allocations (US\$11.5 million spent for US\$11.1 million allocated).<sup>543</sup>
511. The Assessment and Action Plan budgets US\$497,000 for completion of the legacy resettlement and income restoration issues of which US\$ 320,000 is to be used for income restoration activities and an additional US\$ 125,000 to assist vulnerable people.<sup>544</sup> The Assessment allocates US\$ 40,000 for resettlement corrective actions at Nansana.<sup>545</sup>
512. The Panel’s review of the limited scope of the livelihood restoration programs indicates that they may be under-budgeted. Management has allocated roughly the same investment resources to the HPP (households at Naminya) and the T-line (with an estimated 160 households to be physically and economically displaced). The HPP budget does not include the restoration of livelihood costs of the displaced people who opted for cash compensation, apart from the Naminya restoration costs once a feasible plan has been development. As information on livelihood conditions of the displaced persons, including those who were economically or physically displaced but took cash compensation, has yet to be determined, the costs of livelihood recovery are unreliable. As livelihood restoration instruments develop, Management is expected to monitor the resettlement budget to provide sufficient resources as per OP 4.12.

## 9. Costs of Project Delay on Displaced Persons

513. The Panel observes that livelihood restoration has been disrupted by the Project for six years. The effects of the delay to the displaced have yet to be fully reflected in the APRAP. Management conservatively estimated the overall economic costs of delayed development during 2006-2010 to be at least US\$700 million.<sup>546</sup> They noted that the time lag before entry of the new Sponsor has tested the patience of local populations

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<sup>543</sup> Project Files, communication dated January 18 and 23, 2008. The T-line RAP budget allocates US\$ 16.94 million including a 15% contingency to its RAP. The funds are budgeted for cost of resettlement and housing (US\$ 2,932,000 of which US\$ 1,804,000 is for land acquisition). Cash compensation is estimated to use US\$9,087,750 while livelihood restoration (including agriculture and business support) is US\$305,000. The remaining US\$ 2,148,000 is for RAP implementation (staffing, specialist consultants, legal advice, witness NGO and logistics.).

<sup>544</sup> PAD, p. 42,145.

<sup>545</sup> IP-SEA Executive Summary, p. ES-53.

<sup>546</sup> Management Response, ¶25.

who planned their investments based on commitments made under the prior project.<sup>547</sup> Disclosure and consultations created expectations in the Project affected area and among those soon to be displaced.<sup>548</sup> Some examples:

- Physically displaced persons at the hydropower plant site opted for compensation to make investments for businesses to service the construction, only to incur a loss when it was delayed,<sup>549</sup>
- Fishermen claimed they lost access to the Nile when the project area was secured without the promised access points; and
- Some displaced people claim they were told by the prior Sponsor not to improve or use their land after the original valuation.<sup>550</sup>

514. Comparable stories echo throughout the Project area, as investment and life decisions were affected by the uncertainties directly resulting from the delay. The Panel heard and witnessed videotaped evidence that the uncertainties were so great that displaced persons were demanding project construction and the remaining resettlement begin immediately. Relative to the overall project losses, these issues may seem minor, however they appear to represent substantial losses to the affected-persons' limited capital.

515. The Panel observes that, as a consequence of the project hiatus, certain of AESNP's commitments to regulators and the communities under its resettlement and community development plans were not fulfilled.<sup>551</sup> In February 2005, Bank resettlement specialists asked for an audit to be carried out to pay attention to the productive outcome of the resettlement operation and the economic and social status of the vulnerable households.<sup>552</sup> In recognition of these issues, BEL has undertaken to document the situation, and in selected instances, began immediate action programs to respond to stakeholder concerns.<sup>553</sup> Management did not state its methodology as to how these "selected instances" for actions were prioritized and the documents do not provide evidence that this prioritization was guided by the safeguard policies.

**516. The Panel finds that Management did not assess and include in the APRAP a methodology for restitution of the unintended socio-economic costs incurred by displaced persons resulting from project stoppage/delay. This is not consistent with OP 4.12.**

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<sup>547</sup> Management Response, ¶ 50.

<sup>548</sup> Project Files, communication dated February 7-9, 2005.

<sup>549</sup> APRAP, p. 78, Annex 2.

<sup>550</sup> IP-PCDP, p. 48.

<sup>551</sup> Appraisal Report, Bujagali Hydroelectric Power Project Uganda, African Development Bank, May 2007, ¶ 4.9.7, p. 14.

<sup>552</sup> Project Files, communication dated February 7-9, 2005.

<sup>553</sup> Appraisal Report, Bujagali Hydroelectric Power Project Uganda, African Development Bank, May 2007, ¶ 4.9.7, p. 14.

## 10. Overall Conclusions on Livelihood Restoration

517. According to Bank policy, the loss of livelihood for involuntarily displaced persons is an unacceptable outcome for a Bank-sponsored infrastructure investment.<sup>554</sup> The APRAP methodology was useful for identifying some livelihood risks but lacked sufficient analysis to mitigate the critical risks, particularly those related to fishing and agriculture. The Panel's review of the livelihood assessment method and other Project data shows that the Bujagali Project is facing substantial problems in measuring, monitoring, and mitigating livelihood risks, especially among vulnerable peoples.

518. Annex A of OP 4.12 (¶19) also requires an implementation schedule for the resettlement plan, as follows

*“An implementation schedule covering all resettlement activities from preparation through implementation, including target dates for the achievement of expected benefits to resettlers and hosts and terminating the various forms of assistance. The schedule should indicate how the resettlement activities are linked to the implementation of the overall project.”*

519. The APRAP includes an implementation schedule, which links the restoration activities to the construction of the Project. The Panel notes that a RAP implementation timetable should be policy-driven rather than project construction-driven and be based on the displaced person receiving restitution for losses and achieving sustainable livelihood. This approach requires monitoring of changes in livelihood restoration (socio-economic conditions of the affected people), an opportunity missed by not establishing the initial baseline census in 2001, and by not correcting this failure in the preparation of this Project.

520. The Panel was not provided any evidence that livelihood restoration has been monitored since the prior Sponsor carried out partial resettlement activities in 2001.<sup>555</sup> The Panel also notes that in February 2005 Bank social staff recommended that a resettlement audit be carried out because four years had passed since the implementation of the first RAP. This call for the audit was unheeded.<sup>556</sup>

**521. Overall, the Panel finds that the Project is in non-compliance with the mandate of Bank Policy on Involuntary Resettlement to improve or at least to restore, in**

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<sup>554</sup> OP 4.12 ¶1. Bank policy foresees this unacceptable outcome, stating that Bank *experience indicates that involuntary resettlement under development projects, if unmitigated, often gives rise to severe economic, social, and environmental risks: production systems are dismantled; people face impoverishment when their productive assets or income sources are lost; people are relocated to environments where their productive skills may be less applicable and the competition for resources greater; community institutions and social networks are weakened; kin groups are dispersed; and cultural identity, traditional authority, and the potential for mutual help are diminished or lost. This policy includes safeguards to address and mitigate these impoverishment risks.*

<sup>555</sup> HPP-APRAP, pp. 33-34.

<sup>556</sup> Project Files, communication dated February 7-9, 2005.

**real terms, the livelihoods and standards of living of the people displaced by the Project.**<sup>557</sup>

#### **D. Sharing in Project Benefits and Community Development**

522. Project sustainable development and benefit-sharing is one of the principal objectives of the involuntary resettlement policy. Resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits.<sup>558</sup> The policy explicitly singles out displaced persons as the beneficiaries.
523. BEL proposed “*to develop a Community Development Action Plan (CDAP) for the eight project-affected villages around the Bujagali HPP site.*” BEL undertook to review the first project CDAP and “*determine what further work needs to be undertaken.*”
524. The CDAP is to be directly implemented by BEL with participation of NGOs, consultants and contractors for certain components. BEL’s CDAP proposes activities to benefit the wider communities in the Project area, beyond those individuals and households who have been or will be directly affected by loss of land, crops or other assets. These activities focus on production related domains (agricultural, small business support and fisheries).
525. The CDAP budget is about 0.4 percent of the US\$ 867 million Project budget.<sup>559</sup> Management aligned the CDAP budget to correspond with the restructuring of the overall project budget. On the HPP segment, BEL committed to spend US\$3.32 million<sup>560</sup> on community development over 5 years, including US\$ 361,000 for BEL administration.<sup>561</sup> The budget is not exclusively directed at the displaced persons.<sup>562</sup>

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<sup>557</sup> Bank procedure BP 4.12 reads: “During project appraisal, the TT assesses (a) the borrower's commitment to and capacity for implementing the resettlement instrument; (b) the feasibility of the proposed measures for improvement or restoration of livelihoods and standards of living; (c) availability of adequate counterpart funds for resettlement activities; (d) significant risks, including risk of impoverishment, from inadequate implementation of the resettlement instrument; (e) consistency of the proposed resettlement instrument with the Project Implementation Plan; and (f) the adequacy of arrangements for internal, and if considered appropriate by the TT, independent monitoring and evaluation of the implementation of the resettlement instrument.<sup>7</sup> The TT obtains the concurrence of the Regional social development unit and LEG to any changes to the draft resettlement instrument during project appraisal. Appraisal is complete only when the borrower officially transmits to the Bank the final draft resettlement instrument conforming to Bank policy.”

<sup>558</sup> OP 4.12 ¶ 2(b)

<sup>559</sup> Calculated as US\$ (300K T-line + 3.32M HPP)/867M.

<sup>560</sup> Responses to IP email of 18 Jan 2008. Estimated costs of the CDAP was present at in the 2 April 2007 PAD at US\$ 2.4M (¶143 on page 42), the higher figure of US\$3.817M appears in Table 8.1 (page 490 of the December 2006 SEA). BEL budgeted for additional actions it identified after the CDAP was finalized.

<sup>561</sup> Bujagali Hydropower Project Social and Environmental Assessment Main Report, Appendix J Community Development Action Plan (CDAP) December 2006 [hereinafter “CDAP”], p.28

<sup>562</sup> CDAP, p.28

This budget is distinct from the US\$497,000 allocated to complete resettlement and income restoration.<sup>563</sup>

526. Along the T-line, Management submitted a US\$ 300,000 CDAP budget to be paid for and implemented by GoU. The funds are to be divided proportionately among communities based on magnitude of impact, eligibility criteria, and focusing on enhancing community self-reliance.<sup>564</sup> The allocations are proportional to the magnitude of impacts and partially proportional to the permanent population living in the community.<sup>565</sup> The result is a system that assigns a minimum amount of the total CDAP funds to villages with small population and small length of transmission lines and vice versa.<sup>566</sup> The funds are earmarked for community projects such as upgrades to schools, water centers, water supplies, access roads, or connections to public electricity networks.
527. The Panel notes that it is likely that the community development programs, once executed, will provide positive benefits for Uganda. However, the Panel identified four compliance issues related to the CDAPs: i) the lack of focus of the CDPs on displaced persons, ii) inequities in allocations between displaced persons on the T-line and HPP; iii) the lack of specificity of the sustainable development programs, and iv) a decrease in investment resources to this effort.
528. **Lack of focus on displaced persons** The Panel notes that the CDAP, though important demonstration of the Sponsor's corporate social responsibility, is not necessarily related to benefit sharing for displaced persons as required by the objectives of OP/BP 4.12. While the programs offered by the CDAP are directly available to the displaced people (micro-credit, agricultural extension, small business support, etc.),<sup>567</sup> eligibility criteria do not indicate preference to displaced person.<sup>568</sup>
529. **Lack of Program Specificity:** The problem identified by the first Inspection Panel Report over five years ago persists. The Panel finds that in the area of sustainable development and benefit sharing, the CDAP focuses almost entirely on short-term exercises; its targets are poorly laid out; and it makes no significant or systematic effort to ensure that resources are directed to institution building or social fundamentals rather than only short-term construction projects.
530. **Imbalances in allocations between the T-line and HPP.** CDAP budgets show sharp differences. The T-line has a higher number of physically and economically displaced peoples than the HPP, but a smaller proportion of the resources devoted to CDAP

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<sup>563</sup> PAD, p. 42.

<sup>564</sup> RCDAP, p. 92.

<sup>565</sup> RCDAP, p. 92.

<sup>566</sup> RCDAP, p. 93.

<sup>567</sup> CDAP, p. 17.

<sup>568</sup> CDAP, p.17.

activities.<sup>569</sup> **The Panel finds that budget of the two components were not properly coordinated and this may lead to social discord among the displaced.**<sup>570</sup>

531. **Decrease in investment resources to this effort.** The previous Panel also found “*the net present value of the resources to be contributed over a 35-year period seems very low.*”<sup>571</sup> The HPP CDAP has been significantly reduced both in time and funding for the sustainable benefit-sharing plan between the prior project and the present Bujagali Project. The prior project had a US\$ 7.5M phase II CDAP component that is not in the present Project. The CDAP program of the prior project was also a 35 year program, coterminous with the investment itself. In contrast, the present Bujagali Project has been shortened to five-year construction phase.
532. While the decision to reduce investment resources is not a compliance issue in and of itself, the current Panel does not understand why Management decided to further reduce its effort. Even discounting for inflation, eliminating the second phase raises questions as to Management’s responsiveness to the previous Panel’s findings. **The fact that the same problems are surfacing with two different sponsors is of concern to the Panel. The Panel finds that with limited funding, broad criteria for eligibility and lack of specificity, the CDAP programs do not assure compliance with OP 4.12.**

#### **E. Indigenous Peoples**

533. The Requesters claim that the provisions of OP 4.10 on Indigenous Peoples have not been applied to the Project because the SEA does not consider the Basoga inhabitants of the Project area as indigenous people, in spite of the fact that the Third Schedule of the Constitution of the Republic of Uganda expressly considers the Basoga as such.
534. The Response states that Management respects local legislation but draws a distinction between the definition of indigenous people according to the Constitution of Uganda and that provided in OP 4.10. Under the Ugandan Constitution, in order to be considered an Ugandan citizen by birth – **regardless of socio-economic status** – one must belong to one of the 56 “indigenous communities” listed in the above-referred Third Schedule (or have a parent or grandparent who does); while under the Bank Operational Policy, the term indigenous is used “in a generic sense to refer to a **distinct, vulnerable, social and cultural group**” possessing “in varying degrees” the characteristics listed in paragraph 4 of the OP. (emphasis added)
535. Although the Basoga people meet some of the criteria necessary to be regarded as indigenous people in the context of Bank-financed projects pursuant to OP 4.10, they are a large and influential group with political, social and economic standing in

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<sup>569</sup> These are estimates since the precise number of economically displaced peoples on the HPP has yet to be determined. We are assuming 160 and roughly 100 economically and physically displaced household on the T-line and HPP, respectively.

<sup>570</sup> CDAP, p. 24. Micro-credit and animal husbandry extension services are not in the T-Line budget.

<sup>571</sup> Inspection Panel Investigation Report 2001, p. 82-83.

Uganda's society, and the Panel did not find any indication that they are regarded as a "*marginalized and vulnerable segment*" of the population that is unable to "*participate in and benefit from development.*" **The Panel did not find any evidence that Management violated the provisions of the Bank's policy on Indigenous Peoples, with regard to the Basoga people.**<sup>572</sup>

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<sup>572</sup> The Panel notes that this finding is consistent with the Panel's 2002 Investigation Report, page 77. See *infra* Chapter I Section 3.1 of this Report

## Chapter VIII

### Cultural and Spiritual Values

#### A. Introduction

536. This chapter analyses the cultural and spiritual issues related to the Project. This analysis begins with the work concluded in 2001, and events since then. Its main purpose is to analyze Management's actions or omissions in complying with the Bank's safeguards, particularly those dealing with cultural resources. For this purpose, the Panel conducted a careful research and analysis of relevant materials, including numerous studies by the Cultural Research Center in Jinja, which focuses on Busoga culture.
537. The Requesters claim that cultural and spiritual issues in the Bujagali project area were inadequately covered in the SEA. In their opinion, this "*calls for an effective consultation process involving all clans that are culturally and spiritually attached to Bujagali Falls followed by a public hearing.*" The Requesters claim that some consultation was carried out but there was no true participation of the people in the decision making process; in addition, consultations with the 240 clans in Busoga and 52 clans of Buganda were not done. The Requesters call for an effective consultation process involving all clans that are culturally and spiritually attached to Bujagali Falls followed by a public hearing.<sup>573</sup>
538. Management states that BEL is committed to complying with World Bank OP/BP 4.11, Physical and Cultural Resources. Management states that extensive consultations to address the concerns of the communities have been carried out since the earlier Bujagali project, including with the Buganda and Busoga<sup>574</sup> Kingdoms, who, Management claims, are culturally responsible for the villages living on the west and east banks since the project preparation began in 2000 under the original developer AESNP.<sup>575</sup> Management adds that their commitment to manage cultural and spiritual issues is part of the overall social management plan (part of the Social and Environmental Action Plans, SEAP) which will be implemented throughout the life of the project. They note that an independent Ugandan NGO, InterAid, will be monitoring all aspects of the project, including those related to cultural heritage.<sup>576</sup>
539. Bank's Physical Cultural Resources Policy OP/BP 4.11 recognizes cultural patrimony as important sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity

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<sup>573</sup> Request, p. 11.

<sup>574</sup> A note on orthography: Basoga refers to the people of the Busoga culture. Lusoga is their language.

<sup>575</sup> Management Response, p. 38.

<sup>576</sup> Management Response, p. 38.

and practices.<sup>577</sup> OP/BP 4.11 addresses physical cultural resources, requiring Management to assist sponsors to avoid or mitigate adverse impacts on physical cultural resources.<sup>578</sup>

540. Consultation is an important means of identifying physical and cultural resources, documenting their presence and significance, assessing potential impacts, and exploring mitigation options.<sup>579</sup> The policy holds consultation to be important because many physical cultural resources are not documented, or protected by law.<sup>580</sup> According to the policy, the EA includes (a) an investigation and inventory of physical cultural resources likely to be affected by the project; (b) documentation of the significance of such physical cultural resources; and (c) assessment of the nature and extent of potential impacts on these resources.<sup>581</sup>
541. Bank policy on Natural Habitats, OP/BP 4.04, also contains important provisions that apply to Bank-financed activities that may affect (e.g., by inundation) places of cultural and spiritual significance. OP 4.04 states that the Bank supports the protection, maintenance and rehabilitation of natural habitats,<sup>582</sup> and contains a number of provisions to achieve this objective. Paragraph 4 of OP 4.04 sets a specific and high standard of protection for “critical natural habitats”. This provision states that “*The Bank does not support projects that, in the Bank’s opinion, involve the significant conversion or degradation of critical natural habitats.*”<sup>583</sup> Of particular importance in the present situation, “critical natural habitats” under OP 4.04 include “*(...) areas recognized as protected by traditional local communities (e.g. sacred groves) (...).*”<sup>584</sup> This issue is dealt with in details in Section H of this Chapter (Panel’s Analysis – Critical Natural Habitats).
542. Operationally, OP/BP 4.11 and OP/BP 4.01 require addressing impacts on the cultural assets and resources as an integral part of the environmental assessment (EA), and to examine the type, location, sensitivity and scale of the Project as well as the nature and magnitude of its potential impacts.<sup>585</sup>

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<sup>577</sup> OP 4.11 ¶ 2. OP 4.11 (July 2006) replaced OPN 11.03, *Management of Cultural Property in Bank – Financed Projects*, (September 1986). OP/BP 4.11 applies to the Project as its Project Concept Review took place after 15 April 2006.

<sup>578</sup> OP 4.11 ¶ 3.

<sup>579</sup> OP 4.11 ¶ 11.

<sup>580</sup> BP 4.11 ¶ 7.

<sup>581</sup> BP 4.11 ¶ 8.

<sup>582</sup> OP 4.04 ¶ 1.

<sup>583</sup> OP 4.04 ¶ 4. This excerpt includes a footnote to the definition of the phrase “significant conversion or degradation”, as explained in the text.

<sup>584</sup> OP 4.04 Annex A.

<sup>585</sup> BP 4.01 ¶ 2, Footnote 3. Explicit reference to “Location” refers to proximity to or encroachment on environmentally important areas, whereas “Scale” is judged by Regional staff in the country context. “Sensitivity” refers to projects that may have irreversible impacts, affect vulnerable ethnic minorities, involve involuntary resettlement, or affect physical cultural resources (emphasis added). The Panel observed that County staff from the region who had an awareness of scale were underutilized in the Bujagali project.

543. In its earlier Investigation report the Panel indicated the efforts of the Bank to address the cultural and spiritual issues that the Project raises, and Management's good faith attempts to mitigate these issues. At the same time, the Panel also noted the importance of including all key stakeholders in consultation and taking steps to minimize the possibility of disturbance to the local communities that might arise from excluding any faction from such consultations as the Project went forward.<sup>586</sup>
544. The TOR for the Project's SEA, in relation to Cultural Property Management and Status, required BEL to assess the adequacy and completeness of the Cultural Properties Management work of the previous sponsor, and determine whether further work was necessary.<sup>587</sup> The TOR state that detailed archaeological investigations have already been undertaken for the Hydropower project-affected area, compensation has been paid for people's shrines (*amasabo*) and appeasement ceremonies have been undertaken to enable the relocation of the Bujagali spirits.<sup>588</sup>
545. The following section provides a review of the work conducted in 2001 under the prior Bujagali project before analyzing Bank compliance in the Project under investigation.

#### **B. The 2001 Resettlement and Community Development Action Plan (RCDAP) and the Cultural Property Management Plan**

546. The 2001 Resettlement and Community Development Action Plan (RCDAP) refers to a 1998 EIA study that led to a number of detailed studies, including a study of the traditional religion of the Basoga and the significance of the Bujagali site and the implications for the project.<sup>589</sup> This study, in turn, suggested there could be more sites of cultural interest in the project area and, as a result, two additional comprehensive studies were commissioned: a Study of the River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the River Bank in Wakisi sub-county (West Bank) and a comparable study on the East Bank.<sup>590</sup> In addition, the first Sponsor utilized quality control consultants to review the results.<sup>591</sup>
547. The 2001 studies included representatives of caucus groups of "modern" religions.<sup>592</sup> The Sponsors mapped individual and community level spirits. The studies and focus groups identified dangers concerning breaking taboos and disturbing the spirit world, including some directly related to construction such as machinery injuring workers,

<sup>586</sup> Inspection Panel Report 2002, ¶ 323.

