

資料－ 1 調査団員氏名・所属

1. 調査団員氏名・所属

(1) 第一次現地調査

氏 名	担当業務	現 職
住吉 央	総括	独立行政法人 国際協力機構 産業開発・公共政策部 資源・エネルギーグループ 資源・エネルギー第二課 課長
齊藤 学	計画管理	独立行政法人 国際協力機構 産業開発・公共政策部 資源・エネルギーグループ 資源・エネルギー第二課
西川 光久	業務主任／電力計画	八千代エンジニアリング（株）
阿部 真	副業務主任／送配電設備	八千代エンジニアリング（株）
酒村 建治	変電設備 1	西日本技術開発（株）
近藤 伸也	変電設備 2	西日本技術開発（株）
長坂 和佳 ^{※1}	系統解析	MRI リサーチアソシエイツ（株）
大橋 圭一郎	保護協調	西日本技術開発（株）
中川 光晴	施工計画／積算	八千代エンジニアリング（株）
車田 輝雄	施設設計／積算	八千代エンジニアリング（株）
岸田 匡	環境社会配慮	ERM 日本（株）
黒羽子 強平	業務調整／送配電設備補助	八千代エンジニアリング（株）

※1 国内作業

(2) 第二次現地調査

氏 名	担当業務	現 職
阿部 真	副業務主任／送配電設備	八千代エンジニアリング（株）
酒村 建治	変電設備 1	西日本技術開発（株）

(3) 第三次現地調査

氏 名	担当業務	現 職
林 俊行	総括	独立行政法人 国際協力機構 国際協力専門員 産業開発部課題アドバイザー
齊藤 学	計画管理	独立行政法人 国際協力機構 産業開発・公共政策部 資源・エネルギーグループ 資源・エネルギー第二課
西川 光久	業務主任／電力計画	八千代エンジニアリング（株）
阿部 真	副業務主任／送配電設備	八千代エンジニアリング（株）
酒村 建治	変電設備 1	西日本技術開発（株）
中川 光晴	施工計画／積算	八千代エンジニアリング（株）
黒羽子 強平	業務調整／送配電設備補助	八千代エンジニアリング（株）

資料－2 調査行程

2. 調査行程

(1) 第一次現地調査

No.	月 日	曜日	調 査 内 容		宿泊地	
			JICA団員	送配電線設備		イララ変電所及び他変電所
				保護協調、施工計画、施設設計、環境社会配慮調査		
1	2月24日	日		①移動 [成田 22:00 →ドバイ 5:00 by JL5095]	機中泊	
2	2月25日	月		①移動 [ドバイ 10:15 →ダレスサラム 14:55 by EK725]	ダレスサラム	
3	2月26日	火		①エネルギー・鉱物資源省表敬訪問(IC/R、調査日程の説明) ②TANESCO表敬訪問及び協議(IC/R、調査日程、質問票の提出・説明、その他) ③JICA事務所表敬・説明・協議(IC/R、調査日程、計画内容、その他)	ダレスサラム	
4	2月27日	水		①要請内容の詳細協議及び質問票の内容の詳細説明・協議(TANESCO) ②要請サイト確認 ③イララ変電所、ムヒンビリ変電所、ムササニ変電所、ムワナニヤマラ変電所調査	ダレスサラム	
5	2月28日	木		①測量・地質調査の再委託先と協議・契約 ②要請内容の詳細協議及び質問票の内容の詳細説明・協議(TANESCO) ③上位計画の確認・調査 ④テゲタ変電所、ジャングワニビーチ変電所、ウブンゴ変電所の調査 ⑤現地労務費・資材等見積り依頼	ダレスサラム	
6	3月1日	金		①エネルギー・鉱物資源省及びTANESCOの組織・予算調査 ②送電部門担当者と要請内容の詳細協議(TANESCO) ③132kV送電線ルート調査(ウブンゴ変電所 ～ イララ変電所)	ダレスサラム	
7	3月2日	土	①JICA団員移動 [成田 → ドバイ]	①団内協議及び収集資料整理 ②ダレスサラム市内市場調査	ダレスサラム	
8	3月3日	日	①JICA団員移動 [ドバイ → ダレスサラム]	①団内協議及び収集資料整理 ②ダレスサラム市内市場調査	ダレスサラム	
9	3月4日	月	①M/D(案)の提出協議 ②無償資金協力スキーム、「タ」国負担事項、全体工程等の説明 ③M/D(案)の修正(if any)	①団内打合せ	①系統解析情報収集 ②技プロ関係者と打合せ	ダレスサラム
				①自然条件調査立会い(イララ変電所及びムササニ変電所) ②現地労務費・資材等見積り依頼 ③132kV送電線ルート調査(ウブンゴ変電所 ～ 第1鉄塔)		
10	3月5日	火	①M/D(案)の提出協議 ②無償資金協力スキーム、「タ」国負担事項、全体工程等の説明 ③M/D(案)の修正(if any) ④サイト調査	①質問表のデータ収集(MEM)	①イララ変電所調査 ②変電所、送配電、系統関係の図面収集	ダレスサラム
				①自然条件調査立会い(イララ変電所) ②現地労務費・資材等見積り依頼 ③環境社会配慮打合せ(TANESCO、再委託先)		
11	3月6日	水	①M/D(案)の提出協議 ②無償資金協力スキーム、「タ」国負担事項、全体工程等の説明 ③M/D(案)の修正(if any) ④サイト調査	①質問表のデータ収集(TANESCO) ②M/D(案)の提出協議 ③技プロ関係者と打合せ	①イララ変電所調査 ②技プロ打合せ ③変電所、送配電、系統関係の図面収集	ダレスサラム
				①気象データの依頼、港湾の調査		
12	3月7日	木	①エネルギー・鉱物資源省及びTANESCOとM/Dの署名 ②サイト調査	①質問表のデータ収集(TANESCO)	①イララ変電所調査	ダレスサラム
				①イララ変電所調査、自然条件調査立会い ②輸送ルート、重量規制の調査(TANROADS)		
13	3月8日	金	①日本大使館及びJICA(事)へ報告 ②JICA団員(Team Leader)移動 [ダレスサラム → ドバイ]	①33kV配電線ルートの調査(ムワナニヤマラ変電所 ～ マクンブショ変電所)	①マクンブショ変電所調査	ダレスサラム
				①自然条件調査の打ち合わせ(ムヒンビリ変電所) ②業務主任移動 [ダレスサラム 16:45 → ドバイ 23:20 by EK726] ③他ドナーの援助動向調査(AfDB) ④ダレスサラム市内市場調査		
14	3月9日	土	①JICA団員(Team Leader)移動 [ドバイ → 成田]	①団内協議、収集資料整理、ダレスサラム市内市場調査、市内インフラ整備状況調査 ②業務主任移動 [ドバイ 2:50 → 成田 17:35 by JL5096]		ダレスサラム
15	3月10日	日		①団内協議、収集資料整理、ダレスサラム市内市場調査、市内インフラ整備状況調査		ダレスサラム
16	3月11日	月	①他ドナーの援助動向確認(Hifab社との打ち合わせ)	①132kV送電線ルート調査 (ウブンゴ変電所 ～ イララ変電所)	①他ドナーの援助動向調査(Hifab社との打ち合わせ)	ダレスサラム
				①他ドナーの援助動向調査(Hifab社との打ち合わせ) ②132kV送電線ルート調査(ウブンゴ変電所 ～ イララ変電所)		
17	3月12日	火	①他ドナーとの合同会議(Hifab社、AfDB、WB、JICA) ②エネルギー・鉱物資源省で無償資金協力スキームの説明	①33kV配電線ルート調査 (イララ変電所 ～ ムヒンビリ変電所)	①他ドナーとの合同会議(Hifab社、AfDB、WB、JICA)	ダレスサラム
				①自然条件調査立会い(ムヒンビリ変電所) ②現地労務費・資材等見積り依頼		
18	3月13日	水	①地熱調査ワークショップ(AfDB)	①33kV配電線ルート調査 (ムワナニヤマラ変電所 ～ マクンブショ変電所)	①テゲタ変電所調査	ダレスサラム
				①自然条件調査立会い(ムヒンビリ変電所) ②自然条件調査立会い(ジャングワニビーチ変電所) ③タンザニア基準局で打合せ		
19	3月14日	木	①JICA団員(Planning Management)移動 [ダレスサラム → ドバイ]	①収集資料整理	①ウブンゴ変電所調査	ダレスサラム
				①自然条件調査立会い(ムヒンビリ変電所及びムササニ変電所) ②TANROADS訪問 ③Wildlife Conservation Society Tanzania (WCST)へのヒアリング		

No.	月 日	曜日	調 査 内 容		宿 泊 地	
			JICA団員	送配電線設備		イララ変電所及び他変電所
				保護協調、施工計画、施設設計、環境社会配慮調査		
20	3月15日	金	①JICA団員(計画管理)移動 {ドバイ → 成田}	①TANESCOとの協議(ウブンゴ変電所)	①収集資料整理	ダ'ルエスサラーム
				①自然条件調査立会い(ムササニ変電所) ②収集資料整理		
21	3月16日	土		①団内協議、収集資料整理、ダ'ルエスサラーム市内市場調査、市内インフラ整備状況調査 ②自然条件調査立会い(ムワナニヤマラ変電所及びジャングワニビーチ変電所) ③現地労務費・資材等見積り依頼		ダ'ルエスサラーム
22	3月17日	日		①団内協議、収集資料整理、ダ'ルエスサラーム市内市場調査、市内インフラ整備状況調査 ②自然条件調査立会い(ムヒンビリ変電所及びジャングワニビーチ変電所)		ダ'ルエスサラーム
23	3月18日	月		①33kV配電線ルート調査 (マクンブショ変電所 ～ ムワナニヤマラ変電所)	①マクンブショ変電所、イララ変電所及びムヒンビリ変電所調査	ダ'ルエスサラーム
				①自然条件調査立会い(ムワナニヤマラ変電所及びムササニ変電所) ②TANESCO環境部との協議		
24	3月19日	火		①33kV配電線ルート調査 (オイスターベイ変電所 ～ ムササニ変電所)	①ムササニ変電所調査	ダ'ルエスサラーム
				①自然条件調査立会い(ムワナニヤマラ変電所) ②再委託先との環境サイト調査		
25	3月20日	水		①33kV配電線ルート調査 (ムヒンビリ変電所 ～ ニューシティーセンター変電所)	①収集資料整理	ダ'ルエスサラーム
				①自然条件調査立会い(ムササニ変電所) ②収集資料整理		
26	3月21日	木		①収集資料整理、市内インフラ整備状況調査 (JICA)	①収集資料整理	ダ'ルエスサラーム
				①自然条件調査立会い(ムワナニヤマラ変電所)、施設配置計画(ムヒンビリ変電所及びイララ変電所) ②TANESCO環境部、送電部との協議		
27	3月22日	金		①33kV配電線ルート調査 (オイスターベイ変電所 ～ ムササニ変電所)	①収集資料整理	ダ'ルエスサラーム
				①自然条件調査立会い(ムワナニヤマラ変電所)、施設配置計画(ジャングワニビーチ変電所) ②TANESCO環境部、送電部との協議		
28	3月23日	土		①団内協議、収集資料整理、ダ'ルエスサラーム市内市場調査、市内インフラ整備状況調査 ②再委託先との協議(施設設計)		ダ'ルエスサラーム
29	3月24日	日		①団内協議、収集資料整理、ダ'ルエスサラーム市内市場調査、市内インフラ整備状況調査 ②業務主任移動 {成田 22:00 → ドバイ 5:00 by JL5095} ③調査団員(環境社会配慮)移動(ダ'ルエスサラーム 16:45 →ドバイ 23:20 by EK726)		ダ'ルエスサラーム
30	3月25日	月		①33kV配電線ルート調査 (テゲタ変電所 ～ ジャングワニビーチ変電所)	①収集資料整理 ②TANESCOとの協議	ダ'ルエスサラーム
				①自然条件調査立会い(ジャングワニビーチ変電所) ②市場価格調査(イララおよびカリアコ) ③業務主任移動 {ドバイ 10:15 → ダ'ルエスサラーム 14:55 by EK725} ④調査団員(環境社会配慮)移動 {ドバイ 2:55→成田 17:20 by JL5096}		
31	3月26日	火		①フィールド・レポート 作成	①フィールド・レポート 作成	ダ'ルエスサラーム
				①各変電所、配電線、その他補足調査 ②市場価格調査(イララおよびカリアコ) ③現地調査結果概要、フィールド・レポート 作成 ④調査団員(保護協調)移動 {ダ'ルエスサラーム 16:45 →ドバイ 23:20 by EK726}		
32	3月27日	水		①現地調査結果概要、フィールド・レポート作成 ②各変電所、配電線、その他補足調査 ③調査団員(保護協調)移動 {ドバイ 2:55 →成田 17:20 by JL5096}		ダ'ルエスサラーム
33	3月28日	木		①33kV配電線ルート調査 (マクンブショ変電所 ～ オイスターベイ変電所)	①現地調査結果概要、フィールド・レポート 作成	ダ'ルエスサラーム
				①現地調査結果概要、フィールド・レポート 作成 ②質問表回収		ダ'ルエスサラーム
34	3月29日	金		①現地調査結果概要、フィールド・レポート 作成 ②団内協議、収集資料整理 ③調査団員(変電設備1)移動 {ダ'ルエスサラーム 16:45→ドバイ 23:20 by EK726}		ダ'ルエスサラーム
35	3月30日	土		①団内協議、収集資料整理 ②各変電所、配電線、その他補足調査 ③調査団員(変電設備1)移動 {ドバイ 2:55 →成田 17:20 by JL5096}		ダ'ルエスサラーム
36	3月31日	日		①団内協議、収集資料整理 ②各変電所、配電線、その他補足調査		ダ'ルエスサラーム
37	4月1日	月		①フィールド・レポートの作成 ②現地調査結果概要の作成		ダ'ルエスサラーム
38	4月2日	火		①フィールド・レポートのTANESCOとの協議・説明 ②現地調査結果概要の作成		ダ'ルエスサラーム
39	4月3日	水		①フィールド・レポートのTANESCOとの協議・説明 ②現地調査結果概要の作成		ダ'ルエスサラーム
40	4月4日	木		①フィールド・レポートの承認取得とTANESCO表敬 ②日本大使館及びJICAタンザニア事務所へ報告		ダ'ルエスサラーム
41	4月5日	金		①移動 {ダ'ルエスサラーム 16:45 → ドバイ 23:20 by EK726}		機中泊
42	4月6日	土		①移動 {ドバイ 2:50 → 成田 17:35 by JL5096}		

【備考】:

JICA: Japan International Cooperation Agency

TANESCO: タンザニア電力公社(Tanzania Electric Supply Company)

(2) 第二次現地調査

No.	月日	曜日	調 査 内 容	宿泊地
1	5月11日	土	移動 {成田 22:00 →ドバイ 4:15 by JL5095}	機中泊
2	5月12日	日	移動 {ドバイ 10:50 →ダルエスサラーム 15:15 by EK725}	ダルエスサラーム
3	5月13日	月	10:00:TANESCO(日程、追加調査の目的等説明) 14:00:イララ変電所視察 18:30:地質調査及び地形測量調査に係る最終報告書について現地再委託先との打合せ	ダルエスサラーム
4	5月14日	火	09:00:Hifab/フィンランドプロジェクトとの打合せ 11:00:WB/TEDAP(@A909)との打合せ 13:00:TANESCOとの打合せ(送電及び変電) 15:00:ウブンゴ変電所視察 16:00:Songas IPP(送電)視察	ダルエスサラーム
5	5月15日	水	14:00:TANESCOとの打合せ(イララ地域事務所)	ダルエスサラーム
6	5月16日	木	09:00:SWECO/AfDBプロジェクトとの打合せ 14:00:TANESCOとの打合せ(環境社会配慮)	ダルエスサラーム
7	5月17日	金	10:00:ドナー間合同調整会議 14:00:テゲタ変電所視察	ダルエスサラーム
8	5月18日	土	収集資料整理 テクニカルメモランダム(案)の作成	ダルエスサラーム
9	5月19日	日	収集資料整理 テクニカルメモランダム(案)の作成	ダルエスサラーム
10	5月20日	月	10:00:TANESCOとの打合せ 14:00:TANESCOとの打合せ(配電)	ダルエスサラーム
11	5月21日	火	09:00:TANESCOとの打合わせ(イララ地域事務所)	ダルエスサラーム
12	5月22日	水	10:00:TANESCOへテクニカルメモランダム説明 14:00:TANESCOとの打合わせ(イララ地域事務所)	ダルエスサラーム
13	5月23日	木	14:00:テクニカルメモランダム署名 16:00:JICAタンザニア事務所へ報告	ダルエスサラーム
14	5月24日	金	移動 {ダルエスサラーム 16:45 →ドバイ 23:20 by EK726}	機中泊
15	5月25日	土	移動 {ドバイ 2:50 → 成田 17:35 by JL5096}	

[備考]:

JICA: Japan International Cooperation Agency

TANESCO: タンザニア電力公社(Tanzania Electric Supply Company)

(3) 第三次現地調査

No.	月 日	曜日	調 査 内 容		宿泊地
			JICA団員 (林俊行、斎藤学)	コンサルタント団員 (西川光久、阿部真、酒村建治 中川光晴、黒羽子恭平)	
1	Sep. 28	Sat.		①移動(成田22:00 - ドバイ03:50+1 by JAL5095)	機中
2	Sep. 29	Sun.	①移動(羽田01:30 - ドバイ07:05 by EK313) ②移動((ドバイ10:50 - ダルエスサラーム15:15 by EK725)	①移動(ドバイ10:50 - ダルエスサラーム15:15 by EK725)	ダルエスサラーム
3	Sep. 30	Mon.	①JICA Tanzania事前打合せ ②エネルギー鉱山資源省(MEM)表敬(案件概要説明、MD(案)の提示・説明) ③TANESCO(表敬、DFR、機材仕様書の提出・説明)		ダルエスサラーム
4	Oct. 01	Tue.	①DFR/機材仕様書の説明、MD(案)の提示・説明 ②現地確認(Ilala, Ubungo)		ダルエスサラーム
5	Oct. 02	Wed.	①DFR/機材仕様書の説明 ②MD案の修正(MEM, TANESCO) ③補足調査		ダルエスサラーム
6	Oct. 03	Thu.	①DFR/機材仕様書の説明、 ②MD(案)の修正(MEM, TANESCO) ③補足調査		ダルエスサラーム
7	Oct. 04	Fri.	①MD(案)の修正(MEM, TANESCO) ②Technical Memorandumの作成・協議		ダルエスサラーム
8	Oct. 05	Sat.	①団内協議・資料整理 ②補足調査		ダルエスサラーム
9	Oct. 06	Sun.	①団内協議・資料整理 ②補足調査		ダルエスサラーム
10	Oct. 07	Mon.	①MD(案)の修正(MEM, TANESCO) ②補足調査		ダルエスサラーム
11	Oct. 08	Tue.	①日本大使館へ報告		ダルエスサラーム又は 機中
			②補足調査	②移動(ダルエスサラーム16:45 - ドバイ23:20 by EK726)	
12	Oct. 09	Wed.	①移動(ダルエスサラーム16:45 - ドバイ23:20 by EK726)	①移動(ドバイ02:50 - 成田17:25 by JAL5096)	機中又は成田
13	Oct. 10	Thu.	①移動(ドバイ02:50 - 成田17:35 by EK318)		成田

[Remark]:

JICA: Japan International Cooperation Agency

TANESCO: Tanzania Electric Supply Company

資料－３ 関係者（面会者）リスト

3. 関係者（面会者）リスト

<u>所属及び氏名</u>	<u>職位</u>
エネルギー・鉱物資源省 Ministry of Energy and Minerals (MEM)	
Mr. Eliakim C. Maswi	Permanent Secretary
Eng. Innocent G. Luoga	Assistant Commissioner Energy
Mr. James Andilile	Assistant Commissioner for Energy and Development
Eng. Salimm Inegeja	Senior Energy Engineer
Mr. Florian Assenga	Senior Human Resources Officer
Mr. Tulimbumi Abel	Legal Officer
Eng. Edson W. Ngabo	Energy Engineer
Eng. Joram Kengete	Energy Engineer
Eng. Erick Rugabera	Energy Engineer
 タンザニア電力公社 Tanzania Electric Supply Company Ltd. (TANESCO) Ubungu 本部 Ubungo Head Office	
Eng. Felchesmi J. Mramba	Managing Director
 配電部門&顧客サービス部門 Distribution & Customer Services Department	
Eng. Sophia S. Mgonja (Ms.)	Ag. Deputy Managing Director (D&CS)
Eng. Nicholas Kamoleka	Senior Manager Sales and Marketing
Eng. Mahende Mugaya	Senior Zonal Manager DAR & Coast
Eng. Robert M. Semsella	Manager Electrification
Eng. Theodory Bayona	Manager Planning & Design
Eng. Simon Kihyo	Manager Operation
Eng. Benedict V. Lyaruu	Zonal Principal Distribution Engineer
Eng. Mposheleye Z. Mwasenga	Principal Engineer Revenue Protection
Eng. Fadhili Kalissa	Principal Engineer GIS
Eng. Clara N. Simbila (Ms.)	Principal Engineer Distribution Planning
Eng. Richard Mhongole	Senior Engineer
Eng. Elisa M. Kirimbo	Distribution Engineer
Eng. James J. Kivugo	Commercial Engineer

送電・変電部門

Transmission Department

Mr. Kahitwa M. Bishaija	Ag. Senior Manager Transmission.
Eng. Mosha T. Izahaki	Manager Transmission Substations
Mr. Amon K. Gamba	Principal Engineer Preventive Maintenance
Mr. Zakaria Mgalamaa	Principal Protection Engineer
Mr. Walter Jacob	Ag. Principal Light Current
Mr. Ayubu Mwaibindi	Senior Protection Engineer
Mr. Stanley Shayo	Senior Engineer Transmission
Mr. Burhani Mvungi	Senior Electrical Technician
Mr. Regina Myulla	Light current Engineer

投資部門

Investments Department

Eng. Decklan P. Mhaiki	Deputy Managing Director (Investment)
Eng. Mercy S. Baregu	Senior Manager Projects
Eng. Emmanuel Manirabona	Manager Projects (T&D)
Haika Patrick (Ms.)	Project Engineer

系統運用部門

Grid Operations Department

Eng. Christian M.A.Msyani	Ag. Deputy Managing Director Transmission
Mr. Philipo Lalisa-Shifi	System Controller Engineer

環境調査部門

Research and Environments Department

Eng. Hamdun R. Mansur	Manager Environment
Mr. John Lazimah	Principal Environmental Engineer
Mr. Hamisi Boby	Principal Land Surveyor
Ms. Brigita Sylvester	Environmental Officer

イララ州事務所

Ilala regional office

Eng. Athanasius Nangali	Regional Manager
Eng. Eng. A. H. Mmingna	Principal Engineer
Mr. Frank Mwatuka	System Control Supervisor
Ms. Mary Kabakuzi	Planning Engineer
Mr. Charly Rengi	Land Surveyor

キノンドニ北州事務所

Kinondoni North regional office

Mr. Raymond Seya	Regional Manager
Mr. Herini Mhina	Principal Engineer
Mr. David Edwin Mwakambonja	Land Surveyor
Mr. Bakari Sekuninga	Planning Engineer

キノンドニ南州事務所

Kinondoni South regional office

Mr. Gasper Msigwa	Regional Manager
-------------------	------------------

テメケ州事務所

Temeke regional office

Mr. Richard Mallamia	Regional Manager
----------------------	------------------

ウブンゴ変電所

Ubungo substation

Eng. Gerald Amatta	Manager Power System Control
Mr. Michael Ngonyani	Ag. Manager Grid Operations

TANESCO 研修学校

TANESCO Training School

Mr. Peter Tarimo	Senior Training Officer
------------------	-------------------------

マクンブショ変電所

Makumbusho substation

Mr. Patrick Singano	System supervisor
Mr. Charles Makweta	System operator
Mr. Melesi P.Semali	Temporary System operator

テゲタ変電所

Tegeta substation

Mr. Said B. Msuya	Station Supervisor
-------------------	--------------------

タンザニア道路公社

Tanzania National Roads Agency (TANROADS - Dar es Salaam)

Mr. G. Kombe	TANROADS (Dar es Salaam regional office)
Mr. E. Mwasha	TANROADS (Dar es Salaam regional office)

資源評価協会-ダルエスサラーム大学

Institute of Resource Assessment (IRA) -University of Dar es Salaam

Prof. H. Sosovele	Professor
Mr. Florian Silangwa	Consultant
Mr. Beatrice Mchom	Consultant
Mr. Riziki Prosper	Accountant

タンザニア野生動物保護協会

Wildlife Conservation Society Tanzania (WCST)

Mr. Paul Nnyiti	Senior Conservation Officer
Mr. Nsajigwa G. Kyonjola	Bird life officer

タンザニア規格基準局

Tanzania Bureau of Standards (TBS)

Mr. Nasra Hussein	Standard Officer Environment
Mr. Liberatus Kalinga	Standard Officer Electricity

フィクナー社

FICHTNER GmbH

Mr. A. Zafer Ozgur	Res. S. Manager
--------------------	-----------------

アフリカ開発銀行

AFRICAN DEVELOPMENT BANK

Ms. Stella Mandago	Senior Energy Officer
--------------------	-----------------------

スウェコ

SWECO International AB

Mr. Leif Andersson	Cheif Management Consultant
--------------------	-----------------------------

Hifab 社
Hifab

Mr. Juhani Antikainen

Chief Technical Advisor, Dar es Salaam Power Supply
Improvement Project

Mr. Kent Strand

Project Manager

ELTEL 社
ELTEL Networks TE AB

Mr. Anders Axberg

Project Manager (Distribution Projects in Dar Es
Salaam)

Mr. Bengt Rostlund

Manager

タンザニア気象局
Tanzania Meterological Agency

Janet Loningo (Ms.)

Acting Manager climate change section

タンザニア港湾管理委員会
Tanzania Port Authority

Mr. Joseph I. Msaki

Operatios Manager

在タンザニア日本国大使館
Embassy of Japan in Tanzania

岡田 眞樹 氏

佐藤 盟信 氏

特命全権大使

一等書記官 経済協力班長

JICA タンザニア事務所
JICA Tanzania Office

大西 靖典 氏

勝田 幸秀 氏

岩間 創 氏

丸尾 信 氏

島川 博行 氏

所長

前所長

事業担当次長

所員

所員

TANESCO – JICA Project for Capacity Development of Efficient Distribution and Transmission Systems

長坂 二郎 氏

水野 経久 氏

赤堀 聡 氏

山本 勝寿 氏

田村 康弘 氏

新後 正則 氏

鈴木 暁子 氏

小田桐 久夫 氏

チーフアドバイザー／電力訓練

タカオカエンジニアリング 技術主査

株式会社 タカオカ製作所 国際技術協力グループ 課長

株式会社 タカオカ製作所 生産本部 電力プラント製造部 品質保証部 次長

株式会社 きんでん 国際事業本部 海外工事統轄支社

株式会社 きんでん 国際事業本部 海外工事統轄支社

タカオカエンジニアリング 国際部

業務調整／研修機能強化

資料－４ 討議議事録 (M/D)

Minutes of Discussions
of the Preparatory Survey on the Project for
Rehabilitation of Substations and Construction of New Lines and Substations
in Dar es Salaam in the United Republic of Tanzania

In response to the request from the Government of the United Republic of Tanzania (hereinafter referred to as "Tanzania"), the Japan International Cooperation Agency (hereinafter referred to as "JICA"), in consultation with the Government of Japan, decided to conduct a Preparatory Survey (hereinafter referred to as "the Survey") on the Project for Rehabilitation of Substations and Construction of New Lines and Substations in Dar es Salaam (hereinafter referred to as "the Project").

JICA sent to Tanzania the Preparatory Survey Team (hereinafter referred to as "the Team"), headed by Mr. Hiroshi Sumiyoshi, Division manager, Energy and Mining Division 2, Industrial Development and Public Policy Department, JICA. The Team is scheduled to stay in Tanzania from February 25th to April 5th 2013.

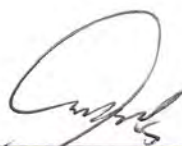
The Team held discussions with the officials of Tanzanian authorities concerned (hereinafter referred to as "the Tanzanian side"). In the course of the discussions, both sides have confirmed the main items described in the sheets attached hereto.

Dar es Salaam, Tanzania
March 7th, 2013

住 吉

大

Mr. Hiroshi Sumiyoshi
Team Leader
Preparatory Survey Team
Japan International Cooperation Agency



Innocent G. Luoga
(Assistant commissioner for Energy)
Ministry of Energy and Minerals



Felchesmi J. Mramba
(Acting Managing Director)
Tanzania Electric Supply Company Limited

ATTACHMENT

1. Objective of the Project

The objective of the Project is to reinforce power transmission and distribution networks in Dar es Salaam.

2. Project Site

The Project sites based on the request from the Tanzanian side are located in Dar es Salaam as shown in Annex-1. Transmission and distribution lines will be newly constructed and substations will be constructed, expanded and reinforced in Dar es Salaam city.

3. Responsible and Implementing Organizations

- (1) The responsible organization is Ministry of Energy and Minerals (MEM).
- (2) The implementing organization is Tanzania Electric Supply Company Limited (TANESCO).
- (3) The organization structures of MEM and TANESCO are shown in Annex-2 and Annex-3.

4. Items Requested by the Tanzanian side

Main components and priority order requested by the GoT to GoJ are shown in Table below.

Table Outline of the Requested Components

	Components
Ilala substation (132/33/11kV) (Reinforcement)	• Reinforcement of Ilala substation • Reinforcement of existing 132kV transmission line (7.5km: from Ilala substation to Ubungu substation)
Msasani substation (33/11kV) (Expansion)	• Expansion of Msasani substation • Expansion of 33kV distribution line (approximately 7.9km: from Msasani substation to Makumbusho substation)
Muhimbili substation (33/11kV) (New construction)	• Construction of Muhimbili substation • Construction of 33kV distribution line (approximately 2km: from Muhimbili substation to Ilala substation)
Mwananyamala substation (33/11kV) (New construction)	• Construction of Mwananyamala substation • Construction of 33kV distribution line (approximately 1.3km: from Mwananyamala substation to Makumbusho substation)
Jangwani Beach substation (33/11kV) (New construction)	• Construction of Jangwani Beach substation • Construction of 33kV distribution line (approximately 6.6km: from Jangwani Beach substation to Tegeta substation)

As a result of discussions, requested components have been identified as follows:

- Reinforcement of the Ilala substation.
- Reinforcement of existing 132kV transmission line (7.5km: from Ilala substation to Ubungu substation)
- Construction/ expansion of substations (Muhimbili, Msasani, Mwananyamala, Jangwani Beach) and associated distribution lines.

JICA will assess the appropriateness and the priority of the requested components from the viewpoint of necessity and relevance as Japan's Grant Aid scheme, and will report the findings to the Government of Japan. The scope of the Project for the further analysis will be confirmed after consultation with the Government of Japan.

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4. 討議議事録 (M/D : 第一次現地調査)

5. Japan's Grant Aid Scheme

- (1) The Tanzanian side has understood Japan's Grant Aid Scheme explained by the Team as described in Annex-4.
- (2) The Tanzanian side will take the necessary measures, as described in Annex-6, for smooth implementation of the Project.

6. Schedule of the Preparatory Survey

The Team will continue the Survey in Tanzania until 5th April 2013 and report the result to the Government of Japan. Based on the result of the Survey, JICA will prepare a Draft Final Report in English and send a mission around September 2013 to explain the contents of the Draft Final Report.

7. Environmental and Social Considerations

- (1) The Tanzanian side agreed to ensure access to the project sites and undertake expropriation if necessary in order to secure the sites.
- (2) The Tanzanian side agreed to conduct the required environmental works, and obtain approval on environmental clearance for implementation of the Project.
- (3) The Tanzanian side agreed to comply with the JICA Guidelines for Environmental and Social Considerations (hereinafter referred to as "JICA Guidelines") as well as laws and regulations in Tanzania, and was requested to prepare Environmental Checklist and Monitoring Form which are designated by JICA Guidelines for an outline design.
- (4) The Tanzanian side agreed to make necessary arrangements with concerned governmental organizations in order to secure funding for and execution of the above environmental matters in a schedule as required for smooth execution of the Project.
- (5) The Tanzanian side understands that according to "*the Environmental Impact Assessment and Audit Regulations, 2005*" which is made under "*the Environmental Management Act, No.20 of 2004*", the Project is on a mandatory list (the First Schedule, Mandatory list A, 7-(1)) requiring EIA either a full EIA or developing an Environmental and Social Management Plan (ESMP) depending on the screening process. **TANESCO** shall secure a necessary budget for EIA and undertake it, and obtain the Environmental Certificate approved by the Minister **by the end of November 2013**.
- (6) At the moment, around 70 people would be expected to be relocated for the Project. The Tanzanian side understands that the Team will assist TANESCO in identifying project affected people and developing an abbreviated "Resettlement Action Plan (ARAP)". **TANESCO** shall implement the ARAP **by the end of January 2014**. TANESCO will be responsible to pay for compensation on new settlement.
- (7) **TANESCO** shall obtain land use permits and complete land acquisition necessary for the Project **by the end of November 2013**.
- (8) **TANESCO** shall obtain necessary permits from TANROADS or Municipality **by the end of August 2013** to construct new distribution lines within the road reserve.
- (9) Based on the section 178 of "*the Environmental Management Act, 2004*" and the Section 17 of "*the Environmental Impact Assessment and Audit Regulations, 2005*", **TANESCO** shall identify stakeholders related to this project and stakeholder consultations during the process of conducting Environmental Impact Assessment study.
- (10) Since the Environmental Impact Assessment process has not been done yet for this project, the Tanzanian side understands the abbreviated Resettlement Plan (ARAP) might need to be amended based on the results of Environmental Impact Assessment study.

