

MINUTES OF MEETINGS
BETWEEN
THE AUTHORITIES CONCERNED OF
THE GOVERNMENT OF THE ISLAMIC REPUBLIC OF PAKISTAN
AND
JAPAN INTERNATIONAL COOPERATION AGENCY
ON
THE PROJECT FOR THE STUDY OF
UPGRADING NATIONAL POWER SYSTEM EXPANSION PLAN
(TRANSMISSION SYSTEM)

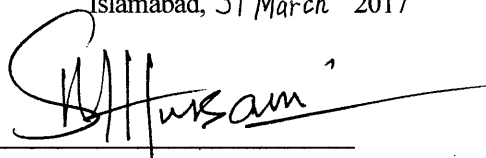
Japan International Cooperation Agency (hereinafter referred to as "JICA") has dispatched the Detailed Planning Survey Team (hereinafter referred to as "the Team") to the Islamic Republic of Pakistan (hereinafter referred to as "Pakistan") from March 16th to March 31st, 2017 for the purpose of preparation of the Project for the study of upgrading National Power System Expansion Plan (Transmission System) in Pakistan (hereinafter referred to as "the Project").

During its stay in Pakistan, the Team exchanged its opinions and had a series of discussions for the purpose of working out the framework and contents of the Project with the authorities concerned of the Government of the Islamic Republic of Pakistan (hereinafter referred to as "the Pakistan side"). As a result of the discussions, the Counterpart and the Team agreed to the matters referred to in the document attached hereto as a supplement to the Record of Discussions (hereinafter referred to as "R/D").

Islamabad, 31 March 2017

岡村 健司

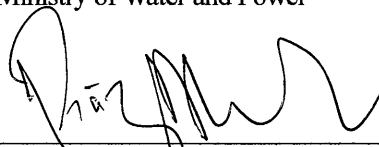
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Fiaz Ahmad Chaudhry
Managing Director
National Transmission and Despatch
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THE ATTACHED DOCUMENT

This document has been prepared for the better understanding of the R/D to be agreed between the Pakistan side and JICA. The main items that had been discussed and agreed upon by both sides are summarized as follows.

1. Official Request for the Project

In Pakistan, it is forecasted that until 2020, the demand for electricity will grow at the pace of 5.5% per year. However, the country had been facing a serious supply-demand gap in recent past years, recording 21.4% of peak demand in FY 2013/14 with load shedding of 10.5 hours per day in some areas. Though the power supply position has been improving afterwards, load-shedding is still being experienced in the country. In addition to problems on the generation side, the national transmission system faces high levels of transmission and distribution constraints; and also losses due to aging of transmission lines, mismanagement, and theft of electricity. Besides, incorporation of the generation development projects such as hydropower and thermal power, the existing transmission system needs to be reinforced and expanded on urgent basis.

In this situation, long-term least cost generation and transmission expansion plan (hereinafter referred to as "LCP") was prepared for National Transmission and Despatch Company Limited (hereinafter referred to as "NTDC") through the close cooperation of JICA in 2016. The Government of the Islamic Republic of Pakistan requested the Government of Japan in the JFY 2016 Request Survey to upgrade transmission system of National Power System Expansion Plan (2011) based on the output of the LCP, and the Team was dispatched to Pakistan to agree on the project details.

Since generation expansion has substantially changed from 2016 assumptions, as the first step, least cost generation plan needs to be updated before starting detailed studies for transmission expansion plan, which will constitute 220 kV and above voltage level transmission lines and substations. Consequently, NTDC will update generation expansion plan on priority basis and share with JICA experts for review and development of transmission expansion plan.

2. Status of the Project

As described above, the Government of Japan received official requests for the Project from the Government of the Islamic Republic of Pakistan in August, 2016, and this request was officially approved by the Government of Japan, then Note Verbales were exchanged for its implementation on January 17th, 2017, between both governments.

3. Draft of Record of Discussions

As a result of the discussions, both sides agreed on the draft of R/D, which stipulates the framework of the Project, as shown in Attachment. After the approval of JICA headquarters, the R/D will be finalized and signed by the Pakistan Side and JICA Pakistan Office.

4. Working Group of NTDC

In order to update the Project outputs by only Pakistan side after the Project period, both sides confirmed the importance of the capacity building for the engineers of NTDC. Then, both sides agreed to establish working group of NTDC consisting of more than 10 engineers for the close cooperation work with JICA Experts. Besides, Pakistan side confirmed that the working group of NTDC will secure sufficient time for the



works with JICA Experts, and provide available data (including maps and photographs) and information related to the Project.

Finally, the Team requested NTDC to submit the member list of the working group before signing of R/D. NTDC agreed on it.