<sup>587</sup> African Development Bank Volume 1 Executive Summary Environmental & Social Auditing Guideline, June 2000, page 11. (Type African Development Bank Volume 1 Executive Summary Environmental & Social Auditing Guideline, June 2000 into google.com)

<sup>588</sup> HPP-TOR, p. 11.

<sup>589</sup> RCDAP 2001, p. 96.

<sup>590</sup> The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the River Nile West Bank. AES Consultant, September 18, 2000. The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the River Bank in Wakise Subcounty. September 18, 2000.

<sup>591</sup> RCDAP 2001, p. 96.

<sup>592</sup> RCDAP 2001, p. 103.

breakdowns, and disappearance of livestock, women having miscarriages or producing deformed children, and invasion of the community by foreign diseases and pests.<sup>593</sup> They identified a general protocol for moving spirits and were informed of perceived risks to the project and nature should such consultations not take place. The focus groups identified a five point protocol to transfer spirits.

548. AESNP acknowledged the community spirits and that the rapids at Bujagali Falls will be largely inundated and that this is an unavoidable impact with this project configuration. However, it was reported that the parties involved with the spiritual value of the site - namely Nabamba Bujagali, Lubaale Nfuudu who is the divine custodian of the Ntembe Clan that the issue is a local one and the impact is acceptable.<sup>594</sup> These parties have given their consistent support to the project, as long as the necessary ceremonies, to ensure the spirits are satisfied, are carried out.<sup>595</sup>
549. In the view of the earlier Panel report, the 2001 RCDAP assigned little significance to the cultural or spiritual issues of the Bujagali Falls. The related studies missed the overarching concept of Basoga religious cosmology,<sup>596</sup> including the hierarchical relationships between the spirits. This issue was not raised by BEL either. The RCDAP stated that a preliminary baseline socio-economic survey revealed that the spiritual value of the Falls is not an over-riding issue to the majority (83 percent) of the local community - those in the immediate vicinity of the Falls.<sup>597</sup> The report briefly described three spiritual diviners associated with the spirits of the Falls, but mentioned neither the name of the spirit, *Nabamba Budhagaali*,<sup>598</sup> embodied in the Bujagali Falls nor its significance to the Basoga people.<sup>599</sup>
550. The RCDAP 2001 also noted that Ugandan Ministry of Culture and the *Kyabazinga* (referred to as the “*cultural King of the Basoga*”) presented a statement to a public hearing declaring the support of the *Kyabazinga* Institution for the project but noting however that since a “treasured cultural site” would be lost, it would only be fair that AESNP pay the Institution a fair and adequate compensation.<sup>600</sup> In spite of this, the previous sponsor found that “*whilst the Falls will be inundated this is not seen as a cultural or spiritual issue of over-riding significance by the majority of people who will be directly affected, at the individual, household, local community or national level.*”<sup>601</sup> The RCDAP 2001 states that “*on balance the project is judged to comply*

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<sup>593</sup> RCDAP 2001, p. 108.

<sup>594</sup> RCDAP 2001, p. 112.

<sup>595</sup> RCDAP 2001, p. 112.

<sup>596</sup> See Annex C entitled *Spiritual Significance in Busoga Culture* for the description of Basoga religious cosmology.

<sup>597</sup> RCDAP 2001, p. 113.

<sup>598</sup> In this report, the name of the principal spirit at the Bujagali Falls site is *Nabamba Budhagaali* which is distinct from Nabamba Bujagali, the medium through which the spirit communicates. He is also referred to as “the Living Bujagali.”

<sup>599</sup> RCDAP 2001, p. 101.

<sup>600</sup> RCDAP 2001, p. 102. In June of 2000, the Institution presented a statement to the Open Forum held in Washington that “Bujagali Falls is a very important cultural site to the Institution of the Kyabazinga of Busoga and that the Kyabazinga fully embraced the project ”

<sup>601</sup> RCDAP 2001, p. 113.

*with WB/IFC policy note OPN 11.03 in the context of the pressing need for additional electricity in the country and other benefits from the project.*<sup>602</sup>

551. The 2001 Cultural Properties Management Plan (CPMP) sets out a six month, US\$125,000 program<sup>603</sup> of consultation, compensation of individuals for disturbed graves and shrines (*amasabo*), appeasement and relocation of the Bujagali spirits.<sup>604</sup> Three individuals were identified as stakeholders for consultation about the spirits at Bujagali Falls.<sup>605</sup> In the spring of 2003, the independent witness NGO, InterAid, prepared a snapshot of progress on the CPMP,<sup>606</sup> reporting that, and at the level of individual spiritual site, consultation, disclosure and compensation for disturbances were proceeding well.
552. Problems, however, emerged with the so-called “*appeasement of community spirits*.”<sup>607</sup> InterAid reported that consultations had been taking place with three persons that the Sponsor had identified as custodians/diviners.<sup>608</sup> Each one of them was required to specify the requirements they needed for the appeasement of the spirits of Budhagali.<sup>609</sup> The Sponsor facilitated separate appeasement ceremonies on different days, which were witnessed by multitudes of people. The Sponsor however tried to combine the appeasement ceremonies and to obtain a co-signed Certificate of Appeasement, a legal closure, but the three parties did not agree. Following these events, the implementation of the CPMP stopped for the next four years. Following the selection of BEL as a new Project sponsor, the Project preparation commenced in 2005.

### **C. Preparation of the Project**

553. As noted, the TOR for the present Project’s SEA required BEL to assess previous work done by AESNP and determine what further work needed to be undertaken.<sup>610</sup> Management also felt it important to corroborate if people who live in the project-affected area believe that the Cultural Properties management work undertaken by the previous project sponsor was truly complete. Accordingly, BEL committed to detailed consultation with locally affected communities on their observations and

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<sup>602</sup> RCDAP 2001, p. 113. OPN 11.03 is an earlier version of the Bank’s Policy on Cultural Resources, which applied to the prior Bujagali project, *see* also footnote 5.

<sup>603</sup> RCDAP 2001, p. 112-116.

<sup>604</sup> RCDAP 2001, p. 101 - 102.

<sup>605</sup> RCDAP 2001, p. 101-102.

<sup>606</sup> AESNP Hydro Electric Power Project, Witness NGO Report on the Implementation of Resettlement and Community Development Action Plan at Hydro Site, InterAid Uganda April 2003 [hereinafter “AESNP”].

<sup>607</sup> AESNP, p. 71.

<sup>608</sup> The Sponsor identified the stakeholders for consultations as Nabamba (the living Budhagali) who is the medium for the Bujagali spirits, Ntembe Waguma and Nfuudu who are caretakers (East Bank), and Nalongo Nakisita who is also a medium for the same spirit but known as Kiira (West Bank). Later in this report the Panel offers corrected clarifications of their respective roles.

<sup>609</sup> The Monitoring NGO did not show an awareness of Busoga cosmology in its report, taking its lead from the Sponsor’s cultural consultant.

<sup>610</sup> HPP-TOR, p. 11, ¶2.3.3.

opinions on this issue, with follow-up and a revised Cultural Properties Management Plan, as necessary.<sup>611</sup>

554. BEL's consultations led it to conclude that, rather than a localized cultural site, the Bujagali Falls are of spiritual significance to the Kingdom of Busoga as they are considered a place inhabited by spirits.<sup>612</sup> Though cultural ceremonies were conducted by the previous project sponsor to relocate the spirits, meetings with Kingdom representatives indicated that additional activities may be required to address the spiritual significance of the area prior to flooding. The Kingdom expressed support for the project and BEL committed to continuing and undergoing consultations with them to determine what needs to be done prior to the flooding of the Falls.<sup>613</sup>
555. For the Basoga, the traditional religious structure is distinct from the cultural structure. What follows is first a brief description of the Busoga spirituality and then a brief description of Busoga cultural domain, which may help to clarify the ensuing Panel's findings.<sup>614</sup> A more complete review of the Busoga spiritual and cultural domain is attached to this Report as Annex C entitled *Spiritual Significance in Busoga Culture*.

#### **D. Busoga Spiritual Domain**

556. The Bujagali Hydroelectric Project is moving into a neighborhood long inhabited with strong, complex cultural and spiritual traditions. Although the peoples of other ethnic groups inhabit the Project area, the Basoga claim spiritual dominion of both sides of the Nile, its islands, the water and its waterfalls.<sup>615</sup> According to the 2002 census, there are about 2.7 million Busoga in Uganda whose territory lies to the east of the Project site.<sup>616</sup> Their language, Lusoga, predominates in this area, on the East bank of the River Nile. The Basoga share a common dialect and ideological, spiritual history, sharing a cluster of eight or more high status spirits – including *Budhagaali*, the spirit residing at the Bujagali Falls site – who are invoked in their specific ceremonies. The Basoga are distinct from the Buganda, the more dominant tribe in Uganda whose traditional realm reaches to the West bank of the Nile.

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<sup>611</sup> HPP-TOR, p. 11. The preparation of the Cultural Properties Management Plan is discussed further in Section I of this chapter.

<sup>612</sup> HPP-SEA Consultation Summary, p. 22, p. 4. See also HPP-PCDP DRAFT, November 2006.

<sup>613</sup> HPP-SEA Consultation Summary. 22 September 2006. p. 4. See also HPP-PCDP DRAFT, November 2006.

<sup>614</sup> The Panel consulted with the Cultural Research Centre of the Diocese of Jinja whose researchers have published over 30 books on Busoga culture and language, interviewed the Requester's cultural experts, Busoga spiritual specialists, the Ministers of the *Kyabazinga*, individual Busoga, Management, and the Sponsor.

<sup>615</sup> The 2001 RAP states its baseline survey identified 22 ethnic groups living in the project area (HPP-SEA Main Report, p. 161). The region was repopulated by migrants from throughout Uganda and other central African countries in the 1940's after being nearly abandoned by the Busoga at the turn of the century due to sleeping sickness. (RCDAP 2001, p. 98)

<sup>616</sup> [www.busoga.com/aboutBusoga.php](http://www.busoga.com/aboutBusoga.php)

557. To the Basoga, the Project area – like their entire region – is inhabited by ancestral spirits and living humans who are constantly interacting – from birth to death and beyond.<sup>617</sup>
558. From the perspective of the Bujagali Project, the key elements of Busoga spiritual cosmology are: a) the spirits are innumerable, powerful and frequently cross over into the world of the living and may do both good and bad, b) they inhabit the same world as the living and are associated with animate and inanimate objects throughout the landscape, c) they can move freely without the need for human permission, d) they have differential power, influence, and interests, e) they are hierarchical, somewhat comparable to the ancient Greek Pantheon, f) they influence the health, well-being and the livelihood of the living, g) more powerful spirits communicate through mediums who do not view themselves as capable of negotiating or predicting spirit behavior – they are mediums of the spirit who possesses them, and h) the mediums are selected by the spirits, not by the cultural (political) leaders.
559. The intersection of spirit, place, and its medium defines the cultural resource at risk under OP/BP 4.11, a situation common to significant cultural sites throughout the world.<sup>618</sup>
560. The Panel’s review of available evidence collected during the investigation confirms that Budhagaali Falls are the residence of a host of spirits ranging from high level Busoga spirits to individual family spirits among whom is one of the Busoga’s most venerated, powerful, princely spirits, *Nabamba Budhagaali Spirit*.<sup>619</sup> In 2001, the Project noted that the *Ntembe* clan, whose leader is *Ntembe Waguma*, and diviner (*muswezi*) is Nfuudu, has clan level ancestral spirits at the Bujagali Falls site which will be disturbed by the project. Like other clans, the *Ntembe* are found throughout Busogaland.<sup>620</sup> A 2001 map of community level sites of cultural significance, included in the RCDAP, shows; 16 islands, 32 shrines, 10 large trees, 6 rocks, 20 burial ground, 2 fire places, and a forest in the immediate project area (see Figure 1 below).<sup>621</sup>

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<sup>617</sup> Over fifty years ago, Lloyd Fallers, in his classic study of the Basoga, *Bantu Bureaucracy* (1954), felt that despite the substantive presence of Catholicism and other global religions, ancestor worship was “very near the heart of the Soga value-system.” p. 80

<sup>618</sup> Routine and Dissonant Cultures: A theory about the psycho-socio-cultural disruptions of involuntary resettlement and ways to mitigate them without inflicting more damage. Theodore E. Downing and Carmen Garcia-Downing. IN Anthony Oliver-Smith. *Development and Dispossession: The Anthropology of Displacement and Resettlement*. Santa Fe: School for Advanced Research Press 2008, in Press.

<sup>619</sup> RCDAP 2001, pp. 101-102, and map of community sacred sites (including spiritual locations of rocks, trees, shrines). AES contracted a Consultant to survey the traditional religious sites and beliefs in communities along the East and West banks of the Nile River and identified specific names for these features. Because the Panel reviewed the draft form of these studies containing the surveys they are hereinafter referred to as “AES Consultant.”

<sup>620</sup> The reports are ambiguous as to the spiritual and clan leadership of the Ntembe clan, with one document referring to Lubaale Nfuudu as the leader of the Ntembe clan and another assigning this position to Ntembe Waguma. HPP-APRAP, p. 23, footnote 3.

<sup>621</sup> RCDAP 2001, pp. 101-102, and map of community sacred sites (including spiritual locations of rocks, trees, shrines), Figure 15, p. 107. The islands are named for their resident spirits, with Kiwotokwa Island a

561. Surveying the traditional religious landscape adjacent to the project area in 1998 or 1999, an AES consultant concluded that the traditional beliefs associated with these natural features play an environmental conservation, security and mental health role for the believers. One of the islands to be submerged is used for ceremonies to find missing drown bodies. He concludes that “*the implication of destroying the islands is that the spirits will disappear. Those whose family members regularly use the Nile waters will be put in a situation of fear of the unknown regarding what else to do when one of their people drowns. The associated fear and helplessness, might lead to various forms and degree of mental breakdown.*”<sup>622</sup>
562. Absent the full CPMP investigation<sup>623</sup>, in compliance with OP 4.11, the full breadth of the Bujagali Falls spiritual site at the higher level of Busoga cosmology has not yet been established. At the level of the Princely, higher spirits, all Busoga clans and their Bujagali Falls associated *baswezi* are stakeholders.



**Picture 9 Nabamba Bujagali performing spiritual ceremony**

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resident site of for *wisambwa* or high spirits - Nalongo, Nabamba Budhagaali, Walumbe and Mukasa. The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the River Nile West Bank. AES Consultant September 18, 2000, p. 41.

<sup>622</sup> The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the River Bank in Wakise Subcounty. September 18, 2000. AES Consultant, p. 24. Another island to be submerged is used for infertility ceremonies (Kirongo Island).

<sup>623</sup> The preparation of the Cultural Properties Management Plan is discussed further in Section I of this chapter.

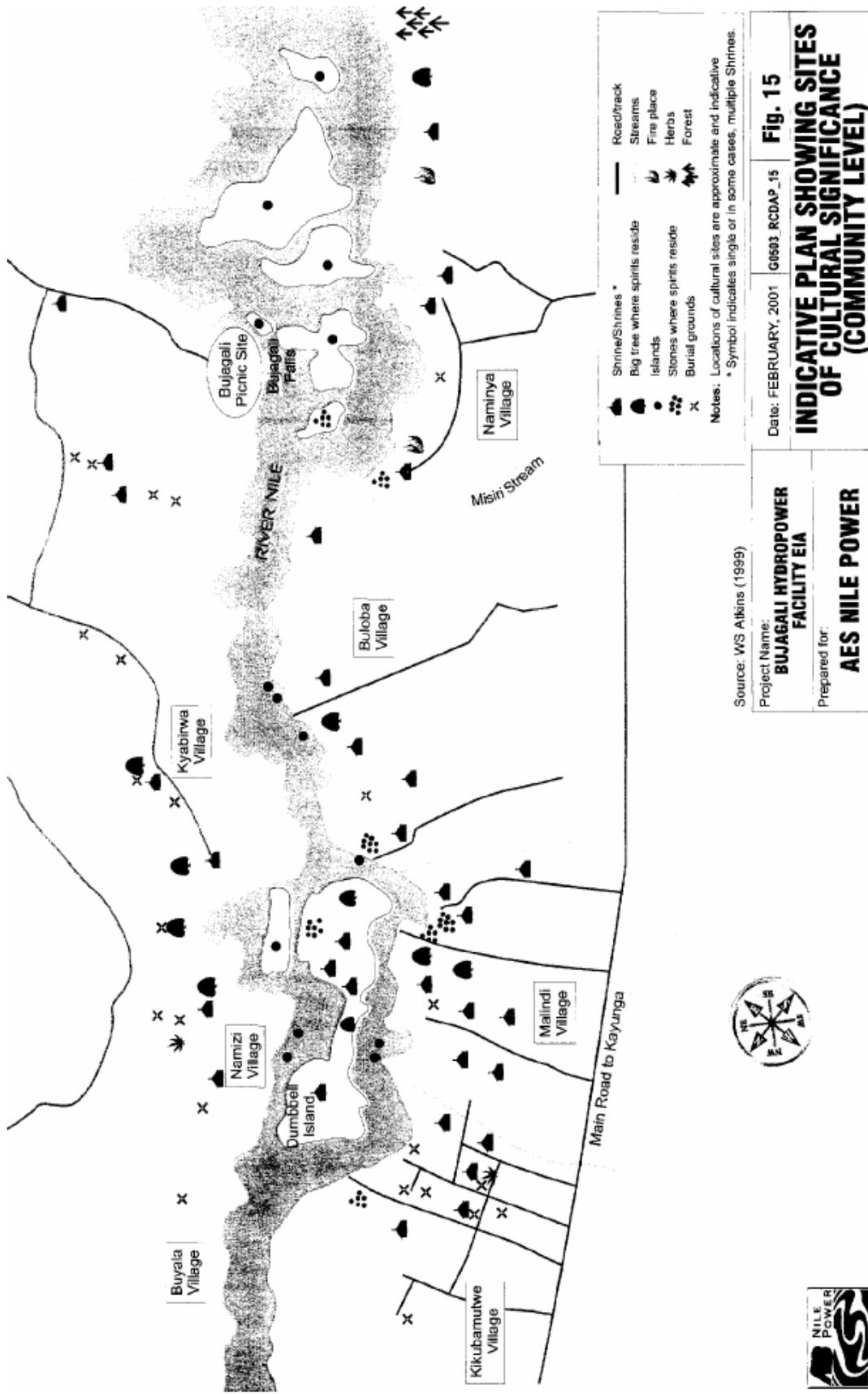


Figure 9 Sites of Cultural Significance (Source: 2001 RCDAP, p. 107)

## E. Busoga Cultural Domain

563. Busoga Kingdom is a cultural institution that promotes popular participation and unity among the people of Busoga through cultural and development programs for the improved livelihood of the people of Busoga.<sup>624</sup> Under Article 246 of the Ugandan Constitution, the Busoga Kingdom is assigned limited authority. Unlike the typical monarchies in Africa, the Busoga did not have a central authority at the advent of British rule. Nevertheless, it had developed small principalities, each with its own hereditary ruler. These principalities were later to be consolidated under a King called “*Isebantu Kyabazinga*” who ruled the Busoga Kingdom.<sup>625</sup>
564. This secular institution, which is a stakeholder on Busoga cultural issues, makes no claims to hold spiritual power, a position consistent with the Project’s consultations with the Busoga Kingdom Prime Minister.<sup>626</sup> In early August 2006, the Prime Minister explained that the spirits of the Falls have not been adequately released and expressed his feelings that the previous EIA did not adequately capture the effects of the Bujagali Falls inundation on the spirits of the Falls and noted that there needs to be collective belief of this spiritual question among the community.<sup>627</sup> He suggested a meeting with the Busoga cultural leaders to identify a way forward.<sup>628</sup> At a subsequent meeting on August 18, 2006, nine of the 11 Busoga cultural leaders reconfirmed that cultural issues of the project were not addressed, that the spirits and the Falls and shrines need to be relocated, that the entire Falls lies within the Kingdom. The nine present cultural leaders felt that all 11 needed to be involved.<sup>629</sup> While offering to search for a path to a solution, this conclave of cultural leaders did not claim spiritual authority.
565. **The Panel finds that Management and the Sponsor have increasingly recognized and involved the Kyabazinga Institution as an important guardian of the Basoga cultural tradition.** The Panel also recognizes that the Kyabazinga Institution is not empowered to speak as surrogates in consultations for the Basoga spiritual stakeholders.

## F. Panel’s Analysis – Physical Cultural Resources

566. As noted above BEL’s consultations led it to conclude that, rather than a localized cultural site, Bujagali Falls are of spiritual significance to the Kingdom of Busoga as it is a place inhabited by spirits. The Panel notes however that in the Project Appraisal Report (PAD) Management downplayed the consultation findings showing the

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<sup>624</sup> Official Busoga Kingdom website: [www.busoga.com/theKingdom.php](http://www.busoga.com/theKingdom.php)

<sup>625</sup> Official Busoga Kingdom website: [www.busoga.com/theKingdom.php](http://www.busoga.com/theKingdom.php)

<sup>626</sup> Panel interview with the same Busoga Cultural Minister, who is no longer in office.

<sup>627</sup> HPP-PCDP, p. 35. Summary of meeting of 11 Aug. 2006.

<sup>628</sup> HPP-PCDP, p. 35. Summary of meeting of 18 August 2006.

<sup>629</sup> HPP-PCDP, p. 35. Summary of meeting of 18 August, 2006.

spiritual significance of the Bujagali Falls spiritual site to the broader Busoga community and downplayed the significance of the cultural resources.<sup>630</sup>

567. Panel interviews revealed that the 2001 CPMP and its 2006 assessment might have significantly mischaracterized key elements of the Busoga cosmology. A CPMP, in compliance with OP/BP 4.11, should have identified Bujagali Falls as a significant cultural resource, triggering rigorous safeguards for specific avoidance, consultation and mitigation.
568. OP 4.11's approach to cultural resource is based on three essential components: avoidance, consultation and mitigation.

## 1. Avoidance

569. The Panel observes that, since the initiation of the Bujagali Project, Management did not adequately consider avoidance of the significant cultural resource impacts at Bujagali Falls.<sup>631</sup>
570. Management decided not to conduct a full CPMP for the Project. This very likely contributed to the fact that the issue of avoidance was not raised effectively in the SEA (see also Chapter 5) and in the Assessment of Past Resettlement Activities and Action Plan.<sup>632</sup> This contributed to the non-alignment of avoidance and mitigation measures, as required under Bank policy, to address the threat to the cultural resource.

