Knowledge Co-Creation Program
(Group & Region Focus)

GENERAL INFORMATION ON

Power Grid Planning and Operation (A)

課題別研修「系統運用事業者幹部職員研修（A）」

JFY 2019

NO. J19-04002 / ID. 1984591

Course Period in Japan: From 15th May to 8th June, 2019

This information pertains to one of the JICA Knowledge Co-Creation Programs (Group & Region Focus) of the Japan International Cooperation Agency (JICA), which shall be implemented as part of the Official Development Assistance of the Government of Japan based on bilateral agreement between both Governments.

'JICA Knowledge Co-Creation (KCC) Program' as a New Start

In the Development Cooperation Charter which was released from the Japanese Cabinet in February 2015, it is clearly pointed out that *"In its development cooperation, Japan has maintained the spirit of jointly creating things that suit partner countries while respecting ownership, intentions and intrinsic characteristics of the country concerned based on a field-oriented approach through dialogue and collaboration. It has also maintained the approach of building reciprocal relationships with developing countries in which both sides learn from each other and grow and develop together."* We believe that this 'Knowledge Co-Creation Program' will serve as a center of mutual learning process.

I. Concept

Background

Our everyday lives depend on reliable and affordable energy supply to develop equitably. A stable power supply system supports all sectors and has close relation to human and economic development.

Some countries still have been suffering from chronic shortage of power supply and frequent blackout due to inefficient power system. Situation in power generation recently has been improved in other developing countries, together with IPP. Yet even in some countries where power is generated enough, quality and stable power supply is still a serious issue, due to low quality of power transmission and distribution system. These sectors have a large room to develop further.

Japan has developed stable power supply system and networks to support its economic and human development, with continuous effort to realize high-level efficiency and cleanliness. This Program is designed for the managers of the grid operating companies and related governmental organizations to deepen their knowledge on power system engineering and related technology in Japan. It also aims at building networks among such key players in power sectors, including power utility and manufactures in Japan, in order to achieve effective and stable power supply in their respective countries.

For what?

This program offers managers from grid operators/governmental organizations a chance to strengthen their knowledge on Japanese practice in power grid operations, so that they would able to achieve appropriate planning and operation of the grid in their respective country.

For whom?

This program is designed for the management level personnel (e.g. department head of each section) in national grid operators and related governmental organizations.

How?

Participants shall have opportunities to study Japanese power systems through lectures and observation to Japanese Power Company's operation and manufacturers' technologies. They also have sharing session to discuss their own issues on grid operation.

Sustainable Development Goals (SDGs)

The United Nations Sustainable Development Goals (SDGs) were adopted as the 2030 Agenda for Sustainable Development by world leaders in September 2015, which now call for action by all countries. As a development cooperation agency, JICA is committed to achieving the SDGs. This program, which aims at increasing quality of power grid planning and operation, especially contributes to realizing the goal 7, 12 and 13, by ensuring access to affordable, reliable, sustainable energy for all, with improved energy efficiency.

II. Description

1. **Title (J-No.):**
   Power Grid Planning and Operation (A) (J19-04002)

2. **Course Period in JAPAN**
   From 15th May to 8th June, 2019

3. **Target Regions or Countries**
   Papua New Guinea, Jamaica, Ethiopia, Ghana, Nigeria, Uganda, Cote d' Ivoire, Brazil, Kenya, Tanzania

4. **Eligible / Target Organization**
   This program is designed for national grid operators or equivalent governmental organizations in power sector.

5. **Course Capacity (Upper limit of Participants)**
   10 participants

6. **Language to be used in this program**:
   English

7. **Course Objective:**
   The action plan for appropriate planning and operation of power grid is created, utilizing knowledge acquired through this program, and it is shared and carried out in participants' organization.

8. **Overall Goal**
   Electric power supply and its quality will be improved in each country.

