

## **11. EIA 許認可**



THE UNITED REPUBLIC OF TANZANIA

**ENVIRONMENTAL IMPACT ASSESSMENT**

**Certificate**

*[Section 92(1) of the Environmental Management Act No. 20 of 2004]*

Application Reference No.10855

Registration No. EC/EIA/2022/0100

**This is to Certify that**

M/S. .... TANZANIA ELECTRIC SUPPLY COMPANY LIMITED .....

of..... P. O. BOX 9024, DAR ES SALAAM .....

has this day been granted an Environmental Impact Assessment Certificate for the proposed

project/Activity titled..... ESTABLISHMENT OF 9KM OF 220KV TRANSMISSION LINE FROM KINYEREZI

T-OFF POINT TO THE NEW MABIBO SUBSTATION .....

to be implemented/carried out at..... KIMARA, MAKUBURI, UBUNGO AND MABIBO WARDS IN UBUNGO

MUNICIPALITY, DAR ES SALAAM REGION .....

This certificate shall remain in force during the whole lifecycle of this specific project unless henceforth revoked or suspended.

General conditions and terms attached to this certificate are set out herein behind and specific conditions are annexed.

Dated this..... 06 .....day of ..... APRIL .....2022

.....  
**Dr. Selemani Saidi Jafo (MP)**

## 11. EIA許認可

### CONDITIONS OF CERTIFICATE

1. This Certificate is valid during the whole lifecycle of this specific project unless henceforth revoked or suspended.
2. The Minister shall be notified of any transfer/variation/surrender of this certificate.
3. Observe all relevant national policies and legislation that guide this specific project throughout its life cycle.
4. Ensure safe disposal of all types of wastes (solid or liquid) in specified sites.
5. Ensure environmental sustainability by avoiding any form of pollution by using most viable management techniques.
6. Adhere to the Environmental Management Plan (EMP) and Monitoring plan (MP) and constantly improve and update them by taking into account any new development.
7. Constantly liaise with relevant authorities and consult stakeholders including local communities in case of any new development or changes as regards to implementation of your project plan activities.
8. Adhere to all proposed mitigation measures as specified in the Environmental Management Plan contained in the Environmental Impact Statement.
9. Abide to all national social and environmental safeguard policies and standards and strive to maintain and constantly improve standards.
10. Prepare an Emergency and Contingency plan and put in place risk and safety measures.
11. Conduct periodic Environmental Audits and facilitate monitoring by relevant authorities.
12. Design and implement an internal Environmental and Safety Policy and Awareness Programme.
13. Prepare Annual Environmental Reports and any other reports requested by competent authorities and the Government.
14. Obtain all other relevant permits.

**The above conditions shall be read together with the specific conditions spelt out in the Annex attached to this Certificate**

## 12. 簡易版住民移転計画書案（現地再委託）



**THE UNITED REPUBLIC OF TANZANIA  
MINISTRY OF ENERGY  
TANZANIA ELECTRIC SUPPLY COMPANY LTD. (TANESCO)**

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**ABBREVIATED RESETTLEMENT ACTION PLAN (ARAP) FOR PREPARATORY  
SURVEY OF THE PROJECT FOR REINFORCEMENT OF POWER SUPPLY FROM  
KINYEREZI POWER STATION TO THE PROPOSED NEW MABIBO  
SUBSTATION AT UBUNGO MUNICIPALITY IN DAR ES SALAAM**

**FINAL REPORT**

<b>Prepared by:</b> East Africa Resource Group Plot No. 30, 2 <sup>nd</sup> Floor Mikocheni Light Industrial Areas P.O Box 35631 Dar es Salaam – Tanzania Tel: + 255 769 890263; Email: <a href="mailto:info@earg.co.tz">info@earg.co.tz</a>	<b>Submitted to:</b> Tanzania Electric Supply Company Limited P. O. BOX 453 DODOMA, TANZANIA Website: <a href="http://www.tanESCO.go.tz">www.tanESCO.go.tz</a> <a href="mailto:info@tanESCO.co.tz">info@tanESCO.co.tz</a> +255 262323457
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JANUARY 13<sup>th</sup>, 2021

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## List of Abbreviations

APs	Affected Peoples
DAWASA	Dar es Salaam Water and Sanitation Authority
DMRS	Dar es Salaam Marine Reserves System
EARG	East Africa Resource Group
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EWURA	Energy and Water Utilities Regulatory Authority
GBV	Gender Based Violence
HIV/AIDS syndrome	Human immunodeficiency virus infection and acquired immune deficiency syndrome
IFC	International Finance Corporation
JICA	Japan International Cooperation Agency
MMO	Municipal Medical Officer
NACTE	National Council for Technical Education
NEMC	National Environment Management Council
NGOs	Non - Governmental Organization
NIT	National Institute of Transport
NSGRP	National Strategy for Growth and Reduction of Poverty
OSHA	Occupational Health and Safety
PAP	Project Affected People
PAU	Project Affected Units
PMU	Project Management Unit
RoW	Right of Way
SIDP	Sustainable Industrial Development Policy
SMEDP	Small and Medium Enterprises Development Policy
TANESCO	Tanzania Electric Supply Company Limited
TACAIDS	Tanzania Commission for AIDS
TPDC	Tanzania Petroleum Development Corporation
TSCP	Tanzania Strategic City Program
WSDP	Water Sector Development Program
WB	World Bank
URT	United Republic of Tanzania
VAC	Violence Against Children
VPO	Vice President's Office

## **Executive Summary**

### **0.1 Project background**

The Government of Tanzania in collaboration with the Japan International Cooperation Agency (JICA) through Tanzania Electric Supply Company Limited (TANESCO) are planning to construct a new 220kV transmission line from Kinyerezi T-off Point to the new 220/132kV substation near Mabibo area. This unique project will involve construction of a new substation and triple circuit towers from Kinyerezi T-off point to Ubungo substation (7km) and double circuit towers from Ubungo substation to Mabibo substation (2km). The proposed transmission line is estimated to cover a distance of 9km. The project will utilize existing wayleave of Morogoro Two (MG2) and existing Ubungo Ilala wayleave on the second portion of the line, the new substation will be constructed on the existing wayleave corridor near Mabibo market and National Institute of Transport (NIT). Therefore no new land will be acquired for construction of the transmission line and the substation; rather the existing transmission line will be demolished and replaced with the new one. However, the MG2 wayleave was acquired long time ago since 1960s before EMA came into force; the project did not have an EIA done, which is the same for the Ubungo – Ilala wayleave.

### **0.2 Rationale of the project**

Dar es Salaam is a fast growing city in Tanzania in terms of social and economic development. The fast growth of the city is the resultant of number of factors, which include the expansion of the industrial base within the city, population growth, development of new structures including high raise office and accommodation and hotel buildings and the improvement of of the transport infrastructures such as railway (SGR), road networks and the expansion of the Julius Nyerere International Airport to Terminal Three among the others. A combination of economic growth, housing and population growth, income growth and weather condition has contributed to the increase in electricity consumptions hence requiring reliable supply of power. Ubungo Substation is mostly considered as the main or primary grid substation to supply power to the other substations around the city. Ubungo Substation is receiving power in 220kV from MG1 and MG2 lines, and from the following power plants: Kinyerezi (220kV), Ubungo one (220kV),



Ubungo two (132kV) and Songas (132kV) and then supplying power to other substation in Dar es Salaam.

### **0.3 Description of the project**

The proposed 220 KV transmission line project will be located in Dar esSalaam particularly in Ubungo Municipality. The 9km transmission line traverses four wards namely Kimara, Makuburi, Ubungo and Mabibo. The new 220kV transmission line from Kinyerezi T-off Point to the new 220/132kV substation near Mabibo area is presented in Figure 1. The project intends to utilize existing MG2 way leave from Kinyerezi T-off at Mavurunza mtaa in Kimara ward to the existing Ubungo substation about 7km while the remaining 2 km will utilize the 132kV Ubungo - Ilala wayleave to Mabibo near National Institute of Transportation. The proposed project will involve construction of a new substation and triple circuit towers from Kinyerezi T-off point to Ubungo substation (7km) and double circuit towers from Ubungo substation to Mabibo substation (2km). The major components of this project are 220/132KV Substation and Transmission line.

### **0.4 Overall Approaches and Methodology**

This ARAP has adopted multiple approaches of data collection using secondary and primary data. It encompassed secondary data collection from Ubungo Municipal Council, Tanzania Population and Housing Census, Dar es Salaam Regional Investment Profile and various policies, laws and regulations related to resettlement processes. It also contains primary data collected from various stakeholders and affected persons using quantitative and qualitative techniques.

On the basis of this approach, existing socio-economic baseline along the transmission line such as local population covering indicators such as demographics characteristics, employment, economic activities, income levels, land use, education, health, types and details of affected property, resettlement options, PAP's opinion on environment and social impact (positive and negative) of the project, willingness to relocate and preference to mode of compensation were

undertaken. Other methods involved include household survey, public meeting, field observation and consultation with key informants.

### **0.5 Project Impacts**

Although the construction of the proposed power transmission line between the existing T-off point at Kimara and the New 220/132 kV substation at Mabibo will utilize the way leave of the existing power transmission line, it is anticipated that there will be some negative impacts of the project, which will arise from the need to acquire land of approximately 0.50 km of length nearby the Ubungo substation. The land acquisition for a length of 0.5km will involve the loss of residential structures as well as vendor's mobile structures, which are used for small businesses such as shops, restaurants, and mobile phone structures. Also, in other sections of the project, such as Mavurunza, Kilungule, Kimara Baruti and Ubungo Kisiwani some structures, small business structures, toilet facilities, fences, graves, crops and trees will also be affected. However, PAPs are regarded as encroachers since they have constructed, cultivating and doing business within the way leave of the existing power transmission line.

### **0.6 Socio-Economic Baseline Information of the Project Area**

The proposed project is located in Dar es Salaam city, specifically Ubungo Municipal Council that is one of the five municipal councils within the Dar es Salaam region. Other municipals are Kinondoni, Temeke, Ilala and Kigamboni. The project will be implemented in an urban area which is concentrated with people who are involved in various economic activities such as wage employment, businesses, industries and to small extent urban agriculture. According to the Tanzania Population and Housing census of 2012, the Ubungo Municipal Council had a population of 845,368. Among the population, 409,149 were males and 436,219 were females.

Based on the population projection for 2019, Ubungo Municipal Council had a population of 1,403,311, among them, 679,185 were males and 724,126 were females. The Council has 113 pre-primary schools out of which 60 belongs to Government and 53 owned by private sector. Also District Council has 118 Primary schools, whereby 64 are owned by Government and 54

primary Schools owned by Private Sector. The Council currently has 68 health facilities of which 17 are government owned, while the remaining 51 are owned by private organizations. Sinza hospital is the only hospital owned by the government providing health services within the Municipal. Water borne diseases such as Typhoid and Cholera are the leading cause of mortality. Also, HIV/AIDS is a problem in the municipal. TACAIDS report of 2017 on people living with HIV/AIDS shows that the Ubungo municipality has a significant number of people living with HIV/AIDS than any other Municipality in Dar es Salaam.

### **0.7 A Legal Framework Review of the Laws and Regulations of Tanzania and JICA Policy Requirements**

The land acquisition process and the resettlement action planning and its implementation are a function of several policies and laws that together, creates an enabling environment for a positive change as desired by those policies and laws. This ARAP for the power transmission line project has been prepared based on the Tanzanian policies and laws, JICA requirements as well as World Bank Safeguard Policy on Involuntary resettlement. Tanzania has several policies, laws and regulations that provide guidelines for acquisition of land for public interest including, the acquisition of the way leave for transmission lines. These policies include the following:

National Land Policy, 1995 (revised in 1997)

Human Settlements Development Policy (2000)

Community Development Policy, 1996

The Cultural Heritage Policy of 2008,

The Land Acquisition Act # 47 of 1967,

The Land Act # 4 of 1999 and Village Land Act # 5 of 1999,

The Graveyard Removal Act (No. 9 of 1969) and the International Financial Corporation (IFC).

National Local Government (District Authorities) Act, 1982

The Land Disputes Courts Act, 2002 (Act No. 2/2002)

The Land (Assessment of the Value of land for compensation) Regulation (2001)

The Land Compensation Claims Regulations, 2001

Antiquities Act (1964)

## **0.8 Determination of Entitlements and Eligibility and Cut-off Date**

The Eligibility and Entitlement principle will be adopted from the Tanzania Laws that establishes the eligibility and provisions for all types of losses (land, structures, businesses, loss of accommodation, disturbance, crops, transport costs resulting from displacement and trees). Following the apparent gap analysis on the Tanzania laws on involuntary policy, this ARAP also used the JICA Guidelines for Environmental and Social Considerations and World Bank Policy on Involuntary Resettlements, to address those areas where the national laws were deemed inadequate or lacking. The use of these other laws was intended to ensure that the ARAP for the Power transmission line from Kinyerezi to New Mabibo substation is aligned the land acquisition and compensation process of international organization to promote best practices for the rehabilitation of livelihoods of the affected people. by the implementation of the project. The cut- off date will be set as the date when the actual valuation of the affected properties has been officially completed and the date communicated to the PAPs and documented.

## **0.9 Method of Valuing Affected Assets Adopted for this ARAP**

The methods to be used in valuing the affected properties that will be eligible for compensation shall be consistent with the requirement of Tanzania's national policy and regulations and JICA Guidelines for Environmental and Social Considerations and World Bank Policy on Involuntary Resettlements. The methods of valuing the affected assets will be as follows:

**Residential buildings, structures and fixtures**-All affected structures will be valued and compensated in the form of cash equal to cost of building a new structure equivalent to replacement of lost asset. Valuation will be conducted by a registered valuer-either government employee or private contractor. PAPs will have the option of reconstructing their new structures on alternative land either in the vicinity or away from the site as per their individual preferences.

**Annual and/or seasonal crops** - Compensation for annual crops will be calculated based on the average yield recorded in the impacted area for the last five years and the current local market



prices for different crops grown on the farmers' land. For seasonal crops, owners of the crops will be allowed to harvest their produce before the implementation of the project within the time limit granted. The compensation will start and end as per the project plan.

**Removal and relocation of Graves** - The Graves (Removal) Act of 1969 refers directly to grave removal. As a general principle, however, the exhumation and re-burial of individual graves within the project area will be avoided as much as possible. If unavoidable, the relocation of graves will be done in accordance to the Graves (Removal) Act, 1969. The procedure for relocating the graves will be handled by ARAP implementing agency that will fund the district authorities to conduct the exercise under the supervision of District Medical Officer (DMO). The family of the deceased will be provided with ceremonial cost allowance, as compensation, which will be determined by the valuer and communicated to the PAPs during sensitization meetings during the ARAP preparation.

#### **0.10 Incomes and Livelihood Restoration**

The main objective of this ARAP is to ensure that livelihoods are improved or restored to pre-displacement levels. According to JICA Guidelines for Environmental and Social Considerations, people who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported by project proponents etc. in a timely manner. Income and livelihood restoration will be achieved through implementation of the following:

Payment of loss compensation prior to acquisition of land and property or resettlement of PAPs;

Compensation for land and other properties will be based on the following:

Value of acquired land will be determined using comparable open market land values considering cost of similar parcels of land are currently selling for in the area on a willing seller willing purchaser basis.

The valuation for affected structures will be determined by using the current replacement cost or equivalent reinstatement basis or probable cost of acquiring similar

premises for the same purpose. The valuation also takes into account market values for structures and materials.

Wide consultation with the PAPs during the valuation process and Public Consultation Meetings.

Prompt execution of compensation payment to PAPs.

Education of PAPs on the positive and negative impacts of resettlement and mitigation measures;

Provision of ample time for displaced persons to put up structures prior to relocation;

### **0.11 Public Participation and Stakeholders Consultations**

Effective resettlement planning requires regular consultation with a wide range of project stakeholders. Stakeholders include any individual or group(s) affected by, or that believe the project and any individuals or anyone that can play a significant role in shaping or affecting the project outcomes. In the preparation of this ARAP, various stakeholders were involved. These include, the Ubungo Municipal Council, Ward Executive officers in for project-affected wards, Mtaa Executive Officers, Head teacher – Kilungule Primary School, NSSF and TANESCO. Major issues which were raised by the stakeholders were related to compensation, boundary of TANESCO way leave for the power transmission line, land acquisition, particularly they wanted to know if more land will be acquired for the implementation of the project.

### **0.12 Organization and Responsibility**

Government being the primary proponent of the project will have the overall responsibility of coordinating the implementation of the resettlement process through TANESCO. The TANESCO will have to set up a project resettlement management team to prepare, implement and monitor the resettlement process. The actual execution will be done through collaboration with the District Councils (local government) and all the relevant ministries and departments such as the Ministry of Lands, Housing and Development of Human Settlements, the Ministry of Finance, and the Ministry Energy.

### 0.13 ARAP Implementation and Commencement of Construction

Before any construction activity is implemented, PAPs must be compensated in accordance with this ARAP. The project activities will involve land acquisition in a stretch of 0.5km at Kibo mtaa in Ubungo ward while the rest of the route will use the existing power transmission line. In view of that, measures, which include provision of compensation and other assistance required for relocation, prior to displacement and or relocation, should be implemented before the construction.

### 0.14 Indicative Budgets for ARAP Implementation

At this stage, this ARAP report only an indicative budget (estimates based on quick and less detailed calculations), highlighting key features that the budget must contain. The actual cost will be established after finalization of design, which will be followed by identification of the PAPs and the valuation of the affected properties. The summary below provides an estimate of compensation costs for the proposed construction of the new transmission line.

#### Estimated Indicative Budget

Components	Quantity unit	Compensation Costs (Tshs)
<b>Compensation and Allowances</b>		
Building Value	7 Structures	385,000,000.00
Land value	6,600m <sup>2</sup> x 20,000	132,000,000.00
Accommodation allowances		118,800,000.00
Transport Allowances		1,650,000.00
Disturbance allowances		320,000.00
Grave removal allowances	135 Graves (estimate)	40,000,000.00
Grave relocation (Payable to Ubungo M.C)		67,500,000.00
Assistance to vulnerable people		40,000,000.00
<b>Sub Total "A"</b>		<b>797,270,000.00</b>
<b>Public Institutions</b>		
Building Value for fence/wall	Wall fences for TPA and NSSF	The cost will determined after discussion with Ass Land Commissioner.
Land value	8,000x 20,000	The cost will determined after discussion with Ass Land Commissioner.

Components	Quantity unit	Compensation Costs (Tshs)
<b>Compensation and Allowances</b>		
Toilet facilities at Kilungule Primary School	12 holes	To be covered by Ubungo Municipal Council
<b>Facilitation for ARAP Processing and Implementation</b>		
Facilitation for ARAP implementers including grievance redress committee		5,000,000.00
Internal Monitoring and Evaluation		5,000,000.00
<b>Sub Total "C"</b>		<b>10,000,000.00</b>
<b>TOTAL A and C</b>		<b>807,270,000.00</b>
Contingency (5%)		<b>40,363,500.00</b>
<b>GRAND TOTAL</b>		<b>847,633,000.00</b>

### 0.15 Management of Grievances and Disputes

The key grievances subject matters likely to arise in the case of the Kinyerezi to New Mabibo substation Transmission Line include:

Mistakes on inventory of the affected properties that might have occurred during the census survey.

#### **Disagreements over land parcel boundaries for the affected**

Disagreements on plot /asset valuation where the PAP feels that his/her properties have been undervalued. This is also the case where the PAP demands are far higher than both the Government and market value arising from the perception that "the Government is rich"

Divorce among couples, succession by heirs and other family disagreements

Delays in compensation payment.

Extend and values for the resettlement assistance, relocation as well as disturbance and compensation for livelihoods.

Complaints will be launched through either one or combination of the following methods:

Filling a specifically pre-designed complaint form and appending the PAPs signature and formally submitting it to the GRC office; or

Widely disseminating, through consultative forums and the media, information about PAPs disputes and grievances.

During the resettlement process, all disputes will be referred to TANESCO who may handle the grievance straight away or refer it to the PAPs GR Committee who will be asked to provide recommendations as to how it is to be addressed. If deemed necessary by the PAP GR Committee, the case will be re-investigated and depending on the nature of the issues, it can be referred to the district, regional and/or taken to the courts for final resolution. However, recourse to the legal system is being the last resort.

#### **0.16. Monitoring and Evaluation Arrangement**

In order to assess whether the goals of the resettlement and compensation plan are being met, a monitoring plan is suggested as part of this ARAP. This monitoring plan indicates parameters to be monitored, monitoring milestones, resources to be needed including responsible persons or institutions to carry out the monitoring activities. The arrangements for monitoring the resettlement and compensation activities will fit the overall monitoring program of the entire TANESCO, and will be under the overall responsibility of the different executing units within TANESCO.

## **Acknowledgement**

This Abbreviated Resettlement Action Plan (ARAP) study would not be complete without the valuable contribution of many people right from the Community level up to Regional level. The ARAP team would like to thank all of them for their substantial contributions, expertise and resources that have been used in the completion of this study and preparation of the ARAP report.

The ARAP team sincerely appreciates the cooperation provided by the Communities, Community leaders (Mtaa), Government Officials at District Executive Directors, NSSF, TANESCO officials, particularly the transmission section for accompanying the team in the field assessment and several District Officials of Ubungo Municipal Council and ward officers. Lastly, the team would like to thank everyone who was involved in the ARAP study for their comments and suggestions that have contributed towards preparation of this report in one way or another.

## **1.0 BACKGROUND OF THE PROJECT**

The Government of Tanzania in collaboration with the Japan International Cooperation Agency (JICA) through Tanzania Electric Supply Company Limited (TANESCO) are planning to construct a new 220kV transmission line from Kinyerezi T-off Point to the new 220/132kV substation near Mabibo area. This project will involve construction of a new substation and triple circuit towers from Kinyerezi T-off point to Ubungo substation (7km) and double circuit towers from Ubungo substation to Mabibo substation (2km). The proposed transmission line is estimated to cover a distance of 9km. The project will utilize existing wayleave of Morogoro Two (MG2) and existing Ubungo-Ilala wayleave on the second portion of the line. The new substation will be constructed on the existing wayleave corridor near the Mabibo market and the National Institute of Transport (NIT). Therefore, no new land will be acquired for construction of the transmission line and the substation; rather the existing transmission line will be demolished and replaced with the new one. However, the MG2 wayleave was acquired a long time ago, since the 1960s before EMA came into force; the project has no EIA certificate which is the same to the Ubungo – Ilala wayleave.

The project is expected to utilize the wayleave of 60m that is 30m from both sides of the centerline. The preliminary survey reveals that, there are several ongoing human activities at the project site. It was noted that the area near Ubungo substation has few residential houses and few mobile shops, which will be affected during project construction. Although these activities are done illegally since the wayleave is the property of TANESCO, it was found important to seek the best way to deal with that situation. These human activities in the way leave includes graveyards near Ubungo Maziwa and in Kimara Mavurunza, few mobile shops and food vendors in Ubungo area, garage (informal garages) near Ubungo Substation and in Ubungo Kibo. There are also small vegetable gardens near Urafiki Textile Industry and few pedestrian ways.

Gas pipelines and water pipelines were found using the same corridor however, a detailed report will be prepared by the responsible parties i.e. DAWASCO and TPDC to avoid pipe burst. Since the line is planned to use existing wayleave the environmental and social impacts are expected to be minimum however proper attention including stakeholders engagement is of paramount importance. The site can be reached through existing nearby road infrastructures this includes Mandela and Maziwa roads in Ubungo and Kimara Mavurunza road on Kimara side.

### **1.1 Rationale of the project**

Dar es Salaam is Tanzania's main engine of economic growth and serves as an administrative, industrial, fishing, and commercial centre (including mining-related trade). The city accommodates about 40 percent of the total industrial manufacturing units in the country and contributes about 45 percent of Tanzania's gross industrial manufacturing output. The city is endowed with a major harbour and is an epicentre for manufacturing. Dar es Salaam attracts commerce and transportation activities from both the formal and informal sectors. Service sector investment and civil service employment decreased after structural adjustment policies were adopted in 1985 (UN-HABITAT, 2009). The fast growth of the city is the result of a number of factors, which includes the expansion of the industrial activities within the city, population growth- pushing for more settlement areas, development of new structures including storey (high rise) buildings and expansion of transport infrastructures such as the railway (SGR), road network and expansion of the Julius Nyerere International Airport terminal three among others. The combination of economic growth, housing and population growth and income growth have contributed to the increase in electricity consumptions hence requiring reliable supply of power. Ubungo Substation is mostly considered as the mother or primary grid substation to supply power to the other substations around the city. Ubungo Substation is receiving power at 220kV from MG1 and MG2 lines, and from the following power plants: Kinyerezi (220kV), Ubungo One (220kV), Ubungo Two (132kV) and Songas (132kV) and then supplying power to other substation in Dar es Salaam.



The overdependence on Ubungo Substation has sometimes brought difficulties in planning for maintenance services and any technical problems can result to a collapse of the national grid. Therefore, the construction of new Mabibo 220/132kV substation will reduce overdependence to Ubungo substation and ensure power security to the national grid and to the city of Dar es Salaam. By considering the unforeseen impacts to the national grid that might arise from any technical failure on Ubungo Substation, the construction of new Transmission line and the substation to evacuate power from Kinyerezi Power plant is of vital importance to Dar es Salaam and Tanzania.

### **1.2 Objectives of the Abbreviated Resettlement Action Plan**

Involuntary resettlements if unmitigated, often gives rise to severe economic, social and environmental risks, production systems are dismantled, people face impoverishment when their productive assets or income sources are lost. In addition, people are relocated to environments where their traditional productive skills may be less applicable and the competition for resources could be greater, community institutions and social networks are weakened; kin groups are disrupted; and cultural identity, traditional authority and potential for mutual help are disrupted and possibly, lost.

The scope and level of detail of resettlement planning varies with circumstances, depending on the project's complexity and the magnitude of its effects. This project is envisaged to have minimal impact on the PAPs. This is because there are only 13 structures that will be affected in which some sections of their land will be taken off for the construction of power transmission line. The affected structures will need to be compensated.

As a minimum requirement, Abbreviated Resettlement Action Plan must ensure that the livelihoods of people affected by the project are restored to levels prevailing before inception of the project or to a better standard, thus JICA safeguard guidelines calls for the preparation of individual Resettlement Plan that must be consistent with the relevant Policy and Safeguard documents for this project. This document provides the required information for the implementation of the resettlement measures for this project.

## **2.0 PROJECT DESCRIPTION**

### **2.1 Project Location**

The proposed 220 KV transmission line project will be located in Dar es Salaam particularly in Ubungo municipality. The 9km transmission line traverses four wards namely; Kimara, Makuburi, Ubungo and Mabibo. The proposed 220kV transmission line from Kinyerezi T-off Point to the new 220/132kV substation near Mabibo area is presented in figure 1. The project intends to utilize existing MG - 2 corridor from Kinyerezi T-off point at Mavurunza mtaa in Kimara ward to the existing Ubungo substation about 7km, while the remaining 2km will utilize the 132kV Ubungo - Ilala wayleave to Mabibo near the National Institute of Transportation (NIT). The project traverses the four wards and eight mtaas in blackets, namely, Kimara (Mavurunza, Kilungule, A, Kilungule B and Kimara Baruti), Makuburi (Kibangu), Ubungo (Kibo and Ubungo Kisiwani) and Mabibo (Mabibo).

### **2.2 Description of the Project Area**

The project is situated in an urban environment characterized with various urban tendencies and features. Large part of the project area is characterized by secondary vegetation modified from previous disturbance caused by the construction of MG2 transmission line, TPDC Gas pipeline and DAWASA water infrastructure. Similarly, the whole stretch from Mabibo to Kinyerezi T-off point is surrounded by settlement located outside the wayleave with some structures encroaching into the wayleave, particularly at Mavurunza mtaa, Kimara Baruti mtaa and Kilungule A and B mtaa in Kimara ward. Also, the way leave encroachment can be seen at Mabibo where NIT boundary wall is more than 5 m within the way leave, Port authority building has its wall encroaching the way leave and NRS godown has some of its facility within the wayleave. In addition to those permanent encroachment, there are temporary businesses near the Ubungo substation on either side of the Ubungo bridge, garages at Ubungo Maziwa, vegetable farming near Urafiki Textile industry and grave yards at Ubungo Maziwa, and Mavurunza area.

The terrain of the project area is relatively undulating from Kinyerezi T-off point to Ubungo substation; and from Ubungo substation to Mabibo substation the terrain is relatively flat. Access within the way leave corridor is poor, the previous existing access has been eroded severely and damaged by surface run-off and practically not accessible. However the project site can be accessed via several feeder roads emerging from Dar-Moro main road crossing the way leave at different points. Figure 1, presents the proposed power transmission line from Kinyerezi T-off point to New Mabibo substation.

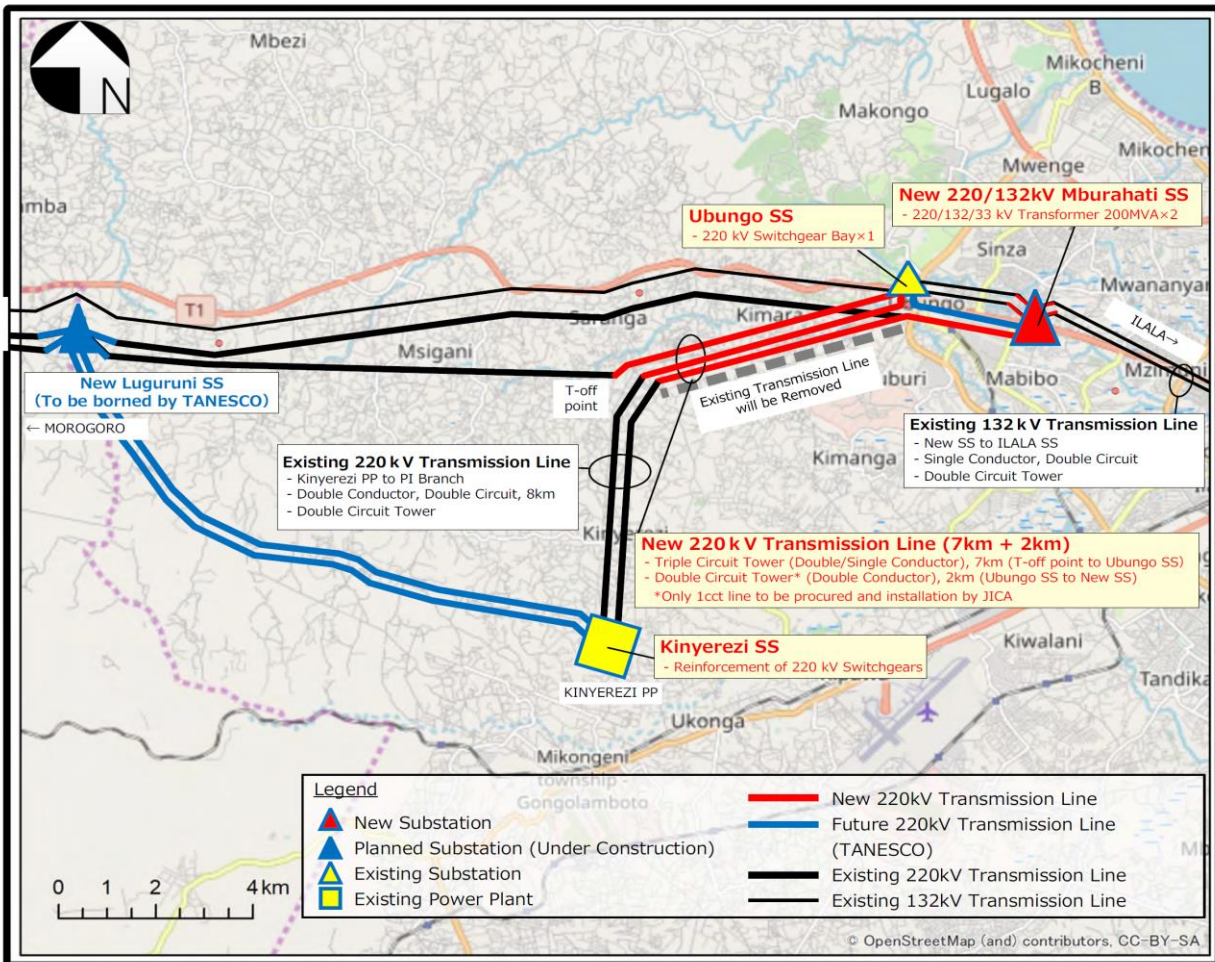


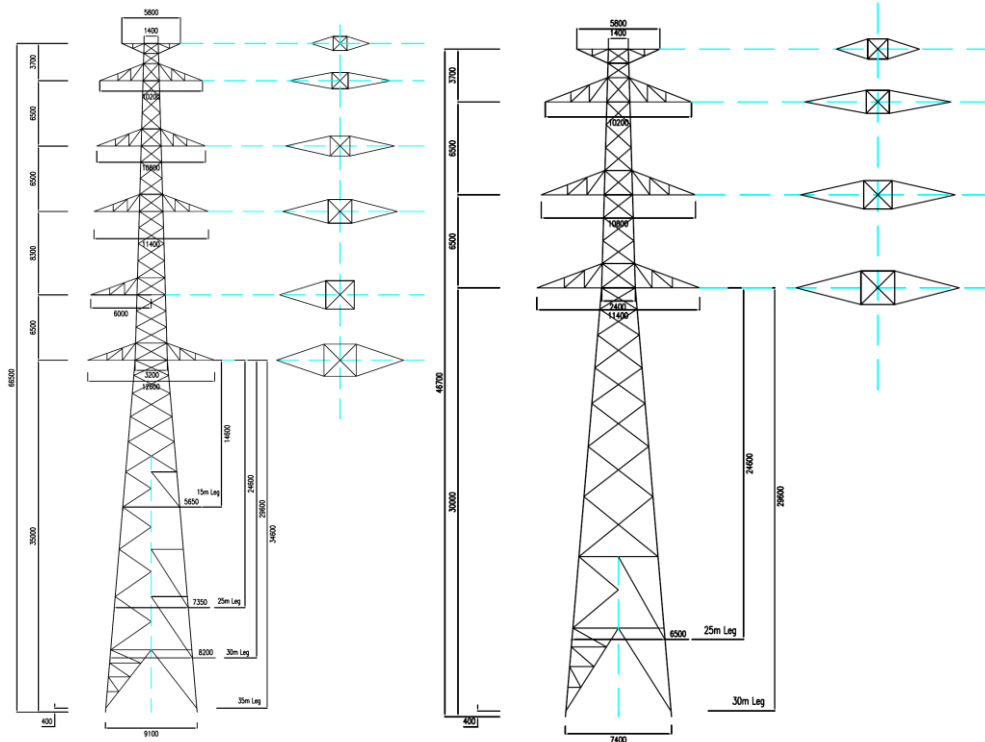
Figure 1: The Map Representing the Proposed Kinyerezi – Mabibo 220kV Transmission Line  
 Source: JICA Preparatory Survey Team, 2020

## **2.3 Project Components**

The proposed project will involve construction of a new substation and triple circuit towers from Kinyerezi T-off point to Ubungo substation (7km) and double circuit towers from Ubungo substation to Mabibo substation (2km). The major components of this project are 220/132KV Substation and a Transmission line.

### **2.3.1 Transmission Lines**

The Transmission line will consist of series of towers of different type (Figure 2) and insulator that will run a total length of 9km with 220/132kV triple circuit conductors (3cct) from Kinyerezi T-off point to Ubungo Substation (7km) and double circuit conductors (2cct) from Ubungo S/S to Mabibo area (2km). Since there is no designed standard for way leave size for triple circuit conductors and towers it was recommended to use 40m size ROW which will cover 20m wide on both sides from the centreline. The proposed transmission and substation will utilize the existing way leave to avoid relocation of people and expensive compensation therefore no additional land will be acquired for the proposed project. Example of tower to be used for the proposed project is shown in Figure 2.



Source: JICA Preparatory Survey Team, 2020

Figure 2: Example of tower to be used for the proposed project (Left: 3cct and Right: 2cct)

### 2.3.3 Substation

The project will involve the construction of a new 220/132kV substation at Mabibo area near the National Institute of Transport (NIT). The new 220/132kV substation is proposed to have 200 MVA transformers x 2 and Hybrid Gas Insulated Switchgears (H-GIS) which can be applied due to the limited area of 50m x 500m. The substation area is planned to be within the ROW of transmission line between Mabibo market and the compound of the National Institute of Transport (NIT). No additional land acquisition is expected for the substation. Facilities expected at substation are control building with switchgear, transformers, reactors, and vehicle parking bay. Transformers will be filled with oil without PCBs. Also, the substation will be fenced properly to minimize the potential for the accidental electrocution to people and animals, and is accessible by a permanent road.

## **2.4 Project Activities which may lead to resettlement**

As part of project implementation, this project will involve several activities that may result in the resettlement of people as categorized below:

### **2.4.1 Establishment of construction camp and offices**

One of the preliminary activities to be undertaken by the project entails establishing a worker's camp and offices on the site, assembling equipment, hiring construction work force as well as mobilizing construction materials. The worker's camp will be established to provide shelter and storage facilities for construction material, fuel and lubricants, workshops, logistics and offices for less than 5 months during the construction period.

### **2.4.2 Construction of power transmission line and Sub station**

The Construction of the power transmission line will include excavation of tower foundations, erecting the towers, stringing of conductors and securing the site and construction of facilities for the substations and transformers as needed. Machines and manual labour will be involved in the construction phase. Some areas will require preparation of the access roads to bring equipment, workforce and materials to the designated sites. Appropriate measures for mitigation will be considered according to the Environmental Management Plan (EMP). Some labour forces may be recruited from local communities - especially for the simple and manual operations that could easily be accomplished using local skills. The construction phase is estimated to take roughly about 12 to 24 months.

### **3.0 OVERALL APPROACH AND METHODOLOGY**

#### **3.1 Overall approach**

The ARAP has been prepared through multiple approaches of data collection including gathering secondary and primary data. Secondary data was collected from Ubungo Municipal Council, Tanzania Population and Housing Census, Dar es Salaam Regional Investment Profile and various policies, laws and regulations related to resettlement processes. It also included primary data collected from various stakeholders using quantitative and qualitative techniques.

Literature review, public consultations and extensive stakeholder involvement constituted the main approaches for collecting socio-economic data and issues. On the basis of these approaches, existing socio-economic baseline data along the transmission line such as demographics characteristics, employment, economic activities, income levels, land use, education, health, types and details of affected property, resettlement options, PAP's opinion on environment and social impact (positive and negative) of the project, willingness to relocate and preference to mode of compensation were collected.

#### **3.2 Methodology**

In order to collect socio-economic baseline information, the following methods and tools were used:

##### **Literature Review**

This method was applied in order to have secondary data about the proposed project. The main sources of secondary information for the ARAP were from regional and district socioeconomic profiles, investment profiles, and strategic plans. In addition, relevant national policies, legislation, national development strategies and plans were consulted to characterize the Policy, Legal and Institutional context for the ARAP. The JICA Guidelines and World Bank Safeguard Policies were also consulted.

##### **Household Survey**

In order to understand the socio-economic condition of communities around the proposed development, Ubungo Municipal socio-economic profiles, 2017 were reviewed and supplemented by a household survey. In conducting a detailed household's survey, the

following tools were used:

**Household questionnaire:** A household questionnaire was prepared and used for collecting basic information from all possible affected people. In addition, the questionnaire collected household demographic information, type of residential houses, level of education, economic activities, average household's income and land related issues from the household's heads along the proposed development. Household's survey was conducted in three Mitaas in Ubungo ward, Kimara ward and Makuburi ward. The survey covered socio-economic characteristics of the likely affected person and the data was used for preparation of the Abbreviated Resettlement Action Plan. The targeted audience for household questionnaire was local community houses and business activities within the way leave corridor likely to be affected by the project.

**Checklist:** A checklist was prepared and used for collecting qualitative data on social services that are obtained in the Wards and Mtaa falling within the way leave corridor. It was also used to collect data on economic activities, land use, and views regarding the proposed transmission line development in the area.

**Consultations:** Consultations were conducted at municipal, ward, mtaa and community levels, in order to solicit concerns, views, opinions, and suggestions and collect additional secondary information and data to inform the ARAP. The consultations were one to one, key informant interviews and group discussions held with 6 to 8 potential PAPs.

**Public meetings and stakeholders' consultations:** Stakeholder consultations were conducted at municipal level, wards level and Mtaa /street likely to be traversed by the proposed transmission line. Issues discussed were component of the project, areas traversed by the project, dimension of the way leave required and need for local community to be informed of the proposed project and possibly participate during construction as labour force. Also, consultation meeting was used as platform to provide general information about the project and receiving their concerns about the project.

**Observation on the corridor of the existing power transmission line:** The team has done preliminary observation on different issues related to the project. It included identifying areas with critical topographical features, the nature of settlements and livelihood patterns of PAPs, their assets, other infrastructural developments, resettlement issues, other forms of land uses, direct and indirect impacts on PAPs and others.



### **3.3 Objectives of census and socio-economic survey**

The census and socio-economic survey for the ARAP is important for the planning of resettlement. The census and socio-economic survey assist to know the social structures of the population and their distribution to inform resettlement planning. The main objective of conducting census and socio-economic studies includes:

Providing information to and raising awareness of the PAPs about the project and its impacts;

Collection of census data to identify potential PAPs at individual and household levels;

Collection of census data to identify vulnerable and severely affected PAPs;

Identify impacts of the proposed project especially on the livelihood of the PAPs (i.e. properties, structures, income, access rights etc.);

Identification of any other concerns from the PAPs; and

Identify PAP's resettlement preferences.

For those objectives, census and socio-economic survey was carried using a survey questionnaire. The questionnaire was aimed to collect the following information:

General information about household members' livelihood, income and land ownership;

Information about losses or impacts caused by the project such as land by types, principal structures such as houses and shops, secondary structures, household assets, crops and trees etc; and

Accessibility and availability of social services such as drinking water, energy, education and health services. The resettlement possibility (available land within the PAPs' property) as well as preferred mode of compensation has also been assessed in each case, and

Identification of vulnerable people at household level and their needs.

### **3.4 Procedures of Census and Socio-Economic Survey**

The procedures which were used to perform the socio-economic survey were as follows: -

First, an introduction letter from the Ubungo Municipal Council Director was submitted to the local authorities (Ward and Mtaa Executive Officers) prior to the survey for them to inform the

local community. Secondly, the structures and other affected assets in the existing wayleave were identified. The identification of affected properties and other important features, which might be affected by the project, was undertaken in the field and located by using a Geographical Positioning System (GPS). The enumerators walked through the proposed wayleave and identified potential affected assets and their ownership with the assistance of the owner, Mtaa leaders or representatives, knowledgeable of the persons or a neighbour. Figure 3a and b, shows the location of facilities to be affected by the project with their coordinates in Table 1.







**Figure 3: Location of properties to be affected by the project**

**Table 1: Coordinates for the affected properties in Ubungo Municipal Council**

X	Y	Properties	Status of PAPs
522765	9248896	House	Owner
522805	9248899	House	Owner
522854	9248888	House	Owner
37 - 519700	9248524	House	Encroacher
06°47.997	039°11.290	House	Encroacher
37 - 519285	9248400	House	Encroacher -
522765	9248896	House	Owners
37 - 519700	9248524	House	Encroacher
522765	9248896	Business structure	Encroacher
37 - 519285	9248400	Business structure	Encroacher
37 - 0518977	9248329	Toilet	Encroacher
37 - 0519198	9248392	Garden	Encroacher
37 - 0519603	9248512	Garden	Encroacher
522805	9248899	Business structures	Encroacher
37 - 523731	9248872	Graveyard	Encroacher

37 - 0517895	9247798	Graveyard	Encroacher
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**Source: EARG Study Team, 2020**

#### **4.0 PROJECT IMPACTS**

Although the construction of the proposed power transmission line between the existing T-off point at Kimara and the New 220/132 kV substation at Mabibo will utilize the way leave of the existing power transmission line, it is anticipated that there will be some negative impacts of the project, which will arise from the need to acquire new land of approximately 0.50 km total length nearby Ubungo substation. The land acquisition for a length of 0.5km will lead to the loss of residential structures as well as vendor's mobile structures, which are used for small businesses such as shops, restaurants and mobile phone structures. Also, in other sections of the project, such as Mavurunza, Kilungule, Kimara Baruti and Ubungo Kisiwani, some structures, small business structures, toilet facilities, fences, crops and trees will be affected, however, the PAPs in these areas are regarded as encroachers since they have constructed, cultivating and doing business within the way leave of the existing power transmission line, which is under TANESCO land title. The details of the project impacts are described below:

##### **4.1 Loss of residential structures**

There will be the loss of 12 residential structures that will be caused by the construction of the proposed project. Among these, 11 houses are located at Kibo Mtaa in Ubungo ward and one (O1) structure is located within the way leave of power transmission line at Kilungule A in Kimara ward. Types of houses to be affected are largely; the common semi urban houses cement blocks with corrugated iron sheets as roofing materials. Among the 11 affected residential structures, eight (08) are used as residents for the owners of the houses and three (03) are used with tenants and therefore, the houses are used as a source of income for the owners. Table 2 shows a summary of affected structures and location, number and building materials with its associated Photo 1 and 2, at Kibo mtaa in Ubungo ward and Kilungule A in Kimara ward.

