

## ANNEX 5 Minutes of Meetings between TANESCO and JICA during the Survey

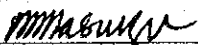
### MINUTES OF MEETING MASTER PLAN STUDY ON THE POWER SECTOR FOR MAJOR TOWNS IN THE UNITED REPUBLIC OF TANZANIA

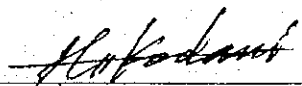
- 1ST MEETING HELD ON FEBRUARY 13, 2001 -

The Master Plan Study Team (the Team) dispatched by the Japan International Cooperation Agency (JICA), headed by Mr. Hiroshi Kodani visited the United Republic of Tanzania on February 9, 2001 for the purpose of Master Plan Study on the Power Sector for Major Towns (Dar es Salaam, Arusha and Moshi).

The Inception Report prepared by the Team was explained to TANESCO and after that, the Team and TANESCO discussed about the scope of study, supporting method by TANESCO, the schedule of site survey, the counterpart personnel and so on. Through the discussion, both of the Team and TANESCO have agreed as described on the attached sheets.

Confirmed and signed on February 13, 2001.

  
Mrs. E. M. Masunzu  
Director Operations  
Tanzania Electric Supply  
Company Limited

  
Mr. Hiroshi Kodani  
Leader of the Team  
Japan International  
Cooperation Agency

## ATTACHMENT

**1. SCOPE OF THE STUDY**

The Team will carry out the Master Plan Study depending upon the Scope of Works agreed between TANESCO and JICA on October 17, 2000 in Dar es Salaam.

**2. COUNTERPART PERSONNEL**

Mrs. Mercy S. Baregu, Chief Distribution & Commercial Engineer, is assigned as the Overall Leader of the counterpart personnel of TANESCO. The Team is supposed to request the arrangement of individual counterpart, preparation of data and so on to TANESCO through her in the Master Plan Study. Name of respective counter parts is as follows:

**Dar es Salaam Region**

Region	Name	Position
Head Office	Mrs. M. S. Baregu Mr. Mahenge	Chief Distribution & Commercial Engineer Commercial Engineer
Kinondoni (North)	Mr. G. E. Mmari	Senior Engineer
Kinondoni (South)	Mr. T. F. Bayona	Planning Engineer
Ilala	Mr. E. Kaali	Senior Engineer
Temeke	Mrs. F. T. Chungu	Senior Engineer

**Arusha Region**

Region	Name	Position
Arusha	Mr. Amosi Maganga	Construction & Planning Engineer

**Kilimanjaro Region**

Region	Name	Position
Kilimanjaro	Mr. Innocent Luoga	Planning Engineer

**3. OFFICE SPACE**

TANESCO offers the suitable working space for the Team in Kinondoni North Regional Office. The offered office space is supposed to be used throughout the study period for the Team.

#### 4. QUESTIONNAIRE

The Questionnaire prepared by the Team is explained to TANESCO. After that, both of the Team and TANESCO confirmed the following items.

- Desirable deadline to submit the answer sheets from TANESCO to the Team is March 9, 2001
- Headquarters of TANESCO will send the Questionnaire to Arusha and Kilimanjaro and request them to prepare the answers regarding to respective region.

**MINUTES OF MEETING  
MASTER PLAN STUDY ON THE POWER SECTOR  
FOR MAJOR TOWNS  
IN THE UNITED REPUBLIC OF TANZANIA**

**- 2ND MEETING HELD ON MARCH 13, 2001 -**

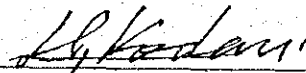
The Master Plan Study Team (the Team) dispatched by the Japan International Cooperation Agency (JICA), headed by Mr. Hiroshi Kodani visited the United Republic of Tanzania from February 9, 2001 to March 18, 2001 for the purpose of Master Plan Study on the Power Sector for Major Towns. The Team had a series of meetings with personnel concerned of Tanzania Electric Supply Company Limited (TANESCO) and conducted field surveys on the existing and proposed sites.

As a result of the discussions and field surveys, both parties have agreed and confirmed the main items described on the attached sheets.

Confirmed and signed on March 14, 2001.



Mr. B.E.A.T. Luhanga  
Managing Director  
Tanzania Electric Supply  
Company Limited



Mr. Hiroshi Kodani  
Leader of the Team  
Japan International  
Cooperation Agency

## ATTACHMENT

## 1. TANESCO'S PROPOSAL

TANESCO's latest proposal for the expansion or rehabilitation of power supply facilities are as follows;

## 1.1 Dar es Salaam

## (1) Substations

Name	System Voltage	Capacity(MVA)	Remarks
Tegeta Grid	220/132kV	2 units of 150	New
Yombo	220/132kV	2 units of 150	New
Oyster Bay	132/33kV	2 units of 45	New
	33/11kV.	CB, DS, etc.	Rehabilitation
Mbezi	132/33kV	2 units of 45	New
	33/11kV	2 units of 15	Expansion
Mbagala	132/33kV	2 units of 45	New
Kurasini	132/33kV	2 units of 45	New
Mburahati	33/11kV	2 units of 15	New
Tabata	33/11kV	1 unit of 15	New
Tandika	33/11kV	1 unit of 15	New
Tandale	33/11kV	1 unit of 15	Expansion
Sokoine	33/11kV	1 unit of 15	Expansion
Mikocheni	33/11kV	1 unit of 15	Expansion
Msasani	33/11kV	1 unit of 15	Expansion
		Line CB	Expansion
Mbagala	33/11kV	Line CB	Expansion
TOL	33/11kV	1 unit of 15	New
Kigamboni	33kV	Switching station	New
Factory Zone-I	33/11kV	CB, DS, etc.	Rehabilitation
Factory Zone-II	33/11kV	CB, DS, etc.	Rehabilitation
City Center	33/11kV	CB, DS, etc.	Rehabilitation
Bagamoyo	33/11kV	1 unit of 10	Expansion
Factory Zone - III	33/11kV	1 unit of 15	Expansion

ANNEX 5 MINUTES OF MEETINGS BETWEEN TANESCO AND JICA DURING THE SURVEY

(2) Transmission and Sub-transmission Lines

Section (from to)	System Voltage	Length(km)
Ubungo - Tegeta	220kV	25
Ubungo - Yombo	220kV	20
Ubungo - Oyster Bay	132kV	8.5
Tegeta - Mbezi	132kV	6.0
Mbezi - Oyster Bay	132kV	10.0
Factory Z.-III - Yombo	132kV	8.5
Yombo - Mbagala	132kV	10.0
Mbagala - Kurasini	132kV	16.0
Ilala - Kurasini	132kV	11.0
Tegeta - Bagamoyo	33kV	60.0

(3) Distribution Lines

Upgrading, expansion or rehabilitation of lines related to the substations.

1.2 Arusha

(1) Substations

Name	System Voltage	Capacity(MVA)	Remarks
Njiro	132/33kV	2 units of 45	Expansion
Unga Ltd.	33/11kV	2 units of 10	New
Mt. Meru	33/11kV	2 units of 10	Expansion
Kilitex	33/11kV	2 units of 10 (1 future)	New
Themis	33/11kV	2 units of 10 (1 future)	Expansion
Sakina	33/11kV	2 units of 10 (1 future)	New
Usa River	66/33kV	2 units of 10 (1 future)	New
Oljoro	33kV	Switching station	New

(2) Transmission Lines

Modification, upgrading, expansion or rehabilitation of lines related to the substations. Rehabilitation of 66kV line from Moshi to Arusha.

