

**CAPACITY DEVELOPMENT PROJECT**

**ON**

**INSTITUTIONAL CAPACITY BUILDING  
TOWARD MARKET-ORIENTED ECONOMY,  
AND TECHNICAL SKILL IMPROVEMENT**

**IN**

**ELECTRICITY**

**JICA Third Country Training Programme**

**National Electric Power Company  
(NEPCO) - Amman, Jordan**

**Japan International Cooperation  
Agency (JICA)**

# INVITATION

*National Electric Power Co. (NEPCO) and Japan International Cooperation Agency (JICA) are considering the technical training for the Iraqi technical staff from the Ministry of Electricity of Iraq (MOEI) , to be of great importance in developing and upgrading human resources in consistence with scientific and technical development.*

*In that regard, NEPCO and JICA agreed to implement three training programmes in the fields of: (1) Institutional System and Regulations (ISR), (2) Total Quality Management and ISO (TQM), and (3) Planning & Designing of Electrical Distribution Network (PDD). ISR and TQM are scheduled to be conducted at NEPCO Head Office in Amman –Jordan, while PDD would be held at NEPCO Electric Training Center (ETC), All are scheduled to start from September 2005, subject to completion of the official approval of the authorities concerned.*

*Since the three fields are among the ones that the staff always need to develop their skills among the staff in order to cope with fast developing technology in electric power industry. We therefore have much pleasure to invite you to participate in these courses. They are designed for those who are working or expected to be working in these fields.*

*We trust these programmes will be of interest to the staff of MOEI and hereby request the Ministry to nominate their candidates.*

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Representative  
Iraq Unit, JICA Jordan office*

*Eng. Riyad Kanaan  
Manager, NEPCO International*

*Eng. Rajae Jaber  
Manager, Coordination Dept  
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## BACK GROUND

Power facilities in Iraq have been seriously deteriorated due to conflicts, lack of investment and maintenance, and looting occurred after the outbreak of the war. Though installed power capacity was 9,295 MW in 1990, about 70 percent of total capacity was damaged during the 1991 Gulf war. It recovered to 4,000 MW through the Oil for Food Programme assisted by the United Nations but it dropped to 3,300 MW after the last conflict.

Reconstruction work by various donor agencies started soon after the conflict. However, generating capacity is still hovering around the pre-war level because reconstruction work has been sluggish and sabotages are repeated due to serious security constraints.

As a result, people have been suffered nationwide from frequent load shedding all the day.

Every effort has to be made for recovering and developing power sector in terms of physical and institutional aspects.

NEPCO and JICA have organized various technical cooperation projects in this sector such as Power Network System (SCADA), TIG Welding, Cable Jointing, Optical Fiber Splicing, Operation & Maintenance on Thermal Power Plant, and Training Center Management in close consultation with MOEI.

Several urgent topics have been identified through relevant surveys and discussions. Those topics are as follows:

- Review on present institutional systems
- Examination of appropriate tariff and billing system
- Review on present technical and safety code
- Upgrading power facilities
- Upgrading and updating technical skills of engineers

The National Development Strategy, which was made public at the donor conference held in Tokyo in October 2004, clearly stipulates that the government should concentrate on policy and regulation, while public services should be enhanced through private sector participation.

The state-run power sector system, such as laws, regulations and tariff system needs to be reviewed in order to get prepared for the expected sector reforms. It is also important to improve administration system and basic technical skills of staff in order to improve efficiency.

# PROGRAMME OBJECTIVES

The purpose of this programme is to enhance the institutional and technical capacity of MOEI to achieve smooth and sound reconstruction and development.

## **I. Institutional System & Regulations (ISR)**

The purpose of this course is to let MOEI staff learn about knowledge, lessons and know-how on institutional issues which are considered to be necessary to tackle market oriented economic transformation.

The course shall review and examine strengths, weaknesses, opportunities and threats (SWOT) of current status of institutional system, namely 1) laws, regulations and tariffs 2) private sector participation and procurement 3) metering and tariffs, 4) restructuring and human resources development, and 5) finance which are currently being discussed under the Steering Committee of MOEI (SC).

The course will be conducted in a participatory manner. MOEI participants are requested to present current status of those five topics. Japanese experts will introduce examples of laws, regulations, unbundling and privatization, and lessons of other countries, especially Japan. Discussion and analysis shall be made based on mutual interactions.

The course will consist of three stages.

At first stage, the participants and Japanese experts will present current status and experiences of both sides related to five issues mentioned above, and identify major topics which need further analysis.

At second stage, the participants will present progresses in those issues on the ground and experts will present several alternatives which may be suitable for Iraq by considering social and economic background of the country.

At third stage, experts and participants will produce alternatives and recommendations for implementing those five issues considering previous discussions and analysis.