**Table 2: Summarized affected structures along the proposed project.**

No.	Type of loss	No of PAUs			No of APs		
		Legal	Illegal	Total	Legal	Illegal	Total
<b>Required for displacement</b>							
1	<b>HH (Structure owner on Gov. land)</b>						
	Complete residential structure	-	03	03	-	11	11
	Incomplete residential structure	-	01	01	-	01	01
2	HH (Structure on private land)						
	Complete residential structures	11	-	11	72	-	72
3	Household (Tenants)	03	-	03	18	-	18
4	CBEs (Structure owner Gov. land – TANESCO Wayleave)	-	10	10	-	-	-
5	CBEs (Structure owner on private land – PAPs land)	-	-	-	-	-	-
6	CBEs (Tenants)	-	-	-	-	-	-
7	Community owned structures including physical cultural resources						
	One building with toilet facilities for Kilungule “B” primary school (12 holes) (No. of AP shows estimated users)	-	01	01	-	(1,857)	(1,857)
	Fences	-	03	03	-	-	-
	Graves	-	135	135	-	-	-
8	Temporal structure for vendors		30	30	-	30	30
<b>Not required for displacement</b>							
8	Land/Structure owners	-	02	02	-	02	02
	<b>Grand Total (1-9)</b>	<b>14</b>	<b>185</b>	<b>199</b>	<b>90</b>	<b>44</b> (1,857)	<b>134</b> (1,857)

*Source: Field survey, EARG Study Team, 2020*

**NB:**

No. 4. Structure owner on Gov. land – TANESCO Wayleave – These are encroachers with various structures which has encroached TANESCO wayleave.

No. 5. Graves – The names of relatives for the deceased will be identified during the valuation process





**Photo 1: Some of residential structures to be affected at Kibo mtaa in Ubungu ward**  
*Source: EARG Study Team, February, 2020*



**Photo 2: A residential structure within the way leave to be affected at Kilungule A mtaa in Kimara ward**  
*Source: Field survey, EARG Team, February, 2020*

## 4.2 Impact on incomplete structures

The construction of the project will also affect one incomplete structure located within the way leave of the existing transmission line at Kilungule B in Kimara ward. Photo 3 shows the incomplete structure that will be affected by the project.



**Photo 3: Incomplete structure at Kilungule B in Kimara ward**

*Source: Field survey, EARG Team, February, 2020*

## 4.3 Mobile Small Business Structures

It has been noted that the project will affect about 30 temporary small business structures used by 30 vendors as shops or restaurants. Most of these small businesses are not registered and their structures could easily be removed and shifted to another area as shown in Photo 4.







**Photo 4: Some of the small business facilities likely to be affected by the project**

*Source: Field survey, EARG Team, February, 2020*

#### **4.4 Loss of Public Properties (Toilet Facilities and Fencing)**

The public properties that will be affected include structures and land that are publicly owned, used or controlled. These are structures owned by the government such as a school toilets and fences. . Although the proposed power transmission line will use the existing way leave, its construction will also affect toilets at Kilungule Primary School, which has encroached the TANESCO's way leave. The toilets to be affected are shown in Photo 5 and are used by 1,818 pupils of which 978 are boys and 840 are girls. The school has also 39 teachers of which four are males and 35 are females. Furthermore, the project will affect boundary fences, which (Photo 6) have been extended to the way leave of the power transmission line. These fences belong to the Tanzania Harbours Authority and National Social Security Fund at Ubungo Kisiwani as well the National Institute of Transport in Mabibo ward. All three government institutions will lose their boundary fences. If the project needs to demolish these structures, it will have to pay replacement cost without depreciation and salvage value at the current market prices.

**Photo 5: Toilet facilities at Kilungule Primary School to be affected by the project**



**Photo 6: Extended wall within the existing power transmission line at Ubungo Kisiwani**

Source: *Source: Field survey, EARG Team, April, 2020*

#### **4.5 Loss of Land**

The proposed project will result in the loss of land mainly land used as urban settlement, small businesses and garages. Individuals own the land for residential structures to be affected, while the land where temporally structures for small business are located is partly owned by TANROADS as part of road reserve and individuals. The land on which residential structures are located has been surveyed and issued with title deeds or customary ownership.

#### **4.6 Impact on permanent crops**

By permanent crops in the ARAP we include those that take more than a year to reach full maturity and can be harvested over a long period of time. These crops include coconut trees, sisal, fruit trees, banana trees and timber and shades related trees. It has been noted that at Kilungule B Mtaa in Kimara ward, residents there are growing banana, shade trees and coconut trees for various purpose that include shelter and fruits for home use. All these crops are shown in Photo 7 below.



**Photo 7: Banana, coconut and shade trees within the way leave of power T/L at Kilungule B in Kimara ward**

Source: *Source: Field survey, EARG Team, February, 2020*

#### **4.7 Impact on Seasonal Crops**

In this ARAP, seasonal crops are mainly those that take less than six months to reach complete maturity for harvesting. These crops include maize, cassava, paddy, vegetables, sunflower and beans. Considering that the project is being implemented in an urban area and within the way leave of existing power transmission line, all the people who are cultivating within the way leave are considered as encroachers. PAPs with seasonal crops as shown in Table 3 and Photo 8 and 9 will not be compensated for the loss of these assets, however, in order to prevent any financial impact or loss of harvest that may also include loss of food crops, notice will be



provided to all PAPs with seasonal crops within the way leave to alert on when to stop cultivating once they have been compensated for loss of land. Time may also be provided to allow them to harvest what they have cultivated instead of destroying the crops.

**Table 3: The number of Agriculture crops and shade Trees**

No.	Location (Ubungo Municipality)	Type of Plants	Sub-Total	Total
1	Kimara ward - Kilungule B	Banana trees	12	15
2		Coconut trees	03	
4	Kimara ward - Kilungule A	Banana trees	04	06
5		Shade trees	02	
<b>Total</b>				<b>21</b>

*Source: Field survey, EARG Team, 2020*



**Photo 8: Amaranth plot within the Way leave of Power T/L at Ubungo Kisiwani.**



**Photo 9: Cassava planted within the Way leave of Power T/L at Kilungule A in Kimara ward**

*Source: Field survey, EARG Team, January, 2020*

#### **4.8 Loss of cultural and archaeological property**

The proposed project will affect graves that are in a burial site located within the way leave of the power transmission line. It is anticipated that a total of 125 graves beneath two towers at Ubungo Kisiwani will be affected by the project and will have to be relocated prior to the implementation of the project. Also, there is another grave yard at Mavurunza mtaa in Kimara ward with about 10 graves that are also likely to be affected by the proposed project. It should be noted that the rates to be compensated for graves will vary depending on developments done on the grave. Compensation will be paid for expenses related to the relocation of graves such as expenses for ceremonies and labour in connection with exhumation and reburial, and any other development. The processes of relocating the graves will be participatory and take into account PAPs cultures and values. Where graves that would be adversely affected by the project need to be exhumed and reburied at alternative locations, rituals and ceremonies will need to be conducted by the respective relatives. For this project, PAPs will be compensated ceremonial cost and cost of relocation; while other costs related to relocation of the grave will be compensated directly to the Ubungo Municipal Council to enable relevant authorities relocate the graves. Photo 10 and 11 shows the graveyards in Mavurunza and Ubungo Kisiwani.





**Photo 10: Kijiweni Grave yard in the existing Power transmission line likely to be affected by the New transmission line at Mavurunza mtaa in Kimara ward**

*Source: Field survey, EARG Team, January, 2020*



**Photo 11: Ubungo Kisiwani Grave yard in the existing Power transmission line likely to be affected by the New transmission line at Ubungo Kisiwani in Ubungo ward**

*Source: Field survey, EARG Team, March, 2020*

The summary of the project impacts which are likely to be caused by the implementation of the proposed project are shown in Table 4.

**Table 4: Summary of Project Impacted properties and Magnitude of Impact**

No.	Affected category	Number of assets/properties	Nature of impact	Location
1	Complete Residential structure -	11	Permanent loss of structure/Loss of accommodation/Displaced person needs physical relocation	Kibo in Ubungo ward -
		01		Kilungule A
		02		Kimara Baruti
2	Incomplete Residential structure	01	Permanent loss of the incomplete structure. No one is living, no displacement	Kilungule B in Kimara ward
3	Loss of fences	3 government institutions	Permanent loss of fences in three government institutions namely Tanzania Ports Authority, National Social Security Fund and National Institute of transport	At Ubungo Kisiwani and Mabibo
4	Loss of land	6,600m <sup>2</sup>	Permanent loss of land (an average of 400m for each structure)	Kibo in Ubungo ward and
		400m <sup>2</sup>		Kilungule A in Kimara ward
5	Small business structures such shops and restaurants, small structure for charcoal storage and sales	07	Permanent loss of land and movable structures	Kibo in Ubungo ward - Kilungule B and A in Kimara ward
6	Loss of toilet	One building with	Permanent loss of toilet facilities	Kilungule B in Kimara

No.	Affected category	Number of assets/properties	Nature of impact	Location
	facilities	12 holes	dependent by 1,818 pupils with 39 teachers	ward
7	Permanent crops and trees owned by PAPs	16 Banana trees 3 coconut trees 2 shade trees	Permanent loss of land and crops	At Kilungule B in Kimara ward
				At Kilungule A in Kimara ward
8	Loss of business owned by individuals	3 structures	These are the houses rented as shops within one house there are more than two business	At Kibo mtaa in Ubungo ward
9	Graves	120 graves (Estimate)	The graves are under the tower. However, there are several graves within or closed to the existing power transmission which might be affected the construction and transportation of materials.	Ubungo Kisiwani in Ubungo ward
		15		Mavurunza in Kimara ward

Source: Field survey, EARG Team, 2020



## 5.0 SOCIO ECONOMIC BASELINE INFORMATION OF THE PROJECT AREA -

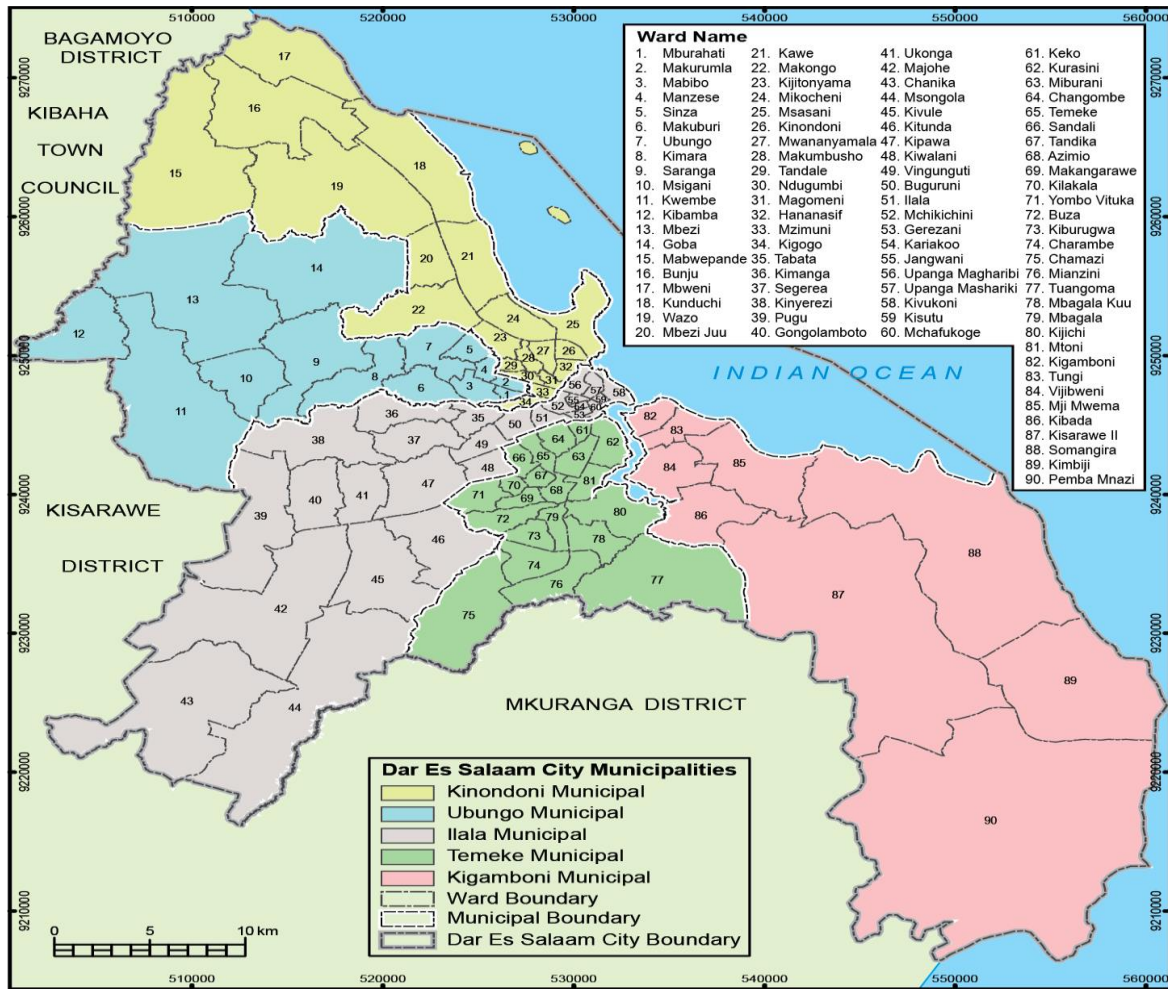
### 5.1 Administrative Structure and Boundaries

Dar es Salaam city is located within the Dar es Salaam region, one of thirty regions in Tanzania. The city is subdivided into five municipalities of Ilala, Kinondoni, Temeke, Ubungo and Kigamboni and 102 wards as shown in Table 5 and Figure 4.

**Table 5: Number of Divisions, Wards, Mtaa, Villages and Hamlets in the Three Municipalities of Dar es Salaam**

<b>Municipality</b>	<b>Division</b>	<b>Wards</b>	<b>Streets</b>
Ilala	3	36	159
Temeke	2	23	142
Kinondoni	2	20	106
Ubungo	2	14	91
Kigamboni	1	9	67
<b>Total</b>	<b>10</b>	<b>102</b>	<b>565</b>

*Source: Kinondoni, Ilala, Temeke, Ubungo and Kigamboni Municipal Council Profiles 2017*



**Figure 4: Administrative Boundary of Dar es Salaam City**

Source: United Republic of Tanzania – URT (2011).

Dar es Salaam is administered through the regional and city council bodies. Firstly, Dar es Salaam's regional administration is headed by a Regional Commissioner. In Tanzania, the region is in charge of overseeing the city. Secondly, Dar es Salaam has a City Council administration, officially headed by Mayor. The Mayor remains more of a political title working through elected constituencies. The Councillors and Mayors serve for five-year terms, whereas Deputy Mayors are elected every year from among the councillors. The incumbent can be re-elected many times, depending on the will of the councillors. There are eight electoral constituencies in Dar es Salaam, each with an elected Member of Parliament. The Dar-es-Salaam City Council and five municipalities operate in the same jurisdictional areas, but each of the Municipal Councils has been given a jurisdiction area demarcated with an administrative structure governing the

municipality. The functions of the City Council and the five Municipal Councils (MCs) are provided for in Section 7A of Act No. 8 of 1982.

## 5.2. Demographic Characteristics

Based on Tanzania population and Housing census of 2012, Ubungo Municipal Council had a population of 845,368. Among the population, 409,149 were males and 436,219 were females. Based on the population projection for 2019, Ubungo municipal council had a population of 1,403,311, among them, 679,185 were males and 724,126 were females. The municipal population annual growth rate stood at 5.0 percent which is slightly lower than the regional population annual growth rates of 5.6 percent and significantly higher than the national population annual growth which stood at 2.4 percent. The council has an average household size of 4.0 similar to the regional average household size. The high annual growth rate for the Ubungo municipality is likely to be associated with high rate of migration as well as natural population increase. The population distribution in project-affected wards varies from one ward to another as shown in Table 6.

**Table 6: Population Distribution in Ubungo Municipality.**

S/N	Ward	Population By Sex 2012			Population By Sex 2017		
		Male	Female	Total	Male	Female	Total
1	Mburahati	16,784	17,339	34,123	21,421	22,129	43,550
2	Sinza	18,892	21,654	40,546	24,112	27,637	51,749
3	Makuburi	28,021	29,387	57,408	35,763	37,506	73,269
4	Mabibo	41,824	43,911	85,735	53,379	56,043	109,422
5	Manzese	34,495	36,012	70,507	44,025	45,961	89,986
6	Ubungo	27,221	28,794	56,015	34,742	36,749	71,491
7	Makurumla	30,933	32,419	63,352	39,479	41,376	80,855
8	Mbezi	35,637	37,777	73,414	45,483	48,214	93,697
9	Msigani	26,479	28,632	55,111	33,795	36,542	70,337
10	Kimara	36,654	39,923	76,577	46,781	50,953	97,734
11	Saranga	49,263	54,864	104,127	62,873	70,022	132,895
12	Goba	21,066	21,603	42,669	26,886	27,572	54,458
13	Kibamba	13,840	15,045	28,885	17,664	19,202	36,866
14	Kwembe	28,040	28,859	56,899	35,787	36,832	72,619
	TOTAL	409,149	436,219	845,368	522,190	556,738	1,078,928

Source: URT, 2012. Tanzania Population and Housing Census, National Bureau of Statistics

Population densities in the Municipality vary from one settlement to settlement. High populated areas are found in unplanned settlements such as the Manzese and Mabibo wards with a population density of 38,465/km<sup>2</sup> and 21,258/km<sup>2</sup>. Low population densities are in peripheral localities such as the Kibamba and Msigani wards with a population density of 1,468/km<sup>2</sup> and 3,765/km<sup>2</sup> respectively. Other affected wards are moderately populated, for instance, Ubungo ward has a population density of 5,604/km<sup>2</sup>, Kimara has 5,664/km<sup>2</sup> and Makuburi has a population density of 7,527/km<sup>2</sup>. The impact of higher population densities always is associated with widespread of poverty and other serious environmental and social problems such as crimes, poor hygiene, leading to unsustainable development.

### **5.3 Social services**

#### **5.3. 1 Education system in Tanzania**

The Tanzania education system is based around a 2-7-4-2-3+ structure. In other words: 2 years of pre-primary school, 7 years of primary school, 4 years of ordinary secondary school (ordinary level), 2 years of advanced secondary school (advanced level) and at least 3 years of higher education. The Ministry of Education, Science and Technology has general responsibility for the education system. Amongst other aspects, the Ministry is charged with quality assurance, research, monitoring and evaluation of primary and secondary education. In addition to the Ministry, various other parties are involved in the governance and monitoring of education services, such as the Prime Minister's Office, the Regional Administration and Local Government, various NGOs and individuals coordinated by the central government.

The Ministry is also responsible for higher education at universities. Public universities are semi-autonomous and have the freedom to determine – amongst other aspects – their own curricula. They are also authorized to award academic degrees. Although the vice-Chancellor of the university is appointed by the institution itself, the Chancellor is appointed by the President of Tanzania. All universities, both public and private, operate under the supervision of the Tanzania Commission for Universities (TCU). The National Council for Technical Education (NACTE) is responsible for all technical and vocationally oriented secondary and higher

education offered at non-university institutions. Compulsory education in Tanzania starts at the age of 7 and ends at age 14. The language of instruction for primary education is Kiswahili. However, the language of instruction for both secondary and higher education is English.

### 5.3.2 Education in Ubungo municipality

Ubungo Municipal Council has 113 Pre -Primary Schools out of which 60 belongs to Government and 53 owned by private sector. Also District Council has 118 Primary schools, whereby 64 are owned by Government and 54 primary Schools owned by Private Sector. All 64 Primary Schools has a total number of 76,346 pupils from STD I to STD VII and 2,434 teachers. The present school infrastructures include 833 classrooms, 17,121 desks, 710 pit latrines, 8 libraries and 112 staff. In terms of secondary schols, the council has a total number of 66 secondary schools, out of which 27 are registered community secondary schools and 39 are privately owned. In addition to that, 11 out of 39 private Secondary Schools are at Advanced Level. Nevertheless, the Council is trying to work on the necessary infrastructure for A-Level at Kiluvya, and Y. R. Makamba for increasing the number Advanced level schools All 27 Community Secondary Schools had a total number of 22,930 students from form I - IV and 955 teachers. Private schools have the total number 10,849 students from I-VI. Among the public secondary schools five are located in within the project wards.

### 5.3.3 Health services and facilities

The Council currently has a total of 68 health facilities of which 17 are government owned, while the remaining 51 are owned by Private Organizations. Sinza hospital is the only hospital owned by the government providing health services within the Municipal. This hospital is called a district hospital, which is providing services for 1,000 to 1,500 in and out patients per day. All the health facilities provide cure, preventions of communicable and non-communicable Diseases. Table 7, shows a list of health facilities available in Ubungo Municipal Council.

**Table 7: Health facilities in Ubungo Municipality**

Health Facility Level	Government	Private	Total
Hospital	1	5	6
Health Centres	3	7	10
Dispensaries	15	74	89
Clinics	08	03	11

<b>Total</b>	<b>17</b>	<b>51</b>	<b>116</b>
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*Source: Ubungo Municipal Council Strategic Plan (2018/2019-2022/2023)*

Water borne diseases are the leading cause of mortality, these are Typhoid and Cholera. The main challenge is low coverage of safe and clean water system, lack of modern toilets and community health illiteracy.

### **5.3.4 HIV/AIDS Situation**

Despite the government efforts to control the transmission of HIV at different levels in the area, the disease still features among the top ten diseases. Based on TACAIDS report of 2017 on people living with HIV/AIDS, the Ubungo municipality reported to a significant number of people living with HIV/AIDS as shown in Table 8.

**Table 8: People Living with HIV in Dar es Salaam Municipalities**

<b>Municipal</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Temeke dc	5,250	7,958	13,208
Ilala	4,028	6,940	10,968
Kinondoni	5,951	7,798	13,749
Ubungo	3,558	4,862	8,420
Kigamboni	3,210	5,260	8,470
<b>Total</b>	<b>21,997</b>	<b>32,818</b>	<b>54,815</b>

*Source: The United Republic of Tanzania: Prime Minister's Office, Tanzania Commission for Aids. National HIV and AIDS Response Report for 2017. Tanzania Mainland, June 2017*

### **5.3.5 Gender issues and people with vulnerability**

Gender differences are a significant attribute in agriculture, from access, control and ownership of land to marketing of raw and processed produce. In Tanzania, despite constitutional proclamations of gender equality and many laws that promote equal opportunities for both men and women, still related issues have remained to critical problem in the communities.

Based on this fact the Ubungo Municipal Council through the department of health is responsible for gender issues and providing support to vulnerable people. The Social Welfare Unit is responsible for offering services to vulnerable populations in communities or in institutions through provision of Child and Women protection services and supervision of other welfare services. The Social Welfare Unit is dealing with Maintenance services to ensure

welfare of vulnerable groups is maintained. Table 9, shows the number of vulnerable people and Gender related issues in Ubungo municipality.

**Table 9: Elders, People with Disabilities and Elders with medical exemption cards and vulnerable group beneficiaries**

Vulnerable group beneficiaries	Estimated number of beneficiaries	Identified beneficiaries	Percentage (%)
Elders	15,987	7,299	56.1
People with Disabilities (PWDs)	700	673	96.1
Elders who provided medical exemption cards	7,299	8,971	123
<b>Total</b>	<b>16,687</b>	<b>7,972</b>	
The number of GBV & VAC cases attended (2016/17- 2017/18)			
Type of case	Children	Adult	Total
GBV & VAC cases	61	557	618
Children in conflict with the Law (CICL)	09	-	09
<b>Total</b>	<b>70</b>	<b>557</b>	<b>627</b>

*Source: Ubungo Municipal Council Strategic Plan (2018/2019-2022/2023)*

### 5.3.6 Road Network

Ubungo district Council has a total of 386.3 km of roads, which are maintained by the Council out of which 23.0 km are tarmac roads, 245.25 km are gravel roads and 118.05 km are earth roads and 78 bridges/box culverts. The status condition of the entire network is as shown on Table 10.

**Table 10: Road network in Ubungo Municipal Council**

Paved			Gravel			Earth		
Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
19.25	0.0	3.75	82.85	107.45	54.95	10.9	46.3	60.85
23.0			245.25			118.05		
Total Length 386.3 Km								

*Source: Ubungo Socio-economic profile, 2016*

Ubungo Municipal Council is continuing to conduct rehabilitation, maintenance, upgrading and construction of roads and bridges/box culverts to improve its roads network within district specifically by focusing routes which are decongesting traffic from main roads and routes accessing to services areas by using funds from Road Funds Board, own source and from other

sources. Despite the efforts to rehabilitate the road infrastructure, it was observed that most of the access road to the existing transmission line, especially during rainy season are in poor condition which makes difficult to access the transmission line.

### 5.3.7 Water and Sanitation

The main source of water for Ubungo residents is from Lower and Upper Ruvu, which managed by Dar-es-salaam Water and Sewerage Authority (DAWASA). The water from DAWASA systems contributes 68% of water being consumed daily and the rest is contributed by shallow and deep wells, which owned by both private and community. The estimated population of Ubungo Municipality is 845,368 out of that only 68% have direct access to clean and safe water while the rest 32% have no smooth access. Under WSDP - RWSSP the Council has drill 17 boreholes in which 4 boreholes are dry among 17. Water supply system for two bores of Mpiji Magohe and Kibwegere has been under construction.

### 5.3.8 Solid Waste Management in Ubungo Municipality

Ubungo Municipality is estimated to generate about 828 tonnes of waste per day, (which gives 302,001 tonnes per year). Waste generation sources in the Municipality with respective tonnes generated in brackets are. The source and amount of wastes generated in Ubungo municipal council is shown in Table 11.

**Table 11: Generation of Waste by Source in Ubungo Municipal Council in 2017**

Source	Unit in Tones
Households	661
Institutional waste	6.5
Commercial waste	12.4
Market waste	16.5
Informal sector waste	131.6
<b>Total</b>	<b>828</b>

*Source: Socio-economic Profile - Ubungo Municipal Council, 2017*

Solid waste collection in Ubungo Municipality is carried out by both the Municipal, some private companies, community based organizations and informal sectors. Apart from collection activities, the Municipality is also responsible for supervising the franchisees involved in Solid Waste Management. Various service providers are engaging in solid waste management. There



are 19 Mitaa with contactors, 20 Mitaa with community groups, 36 mitaa served by Mtaa Government 36. There are 19 Mitaa without service providers. In regard to waste transportation, both the Municipal council and private sectors do transportation of solid waste. The Municipal council has four trucks of which only one is functioning for transportation of solid waste from different areas of the Municipal to the current dump site. The site is situated more than 35 Km from the Centre of Ubungo municipality, this makes the round trip to cover about 80Km. Other trucks are owned by the private sectors including contractors, Community groups and NGO's. The department is faced with various challenges including: lack of equipment to quantify levels of pollution; insufficient waste management facilities; long distance to the dump site; inappropriate negative community perception toward waste management practices; pollution done during night; petty trade activities contributing to environmental pollution; and sand mining activities in rivers.

### **5.3.9 Energy**

Dar es Salaam city dwellers including Ubungo municipality depend on different sources of energy such as electricity, charcoal, firewood and gas, also stand-by generators are used during power outages. The main source of power for lighting, business and industry is electricity, which is generated, transmitted and supplied by a sole power utility, Tanzania Electric Supply Company Limited (TANESCO). Residents commonly use electricity, charcoal, gas for cooking and lighting. A large number of service outlets use charcoal and gas for cooking, some use kerosene stoves.

## **5.4 Economic Activities**

### **5.4.1 Land use in Dar es Salaam**

With its highly urbanized spaces, currently, the major land uses in Dar es Salaam include the residents of both formal and informal; institutional, industrial, agriculture, hazardous land and open spaces. Literature shows that up to 1963, most of the urban land uses in Dar es Salaam were planned, except a few informally developed settlements of Keko, Buguruni, Ubungo, and Temeke. Spatially the extent of the land use development was confined to within a radius of 6 kms. In the post-independence period, however, rapid horizontal expansion of the city occurred, predominantly along its radial road networks fueled by rapid population influx and individual's development of houses by the city residents. By 1978, the land use coverage of the

city had extended to 14 kms along Pugu road extending as far as Ukonga, about 12km along Morogoro and Bagamoyo roads thereby engulfing the suburbs of Kimara and Kawe respectively.

The southern extension along Kilwa road was rather limited to about six kms extending to the present settlements of Temeke and Chang'ombe. Although pockets of land remained undeveloped between these arterial roads, the extent of the built-up areas of the city was generally limited to within the 12-kilometer radius. By 1992, the extent of the land use coverage predominantly remained within the 12-kilometer radius but with extended development along Bagamoyo road including settlements of Mbezi and Tegeta up to 16 km and ten km along Kilwa road including settlements of Mbagala and Mtoni. In the year 2012, the extent of the land use coverage shows consolidation of settlements on the formerly sparsely developed areas between the major roads and further extended growth along these roads. The northern extension along Bagamoyo road had reached about 32kms, about 30kms westwards along Morogoro road, about 25kms south-westwards along Nyerere road and 20kms southwards along Kilwa road. In essence, one cannot tell the boundary of the city while riding/driving along the major roads because of the continuous development therein.

#### **5.4.2 Urban Agriculture**

About 1,850.(Ha) of land in the Municipality are potential for agricultural practices especially crop cultivation (Though the figure might differ due to rapid expansion of urban related activities). Land estimated under use for both cash crops and food crops is 174.94 (Ha); approximately 9.45% of land is potential for agriculture. Farmers engage in small and large farming, and they mostly till their land using hand equipments Bishoge, et al 2018). Few of them use tractors and traditional upgraded technology. Agriculture provides the Municipality with 1,007.54 tones of food crops, which is only 0.65% of the total annual food requirement of the population. Table 12 and Photo 12, shows the various types of crops grown in Ubungo municipality, particularly along the proposed transmission line.

**Table 12: Estimated quantity of vegetable crops produced in kilogram (kg)**

Type of vegetable	2012	2013	2014	2015	2016	Total
Amaranth	5,033	5,776	6,111	6,500	7,512	30,932
Pumpkin	7,800	9,550	9,998	11,020	11,579	49,947
Chinese Cabbage	4,540	5,750	5,991	7,975	6,352	30,608
Spinach	579	631	673	751	796	3,430
Pepper	1,151	1,250	1,375	1,750	1,811	7,337
Tomatoes	6,720	7,100	7,550	7,600	7,965	36,935
Salad	2,450	2,785	3,050	3,405	3,784	15,474
Okra	490	575	750	870	955	3,640
Legumes leaves	14,050	16,800	17,505	18,500	18,955	85,810
<b>Total</b>	<b>42,813</b>	<b>50,217</b>	<b>53,003</b>	<b>58,371</b>	<b>59,709</b>	<b>264,113</b>

*Source: Bishoge, O. K. et al, 2018*



**Photo 12: Banana crops along the transmission line at Kimara ward in Ubungu Municipal**

*Source: Field survey, EARG Team, January, 2020*

### 5.4.3 Industries

Industrialization on small and large scales is a common feature in the Municipality. Small-scale industry concentrates in domestic production sectors scattered throughout the Municipal and allocated mostly in residential areas. Individuals and groups of Tanzanians are engaged in

production of a wide range of goods in this sector. Large-scale industries are located in the designated industrial areas of Ubungo, Mabibo and Makuburi.

#### 5.4.4 Other Land Uses

Apart from the mentioned economic activities, the Ubungo Municipality is dominated by human settlements of which some located within the wayleave of the proposed power transmission line at Ubungo ward, institutional land, commercial land, land for transport and communication. Urban agriculture is also taking place in some areas including along the power transmission line. There are also small businesses, garage and grave yards as shown in Photo 13 and 14.



**Photo 13: Some of the permanent and temporal structures to be affected at Ubungo ward**



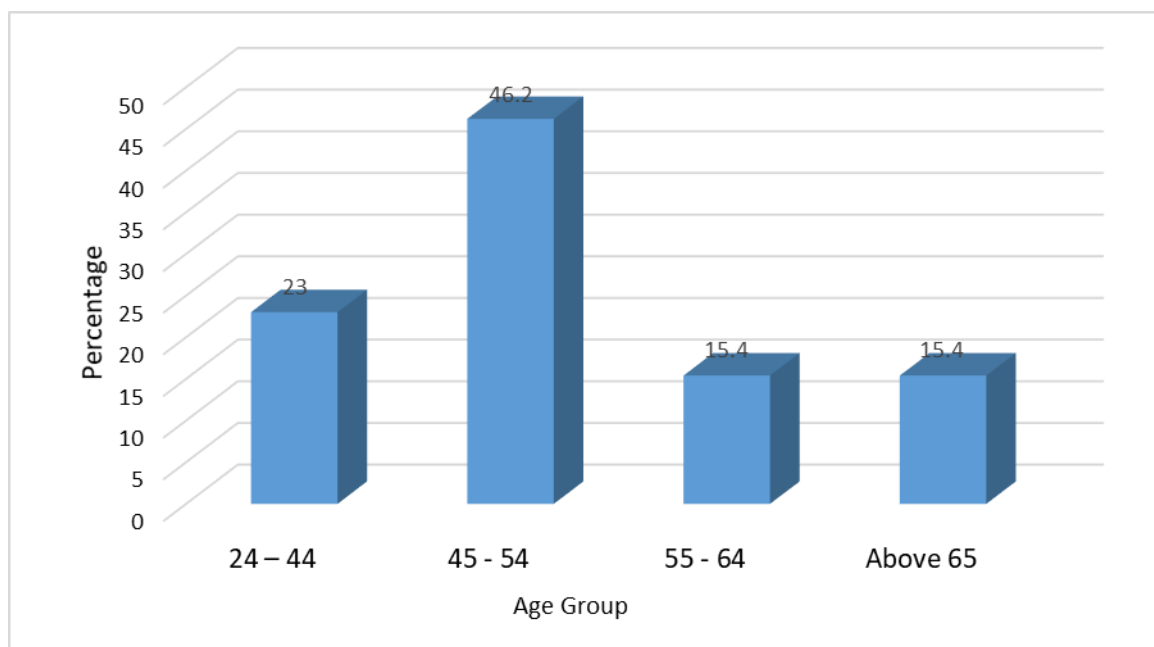
**Photo 14: Garage at Ubungo Kisiwani and Grave yard in Mavurunza located within the way leave of the Power Transmission line in Ubungo and Kimara wards.**

*Source: Field study, EARG Team, January, 2020*

## 5.5 Socio-economic Information and Profile of Project Affected Persons (PAPs) Head of Households

### 5.5.1 Age and sex

The household survey revealed that the significant number of the respondents were female, accounting for 53.8% (8) of the PAPs whilst the remaining 46.2% were male. The age distribution among the PAPs showed that 23.0% fall within the age group of 24 – 44 years. A relative significant number of the PAPs were in the age group of between 45 – 54 years, 15.4% were in the age group of 55 – 64 as well as those who were above 65 years of age. Figure 5 show the age group distribution among the PAPs head of households along the project area.



**Figure 5: Age – Group distribution and the head of households**

*Source: Field Survey, EARG Team, 2020*

Based on the age distribution analysis, the majority 84.6% of the PAPs were in the working age group of 24 – 64 years of age while 15.4% belongs to the category of vulnerable group, hence, they will need special attention during the implementation of the ARAP.



### 5.5.2 Educational background

Education is an important socio-economic variable, which influences nearly every aspect of human life. Education is generally a thriving industry in the study area, like other parts of the country where parents / guardians are constantly struggling to ensure that their family members attain, at least, the minimal level of education. The educational level of the PAPs head of households has attended different levels of education. As shown in Table 13, 53.8% of the PAPs have completed primary school education, 30.8 had attended secondary education and 15.4% had up to college/university level of education.

**Table 13: Head of Household's level of Education**

Level of education	Frequency	Percentage
Primary school	07	53.8
Secondary school	04	30.8
College - undergraduate	02	15.4
<b>Total</b>	<b>13</b>	<b>100</b>

*Source: Field survey, EARG Team, 2020*

### 5.5.3 Marital status

Marital status is a very important factor in determining how a person gets affected or become vulnerable to resettlement or relocation. The survey shows that 53.8% (7) of the affected persons were married whilst 38.5 (5) of the affected persons are widows. Widows are particularly vulnerable because in African context, men generally control assets and upon death of their husband they are not easily considered as heirs. This group will need special attention and treatment during the implementation of the ARAP. Table 14, show the marital status of the PAPs at Kibo mtaa in Ubungo ward.

**Table 14: Head of household's marital status**

Marital status	Frequency	Percentage
Married	07	53.8
Widowed	05	38.5
Single	0	0
Separated	01	7.7
<b>Total</b>	<b>13</b>	<b>100</b>

*Source: Field survey, EARG Team, 2020*

#### 5.5.4 Average Households size

The average household size was 5.5 persons per household. This is a relatively higher than the national, regional and district average household size which stood at of 4.8, 4.0 and 4.0 persons respectively. The largest household size ranged from 7 to 9 people as shown in Table 15.

**Table 15: Number of household members**

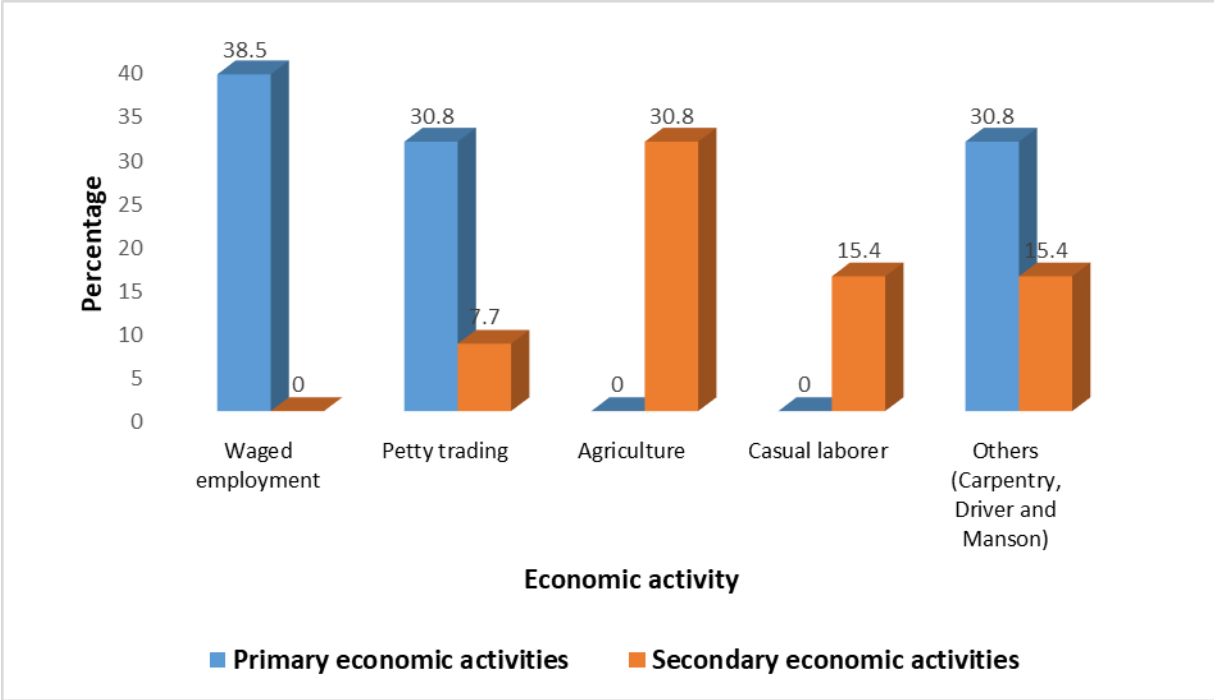
Household size	Frequency	Percentage
2 – 3	3	23.1
4 – 5	3	23.1
6 -9	7	53.8
<b>Total</b>	<b>13</b>	<b>100.0</b>

*Source: Field survey, EARG Team, 2020*

The high number of average household size has implication to the total number of dependants who have been affected by the project. Based on the household survey a total of 72 household members will be affected by the project.

#### 5.5.5 Occupation

Occupational pattern is a vital social fact that decides their livelihood pattern of the household. As shown in Figure 6, the respondents were engaged in diverse occupations such as wage employment, petty trader, urban farming, casual labour as well as carpentry and Manson. According to the household survey, about 38.5.0% of the PAPs are government employees as their main occupation. PAPs who depend on petty trade such as small shops, grocery as their primary activities accounted for 30.8% of the PAPs. Those who were involved in agriculture also account for 30.8% of the PAPs. Casual labour accounted for 15.4% and those with other activities such as carpentry and Manson were 30.8% of the PAPs.

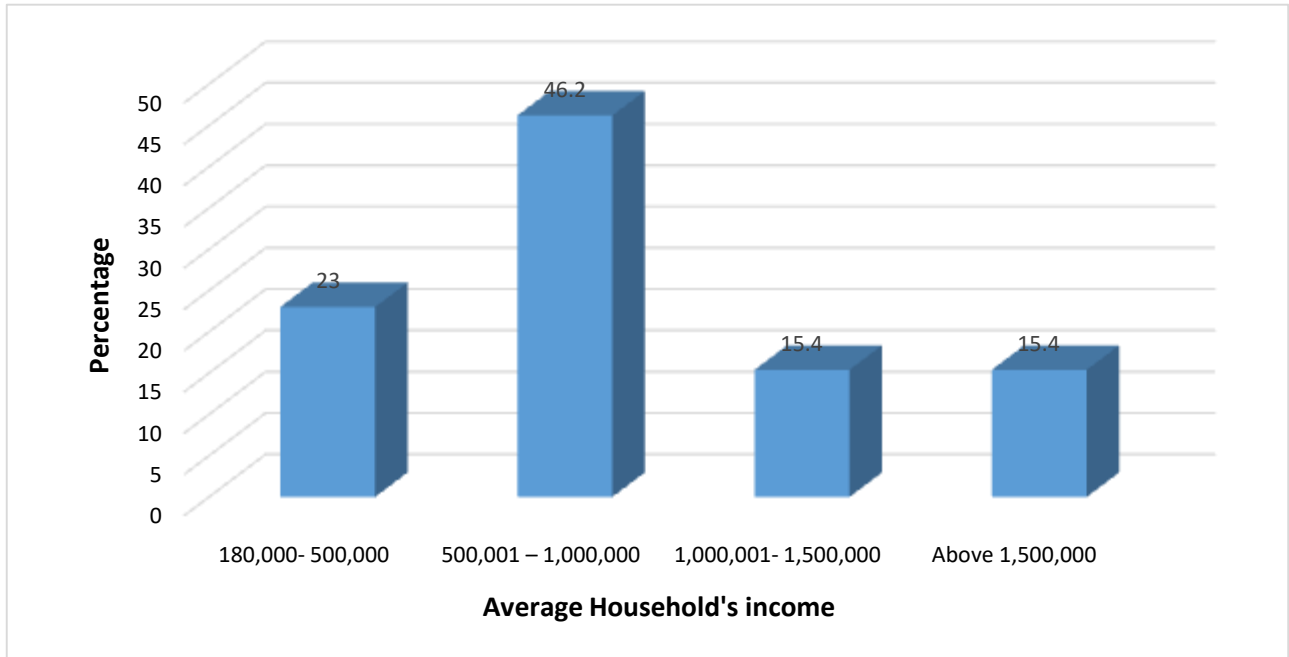


**Figure 6: Percent distribution of head of household’s primary occupation**  
*Source: Field survey, EARG Team, 2020*

**5.5.6 Source of income and Average monthly income**

PAPs average monthly income was difficult item to assess because some of them except the government employee do not keep records of what they get from their major sources. Also some of the PAPs were not willing to disclose what exactly they are getting from their business or any activities. However, for those who responded to the question indicated that the average monthly income generated from the major occupations varied widely from below TSHS 180,000 to above 1,500,000. The household’s average income is shown in Figure 7.





**Figure 7: Average household's monthly income**

*Source: Field survey, FEARG Team, 2020*

Wage employment was reported to be the major occupation and source of income to significant number of the head of households and followed by other businesses such as drivers, carpentry and masonry.

### **5.5.7 Type of impacted house structures**

The types of houses found in most of urban areas in Tanzania are similar to those found in the project affected area. Most of the houses are modern built with cement floor, corrugated iron sheets and cement blocks. The survey show that 90% of PAPs houses consist of cement floors, 4.9% with mud floors and 13.4% tiles floor. 96.5% of the houses have corrugated iron sheets, 3.5% have tin and metal roof. Most of the houses owned by PAPs consist 98.8% have cement blocks walls and 2.2% have poles. Number of rooms in PAPs houses varies with most of the PAPs houses comprises of 2 - 4 rooms (68.8%), 5 - 7 rooms (27.3%) and more than 8 rooms (3.9%). Table 16 and 17 shows the type and size of affected land and location, number and type of building materials respectively in the project area.