(3) Distribution Lines

Upgrading, expansion or rehabilitation of lines related to the substations.

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1.3 Moshi

(1) Substations

Name	System Voltage	Capacity(MVA)	Remarks
Kiyungi	132/33kV	2 units of 20 66kV CB	Expansion Rehabilitation
Trade School	33/11kV	2 units of 10 (1 future)	Expansion
Boma Mbuzi	33/11kV	2 units of 10 (1 future)	Expansion
KCMC	132/33kV	2 units of 20	New
Marangu	66/33kV	1 unit of 10	New
YMCA	33/11kV	2 units of 10 (1 future)	New
Gomberi	33/11kV	1 unit of 5	New
Same	132/33kV	CB, DS, SW Board, etc.	Rehabilitation
Nyumba ya Mungu	66/33kV	Line CB	Rehabilitation
Boma Ngombe	33/11kV	2 units of 5 (1 future)	New

(2) Transmission and Sub-transmission Lines

Section (from to)	System Voltage	Length(km)
Kiyungi - KCMC	132kV	17
Kiyungi - Marangu	66kV	43
Kiyungi - Trade School for Machame Feeder	33kV	12
Kiyungi - Boma Mbuzi for Rombo Feeder	33kV	9
Trade School - Gomberi	33kV	12
Same - Mwanga	33kV	55

(3) Distribution Lines

Upgrading, expansion or rehabilitation of lines related to the substations.

**2. FIELD SURVEY**

The Team conducted field survey of existing substations, proposed substation sites, transmission line routes and distribution lines together with TANESCO's counterparts. Results of the field survey will be utilized in the Master Plan Study effectively.

**3. DATA PROVIDED BY TANESCO**

TANESCO has provided data as requested by the Team according to the Questionnaire prepared and explained by the Team at the first meeting. A list of data received by Team is shown in Appendix. In case if additional data or information became necessary during the study in Japan, the Team will inform TANESCO and TANESCO will respond accordingly.

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(2) Transmission and Sub-transmission Lines

Section (from to)	System Voltage	Length(km)
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Ubungo - Yombo	220kV	20
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Tegeta - Mbezi	132kV	6.0
Mbezi - Oyster Bay	132kV	10.0
Factory Z.-III - Yombo	132kV	8.5
Yombo - Mbagala	132kV	10.0
Mbagala - Kurasini	132kV	16.0
Ilala - Kurasini	132kV	11.0
Tegeta - Bagamoyo	33kV	60.0

(3) Distribution Lines

Upgrading, expansion or rehabilitation of lines related to the substations.

1.2 Arusha

(1) Substations

Name	System Voltage	Capacity(MVA)	Remarks
Njiro	132/33kV	2 units of 45	Expansion
Unga Ltd.	33/11kV	2 units of 10	New
Mt. Meru	33/11kV	2 units of 10	Expansion
Kilitex	33/11kV	2 units of 10 (1 future)	New
Themí	33/11kV	2 units of 10 (1 future)	Expansion
Sakina	33/11kV	2 units of 10 (1 future)	New
Usa River	66/33kV	2 units of 10 (1 future)	New
Oljoro	33kV	Switching station	New

(2) Transmission Lines

Modification, upgrading, expansion or rehabilitation of lines related to the substations. Rehabilitation of 66kV line from Moshi to Arusha.

(3) Distribution Lines

Upgrading, expansion or rehabilitation of lines related to the substations.

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## ANNEX 5. MINUTES OF MEETINGS BETWEEN TANESCO AND JICA DURING THE SURVEY

Appendix

## List of Drawings and Documents received from TANESCO I/5

No.	Title of Document	Remark
Documents submitted as the answer for Questionnaire		
1	Organization Chart Head Office	Head Office
2	HIGH VOLTAGE TRANSMISSION LINES	Head Office
3	GENERATOR & GEN. TRANSFORMER	Head Office
4	ELECTRICAL PARAMETERS FOR 220kV AND 132kV GRID	Head Office
5	220/132/33/11kV DIAGRAM OF UBUNGO CONTROL COMPLEX CENTRE	Head Office
6	GRID SUBSTATIONS	Head Office
7	System of dispatching operation and maintenance(existing)	Head Office
8	Topographical and Geological Data	Head Office
9	Import Duties and Exchange Rate	Head Office
10	Currency and Customs Clearance	Head Office
11	Department directly and indirectly Concerned with the implementation Of M/P on the Project	Head Office
12	The general climatic condition of Dar es Salaam, Kilimanjaro and Arusha regions.	Head Office
13	EXISTING WORKSHOP FACILITIES FOR OPERATION AND MAINTENANCE	Head Office
14	PRESENT METHOD OF OPERATION AND MAINTENANCE 1. POWER STATIONS	Head Office
15	Maintenance of Power Station & TL, 55	Head Office
16	WATT-HOUR METERS ON SS	Head Office
17	Standard For Planning And Designing	Head Office
18	RELAYS SYSTEM	Head Office
19	Summary and Recommendation Answer for P6 Q7	Head Office
20	Asset classification and useful economic lives	Head Office
21	Map of West Hai (1:50,000)	Head Office
22	Map of Sanya Chini (1:50,000)	Head Office
23	Map of Himo (1:50,000)	Head Office
24	Map of Rongai (1:50,000)	Head Office
25	Map of Oloitokitok (1:50,000)	Head Office
26	Map of Mwanga (1:50,000)	Head Office
27	Map of Same (1:50,000)	Head Office
28	Map of Arusha (1:50,000)	Head Office
29	Map of Monduli (1:50,000)	Head Office
30	Map of Usa River (1:50,000)	Head Office
31	Map of Dar Es Salaam 1 (1:10,000)	Head Office
32	Map of Dar Es Salaam 2 (1:10,000)	Head Office
33	Map of Dar Es Salaam 3 (1:10,000)	Head Office
34	Map of Dar Es Salaam 4 (1:10,000)	Head Office
35	Map of Dar Es Salaam 5 (1:10,000)	Head Office
36	Map of Dar Es Salaam 6 (1:10,000)	Head Office
37	Map of Dar Es Salaam 7 (1:10,000)	Head Office
38	Map of Dar Es Salaam 7 J15-2 (1:10,000)	Head Office
39	Map of Dar Es Salaam 8 (1:10,000)	Head Office
40	Map of Dar Es Salaam 9 (1:10,000)	Head Office
41	Map of Arusha Municipality 1 (1:10,000)	Head Office
42	Map of Arusha Municipality 2 (1:10,000)	Head Office
43	Map of Arusha Municipality 3 (1:10,000)	Head Office
44	Map of Arusha Municipality 4 (1:10,000)	Head Office
45	Map of Moshi Municipality 1 (1:10,000)	Head Office
46	Map of Moshi Municipality 3 (1:10,000)	Head Office
47	Ilala S/S CB Specification	Ilala

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ANNEX 5 MINUTES OF MEETINGS BETWEEN TANESCO AND JICA DURING THE SURVEY