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4. 討議議事録 (M/D : 第一次現地調査)

- (11) The Tanzanian side agreed that the Team will involve a certified valuer in developing the abbreviated Resettlement Action Plan to make it efficient.
- (12) The Tanzanian side agreed that the team will be provided information of valuation status for the project site by TANESCO in order to develop an abbreviated Resettlement Action Plan.

8. Other Relevant Issues

(1) Status of the Survey

- 1) The Team explained that the purpose of the Survey is to collect necessary information and data including IPPs for evaluating the relevance, appropriateness and urgency of the Project and for analyzing power system in Dar es Salaam, and also to identify the priority of the requested components as well as other issues to be cleared for implementation of the Project.
- 2) The Tanzanian side agreed to share all necessary information and data with the Team.

(2) Coordination among relevant donors and agencies

The Team requested the Tanzanian side to ensure coordination among relevant donors and agencies for smooth implementation of the Project and the Tanzanian side agreed to it.

(3) Counterpart Personnel

The Team requested the Tanzanian side that necessary number of counterpart personnel shall be assigned to the Team and necessary arrangements with related organizations be made during the Survey in Tanzania and the Tanzanian side agreed to it.

(4) Operation and maintenance (O&M) of facilities

As it is quite important that TANESCO secures proper O&M of Equipment, facilities, tools, etc. that may be provided under the Japanese Grant Aid Scheme, the Team requested the Tanzanian side to take the maximum opportunities from the on-going JICA Technical Cooperation Project in order to acquire necessary knowledge and skills. The Tanzanian side agreed to it.

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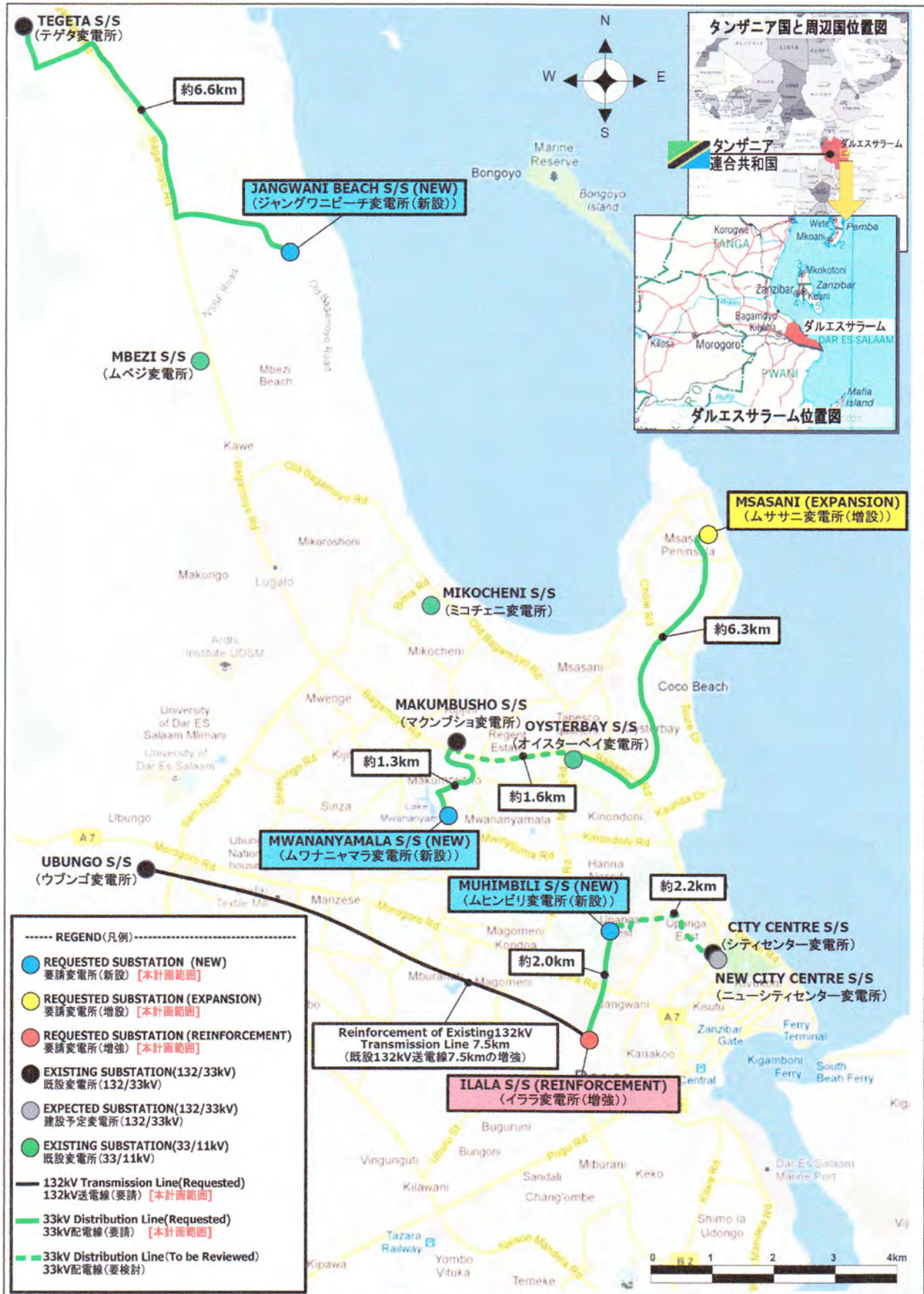
<List of Annex>

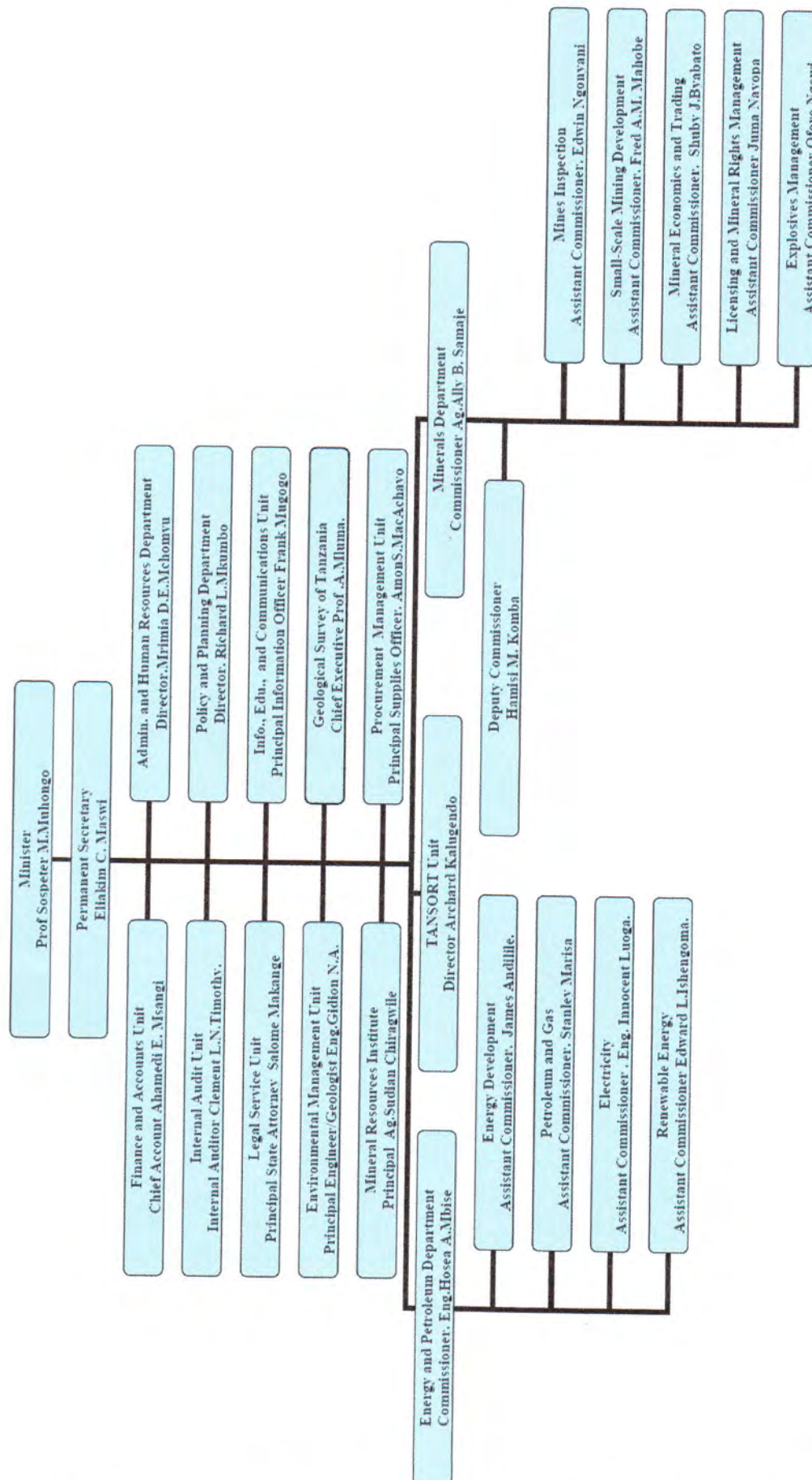
- Annex-1 Location of the Requested Project Sites
- Annex-2 Organization Structure of Ministry of Energy and Minerals
- Annex-3 Organization Structure of TANESCO (head office)
- Annex-4 Japan's Grant Aid
- Annex-5 Flow Chart of Japan's Grant Aid Procedures
- Annex-6 Major Undertakings to be taken by Each Government

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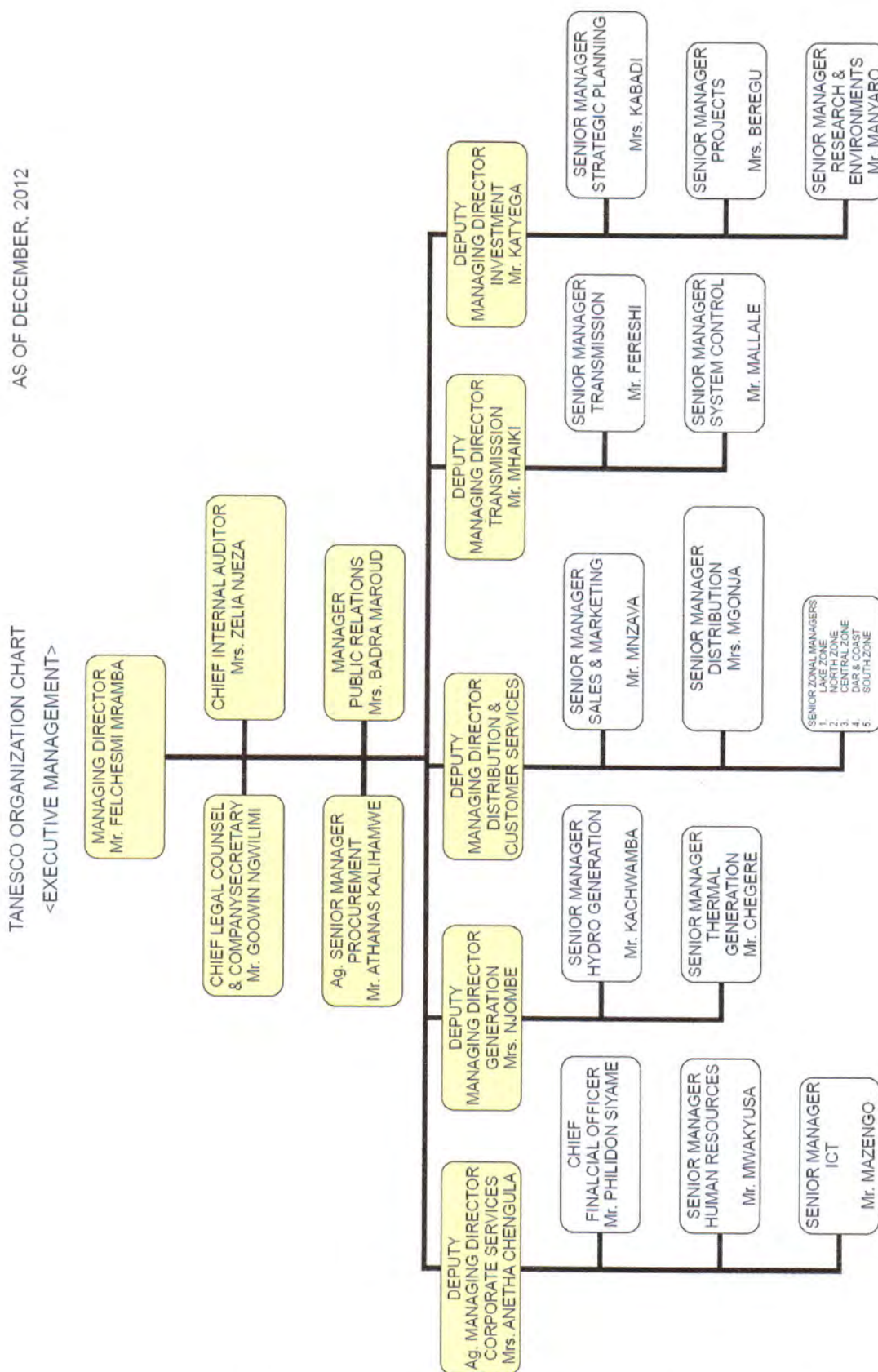
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ORGANIZATION STRUCTURE OF MINISTRY OF ENERGY AND MINERALS



ORGANIZATION STRUCTURE OF TANESCO (HEAD OFFICE)

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JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on the law and the decision of the Government of Japan (hereinafter referred to as "the GOJ"), JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is conducted as follows-

- Preparatory Survey (hereinafter referred to as "the Survey")
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by The GOJ and JICA, and Approval by the Japanese Cabinet
- Determination of Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
 - Agreement concluded between JICA and a recipient country
- Implementation
 - Implementation of the Project on the basis of the G/A

2. Preparatory Survey**(1) Contents of the Survey**

The aim of the Survey is to provide a basic document necessary for the appraisal of the Project by JICA and the GOJ. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

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4. 討議議事録 (M/D : 第一次現地調査)

(3) Result of the Survey

The Report on the Survey is reviewed by JICA, and after the appropriateness of the Project is confirmed, JICA recommends the GOJ to appraise the implementation of the Project.

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be signed between the GOJ and the Government of the recipient country to make a plead for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

The consultant firm(s) used for the Survey will be recommended by JICA to the recipient country to also work on the Project's implementation after the E/N and the G/A, in order to maintain technical consistency.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex-5.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA

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4. 討議議事録 (M/D : 第一次現地調査)

under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

(10) Social and Environmental Considerations

A recipient country must ensure the social and environmental considerations for the Project and must follow the environmental regulation of the recipient country and JICA socio-environmental guideline.

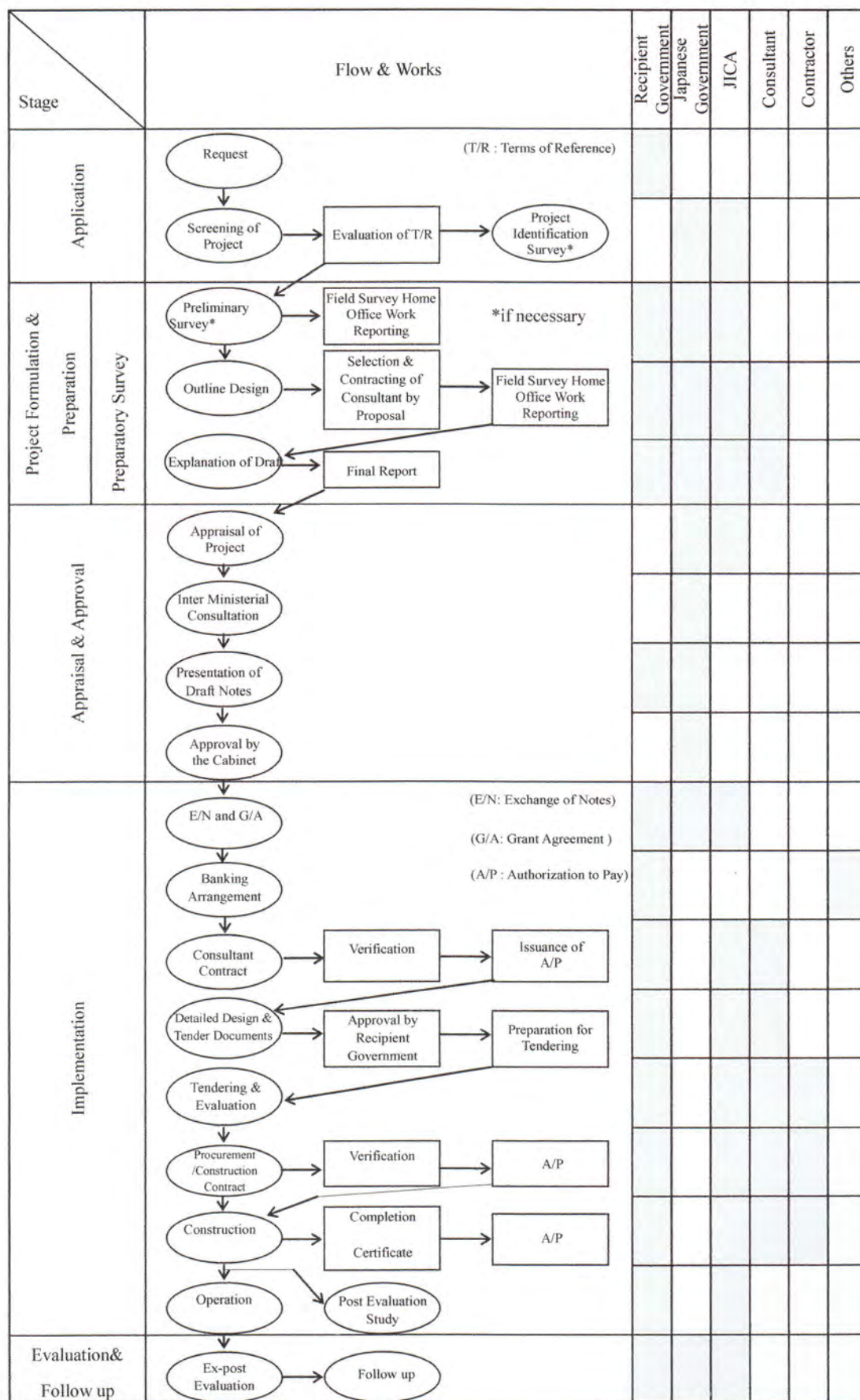
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Flow Chart of Japan's Grant Aid Procedures



Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure lots of land necessary for the implementation of the Project and to clear the sites;		●
2	To construct the following facilities		
	1) The building	●	
	2) The gates and fences in and around the site		●
	3) The parking lot	●	
	4) The road within the site	●	
	5) The road outside the site (including Access road)		●
3	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the sites		
	1) Electricity		
	a. The distributing power line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, common waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
4	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted		●
6	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
7	To ensure that the Facilities and the products be maintained and used properly and effectively for the implementation of the Project		●
8	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
9	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
10	To give due environmental and social consideration in the implementation of the Project.		●

Minutes of Discussions
of the Preparatory Survey on the Project for
Rehabilitation of Substations and Construction of New Lines and
Substations in Dar es Salaam in the United Republic of Tanzania

In response to the request from the Government of the United Republic of Tanzania (hereinafter referred to as "GoT"), the Japan International Cooperation Agency (hereinafter referred to as "JICA"), in consultation with the Government of Japan (hereinafter referred to as "GoJ"), decided to conduct a Preparatory Survey (hereinafter referred to as "the Survey") on the Project for Rehabilitation of Substations and Construction of New Lines and Substations in Dar es Salaam (hereinafter referred to as "the Project").

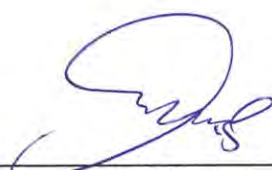
JICA sent to Tanzania the Preparatory Survey Team (hereinafter referred to as "the Team"), headed by Mr. Toshiyuki HAYASHI, JICA senior advisor. The Team is scheduled to stay in Tanzania from September 29th to October 9th 2013.

The Team held discussions with the officials of Tanzania authorities concerned (hereinafter referred to as "the Tanzania side"). In the course of the discussions, Tanzania side agreed and accepted the contents of the Draft Final Report and the Draft Technical Specifications, both sides have confirmed the main items described in the sheets attached hereto.

Dar es Salaam, Tanzania
October 9th, 2013



Mr. Toshiyuki Hayashi
Team Leader
Preparatory Survey Team
Japan International Cooperation Agency



Eng. Innocent G. Luoga
Assistant commissioner for Energy
Ministry of Energy and Minerals



Eng. Felchesmi J. Mramba
Acting Managing Director
Tanzania Electric Supply Company Limited

4. 討議議事録 (M/D : 第三次現地調査)

ATTACHMENT

1. Objective of the Project

The objective of the Project is to reinforce power transmission and distribution networks in Dar es Salaam.

2. Project Site

The Project sites based on the request from the Tanzania side are located in Dar es Salaam as shown in Annex-1. Transmission and distribution lines will be newly constructed and substations will be constructed, expanded and reinforced in Dar es Salaam city.

3. Responsible and Implementing Organizations

- (1) The responsible organization is Ministry of Energy and Minerals (MEM).
- (2) The implementing organization is Tanzania Electric Supply Company Limited (TANESCO).
- (3) The organization structures of MEM and TANESCO are shown in Annex-2 and Annex-3.

4. Components of the Project

The components of the project are shown in Table below.

Table Outline of the Requested Components

	Components
Ilala substation (132/33/11kV) (Reinforcement)	• Reinforcement of Ilala substation Including two sets of 60 MVA Transformer (132/33 kV) • Reinforcement of existing 132kV transmission line (approximately 7.5km: from Ubungo substation to Ilala substation)
Msasani substation (33/11kV) (Expansion)	• Expansion of Msasani substation Including a set of 15 MVA Transformer (33/11kV) • Expansion of 33kV distribution line (approximately 7.6 km: from Makumbusho substation to Msasani substation)
Muhimbili substation (33/11kV) (New construction)	• Construction of Muhimbili substation Including a set of 15 MVA Transformer (33/11kV) • Construction of 33kV distribution line (approximately 2.0km: from NCC (New City Center) substation to Muhimbili substation)
Mwananyamala substation (33/11kV) (New construction)	• Construction of Mwananyamala substation Including a set of 15 MVA Transformer (33/11kV) • Construction of 33kV distribution line (approximately 1.1 km: from Makumbusho substation to Mwananyamala substation)
Jangwani Beach substation (33/11kV) (New construction)	• Construction of Jangwani Beach substation Including a set of 15 MVA Transformer (33/11kV) • Construction of 33kV distribution line (approximately 6.5 km: from Tegeta substation to Jangwani Beach substation)

4. 討議議事録 (M/D : 第三次現地調査)

5. Japan's Grant Aid Scheme

- (1) The Tanzania side has understood Japan's Grant Aid explained by the Team as described in Annex-4 and Annex-5.
- (2) The Tanzania side will take the necessary measures, as described in Annex-6, for smooth implementation of the Project.

6. Project Cost

The Tanzania side agreed that the cost for the Project should not exceed the amount agreed on Exchange of Notes (E/N). The Tanzania side also agreed that the cost for the Project contains procurement cost of equipment, transportation cost up to the Project site, construction cost and the Consultant fees.

7. Confidentiality of the project

(1) Detailed specifications of the Facilities and Equipment

Both sides agreed that all the information related to the Project including detailed drawings and specifications of the facilities and equipment and other technical information shall not be disclosed to any outside parties (i.e. outside of JICA and the Tanzania side) before the conclusion of all contract(s) for the Project.

(2) Confidentiality of the Cost Estimation

The Team explained the estimated cost of the Project as described in Annex 7. Both sides agreed that the estimated cost for the Project should never be duplicated or disclosed to any outside parties (i.e. outside of JICA and the Tanzania side) before tender for the Project. Tanzania side also understood that the estimated cost for the Project attached as Annex 7 is not the final and is subject to change as a result of examination through revision of the Outline Design Study.

8. Possibility of Change in Scope, Schedule and Cost of the Project

Tanzania side and the Team confirmed that the scope, the schedule, and the cost for the Project are tentative and subject to change due to the domestic circumstances in Japan and in Tanzania.

9. Environmental and Social Considerations

- (1) The Tanzania side agreed to conduct the required environmental works, and obtain approval on environmental clearance for implementation of the Project.
- (2) The Tanzania side agreed to comply with the JICA Guidelines for Environmental and Social Considerations (hereinafter referred to as "JICA Guidelines") as well as laws and regulations in Tanzania, and was requested to prepare Environmental Checklist and Monitoring Form which are designated by JICA Guidelines for an outline design.
- (3) The Tanzania side agreed to make necessary arrangements with concerned governmental organizations in order to secure funding for and execution of the above environmental matters in a schedule as required for smooth execution of the Project.
- (4) The Tanzania side understands that according to "*the Environmental Impact Assessment and Audit Regulations, 2005*" which is made under "*the Environmental Management Act, No.20 of 2004*", the Project is on a mandatory list (the First Schedule, Mandatory list A, 7-(1)) requiring EIA either a full EIA or developing an Environmental and Social Management Plan (ESMP) depending on the screening process. **TANESCO** shall secure a necessary budget for EIA and undertake it, and obtain the Environmental Certificate approved by the Minister **by the end of January 2014**.



4. 討議議事録 (M/D : 第三次現地調査)

- (5) Regarding the Abbreviated Resettlement Action Plan (ARAP), the Tanzania side and the Team confirmed that the area which will be affected by the Project was changed from technical and social point of view. Both sides also confirmed that TANESCO shall compensate the people who had already agreed to the resettlement by the end of January 2014, even if they will be excluded from working area of this project because of this change.
- (6) At the moment, around 90 people would be expected to be relocated for the Project. The Tanzania side understands that the Team will assist TANESCO in identifying project affected people and developing an "abbreviated Resettlement Action Plan (ARAP)". **TANESCO** shall implement the ARAP **by the end of January 2014**. TANESCO will be responsible to pay for compensation on new settlement.
- (7) **TANESCO** shall obtain land use permits and complete land acquisition necessary for the Project **by the end of November 2013**.
- (8) Based on the section 178 of "*the Environmental Management Act, 2004*" and the Section 17 of "*the Environmental Impact Assessment and Audit Regulations, 2005*", **TANESCO** shall identify stakeholders related to this project and stakeholder consultations during the process of conducting Environmental Impact Assessment study.
- (9) Since the Environmental Impact Assessment process has not been completed yet for this project, the Tanzania side understands the abbreviated Resettlement Plan (ARAP) might need to be amended based on the results of Environmental Impact Assessment study.
- (10) The Tanzania side agreed that the Team will involve a certified valuer in developing the abbreviated Resettlement Action Plan (ARAP) to make it efficient.
- (11) The Tanzania side agreed that the team will be provided information of valuation status for the project site by **TANESCO** in order to develop an abbreviated Resettlement Action Plan (ARAP).
- (12) The Tanzania side and the Team confirmed information on environmental and social considerations including major impacts and relevant mitigation measures are summarized in the Environmental Checklist attached as Annex-8. The Tanzania side will inform JICA of any major changes which may affect environmental and social considerations made for the Project by revising the Checklist in a timely manner.
- (13) The Tanzania side and the Team confirmed environmental monitoring will be conducted by **TANESCO** in accordance with the Environmental Monitoring Plan described in the Environmental Impact Assessment (EIA).
- (14) The Tanzania side and the Team confirmed internal monitoring proposed in the abbreviated Resettlement Action Plan (ARAP) will be conducted by **TANESCO**. The Tanzania side agreed that progress of land acquisition and implementation of abbreviated Resettlement Action Plan (ARAP) will be monitored until land acquisition and resettlement activities including livelihood restoration program are completed. **TANESCO** will report the monitoring results to JICA on a quarterly.



4. 討議議事録 (M/D : 第三次現地調査)

10. Other Relevant Issues

(1) Coordination among relevant donors and agencies

The Team requested the Tanzania side to ensure coordination among relevant donors and agencies for smooth implementation of the Project and the Tanzania side agreed to it.

(2) Operation and maintenance (O&M) of facilities

As it is quite important that TANESCO secures proper O&M of Equipment, facilities, tools, etc. that may be provided under the Japanese Grant Aid Scheme, the Team requested the Tanzania side to take the maximum opportunities from the on-going JICA Technical Cooperation Project in order to acquire necessary knowledge and skills. The Tanzania side agreed to it.

(3) Reuse of facilities

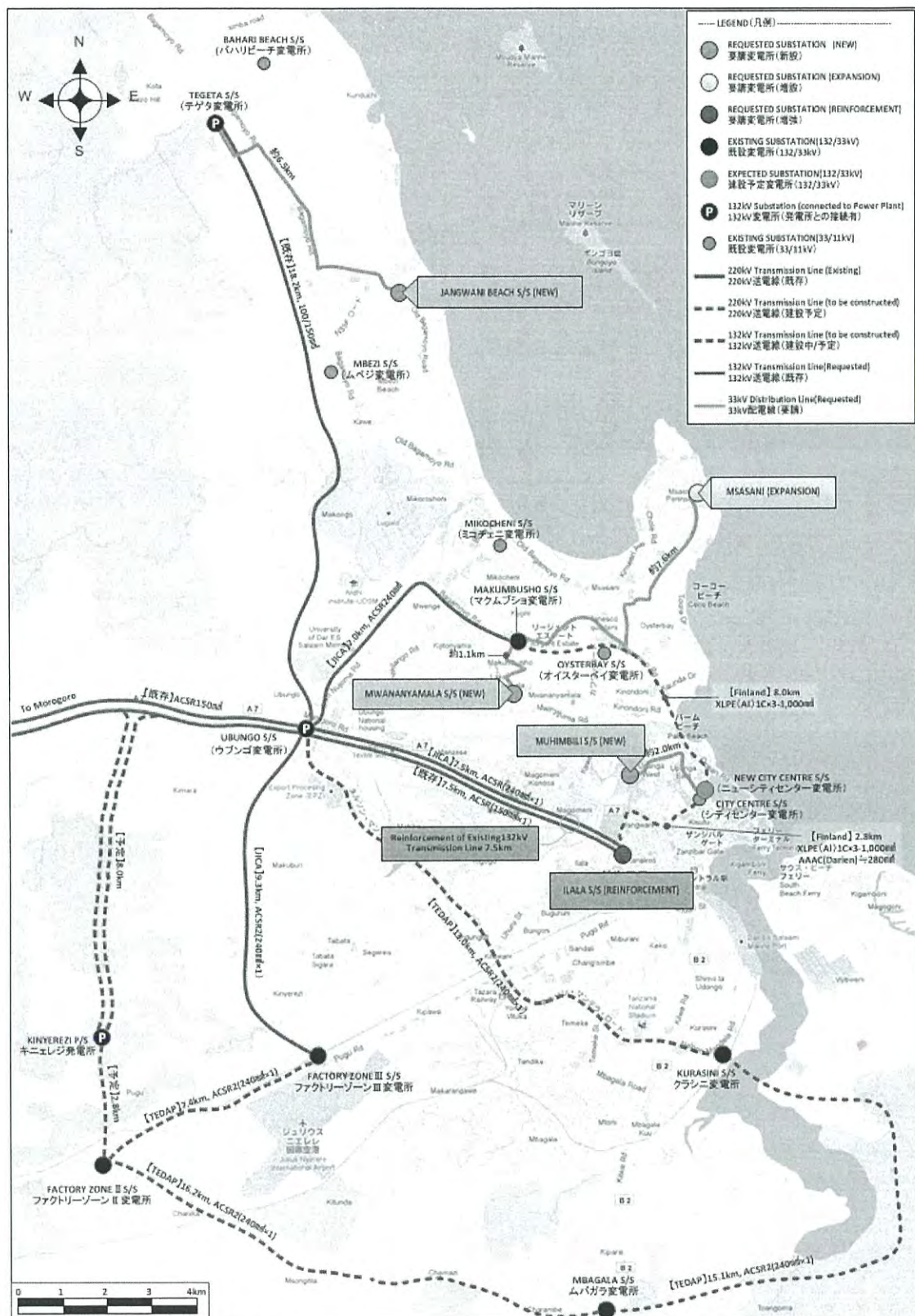
The Ilala substation was installed 8 circuit breakers by follow-up project of JICA. The Tanzania side understood that these facilities shall be reused in the Arusha substation, Muheza substation, Kiltex substation Arusha and Mtwara power station after the Project and Tanzania side shall inform JICA when the facilities will be installed other substations.