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<sup>630</sup> PAD, Annex 15, ¶ 73. The PAD states that “The project covers some physical features that are culturally significant to local people. These consist of various types of rocks, trees, and land sites that are associated with spiritual forces. Local beliefs attached to these spirits influence events in peoples’ lives. For example, residents believe that the spirits are contacted by mediums or local practitioners or traditional spiritual leaders. During the preparation of the previous Bujagali project, local spirit mediums contacted the spirits and reported that if appropriate ceremonial procedures were financed by AESNP and carried out, the spirits would accept project-induced changes to the spiritual landscape of the project area. The previous project undertook extensive consultations with local people, religious leaders, and relevant government authorities in order to reach a consensus on this issue. AESNP carried out these ceremonies. BEL has carried out additional consultations, especially with the Kingdoms of Buganda and Busoga, and has learned that some additional ceremonies may be needed. BEL will also institute a Code of Practice on cultural issues, along with training, for workers and contractors during the construction and operation phases. Many households construct small hut-like structures (known as amasabo), which serve as shrines to ancestor spirits (these spirits are family-related, as opposed to the universal spirit forces discussed above). AESNP had mapped all such shrines and initiated a compensation procedure for their reconstruction and associated ritual procedures. BEL will complete any unfulfilled commitments.”

<sup>631</sup> The 2001 CPMP's only discussion of avoidance stated that: “At the level of the wider community AESNP acknowledges that the rapids at Bujagali Falls will be largely inundated and that this is an unavoidable impact with this project configuration. However, it is considered by the parties involved with the spiritual value of the site - namely Nabamba Bujagali, Lubaale Nfuudu and the Leader of the Ntembe Clan that the issue is a local one and the impact is acceptable as long as appropriate measures are taken. Toward this end, these parties have given their consistent support to the project, as long as the necessary ceremonies to ensure appeasement of the spirits are carried out.”

<sup>632</sup> HPP-APRAP

571. The Panel notes that if the Busoga religion and cultural tradition had been a more fully understood and widely recognized one, the current site may not have been acceptable, or alternative sites would have been given a much stronger consideration and weight. **The Panel finds that Management failed adequately to consider or implement alternatives to avoid the project-related impacts on Busoga spirituality and culture in violation of OP/BP 4.11.**

## 2. Consultation

572. In its early consultations, Management concluded that the local community did not see potential negative impacts of the Project on traditional culture and that certain traditional ceremonies could mitigate impacts.<sup>633</sup> This seems not to be consistent with the information gathered by the Panel during its field visits. The discrepancy may be explained by focusing on who was consulted.

573. The 2001 RCDAP findings came from an AES sponsored study of the traditional religion and practices in communities located nearby the project construction and flooding area on both banks of the Nile. The study interviewed 20 focus groups, half with women, which included community's residents, local government council representatives (LC), traditional religious and health practitioners, and representatives from what they termed "modern religions."<sup>634</sup> On the East Nile bank, the survey also interviewed diviners with special interest in the Bujagali site, including Nabamba Bujagali and Lubaale Nfuudu.<sup>635</sup> The RCDAP concluded that whilst the Falls will be inundated this is not seen as a cultural or spiritual issue of over-riding issue to the majority (83 percent) of the local community.<sup>636</sup>

574. The Panel notes that determination of the significance of a spiritual site requires consultation with the affected parties.<sup>637</sup> The Panel considers that the consultation methodology used in this RCDAP was detailed, but structurally flawed. First, the survey included mostly laymen many of whom were not sufficiently knowledgeable of the traditional religion. Second, it excluded key Busoga clans' spiritual leaders (*baswezi abadhagaali*) who have a strong spiritual attachment to the site and whose livelihood might be impacted by its flooding.<sup>638</sup> The consultations did not recognize that mediums of the Nabamba Budhagaali derive their power through recognition by the traditional clan priests (*muswezi*) as agents of their believers. The mediums of the high Busoga spirits are incapable of commanding their followers, meaning that the appropriate consultation strategy is participatory, as this is common among traditional religions.

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<sup>633</sup> RCDAP 2001, p. 19 and AESNP Hydro Electric Power Project, Witness NGO Report on the Implementation of Resettlement and Community Development Action Plan at Hydro Site, InterAid Uganda April 2003, pp. 22-23.

<sup>634</sup> RCDAP 2001, pp. 96, 103. The study included 2 villages as a control group.

<sup>635</sup> RCDAP 2001, p. 126.

<sup>636</sup> RCDAP 2001, p. 113.

<sup>637</sup> BP 4.11 ¶ 7.

<sup>638</sup> The unavailable 1999-2000 study on the traditional religion of the Basoga may have reviewed this information, but was unavailable to the Panel.

575. Third, the consultations assumed, not determined, that the spirits at Bujagali Falls were Basoga, not limited to inhabitants nearby the Project site, a fact reconfirmed in 2006 when the Kyabazinga council indicated that consultation on a path to deal with spiritual issues required consultations with cultural leaders throughout the Basoga (see above).<sup>639</sup> The information brought to the Board during consideration of the Project was inaccurate since it was based on a survey of people in the project area, many of whom were non-Busoga migrants who had moved into the area following a disease-linked depopulation. **Most of those who believe in the significance of the Bujagali Falls spiritual site do not live in the immediate vicinity of the Project.** The terms of reference for the cultural consultations were not revised after interviews discovered that the spiritual sites in the project area were of major significance to a religious tradition that extended beyond the immediate area of the study.<sup>640</sup>



Picture 10 Undated picture received by Panel expert showing spiritual Medium Nfuudu performing Spiritual Ceremony

576. The Panel offers three illustrations of situations in which Management acted in a way inconsistent with Bank policy.

577. First, the SEA's TOR limits the consultations to within the project-affected area.<sup>641</sup> Nonetheless, the Panel notes that the SEA's consultant expanded the consultation to include the cultural Kingdoms of Buganda and Busoga. These expanded consultations

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<sup>639</sup> BP 4.11 ¶ 7.

<sup>640</sup> AES contracted a Consultant to survey the traditional religious sites and beliefs in communities along the East and West banks of the Nile River. In the 2001 RCDAP references to "community level" spirits – meaning spirits discovered in the AES survey with significance above the household level. In their consultations with Nabamba Bujagali and Nfuudu, both mediums stressed that the spirits they were concerned about had broader significance throughout Basogaland – not just in the project area or "community" (see The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the East Bank. AES Consultant, September 18, 2000, page 89 and 92). This fact was ignored leading to a significant misinterpretation of the importance of the cultural properties, a mistake which compliance with OP 4.11 would have avoided.

<sup>641</sup> HPP-TOR, p. 11.

yielded valuable information: a) that the Spiritual problem persisted, b) that it was a Busoga, not just a local issue, and c) that consultations with a wider range of stakeholders was necessary. Despite this new information, there was no follow-up. In the PAD, Management states that the Kingdoms supported the Project and BEL is having on-going consultations with local traditional authorities and has committed to measures to ensure that these issues are properly addressed prior to and during construction.<sup>642</sup> There is no mention of the expanded consultations and their results.

578. Second, the Panel was informed that Management contacted the Cultural Research Centre, run by the Diocese of Jinja, an authority on Busoga spirituality, not for advice on consultations, rather only for translation purposes. According to the Centre, its cultural experts offered their assistance beyond translation but they were refused. The Panel could find no evidence that the Cultural Centre's information was reviewed or incorporated into the project planning.

579. Third, on September 28, 2001 at the only large ceremony conducted to appease "*the Budhagaali community spirit*"<sup>643</sup> an unspecified number of clan spiritual leaders, the *baswezi abadhagaali* and important dignitaries from all over Busoga were transported to the site at the Sponsor's expense. The followers of the Budhagaali were concerned with the rumor that the construction of the dam would take place at their sacred site. They were satisfied, however, when it was revealed that the dam would not be constructed at the site but 3 kilometers downstream at Dumbbell Island.<sup>644</sup>

580. The Panel was informed during its field visit that the Sponsor and Witness NGO present at the ceremony did not intervene to correct the misimpression that the sacred site was not to be destroyed.<sup>645</sup> The lack of action to address this misimpression was inconsistent with consultation and disclosure requirements under OP 4.11 ¶11 and ¶ 12. Without a follow-up consultation the Panel is concerned that the principal stakeholders have not understood the extent of the Project's impact.

581. The limited consultation creates on-going uncertainties as to affected people's acceptance of the project's cultural resource impacts.<sup>646</sup> **The Panel finds that the Project failed adequately to consult with the Busoga spiritual clan leaders associated with one or more high status Spirits about the significant cultural patrimony of the Bujagali Falls. This is not in compliance with OP 4.11.**

### 3. Mitigation

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<sup>642</sup> PAD, p. 133

<sup>643</sup> AESNP, p. 75. The Monitor is unclear as to whether the ceremony was for the Budhagaali community "spirit" or "spirits" – referring on the same page to both.

<sup>644</sup> AESNP.

<sup>645</sup> AESNP, p. 78.

<sup>646</sup> The policy provisions for chance finds would be acceptable for dealing with unanticipated decisions by the spirits should they appear during the consultation process and might have been included in the Cultural Property Management Plan.

582. In its 2006 assessment of the 2001 CPMP, Management concluded that compensation for individual cultural sites was completed. The mitigation usually involved a comprehensive consultation exercise with dedicated groups in each of the interested communities, who were tasked with identifying the sites and devising adequate compensation measures, which included compensation for the structures and compensation for a ceremony allowing for relocation of the *amasabo*.<sup>647</sup> This method is consistent with that used by the construction industry in Uganda. The mitigation was organized by specialized consultants on behalf of the Sponsor and witnessed by a local NGO. The local NGO concluded that there is no pending issue with respect to relocation of these sites,<sup>648</sup> save issues concerning relocation of spirits on the river island.<sup>649</sup> The Panel concurs with this assessment.
583. The Sponsor's approach has been to identify three interested "stakeholders" in the "Bujagali spirit(s)" and fund either appeasement or relocation ceremonies. The Sponsor focused on obtaining written consent from three stakeholders that compensation had been adequate and that construction of the dam at Dumbbell Island could proceed. It is evident from the 2006 consultations that this approach was not working: Busoga cultural leaders and the Panel interviews with the Nabamba Bujagali, cultural experts, the Sponsor, and Management agreed that the mitigation was incomplete.
584. As of the Panel's visit in November/December 2007, the appeasement ceremony attempted in 2001 organized by Nabamba Bujagali has led to uncertain results. The spiritual medium claims it was incomplete and he is still uncertain whether or not the spirits will be appeased if another ceremony occurs. In meetings with the Panel and others he has explained that the clan spiritual heads should be present and he cannot predict what the *Nabamba Budhagaali* Spirit will do. Meanwhile, Lubaale Nfuudu has relocated the "Bujagali spirits" to a temporary location, from which they will be moved, once more, to a suitable place away from the Project site to be purchased by the Sponsor. Project reference to undifferentiated "Bujagali spirits" makes it difficult to determine whether or not there are rival claims or just a rivalry between the two spiritual mediums.<sup>650</sup>
585. **Misidentifying Bujagali Falls as a local cultural resource, misaligning its consultation strategy, and failing to prepare a new Cultural Property Management Plan compounded errors and muddled mitigation. Resultant problems included loss of objectivity of the Sponsor, impatience, assignment of pecuniary motives to stakeholders, cost cutting, culturally inappropriate mitigation efforts, and most importantly, a misunderstanding that the Bujagali Project is ensconced in a long-term relationship with its new neighbors and their spirit world.**

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<sup>647</sup> HPP-APRAP, p. 23 ¶ 5.2.

<sup>648</sup> HPP-APRAP, p. 23 ¶ 5.2.

<sup>649</sup> AESNP, p. 67.

<sup>650</sup> AESNP, p. 71.

## G. Understanding the Local Cultural and Spiritual Context

586. The Project is being implemented in a complex cultural and spiritual environment, including several spiritual beliefs and traditions that, according to Bank policy need to be taken into account in project design and implementation. This requires a special effort to understand and show sensitivity to the beliefs of local people. What follows is a description of how Management has dealt with these issues in the context of the Project.
587. In a public document, Management loses objectivity by subjectively judging the genuineness of the interest of the mediums in cultural and spiritual aspects, including claiming expertise in measuring actual spiritual performance. They state that *“there has been fierce rivalry between Nabamba Budhagali on the one hand and Ntembe and Nfuudu on the other during the whole consultation and negotiation process, Nabamba has been quite successful in attracting media attention and obtaining significant compensation, whereas the other two seemed to be more genuinely interested in cultural and spiritual aspects.”*<sup>651</sup> Furthermore, with reference to Nabamba Bujagali, they state that *“while the two other stakeholders appear to have been genuinely satisfied with measures taken by AESNP, the Nabamba Budhagaali medium seems to have remaining claims over the site. This particular individual has been able in the past to draw a lot of attention, including international attention, which later did not appear to be justified by his actual spiritual performance, in contrast with the other two. It cannot be excluded that he will seek to obtain more compensation through media coverage for instance”*<sup>652</sup> (emphasis added). The indicators Management used to give credibility of one medium over the other are inappropriate. A medium’s credibility accrues from their believers.<sup>653</sup>
588. Following a ceremony financed by the first Sponsor on September 28, 2001, to relocate the Bujagali spirits, Management claims that all three interested mediums acknowledged in writing that compensation had been adequate and construction of the dam could proceed with the partial inundation of Bujagali Rapids as a result.<sup>654</sup> The witness NGO contradicts this account. While they agree that the Sponsor prepared a single “Certificate of Appeasement” agreement to be signed by three sponsor-identified stakeholders with spiritual interests, they claim that the negotiations on October 2, 2001 with the Nabamba Bujagali withheld his endorsement.<sup>655</sup>

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<sup>651</sup> HPP-APRAP, p. 23, footnote 3.

<sup>652</sup> HPP-APRAP, p. 23.

<sup>653</sup> The witness NGO draws a superficial cultural judgment based on the Nabamba Budhagaali request for money, bottled beer and soda vs. the Lubaale Nfuudu’s requests for more traditional drinks, and other criteria not systematically aligned with cultural knowledge of Basoga. For example, the witness NGO questions his ceremonial legitimacy because the Nabamba Budhagaali drew followers primarily from the Basoga, not across the Uganda as he had anticipated. They berate his lack of powers to float across the rapids on a bark cloth. The attendance is consistent with the claim that the Bujagali spirit is a Basoga, not a pan-national site (AESNP, p. 75).

<sup>654</sup> HPP-APRAP, p. 23.

<sup>655</sup> AESNP, p. 81.

589. The Panel notes that the insistence on a Certification of Appeasement tied to the construction of the dam is not part of OP/BP 4.11 or OP/BP 4.04. This novel document reflected a misunderstanding of the medium's role. In interviews with the Panel, the Nabamba Bujagali, as a spiritual medium, insists that Bujagali Falls is a significant cultural site that requires more costly and time-consuming consultation with the Busoga spiritual clan leaders. He could not assure the Sponsor of the outcome of spiritual consultation.<sup>656</sup> The Nabamba Bujagali stated that with Busoga spiritual logic, he could not sign the agreement for the Spirit.<sup>657</sup> He also claimed that the ceremony on September 28, 2001, had been called not to conduct the ritual of appeasement but to consult his *buswezi Budhagaali*.<sup>658</sup>
590. Lubaale Nfuudu felt the spirits had been moved to a temporary location, on his property and will be relocated again nearby the Project site.<sup>659</sup> The Nabamba Bujagali medium seems to have remaining claims over the site. The Panel notes that 2001 Project documents identify the Lubaale Nfuudu as a diviner (muswezi) who asserts that the spirit Lubaale is the father of Nabamba Budhagaali spirit.<sup>660</sup> He conducts occasional ceremonies with *busweszi* at the Bujagali Falls to communicate with Lubaale, one of the highest spirits within Busoga cosmology, but different from the Bujagali spirit. This opens the possibility that Bujagali Falls, as a cultural property may be the site of two high spirits of the Busoga, not one.
591. The Panel finds that Management publicly injected the Bank into a religious misunderstanding without competence in the cultural spiritual context of its position, including passing judgment on legitimacy and credibility of a spiritual medium's performance. **Management unnecessarily and inappropriately took sides in a spiritual controversy of a religion in which millions of Ugandans believe. The Panel finds this action by Management to be non-compliant with the OP 4.11.**
592. Among the Busoga, as in most cultures, healing and spirituality involve numerous specialists who are compensated, often in kind, for services that provide peace of mind and meaning to the lives of their constituents, patients or believers. This ceremonial budget did not include compensation to the religious specialists. The spiritual medium, Nfuudu, told the Sponsor's cultural researchers that he borrowed money against his land title as collateral for a ceremony requiring him to transport house about a hundred *baswezi*.<sup>661</sup> The Sponsor questioned the ulterior motives of the mediums and small ceremonial costs. Negotiating minor costs without understanding the ceremony itself or the importance of its participants in the overall project consultation underscores loss of Management focus on resolving its cultural resource issues. These representation costs are frequently covered within the cost of consultation.

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<sup>656</sup> HPP-APRAP, p. 23.

<sup>657</sup> AESNP, p. 80.

<sup>658</sup> AESNP, p. 80.

<sup>659</sup> HPP-APRAP, p. 23.

<sup>660</sup> RDAP 2001, pp. 101-102.

<sup>661</sup> The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the East Bank. AES Consultant September 18, 2000, p. 92.

593. Furthermore, a prime example of the culturally inappropriate mitigation efforts was the attempt to achieve closure to the cultural resource mitigation over the Bujagali Falls. Four days following this consultation at the Falls ritual site, he refused to sign because the document assigned the *Budhagaali* Spirit to the *Ntembe* Clan, a clear contradiction with Busoga beliefs. Following this dispute, he refused to endorse the Certificate of Completion of Appeasement and even refused to collect a US\$ 1,000,000 check for the preceding ceremony.<sup>662</sup> Inexplicably, the 2006 Assessment reported that all three interested parties had acknowledged in writing that compensation had been adequate and that construction of the dam at Dumbbell Island could proceed.<sup>663</sup>
594. The Panel finds, consistent with Busoga beliefs, that the spiritual mediums cannot provide assurance as to whether or not the Project could proceed before consulting the Spirits in a manner appropriate to their culture. As Nabamba Bujagali explained to the Panel, the Spirit speaks through him. Non-believers may view this response as nonsense, believing that spiritual mediums are speaking for themselves. As such, he can provide no guarantee.
595. The HPP Consultation Summary Report notes that the river and many islands and rapids in the project area hold cultural/religious values for some local persons and communities.<sup>664</sup> In the public consultation from October 5-6, 2006 attended by 150 people, an issue was raised about an unspecified location within the river (which could have been one of the islands) of spiritual significance to which the Sponsor replied that they would consult with the Busoga Kingdom.<sup>665</sup> Grave yards are archaeological sites and may be cultural/spiritual sites, whose significance is established through ethno-archaeological investigations. With reference to the islands, the Sponsor felt it was impossible to locate these graves with certainty and therefore also impossible to exhume and relocate their bodies. The new Sponsor assumed the mitigation strategy developed by the previous to hold an inter-denominational remembrance service to honor the memories of those buried in the islands. No consultation or ethno-archaeological work had established the provenance of the remains to determine the culturally appropriate mitigation. The Panel obtained information that the islands may be the location where previous spiritual media are buried. Noting that appropriate consultation and mitigation has yet to be done for the Bujagali Falls spiritual site, the Panel observes that the island areas must be included in the mitigation strategy to reach compliance with OP/BP 4.11. Management's treatment of these remains is inconsistent with the provisions being made for archaeological discoveries along the T-Line.<sup>666</sup>

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<sup>662</sup> AESNP, pp. 79-81.

<sup>663</sup> HPP-APRAP, p. 23.

<sup>664</sup> HPP Consultation Summary Report, 22 September 2006, p. 2.

<sup>665</sup> HPP-PCDP, p. 43.

<sup>666</sup> IP-SEA, p. 98 and 287.

596. **The Panel finds that Management assumed that what they called the “Bujagali spirits” were restricted to the Project construction and flooding area, in contravention to the BP 4.11 requirement that they work with and assist the Borrower to identify the spatial and temporal boundaries of the cultural resources affected by the project.<sup>667</sup> This did not comply with avoidance and mitigation requirements of OP/BP 4.11.**
597. Narrowing its size, location, and scale, Management discounted the significance of what should have been identified as the Bujagali Falls spiritual site to all of the Busoga, not just to those living in close proximity to the Project area. It appears that Management defined the project-affected-people under OP 4.11 on Physical Cultural Resources as those covered under OP/BP 4.12 on Involuntary Resettlement. In the case of the Bujagali project, the groups are distinct. **Consequently, the Panel finds that the culturally and spiritually affected people were not adequately identified as required by Bank policy.<sup>668</sup>**

#### **H. Panel’s Analysis - Critical Natural Habitats**

598. Given the importance that the Requesters attach to the spiritual aspects of the Falls, the Panel examined in detail the Bank’s consideration of this issue in light of different policies. In the Project, these issues have mainly been considered under the Bank policy on Physical Cultural Resources (OP/BP 4.11). However, OP 4.04 also contains provisions that are relevant to these issues, as discussed below.
599. Project documents recognize that the inundation of the Bujagali Falls will destroy a natural habitat of significance to the people of Uganda, and identify specific actions to offset this impact.<sup>669</sup> At the same time, Management takes the view that the Project is not significantly converting or degrading a “*critical natural habitat*” as defined in OP 4.04.<sup>670</sup> The Panel analyzes the various dimensions of that decision in light of provisions contained in the Bank policy.
600. Since OP 4.04 states that the “*Bank does not support projects that, in the Bank's opinion, involve the significant conversion or degradation of critical natural habitats,*” the Panel reviewed what constitutes a critical natural habitats. Annex A of OP 4.04 defines “critical natural habitats” as

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<sup>667</sup> BP 4.11, ¶ 6.

<sup>668</sup> Management recognized that “cultural sites and traditional beliefs appear to be closely associated with ecological features, like the River Nile, large trees, and boulders, each as a resident spirit which is worshiped”(RCDAP 2001, p. 106). This statement may be true for most of Africa, if not the world.

<sup>669</sup> See PAD, ¶157. See also Letter from Bank Country Manager to Minister of Energy & Mineral Development, April 25, 2001 (Bujagali Hydropower Project: World Bank Group’s Requirement of an Offset at Kalagala Falls).