List of Drawings and Documents received from TANESCO 2/5

No.	Title of Document	Remark
48	TANESCO ILALA REGION FEEDER'S FAULT RECORDS FOR THE YEAR 1996	Ilala
49	SINGLE LINE DIAGRAM ILALA S/S	Ilala
50	SINGLE LINE DIAGRAM FACTORY ZONE-III S/S	Ilala
51	SINGLE LINE DIAGRAM KARIAKOO S/S	Ilala
52	ONE LINE DIAGRAM CITY CENTER S/S	Ilala
53	ONE LINE DIAGRAM SOKOINE S/S	Ilala
54	POWER SUPPLY AND DEMAND IN 10 YEARS	Ilala
55	POWER FACILITIES - SUBSTATIONS	Ilala
56	Organization Data - Ilala Region	Ilala
57	ORGANIZATION CHART - ILALA REGION - DAR ES SALAAM	Ilala
58	Peak Load of Ilala Region	Ilala
59	MAGOMENI SUBSTATION SINGLE LINE DIAGRAM	Kinondoni South
60	UNDERCONSTRUCTION AND PLANNED(DISTRIBUTION LINES) 33KV/11KV	Kinondoni South
61	KINONDONI SOUTH REGION NUMBER OF CUSTOMERS FROM YEAR 1991 TO 2000	Kinondoni South
62	Kinondoni South Regional Office Information	Kinondoni South
63	Kinondoni South Organization Chart	Kinondoni South
64	Feeders and demand of Tandale S/S and Ubungo S/S	Kinondoni South
65	TEMEKE REGIONAL ORGANIZATIONAL CHART	Temeke
66	PRESENT SITUATION OF TANESCO	Temeke
67	POWER FACILITIES	Temeke
68	PEAK LOAD	Temeke
69	TEMEKE REGION UNPLANNED OUTAGES IN 1999	Temeke
70	TEMEKE REGION PROPOSALS	Temeke
71	NUMBER OF EMPLOYEES BY JOB CLASSIFICATIONS IN EACH OFFICE(PRESENT SITUATION)KINONDONI NORTH REGIONAL OFFICE)	Kinondoni North
72	BAGAMOYO DISTRICT NUMBER OF EMPLOYEES BY JOB CLASSIFICATION(PRESENT SITUATION)	Kinondoni North
73	KINONDONI NORTH REGION ORGANIZATION CHART	Kinondoni North
74	ORGANIZATION CHART - BAGAMOYO DISTRICT	Kinondoni North
75	Answer Sheets - Kinondoni North	Kinondoni North
76	Data of Tegeta S/S	Kinondoni North
77	TANESCO ARUSHA REGIONAL OFFICE ORGANIZATION CHART	Arusha
78	PRESENT SITUATION OF TANESCO	Arusha
79	ELECTRIC POWER SITUATION AND POWER FACILITIES	Arusha
80	ORGANIZATION CHART FOR KILIMANJARO REGION	Kilimanjaro
81	Answer Sheets for Questionnaire	Kilimanjaro
82	SUPPLEMENTARY DATA	Kilimanjaro
83	KILIMANJARO REGION NUMBER OF EMPLOYEES BY JOB CLASSIFICATIONS IN EACH OFFICE	Kilimanjaro
84	SINGLE LINE DIAGRAM MWANGA S/S	Kilimanjaro
85	LAYOUT OF MWANGA S/S	Kilimanjaro
86	SINGLE LINE DIAGRAM NYUMBA YA MUNG S/S	Kilimanjaro
87	LAYOUT OF NYUMBA YA MUNG S/S	Kilimanjaro
88	COMMUNICATION DIAGRAM IN KILIMANJARO REGION	Kilimanjaro
89	KIYUNGI 132/66/33kV TRANSMISSION SUBSTATION EXISTING AND PROPOSED DESIGNS SINGLE LINE DIAGRAM	Kilimanjaro
90	KIYUNGI 132/66/33kV TRANSMISSION SUBSTATION EXISTING AND PROPOSED DESIGNS PLAN	Kilimanjaro

ANNEX 5 MINUTES OF MEETINGS BETWEEN TANESCO AND JICA DURING THE SURVEY

List of Drawings and Documents received from TANESCO 3/5

No.	Title of Document	Remark
91	KIYUNGI 132/66/33kV TRANSMISSION SUBSTATION CONTROL BUILDING NEW PANEL LOCATIONS PLAN AND ELEVATIONS	Kilimanjaro
92	SINGLE LINE DIAGRAM MACHAME & SANYA JUU	Kilimanjaro
93	ARRANGEMENT MACHAME & SANYA JUU S/S	Kilimanjaro
94	SINGLE LINE DIAGRAM GONJA	Kilimanjaro
95	ARRANGEMENT GONJA S/S	Kilimanjaro
Documents compiled during the site survey or interview from TANESCO		
102	SINGLE LINE DIAGRAM OF UBUNGO SUBSTATION	
103	SINGLE LINE DIAGRAM OF ILALA SUBSTATION	
104	SINGLE LINE DIAGRAM OF MIKOCHE NI SUBSTATION	
105	SINGLE LINE DIAGRAM OF OYSTERBAY SUBSTATION	
106	SINGLE LINE DIAGRAM OF FACTORY ZONE III SUBSTATION	
107	SINGLE LINE DIAGRAM OF MSASANI SUBSTATION	
108	SINGLE LINE DIAGRAM OF SOKOINE SUBSTATION	
109	SINGLE LINE DIAGRAM OF FACTORY ZONE II SUBSTATION	
110	SINGLE LINE DIAGRAM OF FACTORY ZONE I SUBSTATION	
111	SINGLE LINE DIAGRAM OF KURASINI SUBSTATION	
112	SINGLE LINE DIAGRAM OF WAZO HILL SUBSTATION	
113	SINGLE LINE DIAGRAM OF KIGAMBONI SUBSTATION	
114	SINGLE LINE DIAGRAM OF MBEZI SUBSTATION	
115	SINGLE LINE DIAGRAM OF CITY CENTRE SUBSTATION	
116	KIGAMBONI 33/11KV SUB-STATION ELECTRICAL GENERAL LAYOUT AND BLOCK PLAN	
117	LAYOUT OF FACTORY ZONE I SUBSTATION	
118	LAYOUT OF FACTORY ZONE II 33KV SUBSTATION	
119	LAYOUT OF KURASINI SUBSTATION	
120	LAYOUT OF MIKOCHE NI SUBSTATION	
121	LAYOUT OF MSASANI SUBSTATION	
122	LAYOUT OF SOKOINE SUBSTATION	
123	LAYOUT OF UBUNGO SUBSTATION	DRAFT
124	LAYOUT OF UBUNGO SUBSTATION	
125	LAYOUT OF ILALA SUBSTATION	Before Expansion
126	LAYOUT OF ILALA SUBSTATION	After Expansion
127	LAYOUT OF OYSTERBAY SUBSTATION	Existing
128	LAYOUT OF OYSTERBAY SUBSTATION	132kV Substation
129	LAYOUT OF FACTORY ZONE III SUBSTATION	Before Expansion
130	LAYOUT OF FACTORY ZONE III SUBSTATION	After Expansion
131	LAYOUT OF MBEZI SUBSTATION	Existing
132	LAYOUT OF MBEZI SUBSTATION	132kV Substation
133	LAYOUT OF CITY CENTRE SUBSTATION	Existing
134	LAYOUT OF CITY CENTRE SUBSTATION	132kV Substation
135	DAR ES SALAAM POWER MASTER PLAN 220kV, 132kV AND 33kV SINGLE LINE DIAGRAM	2001/2/1
136	TANZANIA ELECTRIC SUPPLY COMPANY LIMITED ELECTRICITY TARIFF WITH EFFECT FROM JANUARY 1999 BILLING	
137	TANZANIA POWER SYSTEM MASTER PLAN UPDATE REDUCED LOAD 2010	
138	GRID GENERATION SUMMARY 1990 - 2000	

