



**TICA**



**MWA**



**JICA**

**General Information**  
**Third Country Training Programme JFY 2024 on**  
**Practice in Innovation and Digital Technology**  
**for Sustainable Water Management**

**July 7 - 20, 2024**

Conducted by

**Implementing Organization**

Metropolitan Waterworks Authority

Ministry of Interior of Thailand

**The Government of Japan**

Japan International Cooperation Agency

**The Government of Thailand**

Thailand International Cooperation Agency

Ministry of Foreign Affairs of Thailand



## **Japan International Cooperation Agency (JICA)**

### **ODA and JICA**

Since 1954, Japan has been providing financial and technical assistance to developing countries through ODA (Official Development Assistance), aiming to contribute to the peace and development of the international community. JICA is in charge of administering all ODA such as technical cooperation, ODA loans and grant aid in an integrated manner. JICA assists and supports developing countries as the executing agency of Japanese ODA, and works in over 150 countries and regions and has some 100 overseas offices.

### **JICA's Vision**

In accordance with its vision of "Leading the world with trust", JICA, with its partners, will take the lead in forging bonds of trust across the world, aspiring for a free, peaceful and prosperous world where people can hope for a better future and explore their diverse potentials.

### **JICA's Mission**

JICA, in accordance with the Development Cooperation Charter, will work on human security and quality growth.

#### **Action 1 Commitment:**

Commit ourselves with pride and passion to achieving our mission and vision;

#### **Action 2 Gemba:**

Dive into the field ("gemba") and work together with the people;

#### **Action 3 Strategy:**

Think and act strategically with broad and long-term perspectives;

#### **Action 4 Co-creation:**

Bring together diverse wisdom and resources;

#### **5. Innovation:**

Innovate to bring about unprecedented impacts.

### **Japan International Cooperation Agency (JICA)**

#### **Thailand Office**

31st Floor, Exchange Tower,  
388 Sukhumvit Road,  
Klongtoey, Bangkok 10110  
Thailand

Telephone : +66-2261-5250

Facsimile : +66-2261-5263

Website : <http://www.jica.go.jp/thailand/english/index.html>



## **Thailand International Cooperation Agency (TICA)**

### **TICA's Vision**

TICA aspires to be a central agency on technical and development cooperation under the Royal Thai Government to serve as a bridge for global sustainable development.

### **TICA's Mission**

TICA is the main agency to execute international development cooperation with foreign governments, international organizations and intergovernmental organizations.

TICA is the focal agency in formulating strategic guidelines and policies on international development cooperation to be comprehensively in line with the Royal Thai Government's foreign policies.

### **Objectives**

- To develop international cooperation plan, study and analysis on cooperation policy including implementation, follow-up and evaluation of technical cooperation projects.
- To administer development cooperation programmes provided to developing countries according to foreign policies of the Royal Thai government.
- To cooperate with various development partners including foreign governments and international organizations to develop technical cooperation projects for development under bilateral and multilateral frameworks.
- To administer fellowships and scholarships offered to developing countries for human resources development in public and private sectors as well as civil society.
- To coordinate international development cooperation.
- To disseminate information regarding development cooperation to government agencies concerned and international organizations.

### **Thailand International Cooperation Agency (TICA)**

Ministry of Foreign Affairs  
8th Floor, Government Complex Building B (South Zone)  
Chaengwattana Road,  
Laksi District, Bangkok 10210  
Thailand

Telephone : +66-2203-5000 ext. 43302  
Facsimile : +66-2143-8357  
Website : <https://tica-thaigov.mfa.go.th>



## **Metropolitan Waterworks Authority (MWA)**

### **The Metropolitan Waterworks Authority (MWA)**

The Metropolitan Waterworks Authority (MWA) is a state enterprise under the supervision of the Ministry of Interior that has been operating since 16<sup>th</sup> August 1967 pursuant to the Metropolitan Waterworks Authority Act, B.E. 2510 (1967). The enterprise's primary mission is to provide raw water for use in supply, production, delivery and distribution of water in Bangkok, Nonthaburi and Samut Prakan while operating other connected businesses or businesses that benefit waterworks.

