【Online】

Knowledge Co-Creation Program
(Group & Region Focus)

GENERAL INFORMATION ON

REMOTE SENSING OF FOREST RESOURCES
課題別研修「森林リモートセンシング」
JFY 2022
Course No. 202107963-J001
Online Program Period : From July 11th, 2022 to September 8th, 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

Stopping deforestation and forest degradation may play a significant role in climate change mitigation. CO2 emissions from deforestation and forest degradation in developing countries might amount for about 20% of the total emission of the world. Thus, it is a key challenge not only for developing countries but also for the whole world to address reducing emissions from deforestation and forest degradation in developing countries (REDD+), which could slow increase in atmospheric CO2 concentrations.

However, there are not sufficient systems or personnel for forest monitoring in many developing countries so that they can investigate the forest resources, which is basic information for REDD+. This constitutes a matter of immediate concern for the international community.

Remote sensing provides extensive information of forest resources in an efficient and effective manner. This program will provide basic theory and skills of remote sensing of forest resources to improve forest management in developing countries, which also support the REDD+ related activities for the participants and is expected to contribute to the climate change mitigation.

For what?

Participants are expected to acquire the skills and knowledge for using remote sensing of forest resources in their own countries based on international discussions on REDD+.

For whom?

This program is offered to administrative officials or researchers engaged in forestry management.

How?

Participants shall have opportunities through online program to enhance the participants' knowledge and skills of remote sensing of forest resource management in order to understand REDD+ as a significant role in climate change mitigation. Participants are expected to have presentation on the best of the knowledge and ideas acquired and discussed through the course.

II. Description

1. Title (Course-No.): Remote Sensing of Forest Resources (202107963-J001)

2. Course Period: July 11th, 2022 to September 8th, 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.

3. Target Countries: Brazil, India, Laos, Kosovo, Moldova and Thailand

4. Eligible / Target Organization:
Administrative officials or researchers engaged in remote sensing of forest resources, forestry management and climate change mitigation.

5. Course Capacity (Upper limit of Participants): 6 persons

6. Language to be used in this program: English

7. Course Objective:
Participants are expected to acquire the basic skills and knowledge for using remote sensing with the aim of understanding forest resources in their own countries based on international discussion of REDD+.

Overall Goal:
Each participant's belonging organizations take actions based on the action plans, in order to build the system for monitoring of forest resources using remote sensing in the countries concerned.

8. Expected Module Output and Contents
This program consists of the following components. Details on each component are given below:

Expected Modules Output	Activities
To overview the present situation and issues of forestry management in participants' respective countries	Preparation and submission of Inception Report

Online Course(July 11th, 2022 to September 8th, 2022) *Participants dispatched by the organizations attend the Program implemented through Online.*		
Expected Modules Output	Contents	Activities

1. To acquire the current knowledge about the climate change including REDD+ and remote sensing, GIS applications	・Introduction of REDD＋	Lecture
2. To learn about the basic theory and skills of remote sensing	・ Basic theory of remote sensing ・ Basic knowledge of remote sensing data characteristics (Optical, Rader, and LiDAR)	Lecture and practice
3. To acquire the knowledge and technique for the practical use of remote sensing of forest resources	・ Data acquisition(Satellite imagery) ・ Preprocessing overview, ・ vegetation indices ・ Classification and change detection of land cover *QGIS and GEE will be used for the module. In the course, we are going to enhance the module.	Lecture and Practice
4. To acquire the knowledge and technique for the practical use of GIS/GPS of forest resources	・ Basic of special analysis. ・ Field data collection (Open Data Kit) *QGIS will be used for the module.	Lecture and Practice
5. To formulate the practical Action Plan for solving their own issues	・ Presentation how to utilize what you learned.	Preparation for the presentation .

NOTE: (1)

Each participant must submit Inception Report before the program. Participants are requested to make Inception Report Presentation at the beginning of the training course, in order to share the respective countries information in the field of forestry management and using remote sensing technologies. Participants must prepare for Inception Report presentation before the program. Inception Report must be written in English and fifteen (15) minutes will be allocated to each participant for the presentation. Presentation by using Microsoft Power Point is highly recommended.

(3)Finalization Phase in a participant's home country

Participating organizations produce final outputs by making use of results brought back by participants. This phase marks the end of the Program.

Modules	Activities
Implementation of the Action Plan	Application and implementation of the Action Plan back in respective home country

NOTE: (2)

"Action Plan" of this course is the guide to solve your issues for development of Remote Sensing of Forest Resources.

Each participant must submit the Action Plan (presentation) at the end of the course.
Contents to be included at least:

- What you learned in the KCCP course.
- How to apply acquired technique your work.
- Ex. having an educative program, making one's work more efficient, creating base maps etc.

Followings must be well considered in Action Plan:

- The plan must be feasible.
- Obtained knowledge through the program must be fully utilized.
- Clarify the role of yourself in the plan

<Structure of the program>

The online program will be held 3days per week. The lecture of one day will be for one hour half(Less than 2 hours). Then you try to do some homework related to lectures. You can access to a web-based platform for the KCCP course 24/7 and leave questions and comments to the lecture. The lectures answer your questions.