5. Selection of JICA experts

NTDC intends to participate in the selection process of experts for this project. The Team intimated that the current procurement process of JICA does not favour this approach. NTDC encouraged JICA to select appropriate experts so that the project deliverables are done professionally. JICA replied that JICA would do every effort to select competent experts.

6. Disclosure of the Reports of the Project

The Team explained that the reports of the Project will be disclosed to the public in accordance with JICA's regulation. The Counterpart acknowledged it.

Attachment Draft of R/D

Handwritten signatures and initials at the bottom right of the page. There are three distinct marks: a signature that appears to be 'JJA', another signature that is less legible, and a large circular mark or stamp.

RECORD OF DISCUSSIONS

FOR

**THE PROJECT FOR THE STUDY OF
UPGRADING NATIONAL POWER SYSTEM EXPANSION PLAN
(TRANSMISSION SYSTEM)
IN
THE ISLAMIC REPUBLIC OF PAKISTAN**

AGREED UPON BETWEEN

**THE AUTHORITIES CONCERNED OF
THE GOVERNMENT OF THE ISLAMIC REPUBLIC OF PAKISTAN**

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

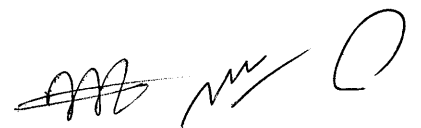
Islamabad, XX XX , 2017

Yasuhiro Tojo
Chief Representative
JICA Pakistan Office

Syed Mujtaba Hussain
Joint Secretary
Economic Affairs Division
Ministry of Finance, Revenue, Economic
Affairs, Statistics and Privatization

Zargham Eshaq Khan
Joint Secretary
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Fiaz Ahmad Chaudhry
Managing Director
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Based on the minutes of meetings on the Detailed Planning Survey for the Project for the study of upgrading National Power System Expansion Plan (Transmission System) in the Islamic Republic of Pakistan (hereinafter referred to as "the Project") signed on March XX, 2017 between authorities concerned of the Government of the Islamic Republic of Pakistan (hereinafter referred to as "the Pakistan side") and the Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA held a series of discussions with the Pakistan side to develop a detailed plan of the Project.

The purpose of this record of discussions (hereinafter referred to as "the R/D") is to establish a mutual agreement for its implementation by both parties and to agree on the detailed plan of the Project as described in the followings and the Annexes, which will be implemented within the framework of the Agreement on Technical Cooperation signed on April 30, 2005 (hereinafter referred to as "the Agreement") and the Note Verbales exchanged on January 17th, 2017 between the Government of Japan and the Government of the Islamic Republic of Pakistan.

National Transmission and Despatch Company Limited (hereinafter referred to as "NTDC") 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 Islamic Republic of Pakistan.

Both parties also agreed that the Project will be implemented in accordance with the "Basic Principles for Technical Cooperation" published in December, 2016 (hereinafter referred to as "the BP"), unless other arrangements are agreed in the R/D.

The R/D is delivered at Islamabad, Pakistan as of the day and year first above written. The R/D may be amended by a minutes of meetings between both sides, except the plan of operation to be modified in monitoring sheets. The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the R/D.

- Annex 1 Main Points Discussed
- Annex 2 Project Description
- Annex 3 Implementation Structure
- Annex 4 List of Proposed Members of Joint Coordinating Committee
- Annex 5 Terms of Reference for the Environmental and Social Considerations

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MAIN POINTS DISCUSSED

1. Background of the Project

Long-term least cost generation and transmission expansion plan (hereinafter referred to as “LCP”) was prepared for National Transmission and Despatch Company Limited (hereinafter referred to as “NTDC”) through the close cooperation of JICA in 2016. The Government of the Islamic Republic of Pakistan requested the Government of Japan in the JFY 2016 Request Survey to upgrade transmission system of National Power System Expansion Plan (2011) based on the output of the LCP, and the detailed planning survey team was dispatched to Pakistan in March 2017 to agree on the project details.

It was discussed that since generation expansion in NTDC system has substantially changed from 2016 assumptions, as the first step, least cost generation plan needs to be updated before starting detailed studies for transmission expansion plan, which will constitute 220 kV and above voltage level transmission lines and substations. Consequently, NTDC will update generation expansion plan on priority basis and share with JICA experts for review and development of transmission expansion plan.

2. Approval of Transmission System Master Plan

Both sides agreed that Ministry of Water and Power (hereinafter referred to as “MOWP”) will take initiative to make the outcome of the Project to be approved by the Government of the Islamic Republic of Pakistan for smooth implementation of each transmission project to be listed in the master plan.

3. Location of the Project Activities

In order to secure the necessary Japanese resources for the Project, both sides agreed that project activities will be carried out in Pakistan. However, some works will be done in Japan or other countries.