### **MWA's Vision**

Quality Water for Quality Living

"Quality Water" results from the main intention of innovating for value, increasing efficiency to reduce water loss and providing good quality water for consumption. "Quality Living", meanwhile, happens as an effect of secure growth through comprehensive waterworks businesses and water resource security and has an aim of extensively and equitably boosting service user confidence to lead to a good quality of life of the people.

### **MWA's Missions**

1. Comprehensively to operate the main water supply business by providing water services that meet quality standards for the extensive good quality of life of the people
2. To be an organization with the capability to effectively deal with crises
3. To operate connected businesses to create value for stakeholders while creating sustainable growth for the organization

### **The Metropolitan Waterworks Authority (MWA)**

400 Prachacheun Road,  
Tungsonghong, Laksi,  
Bangkok 10210  
Thailand

Telephone: +662-504-0123  
Website: <https://www.mwa.co.th>

## **Third Country Training Programme (TCTP) JFY 2024 on Practice in Innovation and Digital Technology for Sustainable Water Management**

The Third Country Training Programme JFY 2024-2025 on Practice in Innovation and Digital Technology for Sustainable Water Management is conducted by the Government of Thailand and the Government of Japan as a part of their Technical Cooperation Scheme.

The course arrangements are set up by the Metropolitan Waterworks Authority (MWA) in collaboration with the Japan International Cooperation Agency (JICA) and the Ministry of Foreign Affairs of Thailand through the Thailand International Cooperation Agency (TICA).

### **Course Title**

Practice in Innovation and Digital Technology for Sustainable Water Management Training Course

### **Background**

The world is currently experiencing many changes, including climate change and digital transformation, which play an increasingly important role in living and working more and more. MWA recognizes the importance of these changes, and is ready to respond to the Thailand 4.0 policy, including creating innovations to solve these problems. MWA also hopes to share and exchange working experiences in dealing with these through this training program, especially with CLMV countries and ASEAN countries where the landscape and environment are similar to Thailand, in order to enable water supply staff in these countries be able to cope with climate change in an advanced way and that will benefit the organization and people.

This training course focuses on the innovation and digital technology that are advantageous to water supply management. For several years, MWA has been developing its works and services by adapting advanced technology to improve its competence. With its decades of experiences and tacit knowledge of the water industry, the participants can expect the sharing of these with MWA experts including the experts from Japan and specialists from private sectors.

The course consists of lecture, practice and site visits. In the lectures, the participants will learn about Raw Water Source Management, Water Treatment & Water Quality, Network Management, Incident Management, Digital Transformation, Knowledge & Innovation Management, Non-Revenue Water Management and Pipeline Management.

The participants will also experience real practice sessions from MWA in using modern technology to detect leaks through AI. Moreover, the participants will have an opportunity to have a study visit at MWA's water treatment plant (the biggest one in Asia) and travel to Rayong province to have a site visit at an exceptional company, together with a cultural visit.

Throughout the course, MWA will provide experts from both MWA and outside to be advisors especially for the workshop and presentation sessions.

### **Overall Goal**

To develop and increase human resource capacity by internationally exchanging knowledge and experiences which leads to sustainability in water management with interesting technologies and innovations in Cambodia, Lao PDR, Myanmar, Vietnam, Timor-Leste, and Thailand including other Asian countries where water supply needs technology transformation

**Purpose**

By offering an interactive training course for the participants, using various training methods including on-site training, study visits, case studies, coaching and workshop, as well as sharing and exchanging knowledge, experiences, and practices with MWA experts and partners:

1. To let participants gain useful knowledge, best practices and experiences that MWA uses for technology and innovation management; and
2. To let participants have an opportunity to fruitfully exchange waterworks knowledge, best practices and experiences among each other to be able to compatibly adapt to their organization's context.

**Anticipated Benefits**

At the end of the Course, the participants are expected to;

- 1) Gain useful knowledge, best practices and experiences that MWA and its partners use for technology and innovation management;
- 2) Gain fruitful insights/ideas from the experience exchange in waterworks among the participants;
- 3) Apply the knowledge or ideas learnt from the training course to their own organization.

**Venue**

The Training Course will be mainly held at MWA's headquarters, Thailand.

**Duration**

The Course will be held for ten (10) days excluding weekends.