### **Through the course, participants are expected to:**

1. Collect relevant data and present current status of the five issues (1) laws, regulations and tariffs 2) private sector participation and procurement 3) metering and tariffs, 4) restructuring and human resources development, and 5) finance which are being discussed at SC,
2. Comprehend examples of laws and regulations in other countries, especially Japan, which will be introduced by experts,
3. Examine SWOT of the current institutional system (laws and regulations) and study possible improvement measures,
4. Reflect the outcome of this training to the discussion at SC, and feedback from SC to this training,

5. Produce a report on alternatives and recommendations in collaboration with experts.

Participants from MOEI are requested to collect relevant data and prepare presentation materials on the five issues mentioned above **before attending the training.**

## **II. Total Quality Management and ISO (TQM)**

**At the end of these courses, the Participants are expected to be able to :**

1. Understand principles of total quality management and quality control measurements.
2. Understand process approach in quality management system.
3. Understand concept of ISO and how to apply for it.
4. Understand measurements, analysis and development of processes performance.

## **III. Planning & Designing Electrical Distribution System (PDD)**

**At the end of these courses, the Participants are expected to be able to :**

1. Identify the components of the distribution substation.
2. Locate the correct place of distribution substation (S/S).
3. Determine the Transformer Capacity, Dist. Board, Circuit Breakers & Fuses Ratings.
4. Understand the basic plan & design principles of Distribution Overhead Lines.

# **PARTICIPANTS ACCEPTED**

## **I. Institutional System and Regulations (ISR):**

10 participants will be accepted in the three stages. Expected allocations are as follows.

- **Five (5) to seven (7) participants should be nominated from members of SC in principle.** The participants shall be currently engaged in the study on institutional reform at SC. Remaining participants shall be nominated from Department of Planning and Studies which is responsible for laws, regulations, tariffs and restructuring issues with MOEI.

- **One (1) or two (2) participants should be responsible for the Master Plan study** which was carried out by USAID. We would like to know the institutional proposal made by this M/P and its follow-up status. Those participants are requested to make presentation of the institutional aspects of the Master Plan. Also, participants are requested to present current status of other donors in this field so that we could coordinate our scope.
- **One (1) or two (2) participants should be responsible for the Legislative Committee on Privatization**. Since privatization cannot be achieved only by MOEI, we should like to discuss current status on privatization of public utility sector as a whole (not only electricity) with this committee member.
- **One (1) should be selected from Ministry of Planning and Development Cooperation who is in charge of electricity**. Based on the same reason as above, we should like to invite one from MOPDC to exchange views on privatization matter in electricity.

## **II. Total Quality Management and ISO (TQM):**

25 participants will be divided into two batches. Participants should:

1. Be engaged in the same field of the course,
2. Be on the staff of MOEI, and nominated by MOEI.
3. Have at least three (3) years experience in the field of the relative programme.
4. Be under forty (40) years old of age.
5. Be in good health, both physically and mentally, in order to complete the course.

## **III. Planning & Designing of Electrical Distribution Network (PDD):**

10 participants should:

1. Be engaged in the same field of the course,
2. Be on the staff of MOEI, and nominated by MOEI.
3. Have at least three (3) years experience in the field of the relative programme.
4. Be under forty (40) years old of age.
5. Be in good health, both physically and mentally, in order to complete the course.

**All participants should comply fully with the rules and regulations of the Training Programme as laid down by JICA and NEPCO.**

## **PROGRAMME MANAGEMENT AND TRAINING STAFF**

The ISR programme shall be organized by Japanese experts in cooperation with NEPCO experts and resources. The other two training programmes will be carried out under the supervision and financed by JICA, and under direct management of NEPCO.

All instructors and lecturers from NEPCO who have considerable professional experience will implement these programmes.

## **TRAINING AND PROGRAMME**

### **I. Institutional System and Regulation Programme (ISR):**

The course will be conducted in a participatory manner. MOEI participants are required to present current status of those five topics. Japanese and NEPCO experts will introduce examples of laws, regulations, unbundling and privatization, and lessons of other countries, especially Japan and Jordan. Discussion and analysis shall be made based on mutual interactions.

The course will consist of three stages covering the following topics: -

#### **Stage-1:**

Purposes:

- Present current status of the five issues at SC by MOEI participants,
- Lecture on updated information on institutional system related to the five issues by experts,
- Lecture on experiences and lessons on the five issues by experts,
- Study current status of the five issues and identify topics for further study.

#### **Stage-2:**

Purposes:

- Present status and progress in the five issues on the ground,
- Lecture several alternatives,
- Study and discuss those alternatives.

#### **Stage-3:**

Purposes:

- Examine alternatives and recommendations for implementing those five issues,
- Produce a report on alternatives and recommendations,

- Identify issues that need further study.