**Table 16: The type and size of project affected land**

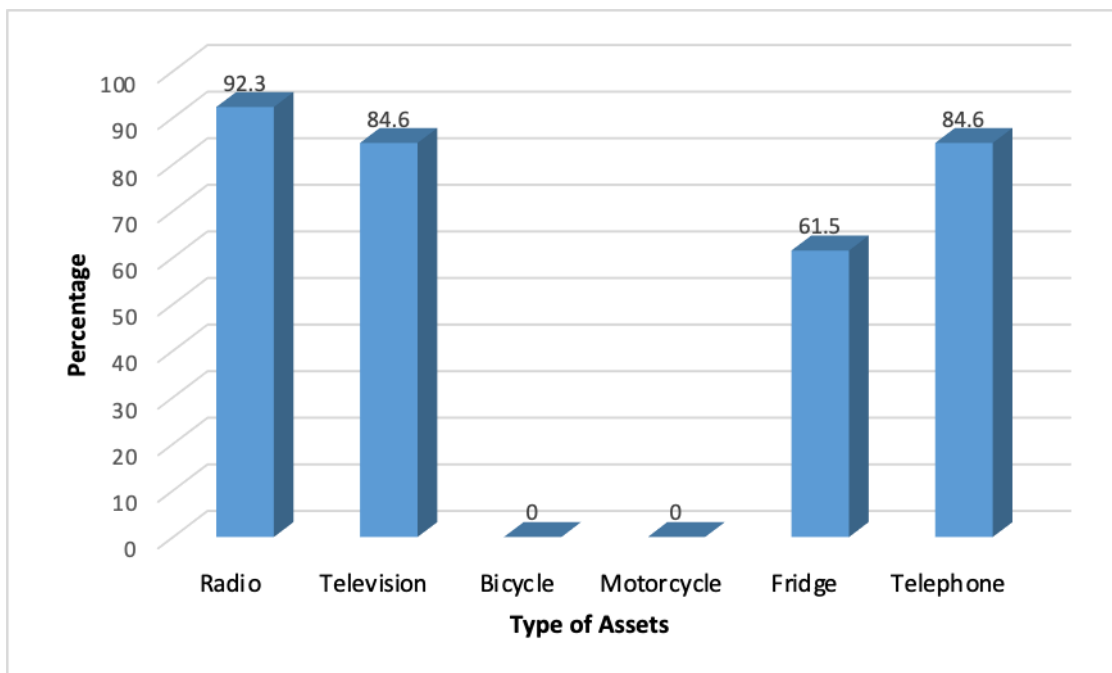
No	Location (Ubungo Municipality)	Land Type	Affected (m <sup>2</sup> )	Total
1	Ubungo ward - Kibo Mtaa	Housing Land	6,600m <sup>2</sup>	8,100m <sup>2</sup>
2		Commercial land	1,500m <sup>2</sup>	
3	Makuburi ward - Kibangu	Housing Land	0	0
4		Commercial Land	0	
5	Kimara ward – Kimara Baruti	Housing Land	800m <sup>2</sup>	800m <sup>2</sup>
6		Commercial Land	0	
7	Kimara ward - Kilungule A	Housing Land	600m <sup>2</sup>	1,000m <sup>2</sup>
8		Farm land	400m <sup>2</sup>	
9	Kimara ward - Kilungule B	Housing Land	600m <sup>2</sup>	1,000m <sup>2</sup>
10		Farm land	400m <sup>2</sup>	
11	Kimara ward - Mavurunza Mtaa	Housing Land	0	0
12		Commercial land	0	
<b>Total</b>				<b>3,900m<sup>2</sup></b>

**Table 17: The location, number and building materials of affected structures**

No	Location (Ubungo Municipality)	Type of Building	Sub-Total	Total
<b>Residential Building</b>				
1	Ubungo ward - Kibo Mtaa	House - bricks	11	11
		House - woods	0	
2	Makuburi ward - Kibangu	House - bricks	0	0
		House - woods	0	
3	Kimara ward – Kimara Baruti	House - bricks	02	02
		House - woods	0	
4	Kimara ward - Kilungule A	House - bricks	1	01
		House - woods	0	
5	Kimara ward - Kilungule B	House - bricks	0	0
		House - woods	0	
6	Kimara ward - Mavurunza Mtaa	House - bricks	0	0
		House - woods	0	
<b>Total</b>				<b>14</b>
<b>Public Institution</b>				
1	Ubungo ward – Ubungo Kisiwani	Fences for NSSF, TPA and NIT	03	04
2	Kimara ward – Kilungule “B”	Toilet facilities	01	
<b>Total</b>				<b>04</b>

### 5.5.8 Domestic assets of the households

The household survey indicated that majority 88% of households had reported to have domestic assets, while 12% of the households reported to have no agricultural assets. For those households with domestic assets, it was further reported that about 84.6% households had mobile phones, 92.3% households had radio, 84.6% households had television, 61.5% households had fridge and no households reported to own bicycle or motorcycle as shown in the Figure 8. Furthermore, most (96%) of the households reported to own between one –three domestic assets while the least (0.5%) of households reported to own more than three domestic assets.



**Figure 8: Head of household’s asset ownership**

*Source: Field survey, EARG Team, 2020*

### 5.5.9 Willingness to relocate and Compensation preference

The households affected by the project declared their willingness to relocate should they receive prompt and fairly compensation. Of the Households interviewed indicated their preference of relocating to a site close to their current homesteads, though they are not sure of availability of land within the area or if the compensation provided will allow them such

opportunity. When asked if they would want their Municipal Council to find alternative land for the affected PAPs it was revealed that they will not want alternative land as currently the sites that the Municipals are developing are away from the area they are used to. Therefore, there was no hosting community to be consulted. According to the socio-economic survey conducted in the project area all 13 PAPs interviewed preferred cash compensation instead of in-kind compensation.

#### 5.5.10 Vulnerable people

In this ARAP, vulnerable PAPs include elderly people (over 60 years old and widows. Table 18 shows more details about this category of PAPs.

**Table 18: List of Vulnerable household members in the Project Area**

S/n	Number of PAPs	Type of vulnerability
1	03	Elders (Above 60 years old) with physical disability (Blind)
2	03	Widow (Female Headed household)
3	01	Elder with physical disability due to stroke – an encroacher at Kilungule A in Kimara ward
4	01	An orphan – owner of the incomplete structure at Kilungule B mtaa in Kimara ward – He is currently living in Iringa
<b>Total</b>	<b>08</b>	

*Source: Field survey, EARG Team, 2020*

## **6.0 A LEGAL FRAMEWORK REVIEW OF THE LAWS AND REGULATIONS OF TANZANIA AND JICA POLICY REQUIREMENTS**

Currently in Tanzania, there are policies, legal and institutional framework for management of social issues related to land and property acquisition and compensation enshrined in the National Constitution, the Land Policy and Land Acts as well as supporting local laws and by-laws. However, the operation of the proposed project will follow the Tanzania existing laws and regulations as well as JICA guidelines as far as involuntary re - settlement is concerned. This chapter presents an overview of Tanzania policy, legal and institutional framework of relevance to ARAP. Although, currently there is no specific “resettlement policy” in Tanzania. These laws and policies should form the basis of the RAP or ARAP to inform the practice.

### **6.1. Overview of Policies and Laws Governing Land**

The following relevant policies and legal instruments provide guidance for acquisition of land and associated properties and compensation and resettlement procedures in Tanzania.

#### **Constitution of the United Republic of Tanzania (1977 - as amended)**

The Constitution also provides for the protection of the rights and interest of citizens in matters concerning their property and acquisition. Under article 24 (1), every person is entitled to own property, and has a right to the protection of his property held in accordance with the law. Sub- article (2) prescribes that it is unlawful for any person to be deprived of property for any purposes without the authority of law, which makes provision for fair and adequate compensation.

#### **National Land Policy (1996)**

The overall aim of the National Land Policy among other things is to promote and ensure a secure land tenure system in Tanzania that protects the rights in land for all citizens.

#### **The National Human Settlements Development Policy (2000)**

The policy promotes the development of human settlement that is sustainable. Among others, the policy objective that is relevant to the HFP is to make serviced land available for shelter and human settlements development in general to all sections of the communities.

### **The Land Acquisition Act, 1967 (Act No 47/1967)**

The Act stipulates the power and procedures for acquiring land and the required degree of compensation. Section 3 and 4 of the Act gives the President of Tanzania powers to acquire any land where such land is required for public purpose such as general public use, any government scheme or development of social services. The act makes provision for the procedures and method of compulsory acquisition of land for public purposes whether for temporary or permanent use. This act also sets out the legal process for payment of compensation.

### **The Land Act, 1999 (Act No 4/1999)**

The Land Act is the principle land legislation on all land matters. The Land Act signifies that land in Tanzania is public land and remain vested in the President as trustee for and on behalf of all citizens of Tanzania. The Act specifies that an interest in land has a value and that value is taken into consideration in any transaction affecting that interest. The recognized land ownership is the granted right of occupancy and customary ownership. The Act states that where persons with a right of occupancy (including land which is occupied by persons under customary law) are to be moved or relocated, they must be compensated for loss of interest in the land and for other losses.

### **Land (Assessment of the Value of Land for Compensation) Regulations, 2001**

These regulations were made under section 179 of Land Act no. 4 of 1999. Regulation 3 of the Land (Assessment of the Value of Land for Compensation) Regulations, 2001 and Part III of the Village Land Regulations, 2002 provide for practical guidelines on assessment of compensation. The full and fair compensation is assessed by including all components of land quality and the market value should be used as basis for valuation of land and properties. Presently in assessing the value of the unexhausted improvements for compensation purposes, the law emphasizes that the value should be the price which the said improvements can fetch if sold in the open market. According to the regulation, the valuation of the affected properties must be done by a qualified and authorized valuer.

### **The Land (Compensation Claims) Regulations, 2001**

The regulations apply to all application or claims for compensation against the government or Local authority or any public body or Institution and they also cover compensation which may be claimed by occupier.

### **The Land Disputes Court Act. 2002 (Act No.2/2002)**

This act provides the respective courts and their functions. Before implementation of sub projects, any land conflicts existing in the areas shall be resolved through the appropriate land courts to ensure that harmony prevails in the intended undertaking. Project beneficiaries will therefore be bounded by these Acts.

### **The Graveyard Removal Act (No. 9 of 1969)**

An Act to provide for the removal of graves from land required for public purposes. Subject to the provisions of this Act under section 3, "where any land on which a grave is situated is required for a public purpose the Minister may cause such grave and any dead body buried therein to be removed from the land and, in such case, shall take all such steps as may be requisite or convenient for the re-instatement of the grave and the re-interment of the dead body in place approved by him for the purpose". The Act specifies, among other things, that graves shall be relocated, after official notice is given to interested parties and published in the Gazette:

With due regard to the views of the persons interested and the religious susceptibilities of the members of the religious community to which the person belonged whose grave or dead body it is;

In a manner which is not injurious to public health;

In accordance with such directions as may be given by the public officer appointed by the Minister to supervise the undertaking; and

Accompanied by such religious rites or ceremonies as are appropriate to the religious community to which the person belonged whose dead body is removed.

Section 9 of the Act, provides for compensation to be paid to an interested person, who undertakes the removal, transportation, reinstatement and re-interment of a grave or dead body on behalf of the Government.



## 6.2 Institutional Framework

Tanzania has no policy on involuntary resettlement, but has elaborate policies and acts on acquisition of land, access, use and management of public resources. The acts stipulate the various actors in land and natural resources administration and management. Taking this and requirement of the JICA guidelines into consideration, three institutional frameworks comes into play in the development and implementation of the ARAP, these include;

- i. Central Government Ministries – Ministry of Finance, Ministry of Energy and minerals and Ministry of Lands, Housing and Human Settlement Development
- ii. Department and Agencies- TANESCO
- iii. Local Government Authorities- Ubungo Municipal Council

The Ministry of Lands and Human Settlement Development is responsible for policy, regulation and coordination of matters pertaining to land in Tanzania. The Ministry administers the various land acts: Land Acquisition Act, the Land Act and the Village Land Act. Land use planning, management and land delivery activities are conducted at the Ministry. The Ministry of Finance is responsible in managing all financial issues in the Country that will include financial resources for resettlement and compensation implementation while the Ministry of Energy is the overall responsible ministry for matters related to implementation of Energy projects in the Country of which TANESCO is the responsible Agency.

The Local Government system in Tanzania is based on the decentralization policy and administratively, Tanzania is divided into three levels of Local Governments whereby each level has statutory functions with respect to development planning. The three levels are: District /Municipal / City Councils; Town Councils and Ward; and Village/"Mtaa" Councils. Municipal Councils are subdivided into Municipal Wards followed by sub-wards or "Mtaa".

The Municipal Councils are body Corporate responsible for planning, financing and implementing development programmes within their areas of jurisdiction. Within a Municipal there are Land Department with sections /units valuation, Community Development for community's mobilization and sensitization and Land Tribunals (District, Ward levels) for handling and resolving land-related disputes and grievances;

### **6.3 JICA Safeguard Guidelines**

JICA's guideline for environmental and social consideration

The key principle of JICA policies on involuntary resettlement is summarized below.

Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives.

When, after such an examination, avoidance is proved unfeasible, effective measures to minimize impact and to compensate for losses must be agreed upon with the people who will be affected. People who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standard of living, income opportunities and production levels to pre-project levels. Compensation must be based on the full replacement cost<sup>1</sup> as much as possible.

Compensation and other kinds of assistance must be provided prior to displacement.

For projects that entail large-scale involuntary resettlement, resettlement action plans must be prepared and made available to the public. It is desirable that the resettlement action plan include elements laid out in the World Bank Safeguard Policy, OP 4.12, Annex A.

In preparing a resettlement action plan, consultations must be held with the affected people and their communities based on sufficient information made available to them in advance. When consultations are held, explanations must be given in a form, manner, and language that are understandable to the affected people.

Appropriate participation of affected people must be promoted in planning, implementation, and monitoring of resettlement action plans.

Appropriate and accessible grievance mechanisms must be established for the affected people and their communities.

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Above principles are complemented by World Bank OP 4.12, since it is stated in JICA Guideline that “JICA confirms that projects do not deviate significantly from the World Bank’s Safeguard Policies”. Additional key principle based on World Bank OP 4.12 is as follows.

Affected people are to be identified and recorded as early as possible in order to establish their eligibility through an initial baseline survey (including population census that serves as an eligibility cut-off date, asset inventory, and socioeconomic survey), preferably at the project identification stage, to prevent a subsequent influx of encroachers of others who wish to take advance of such benefits.

Eligibility of Benefits include, the PAPs who have formal legal rights to land (including customary and traditional land rights recognized under law), the PAPs who don't have formal legal rights to land at the time of census but have a claim to such land or assets and the PAPs who have no recognizable legal right to the land they are occupying.

Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based.

Provide support for the transition period (between displacement and livelihood restoration.

Particular attention must be paid to the needs of the vulnerable groups among those displaced, especially those below the poverty line, landless, elderly, women and children, ethnic minorities etc.

For projects that entail land acquisition or involuntary resettlement of fewer than 200 people, abbreviated resettlement plan is to be prepared.

In addition to the above core principles on the JICA policy, it also laid emphasis on a detailed resettlement policy inclusive of all the above points; project specific resettlement plan; institutional framework for implementation; monitoring and evaluation mechanism; time schedule for implementation; and, detailed Financial Plan etc.

#### **6.4 World Bank Safeguard Policies**

As stated above, this ARAP has also been prepared not to deviate significantly from the World Bank Safeguard Policies and procedures, which have to be taken into account along with the Tanzanian legislations and policies during the implementation of the proposed Project. The World Bank Safeguard Policies for the Involuntary Resettlement is OP/BP 4.12.

##### ***Involuntary Resettlement: OP. 4.12***

This OP acknowledges that development projects that displace people generally give rise to economic, social and environmental problems. Thus, the World Bank guidelines prescribe measures to minimize the negative impacts and ensure that the displaced community benefits from the project. The objective of this OP is to:

Avoid or minimize involuntary resettlement where feasible, exploring all viable alternative project designs;

Assist displaced persons in improving their former living standards, income earning capacity, and production levels, or at least in restoring them;

Encourage community participation in planning and implementing resettlement; and

Provide assistance to affected people regardless of the legality of land tenure.

This OP does not only cover physical relocation, but also any loss of land or other assets resulting in:

Relocation or loss of shelter;

Loss of assets or access to assets; and

Loss of income sources or means of livelihood, whether or not the affected people must move to another location.

#### **6.5 Comparison between Land Law in Tanzania and JICA Guidelines**

Whereas the law relating to land administration in Tanzania is wide and varied (section 4.1 above), entitlements for payment of compensation are essentially based on the right of ownership. The JICA Guidelines is fundamentally different from this, and states that affected persons are entitled to some form of compensation whether or not they have legal title if they occupy the land by a specified cut-off date. In this regard, JICA Guidelines, which is the higher of

the two standards, will be followed in this ARAP since its procedure also satisfies the requirements of the Tanzania standards. Table19, which provides a clear comparison of the two, specify the gap and what will be relevant for the Resettlement Policy under this project.

**Table 19: Gap between Tanzania and JICA Guidelines**

No.	JICA Guidelines	Laws of Tanzania	Gap between JICA Guidelines and Laws of Tanzania	Resettlement Policy for this project
	Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives. (JICA GL)	No specific provisions on avoiding involuntary resettlement and loss of means of livelihood although these can come from Environmental and Social Impact Assessment (ESIA)	Avoiding involuntary resettlement is not mentioned in Tanzania land laws	Consider alternative alignment to avoid unnecessary loss of livelihoods
	When population displacement is unavoidable, effective measures to minimize impact and to compensate for losses should be taken. (JICA GL)	When displacement is unavoidable, compensation will be given as follows (Land Act, 1999 – Cap 113, Part II Section 3 (1) (g) , Section 34 and 156) Market value of unexhausted improvement <sup>2</sup> , disturbance allowance, transport allowance, accommodation allowance and loss of profits, although depreciated replacement value is given and valuation is often not done properly because some aspects that need to be included are not taken into account – for example, using market values is sometimes ignored and information to affected persons is not sufficiently provided	Full replacement value (market value) plus transaction costs are not mentioned in Tanzania laws Measures to minimize impacts are not explicit in Tanzania laws	Consider full replacement value (market value plus transaction cost into compensation package)
	People who must be resettled	Livelihood restoration is not	Livelihood restoration is	Prepare a livelihood

<sup>2</sup> Land Act, 1999 interprets unexhausted improvement as anything or any quality permanently attached to the land directly resulting from the expenditure of capital or labor by an occupier or any person acting in his behalf and increasing the productive capacity, the utility, the sustainability of its environmental quality and includes trees standing crops and growing produce whether of an agricultural or horticulture nature. This condition has been amended by the Land (Amendment Act), 2004 by replacing Subsection 8 and 9 of the Land Act 1999 to allow for sale land without unexhausted improvements. For development purposes or as joint venture.

No.	JICA Guidelines	Laws of Tanzania	Gap between JICA Guidelines and Laws of Tanzania	Resettlement Policy for this project
	involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standard of living, income opportunities and production levels to pre-project levels. (JICA GL)	addressed although, sometimes done through provision of alternative affected social services- for example, providing an alternative health facility or a school are cases in point.	not explicit in Tanzania laws	restoration plan, including transitional support(for example putting in place deliberate policies to employ affected persons between the transition period so that they can have some work and earn income as well as providing alternative services points while new social services are being developed for them etc. ) to ensure standards of living are restored and improved
	Compensation must be based on the full replacement cost as much as possible. (JICA GL)	Market values but usually in practice provide with depreciated replacement values (although the law does not direct the use of depreciated values)	Full replacement cost not paid	Consider adopting full replacement value (market values plus transaction costs)
	Compensation and other kinds of assistance must be provided prior to displacement. (JICA GL)	Compensation must be provided prior to displacement (Land Acquisition Act, 1967 (15- (1)) and Land Act 1999- Cap 113)	Tanzania laws does not have consideration of other assistance to project affected persons	Consider provision of other assistance (for example affirmative policies to employ affected persons, provision of support on land acquisition, payment of land and related fees, and power or water utilities, provision of temporary social services etc. to ease the burden



No.	JICA Guidelines	Laws of Tanzania	Gap between JICA Guidelines and Laws of Tanzania	Resettlement Policy for this project
				on affected persons) beside statutory compensation
	For projects that entail large-scale involuntary resettlement, resettlement action plans must be prepared and made available to the public. (JICA GL)	For large scale involuntary resettlement compensation must be provided (Land Acquisition Act 1967 Part II Section 11 and Land Cap 113, Part II Section 3 (1) (g))	Tanzania Law does not consider Resettlement Action Plan as mandatory	Using JICA GL, consider RAP as mandatory tool to manage impacts
	In preparing a resettlement action plan, consultations must be held with the affected people and their communities based on sufficient information made available to them in advance. (JICA GL)	Prior to conducting valuation affected people and local authorities are informed about the project, its effect, valuation and compensation process (Land Act Cap. 113 Section 34 (6), 35 (3))	The level of consultation in Tanzania laws is not as detailed as in others including JICA GL and WB	Consider adopting detailed and sufficient consultations and information sharing with affected persons
	When consultations are held, explanations must be given in a form, manner, and language that are understandable to the affected people. (JICA GL)	Prior to conducting valuation affected people and local authorities are informed about the project, its effect, valuation and compensation process (Land Act Cap. 113 Section 34 (6), 35 (3) and Part XIV Section 168 (1) and 169 (1) and (2). And Land Acquisition Act Part II Section 7(1))	The level of consultation in Tanzania laws is not as detailed as in others including JICA GL and WB	Consider adopting detailed and sufficient consultations and information sharing with affected persons
	Appropriate participation of affected people must be promoted in planning, implementation, and monitoring of resettlement action plans. (JICA GL)	In Tanzania land laws, Resettlement Action Plan is not mandatory, although compensation is required	There is no sufficient participation of affected persons in planning, implementation and monitoring of Resettlement Action Plan	Consider ensuring effective and appropriate participation of affected persons in planning, implementation and monitoring of ARAP
	Appropriate and accessible grievance mechanisms must be established for the affected	Tanzania land laws provide a mechanism for dealing with grievances including lodging	Tanzania grievance mechanism is not easily accessible to affected	Provide an easily accessible grievance mechanism procedures

No.	JICA Guidelines	Laws of Tanzania	Gap between JICA Guidelines and Laws of Tanzania	Resettlement Policy for this project
	people and their communities. (JICA GL)	complaints to the courts (Land Acquisition Act 1967, Section 13 (1) and (2) and Land Act, Cap 113. Part XIII Section 167 (1))	persons	to all affected persons
	Affected people are to be identified and recorded as early as possible in order to establish their eligibility through an initial baseline survey (including population census that serves as an eligibility cut-off date, asset inventory, and socioeconomic survey), preferably at the project identification stage, to prevent a subsequent influx of encroachers of others who wish to take advance of such benefits. (WB OP4.12 Para.6)	Affected People are identified during the valuation exercise and the valuation date is the eligible cut-off date <sup>3</sup>	Socio-Economic baseline survey is not undertaken as part of the valuation exercise	Undertake socio-economic baseline data collection as part of the valuation exercise
	Eligibility of benefits includes, the PAPs who have formal legal rights to land (including customary and traditional land rights recognized under law), the PAPs who don't have formal legal rights to land at the time of census but have a claim to such land or assets and the PAPs who have no recognizable legal right to the land they are occupying. (WB OP4.12 Para.15)	Eligibility of benefits includes, the PAPs who have formal legal rights to land (including customary and traditional land rights recognized under law), the PAPs who don't have formal legal rights to land at the time of valuation but have invested on land will be eligible for compensation of assets but not land (recognized as tenants) Land Act Cap 133	Tanzania Law does not recognize encroachers	Consider compensating informal settlers who have been using the way leave for their livelihoods for crops, businesses, and shelter
	Preference should be given to land-based resettlement	Compensation for land can either be in form of cash or	There is no preference to land based resettlement	Where appropriate preference to land based

<sup>3</sup> This is adopted as best practice but not provided in any land law in Tanzania

No.	JICA Guidelines	Laws of Tanzania	Gap between JICA Guidelines and Laws of Tanzania	Resettlement Policy for this project
	strategies for displaced persons whose livelihoods are land-based. (WB OP4.12 Para.11)	land based) Land Act Cap 113 Section 49 (3) for cash transactions and Land Acquisition Act, 1967 Section 11 (2)	strategies	resettlement strategies should be adopted, especially taking into account land scarcity in Dar es Salaam
	Provide support for the transition period (between displacement and livelihood restoration). (WB OP4.12 Para.6)	-	The law is silent about provision of support during transition and for livelihood restoration	Consider providing support during transition (for example for acquiring new lands, paying for land registration as well as temporary social services) and for livelihood restoration
	Particular attention must be paid to the needs of the vulnerable groups among those displaced, especially those below the poverty line, landless, elderly, women and children, ethnic minorities etc. (WB OP4.12 Para.8)	-	There is no attention for particular group of projects affected persons in Tanzania land laws, all PAPs are treated in equally in the compensation process	Assess existence of such groups during socio-economic survey in the proposed site and pay particular attention to their needs if found to be available, especially, women, children and elderly person.
	For projects that entail land acquisition or involuntary resettlement of fewer than 200 people, abbreviated resettlement plan is to be prepared. (WB OP4.12 Para.25)	For projects that affect a large size of people, a Land Use Plan is required to accommodate the project. (Land Use Planning Act, 2007. Section 23, 32 and 35 and Village Land Use Guidelines on 2002)	ARAP is not mandatory in the Tanzania law	Adopt ARAP for this project as part of best practice to manage impacts

## **7. 0 DETERMINATION OF ENTITLEMENTS AND ELIGIBILITY**

### **7.1. Entitlement and Eligibility**

Tanzanian legislation provides valuation of properties at market values for land, houses and structures affected by a project. However, since the power transmission line project will be funded by JICA, the JICA safeguard guidelines on compensation and resettlement issues are to be followed. JICA safeguard guidelines aims to avoid involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts. It promotes participation of displaced people in resettlement planning and implementation, and its key economic objective is to assist displaced persons in their efforts to improve or at least restore their incomes and standards of living after displacement. The policy prescribes compensation and other resettlement measures to achieve its objectives and requires that borrowers prepare adequate resettlement planning instruments prior to Bank appraisal of proposed projects.

Based on Tanzania's laws, eligibility for compensation is defined in the provisions of the Land Act and the Land Acquisition Act cited in section 6 of this ARAP report. According to these laws, all owners of properties located within the proposed project area at the time of inspection and valuation will be eligible for compensation. Notices to claim compensation will be served to most owners of affected properties using Land Form No.14. The "cut-off" date for eligibility for compensation and resettlement measures will be determined by the date on which these notifications will be served.

### **7.2 Identification of Project Affected Groups /Individuals**

According to the above laws and policies the affected person(s) (group(s) /individual(s)) are those who lose assets or are denied access to legally designated social economic services as a result of proposed project activities, whatever the extent of loss, lost assets may be land, structures, trees etc. These categories of project-affected individuals/groups were identified through socio-economic study and census. This ARAP has taken into account all the project affected persons including those with no legal status such as small business people business in the project area.

### **7.3 Eligibility criteria**

#### **7.3.1 Categories of Project Affected People**

In line with the Tanzania Law, categories of affected people include: property owners with either legally recognized documents such as certificate of right of occupancy or customary rights. A JICA guideline categorizes affected group(s) individual(s)/persons as:

People directly affected by the project through the loss of land, residences, other structures, business, assets, or access to resources, specifically are:

- i. Persons whose residential land/houses will be affected (permanently or temporarily) by the Project;
- ii. Persons whose agricultural land will be affected (permanently or temporarily) by the Project;
- iii. Persons whose leased-houses will be affected (permanently or temporarily) by the Project;
- iv. Persons whose businesses, occupations or places of work will be affected (permanently or temporarily) by the Project;
- v. Persons whose crops (annual and perennial)/ trees will be affected in part or in total by the Project;
- vi. Persons whose other assets or access to those assets, will be affected in part or in total by the Project; and
- vii. Persons whose livelihoods will be impacted (permanently or temporarily) due to restriction of access to protected areas by the Project
- viii. Community owned assets, collective assets, enterprise, any other governmental and private organizations, whose properties, production measures, and livelihoods will be impacted (permanently or temporarily) due to land acquisition, restriction of access, any other direct/indirect impacts by the Project.

#### **7.3.2 Vulnerable groups**

Based on the census/socio-economic survey and ESMF, the vulnerable groups will generally include the following:

- i. Women headed poor households
- ii. Encroachers.
- iii. Community members who are less able to care themselves without family or other support such as elders (those with more than 60 years old) and an orphan.

### **7.3.3 Compensation, allowances and assistances**

#### **7.3.3.1 Compensation**

To compensate the PAPs for their lost assets, the project has two options for different payment modalities based on individual's choice and recommendations of the ARAP report. These are: Cash payments - calculated and paid to compensate for land, assets, or to cover allowances such as disturbance, accommodation, transportation, loss of profit. The second modality is in-kind compensation mainly for community/public properties or for PAPs who would opt for such modality. For this particular project all individual PAPs have opted for cash compensation and therefore in-kind compensation will only be for public properties (the Mtaa Office) and part of the costs associated with relocation of graves.

Compensation for residential structures at Kibo mtaa in Ubungo ward PAPs losing residential structures are entitled to the following compensation:

- i. Compensation of the residential structure according to the type of structure and market value;
- ii. Compensation of land according to the market value if the PAP owns the land;
- iii. Loss of accommodation allowance;
- iv. Transport allowance; and
- v. Disturbance allowance.

Compensation for residential structures at Mavurunza, Kilungule A & B at Kimara ward (Encroachers)

During the field survey it was observed that some individuals at Mavurunza, Kilungule A & B and Kimara Baruti in Kimara ward who have encroached the way leave for the existing power transmission have willingly decided to demolish their structures. However, there are 03 PAPs who have not removed their structures. One of the structures which is located in Kilungule A is owned by a vulnerable person who is an elder and have been suffering from long illness. Also

PAP has no alternative shelter or land to be relocated. This PAP will need special assistance from TANESCO as suggested in the entitlement matrix. The other two structures in Kimara Baruti which are within TANESCO wayleave have been rented for residence. The renters will be assisted to relocate while the owners will be assisted to get other plots for building new structure for renting.

#### **Compensation for small and temporal business structures at Kibo mtaa in Kimara ward**

PAPs losing commercial temporal structures will be compensated the following:

- i. Compensation of commercial structure according to the type of structure and market value;
- ii. Loss of profit allowance;
- iii. Transport allowance;
- iv. Disturbance allowance.

#### **Compensation for small and temporal business structures at Kilungule A in Kimara ward (encroachers).**

These will be required to remove the structures to other areas of their choice

#### **Compensation for Permanent crops owned by individuals (encroachers)**

PAPs losing permanent crops but they have encroached TANESCO way leave will be given time to remove their crops such banana, coconut and shade trees as were observed in Kilungule A and B.

#### **Compensation for Land**

All PAPs that will lose land will receive the following compensation:

- i. Compensation of the land according to the replacement cost if the PAP legally owns the land; and
- ii. Disturbance allowance.

#### **Compensation for seasonal crops**

The field assessment observed the presence of 03 households engaged in cultivation of seasonal crops in small gardens such as spinach and cassava along the power transmission line. PAPs with seasonal crops will not be compensated for the loss of these assets, however, in order to prevent any financial impact or loss of harvest that mainly includes food crops, notice

must be provided to all PAPs with seasonal crops within the Right-of-Way to alert on when to stop cultivating. . If they have already cultivated they must be allowed to harvest their crops prior to start of construction.

### **Compensation for damage of public infrastructure**

The field assessment revealed the presence of toilet facilities for Kilungule Primary School which are used by the pupils 1,818 and 39 teachers. The toilet facilities have encroached the existing power transmission. Since the toilet is used by the pupils, there is a need for TANESCO to facilitate discussion with the Ubungo Municipal council on how the toilet will be relocated without affecting the running of the school. Sufficient time should be given to municipal and school management to relocate the toilet facilities.

### **Compensation for Graves**

There are two graveyards along the proposed power transmission line, namely, Kijiweni graveyard in Mavurunza Mtaa in Ubungo ward and Ubungo Kisiwani graveyard. The graveyards have encroached TANESCO way leave, therefore, TANESCO will consider how relocate the graves which are likely to fall under tower foundation based the Graveyard Removal Act, 1967. The rates of compensation for graves will vary depending on developments done on the grave. Compensation will be paid for expenses related to the relocation of graves such as expenses for ceremonies and labour in connection with exhumation and reburial, and any other development. The processes of relocating the graves will be participatory and take into account PAPs cultures and values. Where graves that would be adversely affected by the Project need to be exhumed and reburied at alternative locations, rituals and ceremonies will need to be conducted and must consult respective relatives. For this project, PAPs will be compensated ceremonial cost while other costs related to relocation of the grave will be compensated directly to the Ubungo Municipal Council to enable relevant authorities relocate the graves.

### **7.3.4 Others Unintentionally Impacts**

These are people or families or even property owners suffering unintentional and temporary damage to their land and property during construction due to unforeseen actions or simply by accidents such as damage to nearby utilities, crops, structures or infrastructure caused by



movement of machines and other construction activities. Whenever an unintentional impact occurs, during construction; the property should be compensated as per the entitlement matrix in this ARAP. This will be the responsibility of the Developer in collaboration with the contractor and therefore this item should be included in the contract to the project contractor.

### **7.3.5 Compensation for Property of Deceased Persons**

Inheritance of property rights are issues that can result in prolonged redress procedures. Under such circumstances, the name of the deceased property owner will appear in the Valuation Report and the inheritors will be advised to follow the legal inheritance procedures while claiming the compensation rights. Mechanisms for dealing with various types of grievances include issues of inheritance that have to be referred to the courts of law for arbitration.

### **7.3.6. Cut –off Date**

The proposed project is likely to have a number of cu-off dates considering its nature, i.e a linear project; similarly, it should be noted that actual valuation of affected properties will only carried at Kibo mtaa in Ubungo municipal. The cut of date for the project will be determined once the final of the project is in place and the valuation have place and once the Government Chief Valuer have signed the valuation report. Any person who will undertake any development activity in the newly demarcated project area after the cut-off date will not be eligible for compensation.

## **7.4 Entitlement matrix**

The principle adopted from the Tanzania Laws establishes the eligibility and provisions for all types of losses (land, structures, businesses, loss of accommodation, disturbance, crops, transport costs resulting from displacement and trees). All affected persons will be compensated at full replacement costs and other allowances. Following the gap analysis between Tanzania laws on involuntary resettlement and that of the JICA Guideline which indicates best practices for rehabilitation of livelihoods of people affected by the implementation of the project. Table 19 shows entitlement matrix of the proposed Project. In finalization of the Basic Design of the Project, the Entitlement Matrix described in this report might be revised, if necessary.



**Table 20: Entitlement Matrix**

Category of Project Affected People (PAP)	Type of Loss	Compensation for Loss of Land	Compensation for Loss of Structures and Assets	Compensation for Loss of Crops	Allowances	
<i>Household or persons</i>						
A1	Households or persons that have residential plots with houses and/or non-residential buildings within the corridor for Transmission line.	Loss of residential land Loss of housing and non-residential building assets	Land will be compensated at full replacement cost as follows:  Compensation (cash or in-kind) of the residential land plot at local replacement value.  Compensation of transaction cost (Either paying compensation for transaction cost to PAPs or allowing PAPs to be free of transaction costs)	Cash compensation without depreciation according to: Subject area,  type of building and;  materials used and condition.	N/A	Disturbance allowance at bank interest rate of estimated land value at the time of valuation.  Accommodation allowance Transport allowance at cost to move equivalent to 36 months' rent for the displaced house.  12 tons for 20 km (not applicable for backward relocation of houses).
A2	Owner or operator of non-registered business, squatters or vendors operating kiosk, restaurant with or without permission	Loss of commercial structure	In case of squatters or vendors on private land, the PAPs would be paid for loss of land for business	Will be assisted to move their mobile structures	N/A	<u>Disturbance allowances</u>

Category of Project Affected People (PAP)		Type of Loss	Compensation for Loss of Land	Compensation for Loss of Structures and Assets	Compensation for Loss of Crops	Allowances
A3	Encroacher Household or person that owns residential structure within the corridor for Transmission line	Loss of residential buildings	Assistance to buy new plot	PAP will be given time relocate in areas of their choice.  Assistance to construct new house	N/A	<u>No allowances will be given</u>
A4	Encroachers Household or person that owns residential business structures within the corridor for power transmission line	Loss of business for owners	Land will not be compensated	Assistance to buy new plot	NA	<u>No allowances will be given</u>
A5	Encroachers Household or person that rents residential structures within the corridor for Transmission line	Loss of residence for renters	No compensation	Assisted to relocate	NA	<u>Transport allowances</u>
A6	Encroachers households or persons that have cultivate crops within (annual and perennial /tree crops) the corridor for Transmission	Loss of agricultural land  Loss of fruits and shade trees and other perennial crops	Land will NOT be compensated at full replacement cost as follows:  Reasonable time will be given to harvest the crops	N/A	No cash compensation for fruit and /shade trees and other commercially valuable standing crops (banana,	No allowances will be given.

Category of Project Affected People (PAP)		Type of Loss	Compensation for Loss of Land	Compensation for Loss of Structures and Assets	Compensation for Loss of Crops	Allowances
	line and substation compound.				etc.) Other crops PAPs given time to harvest	
A7	Households or persons outside the TL way leave who might be affected by temporary access roads and construction activities.	Loss and damage to building assets. Loss of standing crops.	N/A	Negotiated cash compensation according to cost of repair of damaged building assets (contractor to pay)	Negotiated cash compensation according to replacement value of lost crops (negotiated and paid by contractor)	No allowances given
A8	Households or persons that have graves within the way leave of Transmission line	Loss of burial site (grave yard) inside the corridor for TL.	N/A	N/A	N/A	Cash compensation as required by the Graves Removal Act No. 9 of 1969 to cover for the ceremonies costs for the graves which will be under the tower foundation  Grave relocation costs (coffin, reburial work, etc.) to be stipulated and negotiated by relevant District Health Official shall be borne by the project.  Municipal councils

Category of Project Affected People (PAP)		Type of Loss	Compensation for Loss of Land	Compensation for Loss of Structures and Assets	Compensation for Loss of Crops	Allowances
						shall allocate replacement <u>burial plots</u> .
<i>B. Institutions / authorities</i>						
B1	Institutions or authorities that own buildings and land within the corridor for Power Transmission line	Loss of toilet facilities which has encroached Power T/L way leave Loss of developed land	No compensation will be paid, however, the municipal council should ensure that other toilet facilities are provided to the school.	No compensation.	N/A	No allowance will be provided
<i>C. Groups</i>						
C1	Households having vulnerable APs (such as elderly APs, female-headed households, Chronically ill and disabled, orphan)					Project assistance based on the identified vulnerability condition of PAPs and their needs.

## **8.0. METHOD OF VALUATION**

In this ARAP, two methods of valuation will be deployed which are the Replacement Cost Method in the buildings and the Comparative Method of valuation in the valuation of land.

### **8.1 The Replacement Cost Method**

This method is sometimes known as the Cost Method of Valuation. The Replacement Cost Method is generally used to value those types of assets, which do not change hands in the market very often and for which there would be no evidence of comparable sales. In this method, the cost of an asset is determined by reference to its replacement cost or reinstating it (as new) or that of its substitute at the date of valuation. Where the asset under appraisal is no longer being manufactured or no longer readily available, its replacement cost will be that of a similar substitute asset performing the same function or offering the same utility. The Current Replacement Cost of an asset is obtained by establishing the full cost of comparable new asset, which can perform similar function but modern one.

The replacement cost so obtained is reduced by an appropriate factor to reflect its obsolescence that the asset has suffered. It is in this line that the valuers get the Depreciated Replacement Cost, which is recognized as equivalent to the Market Value.

### **8.2 Establishing the Depreciated Replacement Cost/Market Value**

The Depreciated Replacement Cost/Market Value is established by reducing the Replacement Cost by an appropriate factor to reflect the accumulated obsolescence. The accumulated obsolescence is determined by taking into account the following factors:

Physical factors e.g. wear and tear as a result of use or chemical decay, weathering action, and termite attack etc;

Social factors i.e. the extent to which the asset has fallen behind the current accepted standards; and

Economic factors, i.e. the extent to which the asset no longer performs its intended function.

The Valuer compounds all the above factors into percentage figure which is the proportion of the value of new asset and which depicts the consumed life of the asset under the valuation.

The Depreciated Replacement Cost is obtained after deducting the accumulated obsolescence

from the Current Replacement Cost. The Depreciated Replacement Cost so derived is recognized as equivalent to the Market Value.

### **8.3 Comparative method of valuation**

This method is sometimes referred to as the Direct Capital Comparison Method. By this method, the valuer equates the value of the property or land under valuation to the value of a known comparable property whereby the latter's value is taken to be the best price that can be obtained by the property being valued. In this case, due allowance is made for value affecting differences between the subject property and the comparable property such as:

Condition;

Location;

Services provided within the neighbourhood;

Accessibility;

Plot size;

Planning and zoning regulations;

Date of transaction;

Parties to the transaction;

Motive of sale; and

Tenure and unexpired term.

Valuation Methodology for each assets

The valuers of Ubungo Municipal Council will assess two basic categories of assets.

Buildings; and Land;

### **8.4 Valuation of building structures**

In this case of buildings, the valuers will be used both 'Replacement Cost' and 'Direct Comparison' Methods to arrive at market values of different housing units. The resultant values to be termed in the valuation report, the Market Value which would readily defines as:

“... the highest price in terms of money which property under appraisal would expected to bring in a competitive and open market under conditions requisite for a fair sale ...”



## **8.5. Valuation of Land**

The land Act No. 4 provides that individuals owning land that is to be acquired for the proposed project may be compensated for that loss by being paid cash or allocated alternative pieces of land that are of the same value to what they are now occupying in the Project area. Value for land is arrived at basing on the current market price of Land in Ubungo municipality where average of land price range from 15,000 to 20,000 per square meter. The total Proposed Land to be acquired at Kibo mtaa in Ubungo ward is estimated to be 6,600m<sup>2</sup>.

### **Allowances for Affected Persons**

In addition to compensation based on the valuation process, the following allowances will be given to the PAPs under Tanzanian legislation.

#### **Disturbance Allowance**

This is transitional assistance - provided to eligible property owners paid in addition to the compensation value of the affected assets/properties. Disturbance is paid in the following situations:

In the case of an individual property/land owner whose property/land is being acquired for the proposed project or

Where an earmarked project site has been subsequently abandoned in favour of another site and the landowner of the abandoned site was required to relinquish his interest over the land.

Where during the course of executing the proposed project an individual's interest in land suffered proven physical damage/disturbance. Disturbance shall be assessed as a percentage of the value of the property acquired as provided by the Land Act No. 4 of 1999.

The Valuer calculate disturbance allowance accordingly by multiplying the assessed value of the affected "estate" (i.e. land not assets) by the average percentage rate of interest offered by commercial banks on twelve-month fixed deposits. These amounts, in cash, are to be paid to each property owner.

#### **Accommodation Allowance**

This is cash allowance provided to displace people who lose houses and other structures. The allowance will enable them to cover cost for renting similar houses or structures for a period of three years while re-establishing themselves elsewhere. The Valuer calculate accommodation

allowance by multiplying the assessed monthly market rent (applied value bands based on a market survey of rental properties in the respective project coverage areas) for the affected building or part of the building by 36 months (i.e. Rent/p.m. x 36 Months).

#### **Loss of Profit Allowance**

It is a net monthly profit of the business carried out on the land (evidenced by audited accounts where necessary and applicable) multiplied by 36 months

#### **Transport Allowance**

Provided to eligible property owners who will need to relocate (even if only over a very short distance) their movable properties and assets – furniture, equipment, and business goods to a new location. The transport allowance paid in cash – only to PAPs, who are to physically move, is the equivalent of the prevailing cost of hauling 12t of goods by rail or road over a distance of 20km from the point of displacement. Transport allowances shall be actual cost of transporting 12tons of luggage rail or road (whichever is cheaper) within 20 Kilometres from the point of displacement (i.e. 12 tons x Actual Cost/ton/km x 20km). In addition, the transport allowance package will include additional allowance covers for PAPs transporting to and from their banks to collect compensation money. The allowance will be calculated as part of transport allowance.

#### **Grave removal**

Apart from the valuation on assets (structure, land, crops and tress) and some allowance, project affected persons can receive support for relocation of graves under the Graves (Removal) Act of 1969 which refers directly to grave removal. As a general principle, however, the exhumation and re-burial of individual graves within the project area will be avoided as much as possible if unavoidable, only commence following the resettlement of associated families. When this occurs, the project will:

Identify all existing graves within the project area;

Make exhumation and re-burial arrangements with Local Entities (District Government and health officials) and individuals will arrange for reburial ceremonies of the deceased.