ANNEX 5 MINUTES OF MEETINGS BETWEEN TANESCO AND JICA DURING THE SURVEY

List of Drawings and Documents received from TANESCO 4/5

No.	Title of Document	Remark
139	NAMES OF COUNTERPARTS	
140	TANESCO-220,132,AND 33KV NETWORK OF DAR ES SALAAM REGION	FEB 2000
141	THE NATIONAL GRID SYSTEM	
142	220/132/33/11kV DIAGRAM OF UBUNGO CONTROL COMPLEX CENTRE	
143	Load Shedding Schedule for Kilimanjaro Region	Kilimanjaro
144	Single Line Diagram of Kilimanjaro Region	Kilimanjaro
145	Proposal for the Reinforcement of Power Distribution Network in Kilimanjaro Region	Kilimanjaro
146	Review of the Proposed Distribution Network Works under the Requested Kilimanjaro Electrification (Phase III Project)	Kilimanjaro
147	Additional Submission	Kilimanjaro
148	Problems Facing distribution Networks-Arusha Tanzania as at February 19,2001	Arusha
149	Proposed Transmission Line route from FZ III to Ifala	
150	SCHEMATIC REPRESENTATION OF TANESCO TRANSMISSION NETWORK(FOR 66KV, 132KV, 220KV)	
151	TEMEKE REGION PEAK LOAD DATA	
152	Price List of Wooden Pole	
153	TANZANIA DAESUNG CABLE CO.,LTD BUILDING WIRES PRICE LIST	
154	ABB Tanelec Ltd. TRANSFORMER PRICE LIST	
155	Proposed 66kV Route from Kiyungi S/S to Marangu	Kilimanjaro
156	Transmission Lines (66kV and 132kV) to Arusha side	Arusha
157	MOSHI MASTER PLAN 1995-2015	Kilimanjaro
158	Transmission Line Map in Arusha	Arusha
159	Transmission Line Map in Oldonyo Sambu	Arusha
160	Transmission Line Map in Monduli	Arusha
161	SYSTEM DIAGRAM FOR ARUSHA REGION	Arusha
162	Transmission Line Map in Nyumba Ya Mungu	Kilimanjaro
163	Transmission Line Map in Kihurio	Kilimanjaro
164	Transmission Line Map in Mkomazi	Kilimanjaro
165	Transmission Line Map in Sanya Chini	Kilimanjaro
166	Transmission Line Map in Kisiwani	Kilimanjaro
167	Transmission Line Map in Lembeni	Kilimanjaro
168	Transmission Line Map in Hedaru	Kilimanjaro
169	Transmission Line Map in Makanya	Kilimanjaro
170	Transmission Line Map in Rombo	Kilimanjaro
171	Transmission Line Map in Mwanga	Kilimanjaro
172	Transmission Line Map in West Hai	Kilimanjaro
173	Transmission Line Map in Same	Kilimanjaro
174	Transmission Line Map in Himo	Kilimanjaro
175	Transmission Line Map in Arusha Chini	Kilimanjaro
176	Transmission Line Map in Moshi	Kilimanjaro
177	Power System Master Plan, 2000 Update, Draft Final Report, Nov. 2000	Acres International
178	Tanzania Power System Master Plan, Demand Forecast Update, May.2000	Planning Dept.
179	Annual Report & Accounts 1998	
180	Annual Report & Accounts 1997	
181	Annual Report & Accounts 1995	
182	Annual Report & Accounts 1993	
183	DAMP - Organization Chart 2001	

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List of Drawings and Documents received from TANESCO 5/5

No.	Title of Document	Remark
184	TANESCO Training Centre	
185	TANESCO Training Centre Programmes conducted from November, 1999 to October, 2000	
186	Topographic Maps (1/50,000)[14 sheets; original]	
187	TANZANIA; Districts and Protected Areas	
188	List of Tanzanian trees from The World List of Threatened Trees [copies]	
189	"ARCHAEOLOGY" from "Tanzania in Maps"[Map of Historical Ruins; copies]	
190	DAR ES SALAAM (1/1,000,000)[Map of Historical Ruins; copy]	
191	ARUSHA: ZONE H (1/500,000)[Map of Historical Ruins; copy]	
192	"Temporary Standards for Receiving Waters"[copies]	
193	Land Cover and Land Use[Maps; 3 sheets]	
194	NEMC: Organization Chart	
195	Eastern Arc Mountains [copy]	
196	An Act to Provide for the establishment of the National Environment Management Council	
197	National Environmental Policy	
198	Report on Existing Legislation Pertaining to Environment	
199	Tanzania Environmental Impact Assessment Procedure Volume 1 EIA Procedure & General Information	
200	Tanzania Environmental Impact Assessment Procedure Volume 2 Screening and Scoping Guidelines	
201	Tanzania Environmental Impact Assessment Procedure Volume 3 Report Writing Guidelines	
202	Tanzania Environmental Impact Assessment Procedure Volume 4 Review Guidelines	
203	Tanzania Environmental Impact Assessment Procedure Volume 5 General Checklist of environmental Characteristics	
204	Status on Ratification/Accession to Conventions [copies]	
205	"Coastal Forests" and "Mid-elevation Forests" [copies] from "East African Ecosystems and their Conservation"	
206	1994 Indicator Monitoring Survey (IMS) Volume 1 Preliminary Report	
207	Developing a Poverty Baseline in Tanzania	
208	Updating the Poverty Baseline in Tanzania	
209	The Economic Survey 1999	
210	An Act to provide for the Preservation and Protection of Sites and Articles of Palaeontological, Archaeological, Historical, or Natural Interest and for matters connected therewith and incidental thereto	
211	An act to amend the Antiquities Act, 1964	
212	Annual Report of the Antiquities Division for the years 1976 and 1977	
213	SERA YA UTAMADUNI (National Cultural Policy)	
214	Forests Chapter 389 of the Laws (Principal Legislation)	
215	Tanzania Electricity Supply Company (TANESCO) Electricity Tariff Study Final Report (Volume 2) Main Report	

**MINUTES OF MEETING  
MASTER PLAN & FEASIBILITY STUDY  
ON THE POWER SECTOR FOR MAJOR TOWNS  
IN THE UNITED REPUBLIC OF TANZANIA**

The Master Plan & Feasibility Study Team (the Team) dispatched by the Japan International Cooperation Agency (JICA) conducted field surveys for the captioned project. During the investigation, the Team had a series of discussions with responsible personnel of TANESCO on the latest status of projects proposed at the meeting held on March 14, 2001 in Dar es Salaam.

As a result of the discussions and field surveys, both parties have agreed and confirmed the main items described on the attached summary report.

Confirmed and signed on October 11, 2001



---

Mr. B. E. A. T. Luhanga  
Managing Director  
Tanzania Electric Supply  
Company Limited



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Mr. Hiroshi Kodani  
Leader of the Team  
Japan International  
Cooperation Agency

[ATTACHMENT]

SUMMARY REPORT OF THE THIRD SITE SURVEY

1. SUMMARY OF SURVEY

1.1 Period

From August 26 planned to be continued until October 21, 2001

1.2 Object Areas

Dar es Salaam, Arusha and Moshi

1.3 Major Items

The Team conducted the survey to obtain data and information as the supplemental materials for compiling master plan and feasibility study. Items of the survey or study are shown as follows

- Confirmation of latest existing system status
- Data acquisition and measurement of the latest load served
- Resurvey of project site conditions and project routes
- Measuring of the existing and proposed site data for designs
- Reevaluation and predetermination of existing equipment proper use
- Case studies of DAMP
- Financial and economic conditions
- Environmental consideration

1.4 Survey Results

The Team fundamentally confirmed and understood that each individual project had adequate possibility on the technical matters. On the other hand the Team confirmed that some proposed transmission lines involve difficulties on construction conditions. Survey results including previous surveys will be compiled as the master plan and feasibility study reports.