(End)

<List of Annex>

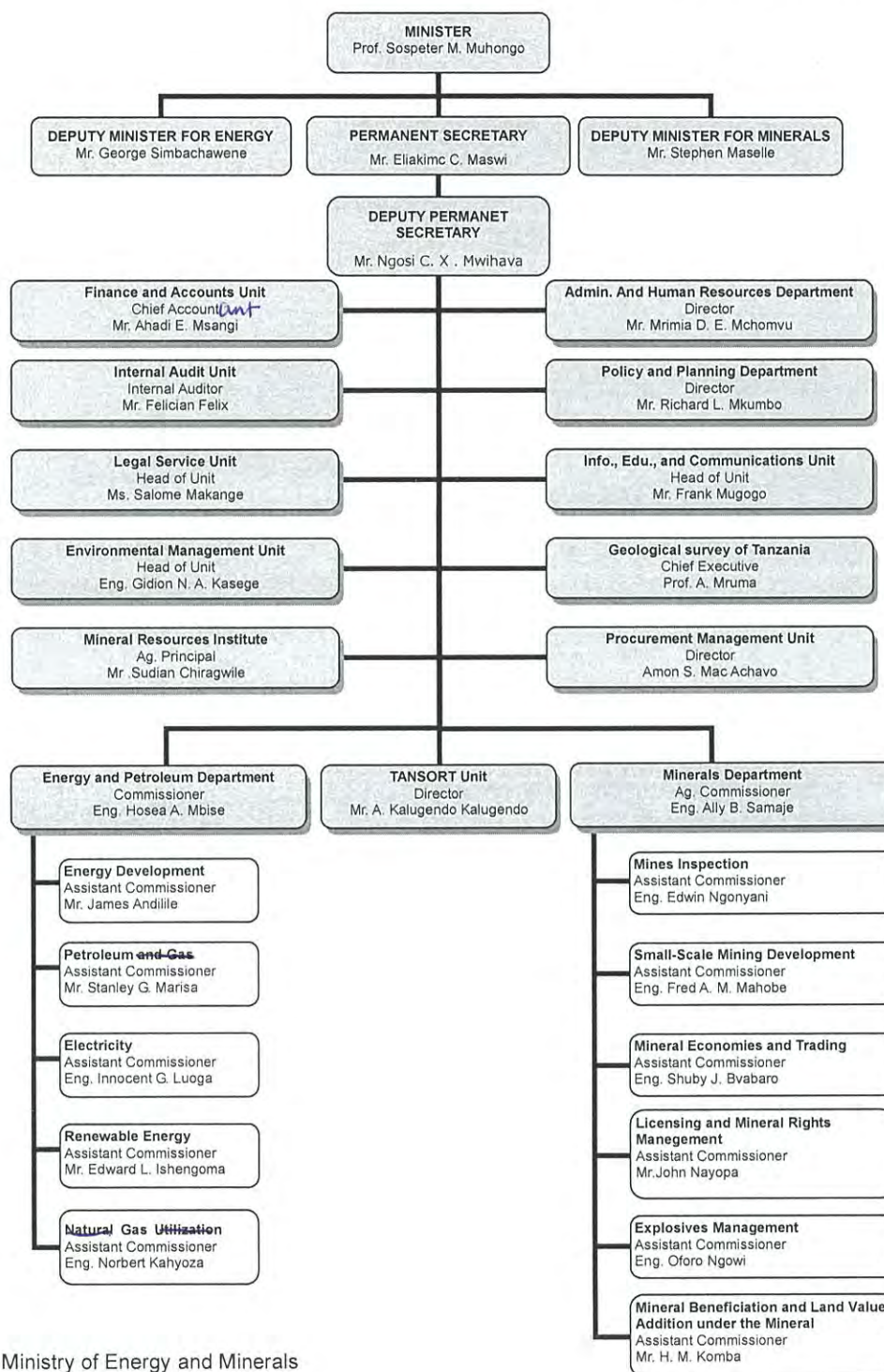
- Annex-1 Location of the Requested Project Sites
- Annex-2 Organization Structure of Ministry of Energy and Minerals
- Annex-3 Organization Structure of TANESCO (head office)
- Annex-4 Japan's Grant Aid
- Annex-5 Flow Chart of Japan's Grant Aid Procedures
- Annex-6 Major Undertakings to be taken by Each Government
- Annex-7 Estimated Project Cost
- Annex-8 Environmental Checklist





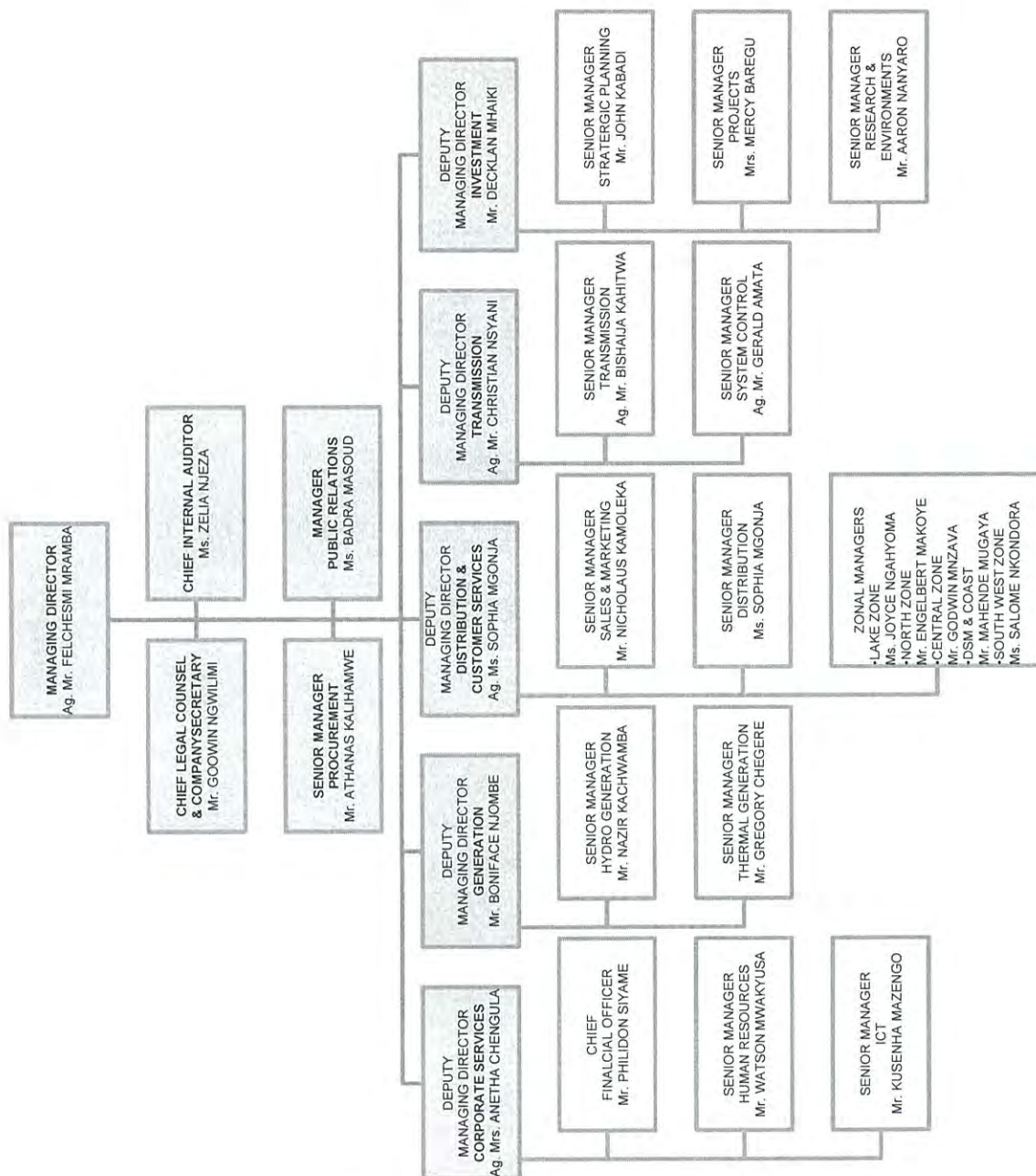
LOCATION OF THE REQUESTED PROJECT SITES

ORGANIZATION STRUCTURE OF MINISTRY OF ENERGY AND MINERALS
AS OF OCTOBER, 2013



Source: Ministry of Energy and Minerals

ORGANIZATION STRUCTURE OF TANESCO (HEAD OFFICE)



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JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on the law and the decision of the Government of Japan (hereinafter referred to as "the GOJ"), JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is conducted as follows-

- Preparatory Survey (hereinafter referred to as "the Survey")
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by The GOJ and JICA, and Approval by the Japanese Cabinet
- Determination of Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
 - Agreement concluded between JICA and a recipient country
- Implementation
 - Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide a basic document necessary for the appraisal of the Project by JICA and the GOJ. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project.

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4. 討議議事録 (M/D : 第三次現地調査)

- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

The Report on the Survey is reviewed by JICA, and after the appropriateness of the Project is confirmed, JICA recommends the GOJ to appraise the implementation of the Project.

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

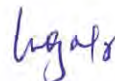
After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be signed between the GOJ and the Government of the recipient country to make a plea for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

The consultant firm(s) used for the Survey will be recommended by JICA to the recipient country to also work on the Project's implementation after the E/N and the G/A, in order to maintain technical consistency.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it



4. 討議議事録 (M/D : 第三次現地調査)

necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex-5.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to pay and payment commissions to the Bank.

(10) Social and Environmental Considerations



4. 討議議事録 (M/D：第三次現地調査)

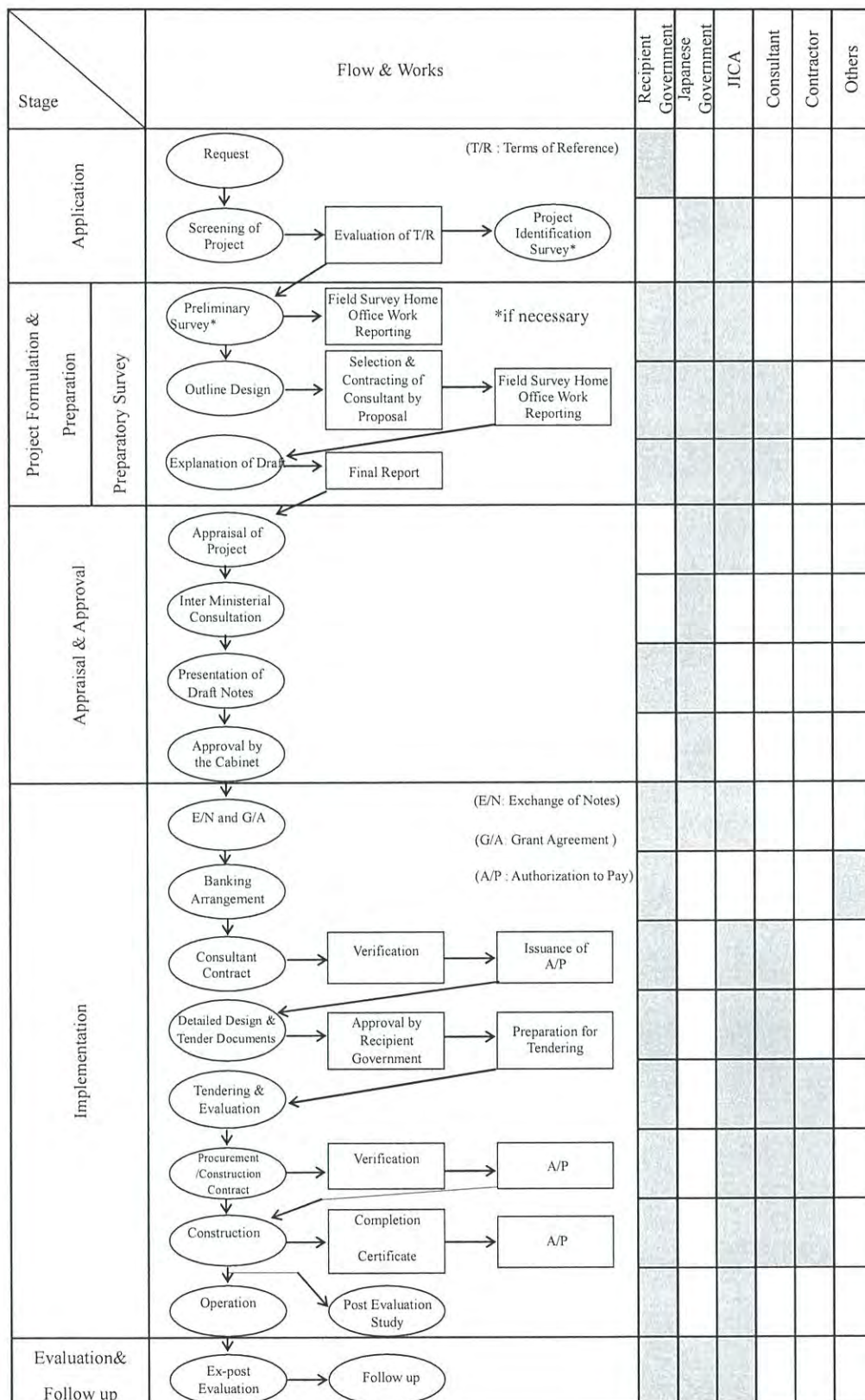
A recipient country must ensure the social and environmental considerations for the Project and must follow the environmental regulation of the recipient country and JICA socio-environmental guideline.



(End)



Flow Chart of Japan's Grant Aid Procedures



4. 討議議事録 (M/D : 第三次現地調査)

Annex-6

Major Undertakings to be taken by Each Government

No	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure lots of land necessary for the implementation of the Project and to clear the sites;		●
2	To construct the following facilities		
	1) The building	●	
	2) The gates and fences in and around the site		●
	3) The parking lot	●	
	4) The road within the site	●	
	5) The road outside the site (including Access road)		●
3	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the sites		
	1) Electricity		
	a. The distributing power line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, common waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
4	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted		●
6	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
7	To ensure that the Facilities and the products be maintained and used properly and effectively for the implementation of the Project		●
8	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
9	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
10	To give due environmental and social consideration in the implementation of the Project.		●

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Legal

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(Confidential)

Estimated Project Cost

The cost of the Project will be approximately JP¥ 4,575 million in total. The content of the project cost are shown separately for the Japanese borne portion and the Tanzania side borne portion in accordance with the conditions in item 3. (3) below.

This cost estimate is provisional and subject to change as a result of examination by the Government of Japan for the approval of the Grant.

1. Cost to be borne by the Japanese side: Approximately JP¥ 4,378 million

Approximate Total cost for Japanese Portion

Cost Items	Approximate Cost (million JPY)
Equipment and materials Procurement Cost (Including costs for Installation works, Civil & building works, Ocean & inland Transportation, all insurance, On the Job Training, Temporally works, Overhead, other works necessary to complete the Project)	JP¥ 4,204 million
Detailed Design & Consultant's Supervision	JP¥ 174 million
Total	JP¥ 4,378 million

2. Cost to be borne by the Tanzania side: US\$ 2,043,000 (=approximately JP¥ 196.8 million)

Cost Items	US\$	(≒JP¥)
1. Securing of land for material storage	US\$ 16,000 -	JP¥ 1,500,000 -
2. Payment of bank commission based on banking • Commission of an Authorization to Pay (A/P) • Payment commission	US\$ 52,000 -	JP¥ 5,000,000 -
3. Registration for Japanese supervisors and engineers for construction period	US\$ 35,000 -	JP¥ 3,400,000 -
4. Expenses for necessary power outages during construction period	US\$ 15,000 -	JP¥1,400,000 -
5. RAP Compensation	US\$ 270,000 -	JP¥ 26,000,000 -
6. Expenses for relocation of gravesites	US\$ 110,000 -	JP¥ 11,000,000 -
7. Expenses for EIA procedures	US\$ 30,000 -	JP¥ 2,900,000 -
8. Excess weight charges for domestic transport	US\$ 66,000 -	JP¥ 6,400,000 -

4. 討議議事録 (M/D : 第三次現地調査)

9. Expenses for substations (Leveling the land, Removing the un-used equipment, Construction of fences and gates, etc.)	US\$ 790,000 -	JP¥ 76,100,000 -
1) Reinforcement of Ilala substation	(US\$ 210,000 -)	(JP¥ 20,300,000 -)
2) Expansion of Msasani substation	(US\$ 150,000 -)	(JP¥ 14,400,000 -)
3) Construction of Muhimbili substation	(US\$ 20,000 -)	(JP¥ 2,000,000 -)
4) Construction of Jangwani Beach substation	(US\$ 150,000 -)	(JP¥ 14,400,000 -)
5) Construction of Mwananyamala substation	(US\$ 260,000 -)	(JP¥ 25,000,000 -)
10. Expenses for 132kV transmission lines (Leveling the land for the work space, Removing the un-used conductor, insulators and accessories, etc.)	US\$ 55,000 -	JP¥ 5,300,000 -
11. Expenses for 33kV distribution lines (Replacement of the existing 11kV D/L interfered with the new 33kV D/L, Construction of 11kV D/L from new 33/11kV substations)	US\$ 604,000 -	JP¥ 58,200,000 -
Approximate Total cost	US\$ 2,043,000 -	JP¥ 196,800,000 -

3. Conditions for estimation

(1) Time of estimation: August, 2013

(2) Foreign exchange rates:

1USD = JP¥96.32 (TTS mean value from February 2013 to April 2013)

(3) Others:

The above estimation was carried out in accordance with relevant rules and
the guideline of the Japanese Grant Aid.

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) N (b) N (c) N (d) Y N Y N N N N	(a) EIA report has not been prepared yet. According to "the Environmental Impact Assessment and Audit Regulations, 2005" which is made under "the Environmental Management Act, No.20 of 2004", the Project is on a mandatory list (the First Schedule, Mandatory list A, 7-(1)) requiring EIA. On May 7th 2013, National Environmental Management Council (NEMC) made a decision that this project requires a full Environmental Impact Assessment (EIA) study. TANESCO has already secured a necessary budget for EIA and shall undertake it, and shall obtain the Environmental Certificate approved by the Minister. At the time of September 2013, the Environmental Department of TANESCO is working on the scoping report, which is expected to be completed within September. (b) See (a) (c) See (a) (d) Following permits are required to obtain for this project. ➤ <u>Land use permit</u> for Jangwani Beach substation site: TANESCO obtained a land use permit from Tanzania People's Defense Force (TPDF) on December 2, 2011. ➤ <u>Land use permit</u> for Muhimbili substation site: TANESCO obtained a permit from Muhimbili Hospital on October 1, 2012. Since the site boundary shall be modified from original plan, TANESCO shall re-submit a request for the land use permit to Muhimbili Hospital. ➤ <u>Permit to use road reserve</u>: TANESCO has obtained the permission to use road reserve to construct 33kV distribution line from TANROADS and Ilala Municipality on 4th July 2013 and from Kinondoni Municipality on 3rd July 2013. ➤ <u>Safety Inspection Permit</u> issued by the Ministry of Labor, Youth Development and Sports: This permit is required for construction and operation phase according to Occupational Health and Safety Act No.5 of 2003. TANESCO shall obtain it before construction starts. ➤ <u>Building Permits</u> by Dar es Salaam City Council: TANESCO shall obtain the building permits to construct substation buildings from Dar es Salaam City Council. This permit is stipulated in the City Council By-law. After making a contact with Contractor, the process for obtaining the permit starts. ➤ <u>Permission from the Ministry of Infrastructure, to transport heavy loads</u>

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
				from the port of entry to the site (TANROADS overloaded charges are paid to the Ministry of Infrastructure for issuance of road permit to transport the equipment of abnormal weights and sizes.): Contractor shall obtain this permit before transporting heavy loads.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) N (b) N	(a) Based on the section 178 of "the Environmental Management Act, 2004" and the Section 17 of "the Environmental Impact Assessment and Audit Regulations, 2005", TANESCO shall identify stakeholders related to this project and stakeholder consultations during the process of conducting Environmental Impact Assessment study. After the procurement of EIA consultant is completed, the stakeholder consultation shall be held. EIA report shall be disclosed to the public. EIA Report Disclosure is the task of the National Environmental Management Council (NEMC) established under section 16 of the Environmental Management Act, 2004. The task is clarified in "PART VIII ACCESS TO ENVIRONMENTAL IMPACT STATEMENTS AND INFORMATION" in the Environmental Impact Assessment and Audit Regulations, 2005. (b) See (a)
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) In order to reduce negative environmental and social impacts including land acquisition and displacement, and also overall project costs, while maximizing the outcome of the project, the Team reviewed its original proposal and has proposed alternative options for this project. Following alternatives are compared as shown (see the details in the report). ➢ Alternative 1 (Alt-1): The original proposal by TANESCO. ➢ Alternative 2 (Alt-2): Proposed alternative option by the Team. Some of the distribution lines are rerouted. ➢ Alternative 3 (Alt-3): No project implementation (Zero option). The zero option of Alt-3 shall not solve the existing electrical problems; power disruption, voltage fluctuations and voltage drop by over load. The original proposal by TANESCO of Alt-1 shall cause a lot of relocation and might have some minor impact on natural environment. The proposed alternative option of Alt-2 shall cause less relocation compared to Alt-1 with no significant negative impact on natural environment. Thus, Alt-2 is most recommended for this project.
2 Pollution Control	(1) Water Quality	(a) Is there any possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting	(a) N	(a) Although small earthmoving activities shall be expected at Muhimbili substation site, there is hardly any possibility of degradation in downstream basin. Since magnitude of those earthmovings are small scale and countermeasures shall be

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		and filling shall cause water quality degradation in downstream water areas? If the water quality degradation is anticipated, are adequate measures considered?		taken against soil erosion during the construction phase.
3 Natural Environment	(1) Protected Areas	(a) Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project shall affect the protected areas?	(a) N	(a) The project sites are not located in protected areas.
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (d) Are adequate measures taken to prevent disruption of migration routes and habitat fragmentation of wildlife and livestock? (e) Is there any possibility that the project shall cause the negative impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystem due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered? (f) In cases where the project site is located in undeveloped areas, is there	N	(a)-(f): The project is located in the city area of Dar es Salaam and most of the vegetation and fauna have been lost or displaced due to intensive urban development of residential areas, infrastructures and gardens. There is no special habitat of endangered fauna and flora in the project area.

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		any possibility that the new development shall result in extensive loss of natural environments?		
	(3) Topography and Geology	(a) Is there any soft ground on the route of power transmission and distribution lines that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed? (b) Is there any possibility that civil works, such as cutting and filling shall cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides? (c) Is there a possibility that soil runoff shall result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?	(a) N (b) N (c) Y	(a)(b) Altitude of Dar es Salaam is less than 200 m.a.s.l. Area is generally flat to gently undulating plains, slope range 0-3% developed on old alluvial terrace no longer flooded. No major alterations of the local topography or large-scale civil engineering work shall occur under the project, making slope failures, landslides or soil runoff highly unlikely. (c) The preparation of the substation sites could have an adverse impact on soils through excavation for the foundations of the site. This potential impact shall, however, be short-lived on the flat land or temporary since it is expected that exposed areas shall be covered quickly by vegetative re-growth to stabilize the soil and minimize erosion. TANESCO shall apply erosion control practices such as compaction and early re-vegetation to promote soil conservation.
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement?	(a) Y (b) Y	(a) To minimize the impact, an abbreviated resettlement action plan (ARAP) shall be developed and TANESCO shall undertake it before the commencement of the project. Acquiring Mawananyamala substation site causes involuntary resettlement of about 60 people. Two plots of land shall be acquired for this substation. Some houses are within the project affected area of the transmission line from Ubungo substation to Ilala substation. The study for developing the abbreviated resettlement action plan is undertaking now and after the study is completed, the number of houses and people required relocation shall be determined. (b) In developing the ARAP, consultation with project affected people shall be held. TANESCO shall explain resettlement assistance based on the ARAP. The ARAP shall be made available to the public for a period of six weeks in the relevant municipal and ward offices as follows: ➤ Newspaper to inform the RAP to public. ➤ Municipal ➤ Regional commissioner Office ➤ Ward office

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		(c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Are the compensations going to be paid prior to the resettlement? (e) Are the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, and people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(c) Y (d) Y (e) Y (f) Y (g) Y (h) Y (i) N (j) N	➤ TANESCO website ➤ Language: Swahili / English (c) An abbreviated resettlement action plan (ARAP) is going to be developed based on socioeconomic studies on resettlement. Full replacement cost and restoration of livelihoods and living standards shall be considered in developing the ARAP. (d) According to the Tanzanian law, compensation must be provided prior to displacement. TANESCO shall pay compensation prior to the resettlement. (e) The ARAP shall contain the compensation policies. (f) In developing the ARAP, existence of such groups shall be assessed 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. (g) In developing the ARAP, agreement with the affected people shall be obtained prior to resettlement. (h) In developing the ARAP, the organizational framework shall be established to implement resettlement. TANESCO and other responsible organization shall secure necessary resource to implement the plan.* (i) The ARAP shall contain a monitoring plan for its proper implementation. (j) In developing the ARAP, the grievance mechanism shall be developed.
	(2) Living and Livelihood	(a) Is there a possibility that the project shall adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? (b) Is there a possibility that diseases, including infectious diseases, such as HIV shall be brought due to immigration	(a) Y (b) N	(a) The project shall cause involuntary resettlement and it may affect adversely the living conditions of inhabitants. To minimize this impact, the ARAP shall be developed and implemented. Construction work could affect access to public services and traffic by the local people. However, the construction works shall be done within the limited areas and in short-term. The adverse impact is not serious and is limited. Construction observers shall direct local people and traffic passing safely. (b) The project do not expect any adverse impact regarding infectious diseases because no massive influx of workers is expected as most labors can be supplied locally for the construction works. However, with the introduction of some migrant

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		of workers associated with the project? Are adequate considerations given to public health, if necessary? (c) Is there any possibility that installation of structures, such as power line towers shall cause radio interference? If any significant radio interference is anticipated, are adequate measures considered? (d) Are the compensations for transmission wires given in accordance with the domestic law?	(c) N (d) Y	workers into the communities along the project sites, mitigation measures shall be considered to minimize the potential risk of spread of sexually transmitted diseases (STD) including HIV/AIDS. (c) The new 132kV transmission power cable shall be installed on the existing power line towers from Ubungo substation to Ilala substation by replacing current 33kV power cable. Required way leave of 40m width is secured and no radio interference is anticipated. Some informal settlers exist within the way leave, but the way leave shall be cleared during the way leave management activity by the transmission department of TANESCO. The planned construction of 33kV distribution line does not expect radio interference which shall negatively affect local people. (d) Compensation shall be provided based on the ARAP.
	(3) Heritage	(a) Is there a possibility that the project shall damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) Y	(a) There is no prominent archaeological, historical, cultural or religious site to consider at the project sites.
	(4) Landscape	(a) Is there a possibility that the project shall adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) No significant impact is expected on landscape because there are no special natural and cultural landscapes around the project sites. However, some trees shall be cut down. The distribution lines shall be designed and routed to avoid tall/large trees as much as possible.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	N	(a)(b): There are no settlements of ethnic minorities or indigenous people in and along the project sites.
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in	(a) N (b) Y	(a) In accordance with relevant laws such as the Occupational Health and Safety Act, 2003; Electricity Ordinance Cap.131, Fire Act no. 3 of 2003, Employment and Labour Relations Act 2004, TANESCO has developed "Health and Safety Policy, revised in 2008" and "Contractors' Occupational Health and Safety Guidelines, revised in 2011." The project shall follow these policy and guidelines. (b) Safety rules, protection code & safe working practice are in place in line with

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.?	(c) Y	TANESCO's Health and Safety Policy and adhered to during project implementation. (c) Upon being awarded a contract to work within TANESCO controlled premises, the Contractor shall prepare a Contractor's Occupational Health and Safety Management Plan, including details of occupational health and safety procedures to prevent accidents and other OHS related incidents. In this Contractor's OHS Management Plan, the Contractor is also required to include a Disaster and Emergency Response Plan. This plan shall detail the emergency measures and procedures that the Contractor has put in place for their own employees. The Contractor's Occupational Health and Safety Management Plan must be approved by TANESCO before the contractor commences work. In addition to the Contractor's Occupational Health and Safety Management Plan that Contractors shall submit prior to commencement of work, regular OHS audits which shall be conducted by the Contractor and their records kept. (d) Security guards on the project shall be trained on appropriate measures to take in handling and dealing with the general public. This shall be included in regular safety communications to be done by the contractor.
5 Others	(1) Impacts during Construction	(d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents? (a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?	(a) Y (b) N	(a) According to TANESCO's Health and Safety Policy and Contractors' Occupational Health and Safety Guidelines, the Contractor shall prepare a Contractor's Occupational Health and Safety Management Plan, including details of occupational health and safety procedures to prevent accidents and other OHS related incidents. The Contractor shall abide by all environmental concerns according to the requisite of environmental laws and the Environmental Impact Assessment (EIA). The Contractor shall be given a copy of any relevant EIAs that have been conducted by TANESCO or other entities. Prior to beginning any work activity, a Site-Specific Environmental Management Plan should be completed by the Contractor to determine if adequate measures are in place to prevent and manage environmental likely environmental impacts. TANESCO shall issue guidelines for the preparation of the Contractor's Site-Specific Environmental Management Plan. (b) The project site is located in city area of Dar es Salaam and little adverse impact on natural environment is expected. However, an environmental officer shall be assigned to the project to monitor project construction activities to ensure

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)														
		(c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(c) Y	impacts are mitigated. (c) The construction activities can affect neighboring shops, residents and schools. According to TANESCO's Contractors' Occupational Health and Safety Guidelines, contractor shall abide by all mitigation measures based on good practice, professionalism and as specified in the Site-Specific Environmental Management Plan, Environmental Impact Assessment (EIA), and/or Environmental Impact Audit.														
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program?	(a) Y	(a) As part of the environmental assessment process, an Environmental and Social Monitoring Plan shall be prepared and it shall be implemented by TANESCO. (b) Items, methods and frequencies of monitoring shall be included in the Environmental and Social Monitoring Plan. In accordance with the project implementation, necessary monitoring should be undertaken with defined frequency and timing during construction and operation stages. Project monitoring activities focus on significant environmental and social concern as follows (provisional): ➤ Construction stage <table border="1" style="margin-left: 20px;"> <tr> <td>Item</td><td> - Permit - Waste - Resettlement - Existing infrastructure - Accident </td></tr> <tr> <td>Frequency</td><td>Every month</td></tr> <tr> <td>Responsible monitoring</td><td>TANESCO and Contractor</td></tr> <tr> <td>Reporting</td><td>TANESCO shall report to NEMC and JICA</td></tr> <tr> <td>Disclosure</td><td>Result of monitoring shall be disclosed to the public.</td></tr> </table> ➤ Operation stage <table border="1" style="margin-left: 20px;"> <tr> <td>Item</td><td> - Waste - Soil and groundwater contamination - Noise </td></tr> <tr> <td>Frequency</td><td>Every month for 6 months after construction</td></tr> </table>	Item	- Permit - Waste - Resettlement - Existing infrastructure - Accident	Frequency	Every month	Responsible monitoring	TANESCO and Contractor	Reporting	TANESCO shall report to NEMC and JICA	Disclosure	Result of monitoring shall be disclosed to the public.	Item	- Waste - Soil and groundwater contamination - Noise	Frequency	Every month for 6 months after construction
Item	- Permit - Waste - Resettlement - Existing infrastructure - Accident																	
Frequency	Every month																	
Responsible monitoring	TANESCO and Contractor																	
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Disclosure	Result of monitoring shall be disclosed to the public.																	
Item	- Waste - Soil and groundwater contamination - Noise																	
Frequency	Every month for 6 months after construction																	

Environmental Checklist

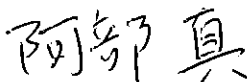
Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)						
		(c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(c) Y (d) Y	<table border="1"> <thead> <tr> <th>Responsible monitoring</th> <th>for</th> </tr> </thead> <tbody> <tr> <td>Reporting</td> <td>TANESCO</td> </tr> <tr> <td>Disclosure</td> <td>TANESCO shall report to NEMC and JICA Result of monitoring shall be disclosed to the public.</td> </tr> </tbody> </table> (c) Monitoring framework shall be established in developing the Environmental and Social Monitoring Plan. (d) According to the Environmental Impact Assessment and Audit Regulations, 2005, National Environmental Management Council (NEMC) shall give order to TANESCO for submission of the monitoring reports, if necessary.	Responsible monitoring	for	Reporting	TANESCO	Disclosure	TANESCO shall report to NEMC and JICA Result of monitoring shall be disclosed to the public.
Responsible monitoring	for									
Reporting	TANESCO									
Disclosure	TANESCO shall report to NEMC and JICA Result of monitoring shall be disclosed to the public.									