9. **Expected Module Output and Contents:**

This program consists of the following components. Details on each component are given below:

Expected Module Output	Subjects/Agendas	Methodology
To clarify issues and opportunities concerning the power system in home country.	Inception Report Presentation (using Microsoft Power Point) and discussion	Presentation and Discussion
To be able to share the knowledge on the **grid system and operation practices in Japan.**	Overview of system operation in Japan, including power system reform	Lecture Field visit
To be able to share the knowledge and technology of **power system planning.**	(1) System planning (e.g. transition of power system expansion in electric company)	Lecture Field visit

	(2) Function of engineering department and system operation department. Allocation of roles between utility company and contractor	
To be able to share the knowledge and technology of **power system operation.**	(1) System reliability (e.g. supply-demand control, voltage regulation, mitigation of cascading blackout, trans-regional operation)	Lecture Field visit
	(2) Role of power system division and affiliated company in power system operation and maintenance	
	(3) Challenges and opportunities on interconnection of renewable energy.	
To be able to share the knowledge and technology of **operation and maintenance for power system equipment.**	(1) System reliability (e.g. supply-demand control, voltage regulation, mitigation of cascading blackout, trans-regional operation)	Lecture Field visit
	(2) Quality Control of equipment	
	(3) Quality Control of power transmission facilities	
	(4) Substations	
	(5) Central load dispatching center, Regional system operation Center	
	(6) (Variable speed) Pumped storage power plant	
To formulate ***Action Plan** formulation on planning, designing, operation and maintenance of power system in each home country	(1) Guidance & workshop for creating the Action Plan	Workshop
	(2) Presentation of the Action Plan	Presentation and Discussion

*The Action Plan, which participants are going to propose must be FEASIBLE, therefore, it is recommended that participants bring relevant data, map, pictures, laws and regulations of his/her country.

<Structure of the program>
Topic Outline (Subject to minor changes)

1st week (16th May – 17th May)
- Program Orientation
- Lecture on Outline of Electric Power Industry in Japan
- Presentation of Inception Report

2nd week (20th May – 24th May)
- Project Cycle Management (PCM) Workshop
- Lectures on Japanese Power Grid System Planning and Operation by Japanese Power Company.
- Observation of Load Dispatching and Control Center, Substation of Japanese power company
- Observation of Japanese manufacturers (SCADA, power system stabilizer, protection relay, etc.)

3rd week (27th May – 31st May)
- Courtesy call and discussion with JICA head quarter and JEPIC.
- Lecture on the total quality management (TQM) in Japan
- Observation of Japanese manufacturers (Low Electrical Power Loss Type Conductor, Adjustable Speed Pump for pumped storage power plant, etc.)

4th week (3rd June – 7th June)
- Observation of Japanese manufacturers (switching device, etc.)
- Observation of Japanese manufacturers (transformer, protection relay, etc.)
- Observation of power plants
- Opinion Exchange and Presentation of Action Plan

III. Conditions and Procedures for Application

1. Expectations for the Participating Organizations:

(1) This program is designed primarily for organizations that are willing to address specific issues or problems identified in their operation. Participating organizations are expected to utilize the program for those specific purposes.

(2) This program is enriched with contents and facilitation schemes specially developed in collaboration with relevant prominent organizations in Japan. These special features enable the program to meet specific requirements of applying organizations and effectively facilitate them toward solutions for the issues and problems.

2. Nominee Qualifications:

Applying Organizations are expected to select nominees who meet the following qualifications.

(1) Essential Qualifications:

1) Current Duties: Management level (e.g. department head of each section) in national grid operators or relevant governmental organizations.

2) Experience in the relevant field: Have at least 15 years of experience in the field of grid operation.

3) Educational Background: Graduates of engineering faculty of university or equivalent.

4) Language: Smooth communication in English.

5) Health: Must be in good health, both physically and mentally, to participate in the program in Japan. Pregnant applicants are not recommended to apply due to the potential risk of health and life issues of mother and fetus.

(2) Recommendable Qualifications:

1) Age: Between the ages of forty (40) and fifty-five (55) years
2) Gender Consideration: JICA is promoting gender equality. Women are encouraged to apply for the program.

3. Required Documents for Application:

(1) Application Form: The Application Form is available at **the JICA office (or the Embassy of Japan).**

(2) Photocopy of passport: To be submitted with the Application Form, if you possess your passport, which you will carry when entering Japan for this program. If not, you are requested to submit its photocopy as soon as you obtain it.

*Photocopy should include the followings:
Name, Date of birth, Nationality, Sex, Passport number and Expiry date.

