

Knowledge Co-Creation Program (Group & Region Focus)

General information on

Operation and Maintenance of Sewerage System (A) (Online & In Japan) 課題別研修「下水道システム維持管理(A)」(遠隔+本邦研修) JFY 2022

Course No.: 202107933J001

Online Program Period: November 10, 2022 to November 15, 2022 Course Period in Japan: November 17, 2022 to December 9, 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 Programs (Group & Region Focus) of the Japan International Cooperation Agency (JICA) 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)

The Japanese Cabinet released the Development Cooperation Charter in February 2015, which stated, *"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." JICA believes that this 'Knowledge Co-Creation Program' will serve as a foundation of mutual learning process.*

I. Concept

Background

A sewerage facility is one of the most fundamental factors of the urban infrastructure, and the setting up of sewerage and waste water treatment plants in developing countries has achieved certain degree of progress.

Along with the development of the facilities, demand for engineers specialized in maintenance of those facilities has become acute.

Since the appropriate maintenance of sewerage facilities is a vital part of providing a good sanitary environment, technicians who deal with sewerage works are required to have wide-ranging knowledge and techniques.

This course focuses on the appropriate maintenance management of sewerage facilities to prevent water pollution, which contributes to Agenda 21, the action plan proposed at the Earth Summit held in Rio de Janeiro in 1992.

Additionally, the course contributes to easy access to basic sanitary facilities and safe drinking water because of the nature of "water cycle". The access to the safe and clean water is one of the targets in SDGs, through promoting knowledge and technologies in the field.

Through lectures, practices, seminars and observations, participants will acquire explicit / tacit knowledge in operation and maintenance of sewerage systems to be made good use of in their own countries.

For what?

This program aims to promote the sewerage system and its management and maintenance techniques in participants' organizations.

For whom?

This program is offered to senior technical staff directly engaged in sewerage system in governmental organizations.

How?

Participants will learn techniques and know-how in the field through lectures, observations, practices and discussions. In addition, participants are expected to formulate and present an Action Plan at the end of the training program, utilizing the contents in the program, and share the ideas after going back to each country.

II. Description

1. Title (Course No.) Operation and Maintenance of Sewerage System (A) (202107933J001)

2. Course Program Period Online Course Period

November 10, 2022 to November 15, 2022 Course Period in Japan

November 17, 2022 to December 9, 2022

This course will be a combination of online lecture and in-person training in Japan.
 Due to the quarantine measures for COVID19 in Japan, there may be a quarantine period prior to the start of Course Period in Japan.

3. Target Regions or Countries

Brazil, Cambodia, Egypt, Fiji, Indonesia, Lebanon, Mongolia, Pakistan, Papua New Guinea

4. Eligible / Target Organization

This program is designed for the governmental or public organization that is directly engaged in the maintenance and operation of the especial off-site sewerage system.

5. Course Capacity (Upper limit of Participants)

9 participants

6. Language

English

All participants are requested to communicate and discuss in English so that we can share each idea and deepen understanding of the lesson.

7. Objective

The Action Plan drafted based on this training course is implemented and the sewerage condition is improved.

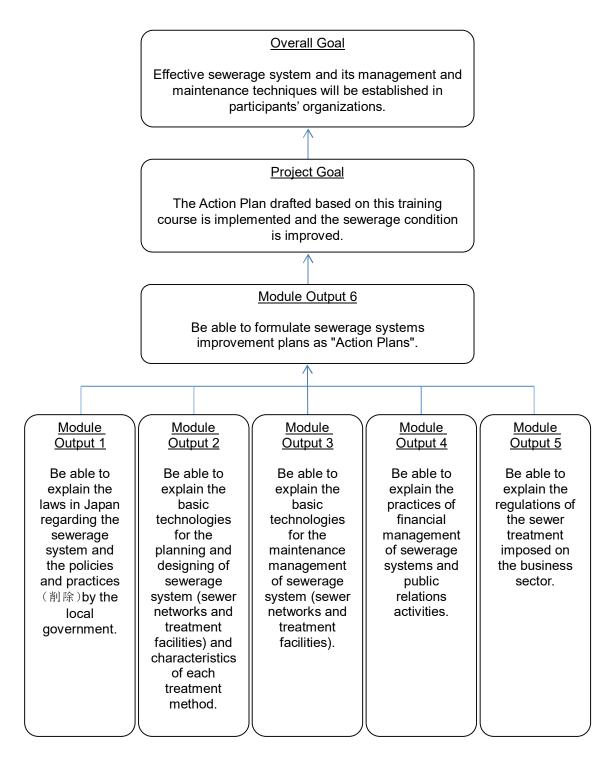
8. Overall Goal

Effective sewerage system and its management and maintenance techniques will be established in participants' organizations.