資料－5 技術討議録 (Technical Memorandum)

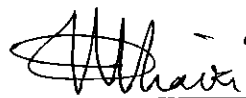
**TECHNICAL MEMORANDUM
FOR
THE ADDITIONAL PREPARATORY SURVEY
ON
THE PROJECT FOR REHABILITATION OF SUBSTATIONS AND
CONSTRUCTION OF NEW LINES AND SUBSTATIONS
IN DAR ES SALAAM
IN THE UNITED REPUBLIC OF TANZANIA**

**AGREED BETWEEN
TANZANIA ELECTRIC SUPPLY COMPANY LIMITED (TANESCO)
AND
JICA PREPARATORY SURVEY TEAM**

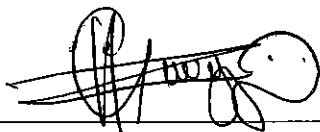
Dar es Salaam, May 23rd, 2013



Mr. Makoto Abe
Deputy Chief Consultant
JICA Preparatory Survey Team
Yachiyo Engineering Co., Ltd.



Mr. Decklan P. Mhaiki
Ag. Managing Director
Tanzania Electric Supply Company Ltd.



Eng. Godwin E. N. Mnzava
Ag. Deputy Managing Director
- Distribution and Customer Services
Tanzania Electric Supply Company Ltd.



Eng. Mercy S. Baregu
Ag. Deputy Managing Director
- Investments
Tanzania Electric Supply Company Ltd.

JICA PREPARATORY SURVEY TEAM
Yachiyo Engineering Co., Ltd.
West Japan Engineering Consultants, Inc.

5. 技術討議録 (Technical Memorandum : 第二次現地調査)

Tanzania Electric Supply Company Ltd. (hereinafter referred to as "TANESCO") and JICA Preparatory Survey Team for the Project for Rehabilitation of Substations and Construction of New Lines and Substations in Dar es Salaam in the United Republic of Tanzania (hereinafter referred to as "the Team") had series of technical discussion to form a mutual understanding of the scope and outline design of the Project at the stage of additional preparatory survey and both parties agreed to record the following points as a conclusion of the discussion.

1. Main objectives of the additional survey

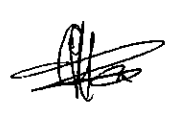
The team explained that the main objectives of the additional survey are as follows:

- (1) To confirm the finalized scope of the works, schedule and any updated information of the projects by other donors.
- (2) To confirm the progress of necessary measures on Environmental and Social Considerations by the Tanzanian side.
- (3) To discuss on the interim progress of the analysis and outline design of the Preparatory Survey.
- (4) To have mutual understanding between TANESCO and the Team on the Undertakings for the Project.

2. Scope and Schedule of the Works for the projects by other donors

Through the series of discussions with other donors and coordination meeting, held on 17th May, 2013, among the stake holders of the Projects in Dar es Salaam, TANESCO and the Team confirmed the Scope of the Works and expected implementation schedule by other donors.

The team shall continue analysis and outline design for the Project in accordance with the result of the confirmation mentioned above (Refer to Attachement-2).



3. Power Demand Forecast and interim report of Power System Analysis

The team explained the point of view on the power demand forecast and power system analysis in Dar es Salaam.

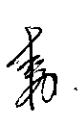
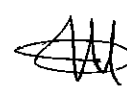
TANESCO explained the way of thinking on the future plan and operation for the Grid Substations.

TANESCO understood that the Team shall finalize and explain the Power Demand Forecast and Power System Analysis on the Draft Final Report.

4. Alternatives to reinforce transmission capacity between Ubungo S/S and Ilala S/S

In view of power demand forecast, the team prepared for the alternatives and explained technical view point with recommendation (Plan C).

TANESCO understood and take Plan C even though original request was Plan A (Refer to Attachement-3).



5. Switchover (Reinforcement) Plan for Ilala Substation and 132kV Transmission Line

The team explained the plan of Switchover to reinforce Ilala Substation and 132kV Transmission Line. TANESCO agreed with the plans and understood that the Switchover plan shall be reflected to the tentative implementation schedule for cost estimation and Draft Final Report (Refer to Attachment-4).

6. Major Undertakings to be taken by the Tanzanian Side

In addition to the "Major Undertakings to be taken by Each Government" on Minutes of Discussions of the Preparatory Survey on the Project signed by the Team and the Tanzanian Side on March 7th, 2013, the team explained detailed undertakings to be taken by the Tanzanian side which mainly focused on technical matters.

TANESCO understood major technical undertakings and agreed to secure necessary budget for the undertakings in timely manner in accordance with the tentative implementation schedule prepared by the team (Refer to Attachment-5).

7. Progress of the Outline Design

Based on the Field Report signed by the Team and the Tanzanian Side on April 4th, 2013, the Team explained progress and update of the outline design to TANESCO.

TANESCO agreed with the progress and updated outline design.

TANESCO explained that there is a plan to adapt concrete poles in the future, however TANESCO agreed to select steel poles for the project so as to have a plan to adapt steel poles in the future as well.

8. Priority of the components requested by the Tanzanian side

As a result of additional survey, main Components and priority order requested by the Tanzanian side have been identified shown in Table below.

Priority	Substation	Components
1	Ilala substation (132/33/11kV) (Reinforcement)	- Reinforcement of Ilala substation - Reinforcement of existing 132kV transmission line (7.5km: from Ilala substation to Ubungo substation)
4	Jangwani Beach substation (33/11kV) (New construction)	- Construction of Jangwani Beach substation - Construction of 33kV distribution line (approximately 6.5km: from Jangwani Beach substation to Tegeta substation)
3	Muhimbili substation (33/11kV) (New construction)	- Construction of Muhimbili substation - Construction of 33kV distribution line (approximately 2km: from Muhimbili substation to New City Center substation)
5	Mwananyamala substation (33/11kV) (New construction)	- Construction of Mwananyamala substation - Construction of 33kV distribution line (approximately 1.1km: from Mwananyamala substation to Makumbusho substation)
2	Msasani substation (33/11kV) (Expansion)	- Expansion of Msasani substation - Expansion of 33kV distribution line (approximately 7.6km: from Msasani substation to Makumbusho substation)

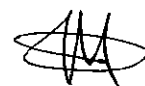
9. Utilization of the Equipment to be supplied under the Follow –up cooperation by JICA

TANESCO and the Team discussed on the utilization of the Equipment to be supplied by JICA under the Follow-up cooperation on the Project for Power Supply Expansion in Dar es Salaam. TANESCO agreed to prepare for the document, which explained the way of the utilization, by the time when the Team conducts the next mission to explain Draft Final Report.

(end)

Annex

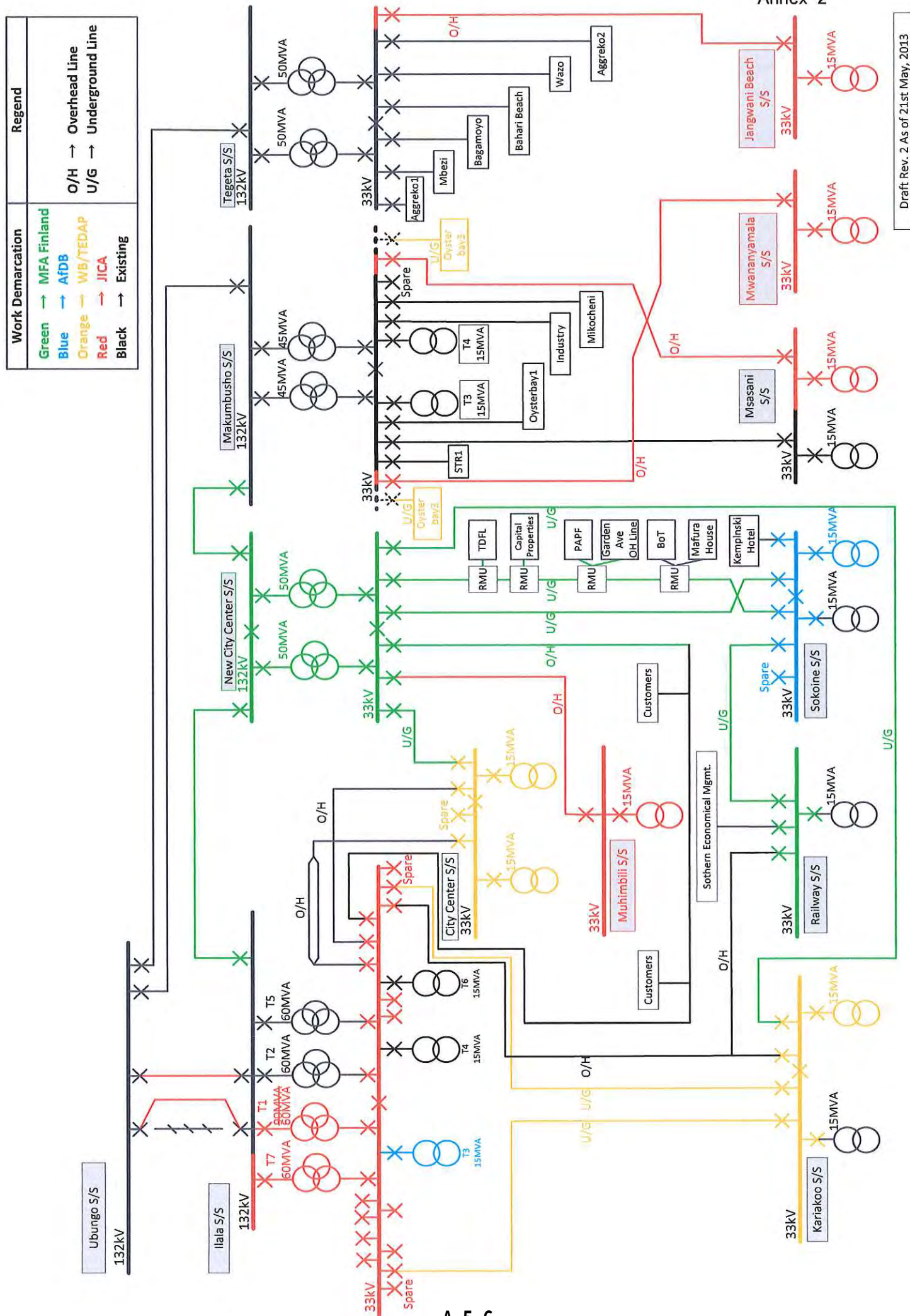
- Annex-1: Location Map
- Annex-2: Work Demarcation and tentative implementation schedule among the donors
- Annex-3: Alternatives to reinforce transmission capacity between Ubungo S/S and Ilala S/S
- Annex-4: Switchover (Reinforcement) Plan for Ilala S/S and 132kV Transmission Line
- Annex-5: Major Undertakings to be taken by the Tanzanian Side



Annex-1



5. 技術討議録 (Technical Memorandum : 第二次現地調査)



Annex-2

Draft Rev. 2 As of 21st May, 2013

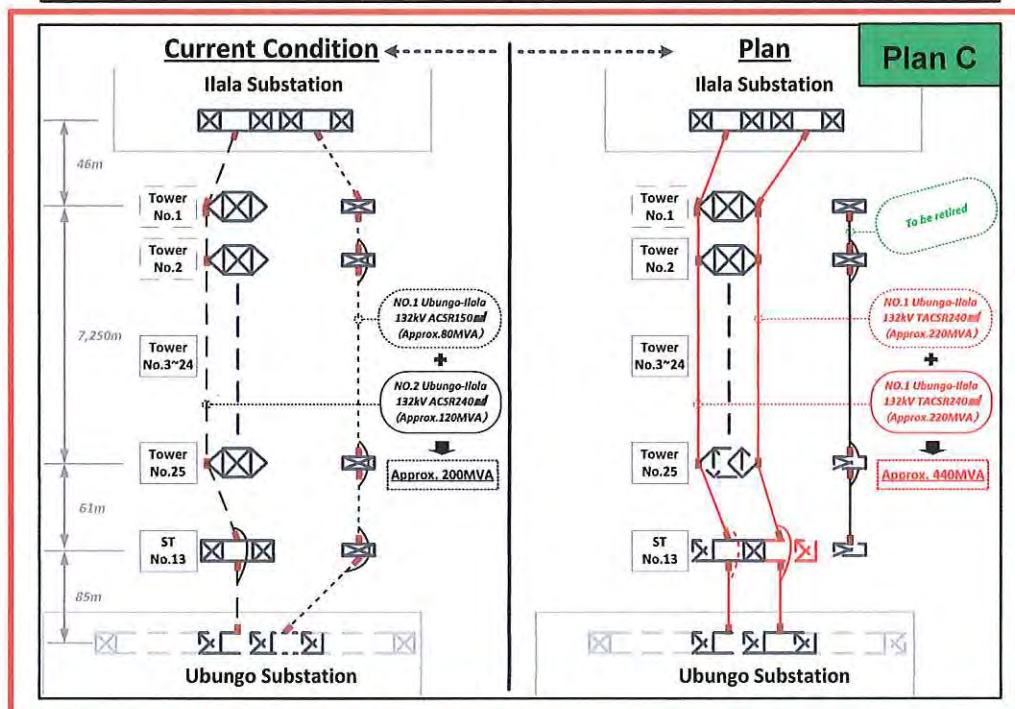
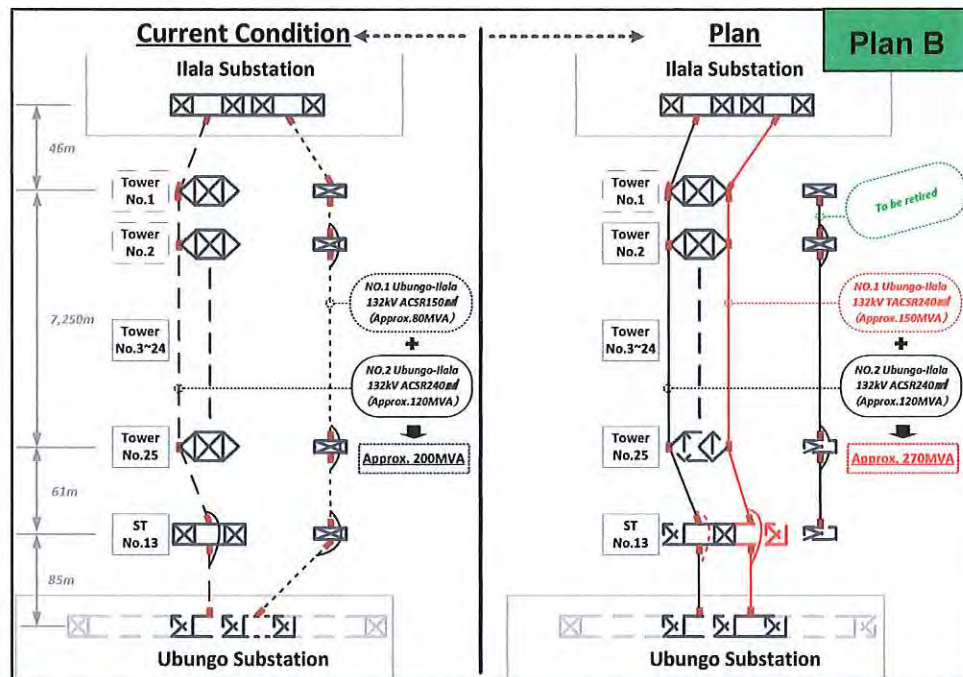
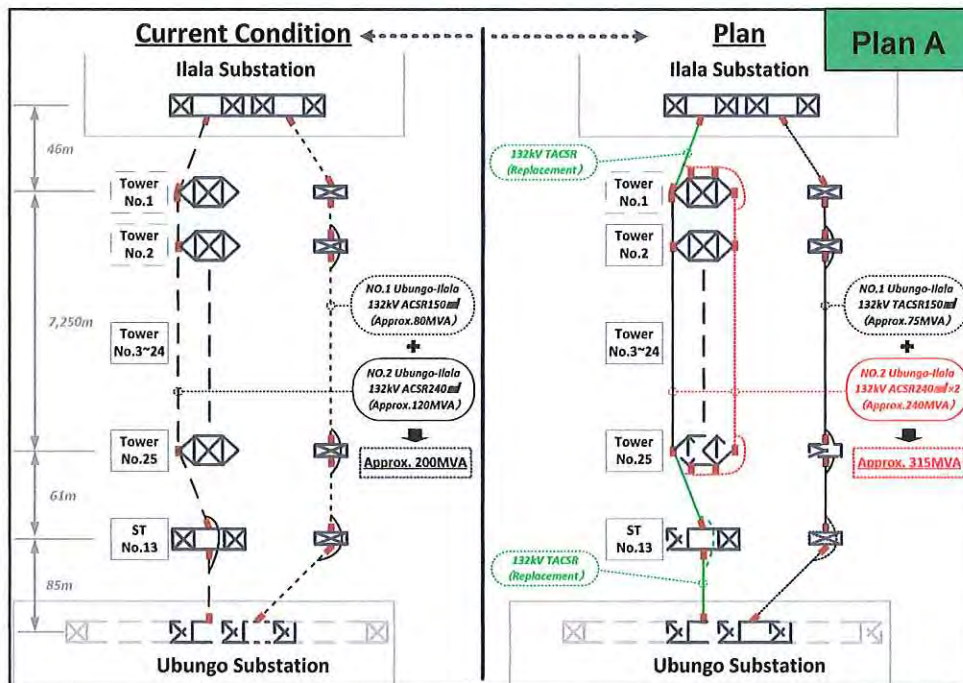
Tentative Implementation Schedule among Donors' Projects related to the Power System in Dar es Salaam

Projects included / financed by ;		Year	2012			2013												2014												2015												Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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MFA Finalnd	Improving the Reliability of Electric Power Supply in the city of Dar es Salaam	Contract is effective on 22/02/2013																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

Remainder: JICA*: Scope of the Work and Schedule are subject to change

We are now here

Rev.2 As of 21st May, 2013



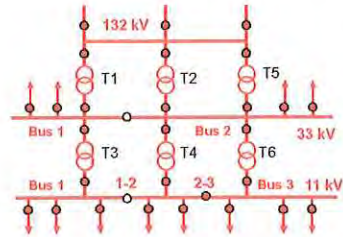
Construction Procedure for Ilala Substation

1

Normal Operation

- 132/33 kV (T1/T2/T5)
90+60+60=210 MVA
- 33/11 kV (T3/T4/T6)
15+15+15=45 MVA

Normally open at 33 kV
Bus section and 11 kV
Bus 1-2 Section

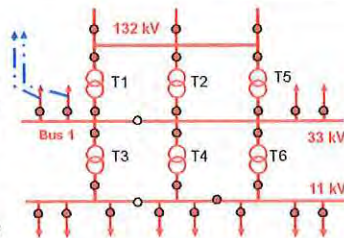


2

33 kV Power Transmission by Temporary Cables (33 kV Bus 1 only)

- 132/33 kV (T1/T2/T5)
90+60+60=210 MVA
- 33/11 kV (T3/T4/T6)
15+15+15=45 MVA

- Installation of temporary
cables for 33 kV Feeders
- De-energization of 33 kV
Feeders at Bus 1



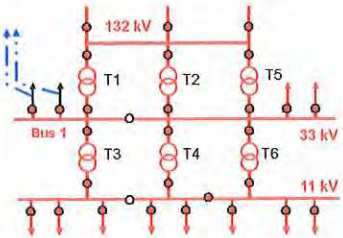
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33 kV Power Transmission by Temporary Cables (33 kV Bus 1 only)

- 132/33 kV (T1/T2/T5)
90+60+60=210 MVA
- 33/11 kV (T3/T4/T6)
15+15+15=45 MVA

- Installation of temporary
cables for 33 kV Feeders
- De-energization of 33 kV
Feeders at Bus 1

Energization of 33 kV Feeders at Bus 1
by temporary cables (one by one)



4

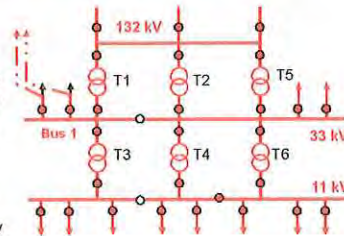
33 kV Power Transmission by Temporary Cables (33 kV Bus 1 only)

- 132/33 kV (T1/T2/T5)
90+60+60=210 MVA
- 33/11 kV (T3/T4/T6)
15+15+15=45 MVA

- Installation of temporary
cables for 33 kV Feeders
- De-energization of 33 kV
Feeders at Bus 1

Energization of 33 kV Feeders at Bus 1
by temporary cables (one by one)

- Removal of 33 kV
Overhead conductors (inside S/S)

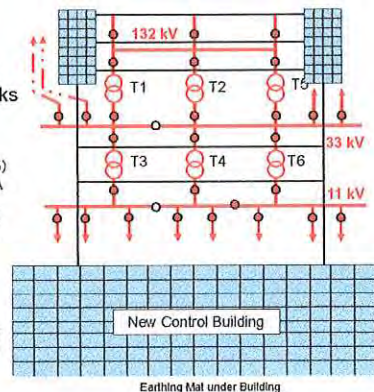


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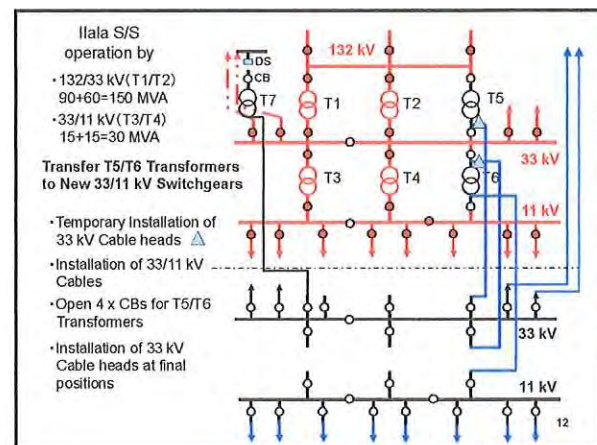
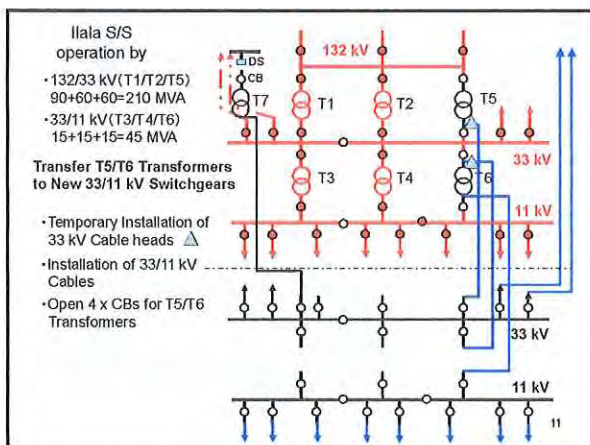
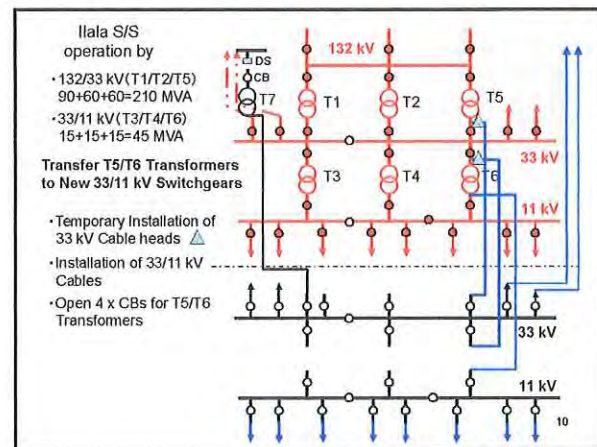
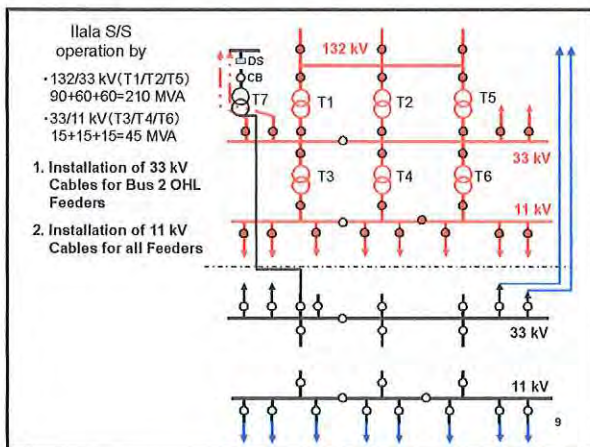
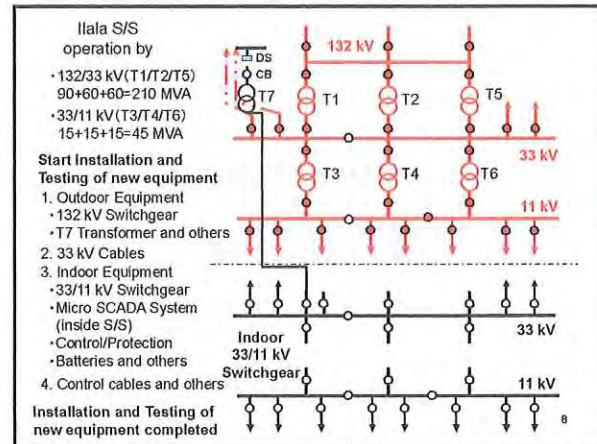
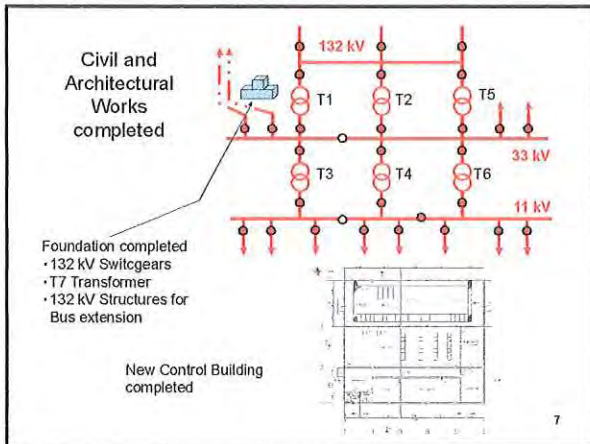
Start Civil and Architectural Works

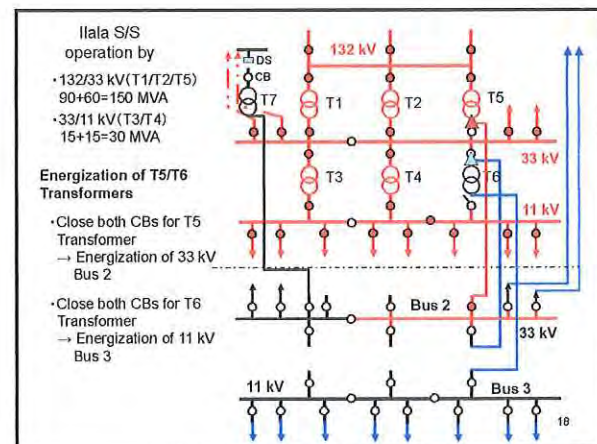
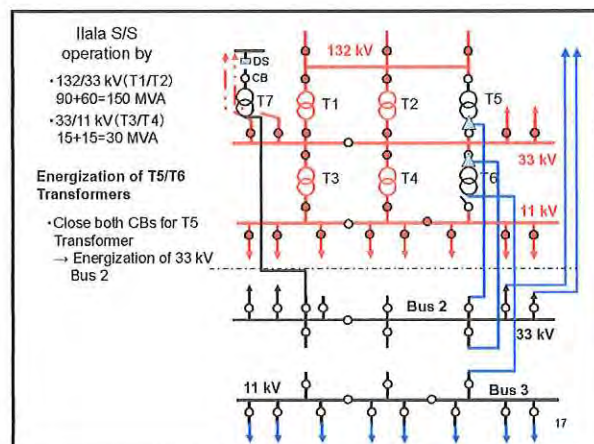
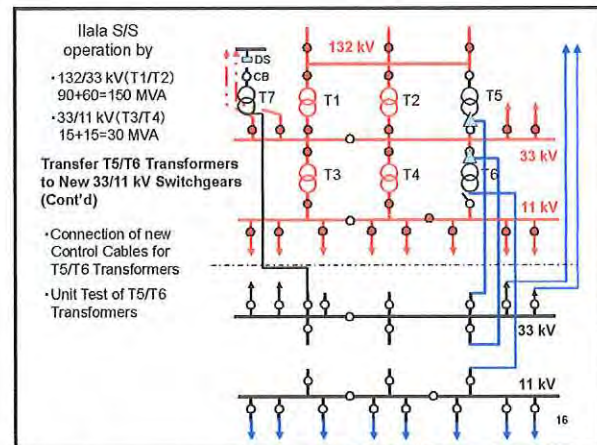
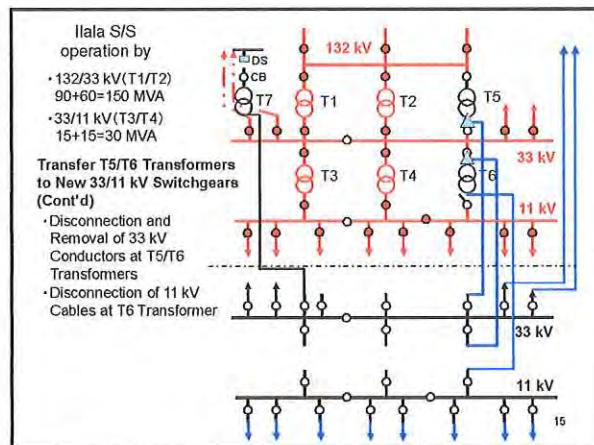
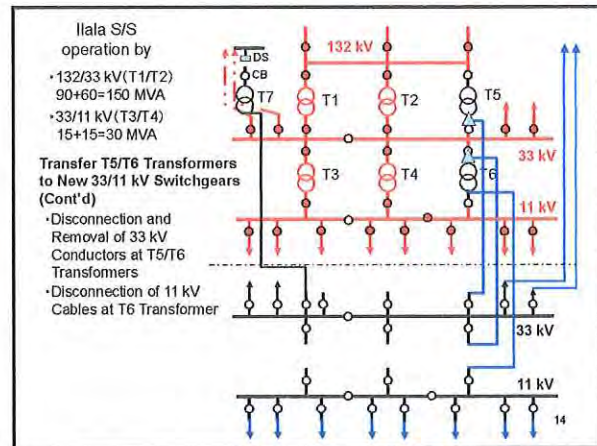
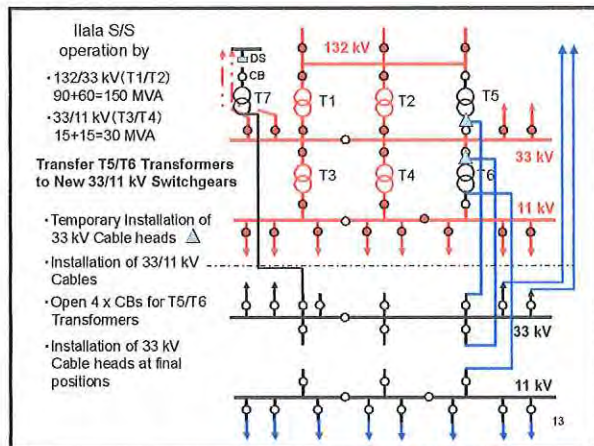
- 132/33 kV (T1/T2/T5)
90+60+60=210 MVA
- 33/11 kV (T3/T4/T6)
15+15+15=45 MVA

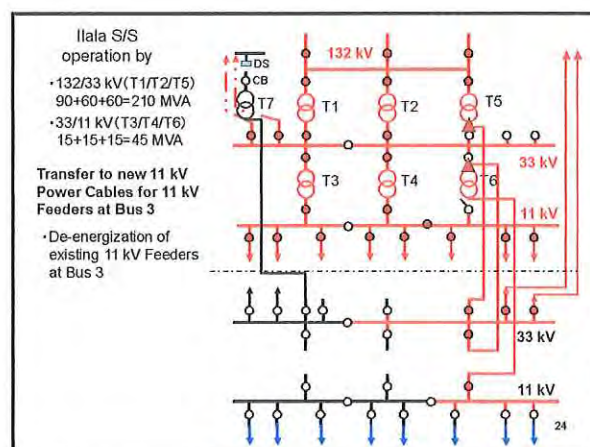
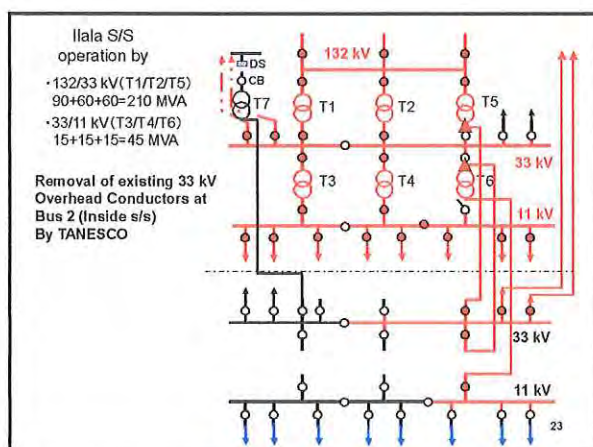
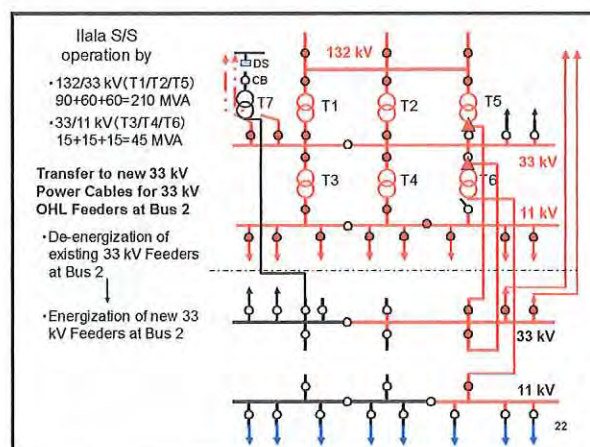
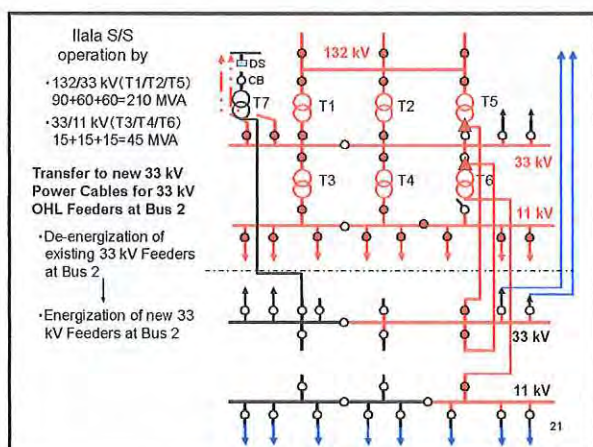
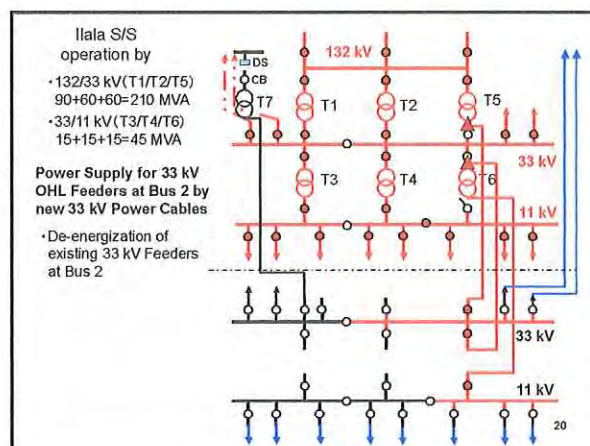
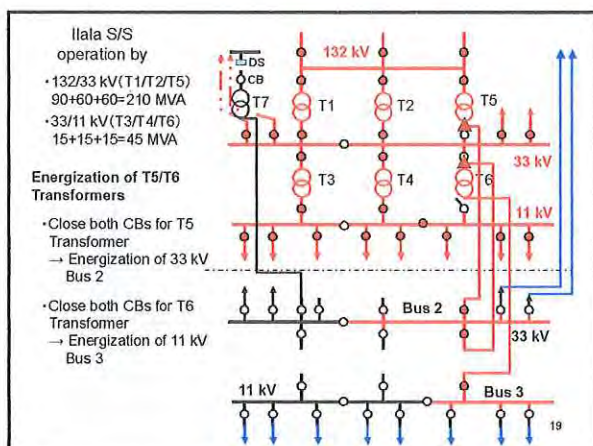
Start excavation for
earthing work and
foundations of New
Control Building, 132 kV
Switchgears, 132/33 kV
Transformer, etc.