(3) Nominee's English Score Sheet (photocopy): to be submitted with the Application Form (e.g. TOEFL, TOEIC, IELTS).

(4) Country Report (VI ANNEX): To be submitted with the Application Form. Typewritten in English in double spacing (about 6 to 9 pages of A-4 size). The latest annual report published by the applicant's organization should also be attached, only if and when available in English.

** Notes: Applicants are strongly expected to typewrite the documents. There are many applications disqualified from the selection because of the illegible letter in those documents.

4. Procedures for Application and Selection:

(1) Submission of the Application Documents:

Closing date for applications: **Please inquire to the JICA office (or the Embassy of Japan).**
（After receiving applications, the JICA office (or the Embassy of Japan) will send them to **the JICA Center in JAPAN by 15th March, 2019.**）

(2) Selection:

After receiving the documents through proper channels from your government, the JICA office will conduct screenings, and then forward the documents to the JICA Center in Japan.

Selection will be made by the JICA Center in consultation with concerned organizations in Japan. *The applying organization with the best intention to utilize the opportunity of this program will be highly valued in the selection.*

Qualifications of applicants who belong to the military or other military-related organizations and/or who are enlisted in the military will be examined by the Government of Japan on a case-by-case basis, consistent with the Development Cooperation Charter of Japan, taking into consideration their duties, positions in the organization, and other relevant information in a comprehensive manner.

(3) Notice of Acceptance:

Notification of results will be made by the JICA office (or the Embassy of Japan) **not later than 8th April, 2019.**

5. Document(s) to be submitted by accepted participants:

(1) **Inception Report** should be sent to JICA Kansai Center via e-mail (Oi.Yoshiko@jica.go.jp) by **24th April, 2019.** The Report should be prepared using the Microsoft Power Point and consists of the following points. (Detailed information is provided in VII ANNEX.)

1. Outline of your country (Statistical Data)
2. The organization of the electric power sector
   Role of your organization and your duty
3. Current situation of electric power and distribution facilities
   (Summary the information in the Country Report)
4. Present issues and the causes in electric power distribution
5. Measures and plan to tackle those issues and problem
6. Your target/expectation to attend this Program in Japan

Note: Presentation: Each participant will have a chance to make a presentation by summarizing the Inception Report just after arriving in Japan. This is to share the issues in participants' country and their needs with Japanese lecturers and other participants. Each participant will be given about 20 minutes (15 minutes' presentation by participants and 5 minutes' discussion). The visual items such as pictures in presentation are recommended.

(2) **Action Plan:** The participants are expected to formulate the Action Plan during the the program and will have a chance to present it in the end of the program in Japan. Guidance and workshops are organized during the program in order to assist the participants to create the Action Plan.

6. Conditions for Attendance:

(1) to strictly adhere to the program schedule,
(2) not to change the program topics,
(3) not to extend the period of stay in Japan,
(4) not to be accompanied by family members during the program,
(5) to return to home countries at the end of the program in accordance with the travel schedule designated by JICA,
(6) to refrain from engaging in any political activities, or any form of employment for profit or gain,
(7) to observe Japanese laws and ordinances. If there is any violation of said laws and ordinances, participants may be required to return part or all of the program expenditure depending on the severity of said violation, and
(8) to observe the rules and regulations of the accommodation and not to change the accommodation designated by JICA.

IV. Administrative Arrangements

1. **Organizer:**
   (1) Name: JICA Kansai
   (2) Contact: Yoshiko Oi (Ms.) Oi.Yoshiko@jica.go.jp

2. **Implementing Partner:**
   (1) Name: Japan Electric Power Information Center, Inc. (JEPIC)
   (2) URL: http://www.jepic.or.jp

3. **Travel to Japan:**
   (1) Air Ticket: The cost of a round-trip ticket between an international airport designated by JICA and Japan will be borne by JICA.
   (2) Travel Insurance: Coverage is from time of arrival up to departure in Japan. Thus, traveling time outside Japan will not be covered.

