



Knowledge Co-Creation Program (Group & Region Focus)

GENERAL INFORMATION ON

Digital Terrestrial TV Broadcasting (DTTB) Policy and Engineering

課題別研修

「地上デジタル TV 放送政策・技術」

JFY 2019

NO. J19-04185 / ID. 1984581

Course Period in Japan: From June 16, 2019 to July 13, 2019

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 (KCC) Program' as a New Start

In the Development Cooperation Charter which is 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

TV broadcasting is one of the most efficient methods of communication, because people can get useful knowledge and raise public awareness through it in the field of education, health services, environment, peace-building, and consolidation of democracy. In this sense, it can contribute to the improvement of quality of life.

Digital TV broadcasting has diverse advantages over analog broadcasting, with such features as high quality of image and sound insusceptible to radio interference, multilingual broadcasting, text broadcasting, multi-channel services and others. Countries with multiple languages and cultures can especially take advantage of these features. Provision of disaster information can also mitigate the impact of natural disasters on their inhabitants, through data broadcasting and mobile broadcasting.

For such diverse advantages, the digitalization of TV broadcasting has become a global trend, thus many developed and developing countries have already started or completed their switchover from analog to digital broadcasting.

Japanese government, as one of the successful pioneers on this field, has been offering various international aid, especially for those countries which have adopted or are considering ISDB-T. Through our cooperation, those countries are expected to develop and reinforce human resources in their concerned organizations for smooth switchover and implementation of digitalization.

For what?

This program aims to provide useful knowledge, techniques and hints for effective digitalization of TV broadcasting by learning digital broadcasting technology and theories. It also shows good examples of actions and solutions taken in Japan to enable smooth switchover.

For whom?

This program is offered to broadcasting organizations and its related governmental organizations of the countries which have adopted or are considering ISDB-T as their digital terrestrial TV broadcasting system.

II. Description

- 1. Title:** Digital Terrestrial TV Broadcasting (DTTB) Policy and Engineering (J1904185)
- 2. Course Period in JAPAN:**
June 16 to July 13, 2019
- 3. Target Regions or Countries:**
Botswana, Brazil, El Salvador, Guatemala, Nicaragua, Peru, Philippines and Sri Lanka
- 4. Eligible / Target Organization:**
This program is offered to broadcasting organizations and related governmental organizations.
- 5. Course Capacity (Upper limit of Participants):**
8 participants
- 6. Language to be used in this program:**
English
- 7. Course Objective:**
To understand the advantages of digital broadcasting system, promoting the systematical and logical digitalization process of the broadcasting in the respective participants' organizations.
- 8. Overall Goal:**
To contribute to the improvement of citizens' quality of life, by stably providing a variety of multifunctional services through realization of digital broadcasting.

9. Expected Module Output and Contents:

To achieve above Course Objective, participants are expected;

- (1) To be able to explain the outline of digital broadcasting technology.
- (2) To be able to explain the advantages of digital broadcasting system and make use of the knowledge for the planning and implementation of digitalization.
- (3) To share findings and plans useful for promoting the digitalization of TV broadcasting at participants' organizations, based on the knowledge and techniques learned through this program.

