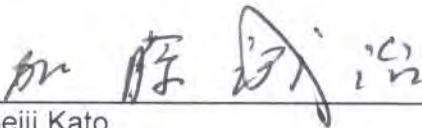


**MINUTES OF MEETINGS
FOR
THE PROJECT FOR POWER DEVELOPMENT MASTER PLAN
IN
ANGOLA
AGREED UPON BETWEEN
MINISTRY OF ENERGY AND WATER
AND
JAPAN INTERNATIONAL COOPERATION AGENCY**

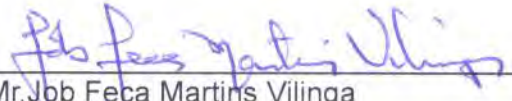
The Japan International Cooperation Agency Mission Team (hereinafter referred to as "JICA Mission Team") was dispatched to Angola from 4rd to 8th July 2016 and had discussions with Ministry of Energy and Water (hereinafter referred to as "MINEA") and other related authorities (hereinafter referred to as "the Angola side") on the Project for Power Development Master Plan in Angola.

As the result of the series of discussions, both JICA Mission Team and MINEA hereby officially confirmed main points discussed as described in Annex.

August 22, 2016
Luanda, Angola



Mr. Seiji Kato
Chief Representative
Japan International Cooperation Agency
(JICA) in Angola



Mr. Job Feca Martins Vilinga
Director,
National Directorate of Electric Energy,
Ministry of Energy and Water
The Republic of Angola

Main Points Discussed

1 Draft of Record of Discussions

As a result of the discussions, both sides agreed on the draft of Record of Discussions (hereinafter referred to as "R/D") shown in ATTACHMENT. After the final approval of JICA headquarters and MINEA, both sides will prepare the final R/D, and sign and exchange it before the commencement of the Project.

2 Coverage of the Master Plan Study

Both sides agreed that the Master Plan Study should cover the period from 2018 to 2040 according to the request from the Angola side and in order to properly match the power development planning cycle in Angola.

3 Capacity development

Both sides confirmed the needs and importance of capacity development in generation, transmission and distribution. Both sides agreed that the forthcoming master plan cooperation should include identification of such capacity development needs of the Angola side and JICA side expressed its willingness to consider the implementation of capacity development program based on the identified needs.

4 Strategic Environmental Assessment (SEA)

Both sides agreed that a Strategic Environmental Assessment (SEA) study should be an integral part of the Master Plan. MINEA agreed to make arrangements to acquire necessary data and information for the purpose of environmental and social considerations of the Master Plan.

5 Joint Coordinating Committee

Both sides confirmed that MINEA will set up a Joint Coordinating Committee of the Project which shall be composed of representatives from related organizations as Annex 2 of the draft R/D in order to ensure inter-organizational coordination. The Angola side assured that they will undertake such arrangement.

6 Disclosure of Final Report

The Team explained that the final report of the Project will be disclosed to the public upon confirmation by the Angola side. The Angola side acknowledged it.

ATTACHMENT: Draft Record of Discussions (R/D)

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[DRAFT]

RECORD OF DISCUSSIONS
ON
THE PROJECT FOR POWER DEVELOPMENT MASTER PLAN
IN
THE REPUBLIC OF ANGOLA
AGREED UPON BETWEEN
MINISTRY OF ENERGY AND WATER
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

[Luanda], [date]

Mr. Hiroyuki Kinomoto
Chief Representative,
JICA South Africa Office

Mr. Job Feca Martins Vilinga
Director,
National Directorate of Electric
Energy,
Ministry of Energy and Water
The Republic of Angola

Handwritten signatures in blue ink, including a stylized signature and a circled number '3'.

Based on the Minutes of Meetings for the Project for Power Development Master Plan (hereinafter referred to as "the Project") signed on 8th July 2016 between the Ministry of Energy and Water (hereinafter referred to as "MINEA") and the Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA held a series of discussions with MINEA and relevant organizations such as National Electricity Transportation Company (hereinafter referred to as "RNT"), Public Electricity Production Company (hereinafter referred to as "PRODEL"), National Electricity Distribution Company (hereinafter referred to as "ENDE") and Instituto Regulador dos Serviços de Electricidade e Água (hereinafter referred to as "IRSEA") (hereinafter referred to as "the Angola side") to develop a detailed plan of the Project.

Both sides agreed to the project description and the main points discussed as described in the Appendix 1 and the Appendix 2 respectively.

