【Online】
Knowledge Co-Creation Program
(Group & Region Focus)

GENERAL INFORMATION ON

Comprehensive Engineering on Water Supply Systems (B)
:Practical Training for Water Supply System

課題別研修「上水道施設技術総合:水道実務者向け実践編(B)」

JFY 2021

Course No. 202006498J001

Online Program Period (※): From January 11 to March 1, 2022

（※）In the context of the COVID-19 pandemic, please note that there is still a possibility the course period will be changed, shortened, or the course itself will be cancelled.

This information pertains to one of the JICA Knowledge Co-Creation Program (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 Program (KCCP)' as a New Start

In the Development Cooperation Charter which was released from the Japanese Cabinet on 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

It is critically important to supply safe and drinkable water from the point of view of Basic Human Needs; however, its resource distribution is extremely skewed in respective countries.

United Nations estimates that one-thirds of world population has still limited access to proper water supply; forcing more than one billion people without safe drinking water due to insufficient management and technical capacity, financial arrangements, public awareness activities and so on.

The Sapporo City locates northern metropolis of Japan with 1.9 million populations, 99.9% of residents can enjoy the provision of safe water supply for twenty-four (24) hours all year round. The water quality and continuous water supply in Sapporo are underpinned by Water Capacity 835,200m^3/day, Effective Volume 96.0 %, Accounted-For Water 92.9%, and Water Leakage 2.7 %.

This course aims to improve the capacity for waterworks engineer to tackle your own bottlenecks to supply safe and continuous water to your people through making your own feasible “Action Plan” with close consultations by experienced Sapporo City’s experts or professional engineer.

The participant of this course will be able to learn various and valuable assets of waterworks experiences in Sapporo.

For what?

To draw basic plan drawings for a purification facility and pipeline network of your own territory in charge, and to make a feasible action plan for continuous supply safe and drinkable water.

For whom?

This program targets to waterworks expert, professional engineer including junior engineer and officer of central and local government organizations

How?

The participants of this course will acquire practicable knowledge and techniques of waterworks engineering through lectures, discussions, and consultations with experienced Japanese experts and professional engineer.

II.Description

1. Title (No.): Comprehensive Engineering on Water Supply Systems (B) : Practical Training for Water Supply System (202006498J001)

2. Period of program

January 11 to March 1, 2022

"In the context of the COVID-19 pandemic, please note that there is still a possibility the period will be changed, shortened, or the course itself will be cancelled."

3. Target Regions or Countries:

Nepal, Cambodia, Peru, Bhutan, Sri Lanka

4. Eligible / Target Organization :

This program is designed for governmental, semi-governmental, or corporate organizations in charge of public water supply with urban water supply system.

5. Course Capacity (Upper limit of Participants)

Eight (8)

6. Language to be used in this program :

English

7. Course Objective:

To learn comprehensive measures and techniques for waterworks in supplying safe and drinkable water continuously.

8. Overall Goal

To improve the quality of water supply business and supply safe and pure potable water in participants' regions or countries.

9. Expected Module Output and Contents:

This program consists of the following components.

(1) Preliminary Phase in a participant's home country

(Closing Date: December 10, 2021)

Participating organizations make required preparation for the Program in the respective country.

Modules	Activities
Job Report	-Preparation of YOUR Job Report under consultation within YOUR ORGANIZATION ※See Annex for Job Report Instruction

(2) Online course ※contents are subject to minor change

(January 11 to March 1, 2021)
The program will be implemented by online.

Modules	Subjects	Methodology
1) Introduction to water supply planning, water resources and water intake	-Water resource management and problems caused by algae -Water supply planning -Water demand forecasting -Design, construction, operation and maintenance of water well	[Online] Lectures Discussion Presentation
2) Water quality management and water purification technologies	-Water purification plant -Fundamentals of water purification processes -SCADA system -Operation of water purification plant -Maintenance of water purification plant -Jar test -Advanced water purification -Introduction to Water Quality Control -Water quality management	
3) Water transmission and distribution, and countermeasure against water leakage	-Distribution reservoir, pumping station, flow meter, management of distribution facilities and equipment -Block distribution improvement plan - Distribution and service pipes management system (mapping and filing) -Distribution pipe laying plan -Design & estimate for new installation of distribution pipes -Construction of distribution pipes -Leak prevention planning -Leak prevention works	[Online] Lectures Discussion Presentation
4) Case study, effective water supply mechanism - roles of public administration, regulations, management body and water charge system	-Outline of water supplies in Japan and Sapporo -Eco-friendly water supply business -Hydropower generation by water utility -Outline of services concerning water charge -Water asset management	