In consultation with the Mtaa and Ubungo Municipal Council, identify land for the purposes of preparing such land as a formal cemetery. All reburial will take place within the designated cemeteries. The government rate for payment of the grave will be applied.

The procedure for relocating the graves will be supervised by Municipal Medical Officer (MMO). The MMO exists in the current administrative set up under District Health and Social Welfare Department. As stated in the municipal authorities' legislation, the MMO is responsible for ensuring graves are exhumed, transported and buried to a different site as part of their mandate. According to the Graves (Removal) Act of 1969, the family of the deceased will be provided with ceremonial cost allowance, as compensation, which will be determined by the valuer and communicated to the PAPs. Any additional costs that might arise in the relocation and/or ceremony will be borne by Ministry responsible for initiating land acquisition.

## **9.0 INCOMES AND LIVELIHOOD RESTORATION PROGRAM**

The main objective of this ARAP is to ensure that livelihoods are improved or restored to pre-displacement levels. According to JICA Guidelines for Environmental and Social Considerations” People who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported by project proponents etc. in a timely manner. Compensation for affected land and property will therefore seek to facilitate full and smooth recovery without exposing the PAPs to vulnerability and this applies to people who are not just physically displaced but who are affected by loss of land, property and source of income that directly affects their livelihood. Livelihood restoration will be achieved through implementation of the following:

i. Payment of loss compensation prior to acquisition of land and property or resettlement of PAPs

ii. Compensation for land and other properties will be based on the following:

Value of acquired land will be determined using comparable open market land values considering cost of similar parcels of land are currently selling for in the area on a willing seller willing purchaser basis.

The valuation for affected structures will be determined by using the current replacement cost or equivalent reinstatement basis or probable cost of acquiring similar premises for the same purpose. The valuation also takes into account market values for structures and materials.

Wide consultation with the PAPs during the valuation process and Public Consultation Meetings.

Prompt execution of compensation payment to PAPs.

Education of PAPs on the positive and negative impacts of resettlement and mitigation measures;

Provision of ample time for displaced persons to put up structures prior to relocation;

Implementation of a monitoring programme to ensure displaced persons is well settled in their new environment and any emerging issues/challenges are promptly addressed.

### **9.1 Payment Timing**

Compensation payments should be promptly paid out within reasonable time and not severely delayed. Severe delays would result to devaluation of the compensation award. Compensation money must be made available before the actual move so that displaced households can use the money to overcome or minimize the hurdles of dislocation. Compensation for land acquisition should not be limited to monetary payments to individuals but there should be appropriate compensation to the community of people to enable them to re-establish new communities.

### **9.2 Land Market Value**

The market value of the land being acquired is used as the determining factor in calculating compensation. Displaced persons may find it difficult to acquire comparable land with the compensation money because of limited land market/higher value of land in the relocated area. In addition, the costs for relocating, transporting, salvaging building materials, and so on can put financial strain on the re-settlers. Since, the majority of affected persons have opted for cash compensation, it is important to ensure that the compensation package consider the current land market value to enable the PAPs to buy new land.

## **10.0 PUBLIC PARTICIPATION AND STAKEHOLDER CONSULTATION**

The public participation process for the proposed Project has been designed to satisfy the requirements laid down in the JICA Guidelines, the Environmental Management Act (EMA, 2004) and EIA and Audit Regulation 17 (URT, 2005) and is also compliant for the other relevant Acts, since most of consultation has been conducted together with the preparation of baseline information for the Initial Environmental Examination (IEE) study. The process ensures that all stakeholders have an opportunity to raise their concerns and views as part of an open and transparent process, which in turn ensures a comprehensive environmental and social study. Effective resettlement planning requires regular consultation with a wide range of project stakeholders. Stakeholders include any individual or group affected by, or that believe it is affected by the Project and any individuals or that can play a significant role in shaping or affecting the Project. TANESCO will identify the relevant stakeholders for the ARAP early on in the resettlement planning process. These will include: -

- i. Local people and businesses affected by the project (i.e. the PAPs);
- ii. Local government officials;
- iii. Mtaa leaders; and
- iv. Local community organizations.

### **10.1 Aims and objectives of the public consultation during the ARAP**

The purpose of public consultation during the preparation of ARAP study was to ensure that the views, interests, and concerns of project stakeholders are taken into account in the assessment of the potential impacts of the project as well as in project decisions, particularly in the design of mitigation measures. In addition, the public consultation aims to improve communication between the project and impacted or interested groups. In the course of preparing for stakeholders' consultation, the following activities were undertaken:

Stakeholder identification and analysis;

Determine the type of consultation activities to be undertaken with each category of stakeholders;

Information disclosure, specifically the provision of timely and meaningful information that is accessible to all stakeholders;

Prepare the approach to and mechanisms for obtaining stakeholder feedback on the information disclosed; and

Prepare principles and ground rules guiding consultation with local communities; and the program for consultation to ensure timely notification of consultation activities and to tie in with key stages in the ARAP process.

Stakeholder participation involves processes whereby all those with a stake in the outcome of a project actively participate in decisions on planning and management. They share information and knowledge, and may contribute to the project design or even alternatives, so as to enhance the success of the project and hence ultimately their own interests.

### 10.2 Stakeholder identification and analysis

The stakeholder identification process for the proposed 220kV transmission line was undertaken through a participatory and transparent process. The stakeholders were chosen based on the social, environmental and economic considerations. Through the stakeholder engagement the EIA team was able to get information to help develop a plan that is tailored to the needs of different stakeholder groups. A number of institutions were consulted in order to seek their input for any requirements and procedures to abide during mobilization, construction and operation of the proposed project. Whereas the local community was involved in order to inform them about the proposed development and get their views and concerns regarding the project prior to commissioning of any field construction work. A list of key stakeholders and their role to the proposed development project is as provided in Table 21.

**Table 21: List of stakeholders and their role on the proposed project**

Stakeholder Group	Sub-Category	Connection to Project
Ministries/Central Government	Vice President Office- Division of Environment	Mandate for Environment (EIAs) in Tanzania.
	Ministry of Health and Social welfare	Responsible for health-related issues, particularly HIV/AIDs and other communicable disease.

Stakeholder Group	Sub-Category	Connection to Project
	Ministry of Energy	Responsible for energy related issues
Regional Authority	Dar es Salaam Regional Office	Administrative region where the project is to be implemented. Responsible to review investment issues and land in the region.
Municipal Council Authorities	Ubungo Municipal Council	Assisting with implementation of the project Assisting with awareness creation to local community. Monitoring of the project activities. Reviewing land acquisition process.
Government Institutions	National Environment Management Council (NEMC)	Carry on environmental audit and environmental monitoring Review and recommend for approval of Environmental and Social Impact Report Enforce and ensure compliance of the national environmental quality standards Initiate and evolve procedures and safeguards for the prevention of accidents which may cause environmental degradation and evolve remedial measures where accidents occur;
	Occupational Safety and Health Authority (OSHA)	Registration of the workplace Issuance of OSHA Compliance certificate Inspection on Occupational Safety and Health related aspects. Enforcement of Occupational Health and Safety Act, 2003 (Act No. 5/2003)
	Tanzania Fire and Rescue Force	Providing professional services in the area of disaster prevention and taming. Enhance community safety, quality of life and confidence by minimizing the impact of hazards and emergency incidents on the people, environment and economy of Tanzania.
	Tanzania Electric Supply Company	Mandated with electricity generation, transmission, distribution, supply, system



Stakeholder Group	Sub-Category	Connection to Project
	Limited – TANESCO	operation, import and export of electricity and electrical installation. Ensuring the operating conditions for transmission line
	National Institute of Transport	Directly impacted by the implementation of the project
	Tanzania Port Authority	Directly impacted by the implementation of the project
Local Communities/ Affected Communities	Ubungo, Makuburi, Mabibo and Kimara wards	Directly impacted by environmental and social effects from the project (both positive and negative)

### 10.3 Methods of Stakeholder Participation

Various methods were used in ensuring that all relevant stakeholders are consulted and their views incorporated in this report. Participatory methods such as focus group discussion and public meetings were used. The team also visited all critical sites in the proposed project area and conducted discussions with stakeholders on site to identify their views and concerns. Specifically, the following methodologies were used in undertaking this exercise include the following:

#### 10.3.1 Household Questionnaires

Household interviews were conducted using structured questionnaires. This technique was used in order to get quantitative information, which could give the general picture of the affected communities or adjacent communities. The types of data obtained by the questionnaires included; household location and economic activities of the respondents, land tenure/land use practices, population size, housing condition and size of the land. Therefore, questionnaire interviews were administered in Ubungo ward at Kibo area and Kimara ward at Mavurunza area where some settlements are likely to be re-allocated.

#### 10.3.2 Focus Group Discussion and Checklist

Focused group discussions were conducted in the affected wards and streets using checklists. Ward officials and Mtaa officials in the project area were invited to participate in the group discussion. Efforts were made to ensure most of the affected communities in the area were

able to participate. TANESCO representative and local government leaders were invited in the meeting. Also the discussion intends to collect specific data at the Mtaa level, discussing about availability of land for relocation and their preferences of where to be relocated in case their structures will be affected. The discussion also focused on identification of sensitive sites/areas such as cultural sites and grave yards that are within the Mtaa or its neighbourhood. A checklist of village social services, economic activities and other infrastructure were also obtained during discussion.

### 10.3.3 Public Meetings

In order to ensure that the Mtaa are informed of the project, the team conducted public meetings at 7 Mtaas in which the transmission line will traverse. The team made efforts to ensure that women attended and participated in the meetings. The meeting aimed at informing the Mtaa about the project and the activities that are associated with the project. Mtaas were also given an opportunity to ask questions, raise their concerns and provide information to the team on issues such as availability of land in the village for resettlement purposes. The public were informed about the meeting through public announcement made by the Mtaa Executive Officers (MEO). The list of the meeting participants and some of the participants are shown in Table 22 and Photo 15.

**Table 22: Number of Mtaas and participants involved in the meetings**

S/n	Mtaa name/Institution	Male	Female	Total
1	Mavurunza	120	30	150
2	Kilungule A and Kilungule B	32	19	51
3	Baruti	16	14	20
4	Kibo	36	33	69
5	Kisiwani	43	15	58
6	Kibangu	25	16	41
7	NSSF	03	0	03
8	TANESCO	01	0	01
9	National Institute of Transport	02	0	02
10	Tanzania Port Authority	02	0	02
<b>Total</b>		<b>280</b>	<b>127</b>	<b>397</b>

Source: EARG Consultant Team, 2020







**Photo 15: public meetings in various Mtaa in the project area**  
*Source: Field survey, EARG Team, January, 2020*

#### **10.3.4 Identified Key Issues and Concerns**

In general, stakeholders had different opinions with regard to the implementation of the proposed 220kV transmission line project. Some of the issues and concerns raised revolve around social and environmental aspects. The issues and concerns raised during the consultations include;

##### **Valuation and Compensation Issues**

The issue of fair and timely compensation was also raised during the consultation. Stakeholders complained that it is taking long time for the compensation to be paid to the affected people after the completion of the valuation process. Stakeholders at Kibo mtaa reported that the valuation of properties in the area was done since 2013 but no compensation has been paid so far. They complained that they have been living in a difficult environment since the valuation has taken place because they are not allowed to do any improvement in their houses as any modification after the valuation will not be considered for compensation. Stakeholders raised concern that in most cases local communities are not well informed of their rights, leave alone the compensation procedure as a result people are denied of their rights.

##### **Accident, Risks and Hazards**

Accidents and risks may occur to workers during construction phase especially when handling of machinery and equipment. The communities in the project area are very concerned about the safety risks associated with construction of the power transmission line, which will involve high-tension electricity, movement of tracks carrying construction equipment and existence of substations around Mabibo area. The contractor will have to be sensitive of this issue during mobilization and construction and mitigation measures associated with the raised concerns should be implemented.

##### **Noise and Dust emission**

Local communities were concerned that development of the project especially during mobilization and construction phases; project activities will generate noise and dust. This may affect the health of the workers and the people in surrounding areas. The communities

recommended contractor to dampen the ground during construction in order to avoid or reduce dust emission.

### **Encroachments of TANESCO way leave**

During the field survey, it was revealed that some business and settlement structures were located within the existing way leave of TANESCO in Ubungo and Kimara wards. During discussion with community and local government officials, they admitted that they are utilizing the TANESCO Way leave for various activities illegally and therefore, they expressed their willing to vacate the area before the commencement of the project. Those who are engaged with vehicle maintenance at Ubungo Kisiwani were concerned with the possibility of getting alternative areas for their activities since they are solely relying on these areas for their livelihoods. The summary of stakeholder's views, concerns and the responses are provided in Table 23.

**Table 23: Number of stakeholders participated in the meetings, comments and responses**

Stakeholders and nature of the meeting	Place	Date	Views and Concerns	Response
Ubungo Municipal Officials: Introduction of the project and Discussion with responsible with environment and Town planning	Ubungo Municipal Council	31. 12.2019	Appreciated the initiative taken by the government to increase power in the city of Dar es Salaam	
			Municipal Officials emphasized the need to be involved the environmental officer, land officers and town planners in the assessment	It was agreed that the municipal officials to be involved in the assessment
Ward, Mtaa leaders and local community:  Sensitization and awareness meeting	Mavurunza - in Kimara ward	10.01.2020	Stakeholders were concerned about the decision of TANESCO to extend the way leaves in order to accommodate the new Transmission line. They complained to see TANESCO staff to put mark beyond the existing way leaves indicating the need for land acquisition. However, the consultant clarified the issue that TANESCO does not need new land for the project. It intends to use the existing way leave for the new transmission line.  Stakeholders wanted to know when the project will start Advised on the use of underground cable to minimize land take  TANESCO should maintain and manage the access road to the transmission line for easy access	Consultation and field visits with TANESCO officials in collaboration with mtaa leaders and community confirmed that the structures were illegally located within the TANESCO wayleave. Therefore, the people have already demolished the structures within the existing wayleave of the transmission line.

			during maintenances and any accident that may happen to the transmission line	
Ward, Mtaa leaders and local community:  Sensitization and awareness meetings	Kimara Baruti in Kimara ward	11.01.2020	<p>Upgrading the power transmission line from 132 kVA to 220kVA will result into increased generation of electromagnetic field and thus increase the effect to the local communities living adjacent/close to the transmission line. What measures would TANESCO put in place to restrain this effect</p> <p>TANESCO has extended their way leave by 15 metres into communities land and properties; a demarcated and erected beacon without consultation with owners as well as before valuation and compensation is done.</p> <p>People are well informed about the procedure for land acquisition according to the land laws</p> <p>TANESCO should come to the people through Kimara Baruti Ward Office and explain what they have done (i.e. extending the way leave) before continuing with their project development plan.</p> <p>Most of the land in Kimara Baruti Ward and surrounding areas was</p>	<p>The existing wayleave was acquired by considering all negative impacts from electromagnetic field. Therefore, no impacts are expected from transmission line.</p> <p>The beacons were erected by the officials from land department based on the official boundary of TANESCO.</p> <p>The beacons were not erected were not erected by TANESCO, but land officers who knows the boundary of TANESCO. Therefore, there is no way TANESCO can remove the beacons by the responsible authority.</p>



			<p>not surveyed, currently the ward in doing squatter upgrading/formalization activities. Urban Plan is excluding the area where TANESCO has erected beacons even if that area does not belong to TANESCO.</p> <p>Local communities are of the opinion that TANESCO should remove the beacon they erected so that their (community) land is included in the upgrading/formalization process and get title deeds.</p> <p>Also local communities are complaining that they raised their concerns with the Ubungo Municipal Director but they have not received any answers. They need urgent and clear responses on this matter.</p>	
Sensitization and awareness meeting	Kilungule A in Kimara ward	11.01.2020	<p>There is a need for TANESCO In collaboration with the Ministry Land, Human Settlement and Urban Development and Ubungo Municipal Council (Town planning department) to revisit the existing boundary of the Transmission Line</p> <p>TANESCO should use a more reliable instrument to determine the boundaries - something like a GPS instead of a tape measure.</p>	
Mtaa leaders and local community:  Sensitization and awareness meeting	Kilungule B in Kimara ward	11.01.2020		
Ward, Mtaa leaders and	Kibangu in	11.01.2020	People have accepted the project	The ESIA report request the

local community:  Sensitization and awareness meeting Ward	Makuburi ward		but also caution about employment opportunities during construction and protection of their environment and their health have to be taken into account.	contractor to employ people around the project and also observe OHS as shown in the mitigation measures
Ward, Mtaa leaders and local community:  Sensitization and awareness meeting	Kibo in Ubungo ward	29.01.2020	Stakeholders have reported that the valuation of properties in the area was done since 2013 but no compensation has been paid so far. Affected persons to know when they will be compensated in order to enable them to find new area settlement.  They complained that they have been living in a difficult environment since the valuation has taken place because they are not allowed to do any improvement in their houses because any modification after the valuation will not be considered for compensation. Since the valuation of properties has been done, stakeholders did not want to engage with consultant because all that they need is their payment from the 2013 valuation	TANESCO management is aware of valuation which was undertaken in 2013. However, they have not received funds from the government for the payment of compensation.
Ward, Mtaa leaders and local community:  Sensitization and	Kisiwani in Ubungo ward	29.01.2020	The stakeholders admitted that they are utilizing the TANESCO Way leave for various activities. They wanted to know when the project will start so that they can	The project is expected to start early January. TANESCO will be inform the community in advance on when the project will commence

awareness meeting			<p>vacate the site</p> <p>They requested to be informed in advance about the commencement of the project so that they can prepare themselves to move.</p>	
<p>Mr. Renatus Charles Pallu Head teacher - Kilungule Primary School</p>			<p>The school management and Ubungo municipal council are aware that the toilet facilities for both teachers and pupils are within the way leave of power transmission line.</p> <p>Number of toilets facilities for the pupils that are affected is 12 holes and 2 toilets for teachers.</p> <p>The school have no large area to construct other toilet instead they expect to use the remaining area which was planned for other activities to build another toilets for teachers and students</p> <p>The school has total number of 1818 pupils, of which 978 are boys and 840 are girls</p> <p>The school has 39 teachers, of which 4 ae males and 35 females.</p> <p>The issue of relocation of the toilets is already known to the Ubungo municipal council. They are in the process of relocating.</p> <p>During the construction of the proposed project there is a need to construct a fence for the safety of the pupils.</p>	

NSSF Officials – Investment department	NSSF Head Quarter	06.04.2020	<p>NSSF is the legal owner the land at Ubungo Kisiwani.</p> <p>They are organizing a meeting with TANESCO officials to discuss the issue of owner.</p> <p>The release of documents to the consultant (ARP) will need authorization of top management. Therefore, you are required to write a letter to request the documents.</p> <p>There is need to consult Estate department for more clarification on the land ownership at Ubungo Kisiwani.</p> <p>The of land ownership have contractual implications to the tenants who have rented the land for their business.</p>	
Introduction of the project and Discussion with the National Institute of Transport Officials responsible with Transport Safety and Environment as well as Planning issues Nuru	National Institute of Transport (NIT)	08.05.2020	<ul style="list-style-type: none"> <li>• National Institute of Transport (NIT) accept the project on the ground that it will enhance electricity supply and reduce frequency power-cut in the City.</li> <li>• Currently the NIT is in transition of upgrading the institution from institute to University; there are several ongoing projects including construction of several flats for staff and students which requires reliable electricity.</li> <li>• NIT is engaging in different</li> </ul>	<ul style="list-style-type: none"> <li>• TANESCO has already written a letter to NIT and initiated discussion with other institutions responsible for land such as Ministry of Land and Ubungo Municipal Council in order to find ways of solving the boundary dispute between the two institutions</li> </ul>

			<p>important activities, one of the activities is inspection of imported vehicles and installations; the Institute is planning to upgrade the facility. TANESCO should demarcate the project area to avoid interference with NIT daily activities. In addition the client should not block access to NIT</p> <ul style="list-style-type: none"> <li>• TANESCO should ensure electromagnetic effect from electricity does not cause effect to student and staff during operation of the project</li> <li>• Provide awareness to workers on health and safety issue especially during construction phase</li> <li>• The client should communicate with the NIT Planning department in order to ensure activities of the project does not affect activities of the institute especially during examination</li> <li>• Boundary between NIT and TANESCO way- leave should be resolved before implementation of the proposed project.</li> </ul>	
TANESCO – Ombeni Masha	Telephone	10.05.2020	TANESCO have already	The matter has been taken to the

(Project Coordinator – Environment)	communication		communicated with NSSF official regarding the extension of wall and other storage facilities within TANESCO way leave. NSSF claim to have the title deed for land they own at Ubungo Kisiwani, therefore, they have not encroached TANESCO Way leave.	Dar es salaam and Cost land commissioner for reconciliation with the institutions who claim to possess the title deeds on the TANESCO RoW
Introduction of the project and Discussion with DAWASA officials	Dar es Salaam Water Supply and Sanitation Authority (DAWASA)	20.10.2021	<ul style="list-style-type: none"> <li>• The proposed project is good and timely required because it will help to reduce the problem of power in the City due increased demands which include energy water pumping machines.</li> <li>• The project proponent is required to make follow up with DAWASA regional office where the project is located, particularly during the construction of the project.</li> <li>• The proponent should ensure adequate, transparent and participatory public consultations in all stages of project development</li> </ul>	
Introduction of the project and Discussion with TPDC - GASCO officials	Tanzania Petroleum Development Corporation	11.11.2021	<ul style="list-style-type: none"> <li>• The proposed project id good</li> <li>• Currently, GASCO has any development plan along the project area, may be in the future</li> <li>• Joint site survey between two parts (TANESCO &amp; GASCO) before project</li> </ul>	

			<p>implementation</p> <ul style="list-style-type: none"> <li>• Submission of notification letter, plan and methodologies of the activity for permit from GASCO.</li> <li>• Implementation of any site activity along or across TPDC Gas Pipeline should be witnessed by GASCO personnel. All supervision cost shall be borne by project contractor.</li> <li>• Proper communication of GASCO's permit condition to project main and sub-contractor should be observed and adhered.</li> </ul>	
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Source: Field survey, EARG Team, 2020/21

#### **10.4 Dissemination and Disclosure of Information**

Information disclosure regarding the project is an important part of the project preparation and implementation to ensure that the PAPs are timely and fully informed of land acquisition, compensation and resettlement. This will also enable the PAPs to participate in and express their desires on resettlement policy and programs. Representatives of each ward, mtaa and Ubungo Municipality in the project area, and leaders of the communities shall co-ordinate with TANESCO to implement information disclosure and public information appropriately. The drafted ARAP should be disclosed on the website of TANESCO as well as JICA's website.

Public disclosure of information and maintenance of transparency by the PMU with all stakeholders, especially the displaced persons are basic policy requirements of the JICA. When PMU approaches become transparent and open, the chances for establishing mutual trust between the PMU and the stakeholders are greater. This process will have salutary effects on all activities of the road project unlike the suspicion and mistrust caused by closeness of affairs that will end up with serious negative effects on project implementation. In addition to the presentations made in awareness creation sessions, a well prepared brochure on the project profile and compensation payments was distributed among the participants. This information brochure distributed among the participants contains the description of the proposed improvement to the highway, entitlements, and the addresses and telephone numbers of persons to be contacted for further clarifications and information. Moreover, it is necessary to continue the public consultation process further, because many PAPs are not highly aware about the land acquisition and resettlement process. Therefore, it is suggested to continue following public consultation process in the project.



## **11.0 ORGANIZATION AND RESPONSIBILITY**

### **11.1 ARAP implementation Organizations and Institutions**

A number of organizations and institutions will be involved with development and implementation process of ARAP at different levels as discussed below;

#### **Tanzania Electric Supply Company Limited (TANESCO)**

As soon as the ARAP is cleared and finalized, TANESCO will formally disclose it using TANESCO's website and among the affected people. For this purpose, TANESCO will organize sessions for the affected PAPs and community at large. The sessions will be chaired by the ARAP specialist from TANESCO and attended by the Ubungo Municipal Council and Ward / Mtaa Government representatives. Adequate display materials will be utilized. TANESCO will sensitize the PAPs on alternative business to improve their living. Socio-economic data on PAPs is discussed later in section 5 with dates of consultation, their concerns and preferences. Other government institutions which will be responsible in the implementation of ARAP are as follows: -

#### **(b) The Ministry of Finance and Planning**

The Ministry of Finance and Planning through TANESCO will disburse the compensation funds to TANESCO Headquarter to pay the PAPs and Public Institutions eligible for compensation. After compensation, the communities will be given at least three months for resettlement. TANESCO will then authorize the Contractor to start demolition works.

#### **c) Ministry of Lands, Housing and Human Settlements.**

The Ministry of Lands and Human Settlements is responsible for policy, regulation and coordination of matters pertaining to land in Tanzania. The Ministry administers the various Land Acts: Land Acquisition Act, the Land Act and the Village Land Act. Land use planning, management and land delivery activities are conducted by the Ministry.

The Commissioner of Lands administers most issues dealing with land allocation, acquisition, and registration and land management. All instances of acquisition of land for public purposes and the need for resettlement and/or compensation must be referred to the Commissioner with regard to this ARAP. The Ministry of Lands and Human settlement

will be responsible in making sure that the amount of money paid to the PAPs is equivalent to the value of affected properties and signing of valuation reports.

**(d) Ubungo Municipal Council**

The Local Government (Ubungo Municipal Council) in collaboration with TANESCO will dispatch the dislocation notices to the concerned affected PAPs whose land and properties will be affected by the project.

**(e) Ward and Mtaa Level**

The local Government system in Tanzania is based on the Decentralization Policy and is enshrined in the Local Government (District Authorities) Act No.7, 1982, the Local Government (Urban Authorities) Act No. 8, 1982, and the Regional Administration Act (1997). Local Government at Mtaa and Ward will be main focal points of the whole ARAP implementation activities. This includes identification of PAPs as they are the ones who are familiar with them as well as familiar with the actual loss of the PAPs. The leaders of these authorities are the representative of the local government at their respective levels. Any complaints from the Project Affected People will be presented to the Mtaa office to be discussed in the Mtaa Grievance Redress Committee (GRM). If not resolved, the MGRC will forward the complaint to the District Grievance Redress Committee for further action (more details about GRM in Section 14).

**(f) Independent local NGOs**

A local independent NGO will be hired to assist in raising public awareness on resettlement and facilitate local community participation in ARAP implementation. This NGO will be involved to witness the fairness and appropriateness of the whole process. It will also be involved in the monitoring of the resettlement process, establishing direct communication with the affected population and community leaders. Moreover, the local NGO will be involved in support of affected community in Grievance Redress and Resettlement committee respectively. The summary of institutions that will be responsible for this ARAP is shown in Table 24.

**Table 24: Institutional roles and responsibilities in ARAP implementation**

Name of institution	Roles and responsibilities
TANESCO	<p>Disclosing of ARAP to the community after its preparation.</p> <p>Organize sessions for the affected PAPs and community at large</p> <p>Authorize the Contractor to start demolition works.</p> <p>Dispatch the dislocation notices to the concerned Ubungo Junction affected PAPs</p> <p>Liaise different government institution in ARAP implementation</p>
Ministry of Finance and Planning	<p>To disburse the compensation funds to TANESCO HQ office to pay the PAPs and Public Institutions eligible for compensation.</p>
Ministry of Lands, Housing and Human Development	<p>Responsible in making sure that the amount of money paid to the PAPs is equivalent to the value of affected properties</p> <p>Signing of valuation reports.</p> <p>Administers the various Land Acts</p> <p>Deals with land allocation, acquisition, and registration and land management</p>
Ward and Mtaa Level	<p>Administrator at the local level</p> <p>Identification of PAPs as they are the ones who are familiar with them</p> <p>Receive and file grievances from the grieved affected party (PAP).</p> <p>Hears and rules grievances through Mtaa Grievance Redress Committee (MGR)</p> <p>Forwards unresolved grievances to District Grievance Redress Committee (DGRC) known as Social Service Committee (SSC).</p>
Ubungo Municipal Council	<p>Dispatch the dislocation notices to the concerned affected PAPs</p> <p>To assist vendors at Kibo mtaa in Ubungo ward to access new market areas for their businesses.</p> <p>Responsible for grave removal</p>
(Ubungo District) District Grievance Redress Committee (DGRC)	<p>Receives unresolved grievances from MGRC</p> <p>Hears and rules unresolved grievances forwarded from Mtaa Grievance Redress Committee (MGRC)</p>

Name of institution	Roles and responsibilities
	Forwards unresolved grievances to appropriate Court.
Independent local NGO	To raise public awareness on resettlement process To facilitate local community participation in ARAP implementation. Member of Grievance Redress committee to help PAPs on technical issues and create awareness on various matters.

### 11.2 Inter-Agency Coordination

The ARAP activities and process require inter-Agency coordination among and between different institutions, Agencies and Organizations. The Ministry of Energy will oversee that the Government Policies and regulations related to power development and its related acts are in place. TANESCO as a project owner has a responsibility of coordinating the project activities including monitoring and evaluation of the project implementation. The Agency will hire a local NGO to assist in raising public awareness on resettlement and facilitate local community participation in ARAP implementation on its behalf. However, TANESCO has to monitor the activities of the hired NGO. The Agency has to liaise with other Government Institutions at different levels during Project Implementation. These include the local governments, Ministry of Lands, Housing and Urban Development as well as the Ward and Mtaa Government.

Three sub-committees shall be formed in implementing ARAP and these are:

Resettlement committee

Compensation committee

Grievances Redress committee

The Committees composition and responsibilities are outlined in Table 25;

**Table 25: Committees and Responsibilities for ARAP Implementation**

<b>Unit</b>	<b>Responsibilities</b>	<b>Members</b>
Resettlement Committee	<p>Oversight management and coordination of ARAP implementation activities and teams</p> <p>Liaison with municipalities, districts, government agencies and other stakeholders</p> <p>Review of periodic progress report in accordance with ARAP guidelines</p>	<p>District Commissioner</p> <p>Representative of TANESCO</p> <p>Representative of Lands, Housing and Urban Development.</p> <p>Representative of a Local NGO</p> <p>Two representatives of PAPs (One from business tenants and One from residential tenants)</p> <p>Representative from Local community</p> <p>Representative from Kimara, Ubungo, Makuburi and Mabibo ward</p>
Compensation Committee	<p>Coordinate management of compensation process</p> <p>Ensure compensation is consistent with ARAP guidelines</p>	<p>Mayor (Chair)</p> <p>Representative of TANESCO</p> <p>Representative of Ministry of Lands, Housing and Human Settlement Development.</p> <p>Government Valuer</p> <p>Two representatives of PAPs (One from business tenants and One from residential tenants)</p>
Grievance Redress Committee	<p>Address entitlement issues and other disputes and concerns among PAPs and other stakeholders</p> <p>Advise PAPs and other stakeholders on redress mechanisms which</p>	<p>District Commissioner - Chair</p> <p>Representative of TANESCO Representative of Ministry of Lands, Housing and Urban Development.</p>

	cannot be resolved  Liaise with other authorities and Resettlement Committee	Valuer  Two representatives of PAPs (business and residential)  Representative of a Local NGO
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## **12.0 ARAP IMPLEMENTATION AND COMMENCEMENT OF CONSTRUCTION**

Before any construction activity is implemented, PAPs must be compensated in accordance with this ARAP. The project activities will involve land acquisition in a stretch of 0.5km at Kibo Mtaa in Ubungo ward while the rest of the route will use the existing right of way.

In particular, the taking of land and related assets may take place only after compensation has been paid and, where applicable and moving allowances have been provided to displaced persons. For project activity requiring relocation or loss of shelter, measures to assist the PAPs will be implemented in accordance with this ARAP. The timing mechanism of these measures will ensure that no individual or affected household will be displaced due to construction works before compensation is paid to the individual or household affected. The tentative implementation schedule is shown in Table 26.

**Table 26: Tentative Implementation Schedule**

Activity	Timeframe Month/Week												Implementing agency
	January				February				March				
	1	2	3	4	1	2	3	4	1	2	3	4	
Finalization of design and undertake socio-economic information	■	■											Contractor, TANESCO and Valuation team
Valuation of properties and preparation of compensation schedule		■	■										TANESCO and Valuer
Approval of valuation report and compensation schedule			■	■									Ministry of Land, Housing and Human Settlement Development – Government Chief Valuer  Ubungo District Commissioner and Dar es Salaam Regional Commissioner
Consultation meeting with the PAPs to inform them on scheduled activities and their roles to accomplish the ARAP and Compensation				■	■								TANESCO, Resettlement Committee and NGO
Disclosure of entitlement and opening of Bank accounts					■								TANESCO
Actual payment of compensation and delivery of other entitlements					■	■							TANESCO, Resettlement Committee and NGO
Assistance to vulnerable PAPs					■	■							TANESCO



Undertake baseline checks, claims, conflicts, disputes and all sorts of grievance resolution																		TANESCO and Grievance Redress Committee
Notification to vacate the Right of-Way (RoW)																		TANESCO
Commencement of construction works and monitoring of ARAP issues on operational basis																		TANESCO, Independent Monitoring Consultant
Review of ARAP activities and updating valuation of unforeseen properties, if any																		TANESCO

Source: EARG, 2020

### 13.0 INDICATIVE BUDGETS FOR ARAP IMPLEMENTATION

At this stage, this ARAP report only an indicative budget (estimates based on quick and less detailed calculations), highlighting key features that the budget must contain. The actual cost will be established after finalization of design, which will be followed by identification of actual PAPs and the valuation of the affected properties.

Taking into account all factors, the compensation for land, structures, loss of business, graves and public utilities to be affected during the Proposed Project is Tshs. **847,633,000.00 (Tanzanian Shillings Eight Hundred Forty Seven Million Six Hundred Thirty Three Thousand Only)**. The summary in Table 27, provides an estimate of compensation costs for the proposed construction of the new transmission line.

**Table 27: Estimated Indicative Budget**

Components	Quantity unit	Compensation Costs (Tshs)
<b>Compensation and Allowances</b>		
Building Value	7 Structures	385,000,000.00
Land value	6,600m <sup>2</sup> x 20,000	132,000,000.00
Accommodation allowances		118,800,000.00
Transport Allowances		1,650,000.00
Disturbance allowances		320,000.00
Grave removal allowances	135 Graves (estimate)	40,000,000.00
Grave relocation (Payable to Ubungo M.C)		67,500,000.00
Assistance to vulnerable people		40,000,000.00
<b>Sub Total "A"</b>		<b>797,270,000.00</b>
<b>Public Institutions</b>		
Building Value for fence/wall	Wall fences for TPA and NSSF	The cost will determined after discussion with Ass Land Commissioner.
Land value	8,000x 20,000	The cost will determined after discussion with Ass Land Commissioner.
Toilet facilities at Kilungule Primary School	12 holes	To be covered by Ubungo Municipal Council
<b>Facilitation for ARAP Processing and Implementation</b>		
Facilitation for ARAP implementers		5,000,000.00

Components	Quantity unit	Compensation Costs (Tshs)
<b>Compensation and Allowances</b>		
including grievance redress committee		
Internal Monitoring and Evaluation		5,000,000.00
<b>Sub Total "C"</b>		<b>10,000,000.00</b>
<b>TOTAL A and C</b>		<b>807,270,000.00</b>
Contingency (5%)		<b>40,363,500.00</b>
<b>GRAND TOTAL</b>		<b>847,633,000.00</b>

### **13.1 Statements of financial responsibility and authority**

The Government of Tanzania through the Ministry of Finance and Planning through TANESCO will be responsible for all financial matters concerning the project implementation including ARAP implementation.

### **13.2 Sources of funds and the flow of funds**

The main source of fund for executing this ARAP will be the Government of Tanzania through the Ministry of Finance and Planning and TANESCO. The fund will be sourced from the TANESCO which will be responsible for effecting payment to eligible PAPs through a reliable commercial Bank or cash money depending on government directives during the implementation of this ARAP.

## **14.0 MANAGEMENT OF GRIEVANCES AND DISPUTES**

Grievance redress mechanisms are necessary avenues for allowing affected persons to voice concerns about the resettlement and compensation process as they arise and, if necessary, for corrective action to be taken promptly. Such mechanisms are important to achieving transparency in the acquisition and resettlement processes. Taking the complexity of resolving disputes and grievances into account, all grievances will be addressed expressively and amicably through mediations at the lower level government offices and existing committees. This will ensure, the affected person does not travel long distances or incur advocacy costs.

### **14.1 Legislation related to Grievance Redress Mechanism**

Section 13 (1) of the Tanzania Land Acquisition Act 1967 provides for resolution of dispute or disagreements regarding any land that is acquired. The Act elaborates disputes and stipulates the timeframe (six weeks) for resolving them before the aggrieved party can institute a suit in a court of law for resolution. The Land Act 1999 and supporting regulations improves Section 13(1) of the Land Acquisition Act by establishing Land Tribunals at the Ward and District levels. Also the Land Act (Section 156) provides for grievances related to land acquisition and compensation issues related to creation of a way leave to be brought to the High Court of Tanzania. If not satisfied with decisions of the Land Tribunal, the aggrieved party is obliged to take the matter to the court. If the local courts and/or the Land Tribunals cannot settle the matter, the matter will go to the High Court for resolution. The High Court of Tanzania and Court of Appeal is the highest appellate “judge” in this system and its decision would be final. Civil Procedure Code 1966 and Land disputes Act 2002 provide the basis for redress of grievances. Also, the WB OP4.12 Para 13(a) requires that appropriate and accessible grievance mechanisms are established to resolve disputes in connection with resettlement and compensation.

The procedures for compensation dispute resolution prescribed by the Land Acts are burdensome and costly, taking into account that most of the PAPs have limited knowledge about legal issues and their rights with respect to the laws, the process is too expensive and sometimes it is impractical for most persons. Any dispute that may arise should be redressed

through project management, local civil administration, other civil administration or other channels of mediation acceptable to all parties. Thus, cost free and accessible grievance resolution mechanisms involving customary and traditional institutions of dispute resolution have to be established to resolve complaints arising because of project implementation.

#### **14.2 Potential source of grievances**

Potential grievances and disputes that arise during the course of implementation of the resettlement and compensation program are often related to the following issues:

- i. Inventory mistakes made during census survey as well as inadequate valuation of properties;
- ii. Mistakes related to identification and disagreements on boundaries between affected individual(s) and specifying their land parcels and associated development;
- iii. Disagreements on plot /asset valuation (e.g. inadequate compensation);
- iv. Seizure of assets without compensation;
- v. Divorces, successor and the family issues resulting into ownership dispute or dispute share between in heirs or family;
- vi. Disputed ownership of given Assets (two or more affected individual(s) claim on the same);

Where affected individual(s) opt for a resettlement-based option, disagreement on the resettlement package (unsuitable location of the resettlement site); and

Problems related to the time and manner of compensation payment.

#### **14.3 Proposed grievances procedures**

In projects that require relocation and resettlement of people and loss of property and livelihood, grievance redress mechanisms are essential tools. These mechanisms allow the affected people to voice concerns about the compensation and resettlement process. The project proponent is expected to take corrective action to address these grievances in consultation with the PAPs and other stakeholders. Such mechanisms are fundamental to achieving transparency in the resettlement process. During the resettlement process, all

disputes will be referred to TANESCO who may handle the grievance straight away or refer it to the PAP committee who will be asked to provide recommendations as to how it is to be addressed. If deemed necessary by the PAP committee the case will be re-investigated and depending on the nature of the issues referred to the district, regional and takes some legal measures. This would ensure that recourse to the legal system as being the last resort.

The mechanisms for grievance management and redress mechanisms are to be affordable and accessible and third parties independent of the implementers should be available at the appropriate point in the process. The grievance procedure will be simple, administered in the first instance at the local level to facilitate access, flexibility and open to various proofs taking into account the need for speedy, justice and fair resolution of their grievances.

#### **14.4 Grievance Redress Committees**

There are two committees which will be involved in redressing grievances arising from the PAPs in the project area;

Mtaa Grievance Redress Committee (MGRC) and,

District Grievance Redress Committee(DGRC) known as Social Service Committee(SSC)

##### **Composition of MGRC**

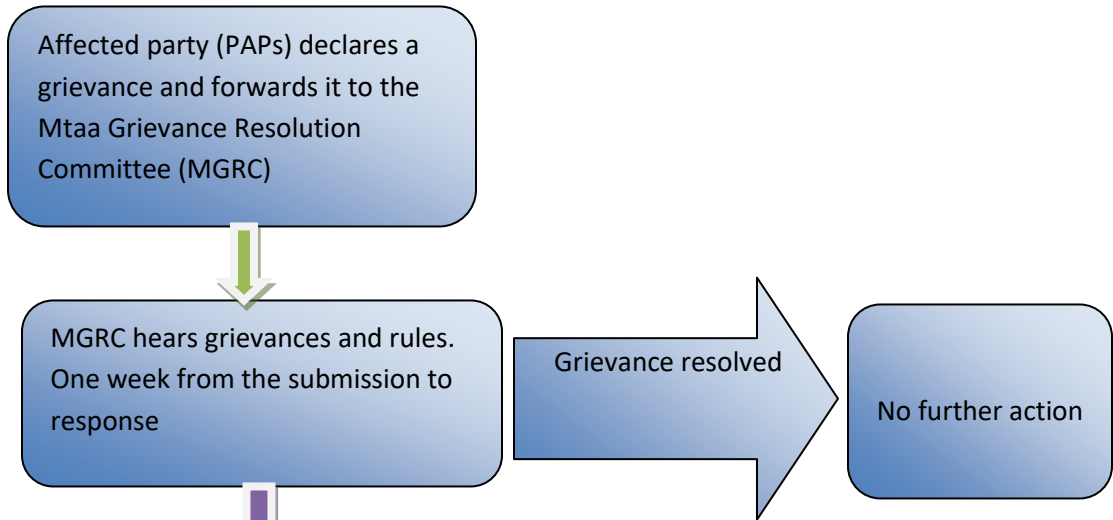
- i. Mtaa Chairperson,
- ii. Mtaa Executive Officer (MEO),
- iii. Representative from the PAPs,
- iv. Community Development Officer from the Ward,
- v. Representative from NGO to be identified

##### **Composition of DGRC**

- i. District Commissioner – Chairman
- ii. District Land office- Member,
- iii. District Valuer
- iv. ARAP Implementing Agency – Member
- v. PAP representative/ local NGO- Member
- vi. Representative of TANESCO- Member

The process suggested for resolving the grievances is presented in Figure 9.

**Stage 1**



**Stage 2**

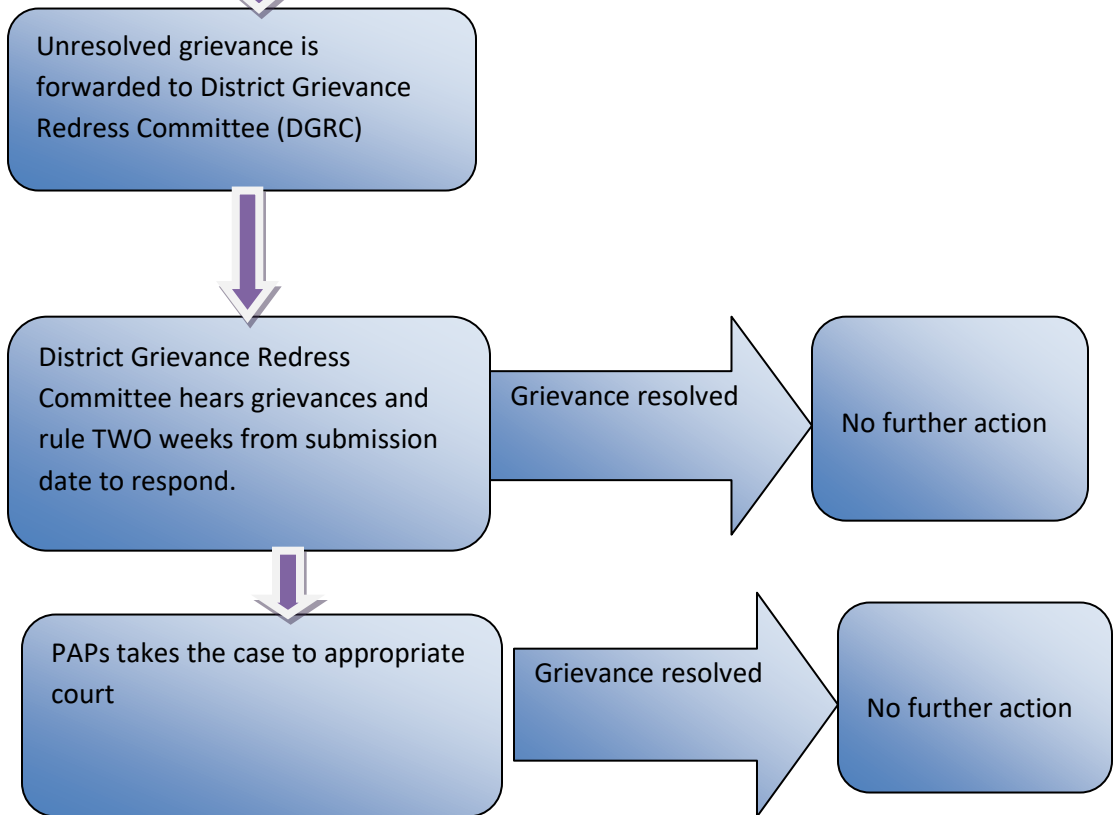


Figure 9: Process for grievance resolution

## **15.0 MONITORING AND EVALUATION**

In order to guarantee that the compensation plan is smoothly performed and the interests of the affected persons are well taken care of, the implementation of the resettlement action plan will be under monitoring throughout the whole process. Monitoring will be divided into two parts, i.e. internal and external monitoring.