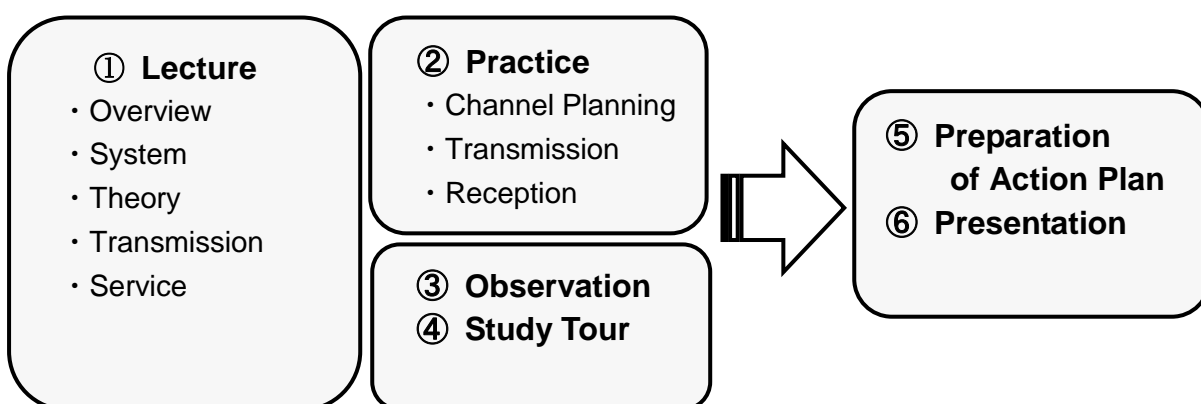
Preliminary Phase in a participants' home country (May 20, 2019 to June 15, 2019) <i>Participants make required preparation for the Program in the respective countries.</i>	
Module	Program/Details
Inception Report	Formulation and submission of Inception Report <i>(Details to be announced only to accepted candidates)</i>

Core Phase in Japan (June 16, 2019 to July 13, 2019) <i>Participants attend the program implemented in Japan.</i>		
Expected Module Output	Subjects/Agendas	Methodology
(1) To be able to explain the outline of digital broadcasting technology.	Overview: Introduction to DTTB	Lecture
	System: MPEG Multiplexing, Master Control System, Set Top Box	Lecture
	Theory: Signal Transmission, Digital Modulation	Lecture
	Transmission: Digital Transmitter, SFN	Lecture
	Channel Planning, Transmission/Reception, Electric Field Intensity	Practice

(2) To be able to explain the advantages of digital broadcasting system and make use of the knowledge for the planning and implementation of digitalization.	Challenges for Introducing DTTB and Trends in Broadcasting Policy and Regulations (Case study of Japan)	Lecture
	Service: Digital Broadcast Services, EWBS, Disaster Newscast	Lecture
	Visit: Broadcasting centers, Transmission stations, Manufacturing companies, etc.	Observation, Study Tour
(3) To share findings and plans useful for promoting the digitalization of TV broadcasting at participants' organizations.	-Prepare and present Action Plan individually. -Discuss among the participants to deepen understandings	Action Plan, Presentation

The participants are also highly expected to share the lessons learned through this program in participants' organizations after their return.

〈Structure of the Program〉



Note: **The content may be subject to minor changes.*

**Please refer to the Program Schedule of 2018 (Annex 2) for your reference.*

III. Conditions and Procedures for Application

1. Expectations to the Participating Organizations:

- (1) This program is designed primarily for organizations that intend to address the digitalization of TV broadcasting. To help participating organizations to tackle this issue effectively, the program is enriched with contents and facilitation schemes specially developed in collaboration with relevant prominent organizations in Japan. Participating organizations are therefore expected to use this program fully specifically for effective digitalization in their countries.
- (2) As this program is designed to facilitate participating organizations to come up with concrete solutions for effective digitalization of TV broadcasting, participating organizations are expected to help the participants to make required preparation at Preliminary Phase, as shown in Section II-9, even before sending them to Japan.
- (3) Participating organizations are also expected to make the best use of the results achieved by their participants in Japan after their return.

2. Nominee Qualifications:

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

(1) Present position and Assignment (either of the followings):

- Officials who are in charge of the planning of the Digital Terrestrial TV Broadcasting,
- (Acting) Team Leaders of TV broadcasting organization or Government-related organization in charge of Digital Terrestrial TV Broadcasting, or
- Engineers who have practical experience in TV transmission

(2) Occupational background:

Have technical background

Be in charge of planning/ implementation of digitalization of the broadcast.

Note: Studio engineers and those who have experience only in Radio Stations are **NOT** qualified.

(3) Academic record:

College or university graduates, or those who have its equivalent in technical knowledge of electronic engineering and fundamental knowledge about digital engineering theory.

(4) Computer skill:

Have basic skills of PC operation.

(5) Age:

Under forty (40) years of age, in principle

(6) Language:

Proficiency in spoken and written English

(7) Health:

Health must be good 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.

