9. Analysis of Social Impacts (Summary)

In general terms the purpose of the ESIA is to predict the negative and positive impacts that are likely to occur as a result of preparing, constructing and operating the HVTL. The ESIA specifies the potential risks on the socio-economic environment of the proposed project areas and subsequently proposes measures that would eliminate or mitigate any negative impact of the project.

Methodology and legal framework
The preparation of the ESIA was based on field trips to all the affected communities and concerned areas, situated along the transmission line right of way (ROW) on which the line will pass. The affected Provinces, Districts, Local Government Authorities, Communities Officials and Community Development Associations (including women) were visited and consulted. Relevant documents, including World Bank directives, guidelines and other documents as well as relevant local legislation, policy papers and guidelines were consulted.

During the feasibility phase of the study, a total of 110 structured interviews were conducted with community members in all three countries. This includes discussions with potential consumers of electricity in rural centres (private and business consumers) as well as interviews with people living under the projected line who are directly affected by the construction work.

The main legal and regulatory instruments governing the environmental management in the three countries are quoted and an analysis of the legal and administrative framework related to resettlement and compensation measures are elaborated in the context of the Resettlement Action Plan.

Project Alternatives
The proposal for the HV transmission line route in Burundi is without alternatives if the three provinces of Gitega, Karuzi, and Muyinga are to be crossed and the option to provide electricity for some of the 30 unsupplied rural centres of this area be upheld.

The HV transmission line for Rwanda had two options during the prefeasibility phase: a northern routing mainly following the existing power line beside the main road to Kigali, and a southern route crossing the districts of Kibungo and Rwanagana which allows the connection of the newly-planned international airport to the projected t-line. At the beginning of the feasibility phase, the southern option was adopted.

The line segment in Tanzania was also the subject of modification. The previously final point of the high voltage line was changed from the centre of Biharamulo to the centre of Nyakanazi, 50 km south of Biharamulo.
**Project Environment**

Burundi, Rwanda, and Tanzania are among the poorest countries of the world. While the socio-economic situation (included educational and health sectors) is comparable with many countries in sub-Saharan Africa, the per capita GDP is much lower than average.

Since the crisis in Burundi, GDP decreased annually by three per cent, resulting in a cumulative decline in production of 30 per cent to date. Per capita incomes drop to 83 US-$ in 2004, from a level of 214 in the early years of the last decade. Gross National Income (GNI) figures for Rwanda for 2006 vary between US $220 and $272 p.c., while with regard to the purchasing power parity US $1,672 are projected. In 2006, the Tanzanian GDP (in real terms) grew by 6.2% compared to 6.7% in 2005.

All three countries depend considerably on the agricultural sector. Between 85% (Tanzania) and more than 90% (Burundi and Rwanda) of the population live from or at least also from agriculture\(^1\). There is an increase in non-agricultural employment both in the industrial and service sector. However, growth in both sectors is hampered by poor infrastructure such as transport and electricity supply, lack of natural resources mainly in Burundi and Rwanda and the landlocked situation of the same countries, and bureaucracy in Tanzania which affects private economy and investment.

Rural electrification can support such a diversification of economic activities and the creation of new and additional employment.

**Land use**

Land use patterns are quickly changing in our three reference countries, and not only as the result of population growth and migration. Government policy, laws, and regulations influence the system as well as economic factors, changes in land tenure arrangements and accessibility to markets, or environmental conditions. Currently, with the PRS process, the World Bank and IMF, but also other international and bilateral donors, are again encouraging economic growth in the reference countries via export of agricultural products.

Today, common characteristics of land utilization in the three reference countries are with regard to the production system a predominant subsistence orientation of the entire agricultural production system, traditional cultivating and stock farming patterns based on an extremely traditional technology and little or no use of modern inputs. Whereas sufficient land reserves in the Tanzanian districts of the study area are available, a high pressure on land in Rwanda and Burundi with already small plots and the cultivation of slopes and swamps can be remarked.

\(^1\) CIA World Factbook 2009
Many factors have contributed to a remarkable transformation of gender relations and roles in the reference countries. However, although modern laws have restored clan rights to land, women in practise still have fewer access rights to land (i.e. land ownership and land use) in spite of their continued and even increased responsibility to provide for their households.

**Impacts**
With regard to an electricity supply project there are *positive and negative impacts* possible. Positive impacts result from the new (or improved) electricity supply, which allows economic development and improvements in living conditions.

A regional positive impact of the Rusumo Falls Regional Hydropower and Multipurpose Project can be anticipated by the economic development of the handicraft and especially the agro-business sector. The benefits of the project for domestic supply and use in small-scale businesses and in access to electric power for schools and public services are evident. Supply of pumped water will be facilitated and there will be safer and more efficient operation of key services, through electricity access to villages along the transmission and distribution lines served.

The possibilities of an Electricity Supply Project linked to Poverty Reduction can be seen in an increased income, an enhanced productivity and quality of life, a contribution to Human Development, influenced migration, and by a contribution to security.

