



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

## GENERAL INFORMATION ON

**Non-Revenue Water Management (Leakage Control) (A)**  
**課題別研修「上水道無収水量管理対策(漏水防止対策) (A)」**

***JFY 2021***

**NO. 202003265-J001**

**Course Period: January 17 to February 10, 2022**

**This program is ONLINE.**

**There is no component of on-site program in Japan.**

**This program is jointly implemented for FY2021 and FY2020.**

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**

The leakage rate through distribution facilities in water supply system is considerably high in many developing countries. Water delivered from a purification plant sometimes cannot fully reach the end of distribution network and, worse still, the shortage of water volume and water pressure even causes blockage of water supply or outbreak of diseases due to the contamination of water. Despite of those serious situations, countermeasures for it have not smoothly applied in daily maintenance work such as leakage detection and repair and in preventive measures in planning, designing, and constructing distribution facilities.

There is an urgent and increasing demand for technical capacity development in non-revenue water management with the background that limited number of technical staffs has practical knowledge and experience in this sector.

## **For what?**

This program aims to obtain and upgrade knowledge and technical skills on non-revenue water management focusing on leakage prevention work.

## **For whom?**

This program is offered to technical staffs engaged in water supply works in the aspect of planning, design, construction, operation, maintenance.

## **How?**

Participants have opportunities to learn non-revenue water management through online lectures and discussion. Participants will also propose an Action Plan describing what the participant will do through the use of the knowledge and ideas acquired and discussed in this program among other participants.

Besides, this program will provide an opportunity for all participants to exchange the ideas and information of each country and to develop human networks among participants.

## **II. Description**

**1. Title (J-No.)**

Non-Revenue Water Management (Leakage Control) (A) (202003265-J001)

**2. Course Period in Japan**

January 17 to February 10, 2022

**3. Target Regions or Countries**

Brazil Cambodia, Ethiopia, Fiji, Malaysia, Philippines

**4. Eligible/ Target Organization**

(1) Department of water supply of central/local government

(2) Other public organizations in charge of water supply works

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

6 participants for 202003265-J001

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

English

**7. Course Objective**

Action Plans for the respective country/city is implemented and non-revenue water management on participant's organization is strengthened.

**8. Overall Goal**

To be able to implement projects of non-revenue water management for aiming to conserve water resources and improve fiscal conditions of operating organizations in water supply sector.

## 9. Expected Module Output and Contents

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

### (1) Preliminary Phase

(Before starting core phase)

Expected Module Output	Activities
Inception Report is formulated (See ANNEX)	Formulation and submission of Inception Report

### (2) Core Phase

(January 17 to February 10, 2022)