## **II. Total Quality Management and ISO Programme (TQM)**

The participants will have theoretical lectures and practical applications covering the following topics:

### **Lectures :**

- Total Quality Management (TQM)
- Implementation and cultural environment of TQM
- Improvement Methodology
- Total Quality Management (TQM) Tools
- Introduction for Quality Control ISO definitions
- ISO 9000 Introduction and standards
- Measurements, analysis and improvements of ISO
- Quality team tasks description & responsibilities

### **Practice :**

All the above items will be conducted in parallel with practical training on:

- Workshops and applied examples
- Site Visits to Jordan Quality Association

## **III. Planning and Designing of Electrical Distribution Network (PDD)**

The participants will have theoretical lectures and practical applications covering the following topics related to the trainee's course as below:

### **Lectures:**

- Types of distribution substation.
- Locating of distribution substation.
- Substation equipment & its specification.
- Arrangement of distribution substation equipment.
- Electrical equipments & common facilities.
- Electrical design of distribution substation.
- Single line diagram of distribution substation.
- Design particulars for distribution System.
- Kind and selection of poles.



- Insulator.
- Kind and selection of overhead conductors.
- Calculation of sag and tension.
- Distribution line losses.
- Load forecast
- Tender documents for distribution system.

**Practice:**

- Workshop in designing of distribution substation.
- Profiles.
- Sag template.
- Pole plotting.

## DATE & PLACE OF EACH PROGRAMME

The programmes are scheduled to take place as follows (subject to change):

**I. Institutional System and Regulations (ISR):**

Stage-1: November, 2005 (Provisional)

Stage -2: January, 2005 (Provisional)

Stage -3: March, 2006 (Provisional)

The programme is planned to be held for one week in November 2005 for the first stage, and for one week on January 2006 for the second stage, and finally for one week on March 2006 for the third stage.

The Course will be conducted at the head offices of the National Electric Power Company (NEPCO), located at Amman – 7<sup>th</sup> Circle

**II. Total Quality Management and ISO (TQM):**

Duration: 1<sup>st</sup> Batch: November ~ December, 2005 (Provisional)

2<sup>nd</sup> Batch: January ~ February (Provisional)

The programme is scheduled to take place for two weeks on November to December 2005 for the first batch, and for two weeks on January to February 2006 for the second batch.

The Course will be conducted at the head offices of the National Electric Power Company (NEPCO), located at Amman – 7<sup>th</sup> Circle

**III. Planning and Designing Electrical Distribution Network (PDD):**

The programme is scheduled to take place for three weeks from **19 November to 9 December** 2005.

The Course will be conducted at NEPCO Electric Training Center (ETC) workshops near Zarqa city (30 km far from Amman).

## **ACCOMMODATION**

The participants of the Institutional System and Regulations (ISR) and the participants of the Total Quality Management and ISO (TQM) programme will be accommodated at a suitable hotel with breakfast.

The participants of the Planning & Designing of Electrical Distribution Network (PDD) will be accommodated at the ETC dormitory; each participant will be in a single or share in twin bedrooms. Three meals a day will be served at the ETC restaurant. Also meals will be provided during the site visits.

## **Health Care & Life Insurance**

JICA Jordan office will provide Health Care and Life Insurance for all participants from their arrival to Jordan until their departure.

## **Site Visits**

NEPCO management and ETC management will arrange study tours to some of the utilities related to the programme.

## **Per –Diem**

- Each participant in the ISR and TQM Courses will be paid daily allowance of 30 JD, as per diem upon arrival to Amman.
- For PDD Course, each participant will be paid daily allowance of 15 JD, as per diem upon arrival to Amman.

## **Transportation**

- NEPCO management will arrange the local transportation for the participants for the TQM Course.
- JICA will arrange the local transportation for the participants for the ISR Course.
- For PDD Course, ETC management will arrange a proper transportation from ETC to Zarqa city (12 km far from ETC), and from ETC to Amman upon participant's request.
- A proper transportation will be arranged during the site visits.

## **Phone Calls**

Long distance phone calls from the hotel, the ETC and so on shall be paid by the participants.

## **APPLICATION PROCEDURES**

Application should be made on the special form that is attached to this pamphlet. Two copies of the duly completed application, through the diplomatic channels, should be sent to the Jordanian Ministry of Planning and International Cooperation, with copies to NEPCO and JICA.

## **SELECTION OF PARTICIPANTS**

NEPCO and JICA will select Ten (10) officially nominated candidates for ISR Course, Twenty five (25) for TQM Course, and Ten (10) for the PDD Course from among those who apply before the closing date.

NEPCO will notify MOEI of the selected participants through the Jordanian Ministry of Planning and International Cooperation and JICA office.

## **CERTIFICATE**

All participants who shall complete the programme's requirements will be awarded a certificate accredited by JICA and NEPCO.

The address of the programme management is:

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NEPCO International  
P.O. Box 2310  
Amman 11181 JORDAN  
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