**Invited Countries and/or Organizations**

The Governments of the following countries will be invited to nominate applicant(s) to attend the Course: Cambodia, Lao PDR, Myanmar, Vietnam, Timor-Leste, and Thailand as the main target countries, including other Asian countries where water supply needs technology transformation.

**Number of Expected Participants**

The number of participants from the invited countries shall not exceed 20 persons.

**Language**

The course will be conducted in English mainly.

**Implementing Organization**

The course will be conducted by Metropolitan Waterworks Authority (MWA).

**Qualifications for Applicants**

- (1) be nominated by their Governments in accordance with the procedure stipulated below;
- (2) have completed at least technical college or university degree or equivalent academic background in Environmental Engineering, Computer Engineering or related field in water supply;
- (3) be managers/engineers or work in the field of water supply with at least four ( 4 ) years working experience
- (4) be ≤ 45 years of age of any gender (Women are encouraged to apply for the Course.);
- (5) be proficient in spoken and written English;
- (6) be in good health, both physically and mentally; each participant should have a health certificate provided by an authorized physician. The medical report form is also attached together with the Nomination form. Participants shall follow health instruction/measures

- by the Government of Thailand. Pregnancy is regarded as a disqualifying condition for participation in the Course; and  
(7) not be serving in any form of military service.

### **Application Procedure**

1) The Fellowship Application Form can be downloaded from Website: <https://tica-thaigov.mfa.go.th> (Fellowship/trilateral-short-term-training-courses/TCTP)

2) The Applicant or the Government applying for the Course on behalf of applicant(s) shall forward the application form of each applicant not later than **30<sup>th</sup> April 2024**, and the details are indicated in the following:

- Three (3) hard copies to:

Royal Thai Embassy in their country

- One soft/digital copy in PDF format to:

Director, Human Resources Development Cooperation Division,  
Thailand International Cooperation Agency, Ministry of Foreign Affairs of Thailand  
The Government Complex, Building B (South Zone), 8<sup>th</sup> Floor, Chaengwattana Road, Laksi  
District, Bangkok 10210, THAILAND  
Tel + 66-2203-5000 ext. 43302, Fax: +66-2143-8451  
E-mail: tctp.tica@gmail.com, siwalee.w@mfa.go.th

- One soft/digital copy in PDF format to:

International Cooperation Division, Corporate Innovation Department  
Metropolitan Waterworks Authority (MWA)  
400 Prachacheun Road, Tungsonghong, Laksi, Bangkok 10210 THAILAND  
Tel +66 2 504 0123 Ext. 1689/1093  
Email: international@mwa.co.th

### **Certificate**

Participants who successfully complete the training with at least 80 percent attendance will be awarded a certificate by TICA, JICA and MWA. MWA will prepare the certificates for participants.

### **Allowances and Expenses**

The following allowances and expenses will be covered by JICA and TICA:

1) Economy class round-trip air ticket between the nearest international airport of the participants' countries and Bangkok will be issued by TICA to the approved candidates. The approved candidates need to send a photocopy of their passport, specifically, the page which shows the correct names, to facilitate the arrangement of electronic air tickets. The electronic air ticket will be sent to the approved candidates.

2) Living allowance according to the rules and regulations of the Government of Thailand will be paid to the participants during their stay in Thailand. This living allowance will cover lunch, dinner and other personal daily expenses. However, each participant is requested to prepare some local money for their expenses prior to the allowance payment.

3) In accordance with relevant regulations, free minor medical treatment will be provided for participants who become ill during their stay in Thailand.

### **Accommodation and Meals**

The accommodation of the participants will be available at the Hotel (TBC). Participants will have single room in principle. A longer stay cannot be permitted in the accommodation. Participants need to make arrangements themselves for their meals including breakfast with the provided allowance. During short breaks, snacks will be provided by the implementing organization.

### **Other Information: International Traveling**

1) Participants are required to arrive in Thailand on the date designated by TICA and MWA after the confirmation and acceptance of participation. The confirmed air tickets will be sent to the participants in advance.

2) Participants are responsible for other expenses incurred during travel between the participants' home countries and Thailand, such as local transportation, passport fee, or airport tax.

