



AFRICAN DEVELOPMENT
BANK GROUP

PROJECT: Iringa – Shinyanga Power Transmission
Line Project

COUNTRY: Tanzania

ESIA SUMMARY

Date: March 2010

Appraisal Team

Team Leader:	V. ZONGO, Infrastructure Financial Analyst, OINF.3
Team Members:	N. KULEMEKA, Socio-Economist, OINF.2 D. LEKOETJE, Public Utilities Economist, OINF.3 E. NEGASH, Power Engineer, OINF.3 O. OKOYE, Financial Analyst, OINF.3 E. ZELEKE, Environmentalist, Consultant
Sector Manager:	A.T. DIALLO, OINF.3
Sector Director:	G. MBESHERUBUSA, OINF
Regional Directors:	D. GAYE, OREA

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) SUMMARY

Project Name : Iringa – Shinyanga Power Transmission Line Project
Country : Tanzania
Project Number: P-TZ-FAO-009

1. Introduction

1.1 The power transmission line is very important as it links the existing and future power generation sources in the south and southwest of Tanzania to the load centers in the Mwanza and Arusha regions in the North. For future interconnections with neighboring countries of Kenya, Zambia and Malawi, strengthening of the grid is a key component of regional economic cooperation and development. Given the length of 670 km and the power voltage of 400 kV, the project is classified as Category 1 according to African Development Bank's (AfDB) Environmental and Social Assessment Procedures (ESAP). It is, therefore, a Policy requirement that the ESIA Summary be made public through posting on AfDB website, through the AfDB's Public Information Center and at its Field Office in Tanzania. The full ESIA was completed in July 2009 and is available at Tanzania Electric Supply Company (TANESCO) and at the Tanzania's National Environment Management Council (NEMC). Preparation of the report was compliant with Tanzanian Environmental Management Act (2004) and the Regulations for EIA and auditing (2005) as well as World Bank regulations.

1.2 The Summary gives a synopsis of the project and the project area; gives the project justification; lists the relevant policies, legal and administrative framework; describes the project environment; analyses the project alternatives; provides potential impacts and mitigation/enhancement measures; stipulates public consultations and disclosure processes; provides some complementary initiatives considered; outlines the monitoring program; makes a conclusion; and provides some reference and contact points. Attached to the Summary is an Annex (a summary of the Resettlement Action Plan (RAP)).

2. Project Description and Justification

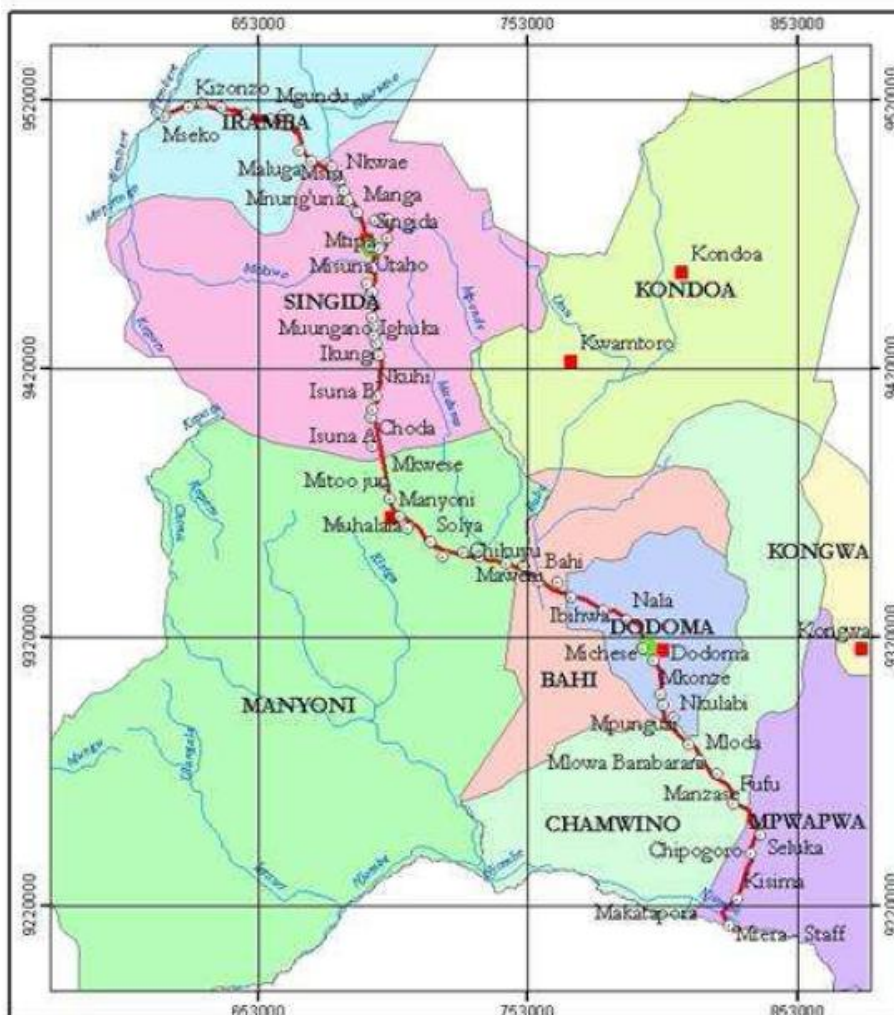
2.1 ***Project Description and Project Area:*** The proposed project intends to reinforce the existing 220kV transmission line from Iringa to Shinyanga by constructing approximately 700 km of 400 kV electrical power transmission line and associated facilities. Key components of the project shall include the way-leave, i.e. land set aside for the transmission line and associated facilities; transmission towers; conductors; access roads to transmission line structures for construction and maintenance; substations; and materials and other utilities. The line is divided into three line sections, with, approximately, the following section lengths:

(i) Iringa - Dodoma Section (225 km): From the Iringa Substation the proposed line will pass on the left hand side of the existing 220 kV line passing 70 m adjacent to the switchyard at Mtera power station over-spanning the 220 kV feeder lines. The power line passes through the Nyang'oro forest reserve before emerging at Mtera dam.

