RUSUMO FALLS HYDROPOWER PROJECT
NELSAP

1st Site Visit October 21 to 28, 2012

2012-11-12

PANEL OF ENVIRONMENTAL AND SOCIAL EXPERTS
Kerry M. Connor, Ph.D.
Dr. Robert Zwahlen
PANEL OF ENVIRONMENTAL AND SOCIAL EXPERTS

Kerry M. Connor, Ph.D.

Dr. Robert Zwahlen
Contents

ACRONYMS AND ABBREVIATIONS ........................................................................................................ II

1 PURPOSE AND SCOPE ..................................................................................................................... 3
1.1 The POE for Rusumo Falls HPP .................................................................................................. 3
1.2 First POE Mission ....................................................................................................................... 3
1.3 Documentation ........................................................................................................................... 3

2 SOCIAL ISSUES ............................................................................................................................. 4
2.1 Hydro Power ............................................................................................................................... 4
2.1.1 Revised RAP to Be Submitted by 28 November for Internal WB Review ....................... 4
2.1.2 Livelihood Restoration (LR) ................................................................................................. 4
2.1.3 RAP Implementation Organizational Structure .................................................................. 5
2.1.4 Public Consultation and Disclosure (PCDP) ....................................................................... 5
2.1.5 Inconvenience to Persons no Longer Affected (Ex-PAP) ................................................... 5
2.2 Transmission Lines ..................................................................................................................... 5

3 ENVIRONMENTAL ISSUES ......................................................................................................... 7
3.1 Scope ....................................................................................................................................... 7
3.2 The Project ................................................................................................................................ 7
3.3 Observations and Comments ...................................................................................................... 8

4 NEXT STEPS ................................................................................................................................... 10

ANNEXES ........................................................................................................................................... 11

ANNEX 1: ACTIVITIES OF OCT. 2012 POE REVIEW ................................................................... 12
ANNEX 2: DOCUMENTS CONSULTED ......................................................................................... 13
ACRONYMS AND ABBREVIATIONS

d/s    downstream
ESIA   Environmental and Social Impact Assessment
HH     Household
HPP    Hydropower Project
NBI    Nile Basin Initiative
NELSAP Nile Equatorial Lakes Subsidiary Action Plan
OP     Operating Policy
PAP    Project Affected Person
POE    Panel of Experts
RAP    Resettlement Action Plan
ROR    Run-of-river (hydropower scheme)
u/s    upstream
WB     World Bank
1 PURPOSE AND SCOPE

1.1 The POE for Rusumo Falls HPP

For the Rusumo Falls HPP, located on the Kagera river forming the border between Rwanda and Tanzania, NELSAP, the project promoter, contracted an Independent Panel of Environmental and Social Experts (Panel of Experts, POE) for providing guidance and support in the preparation and implementation of environmental and social measures in order to ensure that the project would be in compliance with international environmental and social standards, and especially with the World Bank safeguards (World Bank Operational Procedures, WB OPs).

This POE is formed by the following two persons:

- Ms. Kerry Connor, PhD, social expert, and
- Dr. Robert Zwahlen, environmental expert.

The contracts with the two experts were signed in September 2012. For the time being, they cover the period of September 2012 to September 2013; in this period, three site visits are foreseen, one of which in 2012.

1.2 First POE Mission

A first mission of the POE to Kigali and the project site was organised for the week of Oct. 21-28, 2012; for details see activity schedules in Annex 1.

The purpose of this first mission was to participate in Lender Meeting to establish the activities and the schedule for revision of the Environmental and Social Impact Assessment (ESIA) and Management Plans as well as the Resettlement Action Plan (RAP) for the run-of-river Rusumo Falls (ROR) Project strategy in order to progress to project appraisal.

Since the POE did not have any information on the Project prior to this first site visit, and since there are no documents or project implementation activities to comment on as yet, for the POE this first mission served mainly the purpose of getting acquainted with the main actors involved (NELSAP, WB and ARTELIA), getting information on the project (orally during meetings, and from previous documents as mentioned below), and to get a first direct impression of the project site by means of short site visits.

1.3 Documentation

No documentation on the project had been submitted to the POE prior to this first site visit. For a list of documents handed over to the Experts during the mission see list in Annex 2.
2 SOCIAL ISSUES

2.1 Hydro Power
Revision of the resettlement action plan to address the impacts of a run of river (ROR) hydro power scheme is currently the main social task. The ROR design greatly reduces social impacts, particularly direct impacts in terms of the number of households to be displaced (both physical and economic) and the amount of land affected.