### **15.1 Internal monitoring**

The internal monitoring will be performed by TANESCO. The target of internal monitoring is to ensure that there is overall fairness and transparency while compensation process takes place and Abbreviated Resettlement Action Plan is performed based on legal rights. The main monitoring centre would be compensation allocation schedule, payment and use of compensation fee, implementation of the policies and regulation specified in the resettlement plan and the whole course of implementation of the compensation.

The main source of data for internal monitoring will be the data base generated from the ARAP for records on compensation of assets as well as the day today observations by implementing staffs. The client's team will record the progress of land allocation and resettlement. They will make a summary report starting from the commencement of the activities and special events will be reported on continuous basis.

### **15.2 External Monitoring**

External monitoring will be conducted through a contracted independent and qualified consultant. The consultant will visit the project area on a quarterly basis. The consultant will ensure that: - Funds paid to households who have lost crops and other forms of livelihood production have received fair compensation. Where land has been permanently acquired for the project, households affected have been afforded fair compensation. - The grievances raised by stakeholders, notably PAPs, have been settled within the stipulated timeframe without delay including the effectiveness of the compensation delivery system. - Review the results of internal monitoring and review overall compliance of ARAP. The consultant must write its reports before the end of each visit and submit them to TANESCO and the ARAP committee.



### 15.3 Monitoring Indicator

Table 28 below shows the monitoring indicators:

**Table 28: Monitoring indicators**

<b>Subject</b>	<b>Indicator</b>	<b>Variable</b>
Buildings/ Structures	Number of other structures to be demolished/relocate	Number, type and size of other structures demolished/relocated
Land	Land acquired	Area of cultivation land acquired Developments Area of private land acquired Approvals sought for use of government land
Compensation, Re-establishment and Rehabilitation	Number of PAPs compensated	Number of individuals affected Number of owners compensated by type of loss Amount compensated by type and owner
Hazards and Disturbances	Number of complaints received from PAPs	Number of households affected by hazards and disturbances from construction (excavation of trenches, noise levels, blasting, increased traffic levels)

## 16.0 CONCLUSION

The proposed project for reinforcement of power supply from Kinyerezi power station to newly proposed Mabibo substation in Ubungu Municipality in Dar es salaam will improve availability of electricity which is highly needed in Dar es salaam due to expansion of industrial base within the city, population growth, development of new structures including tall buildings and expansion of transport infrastructures such as railway (SGR), road network and expansion of Julius Nyerere International Airport terminal three among the others. Also the construction of the proposed new Mabibo 220/132kV substation will reduce overdependence to Ubungo substation and ensure power security to the national grid and to the city of Dar es salaam.

This A-RAP report has been prepared in consistency with the applicable policy provisions of Tanzania Government and the provisions of the JICA's key principle policies on involuntary resettlement requires that a RAP/ARAP be prepared for all projects that anticipate land acquisition and displacement affecting shelter, livelihood and associated impacts. The policies emphasize that people who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standard of living, income opportunities and production levels to pre-project levels. This ARAP report presents an inventory (register) of people and assets to be affected by development of the project and their equivalent value of compensation package as mitigation measures for the social risks caused by the project.

As required by the Tanzania's Government laws and JICA's policies, the PAPs were involved in the ARAP process and their views incorporated in the report. The report also, proposes mechanisms to involve PAPs throughout all stages of the ARAP process that is during the disclosure, implementation as well as monitoring and evaluation processes. The tentative proposed compensation packages took into consideration the livelihoods of the PAPs and will not interfere with the sources of income including current jobs available to the PAPs and compensation from loss of income from business structures and related activities.

The report has an elaborate grievance mechanism to be used in case of any dispute arose concerning the ARAP implementation. The grievance mechanism structure has community members, including representatives of gender to ensure that every PAP has a voice during resettlement process. During the consultation and participation meetings with the PAPs, it was agreed that TANESCO will ensure:

Continuous sensitisation of affected communities in the pre-construction phase of the project  
Fair and timely compensation of all the affected persons using the prevailing market rates and as per the valuation roll.

Provide sufficient time for the PAPs to make preparation for vacating and salvage their assets.  
Unskilled labour will be drawn from local communities and income generating opportunities for women will be considered during project construction in the form of food preparation and sale to workers.

The community will be involved during monitoring and Evaluation process. This will ensure that arising issues are properly addressed.

## 17.0 REFERENCE

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## 18.0 APPENDICES

18.1 Signatures forms for the Consulted Stakeholders (not to be disclosed)

18.2 Minutes from Public Meetings (not to be disclosed)

18.3 List of Potential Affected Properties and names (not to be disclosed)

18.4 Environmental and Social Monitoring Form during Pre-Construction Phase

### Form: Removal and Relocation of Existing Utilities (Building/Structures/Land)

No	Date of advanced notice	Date of Compensation	Date of commencement of relocation	Type of utility	Geographic Location (before)	Geographic Location (after)	Picture of original state	Picture of completion state	Remark

18.5 Environmental and Social Monitoring Form during Construction and Post-Construction Phases

### Monitoring of the Grievance

No.	Issues (with Date)	Raised by	Applied Measures	Responsible Party for Taking Measures

18.6: Questionnaire and Village Checklist

**SOCIO-ECONOMIC BASELINE CENSUS SURVEY FOR PROJECT AFFECTED PERSONS (PAPs) FOR THE PREPARATORY SURVEY OF THE PROJECT FOR REINFORCEMENT OF SUPPLY FROM KINYEREZI POWER STATION TO MABIBO SUBSTATION IN DAR ES SALAAM**

### PAP QUESTIONNAIRE

Name of Enumerator.....Date.....Questionnaire No.....

1.0 Name of PAP.....Sex.....

2.0 Identification

Region	
District	
Ward	
Area/Mtaa	
Household Size	

3.0 Status of PAP .....

1= Owner 2. Tenant 3. Encroacher

4.0 If Status of land ownership .....

- 1. Title deed
- 2. Customary ownership

5.0 PAP and Household Demographic/Census Information

ID	Name	Relationship to Head	Sex	Age	Marital Status	Vulnerable	Education Level
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

**Relationship to Head:** 1=Head; 2=Spouse; 3=Child; 4=Grand child; 5=Parent; 6=Brother; 7=Sister; 8=In-law; 9=Friends 10=Other relative; 11=Other person

**Sex:** 1=Male; 2=Female

**Marital Status:** 1=Married; 2=Widowed; 3=Divorced; 4=Single; 5=Separated; 6=Co-habitation

**Education Level:** 1=None; 2=Primary; 3=Secondary; 4=College; 5=Technical/Vocation;  
6=Attending primary School; 7=Drop-out primary school; 8=Drop-out secondary school;  
9=Attending secondary school; 10=University

**Vulnerability:** (1) Widow (2) Orphan (3) Elderly (4) Disabled (5) Disease/Injury (6) Others

#### 6.0 Primary Economic Activities and Incomes of PAPs

ID	Type of Work	Duration	Location	Income earnings/sales last annual (Tshs)
1				
2				
3				

#### 7.0 Secondary Economic Activities and Incomes of PAPs

ID	Type of Work	Duration	Location	Income earnings/sales last annual (Tshs)
1				
2				
3				

**Type of work:** 1=Agricultural 2=Mason; 3=Fisher; 4= Waged employment; 5=Commerce  
6=Carpenter 7=Petty trading (mention); 8=Casual laborer; 9=Others.

**Duration:** 1=Full time; 2=Part time; 3=Seasonal

**Location:** 1=On this affected area ; 2=Out of the affected area but in the same District ; 3=Out of this District (Mention)

#### 8.0 Land and Land Sizes of PAPs

	Aspects	Numbers/Sizes
1	Number of plots in the area	
2	Size of plot in the area	
3	Number of plots outside the area	
4	Size of plot outside the area	

#### 9.0 Type of crops cultivated on affected land

S/n	Type of crops	Use of crops
1		
2		
3		

**Type:** 1=Cassava; 2=Paddy; 3. Vegetables 4=Cashew nuts 5=Coconut; 6=Maize; 7=Beans; 8=Fruits; 9=Sweet Potatoes; 10. Flowers 11=Other;

**Use Primary and Secondary:** 1=For household consumption; 2=For sale 3=For both household consumption and for sale

10.0 Income from crops for the past three years

S/n	Income last three years	Amount (Tshs.) Estimated
1	2017	
2	2018	
3	2019	

11.0 Livestock keeping

S/n	Type	Number (estimated)	Use
1			
2			
3			
4			

**Type:** 1= cattle; 2= goat; 3=Poultry; 4= others

**Use Primary and Secondary:** 1=For household consumption; 2=For sale;

12.0 Income from livestock keeping for the past three years

S/n	Income last three years	Amount (Tshs) Estimated
1	2017	
2	2018	
3	2019	

13:0 Land Categories

Parcel	Type/ category	Area (Acres)	How acquired	Distance to (m) residence
1				
2				
3				
4				



**Land:**

**Use:** 1 =Residential Plot; 2=Agricultural crops; 3=Livestock; 4=Residential and agriculture; 5=Residential and commercial

**Land type:** 1= Irrigated, 2=Arable, 3=Pasture, 4=Orchard

**How acquired:** 1=Purchased; 2=Inherited; 3 =Others

14.0 Land/ plot (s) used for business and affected by the project

Plot No.	Current use	Tenure regime	Income per month	Name of owner and user	
				Owner – if different from respondent	User if different from respondent
1					
2					
3					
4					

**Current use:** 1. Trade 2.Repair workshop 3. Industrial production area 4. Restaurant 5. Others (Specify).....

**Tenure regime:** 1. Titled property 2. Non-titled property 3. Rental 4. Borrowed 5. Others

15.0: Housing and Living Condition

15 .0 (a) Type of House

House	Floor	Wall	Roof	Number of rooms	Use	Number of houses
1						
2						
3						

15.0 (b) Type of floors

1=Mud; 2=Cement; 3=Floor tiles; 4=Timber 5=Mud and cement; 6=Cement and tiles 7= Other

15.0 (c) Type of walls

1=Poles and mud; 2. Interlocking blocks 3=Cement blocks; 4=Tin/metal sheet; 5=Cardboard/cartons; 6=Timber; 7=Other

15.0 (d) Type of roof

1=Grass; 2=Corrugated iron sheets; 3=Tiles; 4=Concrete; 5=Asbestos; 6=Tin or Metal sheets; 7=Other

**Use:** 1=Residence; 2=Commercial; 3=Both residential and commercial 4=Other

15.0 (e) Toilet facilities	
----------------------------	--

1=Flush toilet; 2=Pit latrine (VIP) 3=Pit latrine; 4=None; 5=Others

16.0 Type and number of Property/entity likely to be affected

S/n	Property/entity	Yes/No	Number of property
1	House		
2	Business Structure		
3	Other structures (outbuildings)		
4	Permanent crops		
5	Seasonal crops		

1= Yes, 2= No

17.0 Ownership of Durable Goods by PAPs

S/n	Assets	Response
1	Do you own a Radio (1=Yes; 2=No)	
2	Do you own a TV (1=Yes; 2=No)	
3	Do you own a Bicycle (1=Yes; 2=No)	
4	Do you own a Motor Cycle (1=Yes; 2=No)	
5	Do you own a fridge (1=Yes; 2=No)	
6	Do you own a Vehicle (1=Yes; 2=No)	
7	Do you own a Telephone (1=Yes; 2=No)	

18.0: Social Services

18.0 (a) Source of drinking water	
-----------------------------------	--

1=Pipe inside house; 2=Pipe outside house; 3=Communal stand pipe; 4=River; 5=Stream; 6=Borehole; 7=Covered well; 8=Uncovered Well; 9=Rain Water; 10=Bought Water; 11=Others

18.0 (b) Main source of lighting	
----------------------------------	--

1=Kerosene; 2=Candle; 3=Electricity; 4=Gas lamp; 5=Solar energy; 6=Other

18.0 (c) Main source of cooking fuel	
--------------------------------------	--

1=Fuel wood; 2=Charcoal;; 3=Kerosene; 4=Gas; 5=Electricity; 6=Other

19.0 Availability, Quality and Distances to Services

S/n	Services	Availability	Status	Meters	Remarks
1	Distance to source of drinking water				
2	Distance to Shops				
3	Distance to Market				

4	Distance to Primary School				
5	Distance to Secondary School				
6	Distance to Dispensary, Health Services				
7	Bus Stop				
8	Police post				

**Availability** 1=Yes 2=No;

**Status:** 1=Good; 2=Moderate; 3=Bad

20.0 Average Household expenditure rank three most important expenditure items for your household

S/n	Rank	Item
1		
2		
3		

21.0 Are you willing to relocate to another area if the way leave goes through your land or property?

1	Yes	
2	No	
3	Not sure	

22.0:  
Prefer  
red  
altern

active site to relocate

1	In the District	
2	Outside the District/area but in the Region	
3	Outside the Region	

23.0 Preferred mode of compensation

1 = In-kind compensation-----

2 = Cash compensation-----

24.0 Availability of suitable substitute land for purchase or rent after compensation

1=Available 2=Not available

25.0 Availability of houses for rent after compensation in the area .....

1=Available 2=Not available

26.0 How do you anticipate using your compensation?.....

27.0 What kind of benefits/positive impacts do you expect from the proposed development.....

28 .0 What kind of loss/negative impacts do you expect from the proposed project?  
 .....

29. 0 What negative impacts is the project likely to have on the activities you are currently engaged in at the project site?  
 .....

**SOCIO-ECONOMIC BASELINE SURVEY FOR THE PREPARATORY SURVEY OF THE PROJECT FOR REINFORCEMENT OF SUPPLY FROM KINYEREZI POWER STATION TO MABIBO SUBSTATION IN DAR ES SALAAM**

**Checklist of Questions for Mtaa Leaders**

DATE: \_\_\_\_/\_\_\_\_/2019/20

Name of Surveyor: .....

**A: BACKGROUND INFORMATION**

A.1 Name of Region:..... .....

A.2 Name of Municipal:..... .....

A.3 Name of Ward : .....

A.4 Name of Mtaa :..... .....

A.5 Population in the Mtaa: Me.....Fe.....Total.....

A.6 Number of households.....

	Location	yes	Most probably	outside
A.7	The household area may be located within the way leave of the transmission line, substation etc.			
A.8	Assets, Crops and business enterprises may be located within the way leave of the transmission line, substation etc.			

**B. INFRASTRUCTURES**

Code	Type	Number	Description / Remarks
B.1	Primary School		
B.2	Secondary School		
B.3	Vocational Training Centre		
B.4	Health Centre		
B.5	Electricity		
B.6	Water Supply		
B.7	Transport infrastructure		
B.8	Mtaa/ward Administration Buildings		
B.9	Police Post/Station		
B.11	Public Community Buildings, Halls		
B.12	Market Centre		
B.12	Religious or Cultural Centre (Churches, Mosques)		
B.13	Cemetery Area		
B.14	Others		

#### C. ESTIMATED IMPACTS ON INFRASTRUCTURES <sup>4</sup>

Code	Type	Number	Description
F.1	Family Houses		
F.2	Public Infrastructures		
F.3	Transport Roads		
F.4	Surface Waters		

<sup>4</sup> *Attended impacts estimated by the Surveyors*

<b>F.5</b>	Businesses		
<b>F.6</b>	Cultivated Farmlands		
<b>F.7</b>	Non Cultivated Lands		
<b>F.8</b>	Graves		
<b>F.9</b>	Others		

**ATTITUDES REGARDING IMPACTS FROM THE PREPARATORY SURVEY OF THE PROJECT FOR REINFORCEMENT OF SUPPLY FROM KINYEREZI POWER STATION TO MABIBO SUBSTATION IN DAR ES SALAAM**

**CONSIDER THE ATTITUDES OF WARD/MTAA LEADERS REGARDING THE PREPARATORY SURVEY OF THE PROJECT FOR REINFORCEMENT OF SUPPLY FROM KINYEREZI POWER STATION TO MABIBO SUBSTATION IN DAR ES SALAAM CLOSE TO THEIR LOCATION**

1.0. Would the people principally be willing to be relocated if necessary and if they are too close to the future transmission line or Substation?.....

If not, why? .....

1.2. Would you be principally willing to move infrastructures (schools, health centres etc.) if necessary and if they are too close to the future transmission line or substations?

.....  
If not, why? .....

1.3. Alternative land to relocate PAPs.....

1.4. Alternative land to relocate community properties example grave yard, schools

.....

1.5. Desired forms of compensation for community/public properties

.....

1.6. Underground infrastructures (water, electricity, telecom, etc. ....

***Any other observation from the Mtaa***

.....  
.....

**THANK YOU.**

## Signature Forms of Consulted Stakeholders

### ABBREVIATED RAP AND ESIA FOR THE PROPOSED EXTENSION OF TRANSMISSION LINE AND SUBSTATION FROM MABIBO TO KIMARA, UBUNGO DISTRICT, DAR ES SALAAM REGION

#### STAKEHOLDERS SIGNATURE FORM

S/N	NAME/JINA	INSTITUTION/TAASISI	POSITION/CHEO	CONTACT /SIMU	SIGN./SAHIHI	DATE/TARI
1	JERCA STANLEY	MANUPEA YA UBUNGO	AFISA MABIBO	0676-935485 0672-731715		03/01/20
2	EDINA E. LUSUUA	---	AFISA AFYA	0713528329		---
3	METHOD DAMIAN	WED-KIMARA	KATA KIMARA	0736624331		7.01.2
4	PENFORD P. KIZO	MEU-MANUPEA	MTENDAJI	0713684470 075870088		7.01.2
5	ISSA A. MBURA	MEU-KILUNGULE "B"	MTENDAJI	0659941410		7.01.2
6	JOSHUA W. GYUNDA	MEU-KILUNGULE	MTENDAJI	0713169436		7.01.2
7	GINDU SHEMA	FILD - KILUNGULE	MTENDAJI	0653250527		7.01.2
8	SIA MASHI	FILD - KILUNGULE	MTENDAJI	0763054766		07.01.2
9	GODWIN F. MANGWA	MEU-K/BARUTI	MEU	0658222680		07/01/2
10	HELLEN A. MANGWA	FILD - K/BARUTI	MTENDAJI	0676770460		07/01/2
11	MERTY H. CHISIRITI	FILD - K/BARUTI	MTENDAJI	0754032919		07/01/2
12	ASHA H. KIULA	FILD - K/BARUTI	MTENDAJI	0676346099		7/1/2

ABBREVIATED RAP AND ESIA FOR THE PROPOSED EXTENSION OF TRANSMISSION LINE AND SUBSTATION FROM MABIBO TO KIMARA, UBUNGO DISTRICT, DAR ES SALAAM REGION

STAKEHOLDERS SIGNATURE FORM

S/N	NAME/JINA	INSTITUTION/TAASISI	POSITION/CHEO	CONTACT /SIMU	SIGN./SAHIHI	DATE/T/
1	Sophia Y. Fitiis	S/mtaa kibo	mwaliki	075571114		10/01
2	ZAINABU M. SHIZI	S/MTAA KIBO	AFISA MUTUKATI	0719810530		10/01
3	Fafna Nurdin	S/mtaa - kibo	mumbe	013319890		10/01
4	MWAZABU A. MCHUWA	S/MTAA-KIBO	MJUMBE	0755629324		10/01
5	MARGARETH BAWNGILAKI	S/MTAA-KIBO	BALAZI	0655737869		10/01
6	SHEIRA K. DACHI	S/MTAA-KIBO	MWAAHANCHI	0742387575		10/01
7	AMINA MWENGEZI	S/MTAA-KIBO	MWAAHANCHI		A. MWENGEZI	10/01
8	JOICE KIBANUKA	S/MTAA-KIBO	MWAAHANCHI		J. KIBANUKA	10/01
9	DEHEMA R. MASINGA	S/mtaa-kibo	MWAAHANCHI	0754507066		10/01
10	SITADI RAMADHANI	S/MTAA-KIBO	MWAAHANCHI	0659580298	S. Ramadhani	10/01
11	JESCA KIWANGA SANGA	S/MTAA-KIBO	MWAAHANCHI	0755-372344		10/01
12	ADINA E. MUNGA	S/MTAA-KIBO	MWAAHANCHI	0657050720		10/01



ABBREVIATED RAP AND ESIA FOR THE PROPOSED EXTENSION OF TRANSMISSION LINE AND SUBSTATION FROM MABIBO TO KIMARA, UBUNGO DISTRICT, DAR ES SALAAM REGION

STAKEHOLDERS SIGNATURE FORM

S/N	NAME/JINA	INSTITUTION/TAASISI	POSITION/CHEO	CONTACT /SIMU	SIGN./SAHIHI	DATE/TA
1	ESTIA J. MAULLA	SIMTAA-KIBO	MWANANCHI	0689013025		10/01/2
2	SESILIA T. MNYANGA	SIMTAA-KIBO	MWANANCHI	073483608		10/01/2
3	REHEMA MBALLA	SIMTAA-KIBO	MWANANCHI	077243800		10/01/2
4	GRECE SAMWAMLINGA	SIMTAA-KIBO	MWANANCHI	0652863886		10/01/2
5	ENEZA ABDALLAH	SIMTAA-KIBO	MWANANCHI	072427218		10/01/2
6	MWAMARIM ANAULIDI	SIMTAA-KIBO	MWANANCHI	0657663049		10/01/2
7	SUSIA ISIDORI NIARA	SIMTAA-KIBO	MWANANCHI	0655439009		10/01/2
8	HAPPINESS E. ZAMBI	SIMTAA-KIBO	MWANANCHI	0713711770		10/01/2
9	CONSOLATHEN E. MWACHA	SIMTAA-KIBO	MWANANCHI	0714925204		10/01/1
10	SAMIHA K. KHAMIS	SIMTAA-KIBO	MWANANCHI	0714038528		10/01/1
11	ZENA ALLY	SIMTAA-KIBO	MWANANCHI	0772260087		10/01/2
12	MWAFUMA OMARY			0711762721		10/01/1

ABBREVIATED RAP AND ESIA FOR THE PROPOSED EXTENSION OF TRANSMISSION LINE AND SUBSTATION FROM MABIBO TO KIMARA, UBUNGO DISTRICT, DAR ES SALAAM REGION

STAKEHOLDERS SIGNATURE FORM

S/N	NAME/JINA	INSTITUTION/TAASISI	POSITION/CHEO	CONTACT /SIMU	SIGN./SAHIHI	DATE/TA
1	Ally H. Pandoro	Kimara Baruti	Mwananchi	0756-250530	[Signature]	
2	Reonish Peter Thanga	"	"	014-718607	[Signature]	
3	Esther V. Mwaipaje	Mkazi Baruti	"	0715-315199	[Signature]	
4	RUBEN PETER W. TEMU	Mkazi Baruti	Mwananchi	0719 519751	[Signature]	
5	ISAIAH ANTHONY MWAMANCHI	MKAZI BARUTI	MWANANCHI	0715 282873	[Signature]	11/01/12
6	JOYCE S. MKIZIMBO	"	"	0715-254634	[Signature]	11/01/12
7	FATUMA A. SIMBA	"	"	0713-200384	[Signature]	11/01/12
8	FATUMA ABDI NGANGA	Mkazi Baruti	"	0719-483320	F. NGANGA	11/01/12
9	ADOLPH A. SONGA	"	"	0784-523328	[Signature]	"
10	MASHAKA M. KATAMBO	Mkazi Baruti	"	0715-722719	[Signature]	11/01/12
11	CREYTON J. MGENI	" - "	Mwananchi	0756381012	[Signature]	11/01/12
12	PENDO PALO	Mkazi Baruti	Mwananchi	0714344932	[Signature]	

ABBREVIATED RAP AND ESIA FOR THE PROPOSED EXTENSION OF TRANSMISSION LINE AND SUBSTATION FROM MABIBO TO KIMARA, UBUNGO DISTRICT, DAR ES SALAAM REGION

STAKEHOLDERS SIGNATURE FORM

S/N	NAME/JINA	INSTITUTION/TAASISI	POSITION/CHEO	CONTACT /SIMU	SIGN./SAHIHI	DATE/TA
1	FLEWNA MICHAEL NTAUWA	KIMARA BARUTI	MWANANCHI	0784-609849	[Signature]	11/01/12
2	GBRIEL M. MWAKIWAUMBA	"	"	0715 272612	[Signature]	11/01/12
3	STEPHEN N. A. LYIND	"	"	0715133137	[Signature]	11/01/12
4	DAVID GERARD KIRENGA	" - "	"	0662 068856	[Signature]	11/01/12
5	MAGDALENA TARIMO	" - "	MWANANCHI	0713898565	[Signature]	11/01/12
6	HABIBA SAIDI ABRAHIM	" - "	"	0712463040	[Signature]	11/01/12
7	PRUDENCIA PATRICK KOPPA	" - "	" - "	0784798492	[Signature]	11/01/12
8	ERACE MASHUKA	" - "	" - "	0714 921169	[Signature]	11/01/12
9	ASHA ABRAHIM	" - "	" - "	N/A	[Signature]	11/01/12
10	UBU HUBERT RIKAT	" - "	MWANANCHI	0754 396699	[Signature]	11/01/12
11	RASHID AMIR	" - "	" - "	0715060169	[Signature]	11/01/12
12	FRENT SUSUKU	" - "	MWANANCHI	0715 44715	[Signature]	11/01/12

ABBREVIATED RAP AND ESIA FOR THE PROPOSED EXTENSION OF TRANSMISSION LINE AND SUBSTATION FROM MABIBO TO KIMARA, UBUNGO DISTRICT, DAR ES SALAAM REGION

STAKEHOLDERS SIGNATURE FORM

S/N	NAME/JINA	INSTITUTION/TAASISI	POSITION/CHEO	CONTACT/SIMU	SIGN./SAHIHI	DATE/TA
1	<del>KAZOBE Mwalubantu</del> ELIZABETH Mwalubantu	KIMARA BARUTI	MWANANCHI	07199920	<del>---</del>	11/01/20
2	PILI MWINYA JUMA	K/BARUTI	MWANANCHI	07130164	<del>---</del>	11/01/20
3	MUHAMMAD S. MCHAFU	K/BARUTI	MWANANCHI	0217-667961	<del>---</del>	11-01/20
4	ALICE J. MCHAFU	K/BARUTI	M/S MCHAFU	0754-780442	<del>---</del>	11/01/20
5	GODWIN F. MCHAFU	K/BARUTI	M/CO	0658223680	<del>---</del>	11/01/20
6	MUHAMMAD S. KILONGO	K/PRODUCTI	M/UTI	0713212192	<del>---</del>	11/01/20
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ABBREVIATED RAP AND ESIA FOR THE PROPOSED EXTENSION OF TRANSMISSION LINE AND SUBSTATION FROM MABIBO TO KIMARA, UBUNGO DISTRICT, DAR ES SALAAM REGION

STAKEHOLDERS SIGNATURE FORM

S/N	NAME/JINA	INSTITUTION/TAASISI	POSITION/CHEO	CONTACT /SIMU	SIGN./SAHIHI	DATE/T/
1	ELIAS MBOG	UJUBU	AKB	0767534622 076746	[Signature]	16/11
2	ANGEL MUKOSI	—  —		0657505339	[Signature]	16/11/2
3	DORAH DAVID	—  —		0653254436		16/11/2
4	FATUMA HASANI	—  —		0717289450		16/11/2
5	MICHAEL ULIZAMUKUJA	KIBANGU	LAUNDRY	0715701280	[Signature]	16/11/2
6	ZAMB + MUGUNDO	KIBANGU	MASHAUMU	0716562620	[Signature]	16/11/2
7	JAMALI CHOMDO	KIBANGU	SALONI	0713091887	JAMALI	16/11/2
8	BERNAD WUYA	KIBANGU	BIASHARA	0715087024	[Signature]	16/11/2
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ABBREVIATED RAP AND ESIA FOR THE PROPOSED EXTENSION OF TRANSMISSION LINE AND SUBSTATION FROM MABIBO TO KIMARA, UBUNGO DISTRICT, DAR ES SALAAM REGION

STAKEHOLDERS SIGNATURE FORM

S/N	NAME/JINA	INSTITUTION/TAASISI	POSITION/CHEO	CONTACT /SIMU	SIGN./SAHIHI	DATE/TAREHE
1	THOMAS KAPINGA	NSSF	Investment officer	07648333659	[Signature]	06/04/2020
2	MARISI T. MAAZI	NSSF	PR	0739000056	[Signature]	06/04/2020
3	BARAKA SADIKI	NSSF	As. Mshauri Mago	082922225	[Signature]	06/04/2020
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ABBREVIATED RAP AND ESIA FOR THE PROPOSED EXTENSION OF TRANSMISSION LINE AND SUBSTATION FROM MABIBO TO KIMARA, UBUNGO DISTRICT, DAR ES SALAAM REGION

STAKEHOLDERS SIGNATURE FORM

S/N	NAME/JINA	INSTITUTION/TAASISI	POSITION/CHEO	CONTACT/SIMU	SIGN/SAAHIHI	DATE/TAREHE
1	RENATUS CHARLES PALLO	KILIMONDO Hospital	HEAD TEACHER	0788501709	<i>[Signature]</i>	26/2/2020
2	Dr. NURU N. KITARA	MIT	LECTURER	0716209210	<i>[Signature]</i>	08/05/2020
3	Mary Hakyo	MIT	HOD - <sup>TRANSPORT</sup> <del>Environment</del>	71587855	<i>[Signature]</i>	08/05/2020
4	Alistides Mwasiga	MIT	PLD	077493225	<i>[Signature]</i>	08/05/2020
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## 13. 地形地質測量結果報告書（現地再委託）

13. 地形地質測量結果報告書(現地再委託)



**TANZANIA ELECTRIC SUPPLY COMPANY LIMITED**  
*We light up your life*

# **REINFORCEMENT OF KINYEREZI TO UBUNGO 220kV TRANSMISSION LINE AND NEW 220/132kV MABIBO SS**

## **Preparatory Ground Investigation**

January 2020



**YEC Consultants  
CSI Construction**



**REPORT TITLE:**

**Ground Investigation for the reinforcement of Kinyerezi to Ubungo 220kV  
Transmission line and the new 220/132kV Mabibo SS**

<b>Report No:</b> CL-0160	<b>PROJECT:</b> <b>Reinforcement of the Kinyerezi to Ubungo 220kV Transmission line and the new 220/132kV Mabibo SS</b>	<b>DATE:</b> 27 <sup>th</sup> December 2019
<b>CLIENT:</b> CSI Construction YEC Consultants		<b>AUTHOR:</b> Jotham Ntensibe Yustino Kwingwa Hellen Kimambo

**Background:**

This report covers the factual findings of the ground investigations for the strengthening of the Kinyerezi to Ubungo 220kV Transmission line and the new 220/132kV Mabibo SS .

C-Labs carried out the investigation in November 2019 and January 2020 on behalf of the Project Consultants Yachiyo Engineering Co., Ltd or YEC Consultants and CSI Construction.

**SECTION**

●Geotechnical	Asphalt
Soils	Chemistry
Bitumen	Cement
Pavement	Concrete



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- 3 LOCATION OF THE BOREHOLES**
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  - 6.1 Layer Engineering Properties
  - 6.2 Estimates of Bearing Capacity
  - 6.3 Recommendations for Foundation Types

## **APPENDICES**

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**List of Symbols Used**

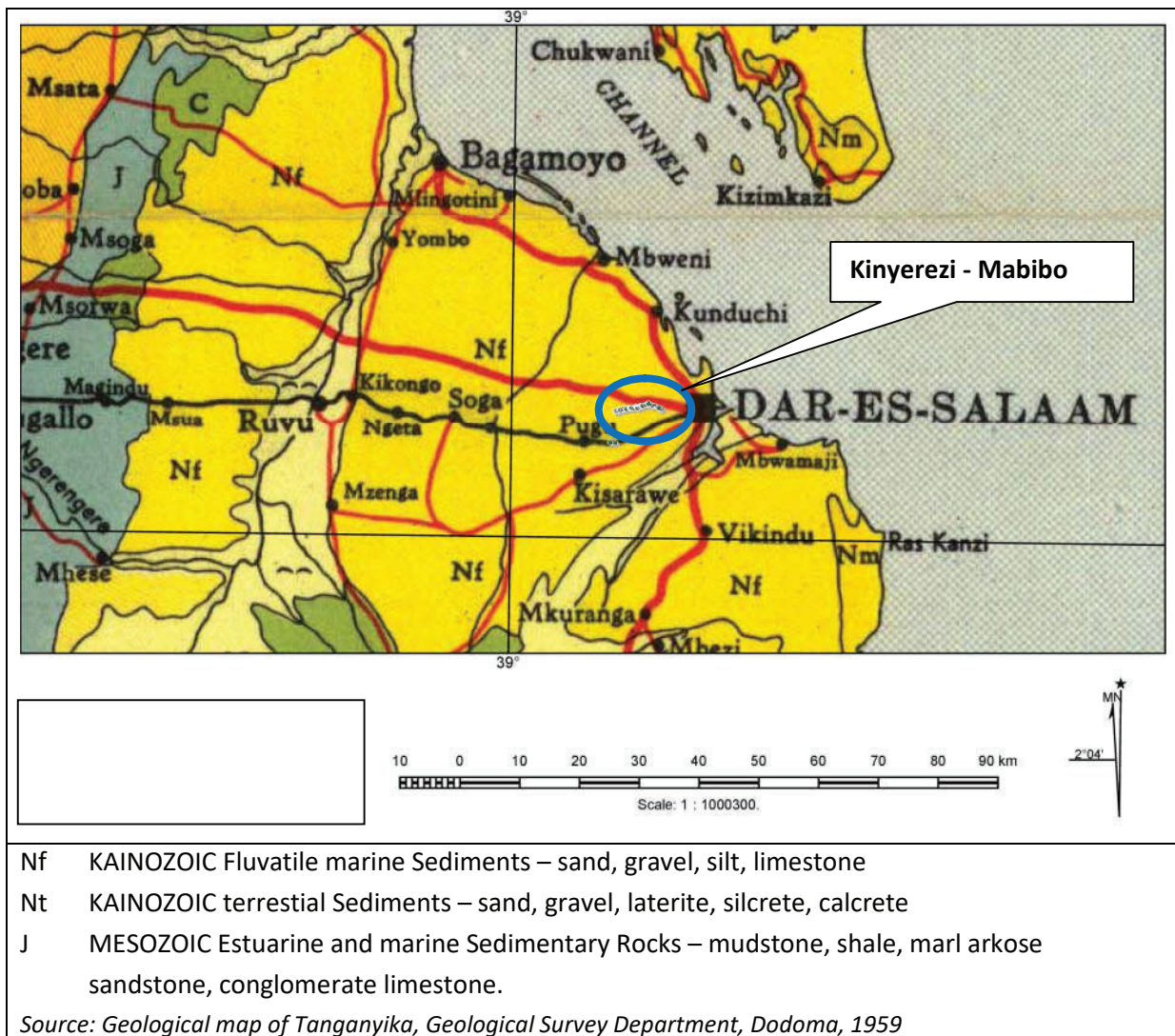
MSL	Mean Sea Level
SPT	Standard Penetration Test – with a 63.5kg hammer
DLP	Dynamic Light Penetrometer or Probe
N, N <sub>60</sub>	SPT value, corrected SPT value
USCS	Unified Soil classification system
BSCS	British soil classification system
ISRM	International Society for Rock Mechanics
PMDM	Pavement Materials and Design Manual, Ministry of Works, Tanzania 1999
LL, PL, PI	Liquid Limit, Plastic Limit, Plasticity Index
NMC, w	Natural Moisture Content, moisture content
SG, G	Specific Gravity
U4 / U100	Undisturbed sample – 4 inches diameter / 100mm diameter
DS	Disturbed sample
UDS	Undisturbed sample
G.S.F	Gravel. Sand. Fines fractions in the soil sample
GWT	Ground Water Table
BD	Bulk Density
$\gamma, \gamma_w$	Unit weight of soil (gamma), Unit weight of water
C	Soil cohesion. Units of pressure, kPa
s <sub>u</sub>	Undrained shear strength. Units of pressure, kPa
$\phi$	Angle of friction (phi)
K	Permeability
Nq, Nc, Ny	Bearing capacity factors for depth, shape and overburden
E, Es, Eoed	Elasticity Modulus
$\mu$	Poisson's Ratio
e, e <sub>0</sub>	Void Ratio, Initial void ratio
s <sub>e</sub>	Settlement
S	Degree of saturation
$\sigma, p$	Overburden pressure, soil pressure
RQD	Rock Quality Designation
TCR	Total Core Recovery
SCR	Solid Core Recovery

## 1 SCOPE OF WORK

This report covers the field work methods, observations and the test results as follows:

- 5 Boreholes were drilled in the new Mabibo Substation labeled BH 01 to BH 05 in this report
- 27 Boreholes were drilled along the transmission line labeled BH T01 to BH T27 in this report
- Additional boreholes were drilled at Kinyerezi power station and Ubungo Substation.
- Each borehole was drilled to 20m, the soil profile was logged and Field SPT measurements carried out to establish ground consistency
- Samples of soil and the ground water were taken for Laboratory analysis to confirm the site observations.

## 2 GENERAL GEOLOGY



**Figure 1 : General Geology**

The geological map shows the site is located on predominantly marine sediments consisting of silts, sands and limestone gravels.

### 3 LOCATION OF THE BOREHOLES

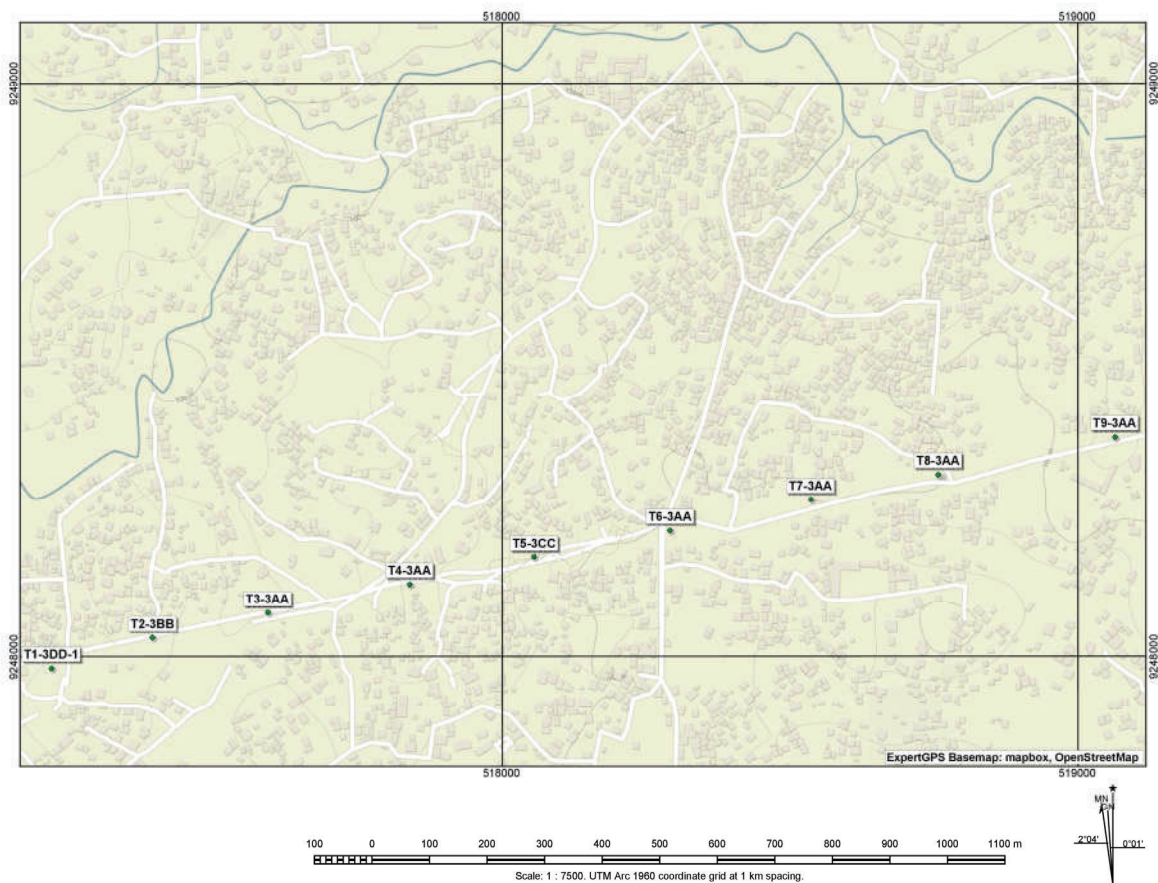
The location of the boreholes was pre-determined by the Client along the proposed tower locations and in the substations as follows. They were set out on site by the surveyors as follows:

**Table 1 : Coordinates and Elevation of the Boreholes (UTM Arc 1960)**

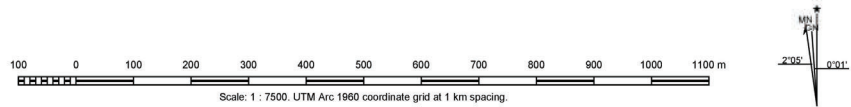
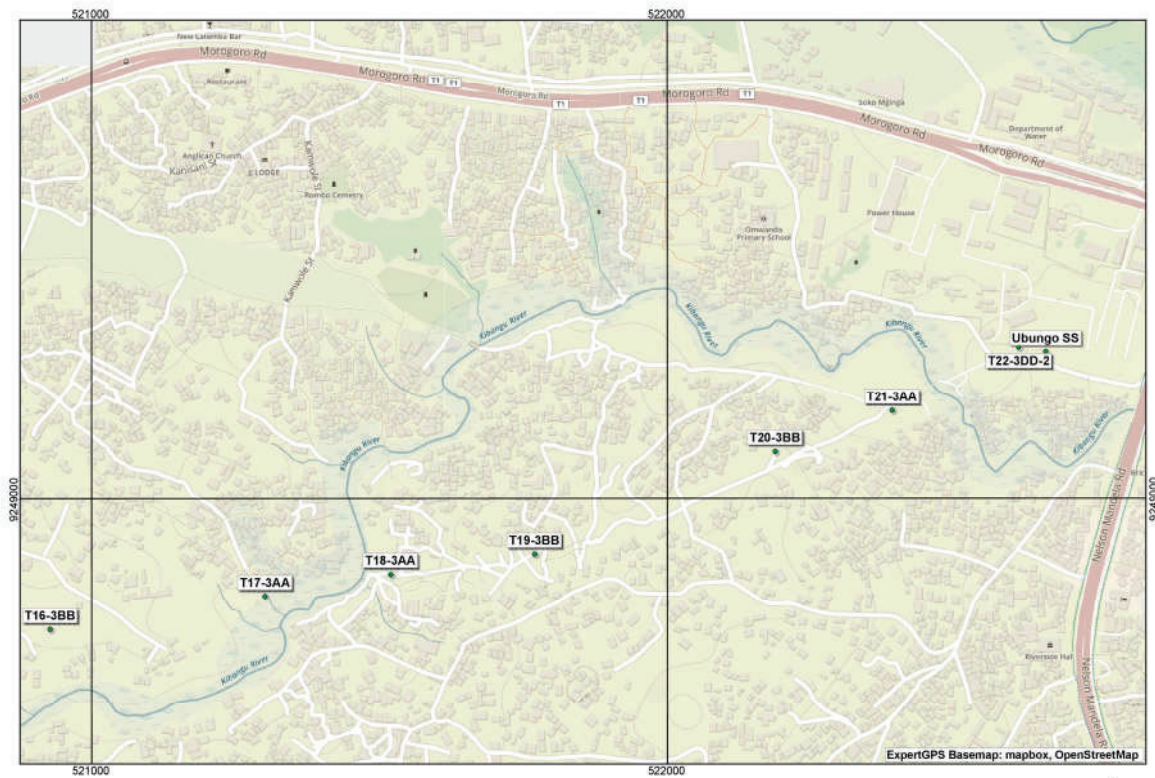
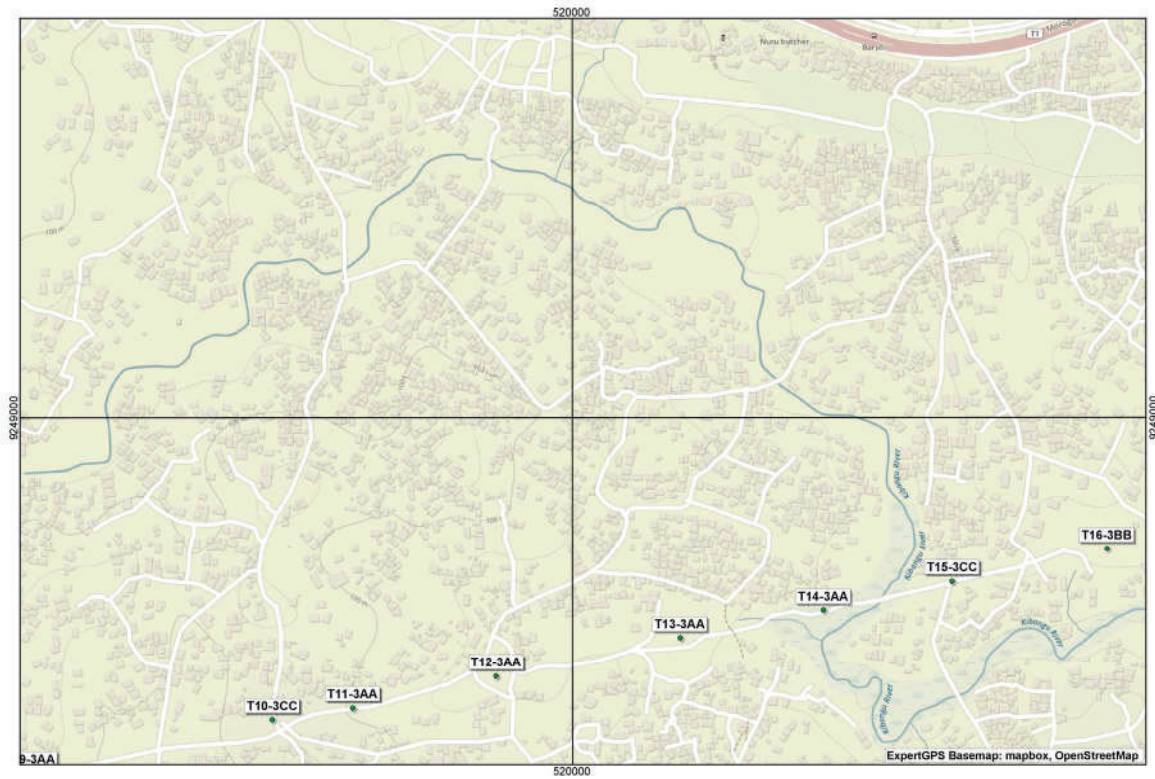
Borehole ID	Project ID	Easting	Northing	Elevation m	BHole Depth, m	Ground Water Depth, m
BH 01	MABIBO SS	524655.586	9248429.136	38.8	20.45	0.9
BH 02	MABIBO SS	524606.843	9248472.307	38.8	20.45	0.85
BH 03	MABIBO SS	524494.246	9248522.683	39.6	20.33	0.3
BH 04	MABIBO SS	524445.503	9248565.854	40.3	20.35	1.44
BH 05	MABIBO SS	524381.649	9248573.059	40.8	20.45	0.35
BH T01	T1-3DD-1	517216.155	9247980.029	120.4	20.30	6.0
BH T02	T2-3BB	517392.232	9248032.607	123.1	14.30	--
BH T03	T3-3AA	517592.141	9248076.076	110.5	20.34	2.6
BH T04	T4-3AA	517838.510	9248125.985	124.8	11.25	--
BH T05	T5-3CC	518055.200	9248173.133	99.0	20.30	0.3
BH T06	T6-3AA	518291.151	9248219.899	100.2	20.40	7.0
BH T07	T7-3AA	518535.356	9248273.913	97.2	20.00	11.7
BH T08	T8-3AA	518756.797	9248317.208	103.2	20.36	--
BH T09	T9-3AA	519063.339	9248381.964	110.5	20.45	--
BH T10	T10-3CC	519478.150	9248474.412	106.4	20.20	14.3
BH T11	T11-3AA	519617.732	9248495.148	92.1	20.40	2.2
BH T12	T12-3AA	519867.206	9248550.835	91.3	20.45	10.1
BH T13	T13-3AA	520186.031	9248617.259	89.5	20.35	--
BH T14	T14-3AA	520435.173	9248665.275	69.5	16.93	2.5
BH T15	T15-3CC	520659.095	9248715.635	81.2	20.30	10.55
BH T16	T16-3BB	520927.482	9248772.120	87.8	16.29	--
BH T17	T17-3AA	521301.092	9248830.393	68.7	14.70	7.7
BH T18	T18-3AA	521518.938	9248868.893	66.1	10.50	5.08
BH T19	T19-3BB	521768.818	9248903.807	89.7	20.40	--
BH T20	T20-3BB	522186.895	9249082.857	81.6	20.36	--

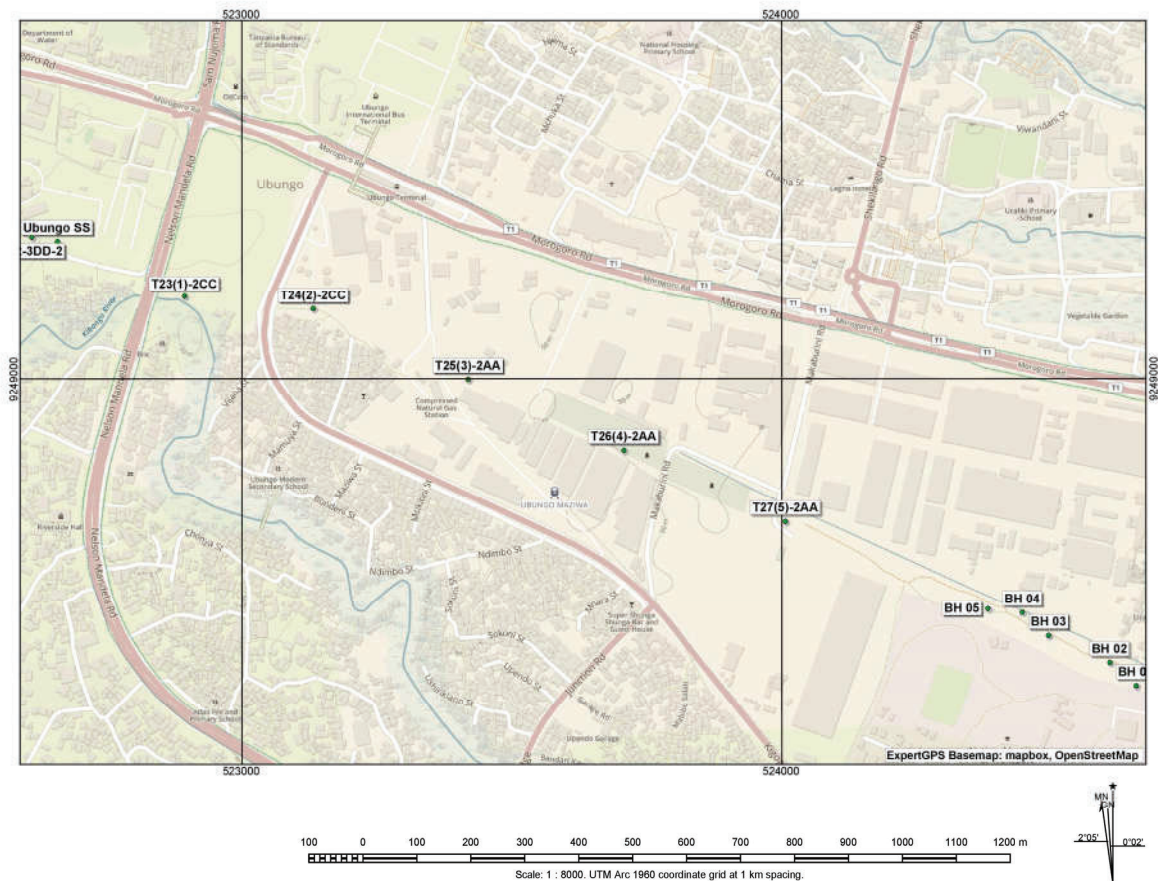
Borehole ID	Project ID	Easting	Northing	Elevation m	BHole Depth, m	Ground Water Depth, m
BH T21	T21-3AA	522380.323	9249159.21	52.2	20.45	3.4
BH T22	T22-3DD-2	522610.242	9249263.531	54.5	20.40	3.1
BH T23	T23(1)-2CC	522892.840	9249152.220	50.8	20.45	4.6
BH T24	T24(2)-2CC	523132.023	9249129.411	52.5	20.45	2.25
BH T25	T25(3)-2AA	523418.484	9248999.360	49.6	20.45	10.1
BH T26	T26(4)-2AA	523706.999	9248866.983	47.3	20.45	0.54
BH T27	T27(5)-2AA	524006.393	9248734.169	44.5	20.45	0.5
BH 06	UBUNGO SS	522643.919	9249259.679	55.6	20.45	8.4
BH 07	KINYEREZI 1 SS				18.21	3.5

The locations are shown in the figures below.









**Figure 2 : Locations of the Boreholes**

## 4 GROUND INVESTIGATION METHODOLOGY

### 4.1 Location and depth of boreholes

The locations of all the boreholes were prescribed by the Client..

### 4.2 Drilling methods, Field measurements and sampling methods

The boreholes were progressed using the Percussive Drilling method described in Subsection 20.5 of BS BS 5930 - "Code of practice for site investigations".

Soil samples were recovered continuously as much as possible. The drilling was carried out using a 125mm and 100mm core sampler in 150mm casing..

The SPT blow measurements were taken using a 63.5kg hammer falling freely through 760mm onto a split barrel sampler assembly of 35mm internal diameter secured to the bottom of a drive and rod assembly as described in BS 1377: Part 9: 1990. SPT blow counts were taken at approximately 1.0m intervals. The samples retrieved from the SPT were used for the visual description of the soil.

When weak rock or cemented soil was recovered, physical measurements of the Total Recovery, Solid Core recovery SCR and the Rock Quality Designation RQD was determined for each run. A visual assessment of the degree of weathering was made and recorded.

---

The ground profiles and the soil SPT field measurements together with photographs for each borehole are recorded on the borehole Logs in **Appendix A**.

### **4.3 Laboratory Testing**

Laboratory tests were carried out on the soil samples as follows:

- i) For Soils, General soil classification tests to determine index properties such as natural moisture content, Atterberg's limits - Liquid Limit LL and Plastic Limit PL, the Shrinkage Limit SL and the particle size distribution by wet sieving were carried out in accordance with the procedures in BS 1377 Part 2.

5 soil samples were selected from each borehole for the laboratory testing. The samples were selected so as to have a representative coverage of the soil types in each borehole.

The soils have been classified according to BS 5930 - "*Code of Practice for Site Investigations*" which is referred to in this report and the summaries as the British Soil Classification System or BSCS.

The results of the classification were used to confirm and correct the descriptions on the field logs

- ii) For the weak rocks, tests were carried out to determine overall strength and possible variations in strength and density with depth in the borehole.
  - The bulk density of selected pieces was determined.
  - Pieces that had a height to diameter ratio of at least 2 were taken for UCS testing

The tests were carried out according to the methods suggested by the International Society for Rock Mechanics, ISRM

- iii) For the Ground Water: the pH, sulphate and chloride content were determined on samples taken from the ground.

### **4.4 Test Results**

The in situ SPT's and Laboratory test results are presented in the appendices as follows:

- A soil profile log for each borehole which includes field SPT N Values and a summary of laboratory determined soil index test parameters can be found in **Appendix A**.
- A tabulated summary of the laboratory test results on soil samples have been attached in **Appendix B**.
- Summaries of the UCS test on rocks are attached in **Appendix C**.
- Summaries of the tests on the ground water can be found in **Appendix D**.



## 5 GROUND CHARACTERISTICS

### 5.1 Water Quality

A Sample of ground water from each borehole was taken and analyzed for

- pH using the electrometric method in CML 1.18, BS 1377 Part 3
- chloride ion content using the silver nitrate titration method ASTM D512
- sulphate ion content using barium sulphate standardized reagents in ASTM D516 but using a HACHD900 colorimeter

The results are summarized in the table below.

**Table 2 : Summary of Test Results on ground water**

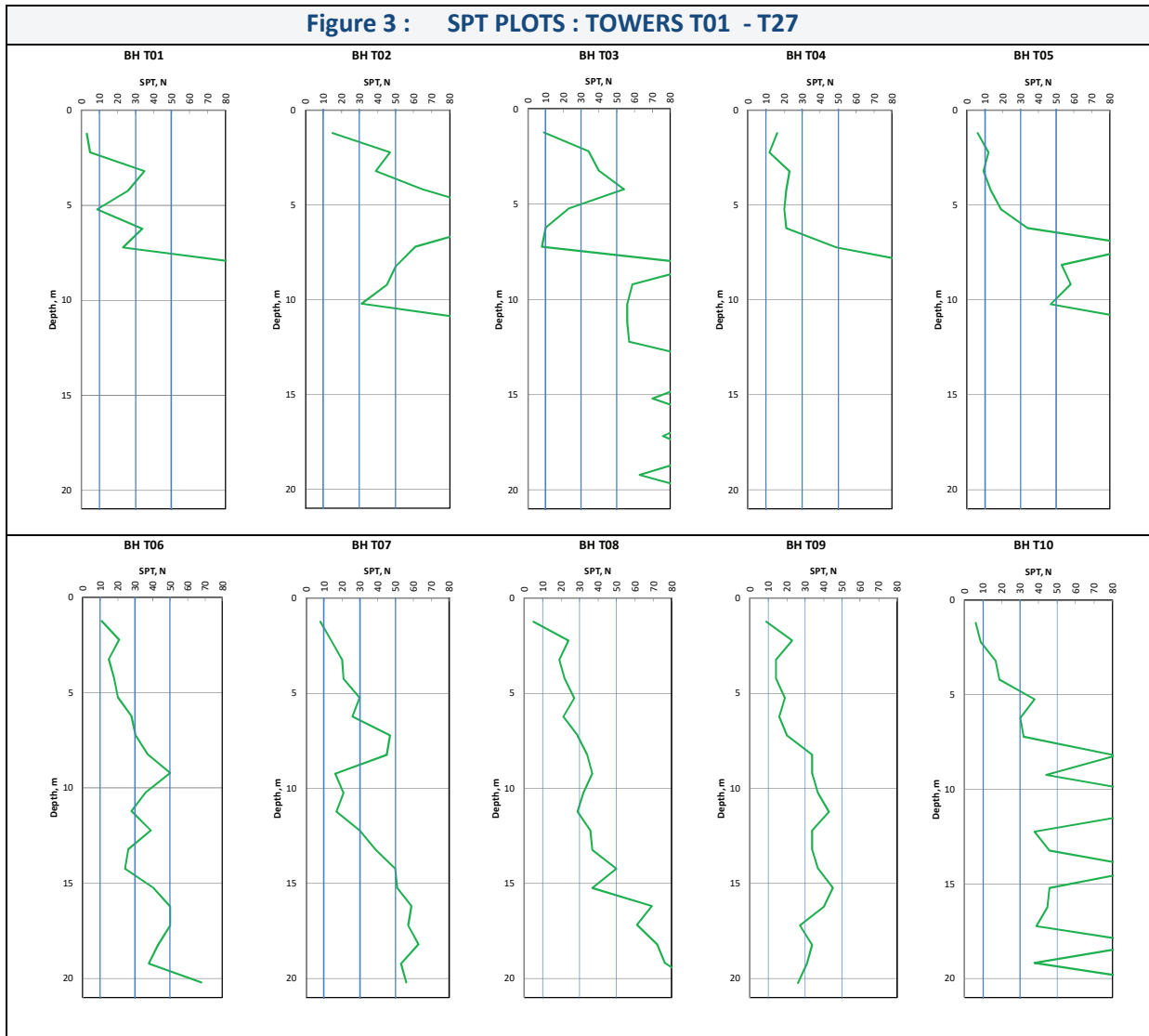
Tower Location	Depth of sampling, m	Final Water Level, m	pH	Cl <sup>-</sup> , Mg/l	So <sub>4</sub> <sup>-</sup> , mg/l
KINYEREZI 1 SS	--	3.5	8.0	44	19
BH T01 – 3DD - 1	12.40	6	7.0	6652	1300
BH T03 – 3AA	8.40	2.6	7.1	10637	1850
BH T05 – 3CC	1.40	0.3	7.2	1182	150
BH T06 – 3AA	10.0	7.0	7.2	8577	4550
BH T07 - 3AA	13.8	11.7	7.8	425	400
BH T12 - 3AA	--	10.1	7.5	491	425
BH T14 - 3AA	8.2	2.5	7.8	633	325
BH T15 - 3CC	--	10.55	7.4	1020	1525
BH T17 - 3AA	8.1	7.7	7.2	932	1200
BH T18 - 3AA	--	5.08	8.5	835	275
BH T21 – 3AA	3.5	3.4	7.3	459	75
BH T22(2) - 3DD	6.8	3.1	7.9	387	350
BH T23(1) - 2CC	7.65	4.6	7.7	548	75
BH T24(2) - 2CC	--	2.25	8.0	274	210
BH T25(3) - 2AA	11.4	10.1	7.8	734	450
BH T26(4) - 2AA	0.4	0.54	8.1	129	65
BH T27(5) – 2AA	--	0.5	8.0	162	1.5
UBUNGO SS	9.40	8.4	7.3	453	45
BH 01	6.4	0.9	7.9	343	43
BH 02	7.0	0.85	8.0	391	63
BH 04	0.7	1.44	7.8	271	800
BH 05	1.1	0.35	7.9	346	78

Please note that the Depth of sampling was the depth of the water at the time of sampling. Not all depths were recorded. The final water level was recorded 2 or 3 days later.

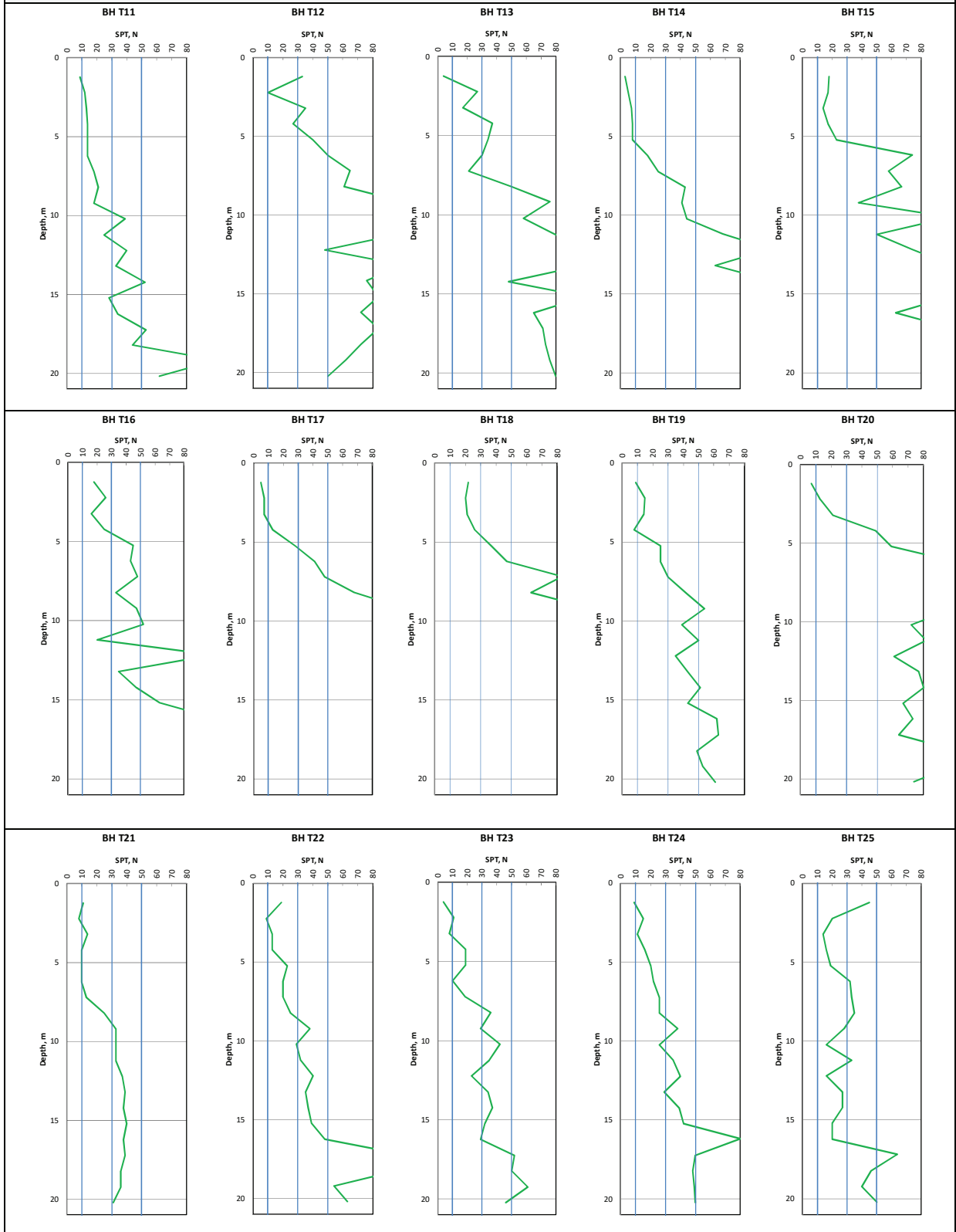
Significantly high values of Chloride Content greater than 500mg/l and Sulphate Contents greater than 200mg/l have been highlighted. These are aggressive ground environments that are potentially corrosive to concrete and steel. Adequate concrete cover and cement types have to be utilized.

### 5.2 Soil Consistency from SPT values

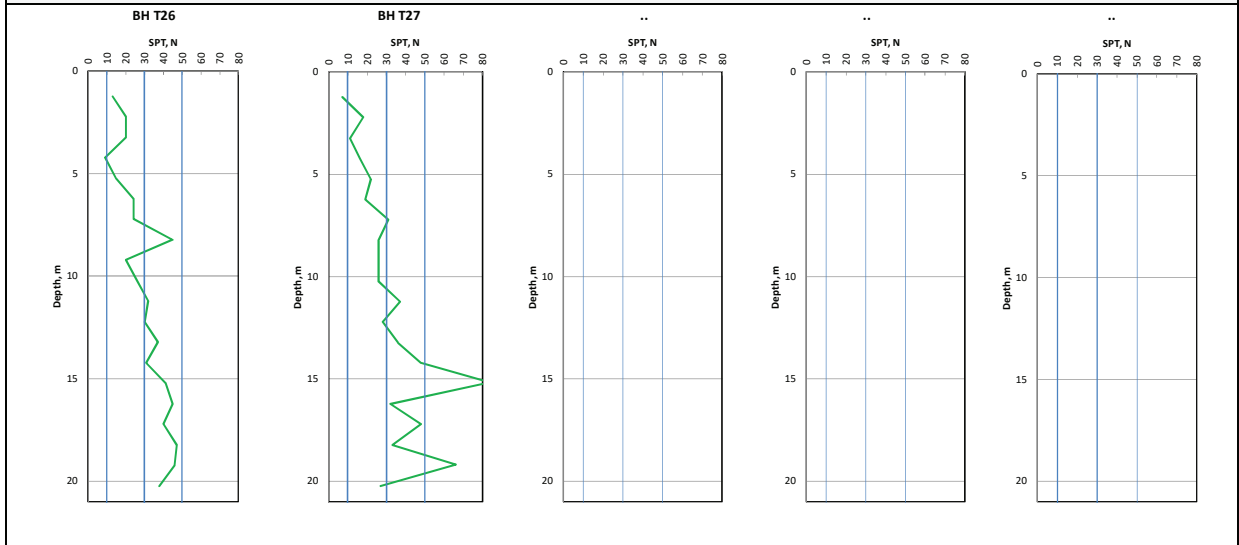
The following figures show the variation in SPT N values with depth. Refusal conditions with SPT-N values greater than 50 for which the blow counts could not be done have been assigned an N-Value of 100. The plots are only extended to a maximum SPT N value of 80



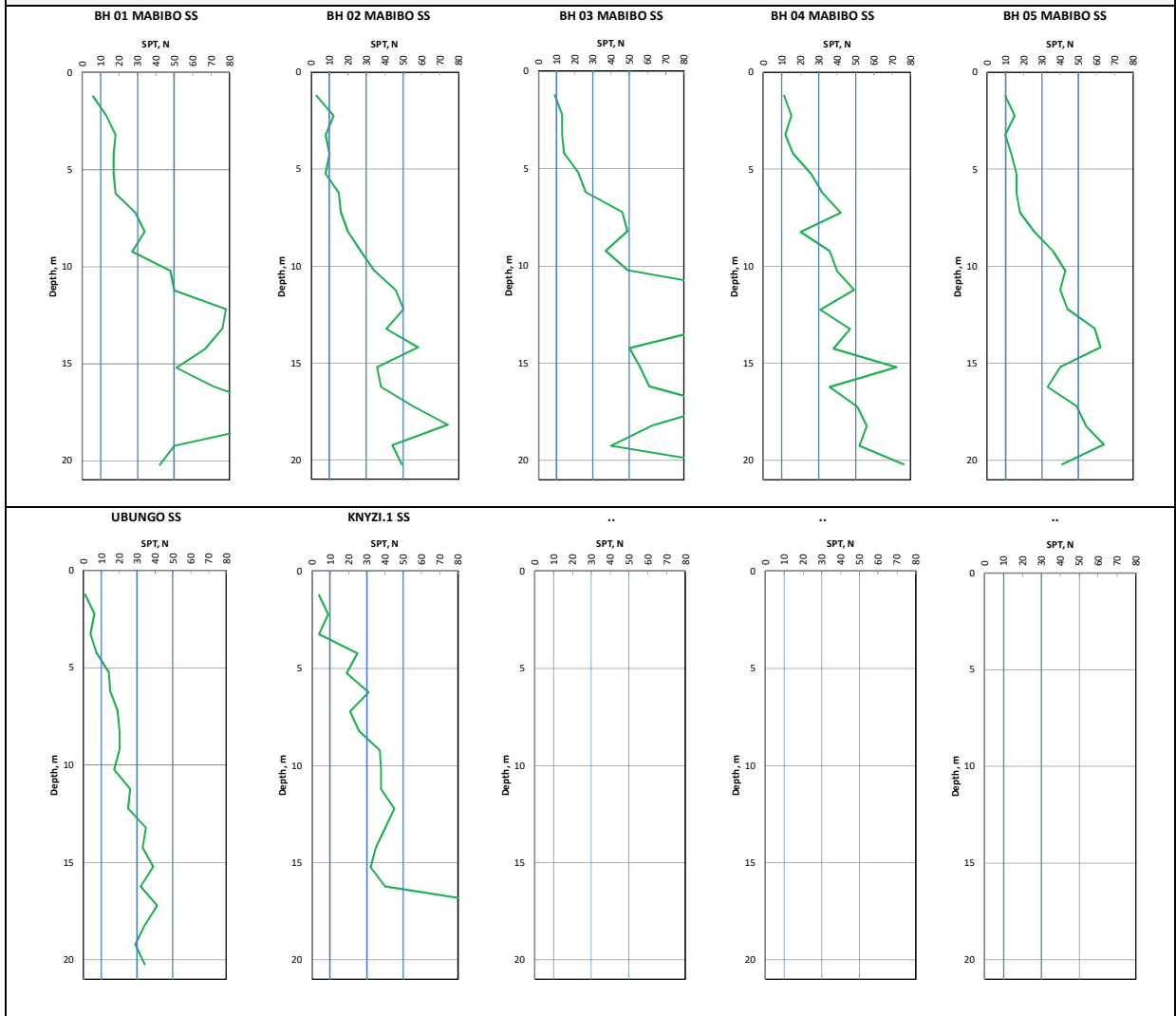
**Figure 3 : SPT PLOTS : TOWERS T01 - T27**

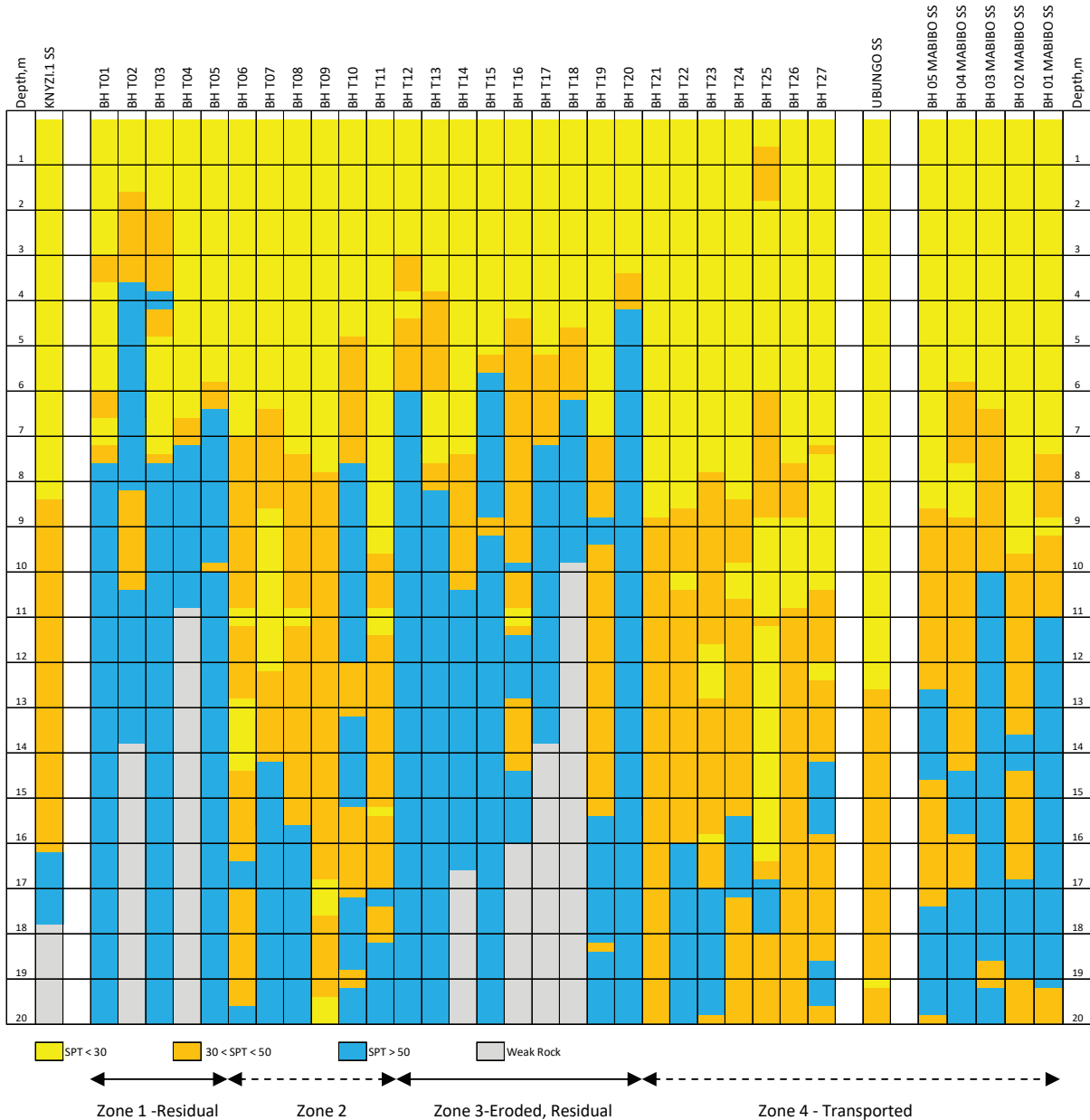


**Figure 3 : SPT PLOTS : TOWERS T01 - T27**



**Figure 4 : SPT PLOTS : MABIBO, UBUNGO AND KINYEREZI 1 SUBSTATIONS**





**Figure 5 : Depths to Dense (SPT N > 30) and Refusal Conditions (SPT N > 50)**

It can be seen that there are 4 identifiable geological zones

- a) Zone 1 : T01 to T05 has refusal conditions within 10m of the surface and some boreholes have weak rock.
- b) Zone 2 : T06 to T11 – Refusal conditions much deeper.
- c) Zone 3 : T12 to T20 – is similar to zone 1 in that it has refusal conditions less than 10m depth with some exceptions, and some boreholes have weak rock.
- d) Zone 4 : T21 to T27 and BH 05 to BH 01 in Mabibo SS – Mostly dense conditions and discontinuous refusal conditions over the 20m depth investigated .

The following additional observations have been made:

- All the towers reached dense conditions, with SPT N > 30 but at varying depths.
- All the towers reached refusal conditions with SPT>50 over the 20m investigated except T09, T21 and T24-T27
- 12 out of 20 boreholes between T01 and T20 reached refusal conditions within 10m depth of drilling.
- Refusal conditions are not continuous in boreholes T21 to T27 and in the 5 boreholes in Mabibo SS and the borehole in Ubungo SS

### **5.3 Ground Lithology**

A graphical summary of the lithology in all the boreholes is presented in the figures below. There is no overall pattern discernable in the boreholes

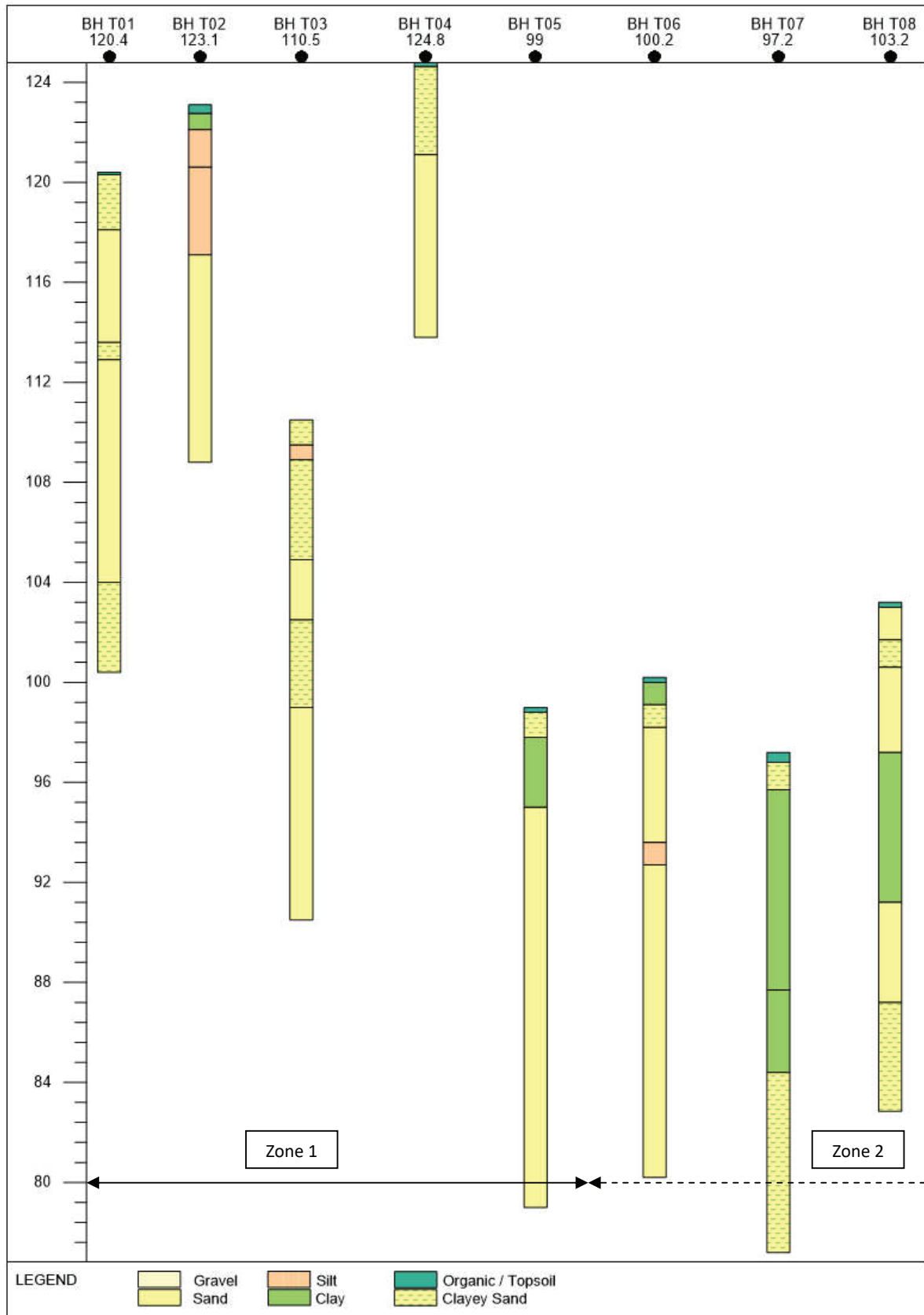


Figure 6 : Ground Profiles T01 to T08





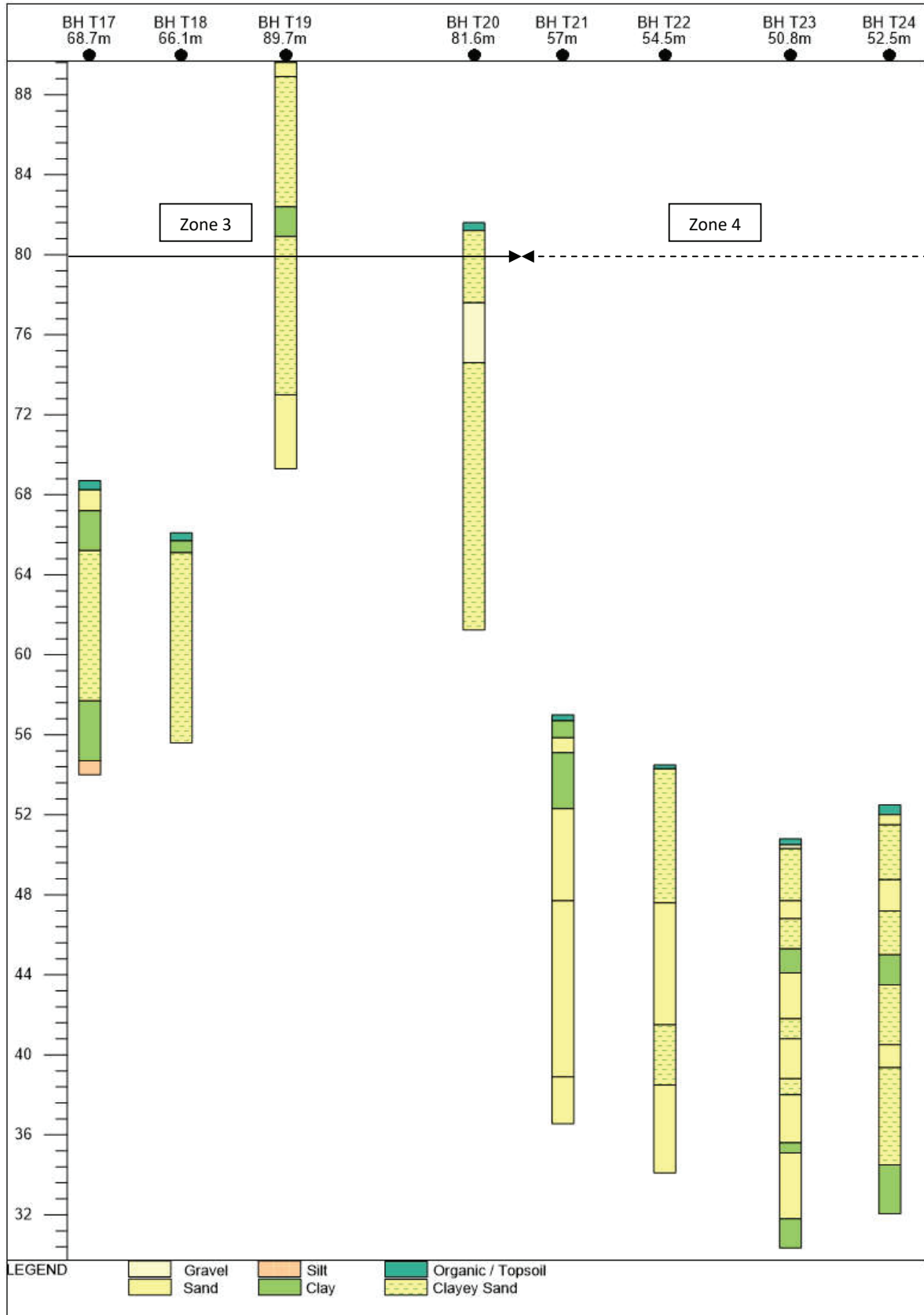


Figure 8 : Ground Profiles T17 – T24

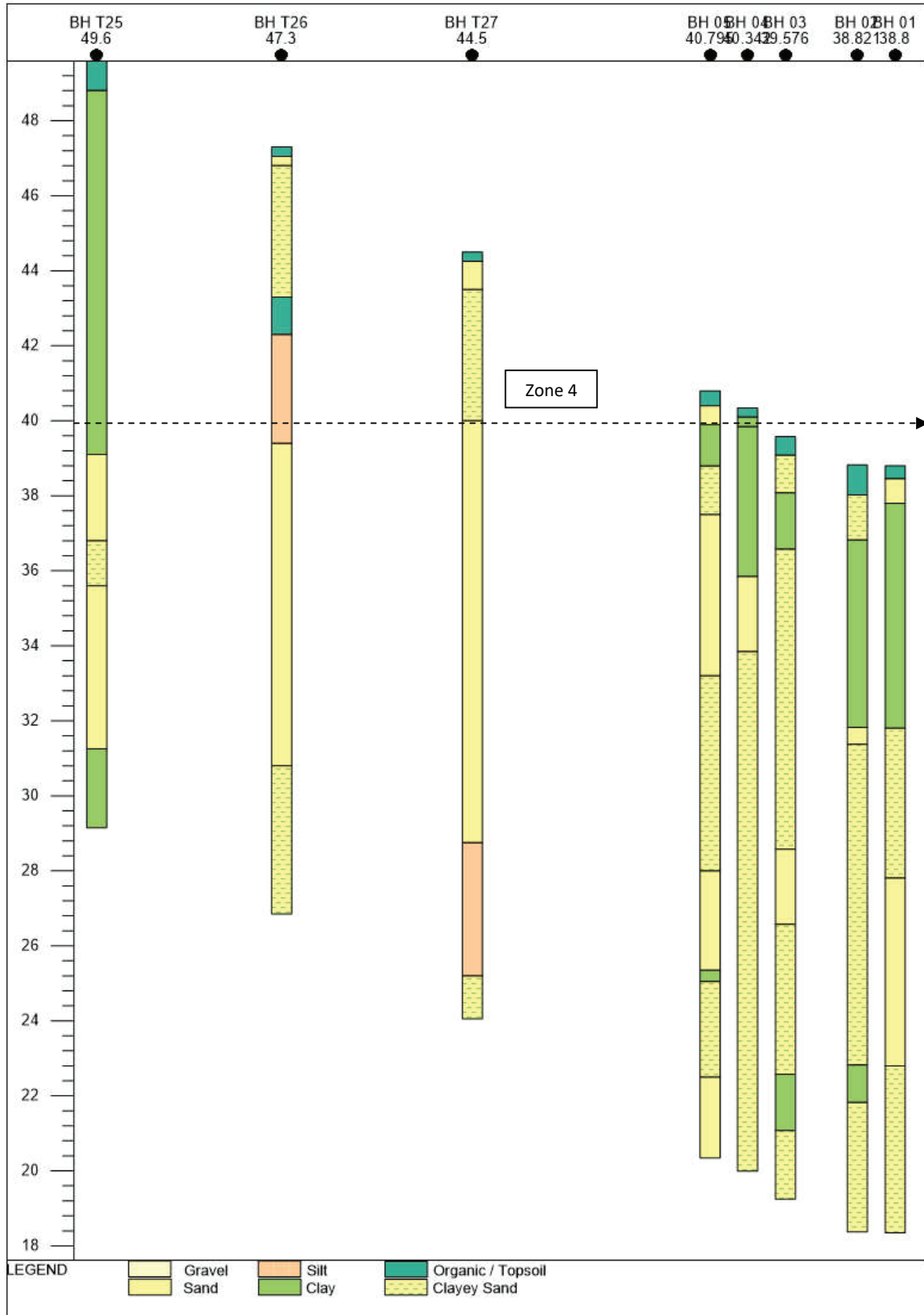


Figure 9 : Ground Profiles T25 – T27 and BH 01 to BH 05 Mabibo SS

It can be seen that Sands, Clayey Sands and Clays predominate. There is no clear correlation of Lithology to the geological zones identified on the Consistency Plots in the previous subsection, but the topography does. It is noticeable that:

- a) Zone 1 is on a watershed and covers T01 to T05. It is on the highest bench along the transmission line, above 100m elevation and has mostly sandy soil types. It has residual soils and has the most aggressive ground water conditions reported in subsection 5.1 above.
- b) Zone 2 is also on a watershed, on a transition to Zone 3
- c) Zone 3 between T12 and T20 is on very hilly or ground with deep river erosion gullies and possible faulting/folding. The valleys are up to 25m deep. Zone 3 has deeply weathered residual soils consisting predominantly of either clay or very clayey sands. Zone 3 is also found to have very aggressive ground water conditions, reported in subsection 5.1 above
- d) Zone 4 encompassing T21 to BH 01 Mabibo SS is the lowest bench on which the boreholes are all below 60m elevation. Zone 4 has transported clayey sediments.