(ii) Dodoma - Singida Section (217 km): From the Dodoma Substation the line passes along the right hand side of the existing 220 kV line on a mostly flat to slightly hilly terrain. At T 230 near Kilimatinde the lines traverse a fault-scarp of over 100 m vertical shift, forming a very steep slope with large outcrop rock. The line passes through Sekenke and Choda Forest Reserves before reaching Singida Substation.

(iii) **Singida - Shinyanga Section (228 km):** The proposed line route will run some distance in parallel to the left of the existing 220 kV Arusha line. From T132 to T210 about 1 km in parallel to the existing 220 kV line a new route has been established at the northern side of the road, leaving the existing settlements undisturbed and getting favorable terrain conditions in the latter part.

2.2 **Project Justification:** The vast majority of people in Tanzania do not have access to electricity, and the rural population is nearly completely excluded from this source of energy. It is estimated that only 10% of the population is connected to the national grid. It is intended that the rest of the country, including about 8,200 villages, should be supplied with electricity to curb deforestation. In addition there are plans to supply power to Kenya and Malawi from Tanzania. The main objective of this project is to improve power supply in the north and north-western Tanzania. In addition the project intends to reduce the duration and frequency of power interruptions to central and northern regions i.e. Dodoma, Singida, Shinyanga, Mwanza and Mara, improve voltage conditions at consumer's premises, reduce power system losses - technical losses to meet the current and growing power demand in those regions.



Map showing Dodoma – Singida Section

3. Policy, Legal and Administrative Framework

3.1 The proposed construction of the 400 kV power transmission line from Iringa-Dodoma-Singida-Shinyanga may induce changes in other sectors and the livelihoods of the people along the right of way in the villages and the districts that the power line will pass through. The following specific policies and legal framework have been taken into consideration in designing this project.

3.2 National Policies include:

- ✚ *National Environment Policy, 1997*
- ✚ *National Forest Policy, 1998*
- ✚ *The Mineral Policy of Tanzania, 1997*
- ✚ *National Land Policy, 1997*
- ✚ *Water Policy, 2002*
- ✚ *National Energy Policy, 2003*
- ✚ *The Wildlife and Wetland Policy of Tanzania, 2007*
- ✚ *National Human Settlements Development Policy (NHSDP) of 2000*
- ✚ *Tanzania Development Vision, 2000: Composite Development Goal for the Tanzania Development Vision 2025 (URT, 2000)*
- ✚ *National Strategy for Growth and Reduction of Poverty (NSGRP) or MKUKUTA*
- ✚ *Agriculture and Livestock Policy, 1997.*

3.3 **International Financial Institutions:** Several international financial institutions are taking proactive measures to ensure that the loans and support to public and private sectors are not negatively impacting the environment.

3.3.1 **World Bank Safeguard Policies:** The World Bank Group is guided by a comprehensive set of policies and procedures dealing with the Bank's main development objectives and goals. The proposed development will trigger the following World Bank Operational Policies:

- Environmental Assessment (OP 4.01, BP 4.01, GP 4.01)
- Natural Habitats (OP 4.04, BP 4.04, GP 4.04)
- Forest (OP 4.36, GP 4.36)

3.3.2 **African Development Bank:** The review of the ESIA and RAP reports has complied with the AfDB Environmental and Social Assessment Procedures (ESAP). Its implementation will have to adhere to the following Bank policies:

- Environment and Social Assessment Procedures
- Policy on Environment
- Policy on Involuntary Resettlement
- Policy on Poverty Alleviation
- Policy on Gender
- Policy on Collaboration with Civil Society
- Handbook on Public Consultation and Participation

3.4 Legal Framework

3.4.1 This section outlines the legal and regulatory framework, which is relevant to the proposed development of the 400 kV power transmission line from Iringa- Dodoma-Singida - Shinyanga. The legal and regulatory framework provides the various legal aspects that must be adhered to at project design, implementation and later when it is decommissioned and during operation. The following are selected laws governing environmental and social issues of the project:

- ❖ *Environmental Management Act No. 20 - Cap 191, 2004*
- ❖ *Environmental Impact Assessment and Audit Regulations, 2005, No. 349*
- ❖ *Forest Act, 2002 (No. 14)*
- ❖ *Wildlife Conservation Act, 1974, No. 12 Land Act, 1999 (No.4)*
- ❖ *Village Land Act No. 5, 1999*
- ❖ *Land Regulation, 2001*
- ❖ *Land Disputes Courts Act No. 2, 2002*
- ❖ *Local Government Act No. 9, 1982*
- ❖ *Occupational Health and Safety Act, 2003*
- ❖ *Legal Provisions on Waste Management Issues Part IX of EMA (Cap 191)*
- ❖ *Legal Provisions on Pollution, Part X of EMA (Act No. 20 Cap 191)*
- ❖ *Land Use and Spatial Planning* under following laws
 - (i) The Town and Country Planning Ordinance of 1961.
 - (ii) The National Land Use Planning Commission Act of 1984,
 - (iii) The Local Government Act of 1982.
- ❖ *Land Acquisition Act, 1967 (No. 47)*

3.5 International Agreements and Conventions: Tanzania has signed and ratified several international agreements and conventions relating to the environment. Of relevance are:

- The Convention on Biological Diversity (CBD)
- The Convention on the Conservation of Migratory Species of Wild Animals (CMS)
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention).

3.6 Institutional Framework

3.6.1 The Environmental Management Act Cap 191 provides an institutional set-up for environmental management with details of responsibilities at national and village levels including a mtaa which is the lowest administrative level. The institutional set up involves the following main decision making points:

- National Environment Advisory Committee;
- Minister Responsible for Environment;
- Director of Environment (DOE);
- National Environmental Management council (NEMC);
- Sector Ministries;
- Regional Secretariats; and
- Local Government Authorities [City, Municipality, District, and Town Councils; Township; Hamlet (Kitongoji); Ward; Street (Mtaa); and Village. The Vice President's Office (VPO)

within which is the National Environmental Management Council is the main regulatory organ and responsible for coordinating environmental management in Tanzania.