The issues associated with resettlement planning and comments/recommendations on these issues at this early stage of the POE review are defined below.

2.1.1 Revised RAP to Be Submitted by 28 November for Internal WB Review
In the opinion of the POE Social Expert, one month is insufficient for the Consultant (ARTELIA) to conduct household surveys and to identify the effect of marshland loss at affected household level and secure household signatures on the amount of marshland they own/use.

The SNC resettlement plan was prepared as a feasibility level plan for an intermediate sized dam. As such, it covers a much larger area of impact, but at a lower level of detail than is required for an acceptable RAP. The majority of surveys were conducted at the village level and, though some household surveys appear to have been done, survey results are difficult to find or often missing household names. Revision of the plan involves identifying ROR displacement impacts and acquiring sufficient detail about affected people’s standard of living and livelihood sources as the basis for developing suitable entitlements and implementation methods. Given the short revision timeframe, a sufficient level of detail to develop entitlement categories could be accomplished by simply gaining a better understanding of marshland use and the significance to different categories of users of marshland “income” (e.g., total reliance on marshland income, reliance on marshland for subsistence, etc.). Some of this information already exists and can be confirmed through focus group discussions and key informant interviews in the affected areas. The cutoff date can still be established at the time of the discussions and a schedule for individual household surveys and agreements would be included in the resettlement plan.

2.1.2 Livelihood Restoration (LR)
Livelihood restoration as part of the LADP was discussed during the mission. In the POE Social Expert’s experience, LR measures may be part of a larger income support program, as long as:

- LR measures for displaced households are begun as soon as possible following (and sometimes before) loss of economic assets occurs
- Outcomes of LR measures for households losing economic assets are evaluated and reported separately.

Replacement land is usually the most effective livelihood restoration measure for households with land-based income sources. A proposed LR strategy for displaced marshland farmers in Rwanda that would give them marshland in existing cooperatives, however, needs to demonstrate that it would not reduce land for current cooperative
users which would in turn reduce their income/subsistence which would likely generate conflict.

Provision of land for land for the 92 physically displaced households was also mentioned during the mission. The majority of these households earn their living from business and will relocate close to both their current location and the new road and project facilities, thus it is not clear why replacement land would be appropriate.

Field labourers who lose employment as a result of land acquisition are mentioned as indirectly affected. Loss of employment is a direct impact and should be managed by compensation and LR assistance, as needed.

### 2.1.3 RAP Implementation Organizational Structure

Oversight and coordination by a central resettlement unit will be critical to ensure that implementation in all three countries is consistent with the RAP, that suitable implementation methods are used, and that schedules are met. The most logical structure would include an overall resettlement manager within NELSAP in Rwanda answering to the NELSAP Project Manager and resettlement team leaders in Burundi and Tanzania reporting to the resettlement manager. Implementation tasks may vary in the different countries, thus, scopes of work would address the tasks to be undertaken in each country. Field teams should include people with the skill sets appropriate to the task, for example, for consultation, grievance management, and livelihood restoration management.

### 2.1.4 Public Consultation and Disclosure (PCDP)

NEPSAP will prepare a PCDP following the guidelines given by the WB Social Specialist during the mission. More immediately, NELSAP will prepare fact sheets and the WB will review the sheets prior to their disclosure. A clarification is needed on disclosure task responsibility. The POE understood that NELSAP would be responsible for most of the near term disclosure/consultation tasks, but a recent conversation with the resettlement consultant (ARTELIA) suggests that it has been tasked with notifying households who will be displaced under the ROR scheme.

### 2.1.5 Inconvenience to Persons no Longer Affected (Ex-PAP)

The POE received inconsistent information on notification to “Ex-PAP” (households who would have been affected by the intermediate project design, but not by the ROR scheme) that they would not be compensated for improvements (structures, planting, etc.) after a cutoff date. Clarification is needed on whether (i) a cutoff date was announced and (ii) anyone with authority (government or project) informed people of the cutoff date and its compensation implications. Notification would seem to be more appropriately done by the Project itself.