3) Prior to their arrival in Thailand, and if deemed necessary, all participants need to obtain the Non-Immigrant VISA (F) from the Royal Thai Embassy/Royal Thai Consulate-General in their respective countries or countries nearby.

4) Upon arrival at Bangkok International Airport, participants are asked to look for TICA sign at the AOT Limousine customer relation counters and proceed to it. Participants are required to show the Instruction of Fellowship Award at the counter so that arrangements for airport transfer to the reserved hotel will be made. Participants do not have to pay for the AOT limousine service charge since the cost will be paid directly to AOT by TICA. Participants are recommended not to take a public taxi to the hotel by themselves as the taxi fees cannot be refunded from TICA

5) Participants shall not bring any members of their families with them during the training.

6) The participants are encouraged to bring their own medicine.



## Tentative Programme for Practice In Innovation And Digital Technology For Sustainable Water Management Training Course

Date: 7<sup>th</sup> – 20<sup>th</sup> July 2024

Venue: Metropolitan Waterworks Authority (MWA), Thailand

Date/Month/Year	MORNING (9.00-12.00)	AFTERNOON (13.00-16.00)
Day 1 (Sunday) July 7, 2024	-Arrival-	
Day 2 (Monday) July 8, 2024	<p><b>Opening Ceremony,</b> <b>Course Orientation,</b> <b>Participant Introduction:</b> - Each organization introduces its organization and country (5-10 mins each)</p>	<p><b>Overview of water supply management:</b></p> <ul style="list-style-type: none"> <li>- Overview of Water Management in Thailand</li> <li>- Overview of MWA's Water Supply Management</li> <li>- Overview of MWA's Innovation &amp; Technology in MWA's Water Supply Management</li> </ul>
	Place: TK Palace	Place: TK Palace
Day 3 (Tuesday) July 9, 2024	<p><b>Raw Water Source Management:</b></p> <ul style="list-style-type: none"> <li>- (Site Visit) Samlae Raw Water Pumping Station</li> <li>- MWA's Raw Water Management</li> <li>- Raw Water Canal Survey Robot (Waree Kunchorn): for measuring raw water quality and canal's profile</li> <li>- MWA's Seawater Intrusion Management</li> <li>- Technology/Tool to manage seawater intrusion problem: Using AI to forecast and manage seawater intrusion problem (Anti Salinity Tool – ANSAT)</li> <li>- Salinity Data System for Customers (Salzboard)</li> </ul>	<p><b>Water Treatment:</b> (guest speaker from KU)</p> <ul style="list-style-type: none"> <li>- Water Treatment Technologies</li> <li>- Smart Technologies for Water Treatment</li> </ul>
	Place: Samlae Station	Place: MWA (NWTTI, CTC)

<b>Date/Month/Year</b>	<b>MORNING (9.00-12.00)</b>	<b>AFTERNOON (13.00-16.00)</b>
Day 4 (Wed.) July 10, 2024	<b>Water Treatment &amp; Water Quality:</b> <ul style="list-style-type: none"> <li>- Water Treatment of MWA</li> <li>- Water Quality Management of MWA</li> <li>- (Site Visit) Bangkhen Water Treatment Plant, the biggest plant in Asia</li> </ul>	<b>Incident Management:</b> <ul style="list-style-type: none"> <li>- MWA Command Center</li> <li>- CRM</li> </ul>
	Place: MWA (Bangkhen WTP)	Place: MWA command center
Day 5 (Thu.) July 11, 2024	<b>Network Management:</b> <ul style="list-style-type: none"> <li>- Water Pressure Management</li> <li>- SCADA and Pressure Trend Curve</li> <li>- Smart Map</li> <li>- (Site Visit) SCADA Center</li> </ul>	<b>Site Visit at Yokogawa Thailand:</b> <ul style="list-style-type: none"> <li>- Network control and SCADA system</li> <li>- Case studies</li> </ul>
	Place: MWA- SCADA center, Samsen WTP	Place: Yokogawa
Day 6 (Fri.) July 12, 2024	<b>Digital Transformation:</b> (Guest Speaker from DTX) <ul style="list-style-type: none"> <li>- Digital Transformation</li> <li>- Digital Twin</li> </ul>	<b>Digital MWA:</b> <ul style="list-style-type: none"> <li>- Transformation of MWA branch services to be virtual branch</li> <li>- MWA on Mobile</li> <li>- e-Doc, e-Invoice, e-Tax Invoice &amp; e-Receipt</li> </ul>
	Place: TK Palace	Place: TK Palace
Day 7 (Sat.) July 13, 2024	-Free Day-	
Day 8 (Sun.) July 14, 2024	-Free Day-	
Day 9 (Mon.) July 15 2024	<b>Knowledge &amp; Innovation Management:</b> <ul style="list-style-type: none"> <li>- Knowledge Management Process and MWA's KM Portal</li> <li>- Innovation Management Process and Virtual Innovation Center</li> <li>- Some show cases</li> </ul>	Travel to Rayong (+ Cultural visit)
	Place: TK Palace	