## **2. ALTERNATIVES FROM THE ORIGINAL PROPOSALS**

Through the discussion between the Team and TANESCO, alternatives from the original proposals and additional conditions on proposals are confirmed as follows.

### **2.1 Dar es Salaam**

- 132kV transmission line from Ubungo S/S to New Oysterbay S/S is required to have further study by TANESCO for definition of its right of way
- Location of Kitunda S/S will be fixed by TANESCO.
- Transformer capacity of Bagamoyo S/S will be changed from 10 to 15MVA
- Tabata S/S will be designed as Tabata switching station
- Study result of five new substations named as Kawe, Kinondoni, Kigogo, University of Dar es Salaam and Bahari Beach will be compiled in study reports.
- Study result of two new switching stations named as Bunju and Kimara will be compiled in study reports
- Study result of a new sub-transmission line named as FZII – Kisarawe will be compiled in study reports

### **2.2 Arusha**

- Usa River S/S will have technical and economic/financial evaluation among the practicable plans of
  - i) 132/33kV S/S,
  - ii) 66/33kV S/S including necessary transmission lines, or
  - iii) 33kV exclusive feeder.
- Northwest area will have technical and economic/financial evaluation between the practicable plans of
  - i) Sakina S/S, Oljoro switching station and Monduli S/S
  - ii) Sakina S/S and Monduli S/S
- Study result of new S/S named as Njiro B will be compiled in study reports



### 2.3 Moshi

- KCMC S/S will have technical and economic/financial evaluation between the practicable plans of
  - i) 132/33/11kV S/S, and
  - ii) 33/11kV S/S including necessary transmission lines.
- Supply to Marangu area will have technical and economic/financial evaluation between the practicable plans of
  - i) 66/33kV S/S, and
  - ii) 33kV Switching station including their transmission lines.

## 3. STUDY SCHEDULE

The comprehensive study for the master plan and feasibility study will be carried out to compile complete reports involving all required items. Schedule of completion of the reports as mentioned in the inception report is shown as follows.

### 3.1 Interim Report

The interim report will be compiled completely by March 2002.

### 3.2 Draft Final Report

The draft final report will be compiled completely by June 2002. The Team will hold a meeting with TANESCO to explain the final results of whole study and to discuss on the details of the report in order to coordinate current status and environment.

### 3.3 Final Report

The final report reflected the results of the discussions mentioned above, will be compiled completely by September 2002.

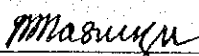
**MINUTES OF MEETING  
MASTER PLAN & FEASIBILITY STUDY  
ON THE POWER SECTOR FOR MAJOR TOWNS  
IN THE UNITED REPUBLIC OF TANZANIA**

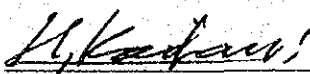
The Master Plan & Feasibility Study Team (the Team) dispatched by the Japan International Cooperation Agency (JICA), headed by Mr. Hiroshi Kodani visited the United Republic of Tanzania from February 19, 2002 for the purpose of discussion of interim report of captioned project (the Interim Report) and confirmation of latest condition of TANESCO's structural reforming.

During the investigation, the Team had a series of discussions with responsible personnel of designated regions of TANESCO regarding the Interim Report and provided an explanation of the latest result of study.

As the result of the discussions, both parties have agreed and confirmed the contents of Interim Report and attached amendment.

Confirmed and signed on March 1, 2002

  
\_\_\_\_\_  
Mrs. E. M. Masunzu  
Director Operations  
Tanzania Electric Supply  
Company Limited

  
\_\_\_\_\_  
Mr. Hiroshi Kodani  
Leader of the Team  
Japan International  
Cooperation Agency

**[ATTACHEMENT]**

**1. AMENDMENT OF INTERIM REPORT**

**1.1 Dar es Salaam**

- The 240mm<sup>2</sup> conductor shall be considered for the interconnector.
- Suitable incoming feeder for Kinondoni S/S will be proposed from TANESCO.
- 33kV transmission line from FZ III to Chang'ombe S/S will be compiled in the study.
- Application of steel pipe pole shall be considered in the study especially for interconnection lines.

**1.2 Arusha**

- Usa River S/S(33/11kV 10MVAx2) will be designed as switching station.

**1.3 Moshi**

- 33kV transmission line from Himo to Kifaru will be compiled in the study.

**2. OBJECTS OF FEASIBILITY STUDY**

The Team will pick up some projects from the master plan up to 2010 as urgent matter, carry out detailed study (e.g. basic design, financial analyses), and compile as draft final report. Basically, the projects, which are described to be needed by 2003 in interim report, will be taken as the objects of feasibility study. The Team may make some modification of criteria according to status of each project on actual selection.

**3. STUDY SCHEDULE**

The modification of master plan and further feasibility studies will be carried out to compile complete reports involving all required items. Schedule of completion of the study reports as mentioned in the inception report is shown as follows.

### **3.1 Draft Final Report**

The draft final report will be compiled completely by June 2002. The Team will visit the United Republic of Tanzania to hold a meeting with TANESCO to provide explanation of the final results of whole studies and discussion on the details of the report in order to reflect the current status and environment on final report.

### **3.2 Final Report**

The final report reflected the results of the discussion between both parties will be compiled completely by September 2002.

Meeting between TANESCO and JICA  
Regarding Interim Report of MASTER PLAN & FEASIBILITY STUDY  
ON THE POWER SECTOR FOR MAJOR TOWNS IN THE UNITED REPUBLIC OF  
TANZANIA

Date 28. Feb 2002 10:00-11:30

Place Kinondoni-North Regional Office Board Room

**List of Participant**

**JICA**

- |                        |                      |
|------------------------|----------------------|
| 1 Mr. Hiroshi KODANI   | Team Leader          |
| 2 Mr. Tetsuya YAMANAKA | Transmission Planner |
| 3 Mr. Nobuyuki HONJO   | Substation Planner   |