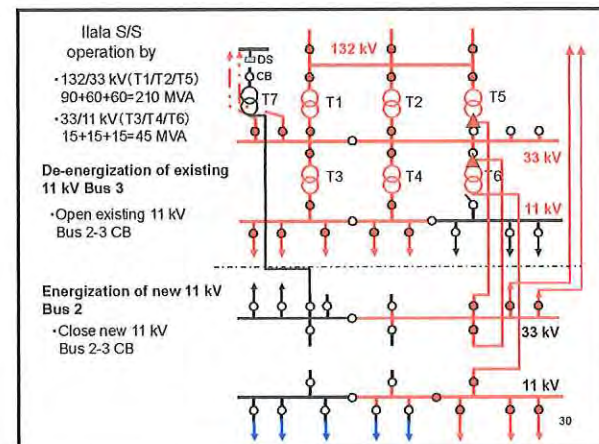
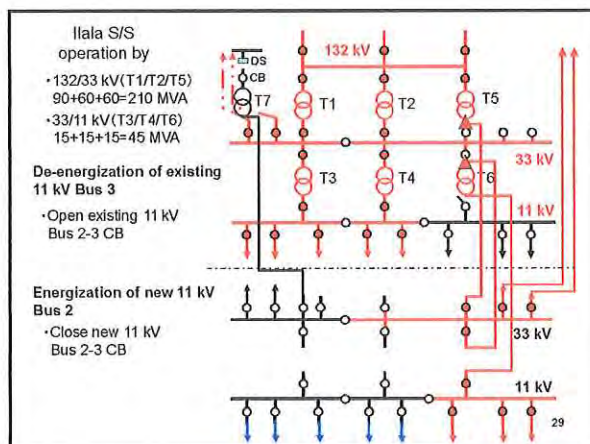
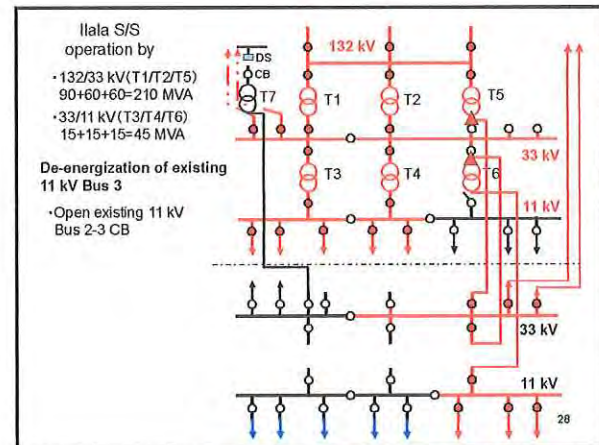
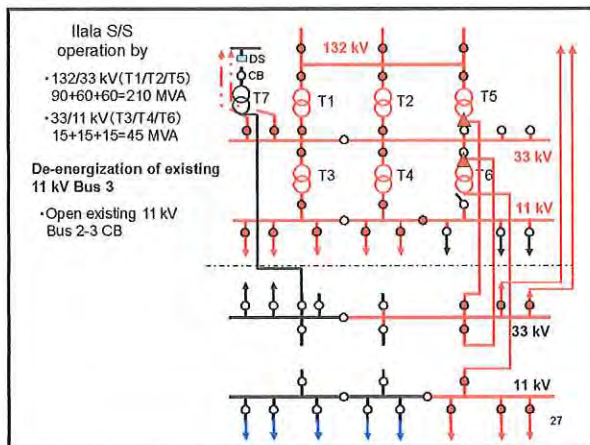
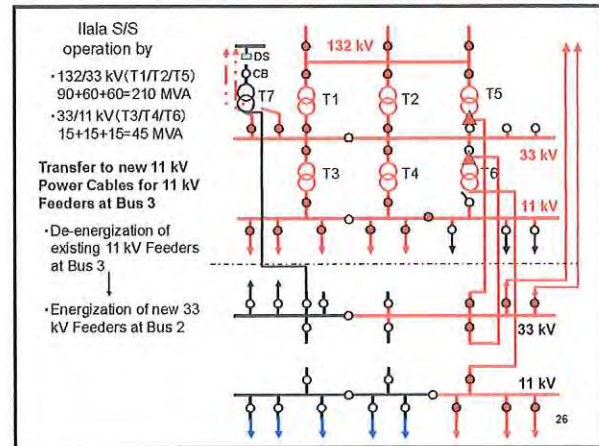
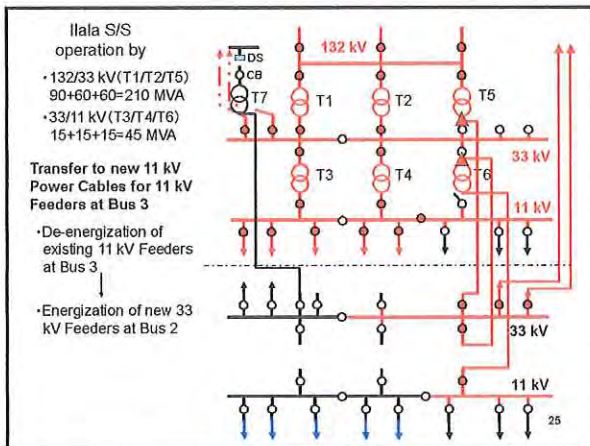


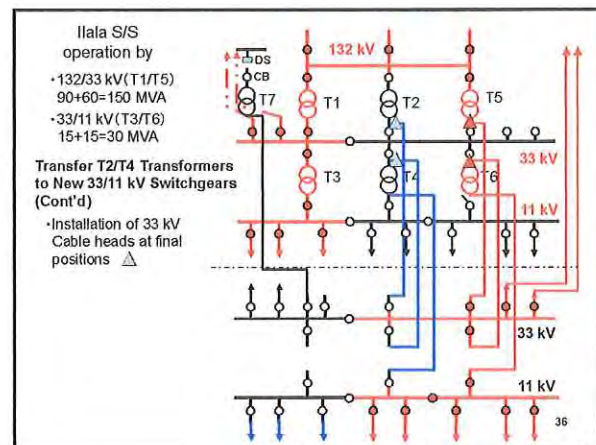
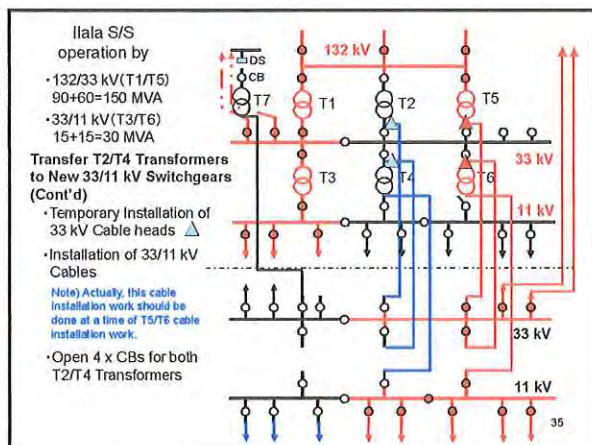
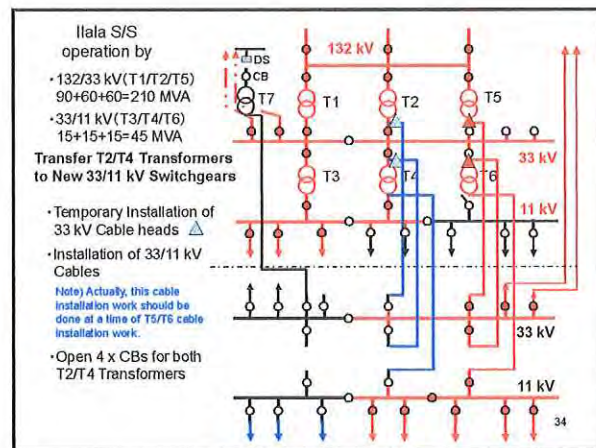
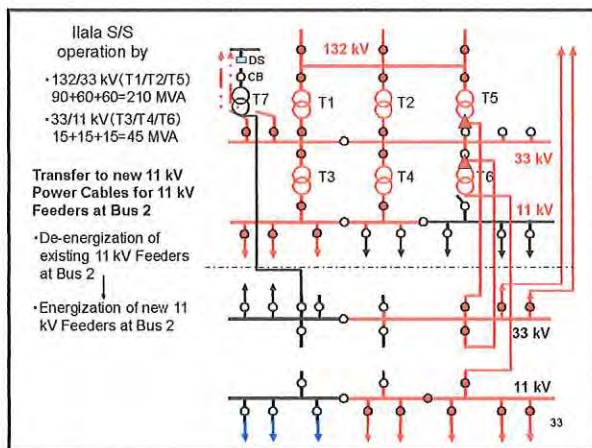
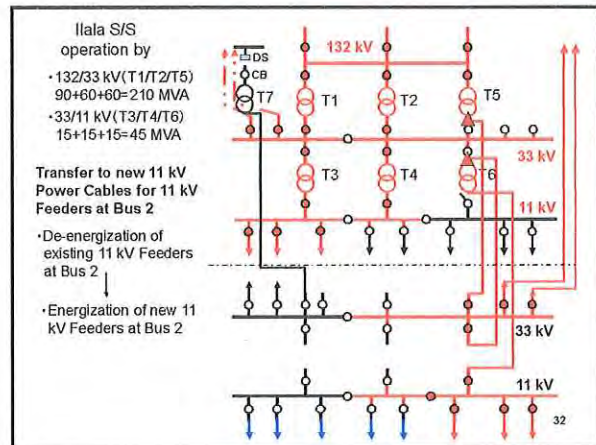
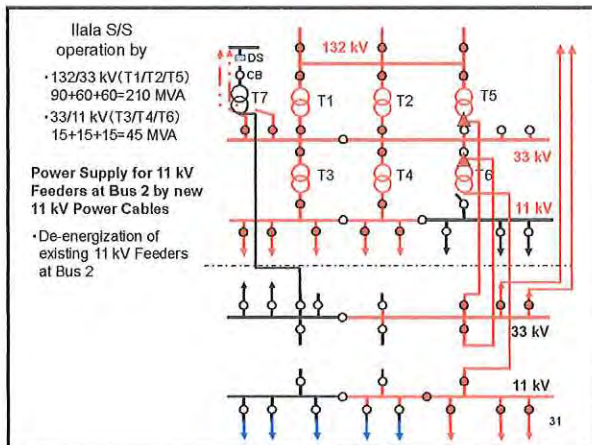
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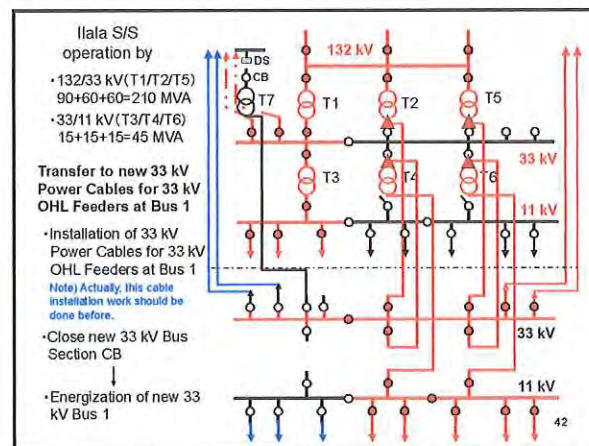
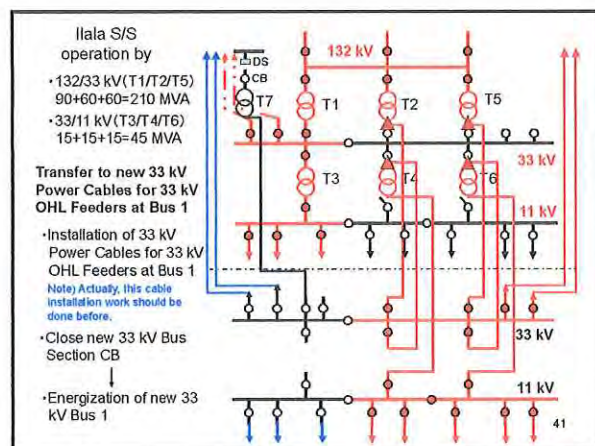
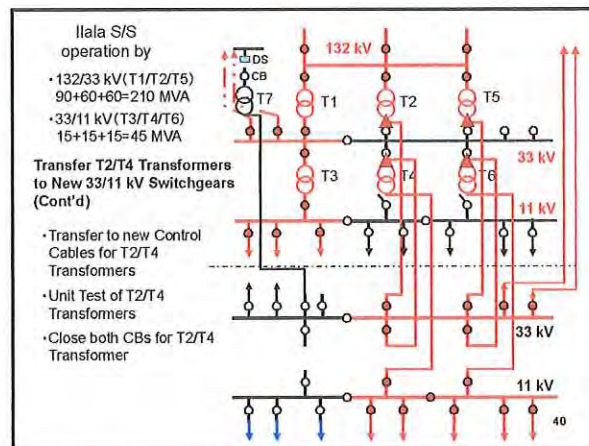
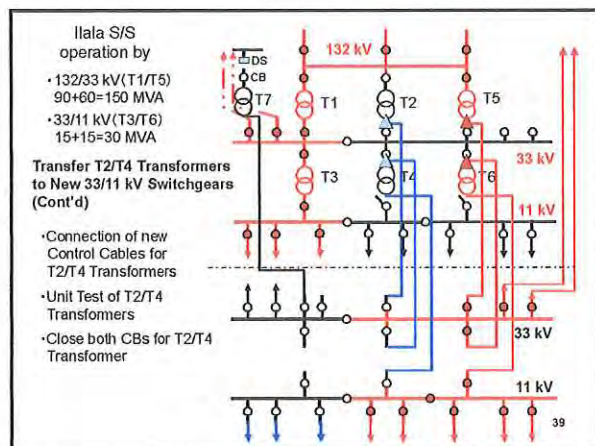
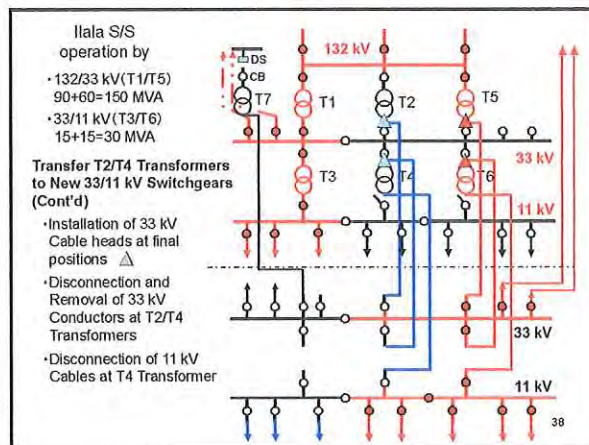
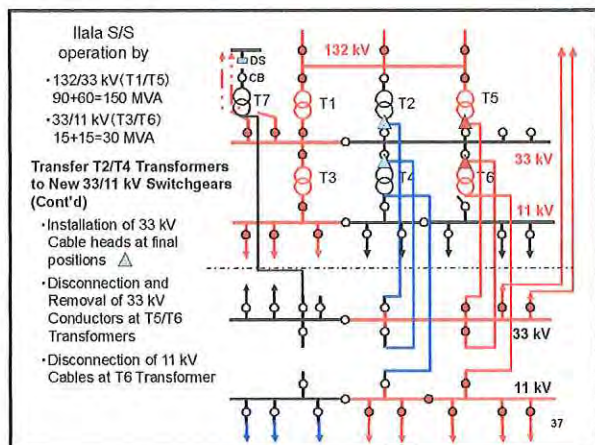


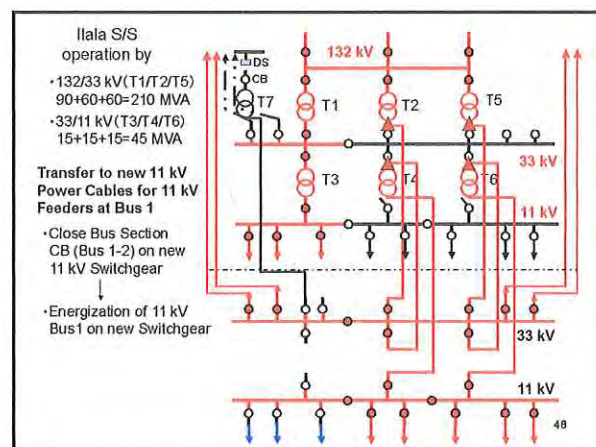
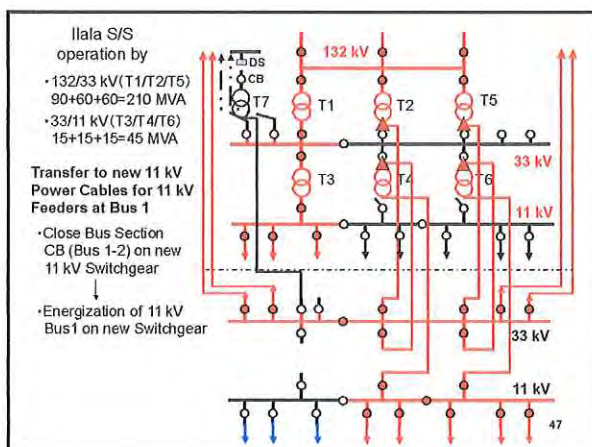
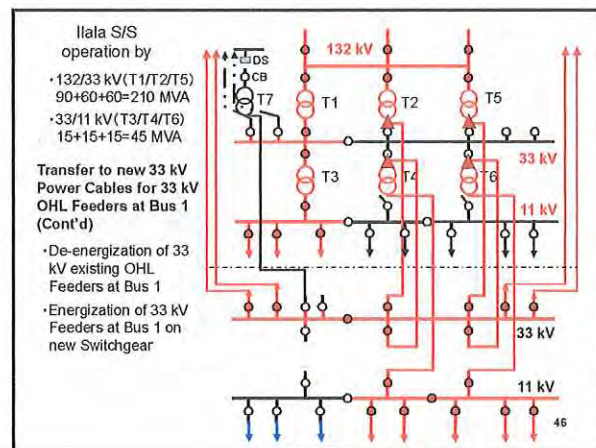
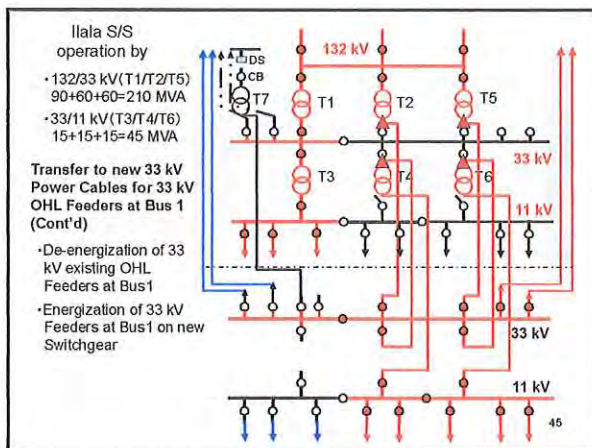
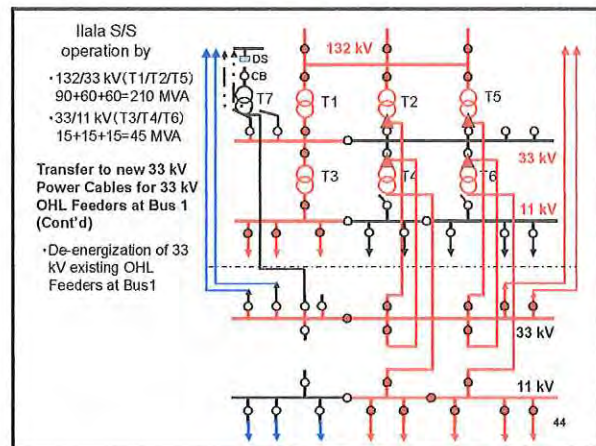
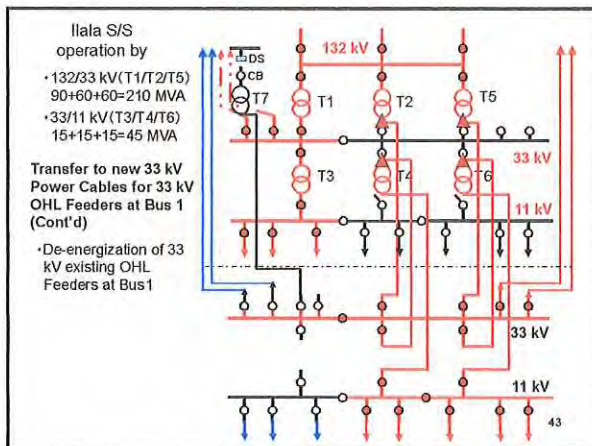


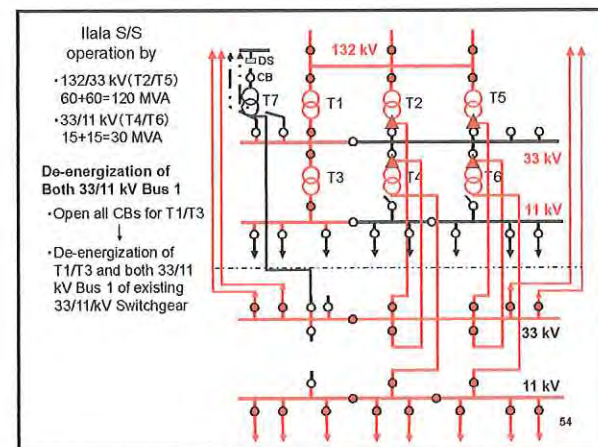
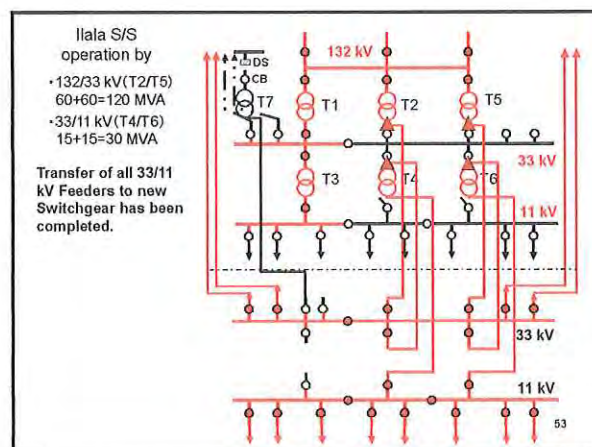
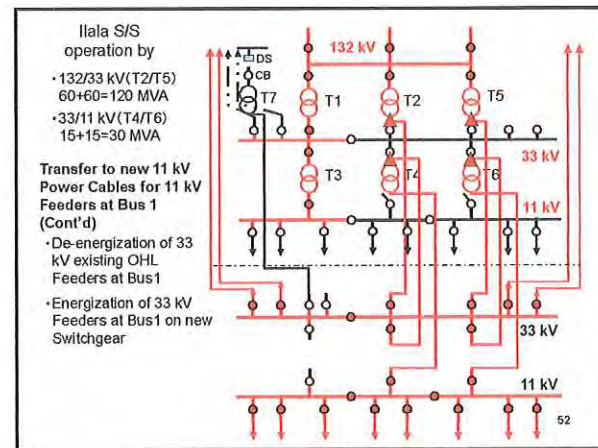
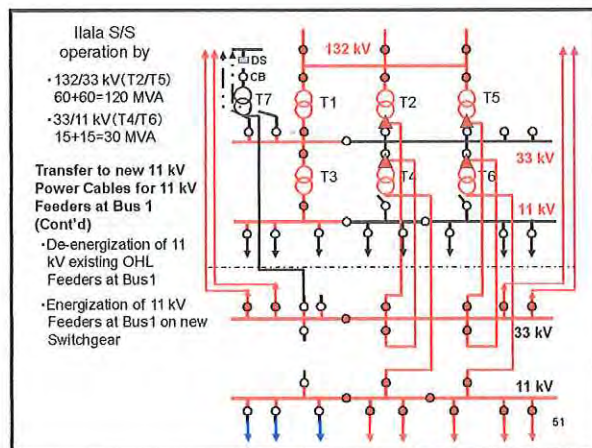
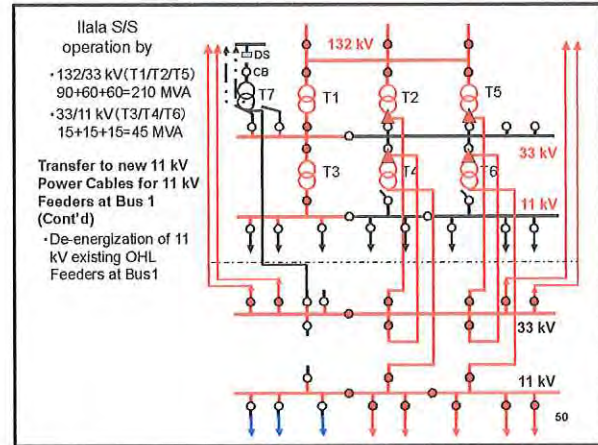
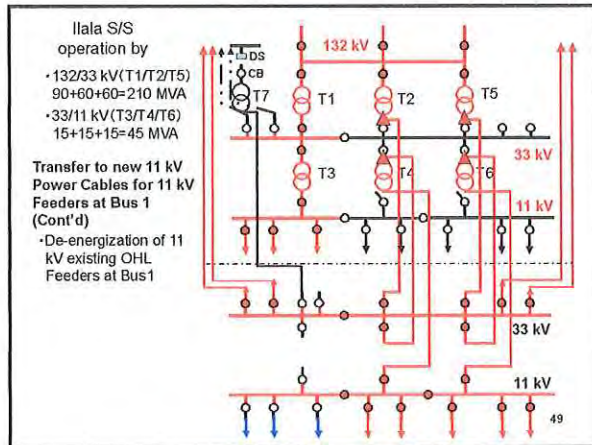


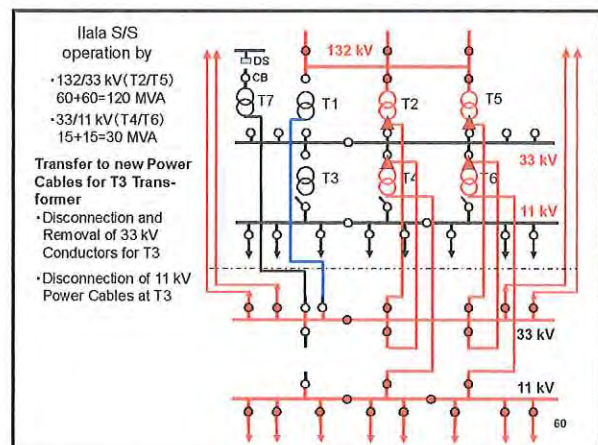
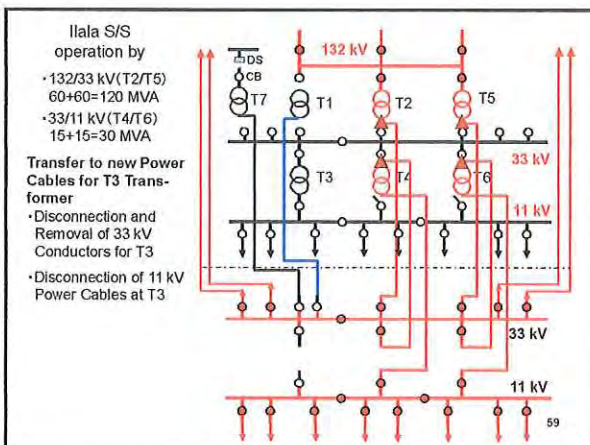
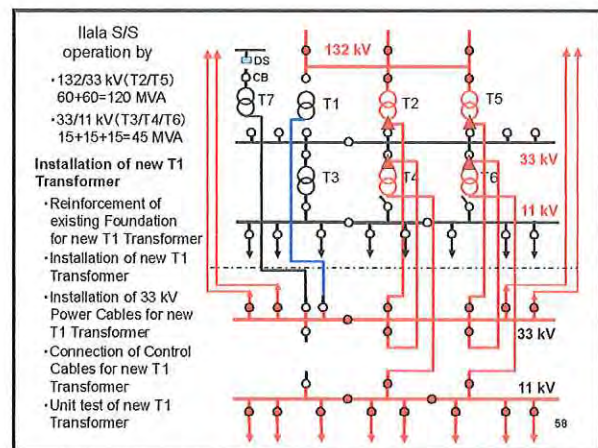
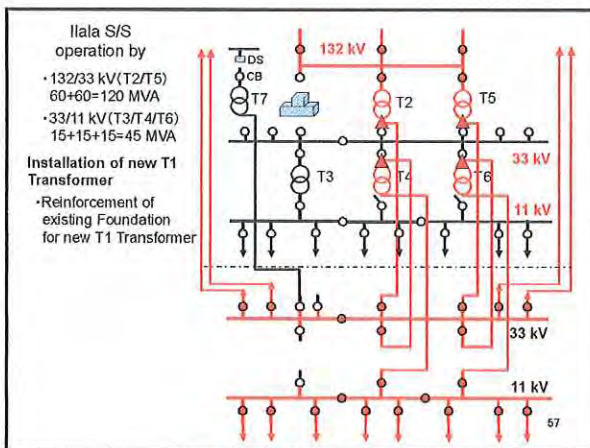
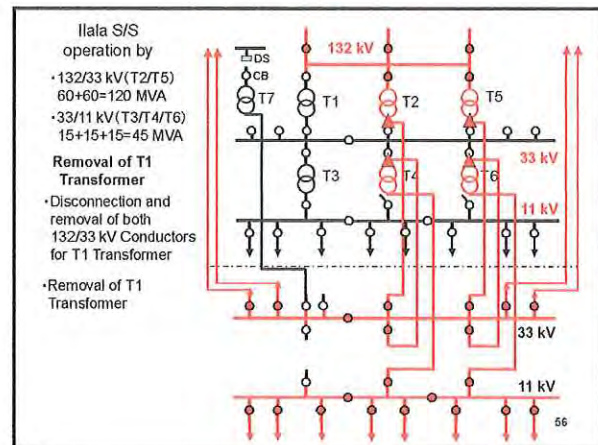
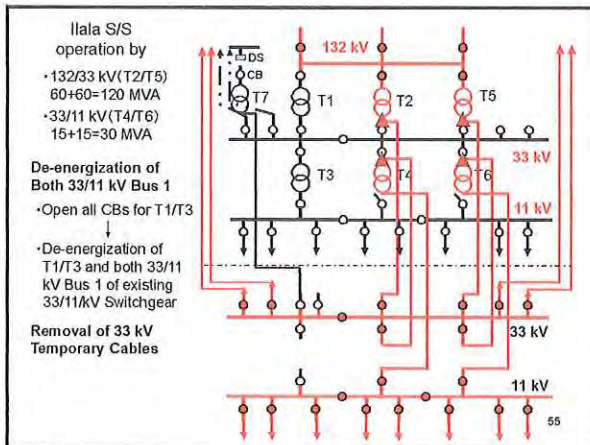