### 2.2 Transmission Lines

The African Development Bank (ADB) is providing some of the financing for the transmission lines. The World Bank considers the transmission line project an associated facility of the hydro power project, thus will require (as stated during the mission) a “minimal level of comfort” that safeguard mitigation is acceptable. The POE would like detailed information on the meaning of “minimal level of comfort”.
A preliminary RAP for the transmission lines has been prepared. ADB has not yet sent its comments on the RAP, thus NELSAP is to organize a teleconference with ADB to discuss the requirements for finalization of the RAP considering final alignment and tower siting. The POE will review the “finalized” version.
3 ENVIRONMENTAL ISSUES

3.1 Scope
Given the fact that no prior information on the project was available, that the relevant project documents (ESIA and related documents) for the project alternative under evaluation now (ROR scheme) are under preparation, and that no activities related to project implementation are under way as yet, this Section of the report is very short, limited to a few major points which were raised in the discussions held during the mission.

3.2 The Project
From the discussions and the documents handed over to the Experts, it is understood that in the past three alternatives were under evaluation, whose main characteristics are summarised in the following Table.

Table 3-1: Rusumo Falls HPP: main characteristics of alternatives

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>high</td>
<td>intermediate</td>
</tr>
<tr>
<td>Full supply level (FSL)</td>
<td>m asl</td>
<td>1325</td>
</tr>
<tr>
<td>Reservoir area</td>
<td>ha</td>
<td>28'000</td>
</tr>
<tr>
<td>Installed capacity</td>
<td>MW</td>
<td>90</td>
</tr>
<tr>
<td>Annual electricity output</td>
<td>GWh</td>
<td>507</td>
</tr>
<tr>
<td>Affected villages</td>
<td>N</td>
<td>263</td>
</tr>
<tr>
<td>Affected HH</td>
<td>N</td>
<td>17'450</td>
</tr>
<tr>
<td>Affected people</td>
<td>N</td>
<td>87'250</td>
</tr>
<tr>
<td>Agric. land submerged</td>
<td>ha</td>
<td>9'152</td>
</tr>
<tr>
<td>Marshland submerged</td>
<td>ha</td>
<td>18'280</td>
</tr>
<tr>
<td>Affected land per energy unit</td>
<td>ha/GWh</td>
<td>55.3</td>
</tr>
<tr>
<td>Affected persons per energy unit</td>
<td>PAP/GWh</td>
<td>172</td>
</tr>
</tbody>
</table>

* ROR (run-of-river): alternative now chosen for further development; figures have to be considered as preliminary, changes are still possible.

The third alternative described above, the ROR scheme, has now been chosen for further development. It is quite obvious that the environmental (in terms of land submerged) and social (in terms of agricultural land submerged as well as in terms of affected human population) was reduced very considerably as compared to the two other alternatives. One very important effect is the fact that Burundi, which was heavily affected especially be the alternative "high", is no longer affected at all by the project.

The two last rows in the Table above, which put produced energy in relation with submerged land and affected people, clearly show the degree of improvement of the project from an environmental and social point of view.
3.3 Observations and Comments

Here, a few comments on project related issues, and some recommendations for ongoing activities are made.

- As mentioned, the most obvious effect of choosing the ROR alternative is the enormous reduction in environmental and social impact of the Project. Every effort should be made to communicate this as a success of the project development process (which is absolutely in line with, e.g., WB guidelines which clearly, for project impacts, ask for (i) avoidance, (ii) minimisation and (iii), compensation where not feasible otherwise).

- The most important reduction of the magnitude of the overall project footprint is certainly in the socioeconomic sector (see preceding Chapter).

- However, environmental impacts are also reduced considerably; some points (which will have to be analysed in detail in the ESIA which is presently under preparation):
  - Reduced impact on natural habitats, i.e. papyrus swamps, in terms of affected surface as well as in terms of severity of impact (only small increase in water level, which might not, or only marginally, affect stands of papyrus and the fauna associated with it).
  - Downstream impact: the other alternatives, which would have regulating capacity, might have affected the downstream area, and here mainly the wetlands in the Akagera National Park; this impact is only shortly addressed in the SNC-Lavalin ESIA, basically stating that the impact will be small or none due to the small size of the reservoir. Still, it will have to be shown clearly that the ROR scheme will not change hydrology in the s/s area.