4. **Accommodation in Japan:**
   JICA will arrange the following accommodations for the participants in Japan:

   JICA Kansai
   Address: 1-5-2, Wakinohama-kaigandori, Chuo-ku, Kobe, Hyogo 651-0073, Japan
   TEL: 81-78-261-0388 FAX: 81-78-261-0465
   (where “81” is the country code for Japan, and “78” is the local area code)

   If there is no vacancy at JICA Kansai, JICA will arrange alternative accommodations for the participants. Please refer to facility guide of JICA Kansai at its URL, https://www.jica.go.jp/kansai/english/office/index.html

5. **Expenses:**
   The following expenses will be provided for the participants by JICA:
   (1) Allowances for meals, living expenses, outfit, and shipping,
   (2) Expenses for study tours (basically in the form of train tickets),
   (3) Free medical care for participants who become ill after arriving in Japan (costs related to pre-existing illness, pregnancy, and dental treatment are not included), and
   (4) Expenses for program implementation, including materials.
   For more details, please see “III. ALLOWANCES” of the brochure for participants titled “KENSHU-IN GUIDE BOOK,” which will be given before departure for Japan.

6. **Pre-departure Orientation:**
   A pre-departure orientation will be held at the respective country’s JICA office, to provide participants with details on travel to Japan, conditions of the participation in the program, and other matters.

V. Other Information

1. Participants who have successfully completed the program will be awarded a certificate by JICA.

2. For the promotion of mutual friendship, JICA Kansai encourages international exchange between JICA participants and local communities, including school and university students as a part of development education program. JICA participants are expected to contribute by attending such activities and will possibly be asked to make presentations on the society, economy and culture of their home country.

3. Participants are recommended to bring laptop computers for your convenience, if possible. During the program, participants may be asked to fill in some format by using computers. Most of the accommodations have internet access. Also, there is a computer room in JICA Kansai where 6 desk-top computers are available with internet access. (Note: Some of the sites for field visit may not have internet access.)

4. Allowances, such as for living, outfit, and shipping, will be deposited to your temporary bank account (opened by JICA) 2 to 5 days after your arrival in Japan. It is highly advised to bring some cash in order to cover necessary expense for this period.

5. It is very important that some of your currency must be exchanged to Japanese Yen at any transit airport or Kansai International Airport (KIX) in Osaka, Japan soon after your arrival. It is quite difficult to exchange money after that, due to limited availability of facility or time during the program.

VI. ANNEX:

Country Report

Information and Data on Basic Energy and Power of your Country

All applicants are expected to fill the form and submit it **with the Application Form** to JICA office in your country.

Country: _____

Name: _____

1. Utility

(a) Major Electric Power Utilities (Public or Private)

(b) System of Electric Power Utilities

Situation of deregulation

Situation of unbundling the transmission and distribution sectors

2. Availability of Energy Resources

(a) Reserve of fossil energy (if endowed) in Year 20?? (Specify the year of data)

Fossil Energy	Estimated Amount of Reserve	Unit
Coal		Ton
Oil		Barrel
Natural Gas		m^3

(b) Potential of Renewable Energy

Forms of Renewable Energy	Estimated Amount of Potential	Unit
Biomass in Year 20?? (Specify the year of data)		Ton or m^3
Hydropower in Year 20?? (Specify the year of data)		MW

Form of Renewable Energy	Annual Average Irradiation	Unit
Photovoltaic		$kWh/m^2/day$

Form of Renewable Energy	Annual Average Wind Speed with Specific Site Names (Please select several representative sites)	Unit
Wind Power		meter/Second

3. Annual Production of Fossil Energy (if produced)

Forms of Fossil Energy	Amount of Annual Production	Year of Production	Unit
Coal			Ton
Oil			Barrel
Natural Gas			m^3

4. Primary Energy Supply[1] by Forms of Energy in Year 20?? (Specify the year of data)

Unit: Joule or specify unit

Forms of Energy		Primary Energy Supplied	Percentage
Fossil Energy	Coal		
	Oil		

[1] Primary energy is the energy that exists in nature without processing for or converting to secondary energy. Primary energy can be divided into three categories, fossil energy, natural energy and nuclear energy. Primary energy supply is the total amount of energy supplied to a nation.