5) Presentation of Action Plan *You will be able to make a feasible action plan that solves challenges in your division (section, unit, team, etc.) by the end of this course referring to the above modules.	**Problem Identification** -Job Report presentation -Issue analysis -Discussion **Action Plan** -Good practice of action plan -Consultation -Presentation ※ For proposing Action Plan, it is recommended that participants bring relevant data, map, pictures, laws and regulations of your country.	[Online] Discussions Consultation Presentation

(3)Post-Core Course Phase in a participant's home country
(March 2022 to April 2023)
Participating organizations get feedback and recommendations from the participants through sharing the Action Plan

10. Follow-up Cooperation by JICA:

In this training and dialogue programs, JICA might extend follow-up support to participating organizations that intend to develop the result of the project further. Please note that the support shall be extended selectively based on proposals from the participating organizations.

III.Conditions and Procedures for Application

1. Expectations for the Participating Organizations:

(1) This program is designed primarily for organizations that intend to address specific issues or problems identified in their operation. Participating organizations are expected to use the project 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 project to meet specific requirements of applying organizations and effectively facilitate them toward solutions for the issues and problems.

(3) As this program is designed to facilitate organizations to come up with concrete solutions for their issues, participating organizations are expected to make due preparation having their participants attend by carrying out the activities of the Preliminary Phase described in section Ⅱ-9 .

(4) Participating organizations are also expected to make the best use of the results achieved by their participants by carrying out the activities of the Finalization Phase described in section Ⅱ-9.

2. Nominee Qualifications:

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

(1) Essential Qualifications

1) Current Duties: waterworks engineers
2) Experience: have at least three (3) years of practical experience for those university graduate or equivalent; OR at least seven (7) years of practical experience for those polytechnic graduates or equivalent
3) Educational Background: be university graduates or have equivalent: technical qualifications in waterworks engineering.
4) Language: have a good command of spoken and written English which is equivalent to TOEFL CBT 200 or more (This programs includes active participation in discussions, an action plan development. Thus requires good competence of English ability. Please attach an official certificate for English ability such as TOEFL, TOEIC etc., if possible).

   ※Past programs have shown that participants without a functional command of English find themselves unable to make progress in this training program.
5) Stable Network: must be secured to attend the online courses.
6) Indispensable item：laptop or personal computer.
7) Application: “Zoom”, “YouTube” for online program.

   ※Past programs have shown that participants without a functional command of English find themselves unable to make progress in this training program.
8) Health: must be in good health, both physically and mentally, to participate in the Program.

   Note: i) Applicants are requested to submit the Medical History Questionnaire

included in the Application Form mentioned in 4-(1) below

(2) Recommendable Qualifications

Age: Less than forty (40) years old is desirable.

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.

*Photocopy should include the followings:

Name, Date of birth, Nationality, Sex, Passport number and Expire date.

(3) Nominee's English Score Sheet: to be submitted with the application form. If you have any official documentation of English ability (e.g., TOEFL, TOEIC, IELTS), please attach it (or a copy) to the application form.

(4) Job Report and Questionnaire (ANNEX): to be submitted with the application form.

4. Procedure for Application and Selection:

(1) Submitting the Application Documents:

Deadline for application to the JICA Center in charge in JAPAN: **December 10, 2021. Note: Please confirm the closing date set by the respective country's JICA office or Embassy of Japan of your country to meet the final date in Japan.**

(2) Selection:

After receiving the documents through proper channels from your government, the JICA office (or the embassy of Japan) 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 shall be made by the respective country's JICA office (or Embassy of Japan) to the respective Government by not later than December 20, 2021.

5. Conditions for Attendance:

(1) to strictly adhere to the program schedule.

(2) not to change the program topics.

(3) not to record online lessons or use contents providing during the program without JICA's permission since all the copy right belong to JICA. Arrangement will be made for streaming the program in case of network problem.

(4) to go to JICA country office or the place where the internet access is secured to attend the online course.

(5) to take measure against infectious disease such as wearing the mask, maintaining the social distance and washing hands

IV. Administrative Arrangements

1. Organizer:

(1) Name: JICA Hokkaido(Sapporo)

(2) Contact: Sunazaki.Kohji@jica.go.jp,

2. Implementing Partner:

(1) Waterworks Bureau, City of Sapporo
http://www.city.sapporo.jp/suido (Japanese Only)

(2) HIECC(Hokkaido International Exchange and Cooperation Center)
http://www.hiecc.or.jp/index.asp

V. ANNEX:

JOB REPORT

Applicants are required to prepare and submit a **"Job Report" with Application Form**.