<sup>670</sup> Safeguard Datasheet, March 26, 2007, p. 5 (Section OP/BP 4.1). In reviewing Bank Policy on Natural Habitats, and actions to offset the impacts of the inundation, both the PAD and the SEA state that “*the land take and the inundation will not impact critical natural habitat.*” PAD, ¶ 157. See also Letter of April 25, 2001, noted above.

*“(i) existing protected areas and areas officially proposed by governments as protected areas (e.g., reserves that meet the criteria of the World Conservation Union [IUCN] classifications [footnote omitted]), **areas initially recognized as protected by traditional local communities (e.g., sacred groves)** and sites that maintain conditions vital for the viability of these protected areas (as determined by the environmental assessment process; or, ...*

*(ii) sites identified on supplementary lists prepared by the Bank or an authoritative source determined by the Regional environment sector unit (RESU). **Such sites may include areas recognized by traditional local communities (e.g., sacred groves); ...**” (emphasis added)*

601. Thus OP 4.04 indicates that socio-cultural factors do have a bearing on the assignment of “criticality” to a natural habitat. The Panel further observes that there is substantial literature and practice recognizing the important relationship between sacred places and the conservation of natural habitats and protected areas, a subject of much attention in recent years. IUCN Guidelines for Protected Area Management Categories, referred to in the definition of Critical Natural Habitat under OP 4.04, state that a Category III Protected Area is an “[a]rea containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities **or cultural significance.**”<sup>671</sup> (emphasis added).

602. The Panel notes that “*areas initially recognized as protected by traditional local communities (e.g. sacred groves)*”, as referred to in OP 4.04, include areas recognized as protected for their cultural significance and ecological functions by traditional peoples. In the Bujagali Falls area, Project studies and the Panel have identified islands, sacred groves, rocks, waterfalls, and numerous Busoga spiritual sites.<sup>672</sup> The persistent resistance to disturbance of the site by the Busoga spiritualists and the expressed concerns of the Kyabazinga Institutions is evidence that Bujagali Falls are a natural habitat of great importance to the Basoga that is being protected by them, as provided in OP 4.04. The discussion in the Report describes and documents the cultural and spiritual significance of the Bujagali Falls site to the Busoga people. In addition, studies conducted by AESNP for the prior Bujagali project suggest a strong ethno-botanical use of the Bujagali Falls project area, in particular the islands, for

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<sup>671</sup> The current draft revised IUCN Guidelines amplify on this element. They note that sacred sites have “... intercultural and crosscutting values which, in turn produces equitable synergies between spiritual, cultural and natural diversity in support of more holistic conservation objectives,” and provide that “Category III Protected Areas could include: . . . **Natural-cultural sites:** such as the many forms of sacred natural sites (sacred trees or groves, springs, waterfalls, mountains, sea coves etc) of importance to one or more faith groups ... **Cultural sites with associated ecology:** where protection of a cultural site also protects significant and important biodiversity, such as archaeological/ historical sites that are inextricably linked to a natural area.” See draft of revised Guidelines for applying protected area management categories, IUCN, July 2008, pp. 98, 32).

<sup>672</sup> The AES Consultant study was preceded by an earlier 1998 commissioned study of the traditional religion of the Basoga people and the significance of the Bujagali site in particular, including Bujagali Falls (RCDAP 2001, ¶ 13.9, p. 96.) This study was not made available to the Panel.

healing and mental well-being. These studies include an ethno-botanical survey with these numerous healers to identify the flora associated with their practices.<sup>673</sup>

603. AESNP cultural consultant concluded that:

*“Cultural sites and traditional beliefs appear to be closely associated with ecological features like River Nile (Kiira), large trees, and boulders. Where any of these features are found, respondents find a resident spirit. These spirits are worshipped, respected and feared. These attitudes are manifested through rituals, sacrifices and observation of taboos.”*

*“The beliefs and practices associated with the physical features play several roles. One is an environmental conservation role,<sup>674</sup> another is a security role, and the other is the mental health role.*

*... The River Nile (Kiira), its rapids, islands and rocks and bank play a central role in the religious (traditional) lives of the inhabitants of Wakisi subcounty.*

*... We identified four categories of religious and quasi-religious objects.*

*i. The first category includes the natural ecological objects such as islands, the Nile, streams, trees and rocks.*

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<sup>673</sup> RCDAP 2001, p. 102, states that in 1999, the Kyabazinga refers to the Bujagali Falls as “a treasured cultural site would be lost.” And in June of 2000, the Kyabazinga Institution presented a statement to the Open Forum held in Washington that “*Bujagali Falls is a very important cultural site to the Institution of the Kyabazinga of Busoga.*”

<sup>674</sup> The recognition of this “environmental conservation role” is noteworthy. The Panel notes that there is substantial literature and practice highlighting the importance of sacred sites for and as part of conservation objectives, individually and collectively, as well as for inter-related spiritual and cultural value. IUCN Guidelines for Protected Area Management Categories, referred to in the definition of Critical Natural Habitat under OP 4.04, state that a Category III Protected Area is an “[a]rea containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities **or cultural significance.**” (emphasis added). The current draft revised IUCN Guidelines amplify on this element. They note that sacred sites have “. . . intercultural and crosscutting values which, in turn produces equitable synergies between spiritual, cultural and natural diversity in support of more holistic conservation objectives,” and provide that “Category III Protected Areas could include: . . . **Natural-cultural sites:** such as the many forms of sacred natural sites (sacred trees or groves, springs, waterfalls, mountains, sea coves etc) of importance to one or more faith groups. **..Cultural sites with associated ecology:** where protection of a cultural site also protects significant and important biodiversity, such as archaeological/ historical sites that are inextricably linked to a natural area.” See draft of revised Guidelines for applying protected area management categories, IUCN, January 2008, pp. 86, 28). On the topic of “The Importance of Sacred Natural Sites and Cultural Landscapes for Biodiversity Conservation”, UNESCO refers to the “biological-cultural diversity found in sacred sites”, and highlights the following element of this relationship: “In order to secure and maintain the support of indigenous and local people in the conservation of biodiversity, examples of the traditional conservation of sacred sites and cultural landscapes need to be increasingly recognized and disseminated as alternative models of sustainable development, which build upon traditional foundations...” UNESCO, People Biodiversity and Ecology, [www.unesco.org](http://www.unesco.org).

ii. *The second category involves the shrines constructed by diviners for the conducting various rituals.*

iii. *The third is burial places.*

iv. *The fourth involves animate objects like strange snakes, leopard, and tortoise.*" <sup>675</sup>

604. A companion study on the East bank based on dozens of focus group interviews make more than seventy references to local medicinal herbs, several stating "local herbs", which is evidence of a herbalists tradition that may warrant an ethno-botanical investigation to understand the importance of the site to the people's health and healing. Bone sitters and birth attendants are noted as using "local herbs" There are also numerous references to, individual named trees (e.g. Muvule tree) with special significance, not only simply spiritually but also in terms of their ecological functions (medicinal uses).<sup>676</sup>
605. As mentioned above, OP 4.04 states that the Bank does not support projects that, in the Bank's opinion, involve the significant conversion or degradation of critical natural habitats. The Panel notes that this aspect of the text ("*in the Bank's opinion*") indicates, *inter alia*, the need for and importance of the considered judgment of the Bank on this crucial question. This phrasing does not imply or give Management a blank check to apply or not certain policy provisions to a specific project but rather requires Management to form and provide expressly an opinion on the issue in question, which must be consistent with the objectives of the applicable policy. This is particularly relevant in view of the controversy surrounding these issues in the present Project. The Panel did not find sufficient documentation that would have permitted Management to make such a considered judgment.
606. The Panel finds that the Bujagali Falls area is a sacred place, like a sacred grove, recognized by the Basoga, a traditional local community, for its high cultural and spiritual significance and inter-related ecological features and values. **In this context and for the reasons described above, the Panel finds that the Bujagali Falls area may be regarded as a critical natural habitat for purposes of OP 4.04.** The Project entails flooding of the Bujagali Falls area. Bank policy regards inundation as a form of significant conversion or degradation.
607. In light of the above, the Panel finds that the Project record does not provide sufficient discussion as to why the area was not considered a critical natural habitat. Nor do Project documents explain the Bank's "opinion" that the Project would not

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<sup>675</sup> The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the River Bank in Wakise Subcounty. AES Consultant September 18, 2000, p. 19, 31.

<sup>676</sup> Munene, John. "The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the East River Bank in Subcounty," p. 15. Commissioned by AES in 1998. Other important natural and ecological features and values of the Bujagali Falls area are described in Chapters II and IV of this Report.

involve significant conversion or degradation of a critical natural habitat. **Considering the known spiritual importance of the Project area, without such an explanation, one could also arrive at an opposite conclusion, i.e. that the inundation may be regarded as resulting in the significant conversion of a critical natural habitat which would be in violation of OP 4.04. The Panel finds that omitting the reasons behind an opinion of not declaring the Falls a critical natural habitat is not consistent with the objectives of OP/BP 4.04. The Panel finds that there is an overriding need for the Bank to address these issues in a coherent and well-founded manner to ensure compliance with Bank policies.**

## **I. The Cultural Property Management Plan (CPMP)**

608. Throughout the interaction with Project, the Busoga spiritual leaders have acted in a manner consistent with their belief systems as described in non-project associated ethnographic information. Their concerns focused on what is perceived as possible disharmony with their cultural patrimony and to the spiritual importance of the Bujagali Falls to the Busoga.
609. It remains uncertain whether or not key stakeholders (consulted and as yet to be consulted) in the spiritual community comprehend the fact that their sacred site will be inundated and inaccessible for their traditional ceremonies. This issue extends well beyond the two spiritual mediums.
610. Management was also on untested grounds by substituting an abbreviated procedure, not provided for in Bank Policy whereby the new Sponsor would find out what remains to be done from the previous plan, which was assumed to be correct. The previous Sponsor's plan was designed under OPN 11.03, a policy framework that had been replaced by 2006. The Panel could not find evidence that the TOR for the new Sponsor were prepared in consultation with relevant experts and project-affected groups, particularly the local CSO in Jinja that has recognized expertise on the Basoga. Had the project been examined as called for in OP/BP 4.11 it is unlikely that the several non-compliance issues highlighted by the Panel would have occurred. **The Panel finds that insufficient competence was dedicated to an examination of this issue for the Appraisal.**
611. There are livelihood impacts directly associated with the disruption of the cultural resources sites that, although initially identified by AES, were subsequently ignored. Contemporary ethnographic accounts and the RCDAP 2001 describe many categories of traditional practitioners (diviners, interpreters, gourd players, immunizers, exorcists, dispensers, herbalists, caretakers/mediums, bone sitters, and more)<sup>677</sup> who require payment in money or in-kind for their services, as in any other religion. Within the context of a traditional society, these transactions are substantial, and they should have been included in the CPMP as specified in OP 4.11.

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<sup>677</sup> RCDAP 2001, p. 105.

612. **The Panel finds that Management failed to prepare a Cultural Properties Management Plan, assuming that the work of the previous Sponsor was sufficient to meet OP/BP 4.11 guidelines.** The overall social management plan (part of the SEAP) does not include planning, resources, or budget supporting Management’s response that cultural and spiritual issues will be implemented throughout the life of the project.<sup>678</sup>
613. In summary, the Project misidentified the Bujagali Falls spirits as localized, with Project impacts limited to people nearby the Project site. The TOR for the Cultural Properties Management omitted the need for consultation with the approximately 340 Busoga clans’ spiritual leaders (*baswezi*) with spiritual ties to the cultural property that was to be affected by the Project.<sup>679</sup> **The Panel finds that Management is in non-compliance with OP 4.11, by misjudging the size, location, scale as well as the nature and magnitude of the cultural and spiritual significance of Bujagali Falls. The Panel also finds that Management did not consult with key stakeholders throughout the Project cycle and is therefore in non-compliance with OP 4.11. The Panel also finds that mitigation measures were not adequate because the scope of the impact and the consultation process were incomplete.**

#### **J. Opportunities to Address Cultural and Spiritual Issues**

614. The Panel observes that there are important opportunities available to address the cultural and spiritual issues within the context of the Busoga and the OP/BP 4.11. The Busoga commonly say that “*those who are together are like gourds, they cannot avoid hitting each other.*” They recognize the value of consultation, “*to put an end to disputes, clan members usually hold a meeting and call those who have conflicts together.*”<sup>680</sup> And they understand mitigation. The Busoga have many ceremonies to reconcile conflict and establish good relationships between those in conflict – the spirit and clan members.<sup>681</sup> Harmony is not a permanent status, it comes and goes.<sup>682</sup> The Panel’s investigation of Busoga culture suggests the cultural problem is one of restoration of harmony and developing an appropriate consultation protocol, not simply appeasement.<sup>683</sup>
615. In the prior Project, Management’s cultural resource strategy focused on closure, relocating, or appeasing the spirits, compensating when necessary, documenting

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<sup>678</sup> Management Response, p. 38.

<sup>679</sup> Whether or not the *baswezi* have ties to particular spiritual medium is irrelevant to evaluation of the significance of the cultural property. The Panel notes that the 28 September 2001 ceremony, *baswezi* present participated in the ceremonies, an indication that they share a common belief in the centrality of the *Nabamba Budhagaali* spirit consistent with the ethnography reviewed by the Panel. (AESNP).

<sup>680</sup> Reconciliation among the Basoga. 2001. Culture Research Centre, p. 47.

<sup>681</sup> Reconciliation among the Basoga. 2001. Culture Research Centre, p. 47.

<sup>682</sup> Celebrating the Sanctity of Human Life among the Basoga, Cultural Resource Center, Jinja, Uganda May 2004 Marianum Press Ltd., pp. 325- 326.

<sup>683</sup> Celebrating the Sanctity of Human Life among the Basoga, Cultural Resource Center, Jinja, Uganda May 2004 Marianum Press Ltd., p. 325.

spiritual appeasement through signed certificates, and setting a finite timeline (originally 6 months in 2001).<sup>684</sup>

616. The current Project continued this strategy. Its only remaining cultural property resources commitment was to hold an inter-denominational remembrance service, originally proposed by the first Sponsor, AES, to honor the memories of those buried in the islands, as it was impossible to locate these graves with certainty and therefore also impossible to exhume and relocate their bodies.<sup>685</sup> Such a service might prove valuable for some residents in the project area, but does not appear to have been developed through consultations with the Busoga spiritual stakeholders.
617. Similarly there does not exist yet a long-term strategy for sustaining a relationship between believers and the Project, nor have arrangements been negotiated allowing worship at alternative sites in the future. Panel interviews with Basoga cultural experts revealed that an outcome of a spiritual consultation may be for the spirits to stay in place and permit the project to proceed. **The Panel finds that Management has thus far failed to support negotiations that would allow enduring coexistence with spiritual elements of Busoga traditional religion and the Bujagali dam.**
618. Construction of a Bank-supported hydroelectric dam on a sacred site that is highly valued to a large cultural group is rare. The Panel's expert is aware of one such project: Aguamilpa dam in Mexico, which was financed by the World Bank. The dam was constructed during the early 1990's – before the first Bujagali project was initiated.<sup>686</sup> During Appraisal, Bank consultants discovered that the dam would inundate the highly sacred Huichol Indian site of the water Goddess Macahua at the convergence of the Santiago and Huayanamota River. Bank and Mexican anthropologists and the Chief Engineer consulted and negotiated with groups of shamans then financed a multi-year movement of the ceremonial site to a new location on the edge of the reservoir. The result was a successful mitigation, including the blessing of the dam by traditional religious leaders. Traditional ceremonies punctuated the dam construction up to and including its inauguration by the President of Mexico. Unanticipated at the time, the Huichol were later to view the entire reservoir, which is now a source of income (through exclusive control of navigation and fishing), as sacred.<sup>687</sup>

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<sup>684</sup> RCDAP 2001, p. 118.

<sup>685</sup> HPP-APRAP, p. 23. The original AES proposal emerged in RCSAP 2001, p. 113.

<sup>686</sup> Scott Evan Guggenheim, "Peasants, Planners, and Participation: Resettlement in Mexico. IN Anthropological Approaches to Resettlement: Policy, Practice and Theory. Eds. Michael M. Cernea and Scott E. Guggenheim. 1993. Boulder: Westview Press, pages 201-228, especially pages 221-222. Theodore E. Downing, Appraisal of the Aguamilpas (Mexico). The World Bank. 2 July 1987. Jason Stanley. Financing: Where funding arrangements meet resettlement in three Mexican dam projects. Todd M Vanden Berg. "We are not compensating rocks: Resettlement and Traditional Religious Systems". In Journal World Development (UK publication), Vol. 27, No. 2 pp 271-283. 1999. Accepted for publication August 17, 1999. Ritual Gestures in Busoga. Busoga Cultural Research Centre, Nile Gardens 5, Jinja, Uganda, Dec 2001. Pages 30-62. Jason Stanley. 2003 October. "Financing Matters: Where funding arrangements meet resettlement in three Mexican dam projects. RSC working paper. University of Oxford page 3. (D454).

<sup>687</sup> Project Files, communication dated 9 June 2008, based on follow-up visit of May 2008.

## Chapter IX

### Systemic Issues Affecting Policy Compliance

619. The Panel notes that this investigation, like some earlier ones, has revealed certain systemic issues that have affected the Bank's overall compliance with its Operational Policies and Procedures in the context of this Project. Some of these issues, which the Panel believes are important to understanding some of the key findings in the present Report, are noted below.
620. At the outset, the Panel wishes to reiterate that it considers energy a crucial factor in Uganda's development. The findings of this Report, and the discussion below, do not dispute this fact. Rather, they highlight what might itself be noted as **the first systemic point to be raised by this Report, i.e., that energy production requires considerable care in order to ensure that social, economic and environmental aspects are properly considered, in line with Bank policy, to adhere to sound development practices and avoid situations where costs, including social and environmental costs, outweigh the benefits expected from what are usually sizable investments.**

#### A. Legacy Issues from Preceding Projects

621. This investigation encountered a situation of adverse effects on people due to a failure to assess, correct and complete resettlement actions initiated in the previous effort to develop the Bujagali dam. In particular, many people whose lands were to be flooded or affected by the anticipated reservoir inundation and construction activities were relocated at the time of the first Bujagali dam project. When the implementation of this earlier project was halted, following withdrawal of the sponsor, **many of these people were essentially left in limbo, and they did not receive key elements of the resettlement process to which they were entitled under Bank policy** (e.g., relating to livelihood and income restoration, community development initiatives). Their continuing problems, and the shortfalls in compliance, are beginning to be addressed only now, several years later, following the present Request for Inspection.
622. Legacy issues from previous funding are found in many projects. The experience with the Bujagali Dam highlights the significant problems that may arise when actions of previous projects are not carried to completion or corrected in accordance with Bank policy. The Panel notes the importance to affected people of timely actions to address any such situations that might arise.

#### B. Incorporating Climate Change into Project Design

623. The Panel Report indicates that important studies were done to analyze the question of climate change, even if the most significant of these were not disclosed as integral part of the Project documents. The Panel also notes that hydro-electricity, while posing its own set of social and environmental impacts, has the important

comparative benefit of avoiding the generation of greenhouse gas emissions produced by some other large-scale alternative sources of energy - - a point properly noted in Project documents and in the consideration of the proposed Project.

624. At the same time, the Panel discovered that the following conclusion was drawn from the analysis of climate change, and presented to the Board of Directors in the key Project Document, the PAD: “[. . .] *there will be no adverse effect on water release due to climate change during the life of the proposed project.*”
625. The Panel is troubled by this conclusion - - it failed to include a risk or uncertainty factor, was inconsistent with the underlying analysis, and appears to provide an overly optimistic reading of the potential effects of climate change. The Panel considers that climate change requires a change in mindset towards thinking in probabilistic rather than deterministic terms, recognizing the inherent uncertainty that surrounds climate related issues, and avoiding categorical, deterministic statements. The approach noted above is not in line with the objectives of Bank policies in support of informed decision-making.
626. The Panel notes, in this regard, the Bank’s increased role in supporting action to address climate change, and its systems-level efforts to ensure that climate change risks are mainstreamed and integrated into Bank’s strategic analysis and project decision making. The proper reporting of risks is of central importance in this larger context.

### C. Timely Disclosure of Information within the Project Cycle

627. The Requesters have expressed concern that it was not possible for them to bring the Request at an earlier time because of the lack of transparency and disclosure during the discussions of reviving plans for a second round of investment in the Bujagali dam project.
628. This point finds support in the record of disclosure of Project documents. Project files show that the Bank was involved in the preparation of this Project since early 2005. However, the Project Information Document, which is supposed to be issued early in the Project cycle to provide factual information to the public about a project as it evolves, was not issued until January 30, 2007. The Project appraisal took place shortly thereafter in March 2007, and the Board approved the Project on April 26 of the same year. **While the Panel notes ongoing efforts to streamline procedures, this should not be at the expense of providing adequate information to the public in a timely way.**
629. Related to this, the Requesters have also raised concerns about the implications of the Project moving forward to such a degree during the investigation of their claims, which they note might result in significant issues of non-compliance and harm.

630. The Panel observes that these concerns have given the impression to affected people that the Project is a *fait accompli*, notwithstanding the possibility of findings of non-compliance and harm. The Requesters have expressed concern that this could prevent the Project from addressing significant findings in this regard. The Panel notes that this is an important process and systemic issue raised by the present Request, particularly in projects where it is alleged that irreversible harm may occur as a result of Bank's non compliance.