The main potential adverse impacts of the Project would occur mainly during the construction stage in the form of permanent loss of land and vegetation under various uses due to land acquisition for establishment of transmission towers and for the establishment of right of way (ROW).

A total of 83 houses needing to be displaced and 474 farm plots affected can be expected for the line segment in Burundi. The number of farm plots affected by the transmission line in Rwanda is presumed to be 530, with a total of 121 houses needing to be displaced. For the two lines in Tanzania the number of affected farm plots is presumed to be 275, with a total of 79 houses requiring a displacement.

The countries will be responsible for the payment of the compensations. It is the requirement of both the World Bank and the AfDB that no civic works for project implementation can begin if the compensations have not been provided for.

**Rural Centres**
According to the ToR the survey included all important rural centres within a range of about 20 km both left and right of the scheduled HV transmission lines.
Those rural centres which are not classified as growth centres have a population of between 150 and 1,500 households. Some centres have more the character of a regional weekly market than a permanent settlement. A typical rural centre has a primary school and a health post. For the farmers, perhaps even more important are the shops which provide general goods, inputs, and services. Bicycles and agricultural utensils can be repaired.

In all of the three countries, non-electrified centres within a corridor of 20 km beside the projected transmission line have been identified. The selection of those rural centres for electrification should follow reproducible criteria like the population of the centres, the number of state (social) institutions, the existence of agri-business and small-scale enterprises, the existence of local or interregional markets and the distance to the projected or to already existing power transmission lines.

For the Burundian line, the centres of Bwambarangwe, Butihinda, Kobero, Mubuga, Nyabikere and Mutumba are suitable for a potential rural electrification.

Within the line corridor in Rwanda, the centres of Kyanzi, Rubona, Rilima, Gashora and Nkanga-Batima are suitable for a connection to the grid.

In Tanzania the centres of Nyakahura, Nyakanazi, Rulenge, Kabanga, Ngara, Benaco and Rusumo show some potential for a future electrification.

**Willingness to Pay (WTP)**

Summarizing the results of the WTP analysis concerning the two countries Burundi and Rwanda, the preliminary finding that about 50% of the population in the rural centres are willing and able to pay for electricity connections is approved. The figures for commercial clients are higher here (Burundi 83%, Rwanda 77%) as compared to domestic consumers (Burundi 34%, Rwanda 56%) in the centres. The willingness of the population living in the remote areas is clearly lower and lies within a range of 16% (in Burundi) to 21% (Rwanda). If connection costs could be paid in instalments by the clients, e.g. in combination with a cash-power system, an even higher rate of WTP can be expected.

In Tanzania, about 90% of potential commercial and domestic clients within the rural centres expressed their willingness to pay for electricity at preset costs. Even 76% of the population living in remote areas under the line seem to be willing to pay.

**Mitigation Measures**

Land acquisition will be carried out in accordance with the prevalent laws of the three countries and as per the AfDB guidelines on resettlement, which require identification and quantification of any impacts on land-based livelihood, and adequate compensation to landowners and people relying on the land for their livelihood. The compensation would be paid before the start of works as per the resettlement plans. The effective payment of the compensation would be one of the loan conditions.
Another method to mitigate the impact of land acquisition by the project is to allow continuation of agriculture within the ROW on conditional terms and in compliance with strict vegetation management guidelines.

The mitigation plan will take a rigorous approach to control the spread of STDs: health education programs, control of informal sector activities near the project site and distribution of condoms.

Experience with cash-power systems is widespread in Rwanda. According to information from the Commercial Directorate of ELECTROGAZ, it is intended to collect even connection fees for a new electricity connection by the payment of consumers via the cash-power system.

This would be comparable to a credit allocated for the electricity connection and would make it much easier for a large segment of the population to afford the required fees. At the same time it would lead definitely to an increase of potential clients.

**Monitoring**
The ESIA recommends that an external environmental auditor performs an environmental and social audit of the project yearly in accordance with the regulatory requirements and standards. This audit is to check the predictions of the ESIA and assess the general performance of the project to ensure that environmental and social standards are maintained.

**Public Consultation**
The ESIA of this project was duly carried out with the input of all the concerned institutions, local authorities, stakeholders, NGOs, village heads and the public in general during the prefeasibility and feasibility phase of the study.

Many respondents expect benefits from the project such as supply of electricity and water, development, employment creation, and reduced dependence on kerosene for fuel. Respondents expect the supplied electricity to be used to promote small businesses, food processing, irrigation, domestic lighting, hospitals, and schools.

There were also negative impacts expected, such as insufficient compensation for loss of assets, electrical faults, or transformers exploding. Many people know about the high tariffs of electricity in the region. Hence, it was stated during stakeholder meetings that high costs of electricity could prevent the majority of the population from its usage with the consequence that only the rich would profit from the project. Therefore, expensive electricity may have only little impact on socio-economic development. It was also stated that due to high costs even businesses could not be able to use much electrical power and, as a consequence, economic development would remain low.
These findings, based on numerous informal discussions with local authorities, representatives of governmental administrations, community members, NGOs, representatives of national electric providers and business people, were largely approved by the results of 110 focus group discussions with the affected population carried out in November and December 2008.