**TANESCO**

- |                             |  |
|-----------------------------|--|
| 1 Ms. Sophia S. Mgonja      | Chief Distribution & Commercial Engineer |
| 2 Mr. Theodory F. Bayona    | Planning Engineer-Kinondoni (South)      |
| 3 Ms. M. M. Kabadi          | Senior Engineer-Kinondoni (South)        |
| 4 Mr. John B. Mwakipesile   | Regional Manager-Kinondoni (South)       |
| 5 Mr. M. T. Mallale         | Chief System Control Engineer            |
| 6 Mr. Amosy Maganga         | Construction Engineer-Arusha             |
| 7 Mr. Ng'erere Makoye       | Senior Engineer-Arusha                   |
| 8 Mr. Patrick O. Songa      | Senior Engineer-HQ                       |
| 9 Mr. Sanibella Mahenge     | Commercial Engineer-HQ                   |
| 10 Mr. Mmari Goodluck       | Senior Engineer-Kinondoni (North)        |
| 11 Mr. Maclean Mbonile      | Senior Engineer-Kilimanjaro              |
| 12 Mr. Chibate A. Makali    | Senior Engineer (System Control)         |
| 13 Mr. Christian Msyani     | Senior System Control Engineer (O)       |
| 14 Ms. Stella Manyanya      | Planning Engineer-Kinondoni North        |
| 15 Ms. Rukia Mpako          | System Development Engineer              |
| 16 Mr. S. E. Shayo          | Transmission Engineer                    |
| 17 Mr. J. Sakia             | Senior Engineer-Transmission             |
| 18 Mr. Nsajigwa J. Mwaisaka | Regional Manager-Temeke                  |
| 19 Ms. Fatuma I. Chungu     | Senior Engineer-Temeke                   |
| 20 Mr. Thomas Uiso          | Planning Engineer-Temeke                 |
| 21 Mr. Benedict Lyaruu      | Distribution Engineer                    |
| 22 Mr. Ombeni Minja         | Senior Engineer-Ilala                    |
| 23 Mr. Martin Kalokola      | Regional Manager-Ilala                   |
| 24 Mr. Mwalongo A. M.       | Land Surveyor-Ilala                      |
| 25 Mr. Gilbert S. Mrosso    | Land Surveyor-Ilala                      |

**MINUTES OF MEETING  
MASTER PLAN STUDY ON THE POWER SECTOR  
FOR MAJOR TOWNS  
IN THE UNITED REPUBLIC OF TANZANIA  
- EXPLANATION OF THE DRAFT FINAL REPORT -**

The Master Plan Study Team (the Team) dispatched by the Japan International Cooperation Agency (JICA), headed by Mr. Hiroshi Kodani visited the United Republic of Tanzania on July 17, 2002 and scheduled to stay in the country until August 3, 2002 in order to explain and to consult Tanzania Electric Supply Company Limited (TANESCO) on the components of the Draft Final Report.

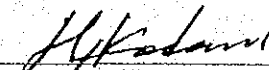
The Team had a series of meetings with personnel concerned of TANESCO and conducted field surveys on the existing and proposed sites.

As a result of the discussions, both parties have agreed and confirmed the main items described on the attached sheets.

Confirmed and signed on July 30, 2002.

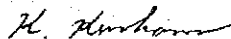


Mr. Steve Van Staden  
Deputy Managing Director  
Tanzania Electric Supply  
Company Limited



Mr. Hiroshi Kodani  
Leader of the Team  
Japan International  
Cooperation Agency

Witnesses



Mr. K. Kurokawa  
Energy and Mining Development  
Study Division,  
Japan International  
Cooperation Agency

**ATTACHMENT**

1. Components of Draft Final Report

The Team submitted 15 copies of the Draft Final Report to TANESCO and held a workshop and have explanatory meetings at each regional office. Through the meetings and workshop, TANESCO has agreed and accepted in principle the components of the Draft Final Report. Program and participants of the workshop are as shown on Annex-1.

2. Proposed Revision

(1) Kinondoni North

- Construction of Bahari Beach SS has been completed
- Contract was signed for total rehabilitation work for Mbezi SS
- LBS would be installed at T-off points on 33kV lines for 33/11kV substations
- Instead of the plan of Kunduchi SS, additional transformer is to be installed in Mbezi SS at the same time of expansion of Bahari Beach SS
- Msasani SS expansion to be year 2004

(2) Kinondoni South

- Length of 33kV line to University SS is to be 3km
- Nordic feeder needs to add LBS and line materials to link with Tegeta feeder
- Larger sized conductor shall be applied to 33kV link between Magomeni SS and Tandale SS

(3) Ilala

- Sokoine SS and FZ-III needs to be upgraded at earliest time
- 33kV feeder from FZ-III needs to add expecting to have more than 8,000KVA load in total
- 33kV line to Kigogo SS should be T-off from upgraded Ubungo-Ilala 33kV line

(4) Temeke

- Tandika SS and new 33kV double circuit line is to be covered by kfw fund
- Tandika SS will receive power from FZ-III SS through FZ-I SS

(5) Arusha

- no revisions have been made -

(6) Moshi

- Place of Marangu SW/S should be shifted to Mkuu and 33kV line to the station is to be 43km accordingly

3. Office Equipment and Tools

The Team is to hand over to TANESCO its office equipment, measuring instruments, tools and others used for field surveys. Details of the items are as shown on Annex-2.

4. Further Schedule

The Team will make the Final Report in accordance with the confirmed items, and send it to TANESCO by the end of September 2002.



Annex-1.1

**WORKSHOP PROGRAM**

[Held on 26th July, 2002 at the Crystal Room in New Africa Hotel, 10:00 to 16:00 hours]

1. Opening Address (Mr. S. Aoki, Chief Representative, JICA Tanzania office)
2. Opening Address (Mr. R. Huysen, Managing Director, TANESCO)
3. Opening Address (Mr. H. Kodani, Study Team Leader)
4. Explanations of workshop schedule (Mr. Y. Imaeda)
5. Workshop
  - (1) Main items of the study result (Mr. N. Honjo)
  - (2) Case study of DAMP (Mr. H. Noguchi)
  - (3) Loss reduction in distribution system (Mr. H. Noguchi)
  - (4) Questions and answers (Team Member)
- +++ Buffet Lunch at the Bandari Grill +++
- (5) Brief introductions of automatic distribution line operating system in Japan (Mr. H. Noguchi)
- (6) Situation of TANESCO's training in maintenance of distribution facilities (Ms. E. G. Fumbuka, Regional Manager, TANESCO Kinondoni North)
- (7) Effects of Japanese grant aid projects (Mr. C. Masawe, Director Operations, TANESCO)
- (8) Questions and answers (Team Member)
6. Closing Address (Mr. S. V. Staden, Deputy Managing Director, TANESCO)

Annex-1.2

**ATTENDANCE AT WORKSHOP**

**(1) Ministry of Energy**

Mr. M. Mbwambo Senior Executive Engineer

**(2) TANESCO**

Mr. Rudy Huysen	Managing Director
Mr. Steve Van Staden	Deputy Managing Director
Mr. Cosmas Masawe	Acting Director Operations
Mr. M.M.Fazal	Manager Distribution
Mr. Kingu, M.E.	Acting Manager Rural Electrification
Mrs. Mercy S. Baregu	Distribution and Transmission Specialist
Mr. S.Saidi Ngoma	Senior Distribution Engineer
Ms. Stella Manyanya	Planning Engineer
Mr. Johnson Mwigune	Commercial Engineer
Mr. Simon B. Kihyo	Acting Chief Engineer Distribution
Mr. Benedict Lyaruu	Distribution Engineer
Mr. Martin Kalokola	Regional Manager-Ilala
Mr. Ephraim N.Kaali	Senior Engineer-Ilala
Mr. Ombeni Minja	Senior Engineer-Ilala
Mrs. E.G. Fumbuka	Regional Manager-Kinondoni (North)
Mr. Mmari Goodluck	Senior Engineer-Kinondoni (North)
Mr. John B.Mwakipesile	Regional Manager-Kinondoni (South)
Mr. Samwel M. Mollel	Acting Planning Engineer-Kinondoni (South)
Mr. Theodory F.Bayona	Acting Senior Engineer-Kinondoni (South)
Mr. Nsajigwa J.Mwaisaka	Regional Manager-Temeke
Mrs. Fatuma I. Chungu	Senior Engineer-Temeke
Mr. Thomas Uiso	Planning Engineer-Temeke
Mr. Richard E. Nsulau	Regional Manager-Kilimanjaro
Mr. Innocent G. Luoga	Planning Engineer-Kilimanjaro
Mr. Christopher J. Masasi	Regional Manager-Arusha
Mr. Ng'erere Makoye	Senior Engineer-Arusha
Mr. Daniel Mshana	PR Manager