9. Output and Contents This course consists of the following components. Details on each component are given below:

Expected Module Output	Subjects/Agendas	Methodology
1. Be able to explain the laws in Japan regarding the sewerage system and the policies and practices by the local government.	 (1) Laws in Japan for the sewerage systems (2) History of sewerage system development in Japan 	Video lecture
2. Be able to explain the basic technologies for the planning and designing of sewerage system (sewer networks and treatment facilities) and characteristics of each treatment method.	 (1) Planning of sewerage systems (2) Planning and designing of sewage networks and plant (3) Sewage and sludge treatments methods (4) Small-medium scale sewerage systems 	Video lecture, Lecture, Site visit
3. Be able to explain the basic technologies for the maintenance management of sewerage system (sewer networks and treatment facilities).	(1) Maintenance management for sewer networks(2) Treatment plants and pumping stations	Video lecture, Site visit
4. Be able to explain the practices of financial management of sewerage systems and public relations activities.	(1) Financial management and public relation activities by the local government	Video lecture
5. Be able to explain the regulations of the sewer treatment imposed on the business sector.	(1) Water quality regulations imposed on business sectors(plants and factories)	Video lecture
6. Be able to formulate sewerage systems improvement plans as "Action Plans".	 (1) Action plan preparation & presentation (2) Formulation & submission of final report 	Lecture, Exercise and Discussion

<Structure of the program>



Tentative Schedule

*The schedule may change without notice.

Date	Topic outline	Delivery format
Nov.	Orientation	
10	Sewerage administration in Japan and Fukuoka City	Video lecture
	Sewerage project plan	
Nov. 11	Sewerage design and supervision: pipelines	
	Sewerage design and supervision: treatment plant/pumping station- civil engineering	Video lecture
	Sewerage design and supervision: treatment plant/pumping station- machinery/electricity	
Nov. 14	Sewerage maintenance: pipelines, sewerage management ledger, asset management	
	Sewerage maintenance: sewage treatment/sludge treatment	Video lecture
	Sewerage maintenance: water quality management	
	Water quality regulations for factories and businesses	
Nov.	Financial management of sewerage system	
15	Public relation activities for sewerage	Video lecture
	Job report creation: situation and issues in your country; things you want to develop in your own country, etc.	
Nov. 18	Program orientation	Lecture
Nov. 21	General orientation: Japanese politics and administrative organization	Lecture
Nov.	General orientation: Japanese economy	Lecture
22	Exchange program	Lecture
Nov. 24	Orientation	Lecture
Nov.	Job report presentation practice	Lecture
25	Q & A	Lecture
	Opinion exchange: issues of each country	Discussion
Nov.	Job report presentations	Presentation
28	Introduction of technology from Japanese companies	Lecture
Nov. 29	Sewerage design guidelines: basics of the standard activated sludge method	Lecture
	Sewage Treatment Center	Site visit
Nov.	Selecting a sewerage treatment method	Lecture
30	Action plan preparation and opinion exchange	Discussion
Dec. 1	Selecting a sludge treatment method	Lecture

	Sewage Treatment Center: sewage treatment, sludge treatment and Hydrogen Station	Site visit
Dec. 2	Preparation for the intermediate presentation of the action plan	Lecture
	Action plan intermediate presentation	Presentation
Dec. 5	Q & A	Lecture
	Action plan preparation and opinion exchange	Discussion
Dec. 6	Introduction of technology from Japanese companies	Lecture
	Japanese businesses: factories	Site visit
Dec. 7	Action plan presentation: project planning to solve issues in your country (including staff promotion)	Presentation
	Fukuoka City	Site visit
Dec. 8	Japanese businesses: factories	Site visit

III. Eligibility and Procedures

1. Expectations to the applying Organizations

- (1) This course is designed primarily for organizations that intend to address specific issues or problems identified in their operations. Applying organizations are expected to use the program for those specific purposes.
- (2) In this connection, applying organizations are expected to nominate the most qualified candidates to address the said issues or problems, carefully referring to the qualifications described in section III-2 below.
- (3) Applying organizations are also expected to be prepared to make use of knowledge acquired by the nominees for the said purpose.
- (4) This course 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.