## **6 BEARING CAPACITY ESTIMATES AND RECOMMENDATIONS FOR FOUNDATIONS**

The following approach has been followed in this section to

- a) The Engineering properties C, Phi ( $\phi$ ), Bulk Density and Es of each layer identified in the investigation were extrapolated from the available laboratory test results and field observations.
- b) Estimates of bearing Capacity and Settlement were computed for spread footings of varying widths at each borehole location to 4m depth.
- c) Recommendations to use either shallow spread footings or deep piled foundations were drawn for each tower based on the above results.

### **6.1 Layer Engineering Properties**

The C and Phi values of the of the Triaxial Shear and Direct Shear test results were plotted and correlated against the SPT values for granular and cohesive soils separately as shown below:

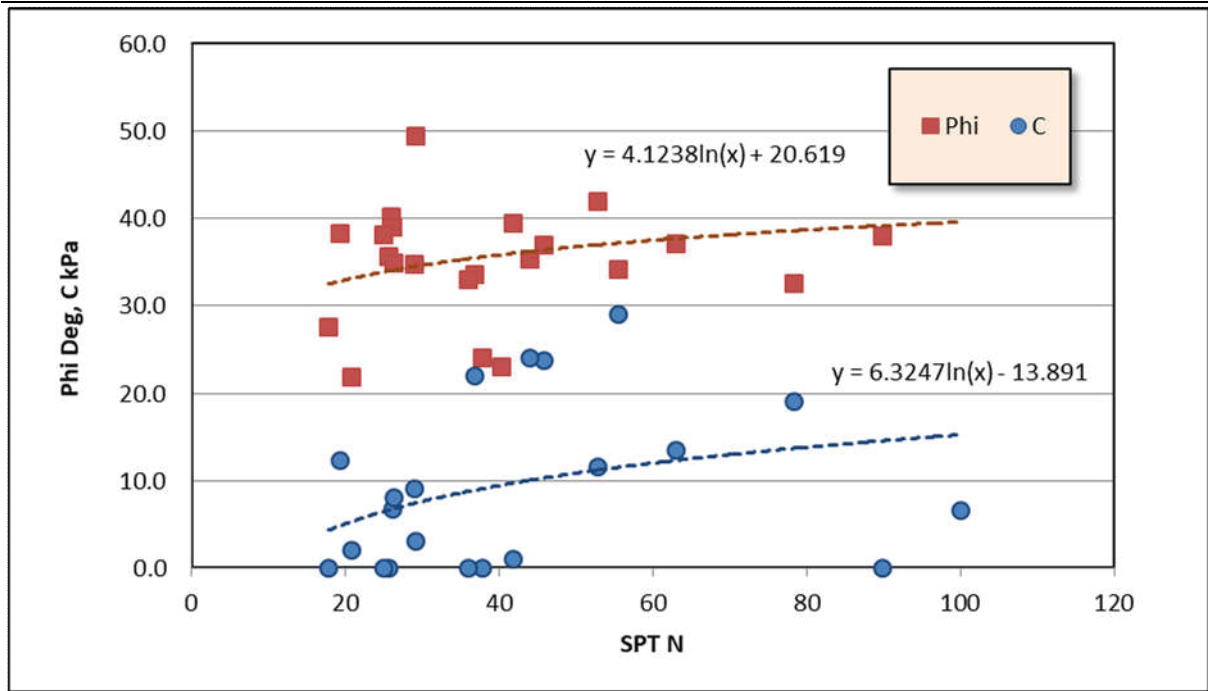


Figure 10 : Plot of C and Phi ( $\phi$ ) for Granular soils

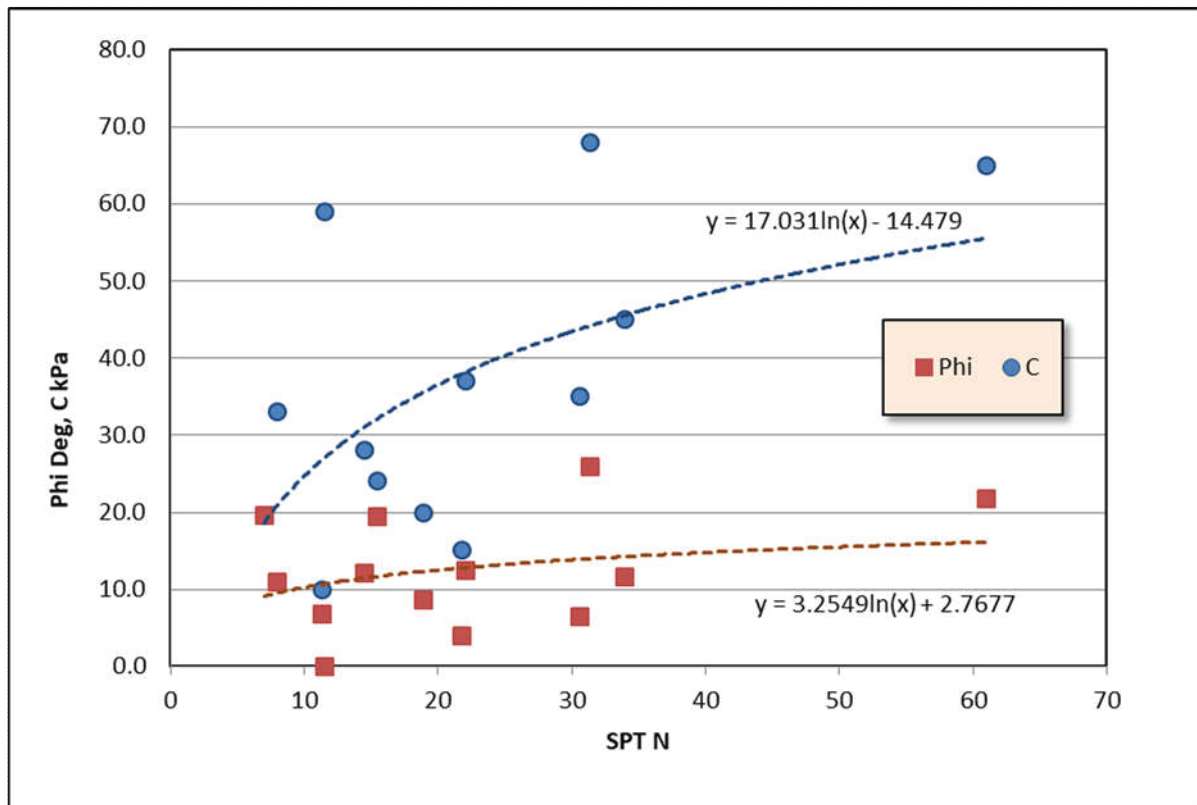


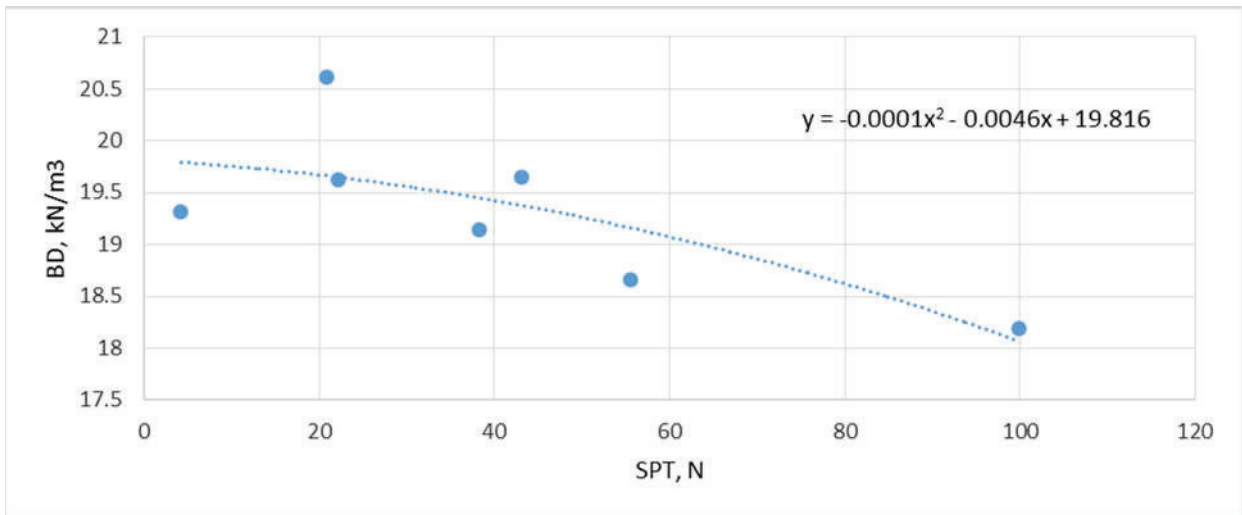
Figure 11 : Plot of C and Phi ( $\phi$ ) for Cohesive Soils

These relationship determined from the graphs were used to assign moderated values of C and Phi to all the layers based on their observed lithology from field and laboratory classification results and measured SPT N values.

It is seen that the available laboratory results do not cover values of Phi for granular soils with SPT N values less than about 18. For such soils, the equivalent values of C and Phi from the Cohesive soils were used. These are the soils in the upper strata of the boreholes, many of which were found to be very clayey anyway.

With this approach – first of all, outliers in the laboratory test results are eliminated and secondly, the correlations between SPT and C or Phi are now specific to the soil types found in the region.

Similarly, the Bulk Densities were plotted against SPT values for each individual borehole and the relationship used to determine bulk densities for the rest of the layers in the borehole based on their SPT values. Boreholes with few bulk density results were combined with adjacent one and layers with exceptionally low bulk density because of a high percentage of clay were treated separately.



**Figure 12 : Example Plot, Bulk Densities for T01 and T02**

Estimates of Young’s Elasticity Modulus (Es) were picked from the following compilation based on Obrzud & Truty<sup>1</sup>

**Table 3 : Estimates of Es based on Soil Classification and Soil Consistency**

Es for granular material (MPa)

Soil Class	Description	Loose		Medium		Dense	
		30	80	80	160	160	320
GW, SW	Gravels/Sand well-graded	30	80	80	160	160	320
SP	Sand, uniform	10	30	30	50	50	80
GM, SM	Sand/Gravel silty	7	12	12	20	20	30

<sup>1</sup> based on Obrzud & Truty 2012 compiled from Kezdi 1974 and Prat et al. 1995 and also AASHTO 1996

Es for cohesive material (MPa)

Soil Class	Description	Very soft to soft		Medium		Stiff to very stiff		Hard	
ML	Silts with slight plasticity	2.5	8	10	15	15	40	40	80
ML-CL	Silts with low plasticity	1.5	6	6	10	10	30	30	60
CL	Clays with low-medium plasticity	0.5	5	5	8	8	30	30	70
CH	Clays with high plasticity	0.35	4	4	7	7	20	20	32

The consistency descriptors in the headings such as Loose, Dense and so on, were correlated to the field SPT N values to arrive at an estimate for Es.

A summary of the SPT average and the consequent Engineering Properties assigned to each layer in each borehole is tabulated in **Appendix E**.

## 6.2 Estimates of Bearing Capacity

The safe bearing capacity analysis has been carried out for all the boreholes based on the layer properties derived in the previous subsection.

The ground soil has been analyzed as granular or cohesive or as a C-Phi soil depending on the greater of either the phi or C.

The shear bearing capacities have been determined using three different methods namely: Terzaghi's Formula (1963), Hansen / Vesic's formula and Mayerhoff's formula and a judgment made from the 3 results for allowable shearing bearing capacity.

Estimates of the elastic settlements has been carried out using the method recommended by Schmertmann . Elasticity moduli have been derived from SPT Values and Soil Classification in the previous subsection and the load that causes 25mm allowed maximum settlement calculated.

The safe bearing capacity is taken as the lesser of the allowable bearing capacity from the shear calculations and the settlement calculations

An indicative detailed analysis has been performed on a spread footing 1.5m x 1.5m square and 1.5m deep. The detailed calculation has been attached for the 5 boreholes at Mabibo Substation in **Appendix F**. This calculation is repeated several times to get a safe bearing capacity at other footing widths from 0.5 to 4m and at depths of 1, 2, 3 and 4m. The results were then plotted on a graph from which the designer can see the overall effect of choosing alternative footing widths and depths. These safe bearing capacity plots have been presented for all the boreholes in **Appendix F** without all the detailed calculations.

## 6.3 Recommendations for Foundation Types

Based on the calculations in the subsection above and in the safe bearing capacity plots Appendix F, it is found that a footing design for a safe bearing capacity of 100kPa will allow spread footings to be

used on most of the towers within 2m depth. In the table above, where the depth required to reach a safe bearing capacity of 100kPa exceeds 2m, piled foundations have been recommended.

The recommendations are shown in the table below.

**Table 4 : Estimated Bearing Capacities for 1.5m Square footings at 1.5m depth and recommendations for foundations**

Borehole ID	Project ID	Bearing Capacity 1.5m Sq footing at 1.5m depth	Recommendation
BH 01	MABIBO SS	120	Square footing OK
BH 02	MABIBO SS	100	Marginal. Lower spread footing to 2m
BH 03	MABIBO SS	120	Square footing OK
BH 04	MABIBO SS	120	Square footing OK
BH 05	MABIBO SS	115	Square footing OK
BH T01	T1-3DD-1	110	Square footing OK
BH T02	T2-3BB	105	Marginal. Lower spread footing to 2m
BH T03	T3-3AA	115	Square footing OK
BH T04	T4-3AA	125	Square footing OK
BH T05	T5-3CC	105	Marginal. Lower spread footing to 2m
BH T06	T6-3AA	185	Square footing OK
BH T07	T7-3AA	105	Marginal and little improvement with depth. Piling recommended
BH T08	T8-3AA	>300	Square footing OK
BH T09	T9-3AA	150	Square footing OK
BH T10	T10-3CC	115	Square footing OK
BH T11	T11-3AA	110	Square footing OK
BH T12	T12-3AA	>300	Square footing OK
BH T13	T13-3AA	175	Square footing OK
BH T14	T14-3AA	70	100kPa achieved > 2m. Provide Piles
BH T15	T15-3CC	165	Square footing OK
BH T16	T16-3BB	>300	Square footing OK
BH T17	T17-3AA	85	Low BC. Lower spread footing to 2.5m
BH T18	T18-3AA	>300	Square footing OK
BH T19	T19-3BB	115	Square footing OK
BH T20	T20-3BB	170	Square footing OK
BH T21	T21-3AA	110	Square footing OK

Borehole ID	Project ID	Bearing Capacity 1.5m Sq footing at 1.5m depth	Recommendation
BH T22	T22-3DD-2	130	Square footing OK
BH T23	T23(1)-2CC	100	Marginal. Lower spread footing to 2m
BH T24	T24(2)-2CC	120	Square footing OK
BH T25	T25(3)-2AA	105	Square footing OK
BH T26	T26(4)-2AA	215	Square footing OK
BH T27	T27(5)-2AA	120	Square footing OK
BH 06	UBUNGO SS	55	100kPa achieved > 2m. Provide Piles
BH 07	KINYEREZI 1 SS	80	100kPa achieved > 2m. Provide Piles

The plots provided will provide the designer information to select a preferred dimension and depth for his piles. The table above is for general guidance only.

In all cases appropriate measures have to be taken against aggressive ground conditions.

**END**



## **LIST OF APPENDICES**

### **BOREHOLE LOGS**

- |                   |   |
|-------------------|---|
| <b>Appendix A</b> | Borehole logs and pictures  |
| <b>Appendix B</b> | Summary of laboratory soil test results                                   |
| <b>Appendix C</b> | Bulk Density and UCS Tests on rock cores                                  |
| <b>Appendix D</b> | Results of laboratory tests on ground water                               |
| <b>Appendix E</b> | Summary of engineering properties assigned to Each Layer in the boreholes |
| <b>Appendix F</b> | Calculations for bearing capacity   |

GRANT AID FROM THE PEOPLE OF JAPAN



*Project:* TRANSMISSION LINE 220KV FROM KINYEREZI TO MABIBO, MABIBO SUBSTAION AND UBUNGO SUBSTATION DAR ES SALAAM CITY , REPUBLIC OF TANZANIA

*Buyer:*

*Execution Agency:*



**Japan International Cooperation Agency**

*Consultant:*



*Content:*

**TOPOGRAPHICAL SURVEY REPORT**

*Date:*

**March 15 ,2020**

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## INTRODUCTION

PROJECT: PREPATORY SURVEY FOR NEW MABIBO SUBSTATION, TRANSMISSION LINE FROM KINYEREZI TO MABIBO SUBSTATION AND TOPOGRAPHIC SURVEY OF EXISTING UBUNGO SUBSTATION IN DAR ES SALAAM CITY IN THE REPUBLIC OF TANZANIA.

The subject of this report is composed into two components which are

- ❖ Topographic survey of new Mabibo substation
- ❖ Transmission line from Kinyerezi to Mabibo Substation and Existing Ubungo Substation

Each component of the Report comprises the following elements

- Control survey
- Topographic survey and detail survey
- Topographic map production and report writing.

## 1. TOPOGRAPHIC SURVEY OF NEW MABIBO SUBSTATION

The intention of this part is to explain briefly about the extension of control points and Topographic Survey and detail survey for new Mabibo Sub Station project which is approximately 35000sqm.

New Mabibo substation is located near Mabibo local market (mahakama ya ndizi) and it is opposite to National Institute of Transport (NIT), the area is under high tension transmission line and is approximately 35000sqm in size, the approximate position of the area is 6°48'4.52"S, 39°13'21.14"E

### 1.1 Control survey of New Mabibo substation

The new control survey MSG01, MSG02, MSG03 and MSG04 at Mabibo substation was established with reference from existing control network and Benchmarks established by the Ministry of Lands Housing and Human Settlement Development (MLHHSD). These points have the required standards to be used for control extension. From the data obtained from the MLHHSD the nearest available points used were.

<b>Point ID</b>	<b>Easting</b>	<b>Northing</b>	<b>Elevation</b>	<b>location</b>
TANK	523061.151 m	9252389.291 m	100.490 m	Aru water tank
UGPS3	531604.832 m	9250714.210 m	12.441 m	Near Chinese embassy

### 1.2 topographic survey and detail survey

the process of picking details within the area was done using RTK Technique by CHC GNSS the process involved locating all permanent features like trees, buildings, fences, drainage system, high tension towers and electric poles also temporary features like container, wire mesh fences as shown on the following figures The corrected X, Y, Z data were downloaded from the data logger and then processed for drawing the output plan which shows the features and contours along the existing right of way

### 1.3 Topographic map production and report writing

Every day of site work the data is downloaded, checked and uploaded to 12D software and AutoCAD civil 3D for topographic map production. And X Y Z data was compiled and detailed report was prepared for Submission.

### 1.4 Conclusion

On the basis of the information presented in this report are proceed with high quality, accuracy and within the time planned. The survey team made sure that all procedures and requirements agreed with client were all met. Topographic survey of Mabibo substation was successfully done.

NEW MABIBO SUBSTATION TOPOGRAPHIC MAP





SURVEYED BY: LWIUSO ANPICHWILE DRAWN BY: MESHACK MWAKENDA CROSS CHECKED BY: LS. GASTOR KIKUJI APPROVED BY: _____ DATE: NOVEMBER, 2019.	<b>DRAW NO.</b> 001
	<b>PAGE NO.</b> 1 OF 1
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<b>CONSULTANT:</b> represented by Y. CHINO ENGINEERING CO. LTD CONSULTING ENGINEERS & ARCHITECTS, CS TOWER 5-20-8 Asakusabashi, TAITO-KU TOKYO 111-8648 JAPAN	
<b>CLIENT : TANESCO</b>	
<b>FINANCIER:</b>	
REV. DATE INC.	DRWN/CHKD



SURVEYED BY: LEWISO ANTONI  
 DRAWN BY: MESHACK MWAKENYA  
 CROSS CHECKED BY: LE. CASTOR KIKOR  
 APPROVED BY: [Signature]  
 DATE: NOVEMBER, 2019.

**DRAW NO.** 001  
**PAGE NO.** 1 OF 1

**DRAWING TITLE**  
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 PLOT NO. 10795  
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 P.O. BOX 10795  
 DAR ES SALAAM,  
 TANZANIA

**CONSULTANT:** Represented by  
 YU CHUO ENGINEERING  
 LTD/CONSULTING ENGINEERS  
 & ARCHITECTS/TOWER  
 5-248, ARABUSASHITAI/DAKU  
 TOKYO 141, JAPAN

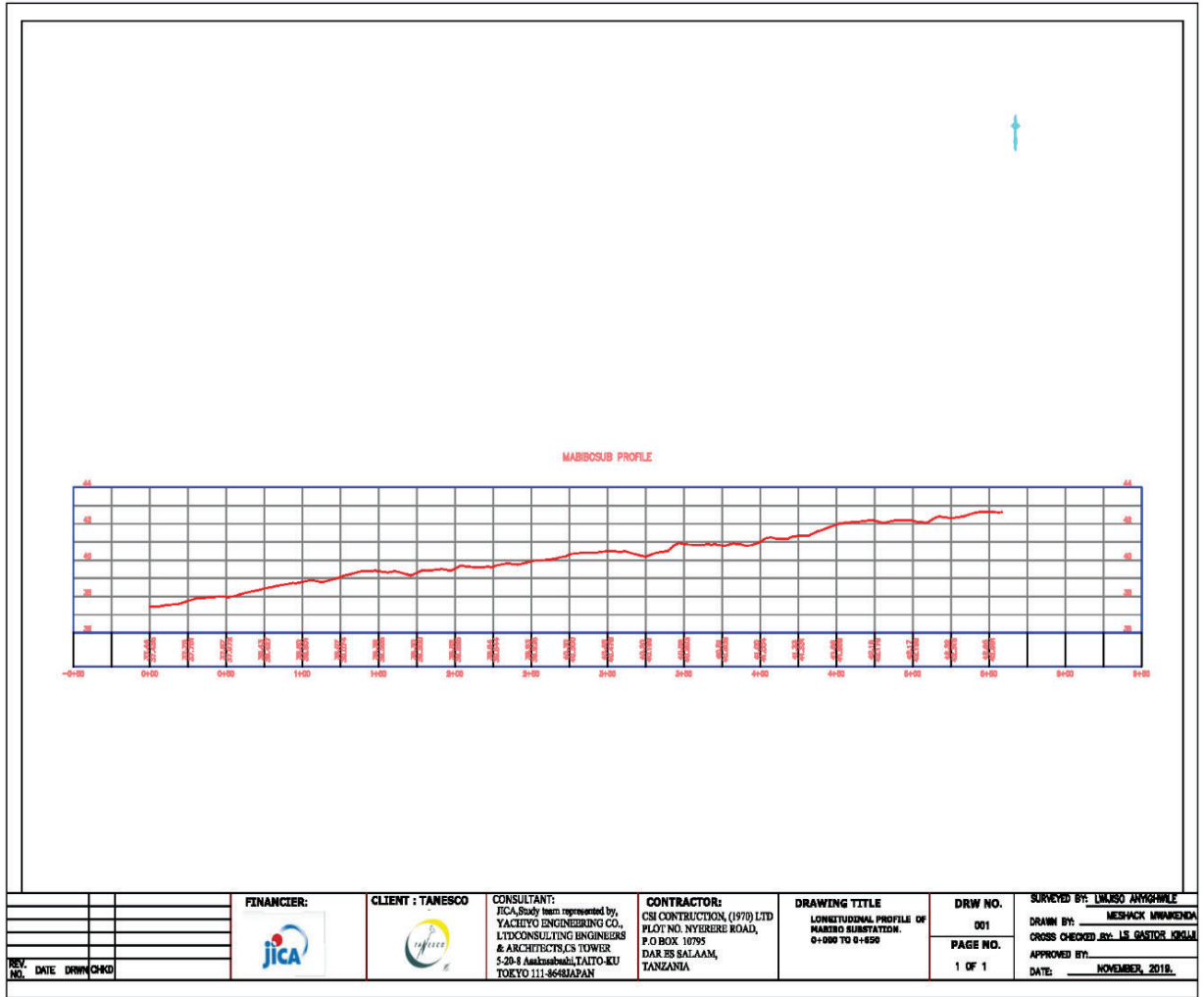
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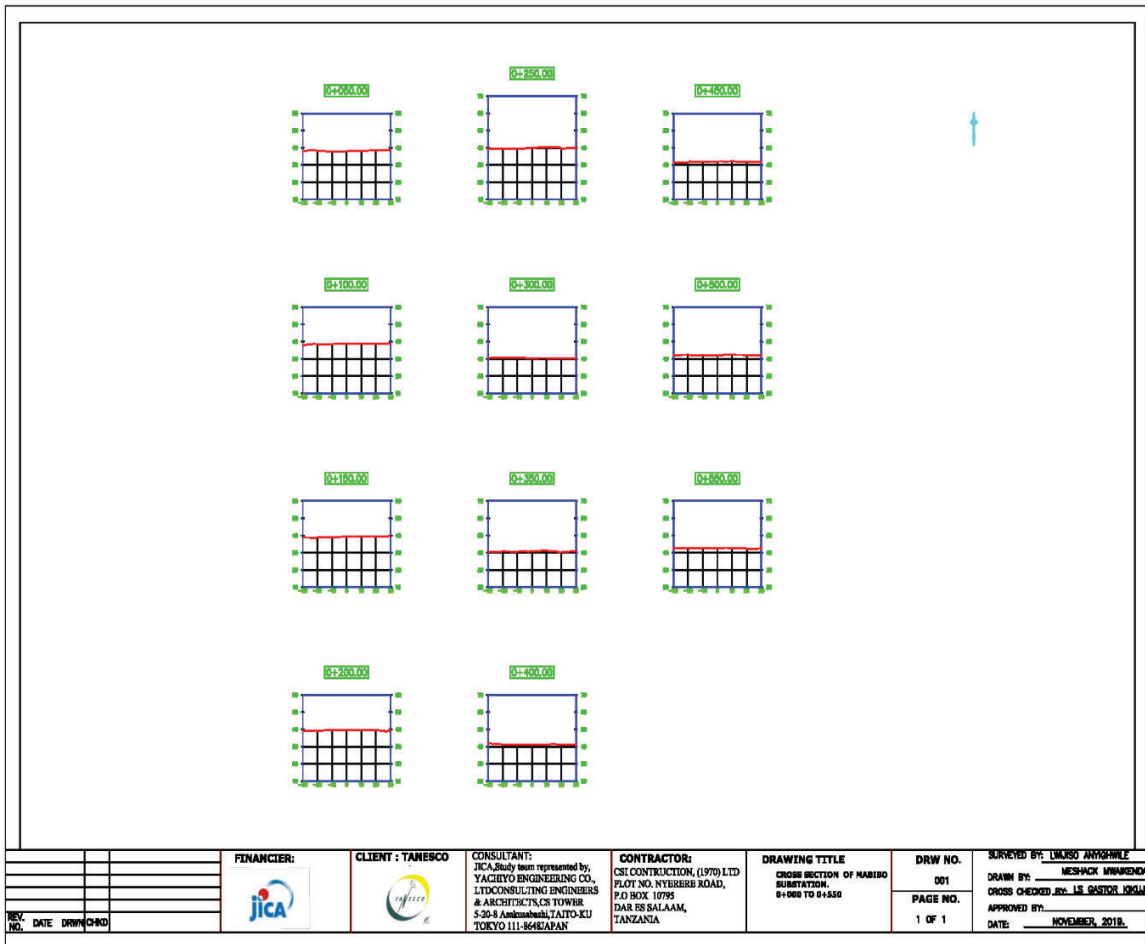
NEW MABIBO SUBSTATION PROFILE







		<b>FINANCIER:</b> 	<b>CLIENT : TANESCO</b> 	<b>CONSULTANT:</b> JICA Study team represented by, YACHTO ENGINEERING CO., LTD/CONSULTING ENGINEERS & ARCHITECTS,CS TOWER 5-20-8 Aomakosabashi,TAITO-KU TOEYO 111-8648JAPAN	<b>CONTRACTOR:</b> CSI CONSTRUCTION, (1978) LTD PLOT NO. NYERERE ROAD, P.O BOX 10795 DAR ES SALAAM, TANZANIA	<b>DRAWING TITLE</b> LONGITUDINAL PROFILE OF MABIBOS SUBSTATION. 0+000 TO 8+850	<b>DRW NO.</b> 001	<b>SURVEYED BY:</b> <u>MUSO ANZIMILE</u>
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<b>DRW/CHKD</b>								<b>APPROVED BY:</b> _____
								<b>DATE:</b> <u>NOVEMBER, 2018.</u>

NEW MABIBO SUBSTATION CROSS-SECTION



FINANCIER: 		CLIENT : TANESCO 		CONSULTANT: JICA Study team represented by: YACITEO ENGINEERING CO., LTD CONSULTING ENGINEERS & ARCHITECTS, CS TOWER 5-20-8 Amikimabashi, TAITO-KU TOKYO 111-8642 JAPAN		CONTRACTOR: CSI CONSTRUCTION, (1970) LTD PLOT NO. NYERERE ROAD, P.O BOX 10795 DAR ES SALAAM, TANZANIA		DRAWING TITLE CROSS SECTION OF NARIBO SUBSTATION. 0+000 TO 0+350		DRW NO. 001		SURVEYED BY: LIMISO ANTOHILE	
REV. NO. DATE DRW/CHKD								PAGE NO. 1 OF 1		DRAWN BY: MESHACK MWAKANDA		CROSS CHECKED BY: IS GASTOR JIGLE	
										APPROVED BY:		DATE: NOVEMBER, 2018.	

APPENDIX 1: Daily Report

APPENDIX 2: Network adjustment and Transformation report

APPENDIX 3: Survey Data.

APPENDIX 4: Transmission line DTM data

APPENDIX 5: Survey Plan

APPENDIX 6: Profile and Cross section. APPENDIX 7: Description Cards for control points

APPENDIX 8. List of control points.

## 2.0 TRANSMISSION LINE FROM KINYEREZI TO MABIBO SUBSTATION AND EXISTING UBUNGO SUBSTATION

The objective of detailed topographic survey is to capture terrain data for detailed design Transmission line tower system from Mabibo new substation to Ilala. The transmission line terrain is fairly undulating with elevation ranging approximately from 42.50m to 120.00m from T27(5)- 2AA (start of project in Mabibo) to T1-3DD-1 end of project and topographic survey of selected area in Ubungo substation

### 2.1 Control Point Extension.

This part is about the control survey work conducted for purposes of extending survey control points, so as to carry Topographic Survey of Transmission line from tower T27(5)-2AA (start of project in Mabibo) to tower T1-3DD-1 and topographic survey of selected area in Existing Ubungo substation. From the data obtained from the MLHSD the nearest available points used were

<b>Point ID</b>	<b>Easting</b>	<b>Northing</b>	<b>Elevation</b>	<b>Location</b>
TANK	523061.151 m	9252389.291 m	100.490 m	Aru water tank
MSG04	524331.180 m	9248308.466 m	42.620 m	New Mabibo substation



Static method was used to perform control extension and the observation period for the static survey was between 1 to 2 hours depending on the length of the baseline. The new points were labelled as TLG01, TLG02, TLG03, TLG04, TLG05 and KM5

## 2.2 Topographic Survey

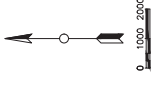
Detailed systematic survey for the whole transmission line wayleave and existing Ubungo substation was carried out using RTK GPS, so that to get X Y Z coordinates of all detail falling inside transmission line wayleave. The detailed field survey essentially includes the following

- Establishment of temporary control points in areas with lots of details like a river crossing a transmission line
- Survey of big existing roads, junction, drains, culvers, ditches, utilities, gas post, right of way pillars, building, existing transmission line towers, electric poles, trees and all other relative features falling in transmission line wayleave.
- Cross section levelling at every 30m throughout the wayleave boundary for contours interpolation.

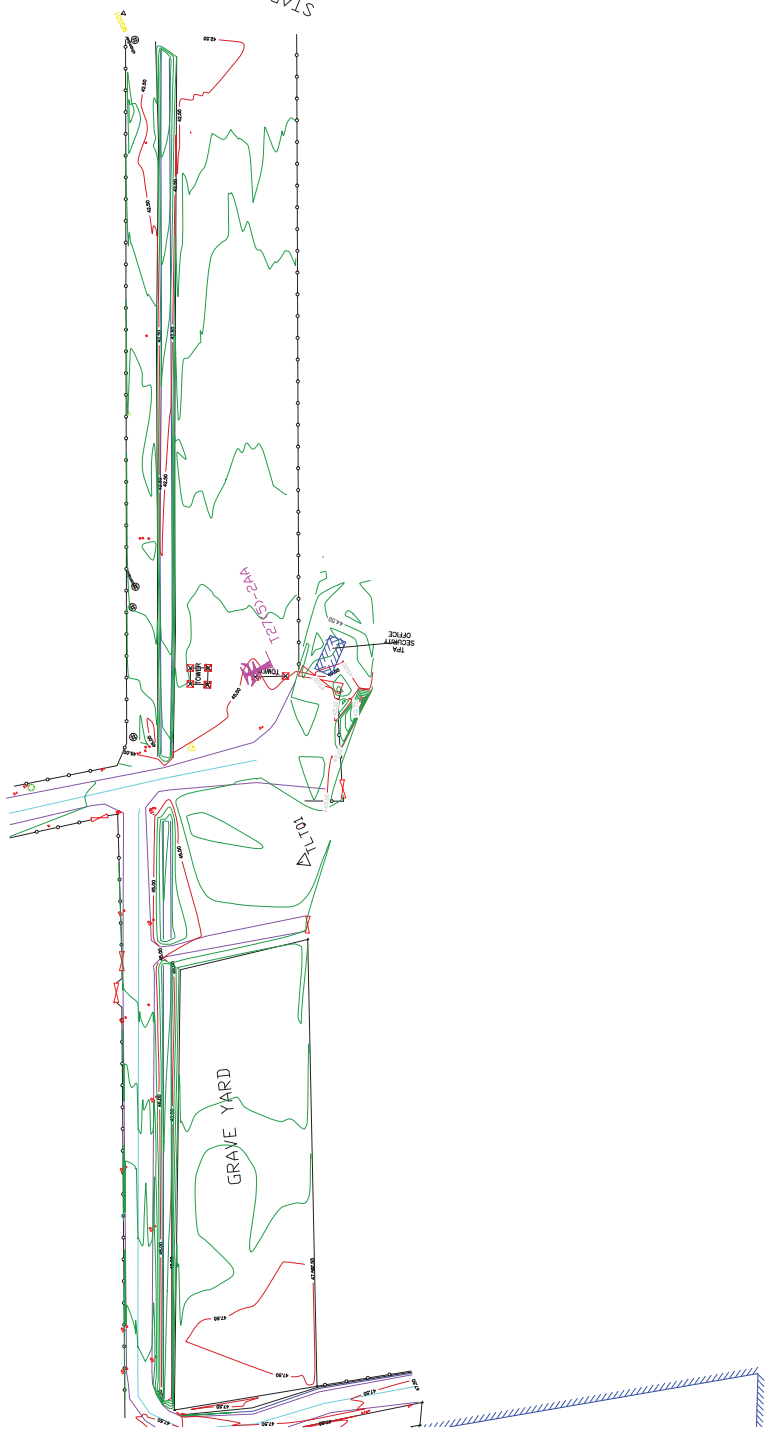
## 2.2 data processing and reporting

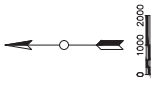
All data downloaded on daily basis uploaded to AutoCAD civil 3d to produce topographic maps and longitudinal profile and Cross section. Line profile, Tower list, Tower foundation, Skeleton, Conductors and Cable. And detailed report prepared.

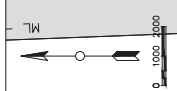
3.0 TOPOGRAPHIC MAP OF TRANSMISSION LINE FROM KINYEREZI TO MABIBO  
SUBSTATION AND EXISTING UBUNGO SUBSTATION  
DRAWINGS



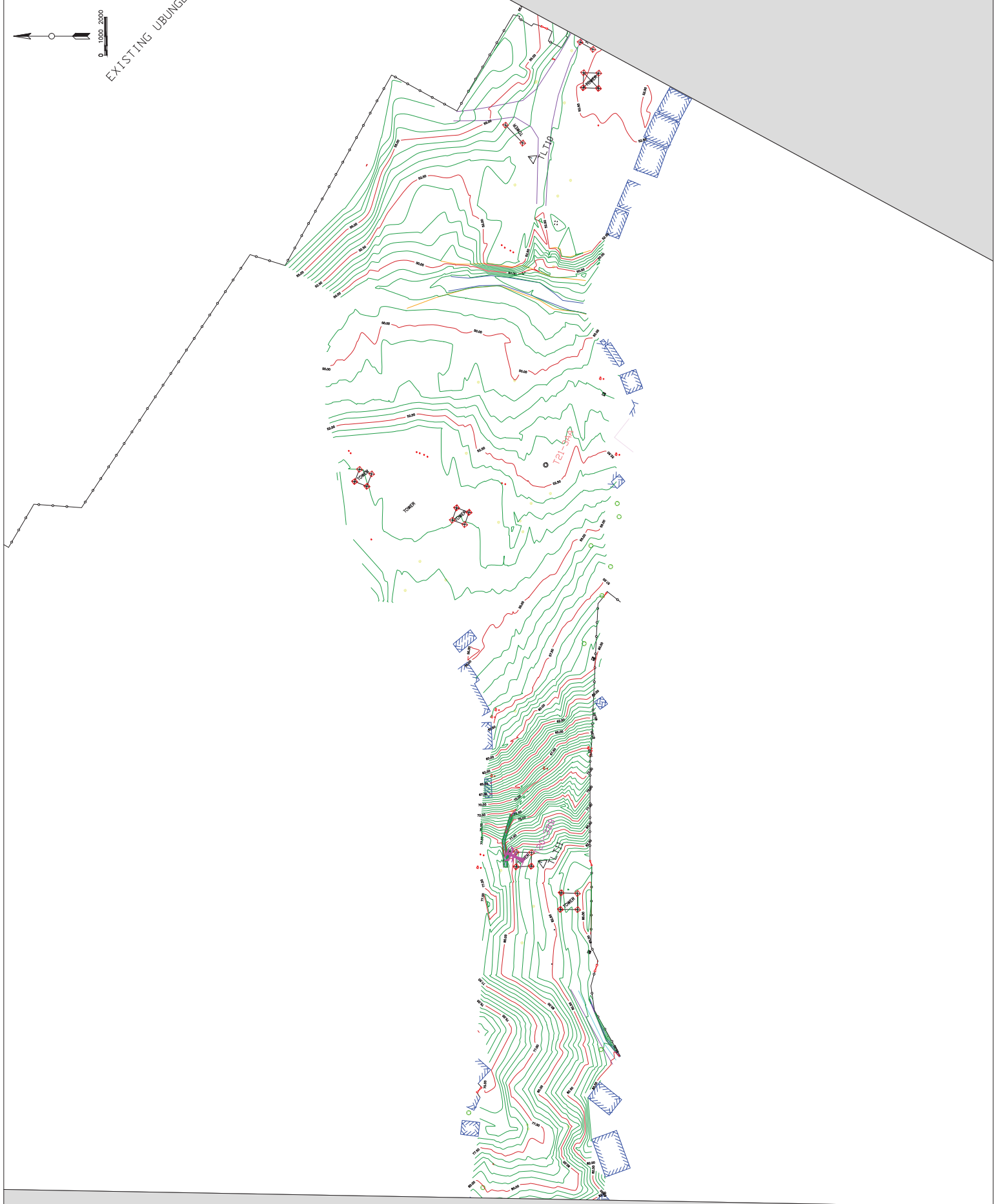
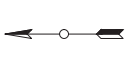
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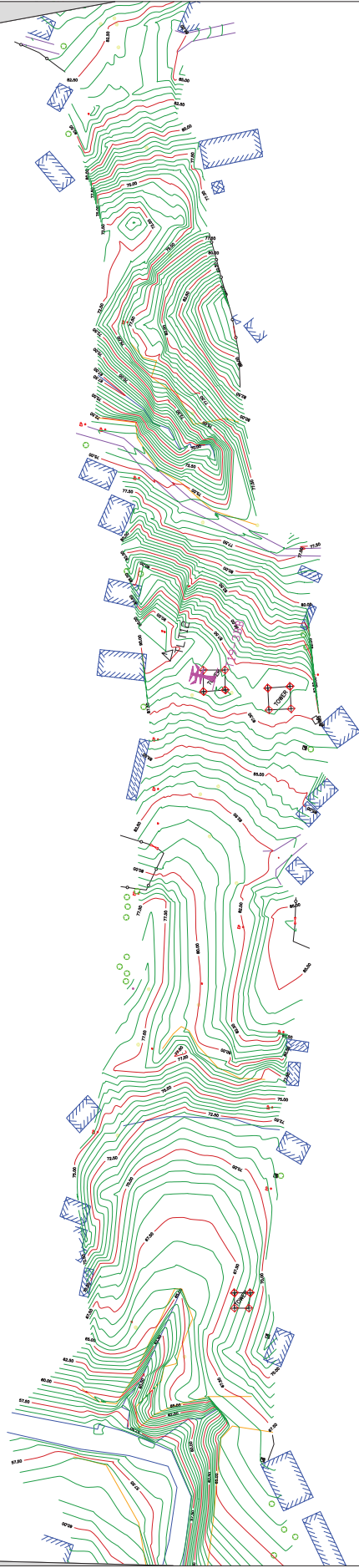
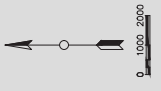


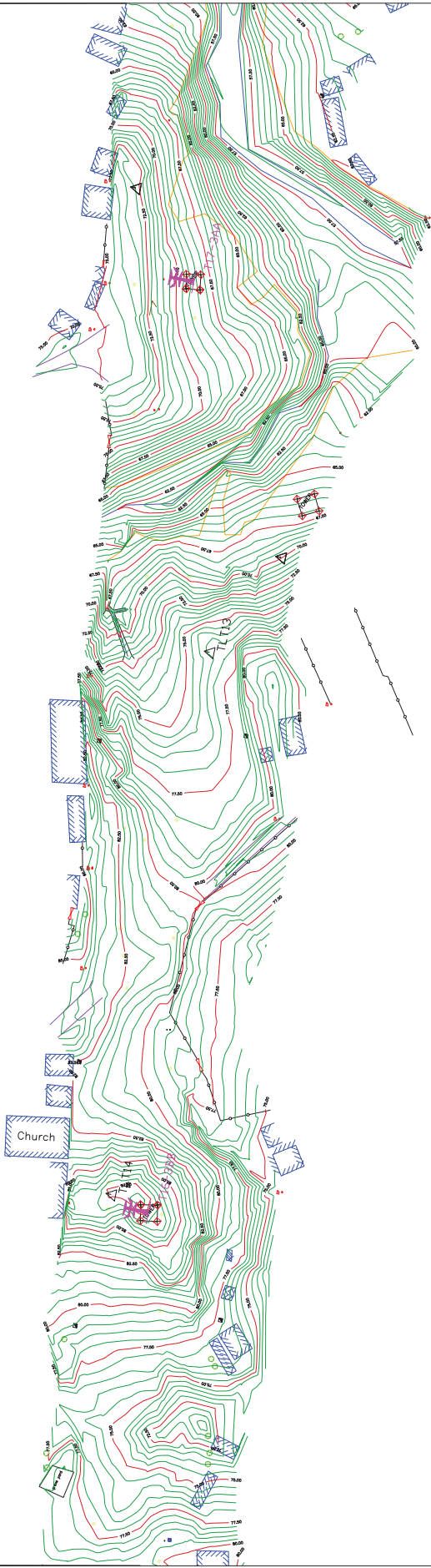
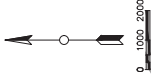




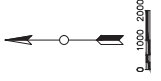
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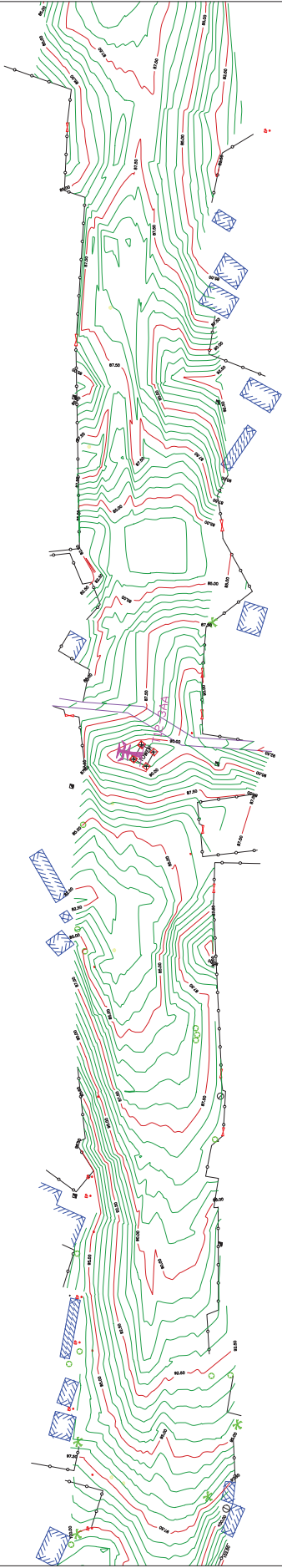
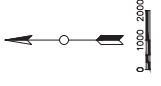


