



# Knowledge Co-Creation Program (Group & Region Focus)

GENERAL INFORMATION ON

OPERATION AND MAINTENANCE OF URBAN WATER SUPPLY  
SYSTEM (WATER DISTRIBUTION AND SERVICE)(A)

課題別研修「都市上水道維持管理(給・配水)(A)」

JFY 2018

NO. J1804217/ ID. 1884470

Course Period in Japan: From June 27, 2018 to August 3, 2018

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**

It has been recognized that more than 1.1 billion people around the world have no access to safe drinking water.

Millennium Development Goals (MDGs) target to halve, by 2015, the proportion of the people who are unable to reach or to afford safe drinking water. The new Sustainable Development Goals (SDGs) target to ensure “By 2030, achieve universal and equitable access to safe and affordable drinking water for all” with sustainable management.

Osaka City has accumulated various experiences in operation and maintenance of urban water supply system, through the trial and error in the modernization and recovery process after WWII. The accumulated technique and knowledge shall contribute to secure the safe and sustainable water supply in developing countries.

Also, this program is to be implemented twice a year, one part (A) by JICA Kansai International Center and another part (B) by JICA Chugoku International Center.

## **For What**

This program aims for field engineers in urban drinking water supply management who are specifically working on drinking water distribution and supply services to transfer and disseminate concentrated and practical technique.

## **To whom**

Engineers currently engaged in “Water Distribution and Service” who belong to urban drinking water supply management organizations and who have more than 5 years of working experience in the said field, as well as being the leadership position to give technical instructions to other personnel.

## **How**

- (1) Participating organizations are required to have discussions about the issues on “Water Distribution and Service” of operation and maintenance of urban water supply system in the organizations, and give the participants clear mission or assignment what to acquire in the program, before their departure.
- (2) Participants will learn and observe the urban water supply system, specifically on “Water Distribution and Service” in Osaka City, and analyze what can be applied to their organization in order to improve the issues of the organization.
- (3) Participating organizations are required to establish a program by their own initiative to disseminate the technique and knowledge brought back by the participants.

## II. Description

1. **Title (J-No.): Operation and Maintenance of Urban Water Supply System (Water Distribution and Service) (A) (J18-04217)**
2. **Course Period in JAPAN**  
June 27, 2018 to August 3, 2018
3. **Target Regions or Countries: Yemen, Ethiopia, Cape Verde, Cambodia, Sudan, Nigeria, Papua New Guinea, Brazil, Myanmar, Lesotho, Timor Leste, South Sudan**
4. **Eligible / Target Organization :** This program is designated for counterpart organizations or their related organizations of Japan's bilateral cooperation program.
5. **Course Capacity (Upper limit of Participants) :**  
12 participants
6. **Language to be used in this program :** English (Including Japanese with English interpretation.)
7. **Course Objective:**  
To develop engineers' capabilities for them to take the core role in the field of "water distribution and service" in the organizations in charge of urban water supply in the target countries and regions so the applicable knowledge and skills of Japan are to be shared among the engineers and technicians in their home countries.
8. **Overall Goal:**  
By sharing the acquired knowledge and skills in the field of "water distribution and service" of Japan's urban water supply system, the capabilities of urban water supply maintenance and management in target countries and regions will be improved
9. **Expected Module Output and Contents:**

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

<b>(1) Preliminary Phase in a participant's home country (May-June 2018)</b>		
<i>Participating organizations make required preparation for the Program in the respective country.</i>		
Output	Contents	Method
1) Issues of participating organizations and what participants should acquire in program in Japan will be clarified.	(1) Preliminary discussion in the organizations	Discussion in the organization
	(2) Participants to recognize clear assignment and tasks for the program.	Discussion in the organization
	(3) Submission of Inception Report	Report preparation

All the participants are required to present the **country report** in the core phase in Japan. Participants are requested to bring PowerPoint (TM) slides data, including diagram, chart, photos, maps etc. for efficient presentation, which is to **be sent to JICA Kansai before visiting Japan** (detailed information is provided in the ANNEX II)

**(2) Core Phase in Japan**  
 (June 27, 2018 to August 3, 2018)  
 Participants dispatched by the organizations attend the Program implemented in Japan.

Output	Contents	Method
2) Participants will be able to explain about Water Distribution and Service issues and related operation and maintenance techniques utilized in Osaka City and other organizations.	(1) Needs assessment discussion (participants have interview with Osaka City experts to clarify the exact needs for the program)	Discussion
	(2) Water Treatment (introduction and visit to water treatment plant), Operation and Maintenance ([pipeline] outline, leakage detection and repair [distribution equipment]: outline, water meter),	Lecture/ Observation
	(3) Review of the learning	Discussion
3) Participants will be able to explain about adequate administration of water supply business, and apply Water Distribution and Service related practical knowledge and techniques	(1) Operation and maintenance of Pipeline (leakage detection plan, piping and branching etc.)	Lecture/Practice/ Observation
	(2) Water distribution and service equipment hands-on training (repair, tapping, water suspension, disassembly of small pipe, etc.)	Lecture/Practice/ Observation
	(3) Review of the learning	Discussion
4) Action Plan will be formulated to disseminate Water Distribution and Service related knowledge and techniques which are applicable to participating organizations	(1) Action Plan formulation	Self-learning/ Discussion
	(2) Action Plan presentation	Presentation/ Demonstration