4. Description of Project Environment

4.1 *Physical characteristics:* The line route and associated substations are located in the central highlands of Tanzania between 32° to 36° east and 4° to 8° south. The transmission line will traverse areas with a differentiated topography with a highest elevation of 1,650 m a.s.l. at Kidunda hills in Iringa and a lowest elevation of 750 m a.s.l. at Mtera Reservoir, and therefore also slightly different climatic characteristics. Mean annual rainfall is ranging between 400 - 600 mm from north of Iringa to Dodoma, whereas the semi-arid climate of Shinyanga receives slightly higher rainfall with an average annual rainfall of 800 mm.

4.2 *Biological Characteristics:* The vegetation type varies depending on climate pattern, rainfall quantity and soil characteristics of the area. However, human induced crops due to cultivation and livestock grazing have replaced much of the natural vegetation. The new line will pass cultivated farmland and grass-, bush- and woodland with scattered cultivation with 440 km or 66% (initially 445 km or 65%), including settlements with a length of about 20 km or 3% of the total line length (initially 34 km or 5%). Main crops are maize, sorghum, rice, sunflower and cotton. Forest reserves will be crossed with a length of about 48 km (7%). The rest, some 180 km or 27% of the line will pass through uncultivated land. In some areas, the soil is vulnerable to erosion due to soil structure, orography, vegetation cover and the water regime. Along the line, at least along the stretch from Iringa to Dodoma, some sites with severe erosion problems have been observed.

4.3 *Social Characteristics:* The 400 kV transmission line passes areas with different socio-economic conditions as indicated by type and size of residential houses, type and amount of household income from crops yields and livestock keeping, and other assets. The socioeconomic survey reveals that the average annual income per household in villages along the line from Mpwapwa District up to Manyoni District is about 31% less than in the villages of the other Districts. The report presents a socio-economic characterization of the affected communities and villages based on the information gathered from Statistical Offices.

5. Project Alternatives

5.1 A **no-project alternative** entails that all above mentioned positive impacts will not take place therefore the socio-economic and environmental consequences of a no project alternative for the proposed project remain irrelevant. An alternative strategy for energy supply at the same level may be through the installation of diesel powered thermal power plants only. Costs as well as environmental impacts of this alternative will be manifold compared with the transmission line project. **Line routing alternatives** are proposed in order to reduce impacts on houses and public infrastructure as well as conflicts with governmental authorities. All together alternatives for 7 line stretches have been developed with a total length of 98 km, sparing about 460 houses (out of 1,300) and 10 public infrastructures (out of 23), and resulting in compensation savings of about EURO 1.4 million (and additionally lots of social grievances unquantifiable in monetary terms). These alternatives will shorten the total line length by about 13 km.

6. Potential Impacts and Mitigation/Enhancement Measures

6.1 Potential Impacts shall emanate from the following main elements of the project's activities:

- (a) The transmission line including the way leave with conductors, towers and access roads;
- (b) Four (4) substations at Iringa, Dodoma, Singida and Shinyanga with capacitors, transformers, switching facilities and workshops; and
- (c) About 6 - 7 temporary camps with storage areas, workshops and accommodation facilities.

(i) **Impacts on Fauna will be as a result of** the new line traversing the forest reserves of Nyang'oro, Choda, and Sekenke –Tulya where there are both high valued and moderate forest reserves amounting to approximately 350 ha. Seasonal inundated areas will be crossed at a length of about 26 km, most of this in the floodplains of the Wembere River and its tributaries. Such areas are preferred breeding and feeding habitats of migrating waterfowls and birdlife. Collisions will be a major cause of unnatural mortality for several species of threatened birds. The utmost highest collision risk will be for large terrestrial birds where the earth wires are mounted ahead of the conductors.

(ii) **Impact on flora will be as a result of** the clearance of the way-leave (about 51 km²) and the consequences hereof for most impacts with high significance. The area will be affected by changes of land cover and land use with diminished ecological functions due to the removal and degradation of the vegetation cover.

(iii) **Impacts on physical environment** will hinge on soils that are vulnerable to erosion due to soil structure, orography, vegetation cover and the water regime. Most affected will be the line stretch from Iringa to Dodoma and the Wembere floodplain. Construction work may cause a serious acceleration of ongoing erosion processes or initiation of new erosion threats.

(iv) Impacts from **waste and wastewater** will emanate from work camps, substations and construction sites being sources of scrap metal, oil contaminated waste, and household waste. Wastewater from repair shops and washing places oil, lubricants and solvents will also exist in the operation phase (Substations).

(v) **Noise, vibrations and Dust emissions** during the construction phase activities like excavations, blasting, movement of vehicles and the operation of heavy machinery may impact people living nearby access roads as well as in the neighborhood of the construction site. However, these nuisances will be short-term effects restricted to day time and a period of some weeks along distinct line stretches a few km long, mainly around the tower sites and the access roads. Traffic movements may be estimated to 50 movements per day. Another source of noise during the operation phase will be the transmission wires: the electromagnetic field of high voltage lines will cause a "buzzing" named corona noise, to be heard mostly within the way-leave only.

(vi) **Electrocution:** The transmission towers could pose a risk to playing children who may attempt to climb the towers. This impact is relevant to all places where the transmission line is found close to inhabited areas and in particular in areas where the population has a low level of literacy. However, the transmission lines are not new to the area since there is already an existing line running parallel to the proposed line. In addition, it would extremely be difficult for any children to climb up the towers near the conductors.

(vii) **Electromagnetic Fields**

There has been a lot of public concern related to suspicions that the radiation of the electromagnetic field (EMF) created by power lines and substations might cause serious health impacts on people living or working close to such structures. Increased cases of leukaemia have been associated with exposure to EMF. Maintaining the way leave clear of human settlement would be the most recommended mitigation measure. Therefore, the precautionary principle should be applied, which means that the field strength should be kept as low as technically possible and economically reasonable.

(viii) The most important **negative social and economic impact** will be the necessary removal of houses affected by the way-leave. Altogether, about 860 households will have to be resettled (a full RAP has been prepared and summarized in attached annex). Due to the fact that within the way-leave no buildings will be permitted, some areas potentially suitable for settlements will be lost. Since agricultural activities in the way-leave area are generally tolerated as long as the height of plants does not exceed 3 m. The area lost for cultivation will be limited to floor-spaces needed for substations, tower foundations, access ways and the ways for inspection along the line.