The report should be prepared in **English** and in the format of **Microsoft Power Point**, since all the participants are expected to make a presentation on it after starting course. In addition, since all the reports will be translated into Japanese in advance, your prompt submission of the report will be highly appreciated. Expected contents of the report are given below:

1. Purpose

To introduce, and share information about your situation and issues of waterworks management with lecturers and participants.

2. INSTRUCTIONS:

1) Should be written in **English** by using such as Microsoft PowerPoint" etc. Hand writing is unacceptable.

2) Should cover **ALL** "Items" below

3)If applicant's organization does not have water supply system, such as Ministry of Water and/or its branch office in region, please select one city water company where applicant's office is located or which applicant try to improve.

4) Based on the Job Report, **every participant** will have around 10 minutes to give an oral presentation at the beginning of the course.

3. The following items should be included on your Job Report using such as Microsoft PowerPoint

1) Your country, name and present position
2) Current issue related to the water supply system in your targeting area and the main Strategies to overcome it
3) Most critical issue which your division (section, unit, team, etc.) aims to find the solutions
4) The mandate/The duty which you are engaged in for a solution to above mentioned issue
5) Future project/plan which participants are likely to be involved.
6) Your expectation from this training program specifically

NOTE: It is highly recommendable for participants to send PHOTOS (especially those which clearly show the problems in water supply system). Please be advised to include the detailed "PHOTOS" which clearly show the water supply system or relevant materials, which will be highly useful to know the situation of water system you're in charge area.

Please fill in the form briefly.

A. Basic Information

Population of the area	
Population of the supplied residents	
(ⅰ)Water Supply Area (km^2 and %)	km^2 (% of total area)
(ⅱ)Number of the taps : Total	
: Private taps	
: Public taps	
(ⅲ)Persons per household (average)	persons/household
(ⅳ)24 hours supply or not ? If not, how long suspension per day?	Yes / No If no → water suspension ( ) hours/day
(ⅴ)Maximum supply amount /day	m^3/day
(ⅵ)Average supply amount /day	m^3/day
Water supply system and its current status	
Is your organization carrying out the tasks as below?	
Planning of facilities	Yes / No (Private Sector□ Others□)
Constructing of facilities	Yes / No (Private Sector□ Others□)
Maintaining of facilities	Yes / No (Private Sector□ Others□)
Reading water meter	Yes / No (Private Sector□ Others□)
Collecting the payment	Yes / No (Private Sector□ Others□)
B. Management	
Budget of the year _____ (Unit: US$) * Please attach your budget table, and fulfill the blanks as below	
Expense Total	US$
Income Total	US$
Payment / Water Tariff * Please attach your tariff, and fulfill the blanks as below	
(ⅶ)Price (per m^3)	US$/$m^3$
(ⅷ)Amount of unpaid charge	%
(ⅸ)Non-Revenue Water (NRW) ratio	%
(ⅹ)Leakage ratio	%
C. Water Resource	
What is your water resource? * Please attach the map from the water resource to the water treatment plant	
Is quantity of water enough? Please mention the reason.	
Locality	

Main problem of water resource	
D. Water Quality	
Do you have water quality problem? * Please attach water quality analysis data, and fulfill the blanks as below	
Raw water problem	
Supplied water problem	
Major diseases which (might) be caused by water quality	
E. Purification (Water treatment)	
* Please attach design drawing of your water treatment plant	
What is the main problem on maintaining the plant?	
F. Distribution	
* Please attach your design drawing of distribution network	
What is the main problem of distribution network system?	
Total length of distribution pipe	km
: DIP / CIP (Ductile / Cast Iron)	km (%)
: SP (Steel Pipe)	km (%)
: PVC (Poly-Vinyl Chloride)	km (%)
: PEP (Poly-Ethylene Pipe)	km (%)
: ACP (Asbestos Cement Pipe)	km (%)
: Others	km (%)
Length of annual new install pipe, and its expense	km (US $)
Length of annual new replacement pipe, and its expense	km (US $)
Pipes are distributed mainly from ...	Name of the company _____ Nationality of the products _____
G. General Information of the Facilities	
What equipments do you have for the repair?	
What equipments or facilities are easy to break down?	
Are you maintaining the facilities directly, or outsourcing?	
What countries are the instrumen-tations, such as flow meter, water level gauge and pressure gauge made in?	
H. User's Area	

Water pressure at terminal of the distribution network?	
Do you have the problem of illegal connection?	
Main complaint of the users	

Please choose the main issues from A-H of the above and explain the reasons why.

Select one from A~H	
Reason	

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, training programs, JOCV programs, etc.

Within this wide range of programs, Training Programs have long occupied an important place in JICAoperations. 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 and 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 the Embassy of Japan. Further, address correspondence to:

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