4. Demand Forecast

In order to implement proper area-based demand forecast, both sides agreed that NTDC will timely share the latest power demand forecast of 132kV and 220kV substations with JICA experts.

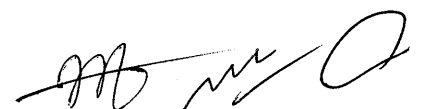
5. Generation Plan

NTDC will update generation expansion plan on priority basis and share with JICA experts for review.

6. Reports and Workshops

The Project will prepare and submit the following reports in English.

- 10 copies of Inception Report at the commencement of the first work period in Pakistan
- 10 copies of Interim Report
- 10 copies of Draft Final Report at the end of the last work period in



- Pakistan
- 15 copies of Final Report after the receipt of the comments on the Draft Final Report

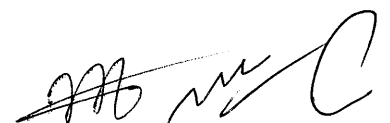
Besides, in order to compile these reports reflecting the comments from related stakeholders, both sides agreed to hold the workshops at least 2 (two) times in Pakistan during the course of the Project.

7. Working Group of NTDC

In order to update the Project outputs by only Pakistan side after the Project period, both sides confirmed the importance of the capacity building for the engineers of NTDC. Both sides agreed to establish working group of NTDC consisting of more than 10 engineers for the close cooperation work with JICA Experts. Besides, Pakistan side confirmed that the working group of NTDC will secure sufficient time for the works with JICA Experts, and provide available data (including maps and photographs) and information related to the Project.

8. Environmental and Social Considerations

With regard to the Section 10.1 of the BP, since the Project is categorized as B under the 'JICA Guidelines for Environmental and Social Considerations (April 2010)' (hereinafter referred to as "the Guideline"), NTDC agreed to abide by the Guideline in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project. Terms of reference for the Environmental and Social Consideration is attached as Annex 5.



PROJECT DESCRIPTION

(1) Expected Goals which will be attained after implementing the proposed plan
Based on the updated national power system expansion plan (Transmission), feasibility studies of prioritized projects for transmission and substation are implemented.

(2) Outputs

Updated national power system expansion plan (Transmission System) of 220kV and higher voltage is proposed.

(3) Activities

The Project will carry out the following five (5) tasks jointly by NTDC and the JICA Experts.

Task 1: Capacity Building for future transmission system master plan

Task 2: Review of the current situation in the power sector

Task 3: Formulation of transmission system master plan up to 2035

Task 4: Economic and Financial Analysis

Task 5: Environmental and social considerations

Task 1: Capacity Building of Transmission System Planning

- 1) Review the current capacity of transmission system planning of NTDC
- 2) Identification the contents of capacity building program
- 3) Implementation of capacity building program for transmission system planning for NTDC engineers

Task 2: Review of the current situation in the power sector

- 1) Review of the socio-economic situations
- 2) Review of the recent power sector development
- 3) Review of the current power demand and supply
- 4) Review of other donors' cooperation
- 5) Review of the existing power demand forecast
- 6) Review of the latest power development plan

Task 3: Formulation of Transmission System master plan

- 1) Review of the related facilities of current power system
- 2) Review of the latest transmission system development plan
- 3) Examination of the appropriate software (PSS/E and any other if needed) for power system analysis
- 4) Capacity building program for using the software, if necessary
- 5) Formulation of the transmission system master plan up to 2035 through system studies, utilizing latest Japanese technologies and other modern



- transmission technologies
- 6) Selection of prioritized projects under proposed master plan

Task 4: Economic and Financial Analysis

- 1) Estimate the investment costs on transmission/substation facilities
- 2) Examination of the economic benefit of the proposed master plan
- 3) Examination of the current financial status of NTDC
- 4) Calculate the long-term marginal cost and examine the reflection to electricity tariff setting

Task 5: Environmental and social considerations for power system master plan

- 1) Review of the legal and regulatory frameworks for the environmental and social considerations
- 2) Identification of the potential impacts associated with environmental and social issues in the plan and possible mitigation measures as a Strategic Environmental Assessment

(4) Duration

The duration of the Project is 18 months, and the commencement date is to be recognized from the first arrival of JICA experts in Pakistan.