(ix) Health effects are focused on the **HIV/AIDS problems**: The possible influx of workers recruited for the construction of the transmission line and people looking for work could create a new social situation for a short period of time in the project area. This could increase the risk for an accelerated spread of HIV/AIDS and other STIs as single men earning money and local girls struggling for their livelihood will be a risky combination of social dynamics.

(x) Complaints of stakeholders for **not having the opportunity to access and utilize the electricity** being transported in the lines above them are a source of unhappiness and opportunity lost.

6.2 **Mitigation and enhancement measures** have been defined in order to reduce the impacts of the project, and a mitigation plan has been compiled.

(i) The most important measure concerning the natural environment is targeted at the way-leave area, where a selective clearing is recommended. Clearance for construction work and inspection shall be to no more than absolutely necessary extent. At completion of construction work areas not needed anymore should be replanted / reforested as far as the line security is not impeded.

(ii) Regarding soil erosion, some technical measures are recommended which may prevent an acceleration of ongoing erosion processes as well as an initiation of new erosion threats in susceptible areas. These include sensitive planning of access ways, careful construction work as well as re-cultivating cleared areas with suitable sediment binding grasses such as *Cynodon dactylon*, *Pennisetum clandestinum*, *Cenchrus ciliaris*, *Chloris roxburghiana* and *Eragrostis superba*, avoiding use of heavy machinery in the clearance of the way-leave, and use of better gabions instead of stone walls.

(iii) The impacts on housing, social infrastructures and cultivated areas will be mitigated significantly by the line routing alternatives that avoid settlements and above all by

implementation of a Resettlement Action Plan (RAP) which will include all compensation issues and meet many complains of stakeholders.

(iv) To deal with the complaint that villages along the line corridor will not benefit from electrification, might be countered by the timely deployment of shield wire systems (SWS) at least cost conditions, which is best suited for rural electrification in sparsely populated territories traversed by High Voltage transmission lines.

(v) Collision of birds with the line can be minimized through reducing the number of conductor levels taking into account also the 220 kV line where running in parallel. This will require a different type of towers for the concerned line stretches and fitting of flapper devices on the shield wires will make them more visible and reduce collisions significantly.

(vi) Mitigation measures against the spread of HIV/AIDS and STI would be through implementation of the most efficient strategy concentrating on awareness and information campaigns on the group of workers (but not neglecting the villagers). Provide (through TACAIDS, NGOs/CBOs, District Councils) voluntary testing and treatment for all workers periodically on HIV/AIDS and ensure full participation of all workers; and ensure information materials on HIV/AIDS are posted at all work sites and villages along the way-leave.

(vii) Waste and wastewater contamination may be reduced by constructing and using oil resistant sealing of all surfaces in the camps where hydrocarbons (fuels and lubricants) are permanently handled and stored; these areas have to be sheltered and protected against storm water. Storage for hydrocarbons in oil resistant containments in the field, refueling of vehicles and machines in the field should be done using portable oil collection pans only. Waste may be controlled by separately collecting materials suitable for recycling and composting. Other not hazardous wastes have to be deposited at specific landfill sites already used for this purpose in compliance with Tanzanian regulations. Hazardous materials to be handled properly and far away from water bodies, hazardous wastes have to be brought to facilities.

6.3 Mitigation/Enhancement Cost Summary: The cost of standard construction mitigation measures have been integrated into the Project's Bills of Quantities. The total project cost for environmental mitigation and monitoring, the HIV/AIDS campaign and compensation and resettlement is estimated at EUR 9.380 million for the overall project and **EUR 2.6 million for the AfDB** Component presented as follows:

Table 1: Mitigation/Enhancement Costs

Item	Description	Total Project Cost (EUR)	AfDB Component EUR
1.	RAP Compensation	6,600,000	1,700,000
2.	HIV/AID Campaign	50,000	50,000
3.	Aforestation & Re-vegetation	100,000	50,000
4.	Bird Collision Protection	1,000,000	300,000
5.	Energised Shield Wires	1,500,000	450,000
6.	ESMP Monitoring	130,000	50,000
	Total ESMP & RAP	9,380,000	2,600,000

7. Public Consultations and Public Disclosure

7.1 Public Consultations

7.1.1 Extensive stakeholder consultations were undertaken with major stakeholders to ensure that most of the issues concerning the proposed project have been covered. Consulted were various stakeholders in relevant ministries and sectors in Dar es Salaam, Regions, Districts, various institutions including NGOs/CBOs operating at district levels and all villages where the 400 kV line is to pass. Awareness campaigns and participatory assessments such as discussions with local leaders, public village meetings, meetings and interviews with focus groups and various officials from public and private offices were held. Project affected villagers have also been visited to collect their views and concerns.

7.1.2 At national level (Dar es Salaam), consultations were held with various stakeholders at ministerial and Government Agencies to obtain views at policy level. These included the Ministry of Natural Resources and Tourism, Ministry of Agriculture and Food Security and the Ministry of Lands and Human Settlements, Antiquities, TANROADS and TANESCO. Other stakeholders consulted in Dar es Salaam at this level included various mining development companies.

7.1.3 To a larger extent, results of the consultations have been incorporated into the project design. Issues raised included land acquisition procedures, compensation in terms of valuation and timeliness for buildings and crops, the prospect of increased spread of HIV/AIDS and possibility of connecting villages along the line, among other issues. Although villagers are concerned about losing their properties, especially houses and farmland, they also revealed their willingness to re-allocate as they consider this project as very important for the Nation. Discussions with relevant District Land officers indicated that within the districts it is still possible to relocate project affected people as there are other villages with sufficient and not occupied or cultivated land.

7.2 *Disclosure Requirements*

7.2.1 The Environmental Management Act 2004 of the United Republic of Tanzania has provisions for public consultation and disclosure described in the following Sections:

- Section 89: Public Participation in Environmental Impact Assessment;
- Section 90: Public Hearing and Information Disclosure.

7.2.2 The Environmental Impact Assessment and Audit Regulations 2005 of the United Republic of Tanzania provide rules and regulations for Public Consultation and Disclosure as follows:

- Part IV, Regulation 17, Public Participation;
- Part VI, Regulation 23, Invitation of comments from relevant Ministries, Institutions and the general public;
- Part VI, Regulation 27, Public Hearing.