#### **D. Transparency Issues and Public-Private Partnerships**

631. During its field investigation, the Panel noted considerable concern among Ugandan citizens and a number of their representatives about the lack of transparency on the economic impacts of the project. While realizing the complexity of this project, and the resulting agreements that were made between private and public partners, it is of concern to the Panel that so little is known about the impact of these agreements not only by the average Ugandan citizen, but also by persons in position to comprehend the implications of the various arrangements made.
632. **Given the increase in private-public partnerships, and issues relating to access to information in this context, IBRD and IDA might incur reputational risks that are thus far not adequately handled.** Similar issues were raised with regard to the prior Bujagali project and other projects reviewed by the Panel in the past. **In this regard, the Panel notes the importance of clarifying Bank policy concerning the disclosure of all project-related documents. This is of particular relevance in public-private partnership projects where some of the documents may be concluded among private parties relying on Bank financial support.**
633. In the present context, the Panel found that there was an unduly optimistic assessment of the costs, benefits and risks of the Project, including: (i) an under-estimation of capital costs in the PAD; (ii) an under-estimation of the likely impact of the Project on tariffs; (iii) a non-recognition of the likely shortfall in UETCL revenue against the capacity charge up to 2002; and (iv) non-recognition of some key risks, notably in collection rates and exchange rates. In all of these, and especially the third category, Bank Management was substantially dependent on the work of others. In addition, the Panel found that approach to assessing alternatives to the project was insufficiently transparent, making it difficult for Bank Management authoritatively to address claims that it was inadequate and biased in favor of the Project. **As it stands, the net benefits of the Project could be substantially less than Bank Management has claimed.**

#### **E. Critical Natural Habitats and Sacred Places - - Guidance to Staff**

634. As described above, OP.4.04 defines critical natural habitats to include existing and proposed protected areas, "*areas initially recognized as protected by traditional local communities (e.g., sacred groves)*" and sites that maintain conditions vital for the viability of these protected areas. Internal guidance to staff for the application of the

Natural Habitats policy, by comparison, describes “*critical natural habitats*” as “*those Natural Habitats which are either legally protected, officially proposed for protection, or unprotected but of known high conservation value.*”

635. In practice, this particular guidance seems to suggest a more limited interpretation and application of the policy than a plain reading of its terms would warrant. As a result, areas recognized as sacred and protected by traditional local communities, but considered to be lacking a unique biodiversity and/or official protection, may not have been regarded as “*critical natural habitats.*” As described in the Panel’s Report, the Project provides an illustration of an overly restrictive application of the Policy that puts the Bank at risk of a serious violation of its policy.
636. The Panel notes that, in contrast to this apparently narrow application of the Policy, there is a strong and increasing recognition over the years, for example through the IUCN process, of the importance of sacred places both for their spiritual and cultural values, and for and as part of broad conservation objectives, both individually and collectively. . An IUCN Category III Protected Area is an “[a]rea containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or **cultural significance.**” (emphasis added). The current draft IUCN Guidelines amplify on this element, as described in the Report.
637. The Panel also notes as well that it addressed these same provisions of OP 4.04 brought this particular issue to the Board’s and the Bank’s attention in its recent investigation of the Cambodia forest project. The Panel Report, in a section entitled “Identification and protection of critical natural habitats,” highlighted that, according to Bank Policy OP 4.04, the status of critical natural habitats is also granted to places that are sacred and protected as such by traditional communities. The Report then states:  
“*It is apparent ... that there are many spirit forests and spirit trees in forests in their locality which are important to the cultural identify of local people [footnote omitted]. This is particularly the case with indigenous communities. Thus, there are many areas within the general forest estate that **need to be considered as critical natural habitats** . . . There are also numerous documented cases of spirit forests (critical natural habitats) being logged and destroyed without any consideration of their spiritual or cultural values.*” (emphasis added)
638. The Panel observes that the Management Response to the Panel’s Report related to the Cambodia forest project does not dispute the Panel’s finding.
639. **The Panel considers that such internal guidance given to staff working in Bank-financed projects involving natural habitats and possibly critical natural habitats, like the current Project, may have sent an inadequate and overly-narrow signal on the application of the Policy. Project stakeholders would benefit from clarification on these matters.**

## Annexes

### Annex A Table of Findings

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
<b><i>ENVIRONMENTAL ISSUES</i></b>		
<b>Adequacy of the Social and Environmental Assessments</b>	The proposed Private Power Generation (Bujagali) Project is a new operation. There has been a fresh assessment of social and environmental aspects of the project, which has also required drawing upon former studies, where relevant.	Project has appropriately been classified as category "A", the category for projects with the most serious level of impacts. This complies with OP 4.01.
<b>Environmental Management Plan</b>		The fact that the Environmental Management Plan is not an integral part of the SEA that has been disclosed is a deficiency. This is not in compliance with OP 4.01.
<b>Institutional Capacity</b>		The requirement to support needed capacity building, which is important in the implementation of social and environmental aspects, has not been complied with in this Project.
<b>Independent Panel of Experts</b>		As Project is contentious and involves environmental concerns, appointment of environmental panel of international experts is warranted and the lack of such panel is not in compliance with OP 4.01.
<b>Disclosure of Project Documentation</b>	The World Bank Group has disclosed the project's Economic Study, BEL's SEA, the NELSAP Strategic/Sectoral Social and Environmental Assessment (SSEA), and other environmental and social documents.	Panel acknowledges that the necessary studies have been conducted and disclosed, albeit independently, and considered by Management and referred to specifically in PAD. However, failure to disclose SSEA or its relevant parts as an integral part of Project's documentation is not consistent with OP 4.01.
<b>Cumulative Impacts of Bujagali and Existing and Future Hydro Projects Cumulative Impacts of Transmission Lines</b>	The SSEA for the Nile Equatorial Lakes describes the criteria for assessing the social and environmental appropriateness of future hydropower developments on the Nile River in Uganda and in the entire East Africa region. Section 14 of the SSEA analyzes the cumulative impacts of several hydropower development alternatives under differing scenarios of regional grid integration. It concludes that developing Bujagali and other sites in the Victoria Nile Basin (excluding Kalagala) will not have significant cumulative environmental impacts. BEL's SEA examines cumulative impacts of Bujagali, the hydropower plants at Nalubaale, Kiira and Karuma along with	Analyses in SSEA do not provide systematic examination of potential consequences of the Nalubaale and Kiira facilities, the Bujagali Project, and the planned Karuma project all being situated on the Victoria Nile between Lake Victoria and Lake Kyoga. Panel finds that analyses are not sufficiently backed by evidence and include opinions rather than careful fact-based examinations of additive effects of impacts from present and foreseeable projects. Panel finds that neither SSEA nor SEA have addressed cumulative effects of existing and planned projects in meaningful way. This is not in compliance with OP 4.01.

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
	the transmission facilities therewith on the Victoria Nile in Uganda.	Panel finds that the failure to consider mitigation measures, which would reduce social and environmental impacts of the transmission line, does not comply with OP 4.01 and OP 4.12.
<b>Environmental Impacts on Fisheries and Aquatic Systems</b>	Building on relevant work conducted to date, BEL's consultants conducted further field studies and analyses where the need for updated information had been identified, such as water quality, fisheries, terrestrial ecology, resettlement and compensation, and cultural resources. The reach of the Victoria Nile that will be affected by Bujagali is not considered to be critical habitat for any fish species of conservation importance.	Based on its review of relevant research studies, Panel observes that the status of fish species inhabiting both Lake Victoria and Victoria Nile is disputed and that ongoing research is desirable. However, significant effort has been devoted to study these fish in the reaches of the Victoria Nile that will be affected by the Bujagali Hydropower Project.  Panel finds that Management acted consistently with OP 4.01 and OP 4.04 as these relate to assessment of likely consequences of Project on fish stocks in the Upper Victoria Nile and Lake Victoria.
<b>Kalagala Offset Agreement</b>	GoU has agreed to reconfirm its commitment to the Kalagala offset that it made under the previous effort to develop the Bujagali project. This offset commitment is consistent with the mitigation provision for Kalagala Falls, and also recommended in BEL's SEA Report. The offset provision for Kalagala Falls and the adjacent natural habitat will be included as a GoU obligation in the IDA Indemnity Agreement for the Bujagali project.	Panel finds that there is evidence that an offset has been created, to meet OP 4.04, but there is no evidence of the offset site being subject to appropriate conservation and mitigation measures in conformity with sound social and environmental standards. Project is thus not in compliance with OP 4.04. Panel finds that the Kalagala offset may not achieve the purpose for which it was set aside, and this is not consistent with the provisions of OP 4.04. Panel notes with concern that proposed Environmental Mitigation and Monitoring Plan is silent on the need for monitoring of enhancement and offset plantings. Monitoring of replacement plantings has not been included in the terms of reference of the witness NGO appointed to monitor Project compliance with IDA conditionalities. This is not consistent with OP 4.04.
<b>Safety of Dams</b>	A Dam Safety Panel (DSP) has been established, which includes two of the three members of the previous panel set up under the earlier effort to develop the Bujagali project. [...] Management considers the current project in compliance with the OP (OP 4.37).	Panel finds that Management has complied with the procedures set forth in OP 4.37.
<b><i>HYDROLOGICAL AND CLIMATE CHANGE RISKS</i></b>		
<b>Appropriateness of Hydrological Data</b>	The hydrology of the Victoria Nile is complex due to meteorological influences,	Panel's hydrology expert has concluded that hydrologic data sets used in Project

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
<b>Series used in Project Design</b>	the rainfall-runoff process, the scale of the evaporation losses, and the interaction between rainfall and evaporation within the watershed. The available reservoir inflow record comprises 106 years of data. It includes several significant hydrological cycles, among which the seasonal and ten year cycles are the most apparent. Given the length of the hydrological record at this site and studies on climate impacts, the hydrological risk for energy generation is considered to be definable from the available data set.	design constitute a reliable data series and its variability over time is a natural condition, which can be observed in other hydrologic series of different parts of the world, when hydrologic series is long enough. Panel finds that this provides an appropriate baseline for analysis of environmental and economic issues, in compliance with OP 4.01.
<b>Impact of Hydrologic Risk on Energy Output</b>	The Economic Study addresses the economic viability and risk analysis of the Bujagali project. The key elements assessed in the economic analysis include [...] the hydrology of Lake Victoria and its impact on hydropower generation. [...] Risks arising from varying degrees of future uncertainty regarding these variables have also been evaluated.	There seems to be a discrepancy in Project documents: PAD and Economic Study differ as to which water release regime will be in effect once Bujagali becomes operational, the "Agreed Curve" or the "Constant Release" rule. This discrepancy brings into question the data basis for Project's economic analyses, and is likely to have resulted in a more positive conclusion to the Economic Study than would have been the case under the Agreed Curve scenario. This is inconsistent with OP 10.04, the provisions of which require Management to provide an accurate picture of the Economic Study (based on the Agreed Curve), and indicate whether this affects relevant conclusions. Panel notes that this contradiction in Project documents has a material implication not only for economic viability of Project and provisions of OP 10.04, but also on lake levels of Lake Victoria, since different operational rules result in different time-profiles and variance of water levels.
<b>Potential Impact of the Project on Lake Victoria</b>	With joint operation of the existing hydropower and the proposed project, generation of the same energy output as currently generated by Nalubaale and Kiira would only require 45% of the current water release from Lake Victoria. Management acknowledges that BEL will not control the release of water from Lake Victoria, but is of the view that it is in the interest of the GoU to ensure that Bujagali and the Nalubaale/Kiira dams are operated efficiently.	Panel notes importance of assessing changes in operating regimes and extending area of influence of the Project to Lake Victoria. Panel finds that SEA analysis did not comply with OP 4.01 in defining the area of influence of the Project because Project impacts on the changing levels of Lake Victoria were not assessed. Panel notes the importance of making the structure for governance of water releases from Lake Victoria clear and transparent to all stakeholders.

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
<b>Climate Change Risks</b>	<p>The broader climate change (and hydrology) aspects were addressed in different studies which have also been publicly disclosed. The SSEA analyzed in detail the impacts of climate change on power development options in the Nile Equatorial Region, including Bujagali.</p>	<p>Panel finds that the possible effect of climate change on hydropower projects on the Victoria Nile has been seriously considered in the SSEA. This is in compliance with OP 4.01. Management does not appear to have ensured that Economic Study drew on the much more thorough analysis in SSEA. Panel finds that this is not compliant with OP 10.04.</p> <p>Panel is aware of the limitation of known technology in evaluating climate change scenarios and that the analysis of climate change is an evolving science, where gaps remain. Indeed, this situation makes all the more troubling the PAD's categorical assertion, without any reference to risk and uncertainty, that there will be no adverse effect on water release due to climate change during Project life.</p> <p>This failure to express climate change as a risk factor is not consistent with OP 10.04. Panel notes the importance of continued attention and analysis to the effect of climate change on flows and hydropower generation on the Victoria Nile.</p>

***ECONOMIC AND ENVIRONMENTAL ANALYSIS OF ALTERNATIVES***

<b>Economic Analysis of Alternatives</b>	<p>Management considers that economic, financial, safeguard, technical, governance, and other required analyses to date are compliant with relevant Bank policies.</p>	<p>The terms of reference for the Economic Study call for comprehensive update of earlier work.</p>
<b>Demand Forecasts and Electricity Tariffs</b>	<p>Three load forecasts were prepared for the current project, taking into account actual data over the past several years and the comments made by the Inspection Panel with regard to ensuring an adequate range between the high and low load forecasts (see the Economic Study).</p>	<p>There is evidence that Management addressed demand forecasting for the current Project seriously; it commissioned a detailed, sophisticated review in 2004, which stressed the importance of thorough revision of load forecasts.</p>
<b>Alternatives Considered:</b> <ul style="list-style-type: none"> <li>• Geothermal Potential</li> </ul>	<p>A detailed review of geothermal prospects was conducted as part of the project analysis of alternatives. The analysis concludes that historical estimates of the geothermal potential of Uganda being as much as 450MW are substantially overstated. The true potential is likely to be in the order of only 10% of this figure. [...] These findings led to the inclusion of a 40MW geothermal power plant, to be commissioned in mid-2011, in the least-cost analysis.</p>	<p>Panel notes the statement in Management Response that additional studies and shallow drilling are included under the ongoing Power IV Project, to assist GoU in assessing geothermal prospects at several sites in Western Uganda. Additional information resulting from this work would help resolve conflicting views regarding geothermal potential in Uganda, and may have significant bearing on economic analysis of alternatives.</p>
<ul style="list-style-type: none"> <li>• Small and Medium Scale Alternatives</li> </ul>	<p>The Bank is providing considerable support to Uganda in development of hydropower potential. This includes large-scale hydro</p>	<p>Panel notes that information in Economic Study and PAD relating to knowledge about and potential of smaller scale and/or</p>

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
	<p>and the ongoing ERT Project, which is supporting mini-hydro development for grid-connected and off-grid applications. [...] The Bujagali Economic Study included all hydro projects that are either currently providing power to grid, or suitable for grid connection and which are actively under development and thus suitable for consideration in planning timeframe.</p>	<p>distributed generation alternatives did not clearly establish that available studies and data had been identified and evaluated to decide whether further consideration was required. Panel finds that Economic Study and PAD did not demonstrate full compliance with OP 10.04 requirement to evaluate alternatives.</p>
<ul style="list-style-type: none"> <li>Oil Resources</li> </ul>		<p>While oil resource discovery was at a very early and unproven stage when the Economic Study Final report was completed, Panel finds that the existence and potential of this resource should have been reviewed in the discussion of alternate supply options.</p>
<p><b>Project Costs</b></p>	<p>The World Bank Group and other lenders have taken several steps to ensure that costs of Bujagali reflect current market conditions. BEL conducted its procurement of the EPC contractor under the supervision of the EIB.</p>	<p>Panel finds that, although certain parts of the analysis were carried out thoroughly, to meet all requirements of OP 10.04, PAD should have included explanation and supporting evidence of why all parties had concluded that substantial project cost variations would not alter conclusions of the Economic Study. Panel observes that the foregoing analysis does not suggest that the updating of the EPC cost figures in the PAD does not obviously disadvantage Karuma relative to Bujagali.</p>
<p><b>Assessment of Least Cost Options for Expanding Power Generation</b></p>		<p>Process of testing the sensitivity of the least cost expansion plans with and without Bujagali appears to have been carried out thoroughly. The assumed increase of 10 percent for the “high Bujagali capital cost scenario” compared with the “base scenario”, with an assigned probability of only 20 percent, was inappropriately low. Nevertheless, a sensitivity test suggested that the Economic Study’s conclusions that Bujagali was the least-cost option were robust for an increase of almost 50 percent in capital costs.</p> <p>Panel finds that, in order to comply with the requirements of OP 10.04, the PAD should have qualified its statement about the projected drop in tariffs to take into account the impact of EPC and transmission cost increases.</p> <p>Panel considers that the relationship between estimates in Economic Study and PAD’s financial analysis should have been</p>

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
		presented more clearly and transparently in PAD.
<b>Externalities</b>		Panel finds that the limited presentation and discussion of these costs in Economic Study did not succeed in demonstrating full compliance with OP 10.04. In Panel's view, to meet all requirements of OP 10.04, Economic Study should have examined, in more detail, the potential of changes in damage from other pollutants than CO <sub>2</sub> , even if it might have proved difficult to value them.
<b>Hydro-power Location Alternatives within Uganda</b>	Management is firmly convinced of the appropriateness and breadth of analysis undertaken to identify and assess alternatives for expansion of Uganda's power sector. The economic analyses considered options that had realistic potential for availability in a timeframe similar to the Bujagali project, and which, therefore, could be considered as alternatives.	Panel finds that Management did not ensure that cultural and spiritual matters were properly considered when comparing the Bujagali and Karuma alternatives, as required by OP 4.01. This is especially relevant in light of the significant cultural and spiritual importance of Bujagali Falls to the Busoga people. Lack of proper consideration of cultural and spiritual matters in this comparison had important consequences, in that it appears to have led to the conclusion that there was little difference between the Bujagali and Karuma sites and that therefore economic and financial aspects of the options should become the determining factor in selecting the preferred option.
<b>Alternative Project Configurations at Bujagali</b>		Panel notes that a range of alternatives have been considered in these studies. Panel is concerned, however, that analysis unduly narrowed consideration of alternatives on the basis of <i>a-priori</i> judgments rather than exploring all technically feasible options, including those that would not involve flooding Bujagali Falls and thus have lower social and environmental costs, and laying them out in a systematic way along with their economic, social and environmental benefits and costs, so that judgments on optimal alternatives could be made with full understanding of trade-offs involved. This is not consistent with OP 4.01's provisions that feasible alternatives should be explored systematically to meet basic Project objectives, and may have led to inadequate consideration of alternatives that met Project objectives while avoiding social and environmental costs associated

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
		with flooding Bujagali Falls.
<b><i>ECONOMIC EVALUATION: POVERTY REDUCTION AND RISK</i></b>		
<b>Affordability and Poverty Reduction</b>	Management states that Project will allow industrial and commercial users to increase their output and efficiency, and therefore their profits, thereby enhancing economic growth. [...] These developments are expected to have positive impacts on poverty alleviation in Uganda, directly through the availability of power to newly connected households and indirectly through employment creation. [...] According to the Economic Study, Bujagali's commissioning in 2011 would enable the cost of power to end-users to fall to US¢16/kWh in 2006 money. This would improve the affordability of power to end users.	Economic Study provides quantitative assessments of both costs and benefits, which suggest that Project would have largely positive direct impacts on Uganda's economy and enhance national economic activity. In this sense, and bearing in mind reservations about the cost estimates of the Economic Study, from a macroeconomic perspective, analysis appears to have complied with the requirement in OP 1.00 to show that Project is likely to contribute to "broad based growth." In terms of affordability of electricity generated under the Project, Panel notes that the US¢16/kWh figure provided in Economic Study is likely to be an underestimate of the cost of electricity with Project. Further, Management Response does not discuss the different EPC cost estimates cited in the Economic Study and the PAD or make clear their implications for the tariff estimates. Panel did not find evidence in Economic Study or PAD of any estimates of the economic impact of Project on low-income households. Panel considers that such analysis, in addition to the broader macroeconomic analysis undertaken in Economic Study, should have been made during appraisal to provide a better understanding of whether the objective of poverty reduction envisaged by OP 1.00 would be achieved.
<b>Revenue Projections and the Institutional Framework</b>		Panel notes that PAD's projection the GoU support needed to power utilities over period 2005-2016 appears misleading and seriously at odds with the projected revenue stream of Project. Panel notes that the likely tariff variations and possible revenue shortfalls or surpluses and their implications for UETCL, UMEME, and government net revenues are key sustainability concerns. Panel notes that the revenue gap that UETCL, in particular, will face, may lead to large, urgent demands on GoU Treasury and potentially on the Bank via its Guarantee.
<b>Infrastructure Funds</b>		In light of the scale of revenue requirements, financial risks accepted by UETCL and GoU, and the scale of

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
		subsidies and guarantees involved in Bujagali, Panel notes that Management should have explored further ways of managing and addressing financial and governance risks, in the interests of project sustainability in accordance with OP 10.04.
<b>Power Purchase Agreement</b>		Panel finds that for the Sponsor and its lenders, the terms and conditions of the 2005 PPA, especially those set forth in Annex D, seem to represent a low-risk (though potentially disputatious) means of managing and recovering costs which are, by definition, subject to uncertainty. For UETCL, the power purchaser and its guarantors, by comparison, it means that there is no ceiling on payments on capital costs and whether or not Project delivers the direct economic benefits offered over 30 years, in terms of costs and tariffs, is to a significant extent, outside their hands.
<b>Distribution of Risks</b>		Panel observes that the high allocation of risk to UETCL and eventually GoU increases the possibility that Project may not achieve the broad objective of sustainable development and poverty reduction embodied in Bank Operational Policies and Procedures. Panel is concerned that any additional GoU resources spent in the financing of the development and operation of Project may lead to decreased resources available for social and other priority development programs.