**(3) Finalization Phase in a participant's home country**  
*Participating organizations produce final outputs by making use of results brought back by participants. This phase marks the end of the Program.*  
*Participating organizations are required to submit **progress report by Dec.31, 2018***

Output	Contents	Method
Dissemination program will be implemented in participating organizations within three months after participants' return.	Implementation of dissemination program	Dissemination program
	Progress Report on dissemination program	Submission of the report to JICA local offices

## 10. Course Structure:

(Before coming to Japan)

### Issue analysis in applying organizations

Applying organizations are required to analyze issues in their organizations and make clear objectives to participate in the program.

\*The organizations are also required to make a commitment to formulate and implement the dissemination program after completion of the program in Japan.



(During stay in Japan)

### Country Report Presentation:

- \*Issues in the participating organization
- \*What the participant expect to learn in the program.



### Action Plan Workshop:

- \*Participant will learn how to set up a theme and to draft Action Plan



### Needs Assessment Discussion:

- \* Participants have individual interviews with Waterworks experts to clarify their exact needs for the program.



### General Information on Water Supply Systems

- \*Waterworks in Japan
- \*Water supply systems of Osaka City



### Water Distribution and Service:

- \*Lectures and Practices for operation and maintenance of distribution network and pipelines
- \*Visits to related plants and facilities

### Discussion, Consultation and Facilitation:

- \*Waterworks experts advise you to organize and summarize your learning and findings in the program.



### Formulation of Dissemination Plan (Action Plan)

- \*Formulate a plan to disseminate techniques learnt in Japan which can be utilized to improve the issues in the participating organization
- \*Consultation and facilitation is given by Osaka waterworks experts.

(after the **KCCP** in Japan)



### Implementation of the dissemination plan

\*Participants' organizations are required to submit the progress report by December 31, 2018.

## 11. Structure of the program

Topic outline (subject to minor changes)

2<sup>nd</sup> -3<sup>rd</sup> week (July 2-13)

- (1) Inception report (Country report) presentation
- (2) Needs assessment discussion
- (3) General information on water supply systems in Japan and in Osaka City.
- (4) Visit Water Treatment Plant (WTP) (Intake, Purification, Distribution)  
Observation of operation & maintenance of mechanical and electrical equipment.  
Operation and maintenance practice of electric and mechanical equipment
- (5) Operation control of WTP (sand sampling, test filter, sludge volume analysis etc.)
- (6) Fundamentals of water quality analysis (Theory of chlorination, other treatments)
- (7) Consultation and facilitation

4<sup>th</sup> -5<sup>th</sup> week (July 17- Aug 1)

- (1) Leak detection analysis, theory and hand-on field training using equipment at a private company.
- (2) Consultation and facilitation
- (3) Maintenance of drainage pipe with a height difference
- (4) Visit Water Meter manufacturer
- (5) Practices(tapping, Corporation Tap with or without saddle, water suspension, disassembly of small pipes, pressure bonding etc.)
- (6) Action Plan formulation and presentation

**12. Dissemination Plan:** The participants are required to formulate “Dissemination Plan” (Action Plan) in the program in Japan and to implement the plan after their return by following manners as one of the outputs of the program.

- (1) Objective of the plan:** To improve the technical issues of participating organizations by disseminated knowledge or information learnt in the program.
- (2) Target of the plan:** Engineers or technicians in the participating organization or its related organizations.
- (3) Contents to be covered in the plan:**
  - a) Related technical issues in the participating organization
  - b) Knowledge or information applicable to improve the issues
  - c) Relationship between the knowledge or information and the issues of the participating organization. (How it can be applied.)
  - d) Goal to be achieved by the dissemination program
  - e) Target of the dissemination program
  - f) Dissemination method
  - g) Evaluation method of achievement of the goal

**(4) Main practitioner of the plan:** Participants

**(5) Role of participating organization:**

- a) To select candidates who can plan and implement the plan by their own initiative.
- b) To support dissemination program

**\* In case the Progress report is not submitted from any organization by December 31, 2018, JICA may suspend acceptance of participants from that organization in the future.**

### ***III. Conditions and Procedures for Application***

#### **1. Expectations for the Participating Organizations:**

- (1) This program is designed primarily for counterpart organizations of Japan's bilateral organizations that intend 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 content 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.
- (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 before dispatching their participants to Japan 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 in Japan 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) To be engineers responsible for "Water Distribution and Service" of operation and maintenance of urban water supply.
- 2) To be currently engaged in urban water supply field offices, such as water distribution or service division, and have at least five **(5) years'** practical experience in that area.
- 3) To have a strong commitment and capacity to disseminate acquired techniques and knowledge after return.
- 4) Language: **have a competent command of spoken and written English** which is equal to TOEFL CBT 250 or more (This KCCP includes active participation in discussions, action plan (interim report) development, thus requires high competence of English ability. (Please attach an official certificate for English ability such as TOEFL, TOEIC etc. if possible.)
- 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:**

Age: **be under forty-five (45) years of age** for the field activity under the harsh climate.