Both sides also agreed that MINEA, RNT, PRODEL, ENDE and IRSEA, the counterpart organizations to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of the Republic of Angola (hereinafter referred to as "Angola"). MINEA is the lead organization of the Angola side.

The Project will be implemented within the framework of the Note Verbales to be exchanged between the Government of Japan (hereinafter referred to as "GOJ") and Government of Angola (hereinafter referred to as "GOA")

Appendix 1: Project Description

Appendix 2: Main Points Discussed

Appendix 3: Minutes of Meetings for the Project for Power Development Master Plan



PROJECT DESCRIPTION

I. BACKGROUND

In Angola, the demand for power has been constantly increased and frequent power outages have been experienced due to such demand increase. Power infrastructure renovation is rapidly being preceded under national development plan 2013-2017 since dawning of peace. However, there exist several issues such as low tariff setting which is insufficient to cover generation cost, vulnerability of hydropower generation against climatic change, low electrification rate (30%), and high transmission and distribution loss.

MINEA has the responsibility to develop an efficient, economical, and coordinated electricity supply plan in order to meet the national electricity demand. However, MINEA has not experienced to formulate comprehensive master plan which includes proper demand forecast and long term marginal cost analysis. Overcoming the above-mentioned issue is vital for efficient and sustainable Angola power sector development, utilizing the Japanese experience, knowledge and technology.

Based on the aforementioned background, GOA has requested GOJ implementation of the Project for Power Development Master Plan in the Republic of Angola.

II. OUTLINE OF THE PROJECT

1. Title of the Project

The Project for Power Development Master Plan

2. Expected Goals which will be attained after implementing the Proposed Plan
To develop a comprehensive master plan targeting the year 2040 for the power generation and transmission development for the whole country

3. Outputs

A comprehensive master plan which includes:

- (1) Demand Forecast;
- (2) Generation Development Plan and Transmission Development Plan;
- (3) Strategic Environmental Assessment Report; and,
- (4) Power Sector Investment Plans

4. Activities

The Project will carry out the following 11(eleven) tasks jointly by the Angola side and members of the JICA missions.

Task 1: Review of the current situation in the power sector

- i. Review the current situation in the power sector (policy and strategy, legal and regulatory framework, government structure and national development plans)

- ii. Review the recent power sector development
- iii. Review the current power demand and supply
- iv. Review cooperation by development partners, investment by private sector partners

Task 2: Power demand forecast

- i. Formulate the power demand forecast toward the year 2040 with sensitivity analysis, including the followings
 - a. demand forecast at the national (and regional level if data available)
 - b. sector-wise forecast and impacts by major development projects/plans
 - c. examine the daily load curves and load profiles

Task 3: Analysis on primary energy sources for generation development

- i. Analyze the potential of primary energy sources in Angola such as hydro, renewable, natural gas and oil
- ii. Assess the availability of the primary energy sources for generation development

Task 4: Formulation of generation development plan

- i. Analyze the current generation facilities
- ii. Analyze the existing power development projects
- iii. Formulate a long-term optimal generation development plan toward the year 2040 with sensitivity analysis
 - a. Analyze the generation planning data base including technical and cost data
 - b. Prepare several development scenarios such as base case, high demand case, etc.
 - c. Conduct sensitivity analysis
 - d. Estimate the amount of the GHG (Green House Gas) emission for respective development scenarios

Task 5: Formulation of transmission system development plan

- i. Analyze the current facilities
- ii. Analyze the latest system development strategies and plans prepared by MINEA including the existing system model validation
 - a. Analyze the existing development strategies and projects
 - b. Analyze the updated cost and technical data for existing facilities
 - c. Analyze the transmission interconnection corridors with neighboring countries in particular the North South to link to DRC and Namibia, and the Eastwards link to Zambia
- iii. Conduct power flow analysis
- iv. Examine appropriate software for power system analysis
- v. Examine the reduction of transmission loss
- vi. Formulate transmission development plan toward the year 2040

Task 6: Review Framework and Implementation of Private Investment

- i. Review the policy/strategy, legal and regulatory framework, procedure of

- private investment in power sector
- ii. Review current situation of private investment, and identify bottlenecks.