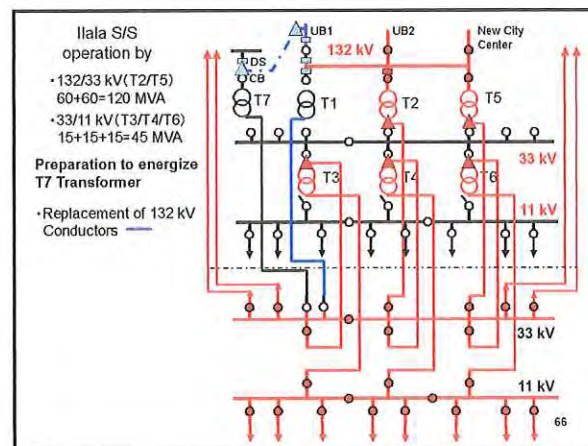
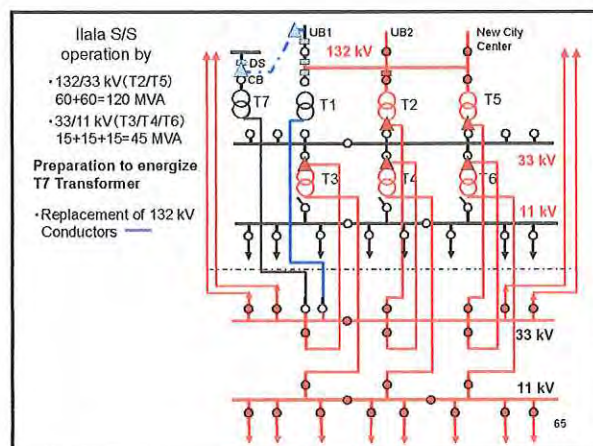
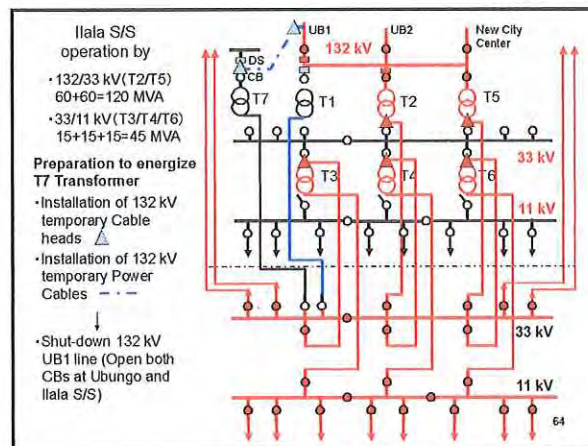
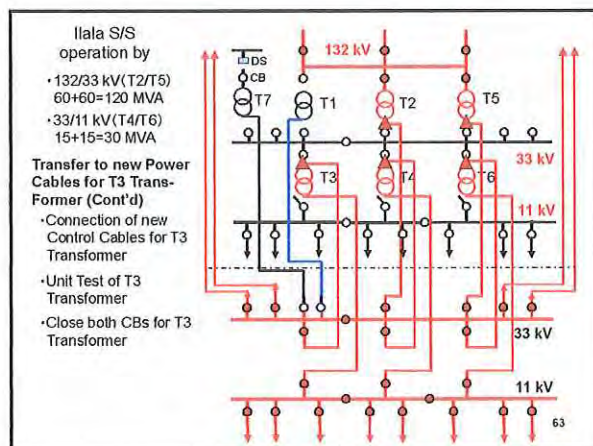
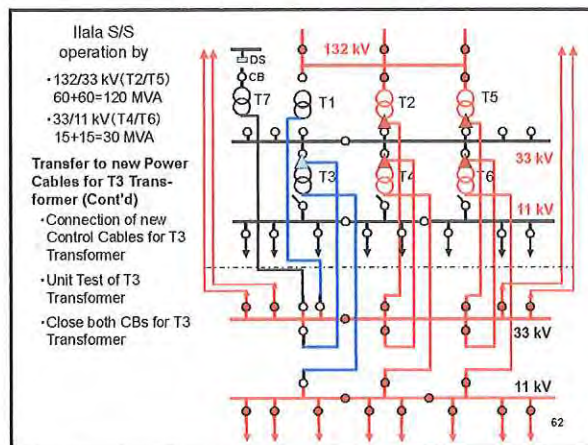
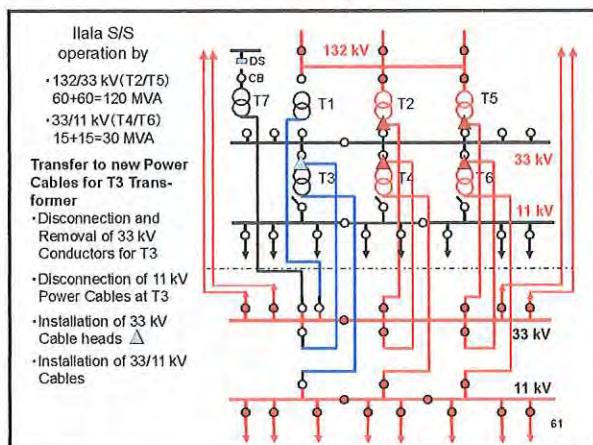


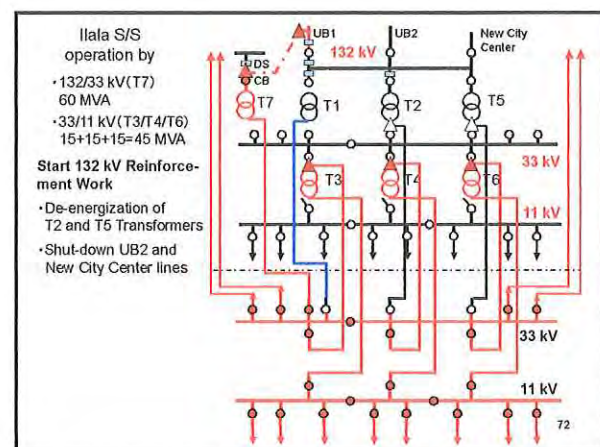
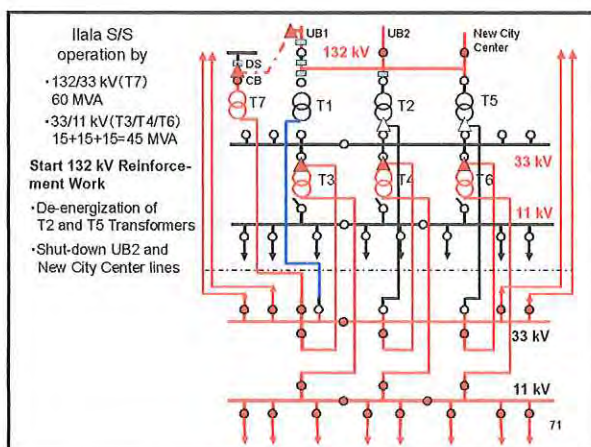
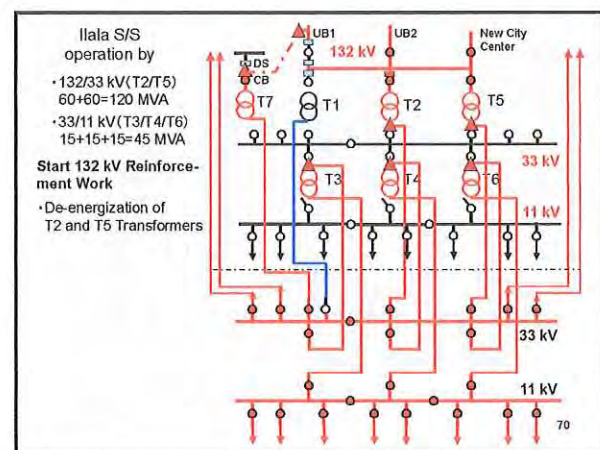
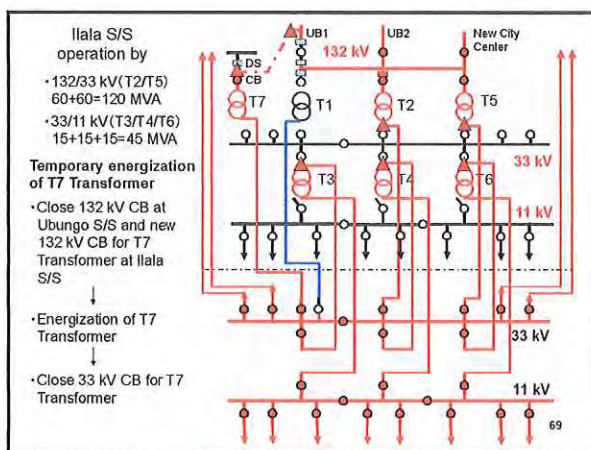
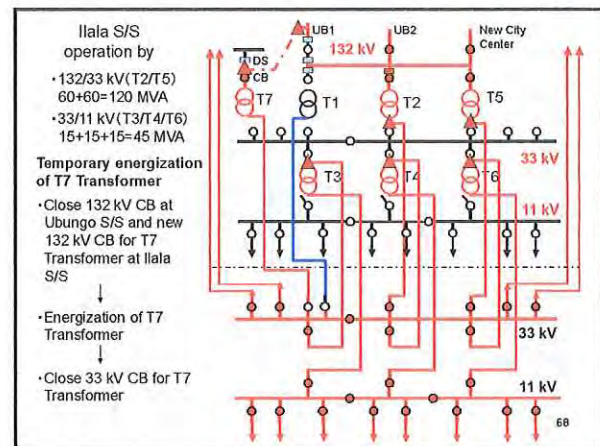
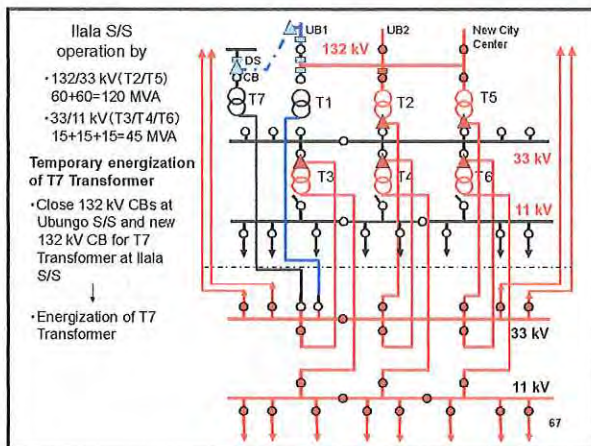


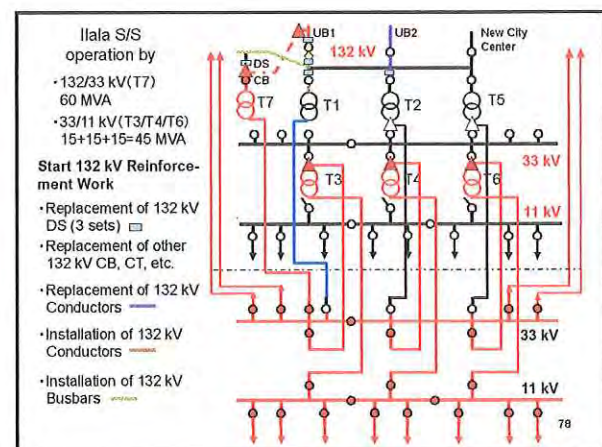
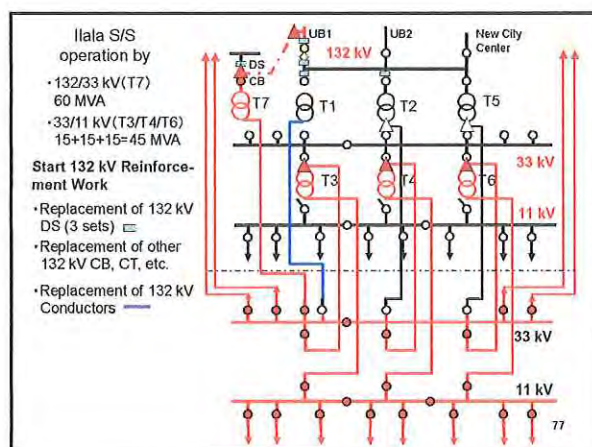
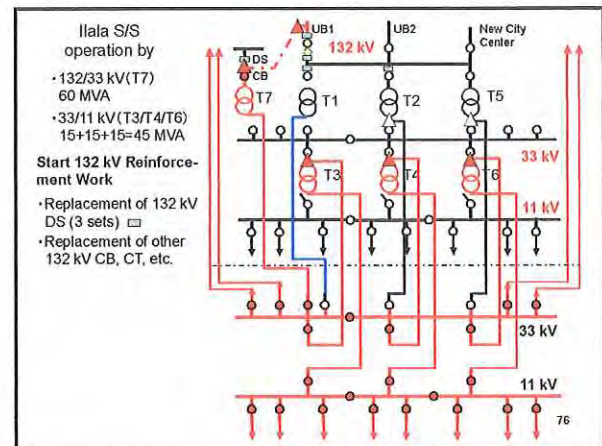
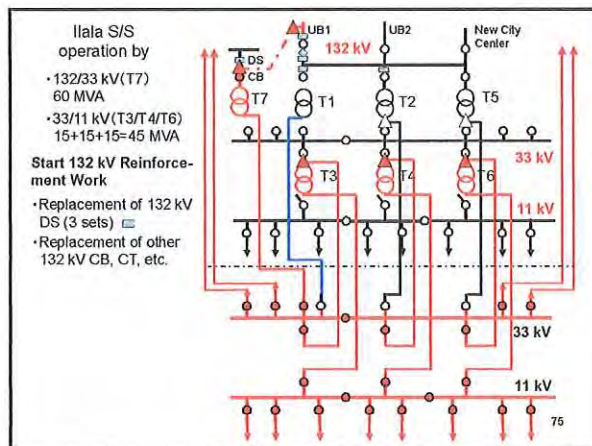
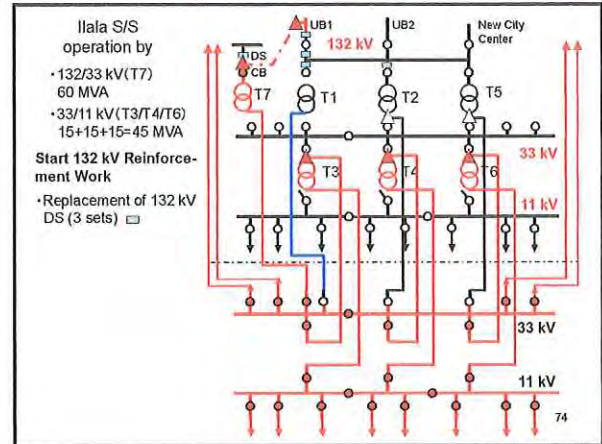
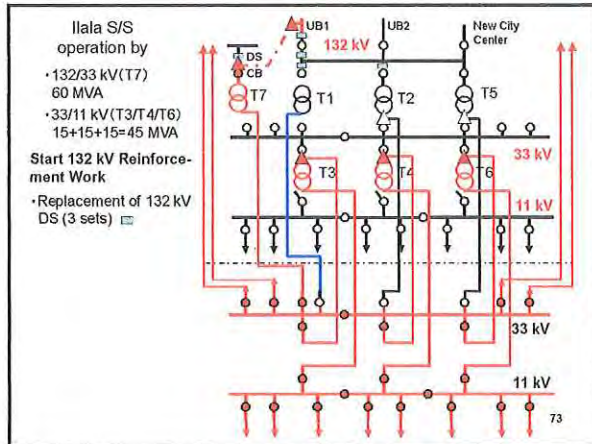


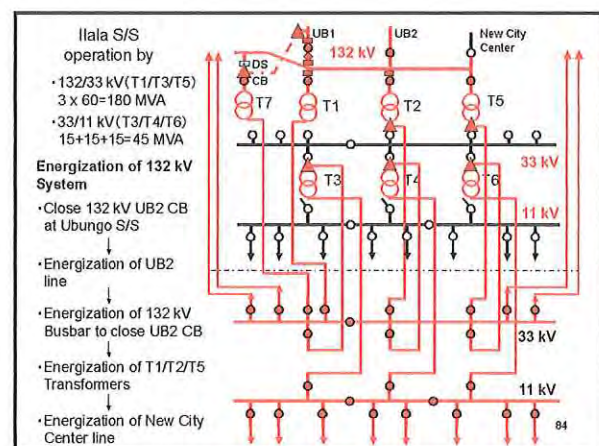
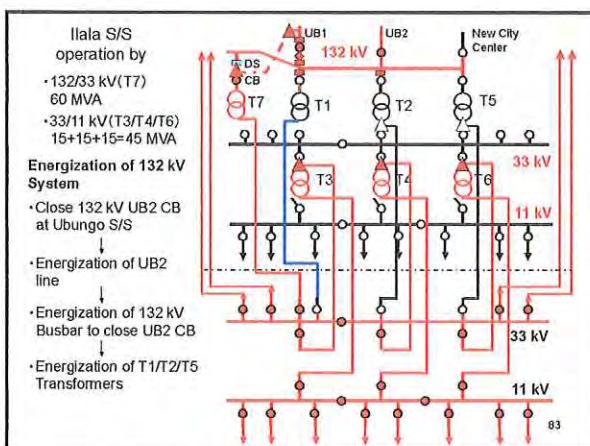
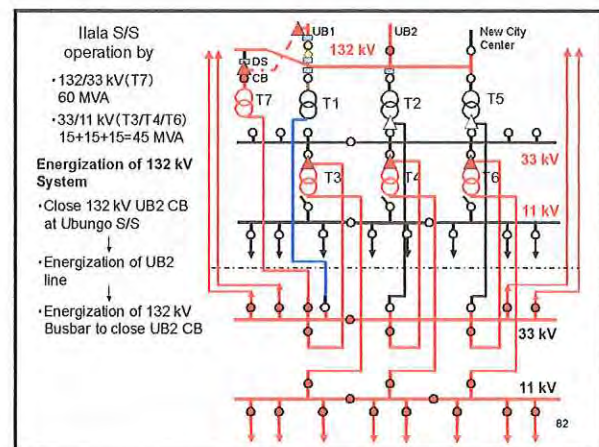
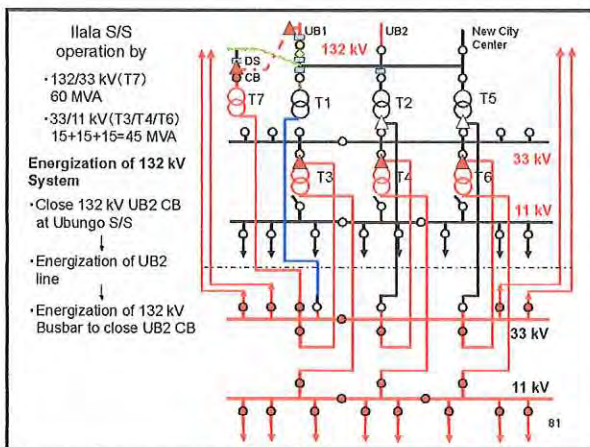
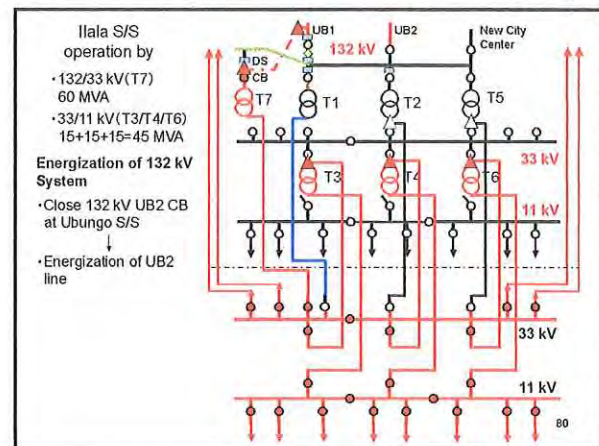
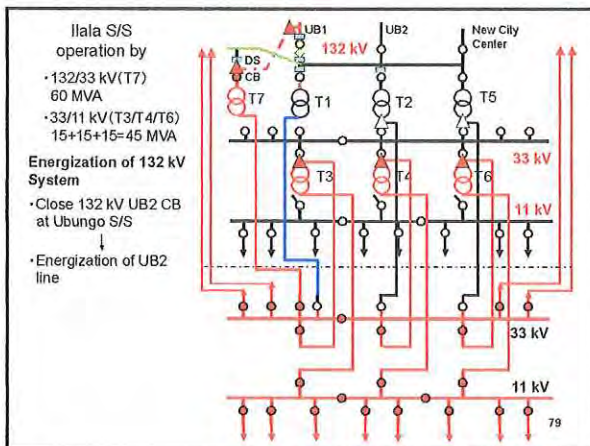


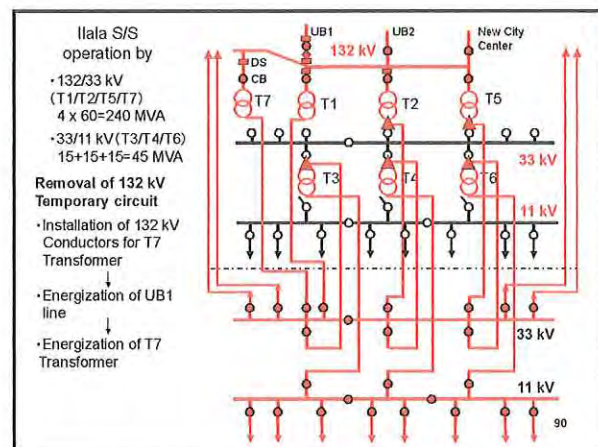
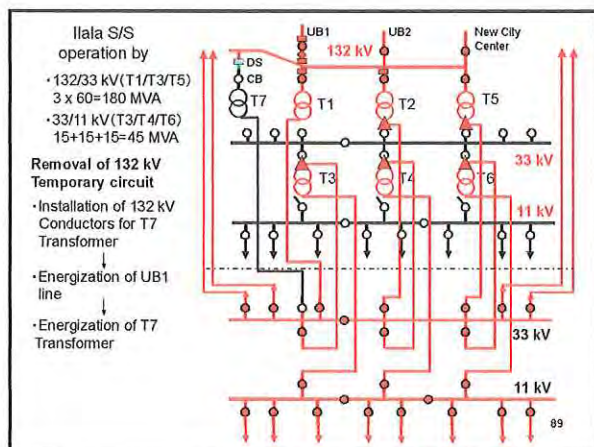
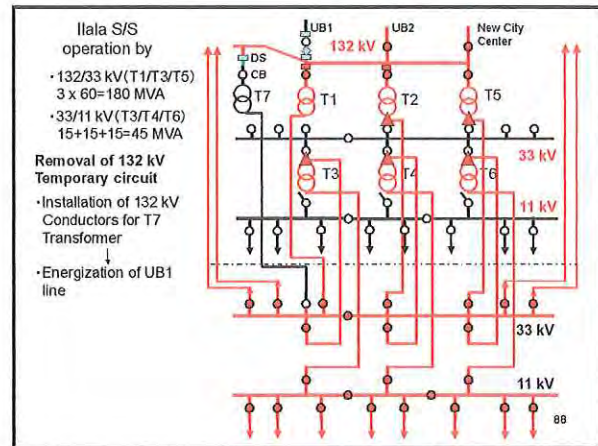
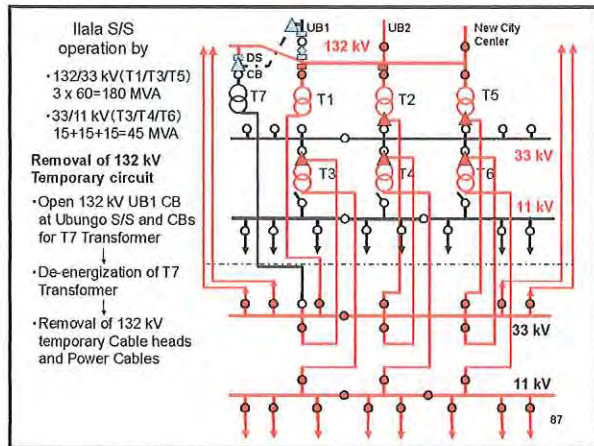
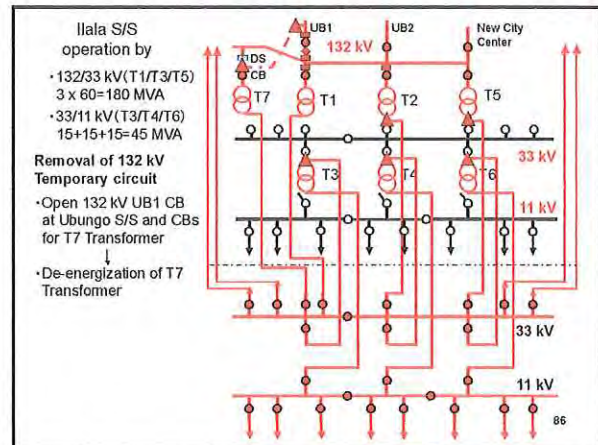
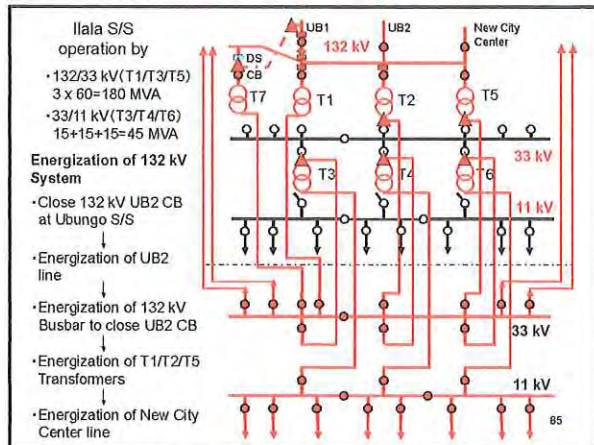


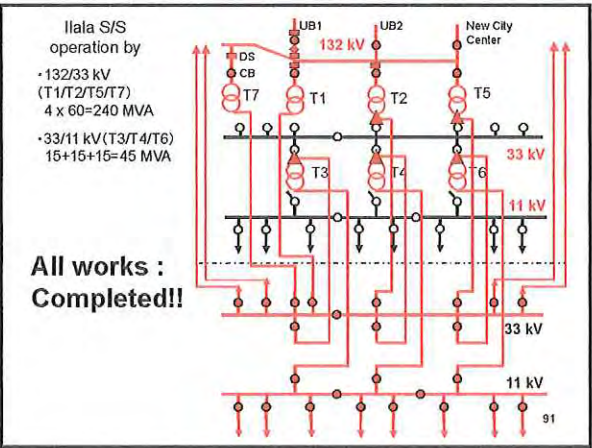




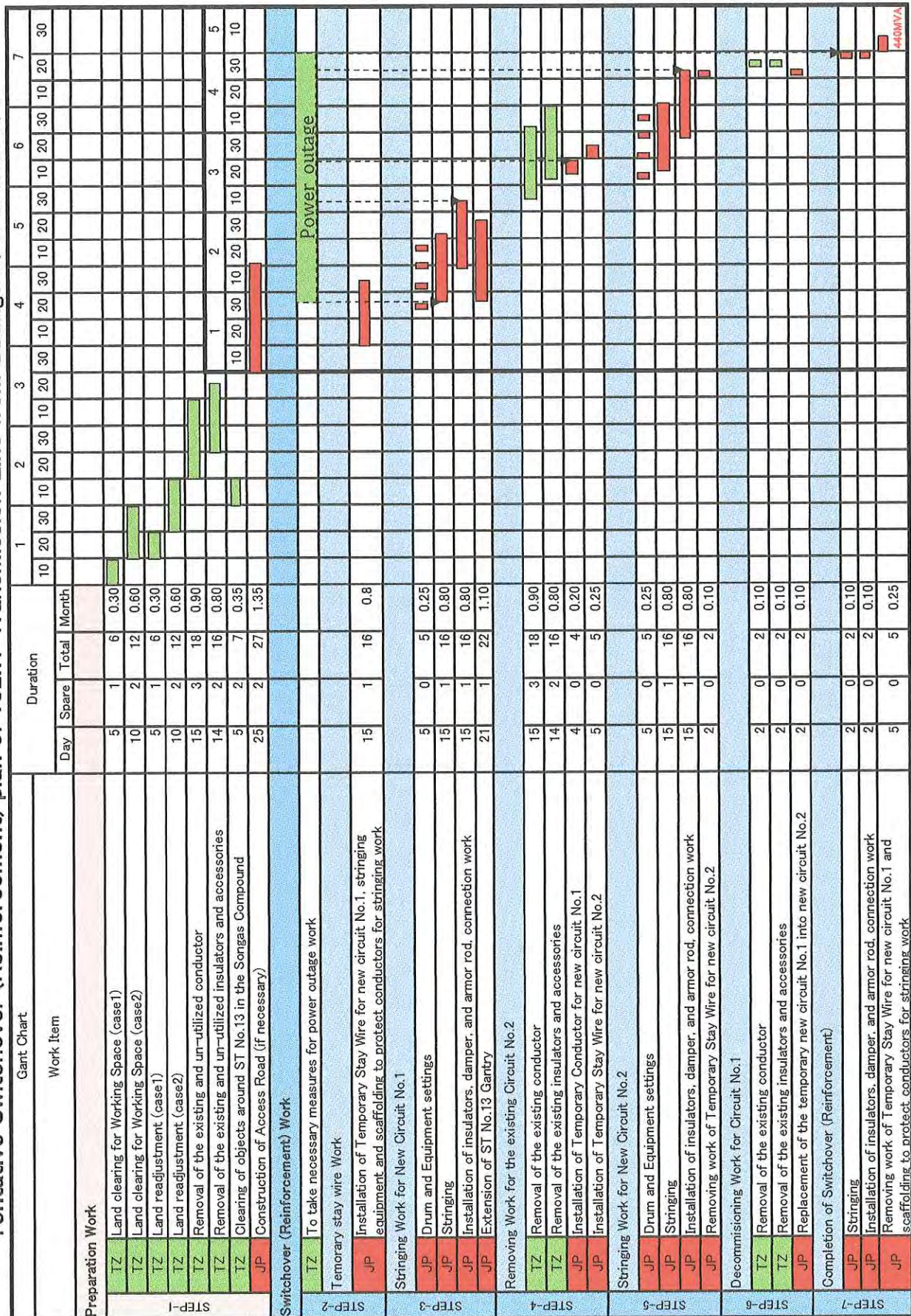








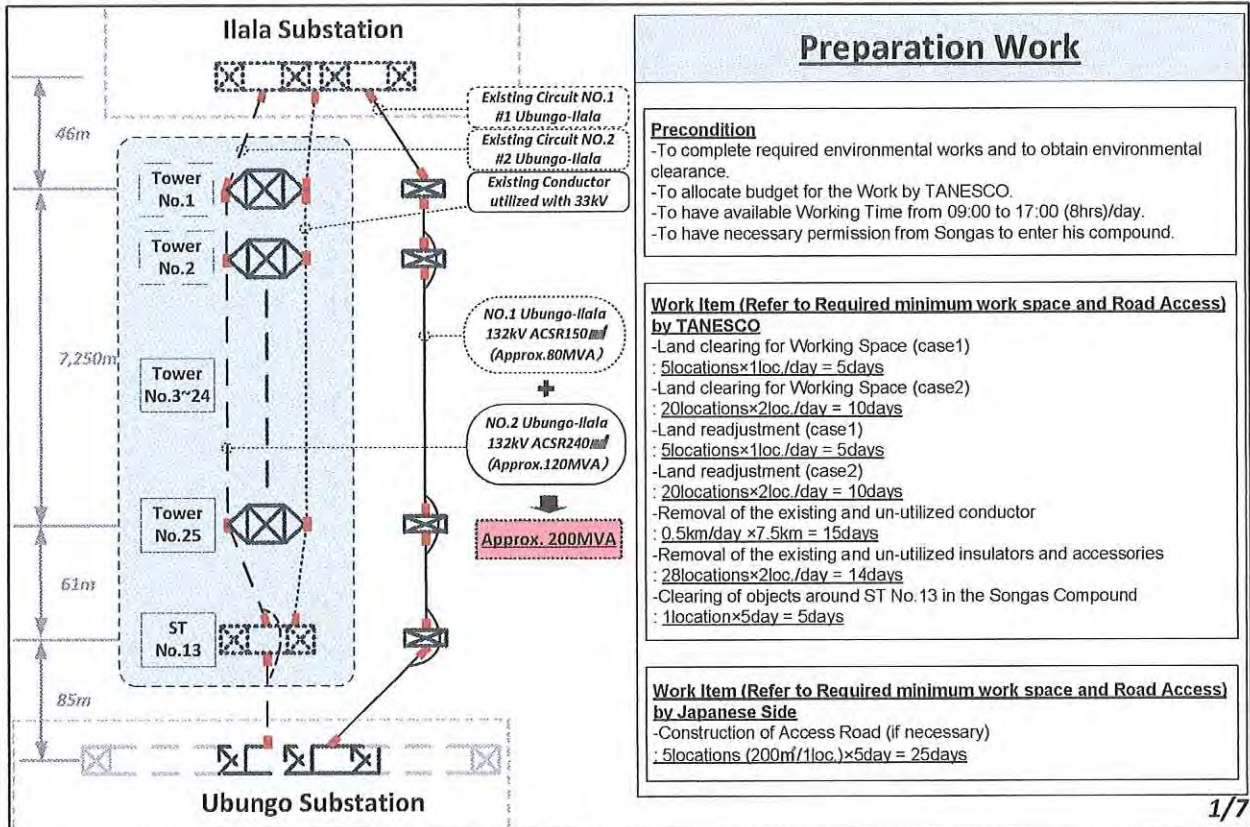
Tentative Switchover (Reinforcement) plan of 132kV Transmission Line from Ubungo S/S to Ilala S/S