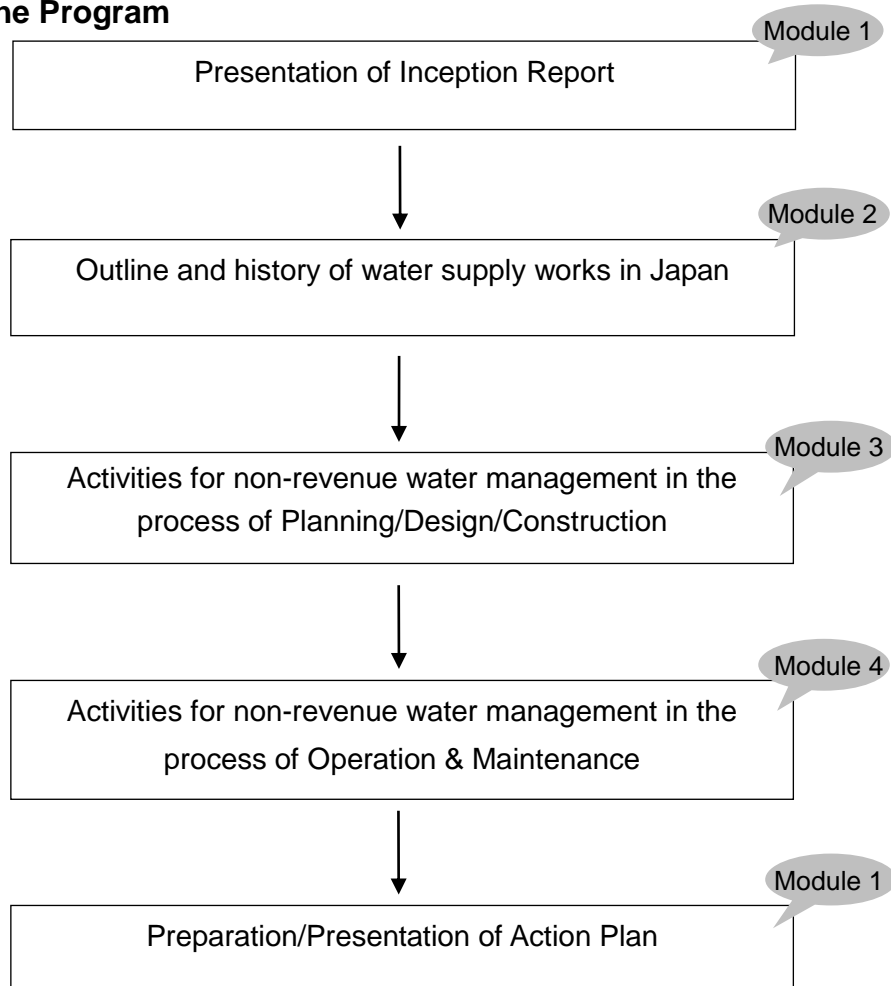
Expected Modules Output	Subjects/Agendas	Methodology
1) Participants can understand existing situations and good examples of other participants' countries, and get an idea applicable for their own country.	<ul style="list-style-type: none"> <li>- Presentation of Inception Report</li> <li>- How to prepare an Action Plan</li> <li>- Presentation of Action Plan</li> </ul>	Lecture, Discussion
2) Participants can explain outline and history of water supply works in Japan.	<ul style="list-style-type: none"> <li>- Legal structure on water supply sector in Japan</li> <li>- Role of central/local government in water supply sector in Japan</li> <li>- Outline and history of water supply works in Nagoya City</li> <li>- Waterworks Management</li> <li>- Sound water business management</li> </ul>	Lecture, Discussion
3) Participants can explain relationship between non-revenue water management and planning/design/construction of water supply facilities.	<ul style="list-style-type: none"> <li>- Outline of leakage preventive works</li> <li>- Planning of water distribution facilities</li> <li>- Design of distribution pipeline</li> <li>- Distribution network calculation</li> <li>- Construction management of distribution pipeline</li> <li>- Type of pipe material, Joints, Pipe connection</li> <li>- Mapping system of distribution pipeline</li> <li>- JICA Project on non-revenue water management in developing countries</li> <li>- Presentation from ex-participants of this training</li> </ul>	Lecture, Discussion
4) Participants can explain factors and countermeasures on non-revenue water in the process of operation and maintenance of water supply facilities.	<ul style="list-style-type: none"> <li>- Outline of leakage preventive works</li> <li>- Leakage detection</li> <li>- Repair work of leaking pipe</li> <li>- Water pressure control for distribution pipeline</li> <li>- Water meter reading, Countermeasures for illegal use</li> <li>- Analysis of distributed amount</li> </ul>	Lecture, Discussion

### (3) Finalization Phase

(Three months after the program)

Expected Module Output	Activities
To implement the Action Plan	- Sharing and finalizing the Action Plan in the participant's organization.

#### Structure of the Program



**Reference:** Tentative Program Schedule

(NOTE : Activities are subject to changes.)

<b>Week</b>	<b>Subject</b>
1st Week	(L) Course Orientation
	(L) Water Utility Management in Japan
	(L) Theory and practice of PCM
	(P) Inception Report Presentation
	(L) Video Viewing on NRW Fighting
	(L) Cool Japan
	(L) Leakage Control Work, Leakage Control in Nagoya
2nd Week	(L) Work Plan for Maintenance & Control of Distribution pipes
	(L) Characteristics of Leakage, Distributed & Leakage Volume Analysis
	(L) Contract Method
	(L) Outline of Water Distribution Planning
	(L) Water Distribution Pipelines Renewal Planning
	(L) Backfilling of Pipeline Design
	(L) Water Rate
3rd Week	(D) Review Discussion among Participants
	(L) Pipe network Analysis using Hydraulic Model
	(L) Leakage Repair in Nagoya
	(L) Mapping Information Management, Computer Mapping System
	(L) Specific Procedures for the Completed Work Inspection
	(L) Maintenance & Operation of Water Service Installations
	(L) Meter Reading
4th Week	(L) Publicity Activities, Efforts to PR
	(D) Review Discussion among Participants
	(L) Water Quality Control
	(P) Presentation of Action Plan
	Evaluation Meeting
	Closing Ceremony

Abbreviation: L: Lecture, P: Presentation, D: Discussion

### **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) The participant's organization needs to support participants for holding the meeting aiming at sharing their knowledge or experiences learned from this program with their colleagues and related persons after finishing this program.