<b>Date/Month/Year</b>	<b>MORNING (9.00-12.00)</b>	<b>AFTERNOON (13.00-16.00)</b>
Day 10 (Tue.) July 16, 2024	<b>Study Visit</b> - Reverse Osmosis Plant at PTTGC <u>OR</u> - WHA ----- Place: (Rayong)	(+ Cultural visit) Travel back to Bangkok ----- Place: TK Palace
Day 11 (Wed.) July 17, 2024	<b>Non-Revenue Water Management (1):</b> - Non-Revenue Water Management of MWA - Relevant Technologies such as JD7, Leak Noise Correlation, Satellite, etc. including AI Leak Detector ----- Place: MWA (NWTTI, CTC)	<b>Non-Revenue Water Management (2):</b> - (Practice) Leakage Training Yard (built by JICA in the past) - (Practice) AI Leak Detection - (Practice) Leakage Yard on Cyber ----- Place: MWA (NWTTI, CTC)
Day 12 (Thu.) July 18, 2024	<ul style="list-style-type: none"> <li>• Non-Revenue Management: Case study from Japan <u>OR</u></li> <li>• Innovation/Solution to cope with water challenges caused by climate change</li> </ul> ----- Place: TK Palace	<b>Pipeline Management:</b> - AI-Based Pipeline Diagnostic (guest speaker from Fracta, JAPAN) ----- Place: TK Palace
Day 13 (Fri.) July 19, 2024	<b>Workshop:</b> - Group Presentation Preparation ----- Place: TK Palace	<b>Workshop:</b> - Group Presentation (15 mins each) <b>Closing Ceremony</b> ----- Place: TK Palace
Day 14 (Sat.) July 20, 2024	-Departure-	

## Contact Persons

For more information, please contact:

Director, Human Resources Development Cooperation Division,  
Thailand International Cooperation Agency, Ministry of Foreign Affairs of Thailand  
The Government Complex, Building B (South Zone), 8<sup>th</sup> Floor, Chaengwattana Road, Laksi  
District, Bangkok 10210, THAILAND  
Tel + 66-2203-5000 ext. 43302, Fax: +66-2143-8451  
E-mail: tctp.tica@gmail.com, siwalee.w@mfa.go.th

International Cooperation Division, Corporate Innovation Department  
Metropolitan Waterworks Authority (MWA)  
400 Prachacheun Road, Tungsonghong, Laksi, Bangkok 10210  
THAILAND  
Tel +66 2 504 20123 Ext. 1689, 1093  
Email: international@mwa.co.th

END

### Remark:

1. Every applicant must complete the ANNEX-I and attach it together with the application form.
2. For ANNEX-II, only the *selected applicants* have to prepare the advanced assignment before the training course starts and have to present it in the Participant Introduction session.
3. The participants are recommended to bring their own laptop for doing their workshop.