Task 7: Formulation of long-term investment plan

- i. Undertake economic and financial analysis of the implementation of the proposed development plan
- ii. Review and update the existing invest plan to the year 2025,
- iii. And formulate long-term investment plan to the year 2040, at appropriate intermedial intervals, integrating generation development plan and transmission development plan

Task 8: Economic and Financial analysis

- i. Analyze the financial aspects of RNT, PRODEL and ENDE, including the present tariff level and cost structure and borrowing capacity of RNT, PRODEL and ENDE
- ii. Formulate financial strategies
- iii. Analysis on the financial sustainability of RNT, PRODEL and ENDE
- iv. Recommend an optimal financial strategy

Task 9: Environmental and social considerations

- i. Analyze the legal and regulatory frameworks for the environmental and social considerations
- ii. Identify the potential impacts associated with environmental and social issues in the updated plan, and propose the possible mitigation measures (Strategic Environmental Assessment)

Task 10: Drafting the Master Plan

- i. Draft a comprehensive master plan toward the year 2040 integrating the above analysis
- ii. Examine the action plans of MINEA, RNT, PRODEL, ENDE and IRSEA in the power sector development

Task 11: Capacity Building for MINEA, RNT, PRODEL, and ENDE

- i. Conduct technical transfer in Angola using opportunities of workshop and on the job training
- ii. Conduct relevant training in Japan

5. Input

(1) Input by JICA

JICA will send members of the JICA missions for the implementation of the Project. Members of the JICA missions may cover the following fields of expertise.

- Leader/Power Development Plan
- Primary Energy analysis
- Demand forecast
- Generation Development Plan
- Transmission Development Plan
- Economic and Financial Analysis
- Environmental and Social Considerations



(2) Input by the Angola side

To facilitate the activities by members of the JICA missions, the Angola side will take necessary measures to provide followings at its own expense:

- (a) Services of the Angola side staffs related to the Project;
- (b) Suitable office space with necessary equipment including desks, chairs, whiteboards, internet access, telephone line connections;
- (c) Information as well as support in obtaining medical service;
- (d) Credentials or identification cards;
- (e) Available data (including maps and photographs) and information;
- (f) Running expenses necessary for the implementation of the Project

(3) Mutual consultation

Input other than indicated above will be determined through mutual consultations between JICA and the Angola side during the implementation of the Project, as necessary

6. Implementation Structure

The project organization chart is given in the Annex 1. The roles and assignments of relevant organizations are as follows:

(1) The Angola side

- (a) Director of National Directorate of Electric Energy (hereinafter referred to as "DNEE"), which is part of MINEA, will be responsible for overall administration and implementation of the Project as the Project Director
- (b) Director of DNEE will be responsible for implementation and coordination between members of the JICA missions and the Angola side as the Chief Project Manager
- (c) Representative of RNT, PRODEL, ENDE and IRSEA will be responsible for implementation and coordination between members of the JICA missions and the Angola side as the Project Manager
- (d) Main contact point by members of the JICA missions will be Director of DNEE

(2) Members of the JICA missions

Members of the JICA missions will give necessary technical guidance, advice and recommendations to the Angola side on any matters pertaining to the implementation of the Project

(3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held three times, e.g. at the beginning, middle, and towards the end of the Project, and whenever it deems necessary in order to properly exchange information, to make necessary decision and authorization. A list of proposed members of JCC is shown in the Annex 2.

7. Project Site(s) and Beneficiaries

Project Site: Whole area of Angola

Beneficiaries: MINEA, RNT, PRODEL, ENDE, IRSEA and electricity consumers in Angola

8. Duration

The duration of the Project is around 12 months, and the commencement date is to be recognized from the first arrival of members of the JICA missions in Angola. A tentative schedule is shown in the Annex 3.

9. Reports

The Study Team will prepare and submit the following reports to the Angola side in English and Portuguese

- (1) 10 hardcopies of Inception Report at the commencement of the first work period in Angola
- (2) 10 hardcopies of Interim Report
- (3) 10 hardcopies of Draft Final Report at the end of the last work period in Angola
- (4) 15 hardcopies and 10 softcopies of Final Report about one (1) month after the receipt of the comments on the Draft Final Report

10. Environmental and Social Considerations

The Angola side will abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project

III. UNDERTAKINGS OF THE ANGOLA SIDE

1. The Angola side will take necessary measures to:

- (1) ensure that the technologies and knowledge acquired by the Angolan nationals as a result of Japanese technical cooperation contributes to the economic and social development of Angola, and that the knowledge and experience acquired by the personnel of Angola from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project; and
- (2) grant privileges, exemptions and benefits to members of the JICA missions referred to in II-5 above and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in Angola.