2. Nominee Qualifications

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

(1) Essential Qualifications

- 1) Current Duties: be senior technical staffs who deal with sewerage system and wastewater treatment.
- 2) Experience in the relevant field: have more than 5 years of experience in the field mentioned above, and be willing to work for your organization in the future (at least 5 years).
- 3) Age: between the ages of twenty-five (25) and fifty (50) years
- 4) Educational Background: be graduates of university or have the equivalent academic background.
- 5) Language: have a competent command of spoken and written English proficiency equivalent to TOEFL iBT 100 or above (This program includes active participation in discussions, which requires high competence in English. Please attach an official certificate for English ability such as TOEFL, TOEIC etc., if possible.)
- 6) Health: must be in good health to participate in the program in Japan. To reduce the risk of worsening symptoms associated with respiratory tract infection, please be honest to declare in the Medical History (QUESTIONNAIRE ON MEDICAL STATUS RESTRICTION of the application form) if you have been a patient of following illnesses; Hypertension / Diabetes / Cardiovascular illness / Heart failure / Chronic respiratory illness.
- 7) Online participation: have PC, microphone and webcam as well as stable

internet environment.

(2) Recommendable Qualifications

- 1) Expectations for the Participants: preferably be in relation with past or on-going JICA projects focusing on sewerage treatment.
- Educational background: Since majority of the curriculums are based on engineering, participants are preferable to own backgrounds in civil engineering or mechanical engineering.
- 3) Gender Equality and Women's Empowerment: Women are encouraged to apply for the program. JICA makes a commitment to promote gender equality and women's empowerment, providing equal opportunity for all applicants regardless of sexual orientation and gender identity.
- 4) Others: Participants are expected to be familiar with PC operation, as there will be chances for report writing and presentations.

3. Required Documents for Application

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

* If you have any difficulties/disabilities which require assistance, please specify necessary assistances in the QUESTIONNAIRE ON MEDICAL STATUS RESTRICTION (1-(c)) of the application form. Information will be reviewed and used for reasonable accommodation.

(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 Expire date

- (3) English Score Sheet: to be submitted with the application form, if the nominees have any official English examination scores. (e.g., TOEFL, TOEIC, IELTS)
- (4) Job Report (Annex): to be submitted with the application form. Fill in Annex of this General Information, and submit it along with the Application Form. Job Report is the necessary document for screening of an applicant. Each participant will be required to present his/her Job report in approx. 10 minutes in an early stage of the training course. Visual materials such as Power Point and pictures may be helpful for your presentation if you bring them. When you use PowerPoint, it is preferable to use letters more than 24-point and not to use pictures on the background.

4. Procedures for Application and Selection(1) Submission of the Application Documents

Closing date for applications: **Please confirm the local deadline with the JICA overseas office (or the Embassy of Japan).**

(All required material must arrive at **JICA Center in Japan** by **September 2nd**, **2022**.)

(2) Selection

Primary screening is conducted at the JICA overseas office (or the embassy of Japan) after receiving official documents from your government. JICA Center will consult with concerned organizations in Japan in the process of final selection. Applying organizations with the best intentions to utilize the opportunity will be highly valued.