**BRIEF INFORMATION ON BACKGROUND AND INTENTION  
OF INDIVIDUAL APPLICANT FOR TRAINING COURSE ON  
“Practice in Innovation and Digital Technology for Sustainable Water Management”**

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**1. Academic Background**

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**2. Job Responsibilities**

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**3. Job Experiences**

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**4. Applicant's Expertise**

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**5. Expected Benefit from Course Attendance**

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## 6. Application of Knowledge Gained to Work

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**ADVANCED ASSIGNMENT  
FOR  
THE TRAINING COURSE ON  
“Practice in Innovation and Digital Technology for Sustainable Water Management”**

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**Organization Report (Prepare in Advance)**

Participants are requested to prepare the organization reports regarding water supply management in their respective organizations and countries for about 7 minutes presentation, followed by questions and discussions. This organization reports should be about 10 pages and need to be submitted to MWA in advance and it will be used to present on the first day of the training course. Participants from the same organization can prepare a combined report and presentation. However, all the participants are expected to bring all the background information for this organization report presentation, before coming to Bangkok. Participants are expected to use presentation program e.g. Microsoft Power Point to make a presentation on the group project assignment during the course. Therefore, it is recommended to bring along a laptop computer or tablet.

Suggested Report Format:

1. Report title, name, organization and country of participants
2. Name and description of organization the participants belonging to and participant’s job responsibilities.
3. General Information
  - a. Brief introduction about the country, organization, and the role of your organization in the country
  - b. Development and management of water supply/ water resources in the country
  - c. Briefing on the organizational/national development plan (if any)
4. Specific information relating to the training program
  - a. Problems/Challenges affecting the sustainability of water supply management

Please select the topic from those challenges as follows:

- Water Resource & Raw Water Management
  - Water Treatment & Quality Control
  - Water Network & Distribution
  - Customer Services & Maintenance
  - Engineering & Construction
  - Non-Revenue Water
  - AI / IoT/ Digital Development
- b. Existing concept/framework to address the challenges
- c. Topic of Interest related to sustainable water management, which can link to the challenges

## 2.2 Project Proposal and Group Presentation (Prepare during the Course)

During the course, the participants will be divided into small groups and assigned to select one of the interesting challenges and find a solution together with doing a simple project proposal aiming to implement the solution and PowerPoint presentation for presenting at the end of the course.

MWA will share and exchange knowledge and experiences and take the participants to have a study visit at MWA and outside. Moreover, MWA experts are available to be advisors during the course.

Outline of the plan are as follows:

- 1. Operating Environment Review.....2-3 pages**
  - a. General Information
    - Organization's fact sheet and relevant necessary information
- 2. Proposed Solution and Action Plan.....3-4 pages**
  - a. Background and Problem
    - Describing the selected problem/challenge to address including its context and background
  - b. Objectives
  - c. Proposed Solution
    - Conceptual/detail design of the solution
  - d. Expected outcome
    - Expected outcome / benefits / potential performance improvements
  - e. Proposed Activities
    - List of activities and estimated timeline
  - f. Estimated budget
  - g. Expected challenges
    - Expected challenges that might be faced during the project execution
  - h. Proposed partners
    - Partners / collaboration / resources need for the project achievement
- 3. Conclusions and recommendations.....1/2 pages**

Kindly bring relevant background information about your water supply company in the above aspects, which can be used for the group work.

### **Note:**

- 1) Participants are asked to prepare power point presentation to support the 5 – 7 minute organizational report presentation.*
- 2) Participants are recommended to bring their own laptop that can use Microsoft Word and PowerPoint.*
- 3) Participants are recommended to also bring background information about their water supply company in the above aspects, which can be used for the group work.*



**APPLICANTS SUGGESTION LIST  
FOR  
THE TRAINING COURSE ON  
“Practice in Innovation and Digital Technology for Sustainable Water Management”**

<b>Cambodia</b>	Phnom Penh Water Supply Authority Siem Reap Water Supply Authority
<b>Lao PDR</b>	Demco De lao Co., Ltd. Khammoun Province Water Supply State Enterprise Luang Prabang Water Supply State Enterprise Nampapa Nakhoneluang, Vientiane
<b>Myanmar</b>	Department of Engineering (Water Supply And Sanitation) Nay Pyi Taw Development Committee Nay Pyi Taw Yangon City Development Committee
<b>Vietnam</b>	Hanoi Water Works Saigon Water Corporation (SAWACO) Thua Thien Hue Water Supply Joint Stock Company (HueWACO)
<b>Thailand</b>	Provincial Waterworks Authority
<b>Timor-Leste</b>	Direccao Nacional Dos Servicos De Agua (DNSA)

*\*Other water supply utilities apart from these are also welcomed to apply for this training program.*