7.2.3 According to the African Development Banks' Environmental and Social Assessment Procedures (ESAP) for Public Sector Operations, Section 5 and 6 provides guidelines for Public Consultation and Public Disclosure respectively. Public Disclosure (revised in 2005) requirements stipulate that:

- Give public notification and make the draft ESIA Report available at a public place readily accessible to project stakeholders as soon as the document is ready.
- A non-technical executive summary shall be proactively disseminated to local stakeholders in local language, as appropriate.
- For Category 1 projects, the ESIA Summary is distributed to its Board of Directors 120 days prior to project presentation and posted simultaneously on the Bank's Public Information Centre (PIC) in French and English.

8. Complementary Initiatives

8.1 ***Relocation/Compensation:*** A Resettlement Plan has been prepared for all sections of the lines where relevant. It is estimated that approximately 860 households will have to be resettled away from the way-leave of the transmission lines. Implementation of the RAP which is estimated to cost EUR 6.6 million will alleviate the hardship to be borne by the affected persons and in some way will offer an opportunity to improve the living conditions. Since agricultural activities in the way-leave area are generally tolerated as long as the height of plants does not exceed 3 meters, the area lost for cultivation will be limited to floor-spaces needed for substations, tower foundations, access ways and the ways for inspection along the line. Replacement of public social infrastructure will also be accommodated.

8.2 ***HIV/AIDS Awareness and Prevention:*** During project execution, TANESCO will ensure that the Contractor carries out HIV/AIDS/STI awareness raising campaigns, which will target both the workforce as well as the local communities. Costs of implementation for the HIV/AIDS awareness and prevention campaign will be included in the environmental mitigation and management costs in the ESIA Reports.

9. Monitoring Program

9.1 The main objectives of environmental monitoring will be: (i) to assess the changes in environmental conditions; (ii) to monitor the effective implementation of mitigation measures; and (iii) to indicate potential problems in order to allow prompt implementation of effective corrective measures. Monitoring will be particularly important where environmental impacts can't be estimated with suitable certainty and where impacts on socioeconomic environments are expected and health and safety issues addressed. Indicators and parameters have been defined, allowing a comparison of the situation before implementation of the project with the situation at the point of time for monitoring. Monitoring of construction activities will focus on the changes made on the environment through observations to verify compliance of the installations and activities with relevant regulations as well as the measures proposed in the ESMP (Environmental and Social Management Plan).

9.2 TANESCO and the supervising engineers will have the main responsibility for monitoring during the construction phase, whereas District Councils with District Medical Officers, District Natural Resources Officers and District Planning Officers will coordinate and cooperate closely to enforce compliance of the developer/contractor with the mitigation measures proposed. NEMC (National Environmental Management Council) will have overall monitoring responsibility as part of the EMA (Environmental Management Act) implementation. In order to ensure that the resettlement and compensation activities are implemented successfully and that the PAP (project affected persons) are treated equitably/fairly, an internal monitoring system will be defined and implemented by

TANESCO in close collaboration with the implementing partners/agencies. Monitoring in this case will track the progress of resettlement implementation; the compensation payment process; and grievances made and resolved.

9.3 TANESCO will produce periodic monitoring reports regarding the implementation of ESMP and RAP. The Ministry of Land and Human Settlements should be invited to conduct external monitoring of the resettlement and compensation process. The reports will be shared with the financiers and form the basis for Bank supervision.

10. Conclusion

10.1 The proposed transmission line is a project of major importance for the infrastructure development and the socio-economic development of Tanzania in general and the north-western region in particular. As is expected, such a project will have a few environmental and social impacts in various magnitudes of significance. However, on the balance, the proposed mitigation measures if adequately implemented will fully mitigate and compensate all impacts and also offer some opportunity for enhancing social benefits such as creation of employment for local populations and stimulation of the local economy. To ensure that the Environmental and Social Management Plan (ESMP) is fully implemented, alongside the RAP, the project will make these requirements as a condition of the loan.

10.2 A Monitoring Plan has been prepared which strongly recommends to (i) establish a detailed and enlarged map of the actual vegetation cover along the wayleave as well as of erosion prone areas; (ii) put into place an observatory of the bird population and bird migration route as the line stretches across seasonal wetlands near Singida and at Wembere floodplain; and (iii) document any changes in trends of HIV/AIDS/STI prevalence rates in the villages along the proposed line. These activities will be subcontracted out to well trained and experienced service providers.

12. References and Contacts

NEMC

National Environmental Management Council
(Directorate of EIA)
Tankot House (2nd Floor)
PO Box 63154
Dar es Salaam

Tel : +255 22 2125245

Email : nemc@nemctz.org

www.nemctan.org

TANESCO Limited

Ubungu Head Office (Umeme Park Building)
P.O. Box 9024
Dar es Salaam

Tanzania

Tel : +255 22 2451130-9

Email : info@tanesco.com

ESIA SUMMARY ANNEX

RESETTLEMENT ACTION PLAN (RAP)

Project Name: Iringa – Shinyanga Power Transmission Line

Country: Tanzania

Project Number: P-TZ-FAO-009

1. Description of the project, project area and area of influence

The project shall result in the acquisition of a wayleave land corridor for construction of a 400 kV transmission line from Iringa - Dodoma - Singida - Shinyanga. Most sections of the proposed project are expected to run parallel to the existing 220 kV line, with only minor variations in areas where alternative alignments have been developed mainly due to topographical conditions. Of relevance to the financing by AfDB is the Dodoma – Singida section (200 km) of the transmission line which starts at Dodoma Substation, passing along the right hand side of the existing 220 kV. This is a mostly flat to slightly hilly terrain. Between Manyoni and Singida, the transmission line will pass through the Choda Forest Reserve. In order to avoid the demolition of about 150 houses as well as some public infrastructures, and in conformity with the Master-plan for Bahi (new District Capital), the line routing alternatives have been developed resulting in lengthening the line by about 3.2 km. The project line in this section will pass through the Dodoma and Bahi districts within Dodoma Region; and districts of Manyoni and Singida within Singida Region.