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

(3) Notice of Acceptance

The JICA overseas office (or the Embassy of Japan) will notify the results **not later than October 4th, 2022.**

5. Conditions for Participation

The participants of KCCP are required

- (1) to strictly observe the course schedule,
- (2) not to change the air ticket (and flight class and flight schedule arranged by JICA) and lodging by the participants themselves,
- (3) to understand that leaving Japan during the course period (to return to home country, etc.) is not allowed (except for programs longer than one year),
- (4) not to bring or invite any family members (except for programs longer than one year),
- (5) to carry out such instructions and abide by such conditions as may be stipulated by both the nominating Government and the Japanese Government in respect of the course,
- (6) to observe the rules and regulations of the program implementing partners to provide the program or establishments,
- (7) not to engage in political activities, or any form of employment for profit,
- (8) to discontinue the program, should the participants violate the Japanese laws or JICA's regulations, or the participants commit illegal or immoral conduct, or get critical illness or serious injury and be considered unable to continue the course. The participants shall be responsible for paying any cost for treatment of the said health conditions except for the medical care stipulated in (3) of "5. Expenses", "IV. Administrative Arrangements",

- (9) to return the total amount or a part of the expenditure for the KCCP depending on the severity of such violation, should the participants violate the laws and ordinances,
- (10) not to drive a car or motorbike, regardless of an international driving license possessed,
- (11)to observe the rules and regulations at the place of the participants' accommodation, and
- (12) to refund allowances or other benefits paid by JICA in the case of a change in schedule.

IV. Administrative Arrangements

1. Organizer(JICA Center in Japan)

- (1) Center: JICA Kyushu Center (JICA KYUSHU)
- (2) Program Officer: Mr. MIURA Sho (kicttp@jica.go.jp))

2. Implementing Partner

- (1) Name: Fukuoka City Government
- (2) URL: http://www.city.fukuoka.lg.jp/english/index.html

3. Travel to Japan

- (1) Air Ticket: In principle, JICA will arrange an economy-class round-trip ticket between an international airport designated by JICA and Japan.
- (2) **Travel Insurance**: Coverage is from time of arrival up to departure in Japan. Thus traveling time outside Japan (include damaged baggage during the arrival flight to Japan) will not be covered.

4. Accommodation in Japan

JICA will arrange the following accommodations for the participants in Japan:

(1) During the Briefing and Orientation Program

JICA Kyushu Center (JICA KYUSHU)

Address: 2-2-1 Hirano, Yahata Higashi-ku, Kitakyushu-shi,

Fukuoka, 805-8505 Japan

TEL: 81-93-671-6311 FAX: 81-93-671-0979

(81: country code for Japan, 93: area code)

If there is no vacancy at JICA KYUSHU, JICA will arrange alternative accommodations for the participants.

Please refer to facility guide of KIC at its URL,

https://www.jica.go.jp/kyushu/english/office/c8h0vm0000a0cdx5-att/kyus hu01.pdf

(2) During the Technical Training Period by Fukuoka City Government Participants will stay in a room of the apartment-type hotel in Fukuoka City. There is not a restaurant at the hotel but the room is equipped with a mini-kitchen. You need to buy foods at the supermarket near-by or cook by yourself. There are also some restaurants around the hotel.

5. Expenses

The following expenses will be provided for the participants by JICA:

- (1) Allowances for accommodation, meals, living expenses, outfit, and shipping and stopover.
- (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

(the costs related to pre-existing illness, pregnancy, or dental treatment are <u>not</u> included).

(4) Expenses for program implementation, including materials.

For more details, please see "III. ALLOWANCES" of the brochure for participants titled "KENSHU-IN GUIDE BOOK," which will be given before departure for Japan.

*Link to JICA HP (English/French/Spanish/Russian):

https://www.jica.go.jp/english/our_work/types_of_assistance/tech/acceptance/tr aining/index.html

6. Pre-departure Orientation

A pre-departure orientation will be held at the respective country's JICA office (or Japanese Embassy), to provide participants with details on travel to Japan, conditions of the workshop, and other matters.

*YouTube of "Knowledge Co-Creation Program and Life in Japan" and "Introduction of JICA Center" are viewable from the link below.