	Natural Gas		
Sub-Total			
Natural Energy	Hydro		
	Biomass		
	Solar		
	Wind		
	Geothermal		
Sub-Total			
Nuclear			
Total			100 %

5. Final Energy Consumption[2] by Sectors in Year 20?? (Specify the year of data)

Unit: Joule or specify unit

Sectors	Final Energy Consumption	Percentage
Industry Sector		
Social and Household Sector		
Transportation Sector		
Total		100 %

[2] Final energy consumption is a total amount of energy actuary consumed by the industry sector, the social and household sector, and the transportation sector in a nation as the form of primary energy, or the form of secondary energy that was converted or processed from primary energy. Secondary energy includes petroleum products such as petrol and kerosene, and electricity generated by thermal power.

6. Installed Capacity of Power Generation Facilities (National Grid Connected) in a year of 20?? (Specify the year)

Generation Facilities	Installed Capacity (MW or kW)	Share (%)
Hydropower[3] in Total		
Conventional Hydropower over 10 MW		
Small Hydropower between 10 MW and 1 MW		
Mini Hydropower between 999 kW and 100 kW		
Micro Hydropower less than 99kW		
Thermal Power in Total		
Diesel Power		
Coal fired Steam Turbine		
Oil fired Steam Turbine		
Gas fired Steam Turbine		
Gas Turbine (Single Cycle)		
Gas Turbine (Combined Cycle)		
Renewable Energy except for hydropower in Total		
Grid connected Photovoltaic Systems		
Grid connected Wind Power		
Grid connected Biomass Generation		
Other forms of grid connected renewable energy (Please specify)		
Overall Total		

Generating Capacity per Capita（kW/Capita）	

7. Electricity Generated by Grid Connected Generation Facilities in Year 20?? (Specify the year of data)

Generation Facilities	Electricity Generated (MWh)	Share (%)
Hydropower		
Thermal Power		

[3] Different countries use different definition to categorize hydropower. If your county has its own definition, you can use it and specify the definition in the table.

Renewable Energy except for Hydropower		
Total		100 %

8. Electricity Consumed by Sectors in Year 20?? (Specify the year of data)

Sectors	Electricity Consumed (MWh)	Percentage (%)
General Household		
Commercial		
Industry		
Agriculture		
Government		
Total		100 %

Sales per Capita （kWh/Capita）	

9. Structure of Power System Supervision and Control

(a) Frequency Control

Centralized Operation at CLDC (Central Load Dispatching Center) or Not?

(b) Power System Control

Supervised voltage level and Control center supervising

(c) Manufacturer of SCADA System

10. Combined Power System Losses in Year 20?? (Specify the year of data)

(A) Annual Total Electricity generated at generation end by all Power Stations on National Grid	MWh
(B) Annual Total Electricity sent out to National Grid	MWh
(C) Annual Total Electricity consumed by all Power Stations 【Power Station Own Use】 (A) － (B) = (C)	MWh
Power Station own use Rate (C) / (A) X 100	%
(D) Annual Total Electricity sold	MWh
(E) Annual Total of Transmission and Distribution Loss 【Transmission & Distribution Loss】 (B) － (D) = (E)	MWh
Transmission and Distribution Loss Rate (E) / (B) X 100	%

11. Conceptual diagram of power flow from generating facilities to the customers

(a) Classification of Voltage for Interconnection (Transmission and Distribution)

(b) Transmission Line Route Length (km)

200kV or over	
Under	
total	

(c) Distribution Line Route Length (km)

High Voltage	
Low Voltage	
total	

12. Household Electrification Rate

National Average of Household Electrification Rate (=Connected Households / Total Number of Households)	%
Rural Electrification Rate (=Connected Households in Rural Area / Total Number of Households in Rural Area)	%
Urban Electrification Rate (=Connected Households in Urban Area / Total Number of Households in Urban Area)	%

VII. ANNEX:

Inception Report

Accepted participants are requested to prepare an Inception Report, referring to the following format (Microsoft Power Point) as an example. The Report should be sent to JICA Kansai Center via e-mail (Oi.Yoshiko@jica.go.jp) by **24th April, 2019**. Please make sure you meet the deadline, as the information in your report is valuable for the resource persons to adjust their lecture contents in advance.

NOTE: Participants in this program are requested to make a presentation on their inception report for about 20 minutes at the beginning of the Program in Japan.