## **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. If you have any official documentation of English ability (e.g., TOEFL, TOEIC, IELTS).

**(4) Inception Report:** to be submitted with the Application Form.

Please refer to the ANNEX I of this General Information, and submit it **along with the Application Form**. Applications without the inception report will not be accepted.

## **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 May 11, 2018**)

### **(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 will be made by the JICA office (or the Embassy of Japan) **not later than May 28, 2018**.

**5. Document to be submitted by accepted participants:**

**Country Report presentation slide**-- to be submitted by **June 13, 2018**

Before coming to Japan, only accepted participants are required to prepare a country report (detailed information is provided in the **ANNEX II**).

**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:** Mr. SHIGEMATSU Sumihiro, Program Division 2

(Shigematsu.Sumihiro@jica.go.jp, jicaksic-unit@jica.go.jp)

### 2. Implementing Partner in the past:

(1) **Name:** Osaka Municipal Waterworks Bureau

**URL:** [http://www.city.osaka.lg.jp/main/site\\_policy/0000000153.html#en](http://www.city.osaka.lg.jp/main/site_policy/0000000153.html#en)

(2) **Remark:**

The city of Osaka is situated at the heart of the Japanese archipelago. It has been developed over the centuries as a center of Japanese political and economic life. The city's water supply system became only the fourth modern supply system in the country when it was inaugurated in November 1895. Numerous expansion programs in line with the growth of the city's area and population have since brought the system's supply capacity up to its current daily level of 2.43 million m<sup>3</sup>. The system's organizational structure includes a head office, branch offices (customer service centers, water rate collection centers, pipe laying, maintenance units, etc.), water treatment works, and engineering offices (for maintenance and new construction projects), giving a total employee figure of approximately 1,600.

### 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 basically arrange the following accommodations for the participants in Japan:

JICA Kansai International Center

Adresse : 1-5-2, Wakino-hama-Kaigandori, Chuo-ku, Kobe, Hyogo 651-0073, Japan

TEL : 81-78-261-0388 FAX : 81-78-261-0465

( "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 accommodation, 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, or dental treatment are not included), and
- (4) Expenses for program implementation, including materials.

For more details, please see “III. of ALLOWANCES” of the brochure for participants titled “KENSU-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 (or Embassy of Japan), 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 are required to work on the computers, including preparation of Action Plans, etc. 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.
4. Allowances, such as for accommodation, living, clothing, 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.

# **ANNEX I**

## Operation and Maintenance of Urban Water Supply System (Water Distribution and Service)(A)

### **Inception Report**

Name : \_\_\_\_\_

Country : \_\_\_\_\_

1. General information on your city/town  
(geographical features, total population, social and economic status, climate, etc.)

2. Name of organization : (organization chart, number of employees, etc)

3. Please describe the relationship of your organization with Japan's bilateral cooperation program. (ex: Counterpart organization of Technical Cooperation Program titled "xxxxxx".)

\*This program targets on counterpart organizations or their related organizations of Japan's bilateral cooperation program only.

4. Your present position

5. Technical issues your organization has and subjects your organization particularly requires you to learn in the course.

(Please have a discussion in your organization and fill the charts on the next page with the consensus of your organization)

\*You are advised not to focus on financial issues, but to technical issues, since this program shall not contribute to improve financial issues.

	Technical Issues	Objective Data to suggest issues	Expectation to the program
*organization			
*water resource *water pollution *water quality control			
*water treatment facilities			
*mechanical and electrical facilities *measuring equipment			
*pipelines			

Organizational viability

SWOT Analysis of your organization

S (internal Strength)	O (external Opportunity)
W (internal Weakness)	T (external Threat)

## ANNEX II

### Operation and Maintenance of Urban Water Supply System (Water Distribution and Service)(A)

#### Country Report presentation slide

All participants are requested to make maximum **8** pages of country report presentation slide at PowerPoint covering following theme and to send it to JICA **by June 13, 2018**. 30 minutes of presentation time including Q&A is allocated per person.

page	theme	detailed contents
1	front page	date, course name, country, participant's name
2	general information about your country	geographical position, population, economic statistics, religion etc.
3	general information about the current water supply situation in the area where your organization is covering.	about your country total or about the area where your organization covers, e.g.: <ul style="list-style-type: none"><li>● water source, their quality and quantity</li><li>● total length of piping</li><li>● water supply coverage rate</li><li>● NRW rate</li></ul>
4	organization chart & your duty	<ul style="list-style-type: none"><li>● organization chart where you belong to</li><li>● your duty and responsibility in this organization</li></ul>
5~7	issues and problems your organization is facing now	e.g. <ul style="list-style-type: none"><li>● machine and pipes are so often broken down</li><li>● very low income to operate</li><li>● high rate of NRW</li><li>● lack of capable engineer etc.</li></ul>
8	what you wish to learn in Japan	list up 3 items and state their 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, 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 International 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**