#### **2. Nominee Qualifications:**

Applying organizations are expected to select nominees who meet the following qualifications and illustrate the fact and reasons for the nomination in application form:

##### **(1) Essential Qualifications**

- 1) Current Duties: be a technical official in charge of water supply works  
**Counterparts of Japan's bilateral cooperation program are highly prioritized.**
- 2) Experience in the relevant field: have more than 5 years' experience in water supply works
- 3) Educational Background: be a university graduate in engineering discipline or the equivalent.
- 4) Health: must be in good health, both physically and mentally, to participate in the Program. Pregnant applicants are not recommended to apply due to the potential risk of health and life issues of mother and fetus.
- 5) Technical Requirements:
  - a. Technology Proficiency
    - Basic computer skills such as, sending/receiving email with attachments, and using a web browser.
    - Online course is delivered using the following services, Web Conferences (Zoom), Cloud Storage (GIGAPOD), and YouTube. Online tutorial and support by JICA will be limited. The ability to be self-directed in learning new technology skills are required.
  - b. Internet Connection
    - High Speed Broadband Connection (at least 2Mbps).
      - \* Internet access charge incurred for this course shall be borne by your organization.
  - c. Hardware (Minimum Requirement)
    - Regular access to a computer, either from your home or from your office.
    - Operating System: Windows or Mac OS (Updated version is preferred).
    - Processor: Intel Core 2 Duo or higher; 2GHz or higher

- Memory: 4GB of RAM or higher
  - Hard Drive Space: 5GB free disk space
  - Browser: Google Chrome is preferred browser. (Edge, Firefox, Safari can be used)
  - Others: Webcam Microphone, and Audio output Device (Speaker or Headset)
- d. Software (which may be required)
- Zoom Client for Meeting (<https://zoom.us/download>)
    - \* In case you are using your office computer and use of Zoom is not authorized by your IT administrator, please notify JICA at the time of application.

## **(2) Recommendable Qualifications**

- 1) Expectations for the Participants: Have ability of communication skills for effective learning in amicable collaboration.
- 2) Age: Be over twenty-eight (28) and under forty-five (45) years of age.

## **3. Required Documents for Application**

### **(1) Application Form:**

The Application Form is available at the respective country's **JICA office or the Embassy of Japan**.

### **(2) Photocopy of passport**

\*Photocopy should include your name, date of birth, nationality, passport number, and expiry date.

\*If you do not have a passport, please submit a copy of an alternative ID card.

## **4. Procedure for Application and Selection :**

### **(1) Submitting 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 November 5, 2021**)

### **(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 December 3, 2021**.

**5. Documents to be submitted by accepted candidates**

Inception Report: to be submitted to the JICA office by **January 7, 2022**;

Only accepted candidates are required to prepare an Inception Report (detailed information is provided in the VI.ANNEX, “**Guideline for Inception Report**”.) The Inception Report should be sent to JICA Center in Japan (JICA Chubu) by January 7, 2022, by e-mail at [cbictp1@jica.go.jp](mailto:cbictp1@jica.go.jp)

**6. Conditions for Attendance:**

- (1) to strictly adhere to the program schedule.
- (2) to attend all of the program activities.
- (3) not to change the program topics.
- (4) to follow the Term of Use for the Online KCCP (privacy and copyright policy)  
[https://www.jica.go.jp/english/our\\_work/types\\_of\\_assistance/tech/acceptance/training/index.html](https://www.jica.go.jp/english/our_work/types_of_assistance/tech/acceptance/training/index.html)

## ***IV. Administrative Arrangements***

### **1. Organizer:**

**(1) Name:** JICA Chubu Center

**(2) Contact:** ITOYAMA Hiroshi (Mr) ([cbictp1@jica.go.jp](mailto:cbictp1@jica.go.jp))

\* Please add the course number “202003265-J001” to a message subject in your mail.

### **2. Other arrangements :**

As the most of the seminars will be live-streamed via Zoom, participants will need a computer with a microphone and webcam, stable/high-speed internet connection. If you are not able to arrange internet access/devices necessary to participate in the online course, JICA will make arrangements for the participants. Please contact the JICA office in your country or JICA Chubu for more information.