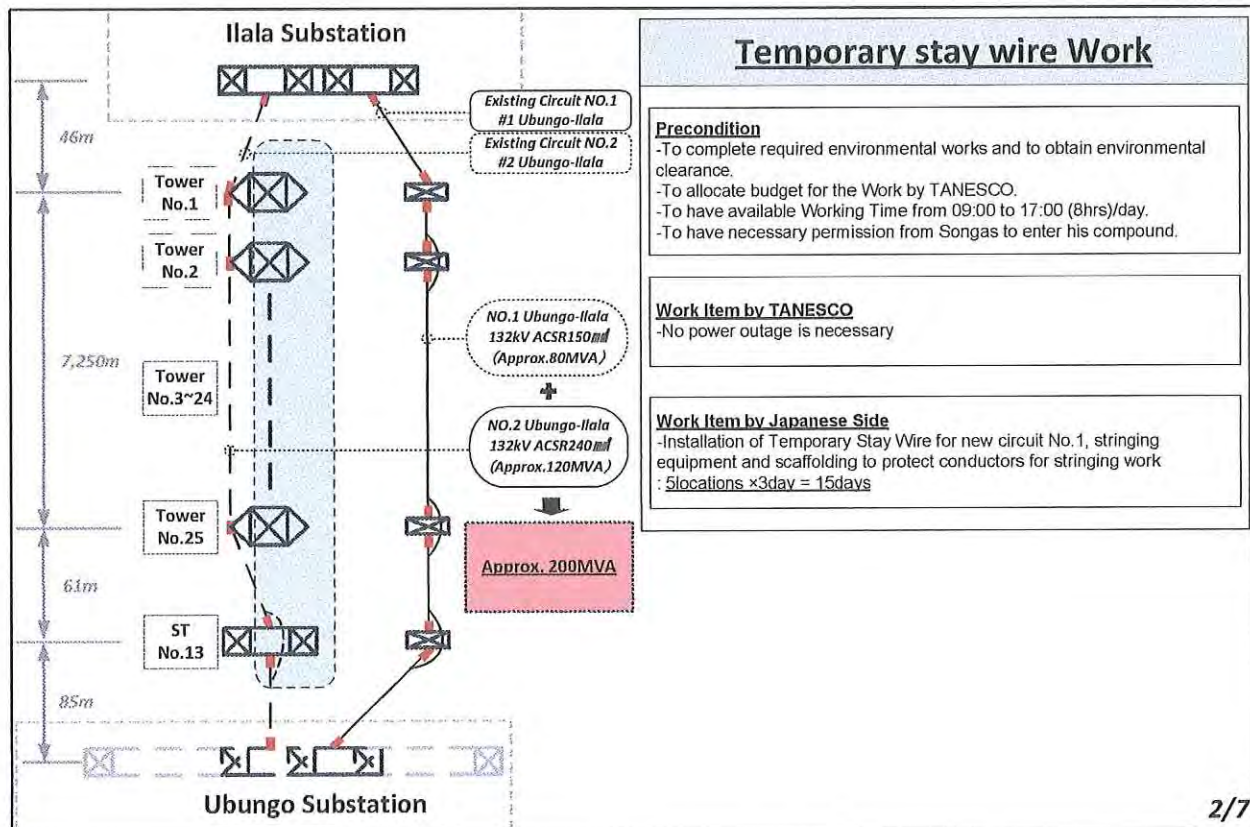
Note: 20days/1month in consideration of holidays

1 spare day/every five days for Tanzanian Side, 1 spare day/every ten days for Japanese Side

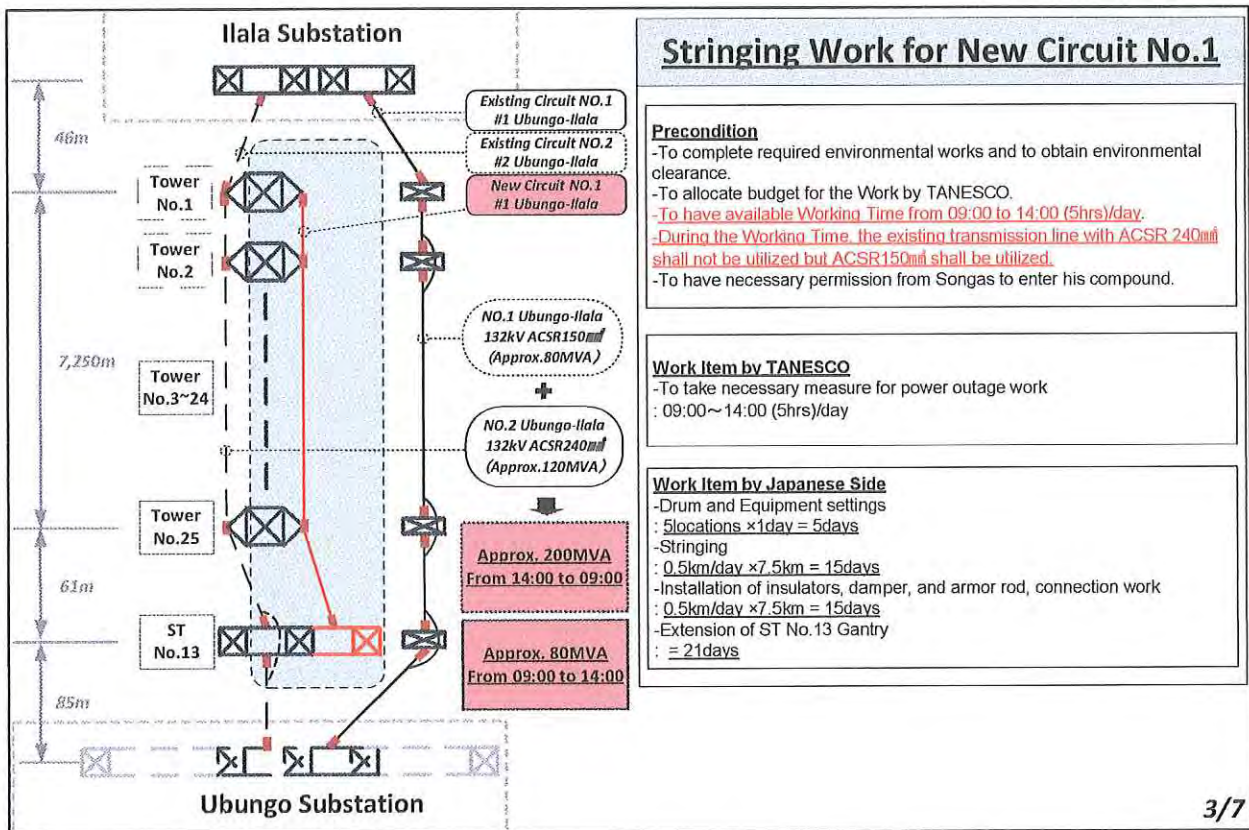
STEP-1



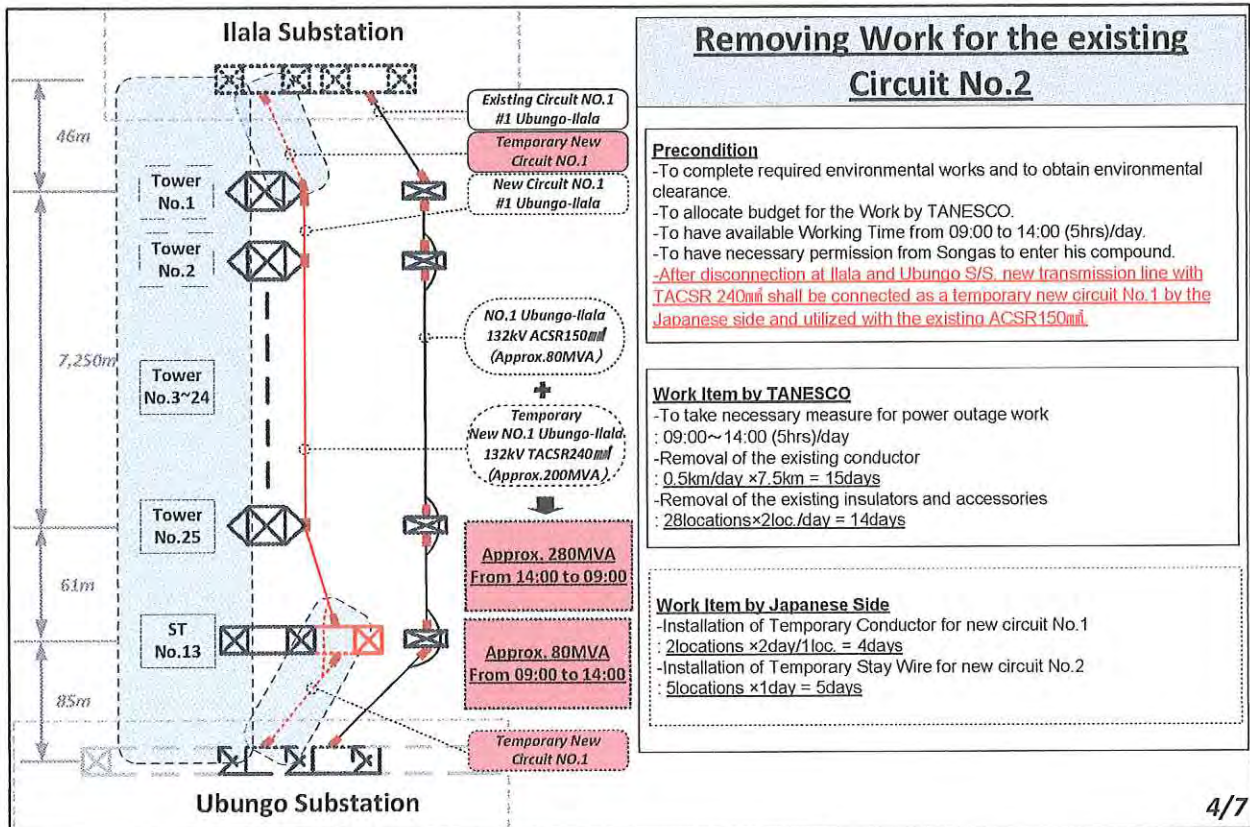
STEP-2



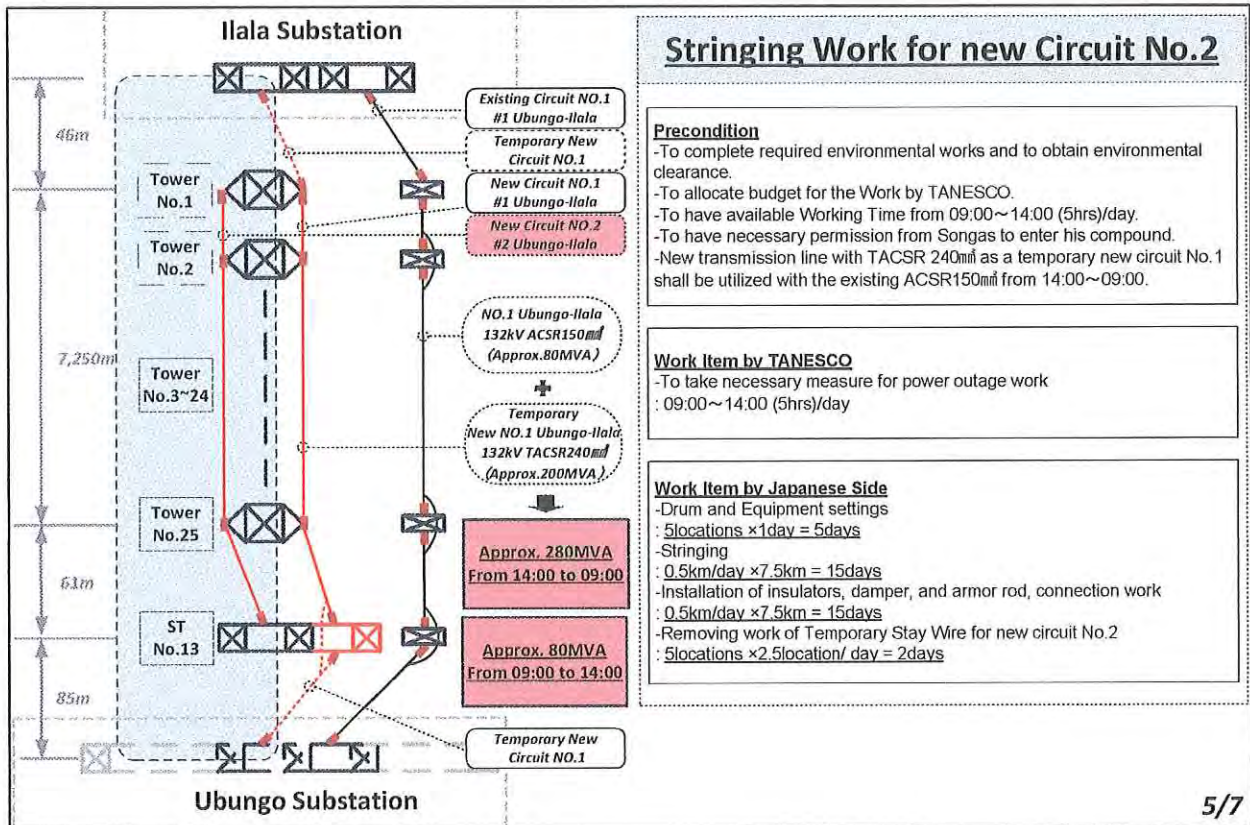
STEP-3



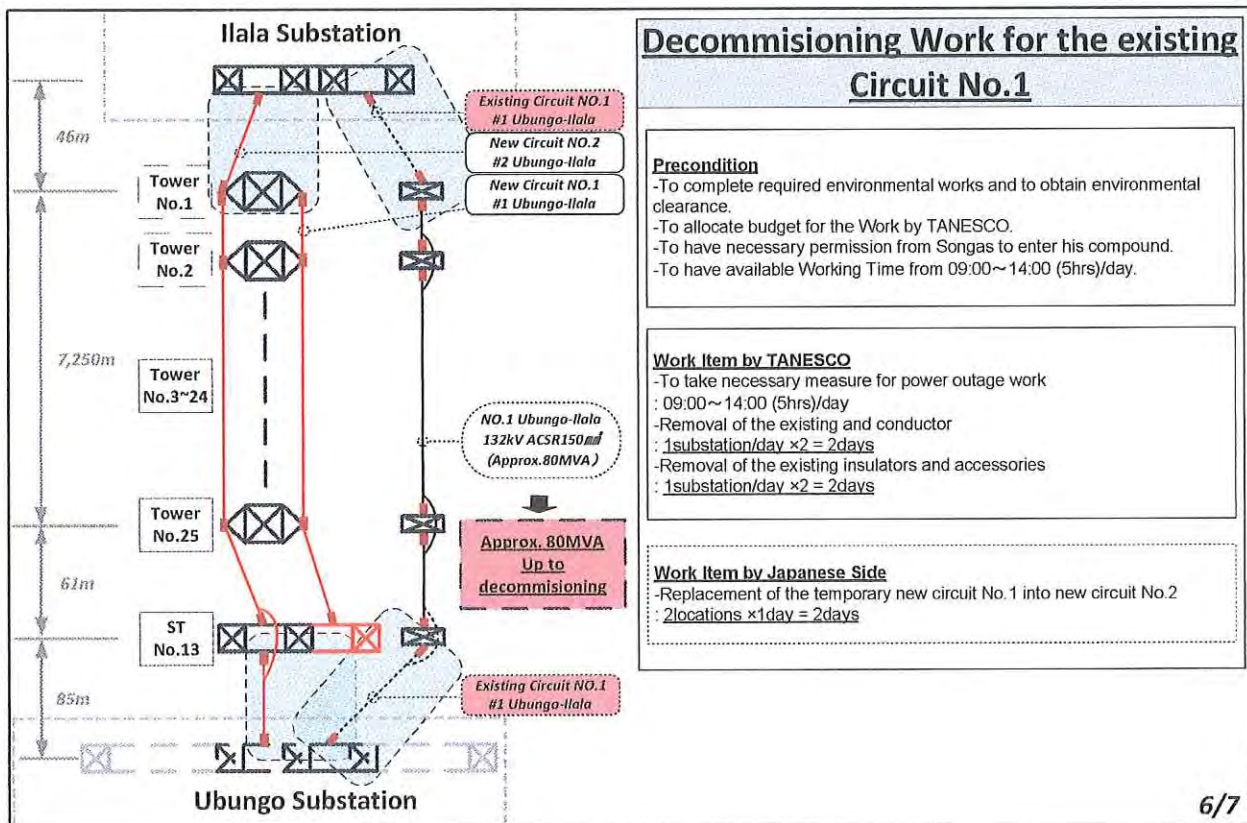
STEP-4



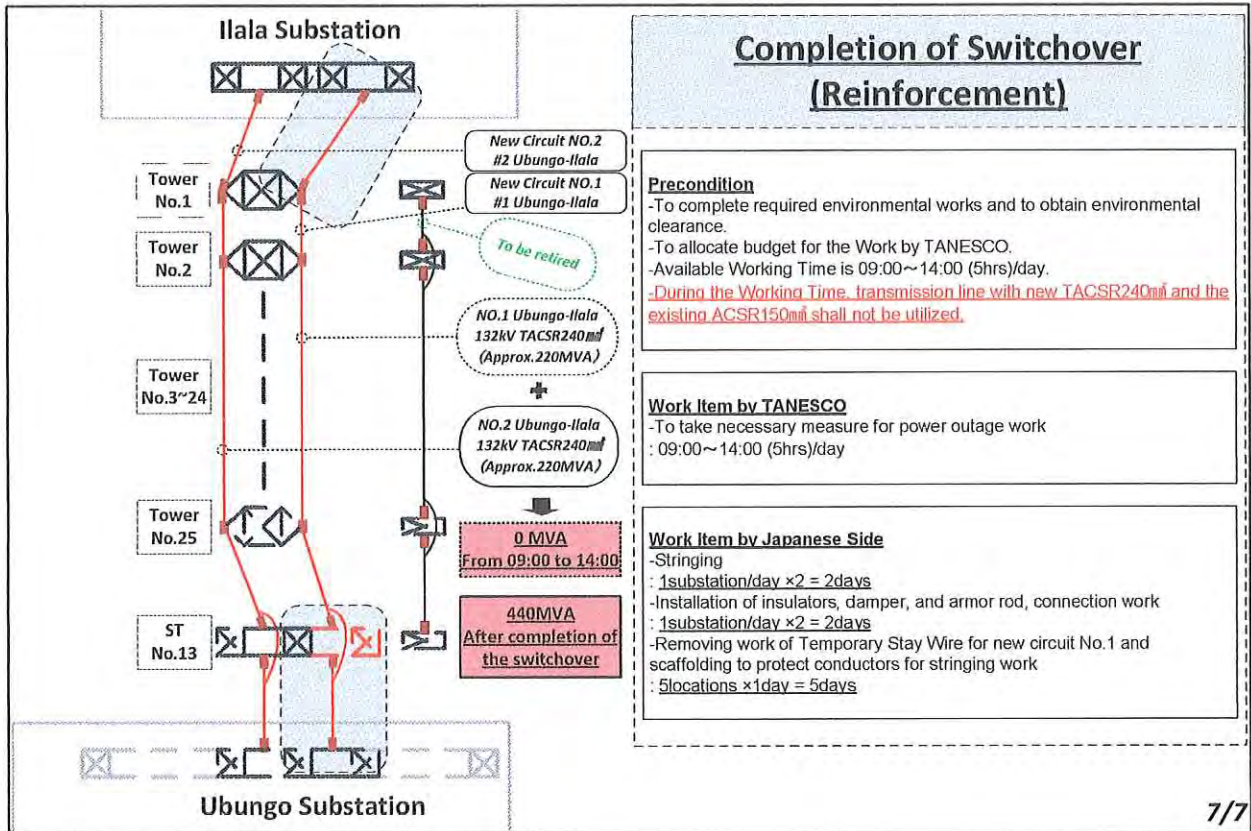
STEP-5



STEP-6



STEP-7



List of the Major Undertakings to be taken by the Tanzanian Side

Work Item		Work Contents
A	Common (including Environmental Social Considerations)	
	A-1	Secure land for stockyards
	A-2	Bank commissions (Advising and Payment Commission of Authorization to Pay
	A-3	Registration fee for the Contractor and the Consultant
	A-4	Necessary arrangement for Power outage
	A-5	RAP compensation (Mwananyamala site)
	A-6	RAP compensation (other sites)
	A-7	RAP compensation (Grave removal cost)
	A-8	Notification to PAP (project affected people) on grave relocation
	A-9	Issue letter to Municipalities on grave removal cost
	A-10	Conclude the negotiation with TANROADS on the distribution lines
	A-11	Conducting EIA study and obtaining EIA certificate from NEMC
	A-12	Having stakeholder consultations
	A-12	Overload fee for Transportation from the seaport to the sites
B	Regarding Substations	
IL	B-1	Clearing and leveling the land (for new Control Building and stockyard)
IL	B-2	Removing the un-used equipment (in the substation)
IL	B-3	Removal of entrance (gate), fence, etc.
IL	B-4	Construction of entrance (gate), fence, etc.
IL	B-5	Leveling for the access road
IL	B-6	Preparation for temporary oil storage and the disposal
IL	B-7	Relocation of the control facilities
IL	B-8	Relocation of Batteries and charger for communication
IL	B-9	Relocation of existing protection panels (including disconnection and reconnection)
IL	B-10	Removal of the existing O/H line and U/G cable
IL	B-11	Relocation of existing 33/11kV End poles with accessories, if any
IL	B-12	Installation of 11 kV U/G cables on the existing Distribution lines for new indoor switchgears
IL	B-13	Supply of Wh meters
UB	B-14	Necessary upgrade of communication system in GCC/DCC
UB	B-15	Necessary re-setting for protection
UB	B-16	Connection of disconnected earthing wires
JB	B-17	Procurement and installation of communication facilities (including batteries, charger, etc.)
JB	B-18	Clearing and leveling the land
JB	B-19	Construction of new fence and gate
JB	B-20	Construction of access road
JB	B-21	Installation of new 11 kV U/G cable and 11 kV end poles
JB	B-22	Supply of Wh meters
TG	B-23	Supply of Wh meters
MH	B-24	Procurement and installation of communication facilities
MH	B-25	Clearing and leveling the land
MH	B-26	Construction of new fence and gate
MH	B-27	Procurement and installation of new 11 kV U/G cable and 11kV end poles
MH	B-28	Construction of access road and safety fence with gate
MH	B-29	Supply of Wh meters
MW	B-30	Procurement and installation of communication facilities
MW	B-31	Clearing and leveling the land
MW	B-32	Construction of new fence and gate
MW	B-33	Installation of new 11 kV U/G cable and 11kV end poles
MW	B-34	Construction of access road and safety fence with gate
MW	B-35	Supply of Wh meters
MS	B-36	Clearing and leveling the land
MS	B-37	Removal of the existing net fence, gate and generator
MS	B-38	Removal of the existing 11kV O/H line and 11kV U/G cable to install new transformer
MS	B-39	Installation of new 11kV U/G cable
MS	B-40	Supply of Wh meters

5. 技術討議録 (Technical Memorandum : 第二次現地調査)

Annex-5

Work Item		Work Contents
C Regarding 132kV Transmission Line		
T/L	C-1	Removal of existing and un-utilized conductor, insulators and other related accessories
T/L	C-2	Clearing and leveling the land for the Work Space
T/L	C-3	Obtaining necessary permission to enter Songas compound for Tower No. 25 and ST No.13
D Regarding 33kV Distribution Line		
D/L	D-1	Replacement of the existing 11kV D/L interfered with the new 33kV D/L
D/L	D-2	Construction of 11kV D/L from new 33/11kV substations
E Regarding Grid Control Center (GCC) and District Control Center (DCC)		
	E-1	Connection and software modification of GCC SCADA system for T7 transformer at Ilala S/S
	E-2	Ditto of DCC SCADA system for 33/11 kV feeders, if any
	E-3	Modification of Ilala line metering circuit(s) by 132 kV CT replacement of at Ubungo S/S for GCC
	E-4	Connection and software modification of DCC SCADA system at following substations;- - New 33 kV Substations (Jangwani Beach S/S, Muhimbili S/S and Mwananyamala S/S) - 33 kV Substation extension (Msasani S/S) - 33 kV feeder bay extension on 132 kV Substations (Tegeta S/S, Makumbusho S/S and New City Center S/S)
	E-5	Modification of RTU on existing Substations for DCC SCADA system
	E-6	Installation and connection of Optical cables between Substations for SCADA system

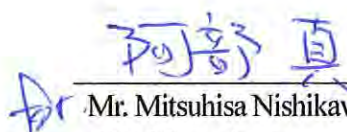
IL: Ilala Substation, UB: Ubungo Substation, TG: Tegeta Substation, MH: Muhimbili Substation, MW: Mwananyamala Substation, MS: Msasani Substation
T/L: Transmission Line, D/L: Distribution Line

TECHNICAL MEMORANDUM
FOR
THE THIRD PREPARATORY SURVEY
ON
THE PROJECT FOR REHABILITATION OF SUBSTATIONS AND
CONSTRUCTION OF NEW LINES AND SUBSTATIONS
IN DAR ES SALAAM
IN THE UNITED REPUBLIC OF TANZANIA

BETWEEN
TANZANIA ELECTRIC SUPPLY COMPANY LIMITED (TANESCO)
AND
JICA PREPARATORY SURVEY TEAM

Dar es Salaam,

October 19th, 2013



Mr. Mitsuhsa Nishikawa
Chief Consultant
JICA Preparatory Survey Team
Yachiyo Engineering Co., Ltd.



Eng. Mosha T. Izahaki
Manager Transmission Substations
Tanzania Electric Supply Company Ltd.

JICA PREPARATORY SURVEY TEAM
Yachiyo Engineering Co., Ltd.
West Japan Engineering Consultants, Inc.

List of Attendance

Ministry of Energy and Minerals (MEM)

Eng. Edson W. Ngabo	Energy Engineer
Eng. Joram Kengete	Energy Engineer

Tanzania Electric Supply Company Ltd. (TANESCO)

Eng. Mosha T. Izahaki	Manager Transmission Substations
Eng. Clara N. Simbila	Principal Engineer. Distribution Planning
Mr. David Mwakambonja	Land Surveyor
Eng. Richard Mhongole	Senior Engineer (HC)
Mr. Hamisi Boby	Ag. Manager Environment
Eng. Benedict V. Lyaruu	Ag. Senior Zonal Manager DSM & Coast
Eng. Mary Kabakuzi	Planning Engineer Ilala
Eng. A. H. Mmingwa	Ag. Regional Manager Ilala
Eng. Bakari Sekuninga	Planning Engineer Kinondoni North
Eng. Ramond Seya	Regional Manager Kinondoni North

JICA Preparatory Survey Team

Mr. Gaku Saito	Planning Management (Japan International Corporation Agency)
Mr. Mitsuhsa Nishikawa	Chief Consultant Power Development Planning (Yachiyo Engineering Co., Ltd.)
Mr. Makoto Abe	Deputy Chief Consultant/ Transmission and Distribution Facilities (Yachiyo Engineering Co., Ltd.)
Mr. Kenji Sakemura	Substation Facilities 1 (Ilala Substation) (West Japan Engineering Consultants, Inc.)
Mr. Shinya Kondo	Substation Facilities 2 (Other Substations) (West Japan Engineering Consultants, Inc.)
Mr. Mitsuharu Nakagawa	Construction and Procurement Planning / Cost Estimation (Yachiyo Engineering Co., Ltd.)
Mr. Kyohei Kurohane	Coordinator / Assistance for Distribution Facilities (Yachiyo Engineering Co., Ltd.)

Tanzania Electric Supply Company Ltd. (hereinafter referred to as "TANESCO") and JICA Preparatory Survey Team for the Project for Rehabilitation of Substations and Construction of New Lines and Substations in Dar es Salaam (hereinafter referred to as "the Team") had series of technical discussion to form a mutual understanding of Draft Final Report and Equipment Specifications of the Project at the stage of third preparatory survey. The following points are mainly discussed and agreed each other.

1. Fire Walls in Ilala substation

The Team submitted Engineering Sheet Ref. 500-3617-02-004 dated October 02, 2013, and explained that the fire wall between 60 MVA Transformers is not required in accordance with *JEAG-5002 (2001). The distance between the transformers will be more than 7m.
(*JEAG-5002 (2001): Japan Electric Association Guideline-5002 in 2001)

2. Construction procedure for Ilala Substation

The Team submitted revised "Construction Procedure for Ilala Substation", and explained the differences from previous procedure (May 2013). The main differences are that 132 kV temporary cables and cable heads are not be utilized at the time of construction.

The reasons are;-

- To minimize the Project cost as much as possible, and
- The 132 kV temporary cables and cable heads are no more use after the Project

The Team also explained that *shut down of all the feeders at the substation shall be required for several days at later stage of the construction period for extension of 132 kV bus bar and other 132 kV equipment installation. (*shut down; several hours in a day time)

3. Oil Spillage Facilities for Transformers

TANESCO explained the method of oil spillage facilities for main transformers (no gravels on steel mesh gratings) and the Team understood it. The details of the design will be considered at the implementation stage of the Project.

4. Re-setting Works of 132 kV Transmission Line Protection Relays in Ubungo substation

Due to the replacement of 132 kV CTs for Ilala feeders at Ubungo substation, existing 132 kV Transmission line protection relays at Ubungo substation should be re-set. In this connection, the Team confirmed that the re-setting work of the relays should be done by TANESCO, and TANESCO confirmed it.

5. Transportation route for Ilala Substation

TANESCO shall secure the leveled access road for Ilala substation to transport heavy and huge equipment.

6. Entry Permission for the construction of 132 kV Transmission Line

Necessary permission to enter the work space at Songas and Aggreko shall be obtained by TANESCO prior to commencement of Japanese Works.

7. Securing the land for storage yard

Storage yard for equipment and materials shall be secured by TANESCO. Proposed storage yards should be suggested by TANESCO to the Team. Both sides agreed to visit the proposed storage yards.

8. Location of 11kV end poles

TANESCO proposed the location of 11kV end poles at each substation. In all the substations related to the Project, equipment and materials between substation to end poles, such as 11kV cables, line switch, arresters, Poles except Ilala Substation etc. shall be procured by Japanese side. Installation works should be undertaken by TANESCO. However, connection works of 11kV end poles and substation facilities, test and inspection shall be undertaken by Japanese side.