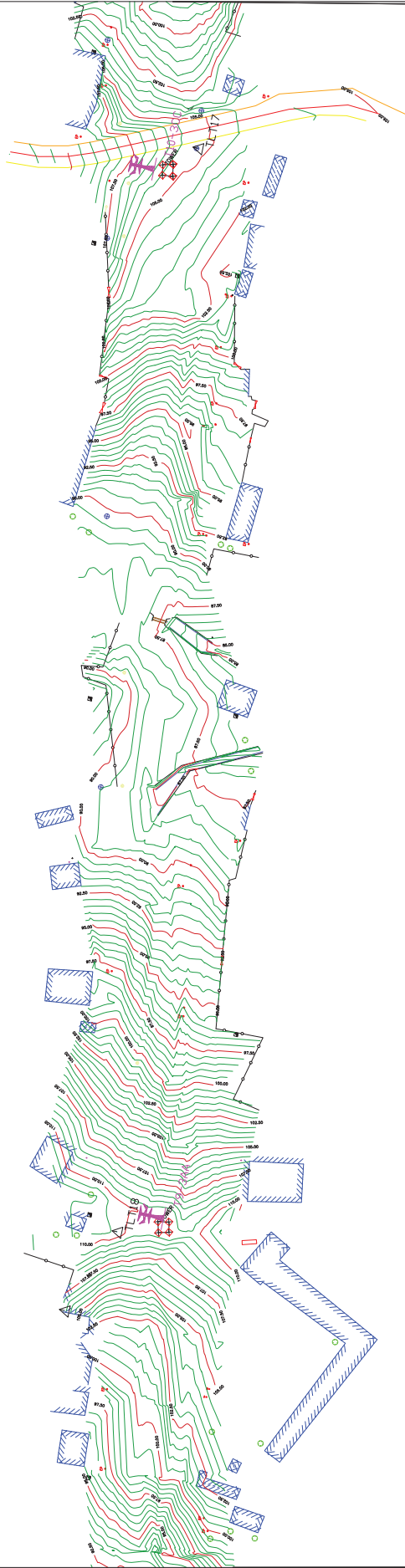
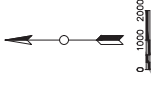


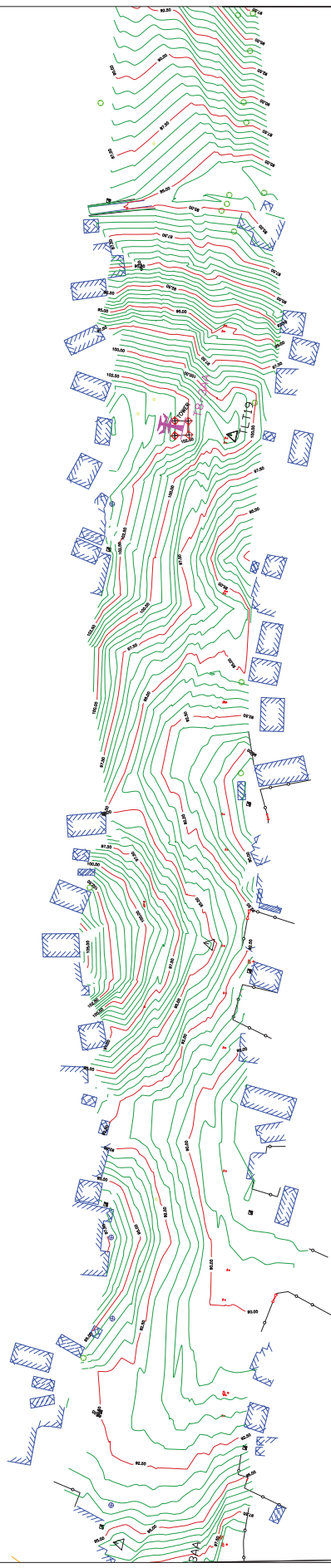
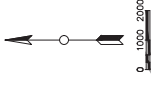


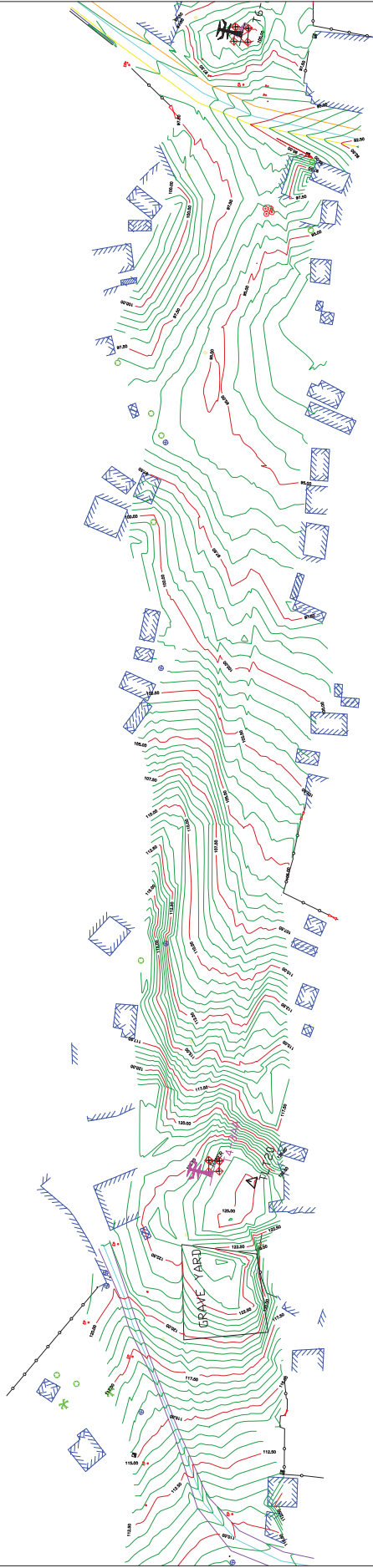
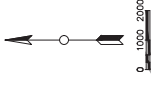


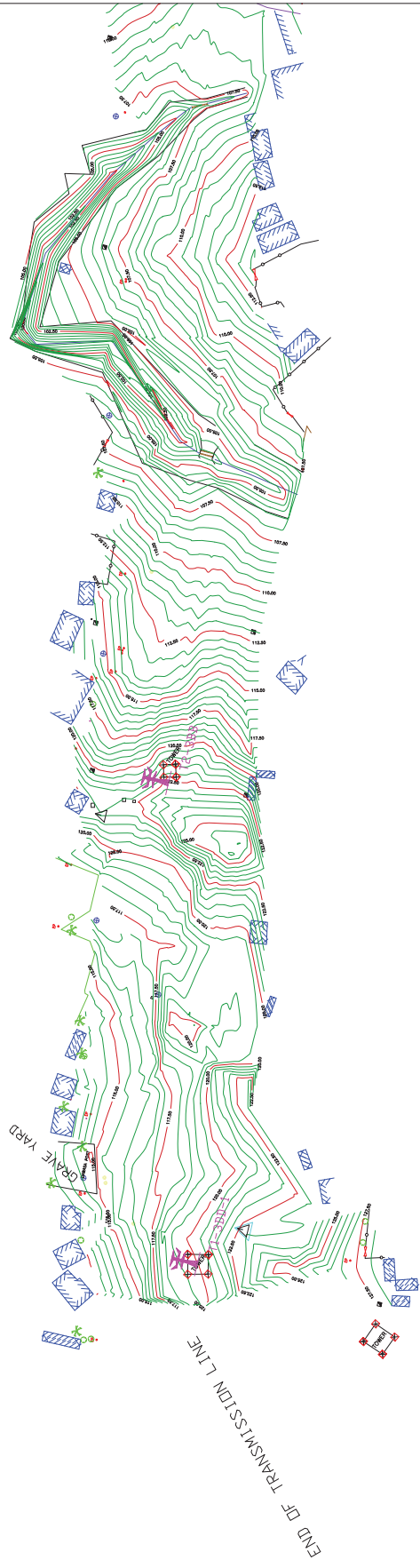
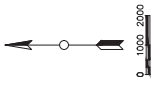












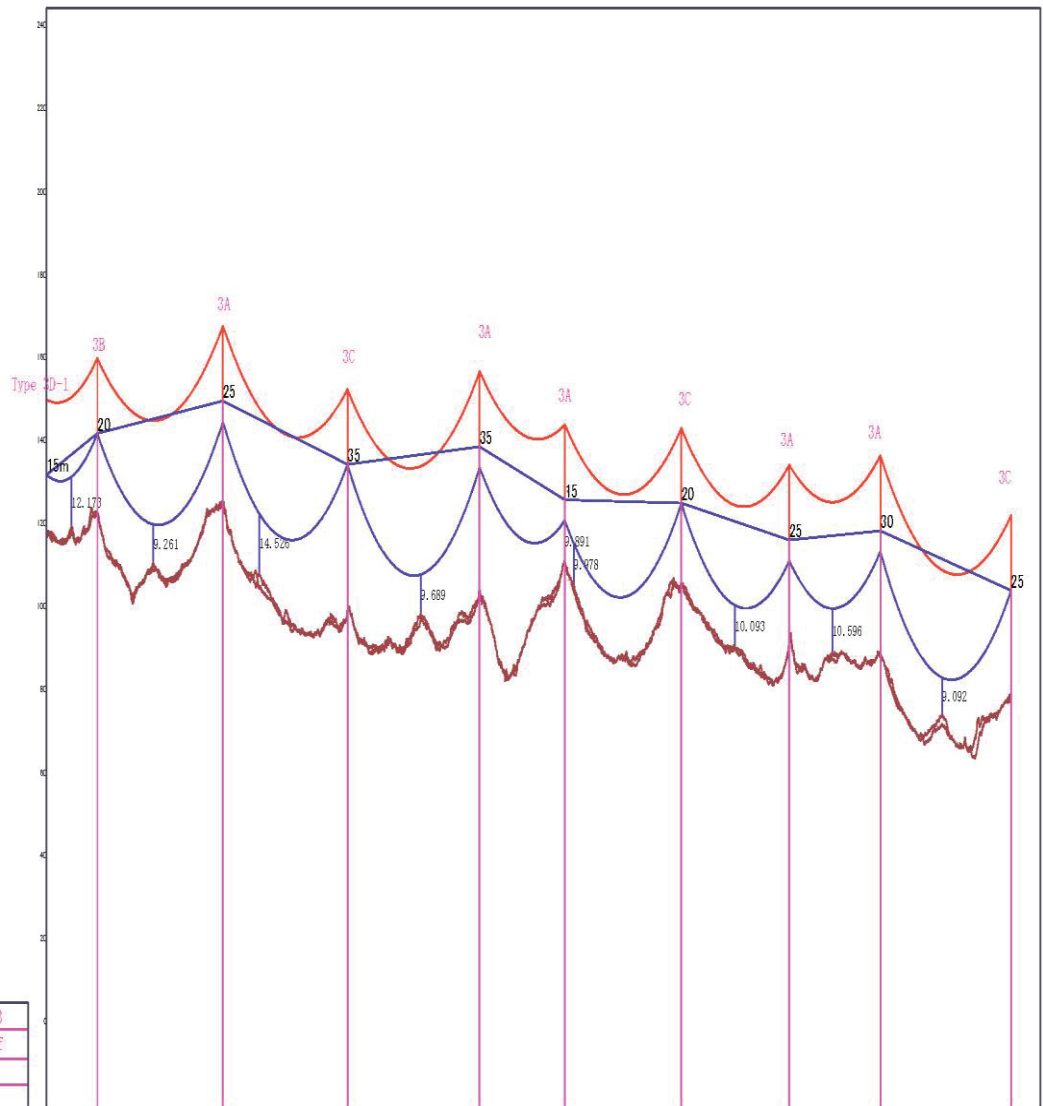
## 4.0 TOWER LISTS

LIST OF TOWER 220KV TRANSMISSION LINE

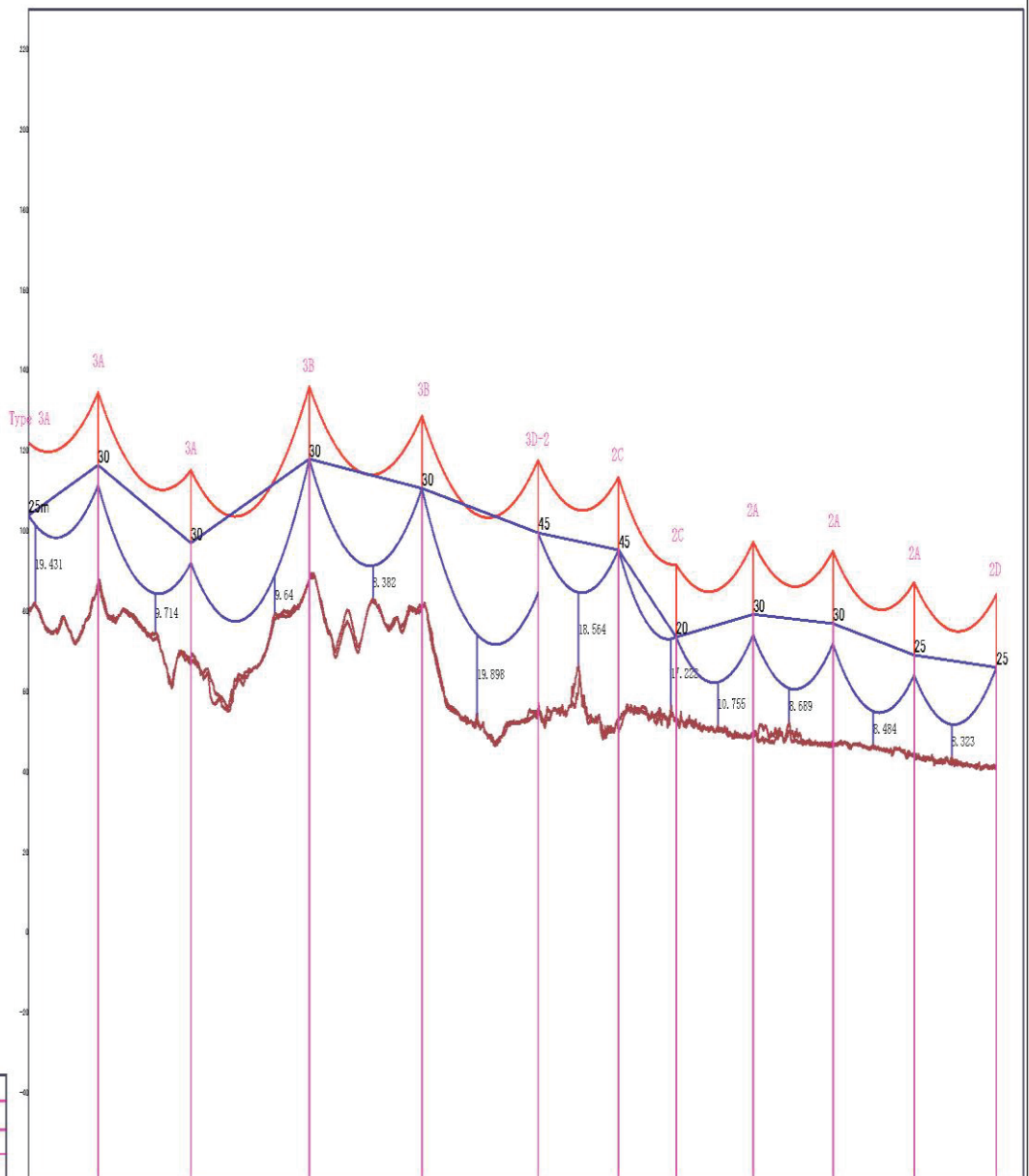
TOWER NUMBER	COORDINATES		TOWER ALTITUDE	TOWER TYPE	LINE	SPAN(m <sup>2</sup> )		WEIGHT	INSULATOR SETS			ANGLE OF IN GRADE	LENGTH OF KM	ALTITUDE OF AT ATM POINT	REMARKS
	EAST	NORTH				WIND	SS		DS	ST	DT				
T1-3DD-1	517216.155	9247980.029	120.424												
T2-3BB	517392.232	9248032.607	123.146		183.76										
T4-3AA	517838.510	9248125.985	124.820		455.942										
T6-3AA	518291.151	9248219.899	100.162		462.259										
T8-3AA	518756.797	9248317.208	103.242		475.727										
T9-3AA	519063.339	9248381.964	110.547		313.307										
T10-3CC	519478.150	9248474.412	106.357		424.988										
T12-3AA	519867.206	9248550.835	91.254		396.491										
T13-3AA	520186.031	9248617.259	89.542		323.671										
T15-3CC	520659.095	9248715.635	81.164		483.185										
T16-3BB	520927.482	9248772.120	87.820		274.268										
T17-3AA	521301.092	9248830.393	68.738		378.127										
T19-3BB	521768.818	9248903.807	89.660		473.452										
T20-3BB	522186.895	9249082.857	81.558		456.43										
T22-3DD-2	522610.242	9249263.531	54.507		458.663										
T23(1)-2CC	522892.840	9249152.220	50.824		303.779										
T24(2)-2CC	523132.023	9249129.411	52.479		240.228										
T25(3)-2AA	523418.484	9248999.360	49.587		314.582										
T26(4)-2AA	523706.999	9248866.983	47.307		317.452										
T27(5)-2AA	524006.393	9248734.169	44.469		317.452										



## 5.0 LINE PROFILES DRAWINGS

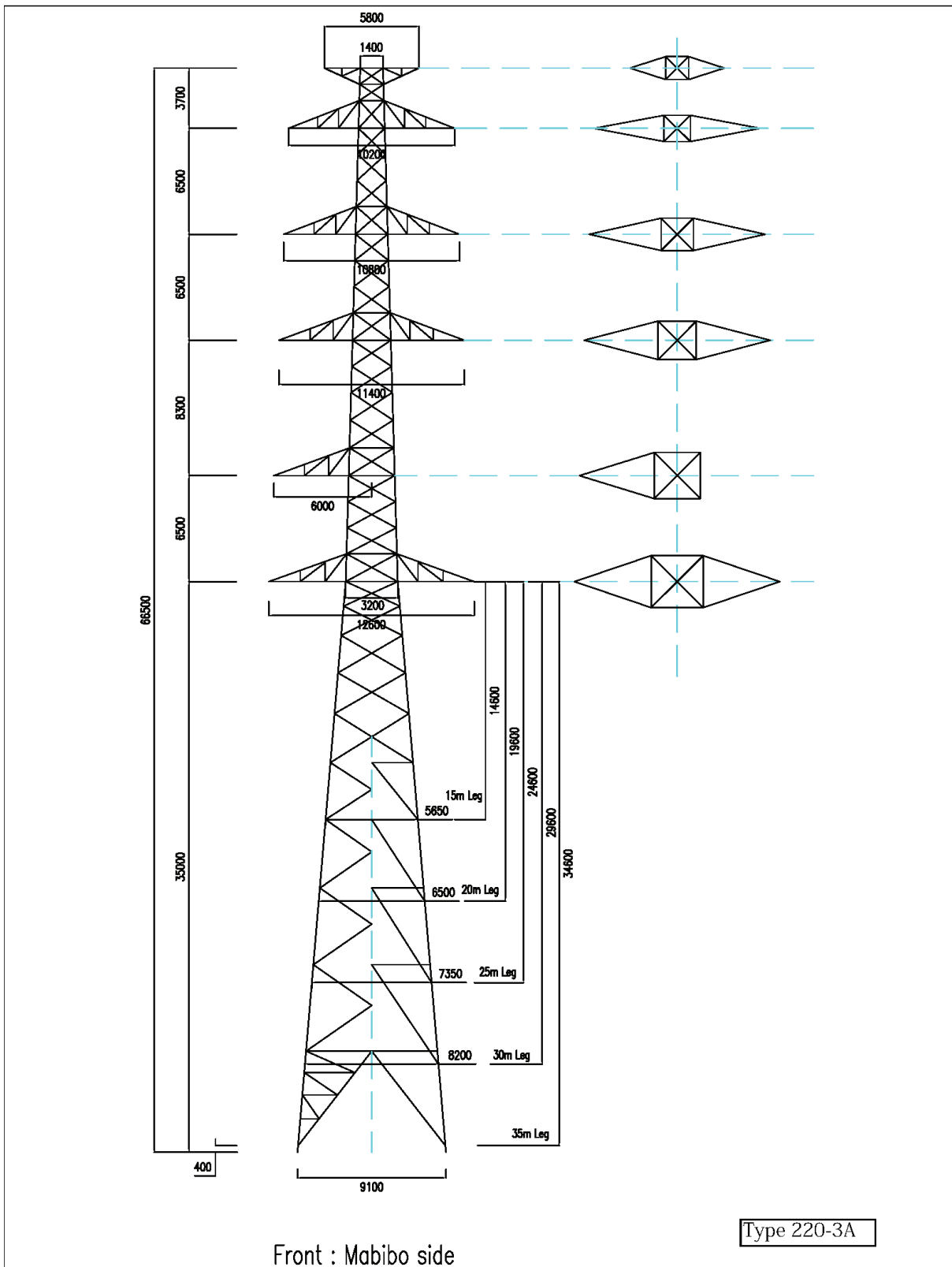


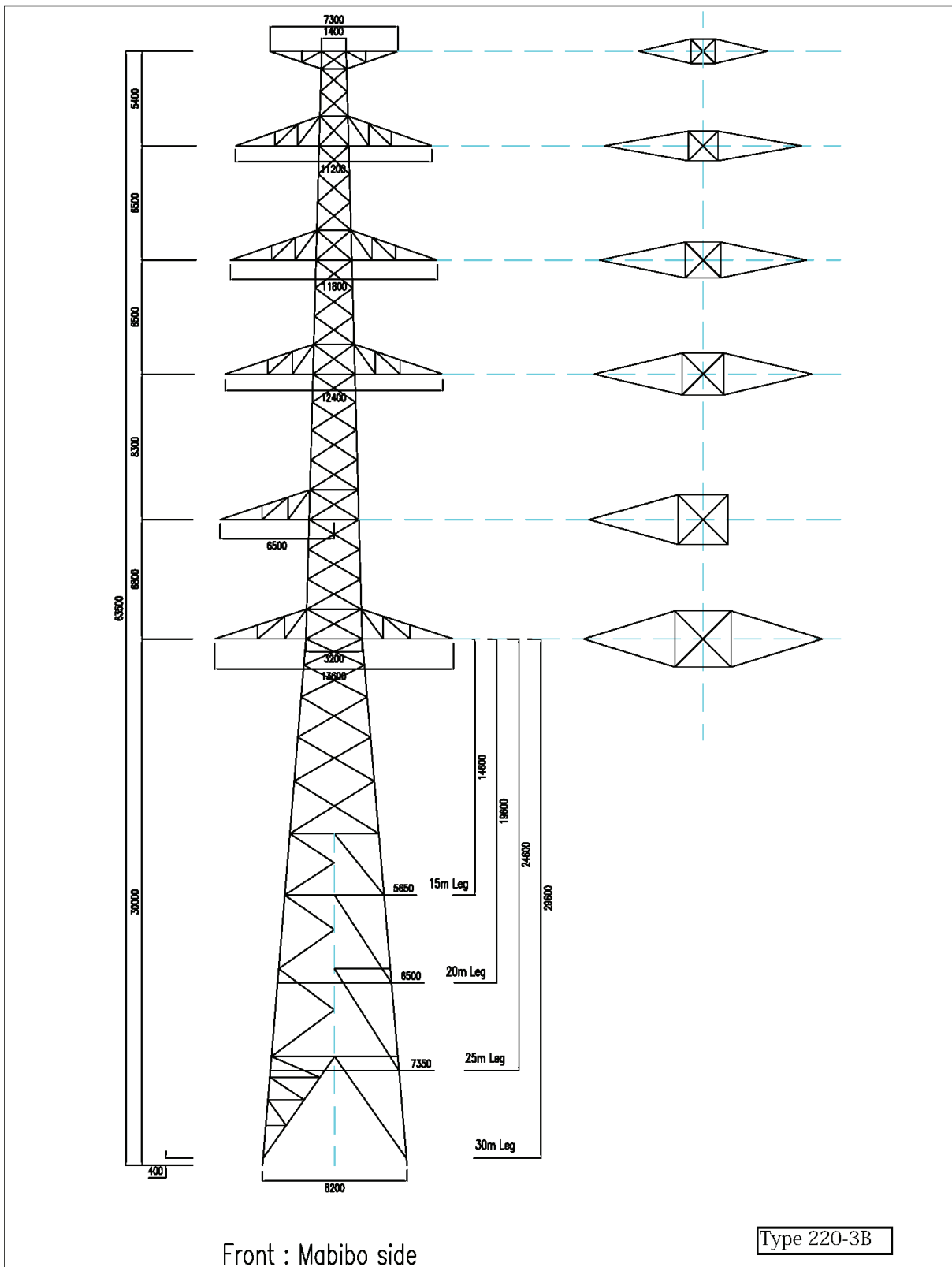
Tower No.	1	2	3	4	5	6	7	8	9	10
Span	184.72	457.75	454.15	482.17	310.26	425.27	393.59	331.73	476.68	
Line Angle	L0° -25'		L0° -3'		L0° -6'		R0° -29'		L0° -8'	
Ground level difference	+4.95	+2.83	-25.31	+4.33	+7.18	-5.83	-13.88	-2.79	-8.39	
Ground level	114	122	124	100	103	110	106	91	89	81



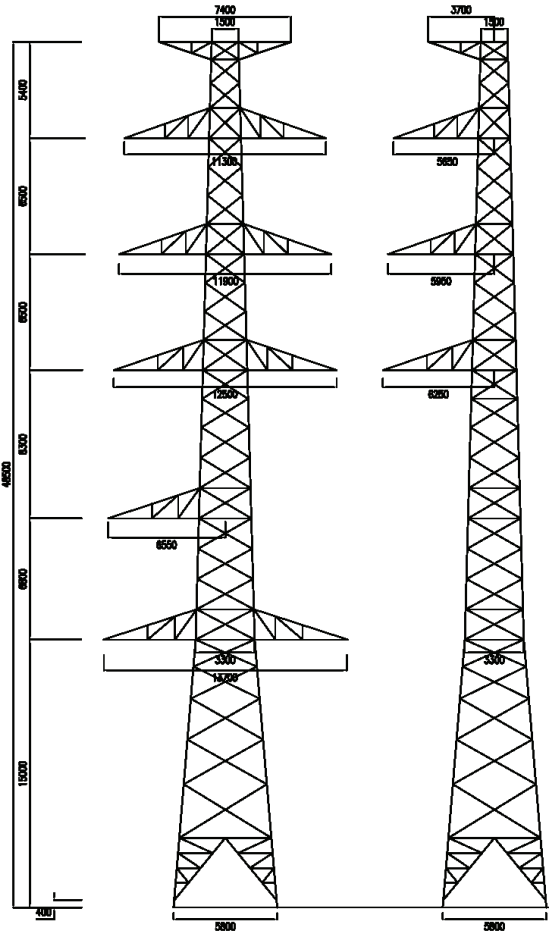
Tower No.	10	11	12	13	14	15	16	17	18	19	20	21
Span	278.37	371.05	473.51	450.92	464.68	321.66	230.25	308.65	318.83	325.05	328.98	
Line Angle	R1° -58'	R0° -46'	R0° -43'	L13° -57'	L1° -5'	R44° -2'	L14° -16'	R17° -44'	R0° -23'	L0° -9'	R0° -43'	
Ground level difference	-9.39	+7.55	-19.38	+20.88	-7.31	-26.05	-4.31	+3.35	-4.4	-2.27	-2.82	-3.09
Ground level	81	87	69	89	81	54	50	52	49	47	44	42

6.0 LINE SKELETON





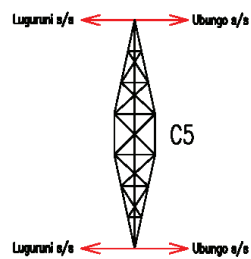
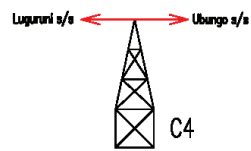
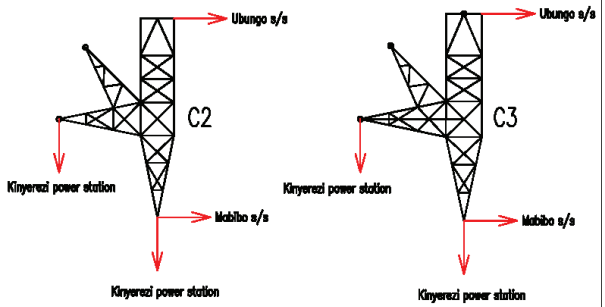
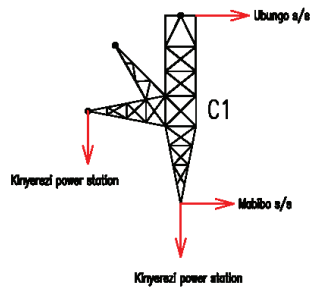
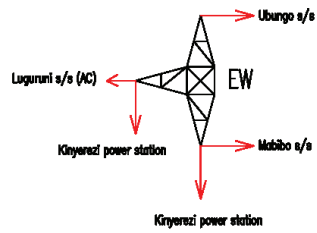




Front : Luguruni side

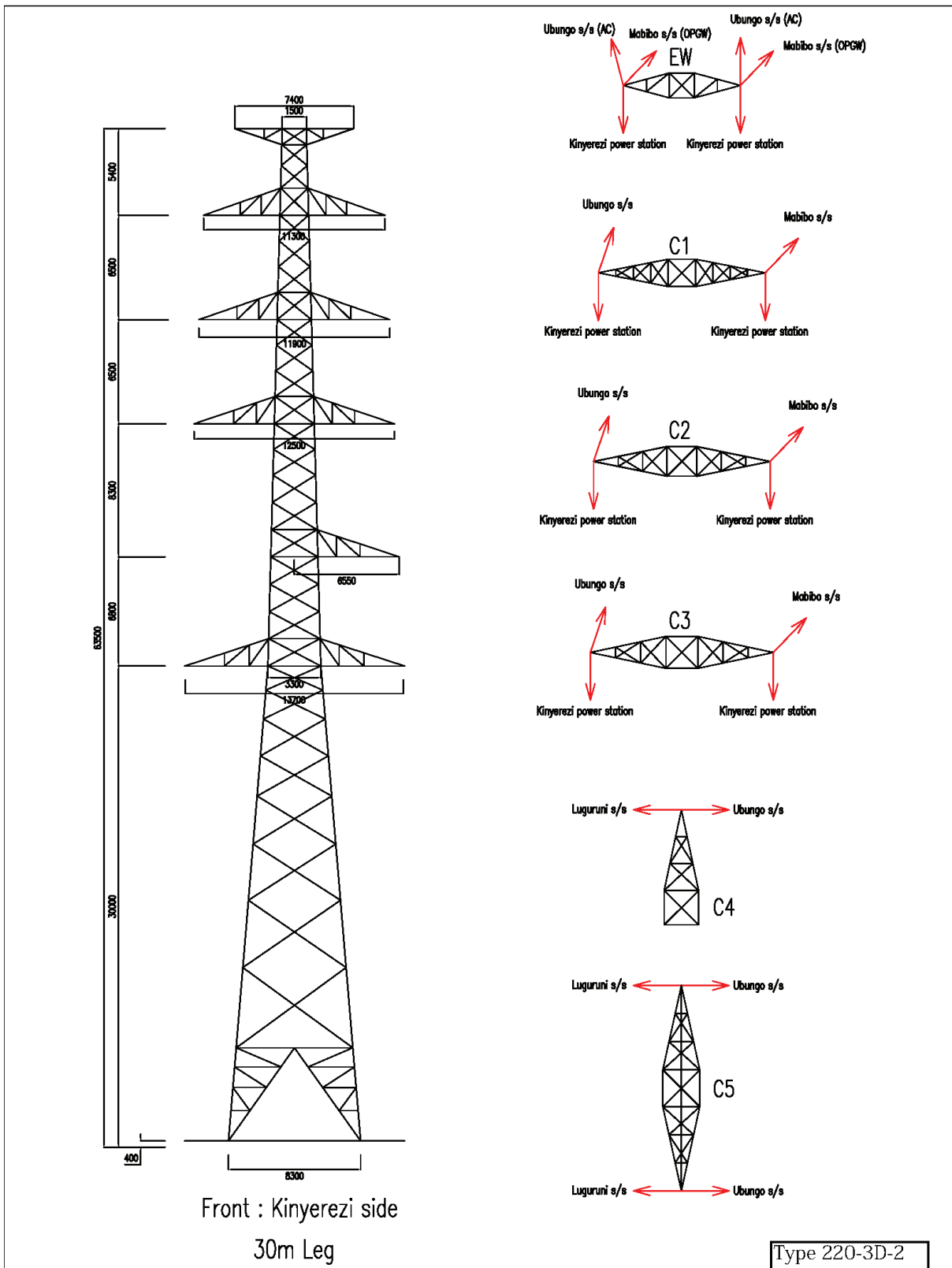
Front : Kinyerezi side

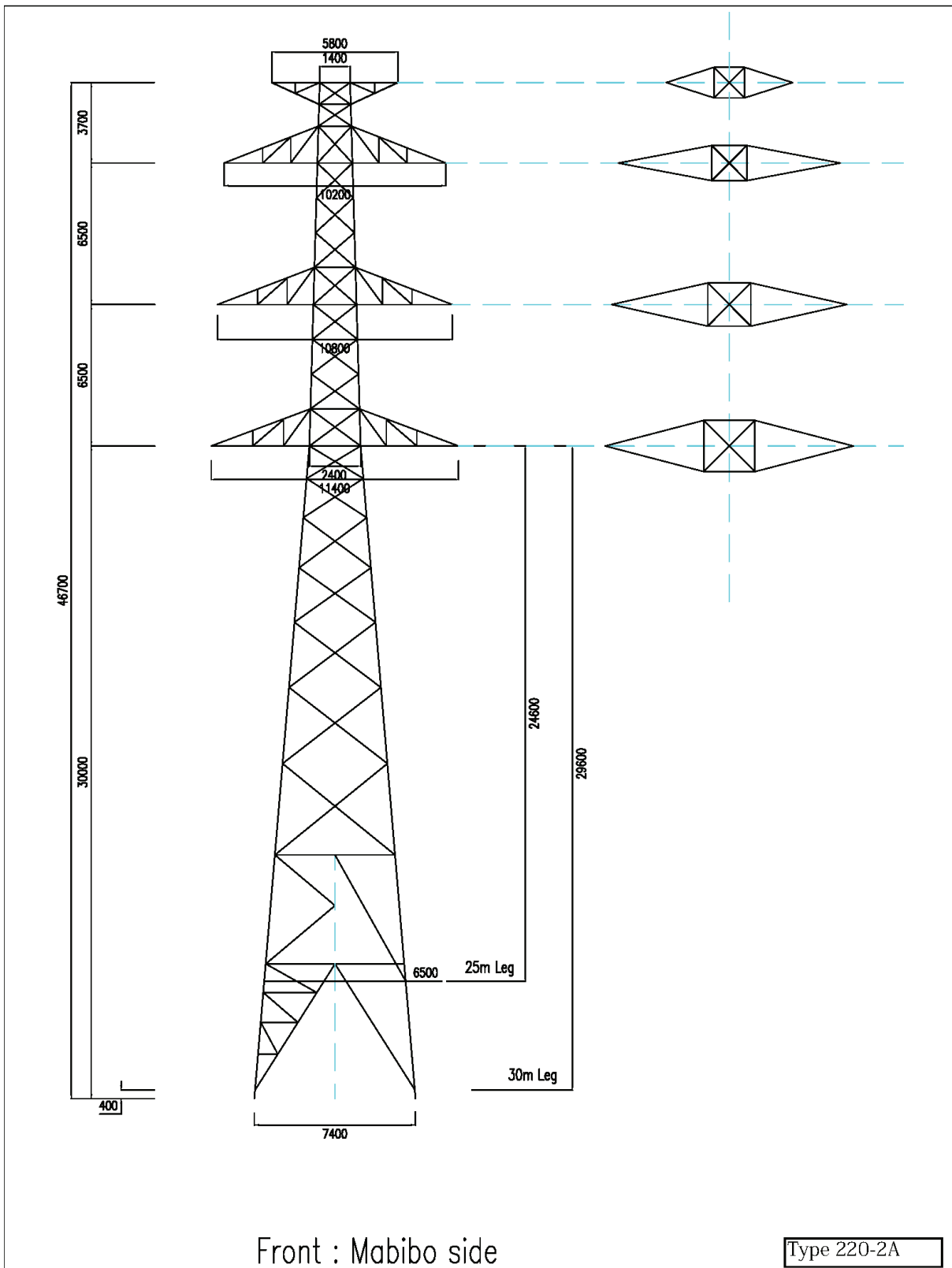
15m Leg

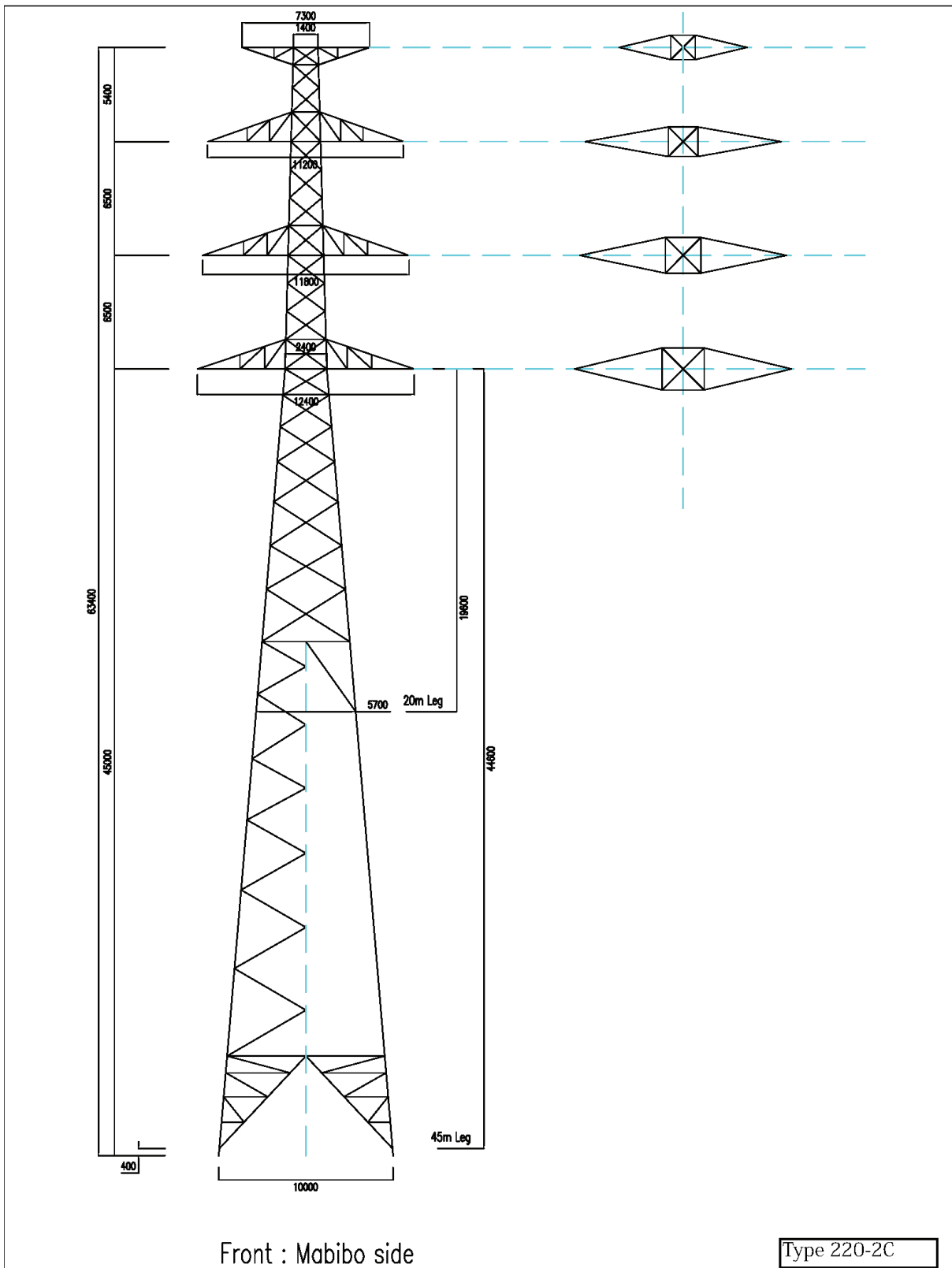


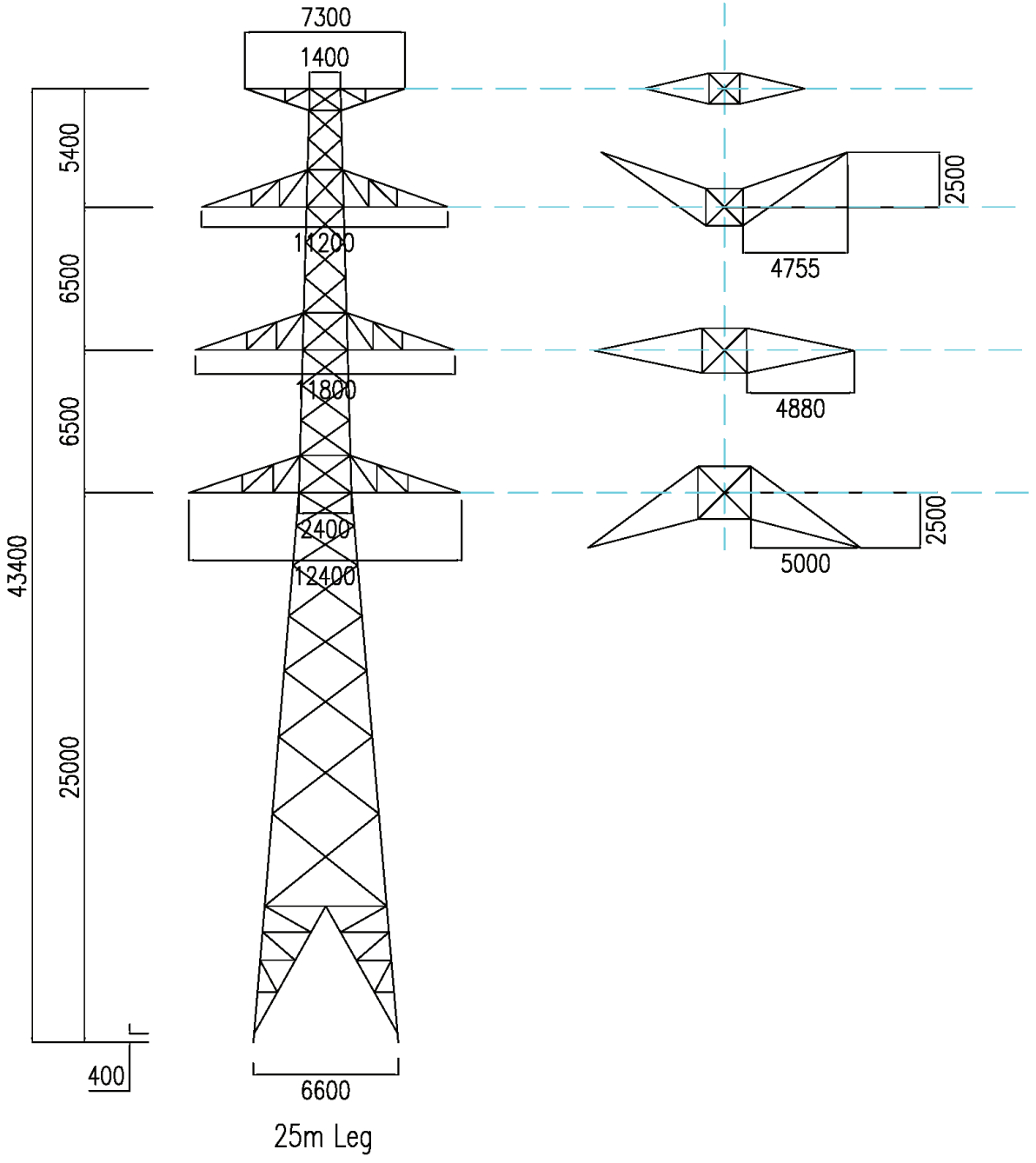
Type 220-3D-1











Front : Mabibo side

Type 220-2D