Note:

**Gender Consideration: JICA is promoting Gender equality. Women are encouraged to apply for the program.*

3. Required Documents for Application

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

** If you have any difficulties/disabilities which require assistance, please specify necessary assistances in the Medical History(1-(d)) of the Application Form. It may allow us to prepare better logistics or alternatives.*

(2) Attachments: to be submitted with the Application Form.

(2)-1 Photocopy of passport: 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.

(2)-2 Nominee's English Score Sheet: if you have any official documentation of English ability. (e.g., TOEFL, TOEIC, IELTS)

(2)-3 JOB Report (Annex 1): Fill in Annex 1 of the General Information.

4. Procedures for Application and Selection :

(1) Submission of the Application Documents:

Closing date for application to the JICA office: **April 25 (Thu), 2019**

(After receiving applications, the JICA office (or the Embassy of Japan) will send them to **the JICA Center in JAPAN**)

(2) Selection:

After receiving the documents through proper channels from your government, the JICA office (or the embassy of Japan) will conduct screenings, and then forward the documents to the JICA Center in Japan. Selection will be made by the JICA Center in consultation with concerned organizations in Japan. *The applicants 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) **no later than May 20 (Mon), 2019.**

5. <For accepted candidates only>

Preparation for Presentation:

At the beginning of the program, all the participants are required to deliver a 20-minutes presentation on Inception Report.

Further instruction for preparing the Power Point presentation will be given only to the accepted candidates after Notice of Acceptance. The soft data of said Power Point presentation should be sent to the JICA Center in Japan (ticttee@jica.go.jp / Udo.Atsuko@jica.go.jp) **by June 5 (Wed), 2019**, preferably by e-mail.

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 training expenditure depending on the severity of said violation.
- (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 Tokyo Center (JICA TOKYO)

2. Implementing Partner:

(1) **Name:** NHK Communications Training Institute (NHK-CTI)

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 arrange the following accommodations for the participants in Japan:

JICA Tokyo Center (JICA TOKYO)

Address: 2-49-5 Nishihara, Shibuya-ku, Tokyo 151-0066, Japan

TEL: 81-3-3485-7051 FAX: 81-3-3485-9655

(where “81” is the country code for Japan, and “3” is the local area code)

If there is no vacancy at JICA TOKYO, JICA will arrange alternative accommodation for the participants. Please refer to its facility and service guide at its [URL](#) and [Movie](#).

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)
- (4) Expenses for program implementation, including materials

For more details, please see “III. 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 Japanese Embassy), to provide participants with details on travel to Japan, conditions of the program, and other matters.

V. Other Information

Messages from the Concerned Partners:

Please refer the messages below for the applicants.

(1) Implementing Partner

We are sure that the participation of this KCCP (Knowledge Co-Creation Program) will be a good experience for you and your organization for realizing smooth switchover and implementation of digitalization in your country.

You will learn many topics, like a digital broadcasting technology, planning and implementation of digitalization and so on, through this program and the experience of the analog switch off in Japan. We also expect you, the participants, to learn from one another by sharing their country's experience and expertise.

We hope that this program will be very helpful when you will be back in your organization.

NHK - Communications Training Institute

(2) Past Participant from El Salvador in 2018

I want to start saying that being part of a JICA's KCC Program has been one of the best experiences in my life. The program is well organized so you can learn step by step from the basis to the complex. In my particular case, I really appreciate topics related with TV transmission, reception and spectrum planning. JICA's program offers a unique opportunity of sharing experiences with other fellows, experts and people of Japanese TV industry. There is no better way of understanding how Japan faced DTTB transition process by being present in Japan and seeing what happened by yourself.

Since my return to home I've had the opportunity to put into practice what I learned. Sharing knowledge with others has definitely reinforced my own knowledge as well. All these experiences enriched my career a lot and now I can contribute more actively in my own country's reality, especially in those areas related with DTTB policy making process, transmission and reception of ISDB-T signals.