Please use this presentation format for Inception report

Part 1
Country Report

【Format】 Presentation time :20min (including Q&A)
◇Country Report
P1-5 ;General Information (Power condition)
P6-9 ;Transmission condition
◇Issue Analysis Report
P10-14; Facing issues and analysis of the causes
P15 ;Expectation for this training course

The General Information

Country Map

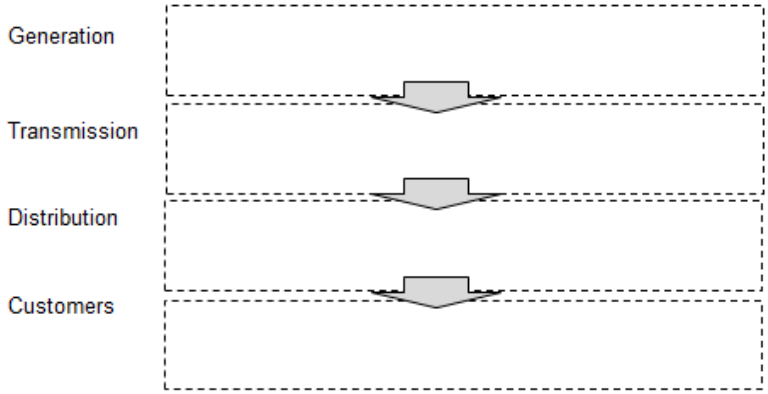
(As of 200X)

Population	
Land Area(km^2)	
Power Consumption(GWh)	
Installed Capacity(MW)	
Electrification Rate(%)	

Source: Google Map

Power Supply System（Company name, Organization）

3



Installed Capacity, Power Consumption

4

(As of 200X)

Installed Capacity(MW)

（Graph）

Total; MW

Power Consumptions (GWh)

（Graph）

Total; GWh

	Hydro	Thermal	Nuclear	Others	Total
Installed Capacity (MW)					

	Residential	Commercial	Industrial	Others	Total
Power Consumption (GWh)					

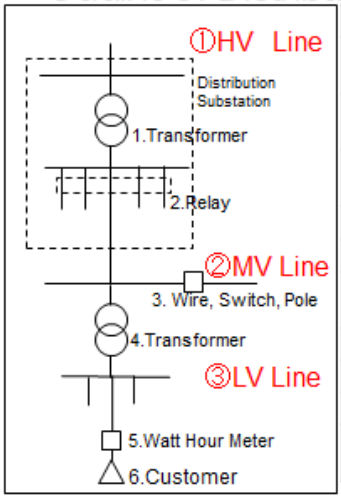
Power Stations, Power Grid

5

Grid Map

6

Outline of Distribution System (Overhead)



①	HV Line	Voltage; 66kV, 157kV, 275kV, 500kV
1	Transformer	(Urban) 30MVA x 3 (Rural) 10MVA~20MVA x 3
②	MV Line	Voltage; 6.6kV, 22kV Isolated Neutral System
2	Relay	OCR (Over Current Relay) DGR (Directional Ground Fault Relay)
3	Pole	Concrete, Steel, Wooden
	Wire	Al , Cu (Insulated)
	Switches	Type; AS(Air), VS(Vacuum) Operation; Automatic, Manual
③	LV Line	Voltage;100V, 100/200V,
4	Transformer	10, 30, 50, 75, 100 (kVA)
5	Meter	Mechanical, Electrical, (Smart meter)
6	Supply System	1φ3w 200/100V, 1φ2w 100V, 3φ3w 200V

7

Transmission Facilities (Pictures)

Equipment	Number	
Tower		units
Circuit Length	○○○kV	circuit-km
	○○○kV	circuit-km
	○○○kV	circuit-km
Transformer	○○○kV	MVA
	○○○kV	MVA
	○○○kV	MVA

8

Transmission Loss

(1) Historical Data

Year	FY2007	FY2008	FY2009	FY2010	FY2011
Distribution Loss (%)					

(2)Detail of Loss

Technical ‥ approx. %
Non Technical‥‥ approx. %

(3)Measure for Loss Reduction

9

Reliability (SAIDI SAIFI), Cause of Power Failure

		FY2010	FY2011	FY2012
SAIDI※1				
SAIFI※2				
Total number of failures				
Cause	Lightning			
	Tree contact			
	Bird and Beast			
	Wind/ Rainstorm			
	Old facilities			
	Human Caused			
	Unknown			
	Others			