***SOCIAL ISSUES-- INVOLUNTARY RESETTLEMENT***

<b>Assessment and Action Plan</b>		Panel found no formal monitoring or evaluation report supporting the assertion that involuntary resettlement was “largely completed,” the reason stated for forgoing full RAP preparation, as required by OP 4.12. Panel finds that the hydropower APRAP failed to assess and update the previous 2001 RAP and provide additional new information as required to complete the RAP requirements to current standards. This does not comply with OP/BP 4.12. This led to Action Plans that did not meet the policy objectives and requirements.
<b>Baseline Socio-Economic Data</b>	Management considers that BEL has carried out social and environmental evaluations and documentation that are in full compliance with World Bank policies.	Panel notes that the survey conducted by BEL cannot be considered a census of economic or social conditions as defined in OP 4.12. In this sense, Management’s

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
		<p>claim that the Project took the first Panel's report findings into account in preparation of the current Project is not accurate because significant weaknesses in the process of gathering baseline data information were similarly identified in the 2002 Panel Investigation Report. Panel also finds that the approach to consultations with people who had moved and had been compensated is not consistent with involuntary resettlement policy.</p>
<p><b>Livelihood Restoration</b></p>		<p>Panel observes that effects of the original displacement and of the ensuing delay have not been fully reflected in the APRAP. Overall, Panel finds Project in non-compliance with the mandate of Bank Policy on Involuntary Resettlement to improve or at least to restore, in real terms, the livelihoods and standards of living of people displaced by the Project.</p>
<p><b>Method to Assess Livelihood Restoration and Address Project Delay</b></p>		<p>In Panel's view the methodology used to assess livelihood restoration in the context of Project, while suggestive of issues, cannot substitute for an economic analysis of livelihood risks and restoration. Panel also finds that Management did not assess and include into the APRAP a methodology for restitution of unintended socio-economic costs incurred by displaced persons resulting from project stoppage/delay. This is not consistent with OP 4.12.</p>
<p><b>Real or perceived unfulfilled promises in the prior Bujagali Project</b></p>		<p>Panel notes that lack of clear communication with affected people to address concerns of displaced persons with regards to the commitments made by AESNP, risks leaving the project with contentious, unresolved issues.</p>
<p><b>Specific Livelihood Risks: Fishing and Agriculture</b></p>		<p>Panel finds that Project failed to provide adequately for loss of livelihood associated with loss of fishing and agriculture, in non-compliance with OP 4.12.</p>
<p><b>Compensation</b></p>	<p>Management notes that people who will be affected by the transmission line—part of the project's associated Interconnection Project that is expected to be financed by the African Development Bank (AfDB)—must be compensated and resettled satisfactorily.</p>	<p>Panel concurs with the APRAP's findings, which validate the claims of the PAPs that full replacement value compensation may have not taken place in the prior project.</p>

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
<b>Land Titles</b>		Panel finds that APRAP conclusion related to the necessity of issuing land titles to people resettled under prior project is consistent with OP 4.12. Panel notes however that there seems to be no agreed timetable for issuance of these titles.
<b>Vulnerable Peoples</b>	The APRAP determined that past resettlement did not provide for vulnerable people and has recommended actions to ensure that these people's needs are addressed going forward.	Panel notes that the absence of focus on livelihood risks to the vulnerable is evident in that none of the proposed assistance measures addresses vulnerable tenants/sharecroppers or children. Additionally, proposed assistance measures do not address the question of sustainability beyond limited Project support. Panel finds Project out of compliance with vulnerable peoples provisions of OP 4.12.
<b>Housing and Electricity for Affected People</b>		During its field visit, Panel verified that the standard of living of displaced households who resettled in Naminya and Nansana has improved with respect to housing. On the other hand, APRAP discovered some shortcomings in housing condition and Panel observed physical problems and deterioration with some houses and structures. Panel is concerned that no physical action is planned with regard to houses at the resettlement site. Panel also notes that, given the context and previous expectations of affected people, the broad statement made by AES regarding electricity provision may have reasonably been interpreted as a promise to deliver electricity connections to affected households. Panel notes that this is an outstanding controversy of high importance to affected communities.
<b>Investment Resources for Livelihood Restoration</b>		Panel's review of the limited scope of livelihood restoration programs indicates that they may be under-budgeted. As livelihood restoration instruments develop, Bank policy provides that Management is to monitor resettlement budget to ensure sufficient resources.
<b>Sharing in Project Benefits and Community Development</b>	According to the APRAP, US\$497,000 will be needed to finance the programs to complete resettlement and income restoration. Bujagali Energy Limited (BEL), the project developer, is committed to providing US\$2.4 million for community development over a five-year period	Panel finds that with limited funding, broad criteria for eligibility and lack of specificity, CDAP programs do not assure compliance with OP 4.12

ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
	following the start of construction.	
<b>Indigenous Peoples</b>	Management considers that a clear demarcation line exists between the Basoga and ethnic groups in other African countries that the Bank has defined as indigenous. The Basoga are a large and influential group within Uganda. Considering the Basoga and all other Ugandan groups as indigenous peoples would defeat the intended objectives of OP 4.10.	Panel did not find any evidence that Management violated provisions of Bank policy on Indigenous Peoples, with regard to the Basoga people.

***CULTURAL AND SPIRITUAL VALUES***

<b>Physical Cultural Resources</b>	There have been extensive consultations on various social aspects of the project, including spiritual and cultural issues.	<p>Panel finds that Management failed adequately to consider or implement alternatives to avoid project-related impacts on Busoga spirituality and culture. Most of those who believe in the significance of the Bujagali Falls spiritual site do not live in the immediate vicinity of the Project. Project also failed adequately to consult with Busoga spiritual clan leaders associated with one or more high status Spirits about significant cultural patrimony of Bujagali Falls.</p> <p>Misidentifying Bujagali Falls as a local cultural resource, misaligning its consultation strategy, and failing to prepare a new Cultural Property Management Plan compounded errors and muddled mitigation. Resultant problems included loss of objectivity of the Sponsor, impatience, assignment of pecuniary motives to stakeholders, cost cutting, culturally inappropriate mitigation efforts, and most importantly, a misunderstanding that the Bujagali Project is ensconced in a long-term relationship with its new neighbors and their spirit world.</p> <p>Management unnecessarily and inappropriately took sides in a spiritual controversy of a religion in which millions of Ugandans believe. The Panel finds this action by Management to be non-compliant with the OP 4.11.</p> <p>The Panel finds that Management assumed that what they called the “Bujagali spirits” were restricted to the Project construction and flooding area, in contravention to the BP 4.11 requirement that they work with</p>
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ISSUE	MANAGEMENT RESPONSE	PANEL'S FINDINGS
		<p>and assist the Borrower to identify the spatial and temporal boundaries of the cultural resources affected by the project. This did not comply with avoidance and mitigation requirements of OP/BP 4.11.</p> <p>Panel finds that the culturally and spiritually affected people were not adequately identified as required by Bank policy.</p>
<p><b>Critical Natural Habitats</b></p>	<p>Project documents indicate that the Project is not significantly converting or degrading a “critical natural habitat” as defined in OP 4.04.</p>	<p>Panel finds that the Bujagali Falls area may be regarded as a critical natural habitat for purposes of OP 4.04.</p> <p>The Panel finds that the Project record does not provide sufficient discussion as to why the area was not considered a critical natural habitat. Nor do Project documents explain the Bank’s “opinion” that the Project would not involve significant conversion or degradation of a critical natural habitat. Considering the known spiritual importance of the Project area, without such an explanation, one could also arrive at an opposite conclusion, i.e. that the inundation may be regarded as resulting in the significant conversion of a critical natural habitat which would be in violation of OP 4.04. The Panel finds that omitting the reasons behind an opinion of not declaring the Falls a critical natural habitat is not consistent with the objectives of OP/BP 4.04. The Panel finds that there is an overriding need for the Bank to address these issues in a coherent and well-founded manner to ensure compliance with Bank policies.</p>
<p><b>Cultural Property Management Plan</b></p>	<p>The management of cultural and spiritual issues is part of the overall social management plan (part of the SEAP), which will be implemented throughout the life of the project. Implementation will be monitored/supervised by the World Bank Group throughout the loan/contract periods. A Ugandan NGO, “Interaid,” was contracted to carry out independent monitoring during AES implementation of its RAP. BEL has committed to</p>	<p>Panel finds that Management failed to prepare a Cultural Properties Management Plan, assuming that work of previous Sponsor was sufficient to meet OP/BP 4.11 guidelines. Panel finds that Management is in non-compliance with OP 4.11, by misjudging the size, location, scale as well as the nature and magnitude of cultural and spiritual significance of Bujagali Falls. Panel finds that Management did not consult with key stakeholders throughout</p>

<b>ISSUE</b>	<b>MANAGEMENT RESPONSE</b>	<b>PANEL'S FINDINGS</b>
	independent monitoring, also through Interaid, of all aspects of the project, including those related to cultural heritage.	Project cycle and is, therefore, in non-compliance with OP 4.11. Panel finds that mitigation measures were not adequate because the scope of the impact and the consultation process were incomplete.

## **Annex B Independent Review of Contractual Arrangements**

### **INDEPENDENT REVIEW OF CONTRACTUAL ARRANGEMENTS**

*Graham Hadley, Economic and Commercial Consultant, UK*

#### **1. SCOPE OF REVIEW**

1.1 This review was carried out over the period July 2007 – January 2008 at the request of the World Bank Inspection Panel. The main documents reviewed were the Power Purchase and Implementation Agreements of December 2005 and of December 2007, as amended; the Report and Recommendations of the Inspection Panel of May 2007, which included the Request for Inspection (March 1 2007) and the subsequent Management Response; Burnside’s SEA (Executive Summary) of December 2006; Power Planning Associates’ Economic and Financial Evaluation Study of February 2007; The World Bank’s Project Appraisal Document, April 2007; Linklaters’ Preliminary Review of Basic Contractual Documents, March 2006; the Siemens Reports on the Bujagali Transmission Interconnection of July and August 2006; the African Development Fund’s Appraisal Report on the Bujagali Interconnection Project (BIP), February 2007; AfDF’s Loan Agreement for the BIP of October 2007; and a letter of approval of May 2007 from JBIC setting out the terms of their loan to the BIP.

Because my terms of reference request, inter alia, a comparative analysis with the prior Bujagali project, I have also revisited the Power Purchase Agreement (PPA) for prior Bujagali project and associated documents of December 1999, and my previous report to the Inspection Panel: “Independent Review of the Executed Agreements, 8<sup>th</sup> February 2002”. In addition I owe thanks to World Bank and African Development Bank staff who have provided working papers and otherwise assisted me in addressing particular questions I have raised with them.

1.2 My report is subject to some important qualifications, mainly arising from the limited time available:

- I have been unable to study the full project documentation.
- Whereas in my 2002 report I was able to cite international benchmarks against which to assess the capital costs, I have not been able to do the same for this Project. My comments on the cost increases rest only on general observation of recent cost trends in the power business.
- The recent physical and documentary developments – including financial close in December - may have economic or financial consequences which I have not been able fully to take into account.

For these reasons any criticisms expressed should be regarded as provisional, and, pursuant to my terms of reference, I have offered observations and suggestions rather than recommendations.

1.3 My terms of reference include a comparative analysis of the contractual framework for this Project as compared with the prior Bujagali project, focusing inter alia on costs, risks and risk-sharing, financing, tariffs and currency issues. The report concentrates on those aspects – costs and their implications for tariffs, and risks and how these are shared – which I believe should be of most interest to the Inspection Panel and the World Bank Group - which also represent the most significant changes from the earlier project.

## **2. EXECUTIVE SUMMARY**

### **Background and Developments since the prior Bujagali project**

2.1 Recent increase in retail tariffs and unit generation costs make it intrinsically more likely that the Present Project will allow tariff reductions, than was the case for prior Bujagali project (3.2)

2.2 The strategic case remains strong: optimum use of Nile waters and provision of a major increment to generating capacity, to meet growing demand from both existing and newly connected customers (3.3)

2.3 Advantages in risk mitigation have been included, as compared with the prior Bujagali project:

- (a) World Bank Group links with one of the equity partners (Industrial Promotion Services, Kenya);
- (b) New Project-related studies, notably on hydrology;
- (c) Government-backed scheme for resettlement;
- (d) a “safety net” allowing public sector buy-back in the event of prolonged very low hydrology (4.1 and 8)

### **Costs, Revenues and Risks for BHP and BIP**

2.7 The increased EPC cost (at the time of the PAD) of the present Bujagali Project, as compared with the prior project does not of itself suggest an excessive price, given world power plant cost trends and perceived risks in Uganda. However, there appears to have been a significant increase over the bid price in the past year, reflected in the December 2007 contract price of US\$564.4m (5.2-5.4)

2.8 The Economic Study – the basis of the PAD’s appraisal – has taken the lowest available cost estimates for both the BHP and the BIP. As a consequence, it is possible that the comparison of generation options was unduly favourable to Bujagali; and the likely tariff impact was too optimistic (5.5-5.8)

2.9 In addition, the PAD may underestimate the risk of further EPC cost increases, especially in the light of the December 2007 amendment to the PPA, and of a share of these passing through into the BHP capacity charge. Compared with the prior Bujagali project, the power purchaser bears a greater share of financial risk, mainly through the absence of a stipulated maximum capacity charge in the PPA (5.9-5.10)

2.10 Further, forecast sales revenues and the rate of recovery of full supply costs from customers (“recovery rates”) may fall short of forecasts, increasing the risk that UETCL will suffer a revenue shortfall against the BHP PPA requirements in the period 2011-23, triggering the GoU guarantee (5.8 and 6.5)

2.11 Financial and economic risks to the Project, if realised, will result in higher tariffs or higher subsidies or a combination of both. Such risks are, principally:

- (a) Cost escalation;
- (b) Currency depreciation;
- (c) Prolonged low hydrology;
- (d) Lower demand growth;
- (e) Lower or static collection rates;
- (f) Affordability;

2.12 Lesser risks include:

- (a) Construction delay;
- (b) Withdrawal of the developer/operator;
- (c) Poor plant performance (8)

## **Overview**

2.13 The strong strategic role of the Project has been recognised in the increased and wider involvement of public authorities, giving the Project robustness (9.1)

2.14 However, the direct economic benefits of the BHP and BIP projects may have been over-estimated. While BHS /BIP may still, bearing in mind recent upward movements in hydrocarbon prices, be the lowest-cost option for generation, it may cause upward rather than downward pressure on retail tariffs (9.2)

2.15 The balance of interest between customers and UETCL (and its guarantors) will be determined by the price selected for the levelised tariff once the plant commences operation. It may be prudent to set this conservatively, initially, to minimise the risk of the PPA guarantee being called, and to allow the prospect of subsequent tariff reductions once debt repayment is completed. (9.3)

2.16 It may be helpful to review the Project, as a leveraged independent power project (IPP), experience before deciding what combination of public and private resources to use in developing the Karuma project, if as expected it follows Bujagali (9.5)

## **3. BACKGROUND**

3.1 There have been some significant developments in the Ugandan electricity sector since the prior Bujagali project: continuing demand growth; the acquisition of new high-cost stop-gap thermal generation; big tariff increases; part-privatisation of Distribution;

and increased dependency of UETCL on Government funds. These changes also change the appraisal of the present Project. Some key conditions, however, remain unchanged, notably the fact that only about 5% of the population is connected to an electricity supply; and only about half the cost of electricity units sent out from power stations is actually recovered from customers.

3.2 The increases in generation costs per unit and in retail tariffs make Bujagali relatively more attractive than it was in 2001, in the sense that there is now a better prospect that it will produce intramarginal retail tariffs, rather than (as for the prior Bujagali project) push them up. Affordability may therefore be less of an issue, though that problem could return in the event of low demand growth; rising technical/commercial losses; or depreciation of the Uganda Shilling (US\$).

3.3 On the one hand, from a financial point of view, the strategic case for Bujagali remains strong and unchanged: it would optimise productive use of Nile waters, a major Ugandan natural resource, without increasing the draw from Lake Victoria; it would provide a big extension to the generating capacity of the central grid system to cope with growing demand (especially from business); and by the involvement of private companies it would attract (directly and indirectly) both expertise and inward investment.

3.4 (On the other hand strategically, an opposing view might be that Bujagali increases dependence on the Nile waters, i.e. it reduces diversity of supply, compared with other generation options; it pre-empts use of public financial resources; an alternative strategy based on or including dispersed generation through smaller units could more rapidly bring supplies to the un-connected majority of the population, whilst reducing foreign currency dependency)

3.5 In fact, the Project sponsors claim more than strategic benefits for the present Bujagali Project – they say that it is the least-cost option for new generation, and that it should allow tariff reductions when operational. These conclusions rest on a comparative economic analysis of costs and risks of options for new generation, and a financial review. My report examines these, and also highlights the costs and risk-sharing explicit or implicit in the contract documents, comparing these with those for the prior project.

#### **4. PROJECT CHANGES**

4.1 Physically and in its electrical impact, the present Project and its associated transmission project closely resembles the prior Bujagali project. The Project vehicle – **a leveraged independent power project (IPP), building and operating the plant and selling bulk power to the public utility under a long term contract (PPA)**, with Government and International Financial Institutions supporting both the loan finance and the PPA - is also conceptually the same. Although there are some changes in the loan and guarantee structures, the key contract documents (**PPA and Implementation Agreement (IA)**) are also similar, even identical, in many respects. Some of the changes most relevant for cost and risk are:

- **the award of the Project to the developer was by competitive process, not single-track;**
- **the World Bank Group has important links, independent of the Project, with one of the equity partners;**
- **although this investigation report highlights many of their shortcomings, in general terms it may be said that more wide-ranging studies have been made (and made available in Uganda) of the economic, environmental and social aspects of the project, in particular, hydrological risk; and plans backed by the public authorities have been developed with the purpose of providing long-term solutions to social problems; and**
- **increased provision has been made for the public electricity supply system to buy-back the project in particular, low hydrology, circumstances.**

4.2 All of these represent potential improvements – reduction of risk - for the prior Bujagali project as compared with the present Project, as explained in section 8 below. (At least one of these conforms with findings made by the Inspection Panel in respect of the prior project) However, there are two other significant changes whose effect is likely to be adverse, for the power purchaser and his guarantors:

- **capital costs and total costs for the power plant have increased significantly in real terms; and**
- **determination of the capacity charge payable under the PPA is by application of a cost formula, rather than by reference to a stipulated maximum charge.**

## **5. COSTS - ANALYSIS**

5.1 This section examines costs, of both BHP alone and the combined BHP/BIP project; how they have been treated in the financial and economic analyses; and the possible cost outcomes relative to tariffs and revenues. In the following section these points are distilled into conclusions, or summarised observations.

**5.2 Increased Capital Cost of the Power Plant** Para 55 of the PAD refers to the 62% increase in cost (absolutely and per KW) between the “hard”(EPC) costs of the prior project and the present Bujagali Project. This equates to an increase of 10% p.a. cumulative over 5 years – a significant increase in real terms. However, the explanation in PAD para 55 – a mixture of international trends and factors specific to Uganda – may be correct. Power plant costs have certainly increased in real terms internationally, and although the index of this for hydro plant may be less than for thermal plant because of the higher proportion of civil engineering costs in the former, the other more local factors referred to in the PAD may more than offset this

**5.3 Competitive Solicitation** The outcome of competition, for the Project concession and separately, the EPC contract, throws some interesting light on the price. The project concession was awarded to BEL from a thin field of compliant bidders. The winning bid for the EPC contract was 43% below the next lowest bid (PAD para 54). This suggests potential bidders (in both competitions) were taking a risk-averse stance, either abstaining or loading their bid prices with a significant risk premium. The latter may also apply to the winning EPC bidder, despite his price advantage. None of this demonstrates that the agreed price is higher than a “realistic market price” assessed by any other means; what it does indicate is that the market price for an IPP project of this magnitude in Uganda is high.

**5.4 Total Cost Increases** Leaving aside financing costs, the BHP EPC costs have increased since early 2007, as follows:

	<u>BHP \$m</u>
<b>Economic Study Feb 2007 (estimated)</b>	<b>441(1)</b>
<b>PAD April 2007 (estimated)</b>	<b>520</b>
<b>December 2007 – EPC price</b>	<b>564.4</b>

Note 1: See para 6.6 below for the derivation of this figure.

In the case of the BIP, different costs have been given in different contexts, as follows:

	<u>BIP \$m</u>
<b>Siemens Report July/Aug 2006</b>	<b>c. 80-95</b>
<b>Economic Study Feb 2007</b>	<b>28</b>
<b>PAD April 2007</b>	<b>55</b>
<b>AAR Feb 2007</b>	<b>74.7</b>

The last of these figures appears the most authoritative at the time, though I understand that current prices being discussed are lower. I do not have enough information to be able to judge the degree of comparability of these figures.

5.5 Two points may be drawn from this picture. The first is the propensity of EPC costs to increase between selection of a winning bidder and fixing of the price. In this case, the cost appears to have increased by \$123m (28%) from the Economic Study estimate to the point where the contract price was fixed, and further increases seem to be allowed by the PPA. It is clearly preferable if possible to treat the bid price as binding, which would be international best practice (IBP); the PAD does not appear to explain why that was not done here. In allowing “single-track” negotiation after the competition has closed, any benefit from competitive pressures may be lost.

Second, it is the lowest numbers, for both the BHP and BIP, which were used in the Economic Study, which appears to be the only economic appraisal addressing the total Project. The PAD relies heavily on this study in confirming the judgement that this is the lowest cost option for generation and should enable retail tariffs to be reduced. The PAD adds a financial appraisal of BHP (using higher costs as noted), but omits BIP from this

analysis altogether, on grounds - as the Panel was recently informed – that because of the BIP’s wider role in the system, “it would be inappropriate to attribute the transmission line costs solely to the Bujagali project”.

5.6 The Economic Study also appears to omit or underestimate other cost elements for the BHP, included in the PAD estimate. The full comparison is as follows:

	<b>Economic Study</b>	<b>\$m</b>	<b>PAD</b>
BHP EPC	441(1)		520(2)
Idc	94(3)	94	
Other BHP	51(4)		184
<b>Total BHP</b>	<b>586</b>		<b>798</b>
BIP	28(5)		55
<b>TOTAL</b>	<b>614</b>		<b>853</b>

Notes:

- (1) Items 1 and 3 in Table 5-4, Economic Study
- (2) Para 53, PAD
- (3) Interest during construction (Idc), assumed – see para 5.4.3 Economic Study
- (4) Items 4 and 5, Table 5-4
- (5) Item 2, Table 5-4

5.7 Of course it is quite legitimate to use different figures for different appraisal purposes. Thus in comparing new generation options, it may be fair to omit financing costs for all options but include Idc as an inescapable cost for all. On the other hand, tariff calculations are absolute, not relative, so that all costs to be recovered should be included. The following questions arise:

- (a) why did the PAD apparently ignore the significant increase in EPC costs since the Economic Study?
- (b) For a fair comparison of generation options, transmission connection costs for all should be included. Given that without BHP, BIP is also an avoidable cost, should it not have been included in full? Failing to do so disadvantages, in the appraisal, other generation options whose connection costs are less.
- (c) In considering tariff effects, the full recoverable costs of the Project must be included. In this case (as noted in section 5), it is not clear to what extent it is intended to recover the cost of the BIP through the BST. The loan repayment terms would theoretically allow a relaxed attitude to this; but even if the total cost of BIP is omitted for the purpose of tariff calculation, the Economic Study still appears to underestimate costs as shown in the PAD by \$212m (\$798m - \$586m). It thus seems likely that the Economic Study underestimated both the costs (for comparative purposes) and the tariff effects of the BHP/BIP project.