2. The Angola side will take necessary measures to:

- (1) provide security-related information as well as measures to ensure the safety of members of the JICA missions;
- (2) permit members of the JICA missions to enter, leave and sojourn in Angola for the duration of their assignments therein and exempt them from foreign registration requirements and consular fees.

IV. MONITORING AND EVALUATION



JICA will conduct the following evaluations and surveys to verify how the proposed plan is utilized and draw lessons. The Angola side is required to provide necessary support for them.

1. Ex-post evaluation three (3) years after the project completion, in principle
2. Follow-up surveys on necessity basis

V. PROMOTION OF PUBLIC SUPPORT

For the purpose of promoting support for the Project, the Angola side will take appropriate measures to make the Project widely known to the people of Angola

VI. MISCONDUCT

If JICA receives information related to suspected corrupt or fraudulent practices in the implementation of the Project, the Angola side and relevant organizations will provide JICA with such information as JICA may reasonably request, including information related to any concerned official of the government and/or public organizations of the Angola.

The Angola side and relevant organizations will not, unfairly or unfavorably treat the person and/or company which provided the information related to suspected corrupt or fraudulent practices in the implementation of the Project

VII. MUTUAL CONSULTATION

JICA and the Angola side will consult each other whenever any major issues arise in the course of Project implementation

VIII. AMENDMENTS

The record of discussions may be amended by the minutes of meetings between JICA and the Angola side. The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the record of discussions.

- Annex 1 Project Organization Chart
- Annex 2 List of Proposed Members of the Joint Coordinating Committee
- Annex 3 Tentative Schedule of the Project
- Annex 4 Terms of Reference for the Strategic Environmental Assessment



MAIN POINTS DISCUSSED

The Angola side and JICA mutually recognized and agreed to the issues below:

(1) Undertaking by the Angola side and JICA

Both sides agreed that undertakings by the Angola side and JICA as follows.

Undertakings	MINEA	DNEE	RNT	PRODE	ENDE	IRSEA	JICA
Allocate staffs related to the project		•	•	•	•	•	
Dispatch members of the JICA missions							•
Suitable office space with necessary equipment including desks, chairs, whiteboards, internet access, telephone line connections			•	•	•	•	
Provide information as well as support in obtaining medical service		•					
Credentials or identification cards		•					
Available data (including maps and photographs) and information		•	•	•	•	•	
Running expenses necessary for the implementation of the Project (Utility cost for JICA mission and all travel expenses for the Angola side such as transportation, vehicle, allowance, accommodation)		•	•	•	•	•	
Establish and manage JCC		•					
grant privileges, exemptions and benefits to members of the JICA missions referred to in II-5 above and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in Angola	•						
provide security-related information as well as measures to ensure the safety of members of the JICA missions		•					

(2) Technical Meeting

Both sides agreed that, upon request by the relevant organization of the Angola side or JICA missions, DNEE of MINEA can hold Technical Meeting whenever it's necessary for purposes and members bellow.

(purposes)

To update members on the Project progress.
To share the challenges in the Project.
To coordinate the Project activities within relevant agencies.
To prepare reports for presentation to the JCC.

(members)

Chair: DNEE of MINEA

Members: Staffs of DNEE, RNT, PRODEL, ENDE and IRSEA

*Any other relevant organizations can participate as Chair requires

(3) Public seminar

Both side agreed that public seminar should be convened as draft final report consultation, in order to incorporate opinions from various sectors and to raise the awareness of master plan.

(4) Voltage level of transmission system in Task 5

Both side agreed that the voltage level of transmission system in Task 5 "Formulation of transmission system development plan" includes 60 kv as lowest voltage.