9. Leveling the land for substation

The team explained that the land leveling works including rising and compaction works of the land at substations shall be undertaken by TANESCO.

TANESCO shall obtain soil, sand and gravels etc., if necessary, to secure the proper ground level for substation in order to avoid soaking with heavy rainfall. The consultant shall inform the necessary information of leveling the land to TANESCO.

10. RAP compensation for Mwananyamala Substation

TANESCO has already made compensation to people who are affected by the construction of Mwananyamala substation and the demolishing is completed.

11. Distribution line

TANESCO shall complete the necessary requirements with Municipality and payment for obtaining permission to use road reserve as soon as possible.

12. Attendance of factory test and inspection

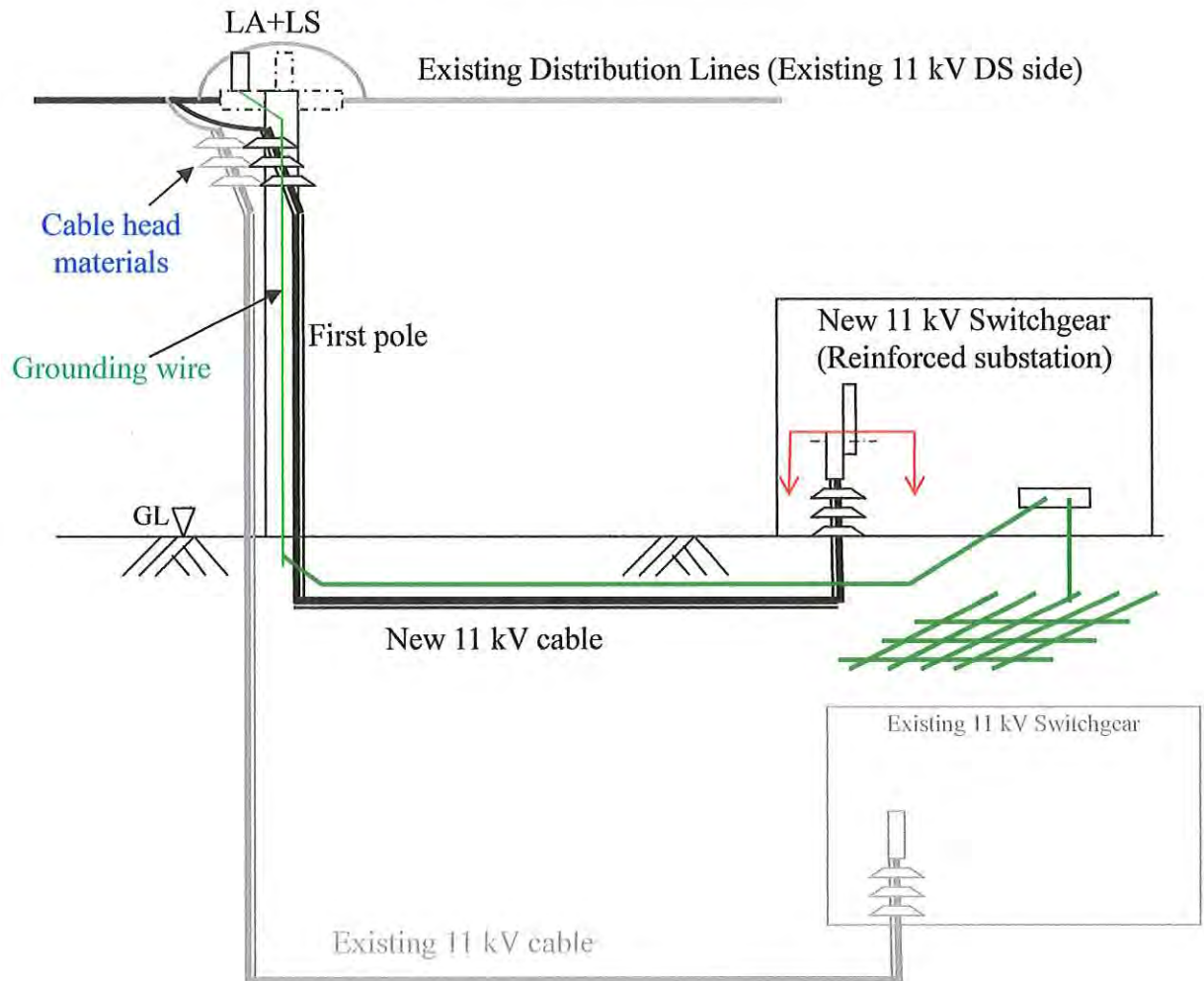
The factory test and inspection of equipment and materials procured under the Project shall be carried out by the Contractor at manufacturer's factories and attended by the Consultant on behalf of TANESCO. If TANESCO attends the factory test and inspection, TANESCO should bear all the costs for attending the factory test and inspection.

End

 Attachment: Detailed Work Demarcation regarding 11kV cables



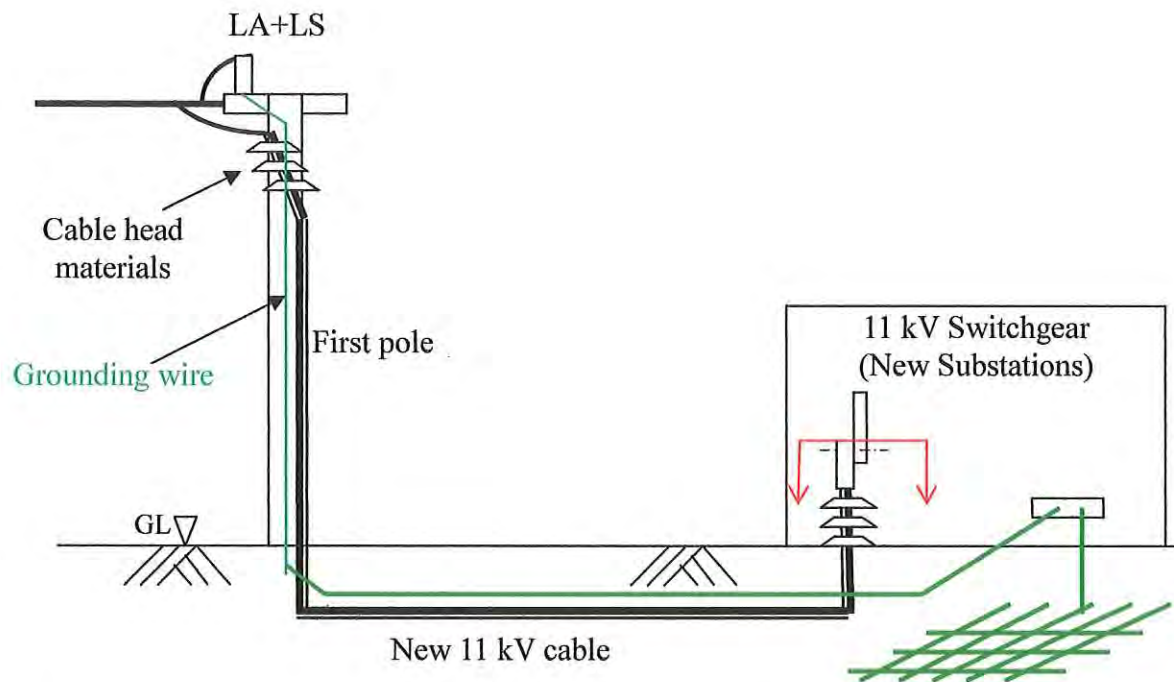
**Detailed Work Demarcation
for Installation of 11 kV Cables
(Ilala and Msasani Substation)**



Work Demarcation

	Work	Demarcation		Remarks
		Japan	Tanzania	
1	Disconnection and removal of the existing distribution lines		O	
2	Procurement of new cables ,Poles (except Ilala Substation) and Cable head materials	O		
3	Installation of new cables (underground)		O	
4	Connection of new cables with new cable head materials	O		
5	Unit testing of new cable (Insulation resistance test, dielectric strength test, phase rotation test, etc.)	O		

Detailed Work Demarcation
for Installation of 11 kV Cables
(Muhimbili, Mwananyamala and Jangwani Beach Substation)



Work Demarcation

	Work	Demarcation		Remarks
		Japan	Tanzania	
1	Procurement of new cables, Poles and new cable head materials	O		
2	Installation of new cables(underground)		O	
3	Connection of new cables with new cable head materials	O		
4	Unit testing of new cable (Insulation resistance test, dielectric strength test, phase rotation test, etc.)	O		

資料－6 参考資料／入手資料リスト

6. 参考資料/入手資料リスト

調査名：タンザニア国ダルエスサラーム送配電網強化計画準備調査（その2）

番号	名 称	形態 文書・ビデオ・ 地図・写真等	オリジナル・コピー	発 行 機 関	発 行 元
1	POWER SYSTEM MASTER PLAN 2012 UPDATE	文書	コピー	Ministry of Energy and Minerals	Oct. 2012
2	THE PROJECT ON IMPROVING THE RELIABILITY OF ELECTRIC POWER SUPPLY IN THE CITY OF DAR ES SALAAM	文書	コピー	Ministry for Foreign Affairs of Finland	Mar. 2012
3	The breakdown of Finland Project Cost	文書	コピー	Ministry for Foreign Affairs of Finland	Mar. 2012
4	Meteorological Data	文書	コピー	Tanzania Meteorological Agency	
5	CONTRACTORS' OCCUPATIONAL HEALTH AND SAFETY GUIDELINES	Word file	オリジナル	TANESCO	Mar. 2011
6	HEALTH AND SAFETY POLICY	PDF	オリジナル	TANESCO	Jul. 2008
7	Financial Statement 2006	文書	コピー	TANESCO	Dec. 2006
8	Financial Statement 2007	文書	コピー	TANESCO	Dec. 2007
9	Financial Statement 2008	文書	コピー	TANESCO	Dec. 2008
10	Financial Statement 2009	文書	コピー	TANESCO	Dec. 2009
11	Financial Statement 2010	文書	コピー	TANESCO	Dec. 2010
12	Annual Report 2007	文書	コピー	TANESCO	2007
13	Annual Report 2008	文書	コピー	TANESCO	2008
14	Annual Report 2009	文書	コピー	TANESCO	2009

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番号	名 称	形態 文書・ビデオ・ 地図・写真等	オリジナル・コピー	発 行 機 関	発 行 元
15	Annual Report 2010	文書	コピー	TANESCO	2010
16	Annual Report 2011	文書	コピー	TANESCO	2011
17	Monthly Report 2008	文書	コピー	TANESCO	2008
18	Monthly Report 2009	文書	コピー	TANESCO	2009
19	Monthly Report 2010	文書	コピー	TANESCO	2010
20	Monthly Report 2011	文書	コピー	TANESCO	2011
21	Monthly Report 2012	文書	コピー	TANESCO	2012
22	Monthly Report 2013	文書	コピー	TANESCO	2013
23	Mothly Demand From Tegeta SS 2012	文書	コピー	TANESCO	2012
24	TZS 932:2007 Acoustics – General tolerance limits for environmental noise (Tanzania Standard)	文書	オリジナル	Tanzania Bureau of Standards	2007
25	Purchase of two developed plots for Construction of 33/11kV, 15MVA substation at Muwananyamala funded by the Government of Japan through JICA (official letter by TANESCO)	文書	コピー	Regional Manager, Kinondoni North, TANESCO	August 2012
26	Kuondoa barua ya tayehe 09/07/2012 Kama Iliyosomeka Ikubalike Barua ya 18/06/2012 Inayohusu Kiwanja No.77 Kitalu “2” Mwananyamala (letter on land selling cost by the land owner of Mwananyamala Plot Not.77)	文書	コピー	Fikirini Bashiri Shanani Farihallah	August 2012

6. 参考資料/入手資料リスト

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番号	名 称	形態 文書・ビデオ・ 地図・写真等	オリジナル・コピー	発 行 機 関	発 行 元
27	Majibu ya Ombi la kiwanja No.77 Kitau No.2 Mwananyamala (Agreement letter on land selling by the land owner of Mwananyamala Plot Not.77)	文書	コピー	Fikirini Bashiri Shanani Farihallah	June 2012
28	Ombi la Kuuziwa kiwanja No.77 Kitau No.2 Mwananyamala kwa ajili ya kujenga kituo cha kupoozea Umeme wa Msongo wa 33/11kV (Request letter from TANESCO to the land owner of Mwananyamala Plot Not.77)	文書	コピー	Regional Manager, Kinondoni North, TANESCO	June 2012
29	Offer of a Right of Occupancy (Mwananyamala Plot No.77)	文書	コピー	Office of the Regional Land Office Agent, Dar es Salaam	April 1965
30	Conditions of the Right of Occupancy (Mwananyamala Plot No.77)	文書	コピー	Office of the Regional Land Office Agent, Dar es Salaam	April 1965
31	Kuondoa barua ya tayehe 06/7/2012 Kama Iliyosomeka Ikubalike Barua ya 15/6/2012 Inayohusu Kiwanja No.76 Kitau “2” Mwananyamala (letter on land selling cost by the land owner of Mwananyamala Plot Not.76)	文書	コピー	Safia Thomas	August 2012
32	Kiwanja No.76 Kitau 2 Mwananyamala (Agreement letter on land selling by the land owner of Mwananyamala Plot Not.76)	文書	コピー	Safia Thomas	June 2012
33	Majibu ya Ombi la kiwanja No.76 Kitau Na.2 Mwananyamala kwa ajili ya kujenga kituo cha kupoozea Umeme wa Msongo wa 33/11kV (Request letter from TANESCO to the land owner of Mwananyamala Plot Not.76)	文書	コピー	Regional Manager, Kinondoni North, TANESCO	June 2012
34	Jamhuri ya Muungano Wa Tanzania Usimamizi wa Mirathi (Court letter on care taker of Mwananyamala Plot No.76)	文書	コピー	Primary Court, Kinondoni, Dar es Salaam	July 2012

6. 参考資料/入手資料リスト

調査名：タンザニア国ダルエスサラーム送配電網強化計画準備調査（その2）

番号	名 称	形態 文書・ビデオ・ 地図・写真等	オリジナル・コピー	発 行 機 関	発 行 元
35	Offer of a Right of Occupancy (Mwananyamala Plot No.76)	文書	コピー	Office of the Regional Land Office Agent, Dar es Salaam	April 1965
36	Conditions of the Right of Occupancy (Mwananyamala Plot No.76)	文書	コピー	Office of the Regional Land Office Agent, Dar es Salaam	April 1965
37	Hati Ya Fidia (Certification of Compensation/Valuation report)	文書	コピー	Government Chief Valuer, Kinondoni Municipality	January 2013
38	New TANESCO ORGANISATION STRUCYURE	文書	コピー	TANESCO	
39	TANESCO ZONES DEMACATIONS	文書	コピー	TANESCO	
40	Tariffs of TANESCO 2013	文書	コピー	TANESCO	2013
41	THE TRAFFIC ACT 1973 (NO.30 OF 1973) REGULATIONS	図書	コピー	TANROAD	February 2001

資料－７ ドナー間の合同調整会議に係る資料

7. ドナー間の合同調整会議に係る資料



TANSECO-33/11 kV DISTRIBUTION NETWORK REINFORCEMENT PROJECTS

Coordination Meeting among the stake holders of Distribution Projects

Venue: Twiga Meeting Room

Date & Time : 12.03.2013 / 10:00 hrs

AGENDA

1. Welcome
2. Introduction of participants
3. Reasons to call the meeting and the expected output
4. Briefing (by each project owner) about the
 - stake holders,
 - capital investment,
 - estimated project completion time, and
 - scope of each project
5. Identification of interface points for the projects on hand
6. Support /coordination required from the relevant parties for interface points
7. Action plan(s) for the interface points, as and where required
8. Other issues
9. Next coordination meeting
10. meeting closing statements

7. ドナー間の合同調整会議に係る資料

Tentative Implementation Schedule among Donors' Projects Related to the Power System in Dar es Salaam

Projects Initiated / financed by:		Year / Month / Condition	2013												2014												2015												Remarks
			9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12									
USA Finland	Improving the Reliability of Electric Power Supply in the city of Dera Isikero	Contract is effective on 22/02/2013	Construction / Installation / Commissioning																																				Contract Period: 24 months from the effective date
AFDB	Construction and Installation of Substations in Arakawa and Zaka and Sakumabagone in Togo (the priority V Project Package 2)	Contract will be effective on 14/03/2013	Construction / Installation / Commissioning																																				Contract Period: 20 months from the effective date
WFP/TEDAP	TEDAP Transmission and Distribution Project (A. Transmission Component)	Contract is effective on 04/07/2012	Construction / Installation / Commissioning																																				Contract Period: 18 months from the effective date
WFP/TEDAP	TEDAP Transmission and Distribution Project (B. Distribution Component)	Contract is effective on 04/07/2012	Construction / Installation / Commissioning																																				Contract Period: 18 months from the effective date
ICSP	Project for Installation of Substations and Construction of New Transmission Lines in Dera Isikero	Under Study	Site Survey / Analysis in place / Site location / Construction / Draft Final Report / Final												Supply / Contract / Preparation of Stock / Construction / Installation / Commissioning																								Assumption in case of smooth implementation

We are now here

Remainder ICA's Scope of the Work and Schedule are subject to change

Projects included/financed by:

- Green Colour → JICA
- Blue Colour → AFD
- Red Colour → JICA
- Black Colour → Existing Facilities

Work Demarcation among donors' projects related to the Power System in Dar es Salaam

7. ドナー間の合同調整会議に係る資料

DCC-RTU

No.	Name	Voltage	Region	DCC RTU
1	Bahari Beach	33/11 kV	Kinondoni North	New 33/11 kV RTU
2	Changombe	33/11 kV	Temeke	New 33/11 kV RTU
3	City Centre	33/11 kV	Ilala	New 33/11 kV RTU
4	Factory Zone I	33/11 kV	Temeke	New 33/11 kV RTU
5	Factory Zone II	33/11 kV	Ilala	New 33/11 kV RTU
6	Factory Zone III	132/33 kV	Ilala	New 33/11 kV RTU
7	Ilala	132/33 kV	Ilala	New 33/11 kV RTU
8	Kariakou	33/11 kV	Ilala	New 33/11 kV RTU
9	Kigamboni	33/11 kV	Temeke	New 33/11 kV RTU
10	Kusini	33/11 kV	Temeke	New 33/11 kV RTU
11	Makumbusho	132/33 kV	Kinondoni North	New 33/11 kV RTU
12	Magomeni	33/11 kV	Kinondoni South	New 33/11 kV RTU
13	Mbagala	33/11 kV	Temeke	New 33/11 kV RTU
14	Mbezi	33/11 kV	Kinondoni North	New 33/11 kV RTU
15	Mikocheni	33/11 kV	Kinondoni North	New 33/11 kV RTU
16	Masani	33/11 kV	Kinondoni North	New 33/11 kV RTU
17	New City Centre	132/33/11 kV	Ilala	New SCS
18	Oysterbay	33/11 kV	Kinondoni North	New 33/11 kV RTU
19	Railway	33/11 kV	Ilala	New 33/11 kV RTU
20	Sabina	33/11 kV	Ilala	New 33/11 kV RTU
21	Tandale	33/11 kV	Kinondoni South	New 33/11 kV RTU
22	Tandika	33/11 kV	Temeke	New 33/11 kV RTU
23	Tegeta	132/33 kV	Kinondoni North	New 33/11 kV RTU
24	TOL	33/11 kV	Temeke	New 33/11 kV RTU
25	Ubungo ¹	220/132/33 kV	Kinondoni South	New 33 kV RTU
26	Ubungo ²	132/33 kV	Kinondoni South	New 33/11 kV RTU
27	University	33/11 kV	Kinondoni South	New 33/11 kV RTU
28	DCC Building		Kinondoni North	New Local Terminal Unit

Co-ordinati

TEDAP Lot 2

TEDAP Lot 1

TEDAP Lot 1

TEDAP Lot 1

TEDAP Lot 2

TEDAP Lot 2

TEDAP Lot 2

TEDAP Lot 1

TEDAP Lot 1

Electricity V

TEDAP Lot 2

7. ドナー間の合同調整会議に係る資料



Meeting Notes

Dar Es Salaam, 12.03.2013

Projects: Transmission & Distribution Network Reinforcement Projects in Dar Es Salaam, financed by various Donors

Place, Date: TANESCO Head Office - Twiga Meeting Room , 12th March 2013

Participants: See List of Participants

Topic(s): Coordination Meeting among the Stake Holders of the Projects

Copies to: TANESCO (Projects Dept. and Regions), HIFAB, YEC, SWECO and FICHTNER.

Item	Topics	Action by	Date
	Introduction The meeting was called by TANESCO to discuss about the attached “Agenda” items and was chaired by Mr. E. Manirabona – Manager Projects (T&D), while the moderation was carried out by Mr. A. Zafer Ozgur of FICHTNER. After an opening speech and welcoming, the chairman outlined the purpose of the meeting. And the discussions were summarized as per below headlines.	Info	
1.	Purpose of the Meeting and the Expected Output There have been a number of ‘planning/site’ activities by donors, Consultants and Contractors for various Projects in order to improve the power transmission and distribution capacity/ reliability/availability/quality in Dar Es Salaam, as shown in the attached “Tentative Implementation Schedule among Donors’ Projects”. Although these projects are independent of each other, there exist interfaces -as shown in the attached Single Line Diagram titled “Work Demarcation among Donors’	Info Info	

7. ドナー間の合同調整会議に係る資料



Coordination Meeting among the Stake Holders of the Projects, 12.03.2013

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	Projects"- for which information exchange and coordination are required among the afore mentioned Stake holders. As to enable the required coordination for the forthcoming planning, engineering and construction activities of each Project with the other ones, utilization of a communication platform was thought to be highly beneficial for all the stake holders. Therefore, the current coordination meeting was called by the Projects (T&D) Dept. of TANESCO. As also expressed by the participants, the outcome of the this meeting have already initiated the first step to coordinate a number of issues among the stake holders, thus confirming the achievement of the expected output.	Info Info	
2.	Project Information by the Stake Holders The relevant Consultants provided the following information highlights: a) TEDAP Transmission Project, financed by World Bank a.1) Consultant is Fichtner GmbH & Co. KG, Germany a.2) Contractor is JV SAE Power Lines srl of Italy and Associated Transrail Structures Ltd of India a.3) Current project completion rate is about 60% a.2) Project has three lots for which. - Lot 1 covers 132 kV Ubungo, FZ III, FZ II, Mbagala and Kurasini substations in Dar Es Salaam - Lot 2 covers 132 kV Transmission Lines in four sections forming the Southern ring in Dar Es Salaam - Lot 3b covers 132 kV KIA substation in Kilimanjaro a.3) Overall project completion is expected as end of 2014 with earlier completion of some substations and T/L sections starting in June 2013.	Info	

7. ドナー間の合同調整会議に係る資料



a.4) The overall capital investment (which includes the cost for the supply part of the project + installation costs + consultancy costs + the cost of the purchased land or right of way for use of land + other cost by the Employer for the project development & implementation) is estimated 80 M USD. b) TEDAP Distribution Project, financed by World Bank b.1) Consultant is Fichtner GmbH & Co. KG, Germany b.2) Contractors and Project scopes are: - Lot 1, Dar Es Salaam: SINOTEC, China 33/11 kV New Substations: City Center, Oyster bay, FZ I, FZ II, Mburahati & Mikocheni - Lot 2, Dar Es Salaam: NCC, Saudi Arabia 33/11 kV Rehab. Substations: Kariako, Kurasini, Mbagala, Changombe & Ubungo - Lot 3, Arusha & Kilimanjaro: CONCO, South Africa 33/11 kV New Substations: Sakina, Njiro B, Mount Meru, Unga, Kiltex, Theme, Trade School & Bomambuzi - Lot 4, Dar Es Salaam, Arusha and Kilimanjaro: NCC, Saudi Arabia Single/double/triple circuit 33/11 kV OHLs & cables b.3) Projects have not yet kicked off. Consultant is in the process of site assessment which is expected to be finished by the end of April 2013. b.4) Overall project completion is 21 months for each lot b.5) The overall capital investment (which includes the cost for the supply part of the project + installation costs + consultancy costs + the cost of the purchased land or right of way for use of land + other cost by the Employer for the project development & implementation) is estimated 70 M USD.	Info	
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7. ドナー間の合同調整会議に係る資料



Coordination Meeting among the Stake Holders of the Projects, 12.03.2013

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c) Project for Rehabilitation of Substations and Construction of New Lines and Substations in Dar Es Salaam, financed by JICA - Japan c.1) Consultant is Yachiyo Engineering Co. Ltd., Japan c.2) Project is currently under study phase which covers the following sequential steps, till early 2014: - Site Survey - Analysis in Japan - Basic Design - Cost Estimation - Draft Final Report - Final Report Upon approval of the study and release of the grant, the next phase of the Project will kick off for the implementation in mid-2014 and will be completed by the end of 2015. c.3) Project scope covers engineering, supply, installation, testing and commissioning for the following: c.3.1) second circuit on the existing 132 kV Ubungo-Ilala transmission line c.3.2) 132/33 kV Ilala Substation - upgrading/extension for, - 2 x 132 kV transformer bays - 2 x 132/33 kV 60 MVA power transformers - 33 kV metal clad switchgear as shown in the attached Single Line Diagram c.3.3) 33/11 kV new substations with 1x15 MVA power transformer in each for, - Muhimbili S/S - Mwananyamala S/S - Jangwani Beach S/S c.3.4) 33/11 kV Msasani substation extension - 33 kV switchgear extension - 1 x 33/11 kV 15 MVA power transformer c.3.5) 132/33 kV Makambusho substation - 33 kV switchgear extension	Info	
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7. ドナー間の合同調整会議に係る資料



Coordination Meeting among the Stake Holders of the Projects, 12.03.2013

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c.3.6) 33 kV OHL's and/or 33 kV underground cables for, - Ilala S/S – Muhimbili S/S line - Muhimbili S/S - New City Center S/S line - Makambusho S/S – Msasani S/S line - Makambusho S/S – Mwananyamala S/S line - Tegeta S/S – Jangwani Beach S/S line c.4) Capital Investment is not known due to the current status of the Project, however the initial grant request of TANESCO was about 10 M USD which would definitely be insufficient for the aforementioned scope. d) Improving the Reliability of Electric Power Supply in the City of Dar Es Salaam, financed by MFA Finland d.1) Consultant is HIFAB, Finland d.2) Contractor is ELTEL Networks TE AB, Sweden d.3) Project scope covers engineering, supply, installation, testing and commissioning for the following: d.3.1) SCADA System for 28 no's of 33/11 kV Distribution Substations, as shown in the attached List. Area Control Center (ACC) for the SCADA System of Distribution Network shall be constructed in Kinondoni North. d.3.2) Network Development (132/33 kV GIS Substation, 132 kV bay, 33/11 kV Substations, 132 kV underground cables, 33 kV OHL's/cables, etc, by Contractor) d.3.2.1) 132/33 kV New City Center GIS Substation - 2 x 132 kV transformer bays - 2 x 132/33 kV 50 MVA power transformers - 33 kV metal clad switchgear d.3.2.2) 132 kV feeder at Ilala S/S and 132 kV underground cable on Ilala S/S - New City Center S/S route. d.3.2.3) 132 kV feeder at Makambusho S/S and 132 kV	Info	
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7. ドナー間の合同調整会議に係る資料



Coordination Meeting among the Stake Holders of the Projects, 12.03.2013

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underground cable on Makambusho S/S - New City Center S/S route. d.3.2.4) upgrading/extension of 33/11 kV substations - 33/11 kV 15 MVA power trafo at Kariakoo S/S - 33 kV Metal clad switchgear at Railway S/S d.3.2.5) 33 kV OHL's and/or 33 kV underground cables for, - New City Center S/S – Kariakoo S/S line - Railway S/S – Sokoine S/S line - New City Center S/S – City Center S/S line - New City Center S/S – Sokoine S/S 3x lines with one line having four RMU's d.4) Project effective date is 22.02.2013 d.5) Overall project completion is 24 months and currently route and site surveys are in progress. d.6) The Contract value for ELTEL is 21.8 M Euro under finance by MFA- Finland. TANESCO financed portion in the investment is 1.5 M USD (it is higher as per TANESCO representatives). e) Construction and Rehabilitation of Substations in Arusha and Dar Es Salaam Regions in Tanzania (Electricity V Project Package III), financed by African Development Bank e.1) Consultant is SWECO, Sweden Note: As the consultant was not present in the meeting, the following information is copied from the available documentation: e.2) Project effective date is 12.03.2013 and implementation period is 20 months from the effective date. e.3) Project scope covers engineering, supply, installation, testing and commissioning for the following: Upgrading/extension of 33/11 kV substations	Info	
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7. ドナー間の合同調整会議に係る資料



Coordination Meeting among the Stake Holders of the Projects, 12.03.2013

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	- 33/11 kV 15 MVA power transformer at Ilala S/S - 33 kV Metal clad switchgear at Sokoine S/S - 33/11 kV 15 MVA power transformer at Sokoine S/S		
3.	TANESCO Regional Representation to assist the Transmission & Distribution Projects in Dar Es Salaam TANESCO regional managers have expressed their interest and support for the aforementioned Projects. And consequently, they have provided the following names & contact details of their Planning Engineers whom they have assigned as TANESCO regional representatives to assist/to support the Consultants and the Contractors, as and where required; - Ilala region: Ms. Mary Kabakuzi, 0715 73 09 03 - Temeke region: Ms. Cecilia Msangi, 0713 43 22 67 - Kinondoni South region: Ms. Anita Marco, 0715 39 10 48 - Kinondoni North region: As regional manager was not present in the meeting, the representative shall be named later on	TANESCO TANESCO	
4.	Currently Identified Interface Points between the Projects a) WB/TEDAP and MFA Finland There are 11 no's of MV substations under WB/TEDAP to be connected to the SCADA system which consists of 28 no's substations in total. The scope under MFA Finland covers the supply of RTU's and their connection/communication to the Area Control Center. Therefore, the a.m. 11 no's of substations should have the required set up for SCADA connections. Parties shall have a separate meeting for coordination. b) MFA Finland and JICA Japan	HIFAB/ FICHTNER /TANESCO	

7. ドナー間の合同調整会議に係る資料



Coordination Meeting among the Stake Holders of the Projects, 12.03.2013

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	b.1) 15 MVA Transformer shall be supplied as spare to TANESCO, if budget limits are not exceeded. b.2) SCADA preparation for Substations to be financed by JICA – Japan, shall be upto and including the RTU. c) WB/TEDAP and MFA Finland and JICA Japan Use of common cable routes/trenches for “Ilala – Kariakoo” + “Ilala - New City Center” and “Makambusho-Oyster Bay” + Makambusho – Msasani” + “New City Center – Makambusho”, etc. shall be checked at sites for optimization and shall be considered as much as the time schedules of each Project and the cable de-ratings permit.	HIFAB YEC All Parties	
5.	Requirements and Actions by the Stake Holders a) Status for 132 kV line bays in Ubungo S/S & Ilala S/S Although TANESCO has previously stated otherwise, the availability of fully furnished 132 kV line bays with the required protection, metering and controls shall be checked at project sites. And accordingly, the missing items, if any shall be included in the scope of the relevant Project as part of the installation of the second 132 circuit between these two substations. b) 33 kV Lines to new Muhimbili S/S from Ilala S/S and from New City Center Substations The attached Single Line Diagram shows that Muhimbili S/S shall be supplied by 33 kV OHL's from Ilala S/S or New City Center S/S. As the area is a highly densed commercial & residential location, the use of 33 kV underground cables was recommended. c) 33 kV Busbar Load at Ilala S/S and Selection of supply source to Muhimbili S/S It is assumed that the 33 kV busbar at Ilala S/S shall be heavily loaded. Therefore, prior to checking the possibility of supplying Muhimbili S/S from the New City Center Substation, load calculations and forecast shall be made for	YEC YEC YEC	

7. ドナー間の合同調整会議に係る資料



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	the 33 kV busbar at Ilala Substation. In this regards, the current load data for the area around the Ilala S/S and the expected load increase during the next ten years shall be made available to Yachiyo Engineering Co. YEC shall make the load calculations/forecast at 33 kV busbar of Ilala S/S to see if spare load capacity is available. d) Communication Interfaces/Protocols for SCADA System The required preparations under each Project for SCADA System and the Communication Interfaces /Protocols shall be discussed separately during which the representatives from the relevant business unit of TANESCO will be present. e) Site Survey Meeting In order to familiarize with the site conditions at locations where common cable routes/trenches are expected, a site meeting is planned to start in Ilala substation at 10:00 AM.	TANESCO Ilala Region YEC All Parties All Parties	March end, 2013 April end, 2013 19.03.2013
6.	Next Meeting Next meeting is planned tentatively for 13.05.2013 at 10:00 hrs. The Venue shall be separately informed.	All Parties	

Attachments: - List of Participants

- Agenda
- Tentative Implementation Schedule among Donors' Projects
- Work Demarcation among Donors'
- List of SCADA System for 28 no's of 33/11 kV Distribution Substations