- (d) To claim that BIP costs should not be attributed to BHP because of its wider role in the system, but at the same to claim for BIP a full share of the revenue benefits of BHS (see para 5.6 above) appears inconsistent.

**5.8 Costs, Revenues and Tariffs in the PAD** para 84 indicates levels of output assumed in the low and high hydrology scenarios. Using those figures, PAD para 95 shows that in a high hydrology scenario, Bujagali's lifetime (30 years) capacity charges could be recovered through a levelized bulk supply tariff (2.5 % p.a. inflation assumed, 2006 prices) of 5.7c/unit. The equivalent figure under low hydrology, calculated to have the same value, \$113m, is 9.7c/unit. The intention would presumably be to include this charge in UETCL's BST, to be passed on to customers via UMEME and retail tariffs. The actual revenue generated for UETCL would however be less than \$113m, (25% less, at a conservative estimate) because of technical and commercial losses. By contrast, during the first 12 years of operation (the period of repayment of senior debt), the BHP annual capacity charge is actually estimated at an average of \$155m, with a peak of \$187m in 2022 (PAD Annex 11, para 10). So the levelized tariff would leave UETCL with a substantial revenue shortfall in paying the BHP capacity charge. The following questions arise:

- (a) how will a levelized tariff actually be set, given hydrological uncertainty? (One answer presumably would be to use the low/high hydrology probability estimate of 79/21: on the PAD para 95 basis, this would give an ex-ante levelized tariff of 8.4c/unit)
- (b) whichever levelized tariff is set, there will be a significant revenue shortfall, to be paid by UETCL, against the required capacity charge up to 2022, of \$32m, plus compensation for losses, p.a. on average, peaking at \$74m plus in 2022. (If the tariff were set at 8.4c but 2022 was actually a year of low hydrology, the revenue gap that year would rise to \$89m plus). Has UETCL's revenue shortfall been included in the PAD financial, cash flow and retail tariff forecasts?
- (c) the revenue forecasts (see attachment 4, Annex 12) assume recovery rates rise from 54% in 2006 to 75% in 2013. Has the risk assessment given sufficient weight to the possibility of both higher costs and significantly lower revenues? This will have a major bearing on whether the GOU guarantee of capacity payments under the PPA is likely to be triggered.
- (d) As for the Economic Study, it is not clear that the cost of the transmission project has been included in tariff calculations. Detailed consideration of supply options in Annex 9 appears to exclude or under-estimate connection costs – see table 9.5 which repeats the Economic Study figures. The actual bulk supply tariff which UETCL will pass onto the distribution sector, for inclusion in retail tariffs, should include an element for recovery of BIP costs – see section 4 above.

**5.9 Bujagali EPC Cost Risk** para 41 of the PAD states “... *there is limited likelihood of EPC cost increases once the EPC contract is finalized*”. Annex 9, paras 26 and 28, reporting the Economic Study on which the PAD is based, indicate that the full risk analysis for the power system “with/without Bujagali” included a 20% chance of a maximum cost increase of 10%, balanced by the same probability of a cost reduction of 5%. These judgements may be over-optimistic, for the following reasons:

- (e) after the price is set, contractors are adept at pleading unforeseen geology/geotechnical grounds to justify an increase. The fact that the winning bid was significantly lower than the next best leads one to surmise that the contractor will want to take every opportunity to improve his margins (though as noted he has already managed to secure a 28% increase before fixing the price). In fact, the current contractual framework allows further price increases (see below).
- (f) although the Project may be technically straight-forward by international standards, the challenge in Uganda of pulling together international and local contractors in an integrated project programme will be significant
- (g) in their 2006 review of the draft contract, Linklaters drew attention to some provisions which appeared to relax the discipline on the contractor – on defect restitution, warranties, and his scope to resist Liquidated Damages in the event of delay. It is not clear whether these have been tightened up.
- (h) the PAD puts weight on the incentive on BEL to contain EPC costs. This may also be over-optimistic, in that there is scope for cost increases to be recovered via the PPA (see next para).

**5.10 PPA Capacity Charge** The substitution of a cost formula in the 2005 PPA, for the maximum capacity charge specified in the 1999 PPA, is probably the single largest adverse change, for the power purchaser and his guarantors, in the contractual basis for the present Project. It represents a significant shift in risk away from the Project investors and lenders, on to the power purchaser. The formula and its effects can be described as follows:

5.10.1 The formula for determination of the monthly capacity charge or payment is in Annex D to the PPA. It is very complex, since the components are defined rather than priced, and all are subject to variation. In broad terms, the components are:

- development costs
- EPC costs
- tariff debt service reserve
- working capital
- fees and taxes payable by BEL

All of these constituting Tariff Project Costs, plus

- equity repayment and return
- debt repayment
- GOU Equity (representing past development costs)
- O&M fee

5.10.2 Some of these are treated as pure pass-through (fees , and elements of the O&M charge). Others are carefully defined as to the make-up of their “base” cost, and in some cases – including EPC costs - increases on the base are subject to a quantified percentage “*cap*”. The costs are subject to accountants’ inspection. However, the fact remains that, leaving aside debt repayment, BEL has

considerable scope to shape the base costs and in some cases the increases too, to deliver a higher capacity charge.

5.10.3 Considerable potential delay is built in to the determination of the capacity charge (previous to which payments are on an interim basis). The charge must be set (the Final Declaration Date) within 2 months of production of a Final Cost Report, but that report need not be produced earlier than 6 months after the Final Draw Date, and that event (meaning the earlier of the final draws on equity or debt) in turn may be up to 18 months after the commencement of commercial operation. So 26 months may elapse after the start of operations before there is a determined capacity charge. And curiously there are no specific provisions for capacity charge dispute resolution. The power purchaser may be relying on BEL to be motivated to move as quickly as possible from an interim capacity charge to the finally determined charge, but equally there is plenty of time as well as scope for BEL to shape the figures.

5.10.4 As in the prior Bujagali project, the capacity charge is invariant to out put. So the payment will be same under low hydrology (when the output may be halved) as it will with high hydrology. Of course, hydrology is outside BEL's control. But the payments are also relatively invariant to plant availability, which is in BEL's control. A percentage reduction in availability (say 5%) would have to be sustained for a whole year before there was an equivalent reduction in the monthly capacity charge (PPA, Annex D).

5.10.5 For BEL and its lenders, Annex D no doubt represents a low-risk (though potentially disputatious) means of managing and recovering costs which are bound to be subject to uncertainty. For the power purchaser and his guarantors, it means that there is no ceiling on capital costs and whether or not the Project delivers the direct economic benefits offered over 30 years, in terms of costs and tariffs, is to a significant extent in BEL's hands.

## **6. COSTS – SUMMARY OBSERVATIONS**

6.1 Capital costs have significantly increased in real terms compared with the prior project, despite the adoption of competitive tendering. There is however no evidence to believe that the price bid obtained was higher than what might be assessed as a “fair market price” for Uganda.

6.2 There has however been a further increase (28% since the the Economic Study, or 8% since the PAD) to the point where the price was fixed.

6.3 The PAD may be optimistic in its view that EPC cost escalation is unlikely. Putting this together with the absence of a capped capacity charge in the PPA, there has been a significant transfer of cost risk to the power purchaser compared with the prior Bujagali project.

6.4 The Economic Study, and also the PAD which depends on it, may have understated Bujagali's total costs compared with other generation options, and in assessing tariff effects, with reference to financing costs and the BIP. There is a risk that Bujagali will apply upward rather than downward pressure to retail tariffs.

6.5 In the adoption of a levelized life-time tariff for Bujagali, UETCL will be set a major financial challenge in the period 2011-23. There may be a risk that its revenues will be insufficient to meet its obligations, since the projected revenues depend heavily on substantial increases in both customer numbers and recovery rates. The potential revenue gap in this period will actually be larger than that identified in s.6.8, taking account of the final, higher, EPC price.

## **7. NEW RISK MITIGATION FOR THE PRESENT BUJAGALI PROJECT**

7.1 In this section I describe the new risk mitigation measures taken for the present Bujagali project compared with the prior Project (see section 4 above).

**7.2 Award of the project by Competition.** Competitive solicitation for IPP projects is of course international best practice (IBP). It should ensure the lowest market price consistent with technical fitness for purpose. In this case however, competitive pressures were weak, and the benefit of selecting the lowest compliant bidder has been offset by other factors exerting upward pressure on costs, as described in section 5.

**7.3 World Bank Group links with the Equity partners.** The PAD paras 64 and 65 describes IFC's links with Industrial Promotion Services (Kenya). The importance of this, together with other safeguards regarding future changes in equity holding, is that it should reduce the medium/long –term risk of collapse precipitated by withdrawal of the sponsors. Sithe Global is an experienced and respected international IPP company (as was AES in 2001); should they wish to withdraw at a later date however, it might be expected that IPS (K) could temporarily take over equity leadership and engage another experienced investor/operator – or provide a transition into public ownership.

**7.4 More Comprehensive Studies and Plans.** An effort has clearly been made to anticipate and answer criticism of the Project in Uganda by the conduct of detailed environmental, economic and social studies – required for a project which has such a big potential impact. There appears to have been a change of mind-set since the prior project: for that project the power purchaser and his guarantors took an arms-length approach, leaving it mainly to AES to overcome the planning and other local problems and propose solutions, whereas for the present Project it has been recognised at the outset that although BEL continues to take the lead, these problems will not be overcome without the involvement and long-term commitment of the public authorities. In my personal opinion, it is particularly important that public authorities should under-write the resettlement costs (some of them long-term) arising from local disruption at the dam and along the interconnecting transmission line. This should be an important factor in gaining public support, and thus reducing social and political risks.

**7.5 Buy-back in case of Low Hydrology.** For both the prior and present Bujagali projects, the PPA/IAs provide for buy back of the plant by UETCL under default conditions and certain *force majeure* events. In general terms, these provisions follow international norms. However, para. 4.8 of the PPA of the present Project adds a new provision: UETCL may terminate the PPA and buy back the plant in the event of 30 consecutive months of “low water”.

This is an important safeguard: as I explain later the cost of power from Bujagali, per unit, as determined by the PPA may become prohibitively high in a sustained low hydrology scenario, and in those circumstances it will be preferable for the public authorities to assume control, when they can stop paying the fixed capacity charge, smooth tariff effects and ensure that funds are available for alternative generation. The provision is to be welcomed: I have two reservations about it, first that the low water trigger may have been defined too demandingly from the power purchaser’s perspective; and second that the payment terms for buy-out (Annex J to the IA) which mean that BEL can set the price broadly to equate to capacity payments foregone, seem generous to BEL, given that the plant will be in real trouble if this scenario occurs. However, I recognise that the sponsors and their lenders are looking for protection against loss.

## **8. RISK REVIEW**

8.1 In this section I describe the main risks to which in my view the Project is exposed, how these are shared, and the possible consequences.

8.2 Capital cost escalation. (See section 5 above) If the capacity charge is set higher than present estimates, or rises subsequently, either tariffs must increase or additional subsidies paid to UETCL.

8.3 Currency depreciation. For the present Bujagali Project as for its predecessor, capacity payments are denominated in USD (\$). As I pointed out in my 2002 report, and as stated in the Inspection Panel’s Report on the prior project, a 10% p.a. depreciation of the USh against the USD would double the price of the project to Uganda in 7 years. Consequences as in 8.2.

8.4 Prolonged low hydrology. A more pessimistic but more realistic view of hydrology has been taken for the present Bujagali Project as compared with the prior project. Nevertheless substantial uncertainty remains. Past hydrological patterns have shown great year-on-year volatility, so that both the “high” and “low” numbers used in the PAD are long-term averages only. Para 95 of the PAD illustrates how the cost of a unit from Bujagali rises dramatically in a “low” year. A levelized tariff may be set ex-ante, but if the actual hydrological pattern falls below that assumed for the levelized tariff, then the capacity charge shortfall (see para 6.6 above) will widen and the consequences as in 8.2 follow.

8.5 Lower demand growth. Assumed demand growth rests both on continuing growth of demand from existing customers, and a high rate of new connections/customers, such that

the number of customers almost doubles by 2012. If this growth does not occur, UETCL's revenues fall below forecast, with possible consequences as before. To illustrate, if Bujagali were operating today, its average capacity charge during the first 12 years would pre-empt over three quarters of total electricity sector revenues (customer payments) in Uganda (PAD Annex 12, attachment 1)

8.6 Lower or static recovery rates. It has been optimistically assumed that recovery rates will have risen to 75% by 2013. If they remain at the 2006 rate (54%), sector revenues will be 28% lower. Consequences as before.

8.7 Affordability. If the PAD's economic analysis is proved correct, Bujagali's introduction will allow a reduction in (real) retail tariffs of at least 5% compared with current levels. Collection rates appear not to have been significantly affected by the large (approximately 80%) increases in the last 3 years, so Bujagali's affordability on that basis doesn't seem to be subject to high risk (though new customers may reveal different price sensitivities – and produce different collection rates – compared with existing customers). However, if any of the risks above arise, further subsidies may be a preferable alternative to a tariff increase which might reduce rather than increase revenues.

8.8 Construction Delay. Despite Liquidated Damages provisions penalising the contractor, the costs of delay would be likely in practice to be shared via the PPA with the power purchaser (see section 5.7 above). Extreme delay could require additional stop-gap generation. Otherwise, the main consequence of delay would be to defer for customers the main benefit of the project, namely a reduction in power-cuts. Overall, this may be regarded as one of the lesser, or more manageable, economic risks.

8.9 Withdrawal of the Developer/Operator. This risk has been mitigated compared with the prior project. Sithe is bound in for the construction phase, and subsequently would be replaceable as operator if not so easily as investor. Adequate provision has also been made for the project to be bought out if necessary.

8.10 Poor Plant Performance. Although the PPA is generous to the owner-operator in the scale of penalties for low availability, this may be regarded as low-risk. In the extreme, the provisions for Company Default provide a safety net.

8.11 Sharing of Risk. From the documents, the greatest share of economic risks lies with the power purchaser. The capacity charge may be adjusted upwards if the developer/operator hits unforeseen costs, but not downwards if demand or supply conditions deteriorate for the purchaser. In effect, the lenders especially but also the investors are held harmless against all or most eventualities. However, in a crisis of non-affordability in Uganda such as might be produced by currency devaluation or very low hydrology, the investors and lenders may also be at risk, if the money to pay the capacity charge is just not there. In these circumstances, buy-out is likely to provide the best solution. Personally, I would have preferred (as described in my 2002 report and in the Inspection Panel's Report on the prior Bujagali project) to see terms more favorable to the purchaser.

## 9. OVERVIEW

9.1 Generally, the institutional and financial arrangements for the present Bujagali Project and for the BIP recognise (to a much greater extent than for the prior project) that this is a National Project of great strategic importance to Uganda with wide implications, in which the Government and its IFI backers have major roles to play. This gives the Project a degree of robustness its predecessor lacked.

9.2 However, its direct economic benefits may have been over-rated. There is a considerable risk that it will exert upward rather than downward (as the PAD argues) pressure on tariffs – though given current hydrocarbon price forecasts it may still be the least-cost option. In pulling forward the economic benefits to customers by adoption of a levelized tariff rather than one which follows the capacity charge (which is twice as high during debt repayment as it is subsequently), the power purchaser is opening the risk that he will require increased Government subsidies in the period 2011-23. And if demand or hydrology are significantly below current central estimates, Bujagali looks poor value for money.

9.3 The chosen level of the tariff will in practice be the way in which the balance of interest is struck between customers, and the power purchaser and his guarantors. The tariff will of course not need to be determined until closer to the date of operation, reflecting the then view of costs. If UETCL is to be given a full opportunity to pay the capacity charge without recourse to further subsidies via the GoU guarantee, it would be prudent to set the levelized tariff at least the low hydrology level – in today's terms, not less than 10c/unit. To the extent that the BIP costs are to be recovered, or BHP costs increase (as they already have since the PAD), or compensation for commercial/technical losses is required, the addition to UETCL's bulk supply tariff should probably be higher than this.

9.4 Once debt is repaid, the picture changes, in Bujagali's favor. It may then be possible to reduce its tariff. After the first dozen years, it should become a reliable source of cheap power (so long as the Nile flows!) for decades to come.

9.5 A wider personal observation relates to the decision to build BHS as an IPP, rather than as for the BIP, a public sector project. The high cost of commercial debt in Uganda, coupled with the high-pricing, risk-averting strategy of the investors in response to a perceived high-risk environment, has inevitably saddled the project with large front-end-loaded costs. GOU and the IFIs have still had to accept ultimate liability as guarantors. As an alternative, public sector financing might have produced lower costs overall, and would certainly have made it easier to manage costs and cost recovery via tariffs over a 40 year project life-time. Private sector capabilities could still have been harnessed to build and operate the plant on a contracted basis. Of course, I recognise the demonstration value of attracting a major private investment in to Uganda, but it might be argued that a smaller, lower risk infrastructure project would have been a better place to start. I offer these personal observations with diffidence since it might be said they are

outside my TOR.; but it would seem prudent to take stock of the Bujagali experience before deciding the strategy for Karuma if this is to follow.

9.6 Setting aside the positive aspects of the Project, it may be helpful to summarise those areas in which management performance may have fallen short. These appear to be:

- **In analysis of generation options:** there was an insufficiently transparent approach to the assessment of Bujagali against all feasible alternative generation options, making it difficult for management authoritatively to refute charges that the analysis was either inadequate or biased in favour of Bujagali.
- **In project evaluation:** the assessment of costs, risks and benefits was unduly optimistic. In particular (1) capital costs were under-estimated; (2) the likely effect on tariffs was under-estimated: Bujagali is more likely to exert upward than downward pressure on tariffs; (3) the risk of a significant revenue gap (between UETCL's income and the requirements of the Bujagali capacity charge) in the first 10 years of the project was not recognised: the attendant risk is that the WB guarantee may be called; (4) other risks, notably those of shortfalls against recovery rate forecasts, and the exchange rate, were not given due weight.
- **In project structure and risk management:** (1) management failed to realise the benefits of competitive solicitation by allowing a long period of post-bid negotiation with the winning bidder, during which the price increased by nearly 30%; (2) management failed to fix or cap the capacity charge in the PPA, thus increasing the risk that the power purchaser will have to accept further cost increases in the future; (3) management failed to set sufficiently robust performance penalties and buy-out terms, to minimise downside risk for the power purchaser.

9.7 It must be recognised that WB management were, especially in respect of the third category above, dependent on the actions, decisions and advice of other agencies. Nevertheless, the World Bank's influence on the Project has been very significant, and WB management would have been fully entitled to examine and if necessary change policy on all of these matters.

## Annex C Spiritual Significance in Busoga Culture

### Prof. Theodore Downing

1. The Bujagali Hydroelectric Project is moving into a neighborhood known for its strong, complex cultural and spiritual tradition. Although peoples of other groups inhabit the project area, the Basoga claim spiritual dominion of both sides of the Nile, its islands, the water and its waterfalls.<sup>688</sup> According to the 2002 census, there are about 2.7 million Busoga in Uganda whose territory lies to the east of the project site.<sup>689</sup> Their language, Lusoga, predominates in this area, on the East bank of the River Nile. The Basoga share a common dialect and ideological, spiritual history, sharing a cluster of eight or more high status spirits who are invoked in their specific ceremonies, i.e., prayers, blessings for a good crop, a job, healing, divination/consultation, or witchcraft ceremonies, depending on the specific need or celebration. These eight high status spirits include *Lubaale*, *Kintu*, *Mukama*, their legendary fathers and *Budhagaali* (the spirit residing at the Bujagali Falls site). The Basoga are distinct from the Buganda, the more dominant tribe in Uganda whose traditional realm reaches to the West bank of the Nile.
2. To the Basoga, the project area – like their entire region – is inhabited by ancestral spirits and living humans who are constantly interacting – from birth to death and beyond.<sup>690</sup> The *Enswezi*, their traditional spiritual cosmology, is extensive and complex. Every human being possesses a body and a soul. When a person dies, the body disintegrates but the soul continues to exist as a spirit (*omizimu*).<sup>691</sup> The spirits are innumerable, consisting of the spirits of everyone who has lived since the beginning.
3. The spirits exercise very strong influence on the harmony, wealth, physical and emotional well-being of the living - most of all on their health and livelihood. They play a critical role in group welfare and regulate the moral conduct of the

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<sup>688</sup> The 2001 RAP states its baseline survey identified 22 ethnic groups living in the project area (Bujagali Hydropower Project Social and Environmental Assessment Main Report, December 2006, page 161). The region was repopulated by migrants from throughout Uganda and other central African countries in the 1940's after being nearly abandoned by the Busoga at the turn of the century due to sleeping sickness. Bujagali Power Project - Hydropower Facility - Resettlement and Community Development Action Plan, March 2001, page 98. Both banks of the Nile are recognized by the Uganda government as Basoga, but sleeping sickness prevented dense settlement until the late 1940's when peoples from all over Uganda and neighboring East African countries settled it. Bujagali Power Project - Hydropower Facility - Resettlement and Community Development Action Plan, March 2001, page 24. By the time of the baseline study, in 1999-2000, only 46% of the people in the project area were Soga, mostly living on the east bank (54% vs. 36% on the west bank).

<sup>689</sup> [www.busoga.com/aboutBusoga.php](http://www.busoga.com/aboutBusoga.php) - (Obwa Kyabazinga Bwa Busoga online).

<sup>690</sup> Over fifty years ago, Lloyd Fallers, in his classic study of the Basoga, *Bantu Bureaucracy* (1954), felt that despite the substantive presence of Catholicism and other global religions, ancestor worship was “very near the heart of the Soga value-system.” page 80.

<sup>691</sup> *Traditional Religion and Clans Among the Basoga*, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 76.