## V. Other Information

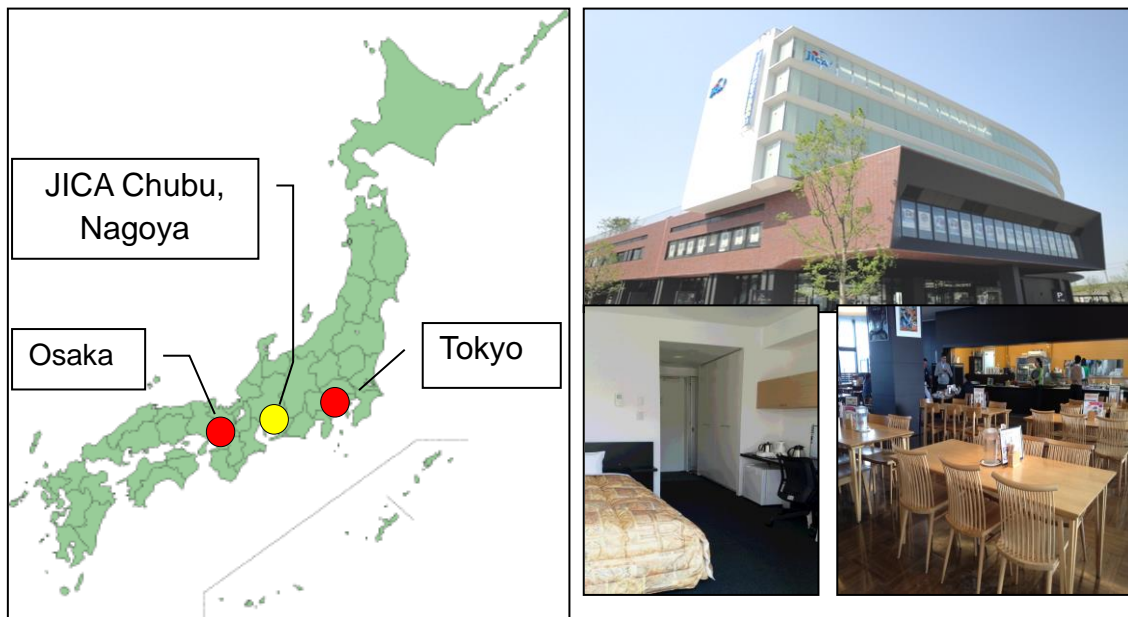
### About JICA Chubu Center

#### <Location>

- It is located at the center of *Nagoya*-city. The Nagoya main station, the regional hub of various transports, is 15 mins walk from JICA Chubu Center.

#### <Recommended Websites>

- ✓ JICA Chubu's website: [www.jica.go.jp/chubu/english/office](http://www.jica.go.jp/chubu/english/office)
- ✓ Virtual guide of JICA on Youtube : [www.youtube.com/watch?v=tNelkQUmTRQ](http://www.youtube.com/watch?v=tNelkQUmTRQ)



# VI. ANNEX:

## Guideline for Inception Report

The accepted candidates are requested to prepare an Inception Report to explain the actual situation and good practices on non-revenue water management, and as well as to introduce their job descriptions and own interests for the course program. The Inception Report must be sent to the JICA Chubu until 7<sup>th</sup> January, 2022.

### 1. Format

The Inception Report shall consist of the following sheet-A, sheet-B, and the Power Point file. The Power Point file will summarize both sheets with no more than 10 pages long.

### 2. Sheet-A. General Information

Name, country:			
Brief description of; (1) Your job and your organization (2) Organization charts and function of each department			
Total Population in the Service Area		Water Pressure of Distribution Pipe	From Mpa ~ To Mpa
Population Served		Main Water Sources	
Service Ratio	%	Average Precipitation	mm/year
Service Hours	hours/day	Ratio of Unaccounted Water (%)	Total %
Water Supply Capacity	m <sup>3</sup> /day		Leakage %
Average Water supply Volume	m <sup>3</sup> /day		Illegal Use %
			Others %
Water Distribution System			
Type of Distribution Pipe	Jointing Type of Distribution Pipe	Distribution System	
		(e.g. Gravity flow, Pump-up system etc.)	
Water Supply System for House Connection			
Type of Service Pipe	Jointing Type of Service Pipe	Water Supply System for House Connection	
		(Ex. Direct Pressure, Water Tank etc.)	

Metering System		Water Charge	Mapping System
Type of Flow meter for Distribution Pipe	Type of Water Meter for Service Pipe	Water Charge Collecting Method	Scale for Pipe Drawings for Maintenance

\*Please bring Pipe Network Diagram (Soft copy or Hard copy) for practice session.

### **3. Sheet-B. Non-revenue Water Management (Leakage Control)**

Problems Currently Faced:
Ongoing Countermeasures or Projects on Non-Revenue Water Management:
The strategy and the future plan of your organization

**NOTE:**

- (1) Each participant will have 10-20 minutes for an oral presentation on his/her Inception Report including time for interpretation and Q&A.
- (2) It is recommended that an Inception Report contain related information or materials including statistics data or photos which could be useful in preparing an Action Plan.

## ***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 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 the Embassy of Japan. Further, address correspondence to:

**JICA Chubu Center**

**Address: 4-60-7 Hiraikecho, Nakamura-ku, Nagoya 453-0872, Japan**

**TEL: +81-52-533-0220 FAX: +81-52-564-3751**