Mr. TORRES URRUTIA Amilcar Alexander,
SIGET, El Salvador

VI. Annex

Annex 1 Job Report

Annex 2 Program Schedule of 2018 (For Reference)

Job Report

Name: _____ /Country: _____
E-mail address: _____

Notice: This report contains very important information and will be used in the selection of applicants for the course. Therefore, **this Job Report must be submitted with the Application Form.**

A. Applicant's Scope of Engineering Work

A-1. Please explain your present job in detail, especially describing your daily work, your position and years you are engaged in the position.

What particular engineering field are you currently engaged in?

B. Applicant's Scope of Managerial Work

B-1. Are you in charge of planning/designing engineering facilities in your organization? or Are you joining a group with such functions?

(Yes / No)

How long have you served in such a role?

Please describe your role in detail (ex., selection of facility, designing network, budget management and so on).

B-2. Do you have the responsibility of educating/training your junior staff members?

(Yes / No)

How long and how often do you serve in such a role as a trainer?

Please describe how your education program is carried out (ex. on the job training, seminars and so on).

B-3. Is there any project/working group for planning Digital Terrestrial Television Broadcast (DTTB), or Analog Switch Off (ASO) in your organization?

(Yes / No)

Are you a member of the group?

(Yes / No)

Please describe how actively the group is working in your organization and what your role is in the group?

Annex 2

Program Schedule of 2018 (For Reference)

Course Objective:

To understand the advantages of digital broadcasting system, promoting the systematical and logical digitalization process of the broadcasting in the respective participants' organizations.

Module Outputs:

- (1) To be able to explain the outline of digital broadcasting technology.
- (2) To be able to explain the advantages of digital broadcasting system and make use of the knowledge for the planning and implementation of digitalization.
- (3) To share findings and plans useful for promoting the digitalization of TV broadcasting at participants' organizations, based on the knowledge and techniques learned through this program.

Date	Curriculum	Correlation with Module Outputs	
1st Week	Mon	JICA Briefing	
		Program Orientation	
		Lecture : JICA Overview and Its Cooperation in ICT and broadcasting sector	
	Tue	Inception Report Presentation	
		Lecture : Full Transition to Terrestrial DTV in Japan	(2)
		Lecture : Broadcasting in Japan	(2)
	Wed	Orientation by NHK-CTI	(1)
		Overview① Introduction to DTTB	(1)
		Overview② Digital Broadcast Services	(2)
	Thu	System① MPEG Multiplexing	(1)
		System② Master Control System	(1)
		System③ Data Broadcasting	(2)
	Fri	Observation① NHK Broadcasting Center	(2)
		Observation② Manufacturing Company	(2)
2nd Week	Mon	Theory① Signal Transmission	(1)
		Theory② Digital Modulation	(1)
	Tue	Transmission① Digital Transmitter	(1)
		Transmission② SFN	(1)
	Wed	Observation③ Tokyo Tower Transmission Room	(2)
		Observation④ Tokyo Sky Tree	(2)
	Thu	Observation⑤ NHK Science Technology Research Labs.	(2)
		Services① EWBS Technical Explanation Standardization of EWBS, etc	(2)

	Fri	Services② Disaster Newscast	(2)
		Observation⑥ Manufacturing Company	(2)
3rd Week	Mon	Planning① Challenges and Solutions in migration to DTTB	(2)
		Planning② Channel Planning	(2)
	Tue	Planning③ Channel Planning cntd.	(2)
	Wed	Practice① Transmission	(2)
	Thu	Practice② Reception	(2)
	Fri	System④ Set Top Box	(1)
Practice③ Electric Field Intensity		(2)	
4th week	Mon	Study Tour① NHK Broadcasting Station	(2)
	Tue	Study Tour② NHK Transmission Tower, etc	(2)
	Wed	Preparation for Action Plan	(3)
	Thu	Action Plan Presentation	(3)
	Fri	Evaluation Meeting, Closing Ceremony	

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 Tokyo Center (JICA TOKYO)

Address: 2-49-5 Nishihara, Shibuya-ku, Tokyo 151-0066, Japan

TEL: +81-3-3485-7051 FAX: +81-3-3485-7904