ANNEX 5 MINUTES OF MEETINGS BETWEEN TANESCO AND JICA DURING THE SURVEY

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Mr. John Masanko	Photographer
<b>(3) JICA Tokyo Office</b>	
Mr. Kiyoto Kurokawa	Energy and Mining Development Study Division
<b>(4) JICA Tanzania Office</b>	
Mr. Sumio Aoki	Resident Representative
Mr. Tomoki Kobayashi	Assistant Resident Representative
<b>(5) JICA Study Team</b>	
Mr. Hiroshi Kodani	Team Leader
Mr. Hisaya Noguchi	Distribution Planner
Mr. Takehisa Sakai	Substation Planner
Mr. Nobuyuki Honjo	Substation Planner
Mr. Tetsuya Yamanaka	Transmission Planner
Mr. Masaki Mori	Distribution Planner
Mr. Tatsuo Tomabechi	Demand & Supply Planner
Mr. Yoshitaka Imaeda	Economist
Mr. Tadao Sato	Maintenance and Training Planner
Mr. Seigo Nakakuma	Environmentalist
Mr. Takahiro Imaizumi	Coordinator
<b>(6) Others</b>	
Mr. Tuma Abdallah	Senior Journalist
Mr. Elisha Elia	Press Journalist
Mr. Mbwana Kitenge	Press Cameraman
Mr. Chatta A.	Freelance Journalist
Mr. Riziki Mwambusi	Radio Tanzania Reporter
Ms. Joyce Macha	Claud FM Reporter

Annex-2

EQUIPMENT AND TOOLS HANDED OVER TO TANESCO

Description	Qty
IBM Netvista A20 Personal Computer	3
MS Office Professional Edition	1
HP Color Laserjet 4500 Printer	1
HP 840C Color Deskjet Printer	2
Kodak DC3800 Digital Camera	3
HP Scanjet 3200C	3
Canon B155 Fax Machine W/Answering	1
APS Backups 650 UPS	3
GPS-310	2
Tool Box	9
Voltage Checker for Low Voltage Fuzzy V550	9
Portable Voltage Checker for High-Voltage HST-30	2
Phase Sequence Indicator for High Voltage HP-S20	2
Clamp on Power Hi Tester 3165	2
Insulation Resistance Tester DI-11N	2
Portable Insulation Resistance Tester 3213A	2
Lyte Speed 500 (Range Meter)	2
Protective Footwear	9
Rubber Glove	9
Safety Helmet	9

**ANNEX 6 Agreement between TANESCO and JICA  
regarding the S/W of the Study**

SCOPE OF WORK  
FOR

THE MASTER PLAN ON THE POWER SECTOR

FOR MAJOR TOWNS  
IN THE UNITED REPUBLIC OF TANZANIA

AGREED UPON BETWEEN

TANZANIA ELECTRIC SUPPLY COMPANY LTD.

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

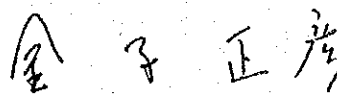
Signed at Dar-Es-Salaam  
on 17th October 2000



Bashir J. Mrindoko  
Commissioner for Energy and Petroleum  
Affairs, Ministry of Energy and Minerals,  
the Government of Tanzania



Beat Luhanga  
Managing Director,  
Tanzania Electric Supply Company LTD.  
(TANESCO)



Masahiko Kaneko  
Leader,  
The Preliminary Study Team  
Japan International  
Cooperation Agency

## I. INTRODUCTION

In response to the request of the Government of Tanzania, the Government of Japan has decided to conduct the master plan study on the power sector for major towns in the United Republic of Tanzania. ( hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of Tanzania.

The present document sets forth the scope of work with regard to the Study.

## II. OBJECTIVES OF THE STUDY

The objective of the Study is to formulate the master plan and pre-feasibility study to assess the technical, economic and financial viability of the projects for the expansion and maintenance of the electrical distribution system in major towns in the United Republic of Tanzania.

## III. SCOPE OF THE STUDY

In order to achieve the Study, JICA shall carry out the following study.

### 1. Master Plan Study

The master plan shall comprise the long-term master plan for 10 years and the medium-term plan for 5 years.

### 2. Pre-feasibility study

The Pre-feasibility study shall be conducted for the projects identified in the medium-term master plan.

### 3. Target towns and districts for the Study.

The target towns of the Study would be Dar-Es-Salaam, Arusha and Moshi.

### 4. The offices of the Study

Tanzania Electric Supply Company LTD (hereinafter referred to as "TANESCO"), Head office, Arusha and Moshi office would prepare the offices of the Study.

### 5. The offices of the operation and maintenance study

The office of the Dar-Es-Salaam Power Distribution and Maintenance Project (hereinafter referred to as "DAMP") at Msasani Peninsula would be used as the office of the operation and maintenance study.

And the sub- Maintenance Centre would be established at Arusha od Moshi.

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**6. Relevant organization and enterprises**

TANESCO; Head office, Arusha and Moshi.offices.

**7.Administration organization**

Ministry of Energy and Minerals

**8. Study items.**

In order to achieve the above objective, the Study will cover the following items;

**(1) Master plan study**

- 1) Collection and review of data
- 2) Field survey
- 3) Power demand forecast
- 4) Planning of power transmission and substation facilities
- 5) Planning of distribution line facilities
- 6) Planning of reinforcement of manpower and facilities for operation and maintenance
- 7) Environmental study
- 8) Implementation schedule
- 9) Cost estimation
- 10) Economic and financial study

**(2) Pre-feasibility study**

- 1) Detailed site survey
- 2) Preliminary design
  - Transmission lines
  - Substation
  - Distribution network
- 3) Implementation schedule
- 4) Cost estimation
- 5) Economic and financial study


**(3) The model case study of the operation and maintenance center**

- 1) Present situation of DAMP
- 2) the role of the sub- Maintenance Centre at Arusha or Moshi
- 3) the five-year-medium-term plan of DAMP( including expansion plan of DAMP) and the .  
sub- Maintenance Centres

**IV. STUDY SCHEDULE**

The Study will be carried out in accordance with the attached Tentative Work Schedule shown in Appendix I.

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#### V. REPORTS

JICA shall prepare and submit the following reports with floppy discs to the Government of Tanzania

- (1) Inception Report (20 Copies) in English
- (2) Progress Report (20 Copies) in English
- (3) Interim Report (20 Copies) in English
- (4) Draft Final Report and its summary (20 Copies) in English
- (5) Final Report and its summary (20 Copies) in English

The government of Tanzania will provide its comments on the draft final report within one month after the submission of the draft final report.

#### VI. DIVISION OF TECHNICAL UNDERTAKING

The division of technical undertakings for the study by TANESCO and JICA is shown in Appendix II.