2. Potential Impacts

Project components or activities that will give rise to resettlement include the following:

2.1 **Wayleave Corridor:** The wayleave corridor for transmission lines and associated facilities will require land to be set aside. This land provides a safety margin between the high-voltage lines and surrounding structures. The proposed transmission line to be erected will utilize part of the existing 60 m wayleave of the 220 kV transmission line from Iringa to Shinyanga. Where the two lines are running in parallel, use of common right of way will reduce the overall RoW corridor width of the two lines. In defining the required parallel distances, consideration has been given on tower geometry, conductor swing-out, span length, induction interference and tower falling range. An initial axis distance of 55 m to the existing line has been used to make assessments. This corridor covers an area of about 5,100 ha.

2.2 **Substations:** Substations vary in size and technical configuration and may cover several acres. Substations are fenced to minimize the potential for the accidental electrocution to people and animals and are accessible by a permanent road. For the erection of the new 400 kV line the existing area of the substations will be used. The existing substations will be enlarged at more than the double size (all together by about 29 ha).

2.3 **Work Camps:** During the construction phase, some work camps will be needed as storage area for construction material (such as steel profiles, isolators, conductors, concrete, fuels and lubricants), for workshops, logistics, offices and accommodation for staff etc. for a period of several months. Each camp may accommodate up to 200 workers, therefore, they will need water supply, wastewater discharge and treatment system, waste disposal facilities

as well as health facilities. This project may require approximately 6 to 7 camps altogether. According to TANESCO, at least 4 of these camps will be established within the TANESCO owned sites at Iringa, Mtera, Dodoma and Singida, hence minimize the potential impacts.

2.4 **Access Roads:** Some permanent and semi-permanent access roads will have to be constructed to ship equipment to and from the sub-stations. Access roads to transmission line structures for both line construction and maintenance shall be required. Re-contouring of land may be required for access road construction. Additional temporary roads will also be needed during the construction and decommissioning phases of the project.

3. Organizational Responsibility

3.1 Since there is no single agency in Tanzania that has mandate to plan and provide resettlement and compensation help in cases where people are involuntarily displaced for development projects, several parties will be involved with the resettlement and/or compensation processes at different levels and times. At national level, TANESCO and Ministry of Lands and Human Settlement have a role to play, and National Environment Management Council (NEMC), and at Regional and District levels are the District Councils, District Lands Officers, the Ward Councils and the Village Councils. TANESCO is the implementing agency for the project and is therefore also the lead agency for implementing all resettlement and compensation activities. In so doing, TANESCO operational procedures will be linked closely to those prescribed by Lands Policy, the Lands Act of 1999 and AfDB Guidelines (2003).

3.2 While the overall responsibility lies with TANESCO, the execution of the RAP will be done in collaboration with the Social Services Committees which are chaired by the District Executive Officers. The District Social Services Committees are assisted by the Ward Executive Committees and the Village Executive Committees who have the responsibility for coordinating, management and monitoring of the practical day-to-day implementation of the resettlement activities, including the disbursement of compensation.

4. Community Consultations and Participation

4.1 Section 89 of the Environmental Management Act (EMA, 2004) and Regulation 17 (URT, 2005) provide details and procedures for public participation in the ESIA process. Stakeholders' consultations have included individuals, groups or institutions that have interest in the proposed project both positively and negatively affected by the project. Various methods were used in ensuring that all relevant stakeholders were consulted and their views incorporated in the ESIA report and this RAP. Participatory methods such as focus group discussions, household questionnaires and public meetings were used. Specific techniques used included (i) Notification of Stakeholders to ensure that they are well informed prior to undertaking the consultations; (ii) Household interviews through questionnaires were applied to obtain baseline information; (iii) Village Public Meetings to ensure that all villagers, including women, attended and participated in the meetings; meetings with Districts Officials were held in all thirteen affected districts to obtain relevant data and information including discussions on issues about alternative land and compensation; and (iv) Consultations with Other Relevant Stakeholders in Dar es Salaam at ministerial and authority levels were held.

4.2 Most of the views gathered from the stakeholders are positive about the project and expect that the project will have a positive impact to the national economy. Furthermore, several villagers were hopeful that with the proposed increase in production of electricity, it would be possible for them to get connected to the national grid. The proposed project is expected to affect about 93 villages in 13 districts and 5 regions of which only 16 villages are connected to the national grid mostly in urban areas. Additional benefits could be through provision of infrastructure (schools, water, health facilities, etc.) and opportunities of employment for the local communities.

4.3 However, most concerns raised by the stakeholders revolved around land and compensation issues: (i) Land acquisition procedures for development activities are undertaken without adequate information on rights and benefits of affected persons; (ii) Delays in making compensation payments after properties including land and houses have been valued and acquired by a developer; (iii) Compensation values for properties were below market prices especially value for crops and land; and (iv) the prospect of an increase in the spread of HIV/AIDS in villages around.

4.4 To address these concerns some stakeholders' recommendations were as follows:

- i. Compensation modalities should be transparent, participatory and should place PAPs at the center of the process and be paid directly to the PAPs before construction.
- ii. Valuation prices should reflect market rates or offer to physically relocate the PAPs.
- iii. Review of crop prices for compensation should be conducted every year not the three year cycle, and should involve relevant District Agriculture Officials.
- iv. Value of land for compensation should include investment costs on the land.
- v. Compensation should also consider fertility of land.
- vi. Efforts to prevent the spread and to intensify awareness about HIV/ADS amongst the people and workers must be made.

5. Grievance Mechanisms

5.1 Disputes and grievances in a project of this nature will be unavoidable. However, the principle should be to endeavor to resolve all disputes through dialogue and avoid protracted legal battles. Affected individuals and households will be informed about the existence of a defined process for expressing dissatisfaction and how to seek redress. General information regarding the existence of such procedure will be made public during the early stages of the compensation process. This will be presented to PAP at the time the resettlement plans are approved and individual compensation contracts are signed. The selected procedures are simple, administered as far as possible at the local level, to facilitate access, flexibility and openness to various proofs; taking into account that most of the PAP are poor and illiterate.

5.2 Disputes related to land ownership will need to be brought before the appropriate level of land courts, including those at the village level. The Land Act only provides for grievances related to land acquisition and compensation issues related to the creation of a wayleave to be brought to the High Court. This is usually too expensive and impractical for the residents and businesses within the project area. Claims and complaints regarding compensation and resettlement issues should be brought to the attention of the village leadership. They will then forward grievances concerning the non-fulfillment of entitlement contracts, levels of compensation or seizure of land and assets without compensation to the corresponding Ward Executive Officer or eventually directly to the District Executive Director.