(5) Discrepancy between English and Portuguese document

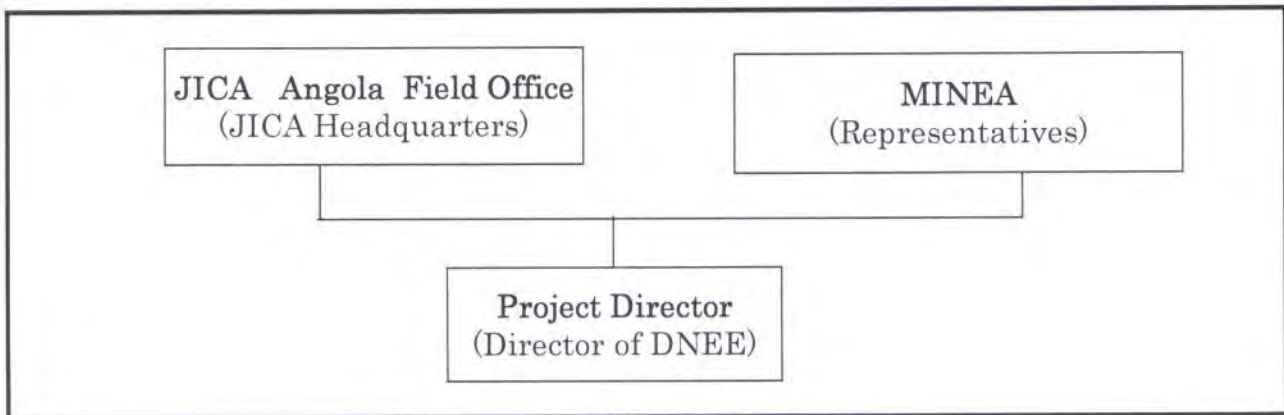
Both side agreed that In case of discrepancy between English and Portuguese document that will be produced in the Project, English document shall prevail.

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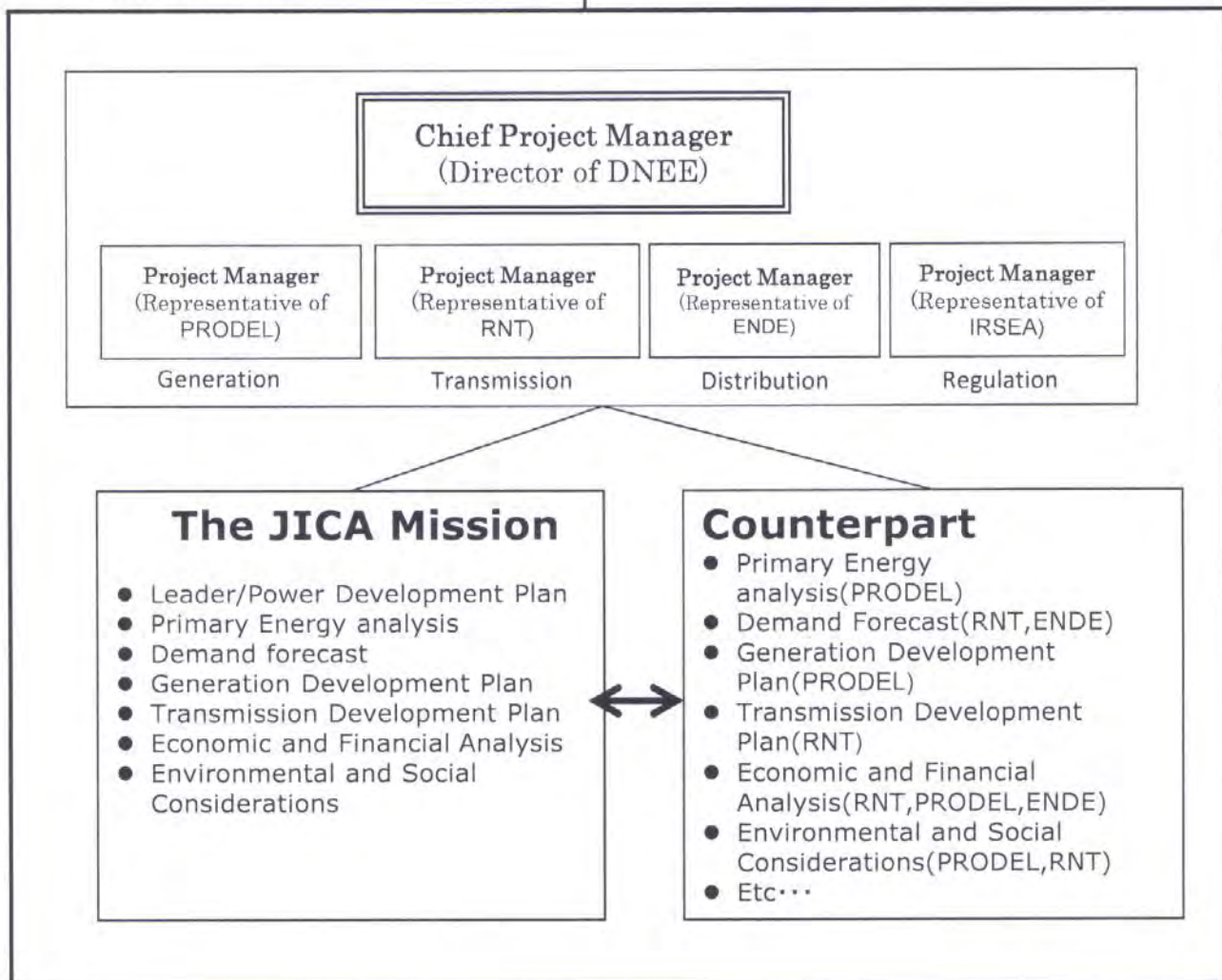