- living.<sup>692</sup> Practically all good fortune and misfortune is related directly or indirectly to actions of certain spirits or to witchcraft, including death.<sup>693</sup> Illness can result from people not living in harmony with the spirits. The good spirits, although without physical bodies, are believed to eat, drink and demand their due from their earthly relatives.<sup>694</sup>
4. Families and households have immediate individual ancestral spirits (*omuzimu*), venerated within individual compounds through shrines (*amasabo*) and offerings. Communications from and with these spirits are on issues of concern to the family (i.e., land problems, lost will or a spirit's dissatisfaction with its property distribution).<sup>695</sup> At this level, these spirits do not have permanent priests (mediums). Communication with these spirits occurs simply through individual prayers or dreams, unless there are some serious issues that require the intervention of a diviner. The spirits, however, can choose any member of the family or household to communicate their message.<sup>696</sup> The elaborateness of ritual and offerings to the ancestral spirits varies with the occasion and issue. These ceremonies can be performed by family members and elders of the clan as well as a diviner.<sup>697</sup>
  5. Above the level of the family spirits are the spirits of the founders of the clan. A clan is a group of people who trace their lineage to a common, distant patrilineal ancestor. Regardless of blood lines, clan members consider themselves to be brothers and sisters. Clans are not limited to an area, but may be dispersed throughout the lands of Busoga.<sup>698</sup> Each of the 338 or more clans recognizes a founding ancestral spirit or *Enkuni*.<sup>699</sup> In terms of displacement and resettlement, these spirits are very important. They are revered because of the special protection they provide to the clan members. They a) unify the clan, b) provide blessings to clan members during special invocations, i.e., job interviews, examinations, or good grades, c) preserve the clan, d) punish those who treat clan members

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<sup>692</sup> Witchcraft, Divination, and Healing among the Basoga, Richard Kayaga, Editor, Cultural Research Centre, Jinja, Uganda Marianum Press Ltd. 2003, and Ritual Gestures in Busoga, Cultural Resource Center, Jinja, Uganda 2001, Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 77.

<sup>693</sup> Witchcraft, Divination, and Healing among the Basoga, Richard Kayaga, Editor, Cultural Research Centre, Jinja, Uganda Marianum Press Ltd. 2003, page 9.

<sup>694</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 77.

<sup>695</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 76.

<sup>696</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 76.

<sup>697</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 78-85.

<sup>698</sup> Fallers 1965, page 64-65.

<sup>699</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, pages 16-75. Field review with two Basoga, identified other clans that were not on the initial list. The *Enkuni* are discussed on page 89.

- unjustly, and e) accompany clan members on their moves.<sup>700</sup> When a family breaks away from its territory for any reason, in order not to sever all links with the old clan, the head of the family will pick up a stone or collect some soil from his old place to take with him to his new place. It is believed that the stone or the soil represents and incorporates the spirit of the ancestor who started the clan and that by taking it along, the spirit of the ancestor accompanies them to their new place, gives them its blessings and helps the family maintain the feeling that they are still part of the clan they left behind.<sup>701</sup>
6. When clan-wide problems such as sterility, quarrels, famine, sickness, death, or poor harvests occur, people attribute these problems to the *Enkuni* being angry. Unlike familial spirits, communication with the clan spirits is more elaborate, requiring the mobilization of more people and resources. In order to determine whether a problem is or is not associated with an *Enkuni*, the clan leaders seek the assistance of a diviner (*mulaguzi*), who determines if the problem is associated with the *Enkuni*. The clans have a traditional clan priest (*muswezi* - singular) who is always accompanied by a group of fellow priests (*baswezi* - plural) during ceremonies. The offerings are provided by and are at the expense of the members of the clan. These Busoga clan rituals invoke the high status spirits including: *Kintu*, *Mukama*, *Lubaale*, *Enkuni*, *Budhagaali*, *Iyingo*, *Waitambogwe*, *Isegya* and *Lukoghe*.<sup>702</sup>
  7. The highest status or princely spirits, the *Emisambwa/musambwa*, are the spirits of the founders of the Busoga: *Kintu*, and *Mukama*, their wives, brothers and their children, powerful kings, clan leaders, and mothers of lineages. People believe that the founders were the children of *Kintu* and *Mukama*. These princely spirits are considered to be strong spirits, possessing the ability to reincarnate into animate and inanimate objects. Highest among them are the *Kintu*, the *Budhagaali*, the *Lubaale*, the *Mukama*, the *Iyingo*, the *Nawandio*, the *Waitambogwe*, and the *Wunhi*.<sup>703</sup>
  8. Princely spirits (*musambwa*) will possess someone to be its priest/priestess and therefore have a shrine.<sup>704</sup> The spirit gives its priest powers to give good luck, blessings, prosperity and protection against evil spirits. The confirmation of someone possessed by a *musambwa* requires the participation of the traditional clan spiritual leaders (*baswezi*).<sup>705</sup> Ceremonials and rituals at *musambwa* level are

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<sup>700</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, inter alia.

<sup>701</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 89.

<sup>702</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 90-91.

<sup>703</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, pages 112, 114.

<sup>704</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 114.

<sup>705</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 149.

proportionally more elaborate, expensive and involve participants from different Busoga clans.

9. To summarize, from the perspective of the Bujagali Project, the key elements of Busoga spiritual cosmology are: a) the spirits are innumerable, powerful and frequently cross over into the world of the living and may do both good and harm, b) they inhabit the same world as the living and are associated with animate and inanimate objects throughout the landscape, c) they can move freely without the need for human permission, d) they have differential power, influence, and interests, e) they are hierarchical, somewhat comparable to the ancient Greek Pantheon, f) they influence the health, well-being and the livelihood of the living, g) more powerful spirits communicate through mediums who do not view themselves as capable of negotiating or predicting spirit behavior – they are mediums of the spirit who possesses them, and h) the mediums are selected by the spirits not by the cultural (political) leaders.
10. This brief primer places the Bujagali Falls site and its chief spirit, the *Nabamba Budhagaali*, and its medium, the Nabamba Bujagali in context. As in most religions, the sacredness of a site comes from a group of religious practitioners assigning special significance to a specific site, to a specific spirit with a specific power, the power to provide blessings to the believers (health, happiness, harmony and protection of their livelihood). At the Bujagali Falls sites, just as in many traditional indigenous or animistic religions, these spirits are usually associated with animate or inanimate objects, such as animals, rocks, trees, rivers, mountains, or waterfalls.<sup>706</sup> Consequently, destruction or disturbance of a sacred site and the associated ceremonies and offerings to spirits may be difficult.<sup>707</sup>
11. The available evidence confirms that Budhagaali Falls is the residence of a host of spirits ranging from individual family spirits to high level Busoga spirits, particularly one of the Busoga's most venerated, powerful, princely spirits, *Nabamba Budhagaali* Spirit. This Spirit is the son of the founding ancestral couple of the Busoga, Kintu and Nambi.<sup>708</sup> Nabamba was nicknamed "*Bujagali*" because he was fond of swimming. The Nabamba-Budhagaali Spirit may chose to stay in this place and is free to shift to another place – without any human or other spirit's permission.<sup>709</sup> The Busoga believe that at the time of his birth, Nabamba Budhagaali Spirit turned into "water", which water turned into the water of the

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<sup>706</sup> Routine and Dissonant Cultures: A theory about the psycho-socio-cultural disruptions of involuntary resettlement and ways to mitigate them without inflicting more damage. Theodore E. Downing and Carmen Garcia-Downing. In Anthony Oliver-Smith. *Development and Dispossession: The Anthropology of Displacement and Resettlement*. Santa Fe: School for Advanced Research Press, 2008, in Press.

<sup>707</sup> AES contracted a Consultant to survey the traditional religious sites and beliefs in communities along the East and West banks of the Nile River and identified specific names for these features. The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the Wakisi Subcounty - East Bank, September 18, 2000.

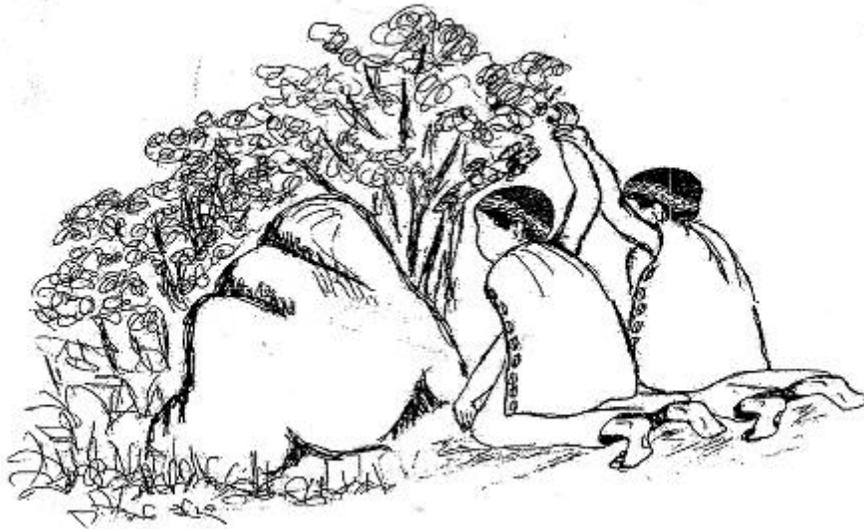
<sup>708</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, pages 10, 114 and 149.

<sup>709</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 149.

Nile River. This powerful spirit may take on multiple animate and inanimate forms.

- Both the *Nabamba Budhagaali* Spirit and its medium, the Nabamba Bujagali, are unquestionably tied to the Busoga clans stretching across Busogaland. The *Nabamba Budhagaali* Spirit can possess a spiritual leader from any Basoga clans, who becomes, according to interviews, “like an arch-bishop” among the clan spiritual leaders (*baswezi abadhagaali* - plural). Each clan can have a *muswezi abadhagaali* (singular), a clan level spiritual representative of the high spirit who are ordained at a sacred rock associated with this high spirit at the Bujagali Falls religious site (see Figure 2 below). The recognition and initiation of *Nabamba Budhagaali* Spirit’s medium is presided over by a conclave of these representatives, jointly known as the Baswezi Budhagaali. Presently, Nabamba Bujagali is the medium for the *Nabamba Budhagaali* Spirit. His initiation was recognized by Busoga clan spiritual leaders (*baswezi*) and other seers.<sup>710</sup> These trans-Busoga networks of clan spiritualists conduct their final initiations and rituals at Bujagali Falls.<sup>711</sup>

Figure 2: Nabamba Budhagaali priest introducing the newly possessed at the rock. This is the spirit site for *Budhagaali*, and raising hand of the new priest. This is a sign of taking an oath.



Source: Ritual Gestures in Busoga, Cultural Resource Center, Jinja, Uganda 2001, Traditional Religion and Clans among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 49.

<sup>710</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, pages 149-150. The Nabamba Bujagali is selected by the Nabamba Budhagaali spirit from among other spiritualists.

<sup>711</sup> Traditional Religion and Clans Among the Basoga, Volume 1, Richard Kayaga Gonza, Editor, Cultural Resource Center, Jinja, Uganda 2002, page 149.

13. Bujagali Falls spiritual centrality is not limited to the *Nabamba Budhagaali* Spirit and its medium. Lubaale Nfuudu, a spiritual medium (*muswezi*) for another of the princely, high status Busoga spirits, Lubaale, has temporarily relocated some Bujagali spirits. Lubaale Nfuudu takes care of multiple shrines (*amasabo*) where new spirits were arriving all the time. He was briefly possessed during the Panel's interview. Whether or not he relocated the *Nabamba Budhagaali* Spirit is unclear and probably immaterial, since the Spirits are free to move wherever they wish.
14. In 2001, the Project noted that the *Ntembe* clan, whose leader is *Ntembe Waguma*, and diviner (*muswezi*) is Nfuudu, see the Bujagali Falls as the location of their clan level ancestral spirits which will be disturbed by the project. Lubaale Nfuudu is the caretaker for his clan spirit and Lubaale, another Busoga ancestral spirit. He also states he also built Nabamba a shrine and questions the legitimacy of Nabamba Budhagaali as a medium.<sup>712</sup>
15. Consultations with LC1 and LC3 local council on the west bank revealed that apart from the Nabamba Bujagali spirit, other spirits on the west bank needed appeasement.<sup>713</sup> Resolution of spiritual disturbances is different for clan and family level spirits. Family level spiritual disturbances in the immediate project area appear to have been resolved in the Sponsor's individual mitigation actions.<sup>714</sup> Like other clans, the *Ntembe* are found throughout Busogaland with the Bujagali Falls area being their clan site.<sup>715</sup>
16. A Cultural Management plan and strategy for dealing with the higher spirits associated with Bujagali Falls, particularly Nabamba Budhagaali spirit, consistent with Busoga cosmology, has yet to be established. At the level of the higher spirits, all Busoga clans and their Bujagali Falls associated *baswezi* are stakeholders.<sup>716</sup>
17. The high spirits (*musambwa*) of one island to be submerged are associated with Kintu and his wife Nambi. They are the founding couple of the Basoga, father of Lubaale and Nabamba Budhagaali spirits. The study noted that "*if Kintu and Nambi are annoyed they can [leave the island] come to the land and take domestic animals or even the people themselves as sacrifices. No one is accepted to light a fire or burn the bush on the Island. If one does so, Kintu would claim that they are burning his children and can cause harm.*"<sup>717</sup> For those believing in this

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<sup>712</sup> The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of the Wakisi Subcounty - East Bank. AES Consultant September 18, 2000, page 92.

<sup>713</sup> PCDP, Appendix B, Phase 1, Consultation Materials, Dec 2006, page 12.

<sup>714</sup> Bujagali Power Project - Hydropower Facility - RCDAP, March 2001, page 102, ¶ 15.17.

<sup>715</sup> The reports are ambiguous as to the spiritual and clan leadership of the Ntembe clan, with one document referring to Lubaale Nfuudu as the leader of the Ntembe clan and another assigning this position to Ntembe Waguma. Bujagali Hydropower Project Social and Environmental Assessment Main Report, Appendix I Assessment of Past Resettlement Activities and Action Plan (APRAP) December 2006, page 23 ft 3.

<sup>716</sup> Bujagali Power Project - Hydropower Facility - RCDAP, March 2001, page 102, ¶ 15.17.

<sup>717</sup> The River Nile and its Significance to Traditional Religion and Practices of the Inhabitants of West Bank. AES Consultant, September 18 2000, page 3.

traditional religion, disturbance of the sacred sites is an issue of livelihood, harmony, health and well-being.

## Annex D Biographies

**Mr. Werner Kiene** was appointed to the Panel in November 2004 and has been its Chairperson since September 2007. He holds a Masters of Science degree and a Ph.D. in Agricultural Economics from Michigan State University. He has held leadership positions with the Ford Foundation and German Development Assistance. In 1994, Mr. Kiene became the founding Director of the Office of Evaluation of the United Nations World Food Programme (UN WFP). He was the World Food Programme Country Director for Bangladesh from 1998 through 2000 and also served as UN Resident Coordinator during this period. From 2000 to 2004 he was a Representative of the UN WFP in Washington, D.C. Mr. Kiene's focus has been on the design, implementation and assessment of sustainable development initiatives. His professional writings have dealt with issues of rural poverty and social services delivery; food security, agricultural and regional development; emergency support and humanitarian assistance; international trade and international relations. Mr. Kiene is involved in professional organizations such as the European Evaluation Association; the Society for International Development; the American Association for the Advancement of Science; and the International Agriculture Economics Association.

**Mr. Tongroj Onchan** was appointed to the Panel in September 2003. He has a Ph.D. in agricultural economics from the University of Illinois. Professor Onchan taught on the Faculty of Economics at Kasetsart University in Thailand for 26 years, including a term as Dean. He later served as vice president of Huachiew Chalermprakiat University; then joined the Thailand Environment Institute (TEI) as vice president. In 1998, Mr. Onchan was appointed president of TEI. He helped establish and was appointed president of the Mekong Environment and Resource Institute (MERI) in 2000. He has served as advisor to the Prime Minister and to the Minister of Science, Technology and Environment, as member of the National Environmental Board, chairman of the National EIA Committee, chairman of the Committee on the Preparation of State of the Environment Report for Thailand, and member of the National Audit Committee. Mr. Onchan is on many editorial boards, among them the Asian Journal of Agricultural Economics and the International Review for Environmental Strategies. He has consulted for a number of international organizations, including the Asian Productivity Organization, ESCAP, the World Bank, the Asian Development Bank, the Food and Agriculture Organization, the International Labor Organization, USAID and the Ford Foundation. He has been project director of over thirty research projects and author or co-author of numerous technical and research papers on rural development, natural resources and environmental management. Currently, he serves in several capacities: chairman of the Board of Directors of the MERI, member of National Research Council for economics, and a director of the International Global Environment Strategy (IGES) based in Japan. Mr. Onchan was appointed as eminent person to serve as a member of the Asia and Pacific Forum for Environment and Development (APFED).

**Mr. Roberto Lenton** is currently Chair of the Technical Committee of the Global Water Partnership and a Member of the Inspection Panel of the World Bank. A specialist in water resources and sustainable development with over 30 years of international experience in the field, he also serves as Chair of the Water Supply and Sanitation Collaborative Council, Member of the Board of Directors of WaterAid America, and Senior Advisor to the International Research Institute for Climate and Society (IRI) at Columbia University. A citizen of Argentina with a Civil Engineering degree from the University of Buenos Aires and a Ph.D. from MIT, Dr. Lenton is a co-author of *Applied Water Resources Systems*. He is also a lead author of *Health, Dignity and Development: What will it take?*, the final report of the United Nations Millennium Project Task Force on Water and Sanitation, which he co-chaired. Dr. Lenton was earlier Director of the Sustainable Energy and Environment Division of the United Nations Development Programme in New York, Director General of the International Water Management Institute in Sri Lanka and Program Officer in the Rural Poverty and Resources program of the Ford Foundation in New Delhi and New York. He has served on the staff of Columbia University and the Massachusetts Institute of Technology (MIT), including posts as Executive Director of the IRI Secretariat for International Affairs and Development and Adjunct Professor in the School of International and Public Affairs at Columbia and Assistant Professor of Civil and Environmental Engineering at MIT.

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**Theodore Downing**, Research Professor of Social Development at the University of Arizona, earned his PhD from Stanford in Social Anthropology. Specializing in international social policy development, he has extensive research, project management, and policy-making experience in Latin America, Africa, and the Middle East. His understanding of capacities and limits of government was enhanced by being elected for two terms to the Arizona House of Representatives. Beginning as a short-term consultant to The World Bank in 1987, he has worked on involuntary resettlement and indigenous peoples safeguard issues through most phases of the Bank's project cycle - preparation through supervision and across the energy, agricultural, and the extractive industry sectors. His development experience includes directing the Mexico's anti-coffee rust research team for the Mexican National Science Foundation, helping establish an environmental science college at King Abdulaziz University in Jeddah. His colleagues elected him to be President of the international Society for Applied Anthropology and is currently President of the International Network on Displacement and Resettlement ([www.displacement.net](http://www.displacement.net)). Samples of his writings and project experience are available at [www.ted-downing.com](http://www.ted-downing.com).

**Richard Fuggle** is Emeritus Professor of Environmental Studies at the University of Cape Town. Prof. Fuggle is a Member of the Academy of Science of South Africa, a Registered Natural Scientist, a Certified Environmental Practitioner in South Africa and a Professional Member of the South African Institute of Ecologists and Environmental Scientists. He has edited two books on environmental management in South Africa and has published over 100 academic papers on environmental topics. He led the team which developed the South African Guidelines for Integrated Environmental Management. Prof.

Fuggle has served on numerous Commissions of Enquiry related to Environmental Assessments. He has received awards and distinctions for his contributions to the advancement of Environmental Impact Assessment both nationally and internationally. Prof. Fuggle earned his Ph.D from McGill University in Montreal.

**Graham Hadley** was educated at Cambridge (MA Modern History 1966) and in 1991 completed the Harvard Business School Advanced Management Programme. After a Civil Service career (final position: Under Secretary, Department of Energy), Mr. Hadley joined the Electricity Industry in 1983. He played a key role in the restructuring and privatization of the industry in 1988-91, first as Board Secretary to the Central Electricity Generating Board, and subsequently (1990-95) as a Board Member and Director of National Power. At National Power his main role was as MD of international business development: from a zero base he established the company as one of the leading independent power producers, with assets in the US, Europe and Asia. Since 1996 he has been an economic and commercial consultant, in the position of Senior Advisor to National Economic Research Associates (NERA) until 2007. At NERA or independently, he has advised IFAs, Governments, utilities and regulators internationally on utility sector reform, particularly on industrial restructuring, the introduction of private capital and investment strategy. He has also specialized in power purchasing and the use of power purchase agreements (PPAs) to manage risk. In this area his assignments have included: Expert Witness in a PPA contract arbitration dispute between a US power company and a Caribbean utility; advice to and training in power purchasing of Electricity Regulators in India and Sri Lanka ; assistance to the Government of Mexico in developing model PPAs and the policy of competitive power solicitation. He has also advised developers and power purchasers on specific PPAs. From 2000-2007 he was also a Member of the UK Competition Commission, serving on a number of both merger and sector Inquiry Panels.

**Peter Pearson** received his degrees in economics from the Universities of Keele, London and Surrey. He is Professor of Energy and Environmental Studies, Director of the Centre for Energy Policy and Technology and a director of the Energy Futures Lab at Imperial College London. He has held academic posts at the Universities of Glasgow and Surrey. From 1989-94, he headed Surrey University Energy Economics Centre (SEEC), and in 1993 held a UK Economic and Social Research Council Global Environmental Change Research Fellowship. He has been Chair (1992, 2002) of the British Institute of Energy Economics, was a member of the European Commission's Advisory Group on Energy (AGE) for the 6th Framework RTD Programme (2002-2006), an invited reviewer for the International Energy Agency's *World Energy Outlook*, and Chair of the *International Evaluation Panel on Environment and Societal Sciences* for the Academy of Finland (2006). He delivered the 2007 Queen's Lecture at the Technical University of Berlin and was a Specialist Advisor to the House of Commons Innovation, Universities, Science & Skills Select Committee's *Inquiry into Renewable Electricity Generation* (2007-08). He is the author/co-author of 160 scholarly publications on energy, environment and water

**Carlos E. M. Tucci**, Civil Engineer and Professor at the Institute of Hydraulic Research of the Federal University of Rio Grande do Sul. Mr. Tucci holds a Ph.D. from Colorado State University, 1978. He is a former vice-president of the International Association of Hydrologic Science, a former president of the Brazilian Water Resources Association, and a former executive secretary for the Water Resource Research and Investment fund in Brazil. He is now Chief-editor of the Brazilian Water Resources Journal and REGA Water Resource Management Journal for Latin America.. Mr. Tucci has about 400 publications in books, book chapters, Papers in journals, essays and conferences. He was honored by the Civil Defense of The State of Rio Grande do Sul and for the best scientific book published in 1993 in the State of Rio Grande do Sul.