5.3 The aggrieved person will be exempt from any legal and administrative fees incurred during the grievance redress. Complainants will also be able to make recourse to the Independent Review Mechanism of the ADB.

6. Integration with host communities

6.1 The project is linear in nature being a transmission line hence it is not expected that communities will be relocated to new areas in mass. Most households will step back within their respective compounds and re-build their new homes. During consultations, it was revealed that a large majority (72%) of the surveyed households preferred relocation within their current homesteads. The remainder (28%) indicated a willingness to resettle even outside their villages provided they were paid fair compensations in time to allow them to establish new homes elsewhere. In the event that a household elects to be resettled elsewhere, this would mostly be at individual basis with previous connections and well known communities. There would hence be no cultural clashes nor scramble for resources and services.

7. Socio-economic studies

7.1 Detailed socio-economic studies have been conducted in preparation of both the ESIA and the RAP. Villagers who will be affected by the project have limited access to most of the basic social services. The services include schools, water, health and communications (roads and telephone). However, most of these services are either of poor quality or not sufficient. This is also the case in newly established villages such as Mitoo-Juu in Manyoni District and Isalanda in Singida Rural where basic social services are still unavailable. Overall the area has 123 primary schools, 47 secondary schools, 8 vocational training centers, 58 health centers, 570 religious infrastructure, 44 public infrastructure, 185 village buildings, 22 markets, 12 police units, 4 prisons, 40 associated buildings and 200 cemeteries.

7.2 It has been noted that the proposed Project might affect some of the existing social and cultural infrastructures in 8 facilities and over 200 cemeteries. In addition approximately 860 households will be affected, with approximately 216 residing within the Dodoma – Singida section. The ESIA has proposed some alternatives that will minimize impacts of the project to the social infrastructure and services. The proposed Project is likely to impact land used by local communities for agricultural activities. In villages, such as Kisima in Mpwapwa District, part of the most fertile pieces of land will be affected by the Project.

7.3 Most of the local communities along the line are small-scale subsistence farmers in agriculture and livestock keeping. The project will affect loss of approximately 150 ha. of farm land. Other PAPs, especially in urban areas, are engaged in activities such as employment and business. People around Mtera Dam are involved in fishing. There is limited use of agricultural fertilizers and mechanization. Cash crops include sunflowers and cotton, and food crops include maize, groundnuts and millet. A few villagers in Chamwino and Mpwapwa districts grow grapes as a cash crop. The area has an average annual household income of TSh. 947,429 ranging between TSh.569,056 and TSh. 1,444,400. It is estimated that about 35% of the population completed primary school and 28.8% never went to school. Most of the buildings are of brick and cement representing about 48.7%, and those roofed with grass are 13% as opposed to those roofed with corrugated iron sheet and tiles (43.8%).

8. Institutional and Legal Framework

8.1 Currently there is no Resettlement Policy in Tanzania, however the TANESCO process is guided by the Land Regulations of 2001. The Government has a draft National Resettlement Policy Framework which was prepared in 2003 based on the World Bank's OP 4.12 on Involuntary Resettlement (which is consistent with the AfDB Policy of 2003), and requires that (i) involuntary resettlement should be avoided or minimized where feasible by seeking viable alternative designs; (ii) if not feasible, resettlement activities should be conceived and executed as sustainable development programs to benefit the PAPs; (iii) displaced persons should be fully consulted and participate in planning and implementing resettlement programs; and (iv) displaced persons should be assisted in improving their livelihoods and standards of living to at least pre-displacement.

8.2 The policy covers direct economic and social impacts resulting from projects caused by (a) The involuntary taking of land resulting in relocation or loss of shelter; loss of assets or access to assets; or loss of income sources or means of livelihood, whether or not the affected persons must move to another location; or (b) The involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons.

8.3 In the absence of a formal Resettlement Policy, the following legal instruments provide the legal framework for compensation and resettlement in Tanzania:

The Land Act (1999)

The Land Regulations (2001)

The Village Land Act (1999)

The Local Government (District Authorities) Act

The Local Government (Urban Authorities) Act

Land Acquisition Act (1967),

Town and Country Planning Ordinance cap 378

Local By Laws;

The National Energy Policy of Tanzania (2003)

The Environment Management Policy (1997) and Act (2004);

The National Land Policy (1997)

The World Bank Safeguard Policies OP 4.01 and OP 4.12

The African Development ESAP 2001

8.4 Land in Tanzania is vested in the President as trustee on behalf of all. The National Land Policy requires full and fair compensation to be paid to any person whose right of occupancy or recognized long standing occupation or customary use of land is revoked or otherwise interfered with to their detriment by the State under the Land Act of 1999.

8.5 The Land Act of 1999 (Section 34) also states that where a right of occupancy includes land which is occupied by persons under customary law, and those persons are to be moved or relocated, they must be compensated for loss of interest in the land and for other losses. They also have the right to reap crops that are sown before any notice for vacating that land is given. The Land Act (Section 156) requires that with regard to communal right of way in respect of way-leave, compensation shall be paid to any person for use of land, who is in lawful or actual occupation of that land, for any damage caused to crops or buildings and for

the land and materials taken or used for the works. Requirements for the assessment of compensation are provided in the Land (Assessment of the Value of Land for Compensation) Regulations of 2001. Valuation must be done by a qualified and authorized valuer.

9. Eligibility

9.1 Eligibility for compensation is defined in the provisions of the Land Acts and the Land Acquisition Act. All owners of properties located within the proposed wayleave of 90 m or 130 m, respectively, at the time of inspection and valuation will be eligible for compensation. In the valuation for compensation processes specific land forms (Nos. 14, 15, 69 and 70 and Valuation Form No. 1 for property recording) will be served to all owners of affected properties along the wayleave. A "cut-off" date for eligibility for compensation and resettlement measures will be determined by the date on which these notifications are served.