Project Organization Chart

MANAGEMENT SIDE



PROJECT SIDE



List of Proposed Members of Joint Coordinating Committee

1. Angola side

Secretary of State of Energy

Director of DNEE

President of RNT

President of PRODEL

President of ENDE

President of IRSEA

Representative of RNT

Representative of PRODEL

Representative of ENDE

Representative of IRSEA

Representative of Ministry of Environment

Other Personnel concerned to be proposed by DNEE

2. Japanese side

Chief Representative of JICA Angola field office

Members of the JICA missions

Other Personnel concerned to be proposed by JICA

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Tentative Schedule of the Project

	JFY2017												
	2016						2017						
	12	1	2	3	4	5	6	7	8	9	10	11	
Task 1: Review of the current situation in power sector													
Task 2: Analysis on primary energy sources for generation development													
Task 3: Power demand forecast													
Task 4: Formulation of generation development plan													
Task 5: Formulation of transmission development plan													
Task 6: Review framework & Implementation of Private Investment													
Task 7: Formulation of long-term investment plan													
Task 8: Economic and Financial analysis													
Task 9: Environmental and social considerations													
Task 10: Drafting of the Master Plan													
Reports													
JCC													

*JFY: Japanese fiscal year (April to March)

Terms of Reference for the Strategic Environmental Assessment

The Project for Power Development Master Plan

The following exercise of Environmental and Social Considerations are conducted as part of The Project for Power Development Master Plan (hereinafter referred to as “the Project”).

1. Rationale

The Project is a formulation of master plan, and it is required to conduct a Strategic Environmental Assessment (SEA) as the Environmental and Social Considerations for the Project. The SEA is required by the following guidelines.

- (1) JICA Guidelines for Environmental and Social Considerations (2010).

In the absence of the national legal framework for SEA in Angola, the environmental legislation and the Ministry of Environment of Angola should be consulted throughout the SEA for the Project.

2. Description of the SEA

2.1 Objectives

The objectives are;

- (1) To evaluate the alternative scenarios proposed in the Project from environmental, technical and financial points of view;
- (2) To identify and assess potential impacts induced by the optimal scenario and the closely related facility developments and,
- (3) To formulate a plan to avoid, reduce, mitigate and monitor these impacts.

2.2 Survey area

The whole area of Angola

2.3 Methodology and the flow of the implementation of the SEA

- (1) Baseline surveys will be conducted on the environmental and social conditions of Angola . The following items should be well surveyed.
 - (a) Laws and regulations (including standards) of Angola related to the environmental and social considerations (including SEA and Environmental Impact Assessment);
 - (b) Policies, programs and plans in relevant sectors in Angola.
 - (c) Natural conditions of Angola (e.g. protected areas, endangered and/or important species, etc.) and,
 - (d) Social conditions of Angola and the proposed area by the Project.
- (2) Stakeholder analysis will be conducted to plan stakeholder consultations. Consultations with stakeholders will be held as necessary to collect relevant information and comments throughout SEA exercise. It is therefore required to hold stakeholders meetings at least at two occasions - the 1st one is held just after the development of alternative scenarios; and the 2nd one is held just after drafting the final report.
- (3) Alternative scenarios will be proposed and expected impacts on the social and natural environments by each scenario should be evaluated with the technical, financial and environmental points of view, as well as in terms of the



compatibility with policies, programs, plan and legislations of other relevant sectors. Comments from stakeholders are collected and reflected in the process of evaluating alternative scenarios and selecting the optimal scenario.

- (4) A scoping exercise for the selected scenario will be conducted.
- (5) Based on the results of the scoping, social and environmental surveys are conducted to collect more information to evaluate its impacts and formulate mitigation measures.
- (6) A monitoring system of the selected scenario will be planned.

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