Image videos of 'Introduction of JICA Center (YouTube)' show the following information of JICA Centers: Location, Building, Entrance, Reception(Front desk), Lobby, Office, Accommodation(Room), Amenities(Hand dryer), Bathroom(Shower and Toilet), Toiletries, Restaurant, Laundry Room(Washing machine, Iron), ICT Room(Computer for participants), Clinic, Cash dispenser, Gym, Neighborhood

Part I: Knowledge Co-Creation Program and Life in Japan		
English ver.	https://www.youtube.com/watch?v=SLurfKugrEw	
French ver.	https://www.youtube.com/watch?v=v2yU9ISYcTY	
Spanish ver.	https://www.youtube.com/watch?v=m7I-WIQSDjl	
Russian ver.	https://www.youtube.com/watch?v=P7_ujz37AQc	
Arabic ver.	https://www.youtube.com/watch?v=1iBQqdpXQb4	
Part II: Introduction of JICA Centers in Japan		
JICA Kyushu	https://www.jica.go.jp/kyushu/english/office/index.html	

V. Other Information

1. Reports and Presentation

(1) Job Report

As written in the previous page, each nominee is required to submit his/ her own Job Report following the instruction in the previous sections. Participants will have a presentation of his/ her Job Report up to 10 minutes at the earlier stage of the training program in order to share knowledge and background with other participants as well as the instructors. Visual materials such as Power Point and pictures may be helpful for your presentation if you bring them with you. When you use Power Point, it is preferable to use letters more than 24 points and not to use pictures on the background.

(2) Action Plan Report

Accepted participants are required to formulate an action plan at the end of the training program in Japan to show your ideas and plans, which you carry out after return home, reflecting the knowledge and method acquired from the training. Each participant will have approximately 10 minutes for presentation.

(3) Laptop PC

Participants are requested to bring their own laptops upon arrival in Japan. They will be useful to take notes, modify reports, and prepare for presentations.

2. International Exchange Program with local communities

JICA encourages international exchange between JICA participants and local communities. Participants will have a chance to visit elementary schools, junior high schools or the civic groups. Therefore, participants are recommended to bring their national costumes or crafts and materials such as CDs and photographs that will make the exchange program more fruitful.

3. Remarks

JICA training is implemented for the purpose of development of human resources who will promote the advancement of the countries, but not for the enrichment of individuals or private companies. Matters of a trade secret and patent techniques will remain confidential and inaccessible during the training.

VI. ANNEX

Operation and Maintenance of Sewerage System (A) (JFY 2022) Job Report

Name:	
Country:	
Organization and present post:	
E-mail:	
FAX:	

- Remarks 1: The Report should be typewritten in English (12-point font, A4 size paper), and total pages of the report should be limited to 5 pages (not including organization chart).
- Remarks 2: Please itemize your answer and make them specific.

1. Organization and operation

- (1) Main functions of the organization
- (2) Organization Chart
- (3) Assigned duties

2. Basic information

- (1) General information about the jurisdiction area (country and city) of the organization
 - a) Total area:
 - b) Population:
 - c) Climate:
- (2) Information on the status of water pollution in rivers, lakes, marshes, and gulf coast
 - a)Sources of pollutants:
 - b) River condition (BOC, SS, etc.):
 - c) Lakes and marshes condition (BOC, SS, etc.):
 - d) Gulf coast condition (BOC, SS, etc.):
- (3) Weather information
 - a) Annual average rainfall:
 - b) Frequency of rainfall (Day/Year):
 - c) Maximum hourly rainfall:

3. Sewage situation

- (1) Sewage coverage
- (2) Sewage population

- (3) Total sewer pipe extension:
- (4) Sewage collection systems (confluence or diversion)
- (5) Finance of sewerage
- (6) Description of sewage treatment facilities

a) The number of sewage treatment plants in the jurisdiction area (country and city) of the organization

b) Adopted sewage treatment methods and the number of treatment plants using each method

1) Details of the treatment plant

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	Name of the treatment plant	Location	Treatment capability (m3/day)	Sewage treatment method	Destination	

2) Sludge treatment process including final disposal

(Example: Concentration \rightarrow digestion \rightarrow dehydration \rightarrow incineration \rightarrow landfill)

-			T	T	1	
Name of the		BOD	COD	SS "1	TN	TP
treatment plant		[mg/L]	[mg/L]	[mg/L]	[g/L]	[mg/L]
	Inflow water quality					
	Effluent water					
	quality standard					
	Effluent water					
	quality					
	Inflow water quality					
	Effluent water					
	quality standard					
	Effluent water					
	quality					
	Inflow water quality					
	Effluent water					
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	quality standard					
	Effluent water					
	quality					
	Inflow water quality					
	Effluent water					
	quality standard					
	Effluent water					
	quality					
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3) Influent and effluent water quality (BOD, COD, SS, TN, TP, etc.)