- Some field investigations were made on the fish fauna, in addition to a literature search. The results show a considerably higher diversity d/s of the falls, indicating that these actually form a barrier to fish migration. However, the statement made on p. 3.64 of the SNC-Lavalin ESIA that the about 1 km stretch directly below the falls, due to its characteristics which distinguish it from the other parts of the river, is a high diversity area and of importance as a spawning site, is not corroborated by any data in the report. Since this area will be affected by the project area, being located between dam and water outlet of the plant, this should be analysed more in detail (possibly by means of a monitoring during the construction phase).

- Terrestrial fauna (mammals, birds, reptiles) was analysed and discussed only based on available literature. However, the SNC-Lavalin ESIA shows that the area affected by the project, and especially the papyrus swamps in this area, are rather well known faunistically. Therefore, it is not recommended to carry out additional field investigations, this also given the fact that negative impacts will be marginal. However, some care should be given in the description of the fauna for not just re-copying obvious mistakes (some of which have been copied from a source utilised in the preparation of the report. Mistakes made: some scientific names are misspelled, and some species are not identified correctly (e.g. Vipera aspis, Felis serval, or the leopard identified as Panthera leo).
• Reservoir: although the size of the reservoir was reduced very considerably, this point is still important. The presentation made by ARTELIA covered the backwater effect u/s of the future reservoir, but so far not the reservoir as such. Main questions:
  o What will the actual area be which is going to be submerged?
  o By how much will the water level be raised over presently existing water levels? Any change in seasonal level?
  o What vegetation types will be affected in which way? will any land use for agriculture (whether "dry land" outside the swamp or swamp margins cultivated during the dry season) be affected? in which way?
4 NEXT STEPS

The schedule as discussed during the mission foresees that ARTELIA will provide the ESIA and RAP for the ROR scheme in December. It is assumed that the POE will receive these reports for comments.

The question of a next visit of the POE to the site was discussed shortly. According to the contract, which lasts till September 2013, two missions will have to be carried out in this period.

No dates were fixed for a next site visit yet. It will certainly be required that the site visits are fixed in relation with project progress. With the present information on the project, it might be good to have the second mission approximately in June, and the third one about a year from now, i.e. at the moment when construction activities will start (as seems to be the aim right now), even if this would require a slight change in contract duration.
ANNEXES
**ANNEX 1: ACTIVITIES OF OCT. 2012 POE REVIEW**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, 2012-10-22</td>
<td>First project meeting: presentation of the project (ROR alternative, comparison to earlier alternatives with higher dam), discussion of social and environmental issues</td>
<td>NELSAP Rusumo team, WB delegation, POE</td>
</tr>
<tr>
<td>Tuesday, 2012-10-23</td>
<td>Project meeting, continuation of discussion from previous day.</td>
<td>Same group</td>
</tr>
<tr>
<td>Wednesday, 2012-10-24</td>
<td>Site visit to Rusumo Falls HPP dam site and reservoir area nearby.</td>
<td>Same group</td>
</tr>
<tr>
<td>Thursday, 2012-10-25</td>
<td>Project meeting: presentation of first results of hydraulic modelling of ROR reservoir and main u/s impacts of this alternative in comparison to earlier ones.</td>
<td>Same group plus ARTELIA (MM. Nicolas Bukovski and Bernard Yon).</td>
</tr>
<tr>
<td>Friday, 2012-10-26</td>
<td>Checking of documents made available by NELSAP and WB</td>
<td>K. Connor, R. Zwahlen</td>
</tr>
<tr>
<td>Saturday, 2012-10-27</td>
<td>Site visit: project area, specifically reservoir area at upper end of future reservoir. Leaving Kigali to go to Indonesia</td>
<td>NELSAP Rusumo team, WB delegation, ARTELIA, R. Zwahlen</td>
</tr>
<tr>
<td>Sunday, 2012-10-28</td>
<td>Leaving Kigali to Nairobi, arriving in Zurich 10-29, early morning</td>
<td>R. Zwahlen</td>
</tr>
</tbody>
</table>
ANNEX 2: DOCUMENTS CONSULTED


Norwegian Water and Energy Directorate, 2007: Final Expert Opinion on Kagera Basin Hydrology and Sediment Transport at Rusumo Falls. NBI, NELSAP.


SNC-Lavalin, 2012: Rusumo Falls Hydroelectric Power Development Project. Intermediate Development Scheme (1323.5 m.a.s.l.). Phase III - RAP and LADP (one Volume each for Rwanda, Burundi and Tanzania).