IMPLEMENTATION STRUCTURE

The roles and assignments of relevant organizations are as follows:

(1) The Pakistan side

(a) Project Director

GM Planning (Power), NTDC will be the Chairperson of the Project who supervises overall implementation of the Project

(b) Project Manager

Manager System Studies, NTDC will be the Project Manager who is responsible for the management of the Project

(c) Project Counterparts

NTDC will be the counterpart agency to JICA for the Project implementation. NTDC shall, if necessary, coordinate and organize the working team inviting related authorities for formulating master plan as follows;

- MOWP
- National Electric Power Regulatory Authority (hereinafter referred to as "NEPRA")
- Generation Companies

(2) JICA Experts

JICA will send JICA Experts for the implementation of the Project. The JICA Experts may cover the following fields of expertise and the JICA Experts will give necessary technical guidance, advices and recommendations to NTDC on any matters pertaining to the implementation of the Project.

- Transmission System Planning
- Power System Analysis
- Transmission Facilities
- Substation Facilities
- Economic and Financial Analysis
- Environmental and Social Consideration

(3) Joint Coordinating Committee

A Joint Coordinating Committee chaired by Project Director (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination and will be responsible for steering and monitoring the Project. JCC will be held whenever deems it necessary. A list of proposed members of JCC is shown in Annex 4



List of Proposed Members of Joint Coordinating Committee
for
the Project for the study of upgrading National Power System Expansion
Plan (Transmission System) in the Islamic Republic of Pakistan

1. Composition

(1) Project Team

- 1) Project Director, GM Planning (Power), NTDC
- 2) Project Manager, Manager System Studies, NTDC
- 3) JICA Experts
- 4) Personnel from the Pakistan side
- 5) Others whom are to be agreed by the Pakistan side and JICA

(2) Other members:

- 1) Representative of MOWP
- 2) Representative of NEPRA
- 3) Senior Representative, representative and/or staff of JICA Pakistan Office
- 4) Staff from JICA Headquarters
- 5) Other persons that Japanese side might consider necessary



Terms of Reference for the Environmental and Social Considerations

During the process of upgrading of national power system expansion plan of 220kV and higher voltage under the control of NTDC, Strategic Environmental Assessment (hereinafter referred to as "SEA") should be carried out in accordance with JICA Guidelines as well as the legislations of the country. Since, presently there is no legislation concerning SEA in Pakistan, it is advisable to communicate closely with Ministry of Climate Change (hereinafter referred to as "MoCC") for their guidance on SEA procedure. Reports on SEA conducted in power sector in Pakistan and other countries, guidelines and procedures of SEA in other countries and international organizations should be also consulted.

Terms of Reference for the Environmental and Social Considerations of the Project include, but not limited to, the followings.

- ♦ Establishing SEA team with NTDC, MoCC, MOWP, SEA consultant and JICA Experts in charge of environmental and social considerations.
- ♦ Providing SEA team members with guidance on SEA so that this activity is properly embedded in the process of upgrading national power system expansion plan.
- ♦ Preparing a TOR by reviewing SEA cases in power sector in Pakistan and other countries and SEA guidelines and procedures of other countries and international organizations and by consulting with MoCC.
- ♦ Selecting SEA consultant based on, not only the experience of conducting EIAs for previous projects in power sector of Pakistan, but also the experience of conducting SEAs. In the process of procurement, communicate with NTDC, MoCC for their advices.
- ♦ Confirming the latest legislations relevant to environmental and social considerations in Pakistan.
- ♦ Wherever possible, applying the Gender Guidance Note on Transmission/Distribution projects prepared by JICA Pakistan Office in order to ensure the inclusion of gender perspectives in the Project and other relevant projects formulated as a result of the Project. Collecting and organizing basic information/data necessary to carry out a SEA
- ♦ Confirming the relevance and consistency of the upgrading national power system expansion plan project with other relevant policies, plans, legislations (both national and international).
- ♦ Conducting stakeholder analysis. Based on the result, plan and implement stakeholder meetings. Meetings should be held at least two occasions, 1) at the time of alternative analysis and 2) at the time of preparation of a SEA draft final report. When planning stakeholder meetings, consider the effectiveness and validity of methodology and timing of meetings in order to collect information from and build consensus with various stakeholders. As a consideration to gender issues, include gender related stakeholders as candidates when conducting stakeholder analysis and plan stakeholder meetings with appropriate methods.
- ♦ Comparing and examining alternative scenarios in terms of environmental,

social and financial aspects.

- ♦ Carrying out scoping exercise
- ♦ Conducting impact evaluation, examining impact mitigation measures and monitoring plan on the selected scenario.
- ♦ In SEA report, indicating how the results of SEA are reflected to the upgraded national power system expansion plan.
- ♦ Circulating draft SEA report to relevant institutions/authorities for their comments
- ♦ Finalizing SEA report by incorporating the comments
- ♦ Building the capacity of Environment and Social Impact Cell of NTDC on environmental and social considerations on transmission projects.
- ♦ Raising the awareness of the importance of incorporating environmental and social considerations in transmission projects among NTDC staff.

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