#### VII. UNDERTAKINGS OF THE GOVERNMENT OF TANZANIA

1. To facilitate smooth conduct of the Study, the government of Tanzania shall take necessary measures:

- (1) to secure the safety of the Japanese study team,
- (2) to permit the members of the Japanese study team to enter, leave and sojourn in Tanzania for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees,
- (3) to exempt the members of the Japanese study team from taxes, duties and other charges on equipment, machinery and other materials brought into Tanzania for the conduct of the Study,
- (4) to exempt the members of the Japanese Study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with the conduct of the Study,
- (5) to provide the necessary facilities to the Japanese study team for unrestricted re-export of equipment and machinery brought into Tanzania for the conduct of the Study,
- (6) to provide necessary facilities to the Japanese study team for remittance as well as utilization of the funds introduced into Tanzania from Japan in connection with the conduct of the Study,
- (7) to secure permission for entry into private properties or restricted areas for the conduct of the Study,
- (8) to secure permission for the Japanese study team to take all data, documents (including photographs) and specimens related to the Study out of Tanzania to

Japan,



- (9) to provide medical services as needed, its expenses will be chargeable to members of the Japanese study team,
  - (10) to secure permission to use walkie-talkies and other wireless telecommunications for execution of the field Study.
2. The Government of Tanzania shall bear claims, if any arise, against the members of the Japanese study team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the conduct of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Japanese study team.
  3. TANESCO shall act as counterpart agency to the Japanese study team and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth conduct of the Study.
  4. TANESCO shall, at its own expense, provide the Japanese study team with the following, in cooperation with other organizations concerned:
    - (1) available data and information related to the Study,
    - (2) counterpart personnel including one distribution-system-manager to work for the Study under the management of TANESCO.
    - (3) suitable office space with necessary equipment in TANESCO; Head office, Arusha, Moshi, DAMP and the sub- Maintenance Centre at Arusha or Moshi.
    - (4) credentials or identification cards.

**VI. UNDERTAKINGS OF JICA**

For the conduct of the Study, JICA shall take the following measures:

- (1) to dispatch, at its own expense, the Japanese study teams to Tanzania,
- (2) to pursue technology transfer to Tanzanian counterpart personnel in the course of the Study.

**VII. OTHERS**

JICA and Tanzania Electric Supply Company LTD and Ministry of Energy and Minerals shall consult with each other in respect of any matter that may arise from or in connection with the Study.

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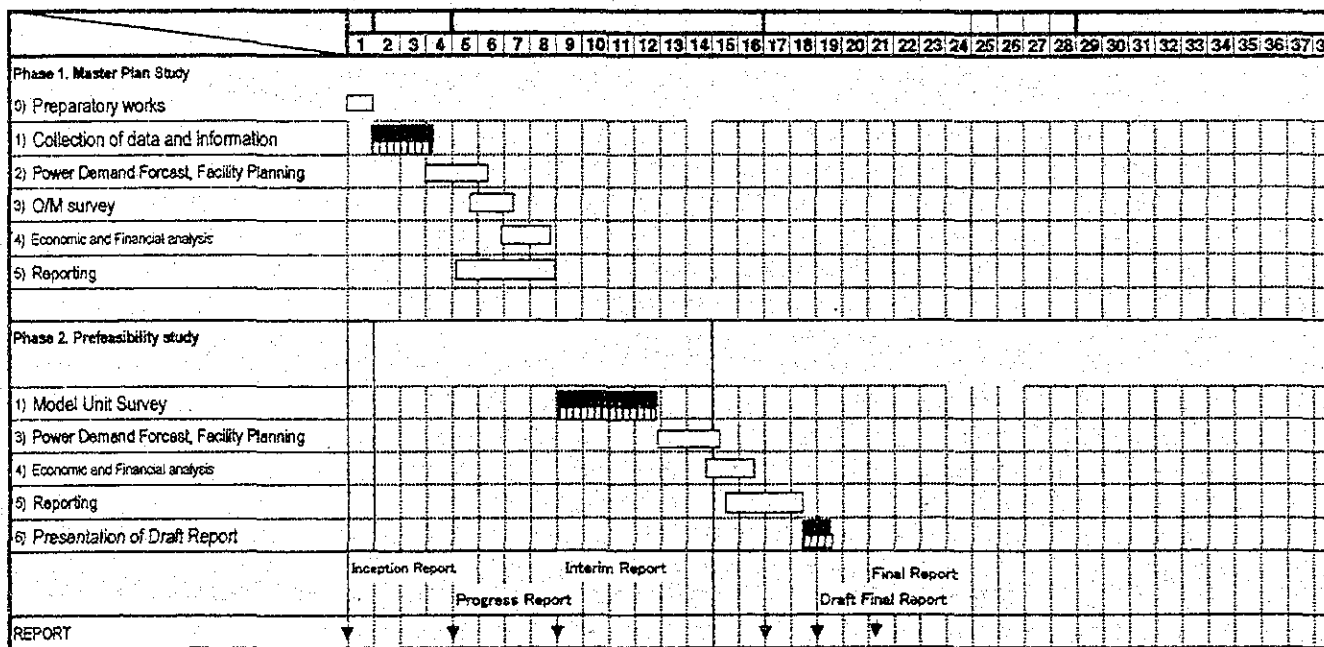


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APPENDIX I

TENTATIVE SCHEDULE

■ : by JICA in Tanzania  
 ▤ : by TANESCO etc.  
 □ : by JICA in Japan  
 ▼ : Report



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APPENDIX II  
Division of Works

Work items	Undertakings by JICA	Undertakings by TANESCO
<p>Master Plan Study</p> <ol style="list-style-type: none"> <li>1) Power demand forecast</li> <li>2) Planning of power transmission and substation facilities</li> <li>3) Planning of distribution line facilities</li> <li>4) Planning of reinforcement of manpower and facilities for operation and maintenance</li> <li>5) Environmental study</li> <li>6) Implementation schedule</li> <li>7) Cost estimation</li> <li>8) Economic and financial study</li> </ol>	<p>planning, forecast</p> <p>planning, cost estimation</p> <p>planning, drawing plans, cost estimation</p> <p>Equipment planning, cost estimation</p> <p>planning</p> <p>procurement survey</p> <p>review, financial analysis</p>	<p>provision of population data, industrial development plan</p> <p>provision of necessary data and information</p> <p>provision of present drawing</p> <p>provision of necessary data and information</p> <p>provision of necessary data and information</p> <p>provision of necessary data and information</p> <p>provision of necessary financial data</p>
<p>Pre Feasibility Study</p> <ol style="list-style-type: none"> <li>1) Detailed site survey</li> <li>2) Preliminary design</li> </ol> <p>Transmission lines</p> <p>Substation</p> <p>Distribution network</p> <ol style="list-style-type: none"> <li>3) Implementation schedule</li> <li>4) Cost estimation</li> <li>5) Economic and financial study</li> </ol>	<p>planning</p> <p>planning, drawing</p> <p>planning</p> <p>planning, drawing, mapping</p> <p>planning</p> <p>procurement survey</p> <p>review, financial analysis</p>	<p>provision of detail map</p> <p>provision of necessary data and information</p> <p>provision of necessary data and information</p> <p>provision of necessary data and information</p> <p>provision of necessary data and information</p> <p>provision of necessary financial data</p> <p>to make comments on the works</p>
<p>The model case study of O/M center</p> <ol style="list-style-type: none"> <li>1) Present situation of DAMP</li> <li>2) the role of the sub- Maintenance Centre at Arusha or Moshi</li> <li>3) the five-year-medium-term plan</li> </ol>	<p>review</p> <p>planning</p> <p>planning</p>	<p>provision of necessary data</p> <p>provision of necessary data</p> <p>provision of necessary data</p>

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