※1 System Average Interruption Duration Index (hours/year・customer)
※2 System Average Interruption Frequency Index (times/year・customer)

10

Part 2
Issue Analysis Report

11

Facing Issues (1)

Organization	△△ Engineer. ○○ Dept. XXX Electric Power Company
Current Duties	1. ・・・ 2. ・・・ 3. ・・・

12

Facing Issues (1)

Issue No.1	High Transmission Loss (Example)
Cause	1. ・・・ 2. ・・・ 3. ・・・
Countermeasure	1. ・・・ 2. ・・・ 3. ・・・

13

Facing Issues (2)

Issue No.2	Power Quality (Example) ・Low Voltage at HV customers ・Voltage fluctuation
Cause	1. ・・・ 2. ・・・ 3. ・・・
Countermeasure	1. ・・・ 2. ・・・ 3. ・・・

14

Facing Issues (3)

Issue No.3	Human Accident (Example)
Cause	1. ・・・ 2. ・・・ 3. ・・・
Countermeasure	1. ・・・ 2. ・・・ 3. ・・・

Expectation for this Training Course

No.	Topic	Detail
1		
2		
3		

For Your Reference

JICA and Capacity Development

The key concept underpinning JICA operations since its establishment in 1974 has been the conviction that "capacity development" is central to the socioeconomic development of any country, regardless of the specific operational scheme one may be undertaking, i.e. expert assignments, development projects, development study projects, Knowledge Co-Creation programs (until 2015, so called "training"), JOCV programs, etc.

Within this wide range of programs, Knowledge Co-Creation Programs have long occupied an important place in JICA operations. Conducted in Japan, they provide partner countries with opportunities to acquire practical knowledge accumulated in Japanese society. Participants dispatched by partner countries might find useful knowledge and re-create their own knowledge for enhancement of their own capacity or that of the organization and society to which they belong.

About 460 pre-organized programs cover a wide range of professional fields, ranging from education, health, infrastructure, energy, trade and finance, to agriculture, rural development, gender mainstreaming, and environmental protection. A variety of programs are being customized to address the specific needs of different target organizations, such as policy-making organizations, service provision organizations, as well as research and academic institutions. Some programs are organized to target a certain group of countries with similar developmental challenges.

Japanese Development Experience

Japan was the first non-Western country to successfully modernize its society and industrialize its economy. At the core of this process, which started more than 140 years ago, was the *"adopt and adapt"* concept by which a wide range of appropriate skills and knowledge have been imported from developed countries; these skills and knowledge have been adapted and/or improved using local skills, knowledge and initiatives. They finally became internalized in Japanese society to suit its local needs and conditions.

From engineering technology to production management methods, most of the know-how that has enabled Japan to become what it is today has emanated from this "*adoption and adaptation*" process, which, of course, has been accompanied by countless failures and errors behind the success stories. We presume that such experiences, both successful and unsuccessful, will be useful to our partners who are trying to address the challenges currently faced by developing countries.

However, it is rather challenging to share with our partners this whole body of Japan's developmental experience. This difficulty has to do, in part, with the challenge of explaining a body of "tacit knowledge," a type of knowledge that cannot fully be expressed in words or numbers. Adding to this difficulty are the social and cultural systems of Japan that vastly differ from those of other Western industrialized countries, and hence still remain unfamiliar to many partner countries. Simply stated, coming to Japan might be one way of overcoming such a cultural gap.

JICA, therefore, would like to invite as many leaders of partner countries as possible to come and visit us, to mingle with the Japanese people, and witness the advantages as well as the disadvantages of Japanese systems, so that integration of their findings might help them reach their developmental objectives.

CORRESPONDENCE

For enquiries and further information, please contact the JICA office or Embassy of Japan. Further, address correspondence to:

JICA Kansai Center (JICA Kansai)
Address: 1-5-2, Wakinohama-kaigandori, Chuo-ku, Kobe, Hyogo 651-0073, Japan
TEL: +81-78-261-0388 FAX: +81-78-261-0465