9.2 *Land Regulation, 2001* provides guidance on the issue of compensation which shall take the form of: (i) Monetary compensation; (ii) Plot of land of comparable quality, extent and productive potential to the land lost; (iii) A building or buildings of comparable quality, extent and use comparable to the building or buildings lost; (v) Plants and seedlings; and (vi) Regular supplies of grain and other basic foodstuffs for a specified time.

9.3 There are mainly four categories of affected people that have been identified for compensation and assistance. These include:

- owners of plots with houses and other buildings in the wayleave
- owners of plots with non-residential buildings in the wayleave
- owners of plots without buildings in the wayleave
- institutions with land and/or buildings in the wayleave.

9.4 Loss and effects will emanate from (i) loss of land and houses in which they are living, (ii) loss of other buildings and structures, (iii) loss of productive crop land, and (iv) loss of standing crops. This category of affected people will also be physically relocated hence will suffer from loss of food supply, income sources and livelihood. Other categories of losses will be land and/or buildings and other infrastructures belonging to private or public institutions such as schools, dispensaries, churches and mosques. This category of affected or relocated people will be affected by loss of land on which they are located, loss of buildings and structures, and loss of cultural heritage and practice.

9.5 The other category are people or families suffering inadvertent and temporary damage to their land and property during construction due to unforeseen actions or simply by accidents. Others are those who may be interested in graves adversely affected by the project and that may need to be exhumed and reburied at alternative locations. The final group are vulnerable people, such as widows, single mothers, child-headed households, handicapped people, HIV/AIDS victims, and the elderly who when relocated often require special assistance to cope with the relocations. This category of relocated people requires special or supplementary measures to be taken to attend to their particular needs.

11. Valuation of and compensation for losses

11.1 The basic principle governing compensation is that none of the PAP should be made worse off by the project displacements. As discussed above, the possibility of compulsory

acquisition of land is well covered in Tanzanian legislation, and includes the right for those who own or occupy land that is being acquired to receive fair compensation from those who occupy land for declared objectives.

11.2 Compensation for Loss of Houses and Other Structures: Most households in the project area favor to be compensated in cash. According to the Tanzanian legislation, market values should be applied when valuing the affected houses and structures. However, alternative valuation methods are required in rural areas where there are no active and competitive housing markets. In such situations, it is accepted to use "replacement cost methods" adjusted by standard depreciation factors in order to arrive at values that may be compared or close to a market value. Households losing their residential premises are entitled to an "Accommodation allowance" to cover the cost of renting another premise for up to 36 months, while purchasing or building new house. In case of no active rental markets, estimation of the monthly renting rates may also need to be done using alternative methods.

11.3 Compensation for Loss of Standing Crops: Compensation is granted to those having annual and perennial crops, including fruit trees. The values are assessed through a market value approach as proposed in the legislation, in particular under Section 179 of the Land (Assessment of the Value of Land for Compensation) Regulations, 2001 and are available in the Government Valuers offices by district.

11.4 Removal of Graves and Cultural Properties: In the project area, the typical cost of grave removal for relocation is on average estimated to be around TSh 100,000. The village councils are responsible for allocating replacement burial plots. As is expected, most cases of grave removals are accompanied by some traditional ceremonies and rituals. These have to be paid for as part of compensation.

11.5 People Affected by Unforeseen Construction Damages and Losses: Some households may suffer damage to their property by construction teams during the implementation of the project, which may lead to additional compensation not foreseen during preparation of the RAP. This could include damage to buildings, walls, fences, hedges, gardens, trees and crops. Usually, affected parties will be able to claim compensation from the contractor in the same manner as described above.

12. Shelter, infrastructure, and social services

12.1 Since there is no any envisaged major scale relocation of the populations as a single mass, issues of shelter will not arise except in cases where the PAP are supported during the transitional period. Similarly, there will be no specific social infrastructure such as schools and health centers provided to cater for the arriving populations. Any such infrastructure to be provided shall be in cases where there has been demolition or prohibition to usage due to the transmission line. In those cases new facilities will be provided as part of the compensation.

13. Environmental protection

13.1 All the environmental aspects to be considered within the RAP are already covered under the ESMP, presented as part of the ESIA. Since there will be no centralized resettlement site, the environmental challenges of resettling large populations into a single

location does not occur. Nonetheless, any issues that may arise related to environmental management among the resettled populations are considered under the ESMP.

14. Indicative Resettlement Cost

14.1 The RAP has presented an estimation of the expected resettlement and compensation costs for the loss of houses, infrastructures, bare and cultivable land, income sources, and deterioration of living conditions and livelihood of the affected population in general. The current estimate for compensation costs is EUR 6.6 million; and the **AfDB portion of Dodoma –Sigida section is estimated at EUR 1.7 million.**

Table 1: Cost Estimates for RAP (Resettlement and compensation budget)

Issue	Unit	No.	EUR/Unit	TEUR	MTsh.
House	no.	850	2,000	1.700	2.890,0
Infrastructures			lump sum	500	850,0
Total Buildings				2.200	3.740,0
Agricultural Area	ha	1022	800	818	1.389,9
Compensation for crops	(2*value of cultivated area)			1.635	2.779,8
Areas Prone for Settlement	ha	147	600	88	149,9
(uncultivated) bare land	ha	3771	150	566	961,6
sum				5.307	9.021,3
allowances/compensation			13%	690	1.172,8
sum				5.997	10.194,1
Contingencies			10%	600	1.019,4
Total Sum				6.596	11.231,5

1 EUR equivalent to 1,700 TSh; TEUR = Thousand EURO; MTSh = Million Tanzanian Shilling

15. Monitoring and evaluation

15.1 Monitoring arrangements will be put in place to fulfill the requirements of the Government of Tanzania's and Development Partners' policies and guidelines. The objective would be to ensure that the PAPs and communities are adequately handled and are left in the same or better conditions than they were prior to project implementation. Both internally and externally monitoring and evaluation (M&E) will be carried out during compensation and implementation of the RAP. The M&E is also being recommended after resettlement has been concluded in order to assess the medium and long-term effects of the resettlement. The M&E of resettlement in linear projects like this, present practical and logistical challenges, since the resettled population is widely dispersed along the transmission line. In case of this project, additional mechanisms will have to be put in place to implement monitoring of resettlement plan along 670 km, in 5 administrative regions, 13 districts and 93 villages.