4) Is treated water reused?

- 5) Method of maintenance (directly managed or commissioned by staff)
- c) Number of sewage relay pump stations

(7) Status of sewer pipes

- a) Materials of main sewer pipes (PVC pipe, concrete pipe, etc.)
- b) Classification of sewer pipes (underdrain or open channel)
- c) Method of cleaning sewer pipes
- d) Method of inspecting sewer pipes
- e) Presence of the plan to reconstruct and renew sewer pipes
- (8) Current status of industrial wastewater, industry type, regulations and treatment of industrial wastewater

4 Issues affiliated department is facing

- (1) Main issues
- (2) Countermeasure
- (3) Difficulty of solving problem

5 Expectations of training course

- (1) Most interesting items
- (2) Application of knowledge and technology gained through training after returning home

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(3) Other expectations of training course

6 Fields with learning experience

	YES	NO
(1) Civil Engineering	()	()
(2) Mechanical engineering	()	()
(3) Electrical engineering	()	()
(4) Chemical engineering	()	()
(5) Environmental engineering	()	()
(6) Public health engineering	()	()
(7) Computer science	()	()
(8) Other	()	()

7 Applicable field and years of experience as actual job experience

Years of experience

(1) Plan and design of wastewater treatment facility	()
(2) Operation and maintenance of wastewater treatment facility	()
(3) Operation and maintenance of industrial wastewater treatment facility	()
(4) Administration of water pollution control	()
(5) Chemical analysis	()

(6) Excretion treatment		()
(7) Septic tank management		()
(8) River and water channel management in urban area		()
(9) Water supply		()
(10) Information processing (computer programming)		()
(11) Other ()	()

For Your Reference

JICA and Capacity Development

Technical cooperation is people-to-people cooperation that supports partner countries in enhancing their comprehensive capacities to address development challenges by their own efforts. Instead of applying Japanese technology per se to partner countries, JICA's technical cooperation provides solutions that best fit their needs by working with people living there. In the process, consideration is given to factors such as their regional characteristics, historical background, and languages. JICA does not limit its technical cooperation to human resources development; it offers multi-tiered assistance that also involves organizational strengthening, policy formulation, and institution building.

Implementation methods of JICA's technical cooperation can be divided into two approaches. One is overseas cooperation by dispatching experts and volunteers in various development sectors to partner countries; the other is domestic cooperation by inviting participants from developing countries to Japan. The latter method is the Knowledge Co-Creation Program, formerly called Training Program, and it is one of the core programs carried out in Japan. By inviting officials from partner countries and with cooperation from domestic partners, the Knowledge Co-Creation Program provides technical knowledge and practical solutions for development issues in participating countries.

The Knowledge Co-Creation Program (Group & Region Focus) has long occupied an important place in JICA operations. About 400 pre-organized course 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 is being customized by the different target organizations to address the specific needs, 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, as the first non-Western nation to become a developed country, built itself into a country that is free, peaceful, prosperous and democratic while preserving its tradition. Japan will serve as one of the best examples for our partner countries to follow in their own development.

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 a process of adoption, of course, has been accompanied by countless failures and errors behind the success stories.

Through Japan's progressive adaptation and application of systems, methods and technologies from the West in a way that is suited to its own circumstances, Japan has developed a storehouse of knowledge not found elsewhere from unique systems of organization, administration and personnel management to such social systems as the livelihood improvement approach and governmental organization. It is not easy to apply such experiences to other countries where the circumstances differ, but the experiences can provide ideas and clues useful when devising measures to solve problems.

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.



Contact Information for Inquiries

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

> JICA Kyushu Center (JICA KYUSHU) Address: 2-2-1 Hirano, Yahatahigashi-ku, Kitakyushu-shi, Fukuoka 805-8505 Japan TEL: +81-93-671-6311 FAX: +81-93-671-0979