One of the unique points of the course is the consultation and practice time during the course. You can try your work related to the KCCP course with the help of lectures. If you want to learn more than the contents of the course, you can discuss it during the consultation and practice time.

<Hardware requirements>

The course includes hands on training. So, please prepare your computer.

Minimum requirements:
OS: Windows 7 or Windows10 (preferable)
CPU: at least 2.2 GHz multicore CPU
RAM: 4Gb, but 8Gb or more preferable
Storage: 100Gb or more, (SSD preferable)
Graphic cards: Onboard but dedicate is preferable.
Display (Optional): if you can prepare a second screen, it is easy to see the lecture with GIS or remote sensing work.
Android phone for ODK (Open data kit)

Tentative schedule of the program in 2022
Lectures will be held by Zoom or Google Meets. You can see the videos for your review of the lectures.

2022 Tentative schedule and contents of Forest remote sensing online course

■ The schedule and contents may be modified.

Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
2022/7/11	2022/7/12	2022/7/13	2022/7/14	2022/7/15	2022/7/16	2022/7/17
Connection test	Connection test	Orientation and Self introduction	**Watch videos and share questions** RS01. Remote sensing basics	Basics of Remote sensing		
2022/7/18	2022/7/19	2022/7/20	2022/7/21	2022/7/22	2022/7/23	2022/7/24
Watch videos and share questions RS02. Remote sensing data	Remote sensing data		**Watch videos and share questions** RS03. Preprocessing (for understanding of concept)	Preprocessing		
2022/7/25	2022/7/26	2022/7/27	2022/7/28	2022/7/29	2022/7/30	2022/7/31
Watch videos and share questions RS04. Classification workflow RS05. Classification based on indices	Classification based on indices		**Watch videos and share questions** RS06. Supervised classification	Supervised classification		
2022/8/1	2022/8/2	2022/8/3	2022/8/4	2022/8/5	2022/8/6	2022/8/7
Watch videos and share questions RS07. Advanced supervised classification	Advanced supervised classification		**Watch videos and share questions** RS08. Change detection part 1 RS09. Change detection part 2	hange detectio		
2022/8/8	2022/8/9	2022/8/10	2022/8/11	2022/8/12	2022/8/13	2022/8/14
Watch videos and share questions RS11. Accuracy assessment part 1 RS12. Accuracy assessment part 2	Accuracy assessment	Optional program: Experience traditional Japanese culture! (By JICA Hokkaido)	**Watch videos and share questions** GIS01. Basics of GIS	Basics of GIS		
2022/8/15	2022/8/16	2022/8/17	2022/8/18	2022/8/19	2022/8/20	2022/8/21
Watch videos and share questions GEE01. Introduction (GEE:Google Earth Engine) GEE02. Programming (GEE) GEE03. Basics (GEE)	GEE Overview and programming		**Watch videos and share questions** GEE06. Cloud free image (GEE) GEE07. Clip and export (GEE) GEE08. Advanced export (if you wish to watch)	Generating cloud-free images (GEE)		
2022/8/22	2022/8/23	2022/8/24	2022/8/25	2022/8/26	2022/8/27	2022/8/28
Watch videos and share questions GEE04. Supervised classification (GEE)	Image classification		**Watch videos and share questions** GEE05. Change detection (GEE)	change detection		
2022/8/29	2022/8/30	2022/8/31	2022/9/1	2022/9/2	2022/9/3	2022/9/4
Consultation and individual practice	Biomass estimation		Consultation and individual practice	Biomass estimation		
Watch videos and share questions GIS02. Analysis: Biomass estimation based on plot study			**Watch videos and share questions** GIS03. Analysis: Biomass estimation with mapping approach			
2022/9/5	2022/9/6	2022/9/7	2022/9/8	2022/9/9	2022/9/10	2022/9/11
Consultation and individual practice	Consultation and individual practice	Consultation and individual practice	Evaluation meeting and Closing ceremony			

III. Eligibility and Procedures

1. Expectations from 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.

2. Nominee Qualifications:

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

(1) Essential Qualifications

1) Current Duties: preferably to be an administrative official or researcher currently to be engaged in forestry management or REDD+. In some countries, forestry management or REDD+ are covered in the field of wildlife management, nature conservation and climate change mitigation. This course will accept the participant from such area. This course offers lots of online practice. Participants must be using GIS/Remote Sensing software in their current duties.
2) Experience in the relevant field: should have more than 3 years of practical experience or research in forestry management or REDD+.
3) Educational Background: should be a university graduate or have an equivalent qualification.
4) Language: have good command of spoken and written English which is equivalent to TOEFL CBT 200 or more, (This program includes active participation in discussions, an action plan development. Thus requires good competence of English ability. Please attach an official certificate for English ability such as TOEFL, TOEIC etc., if possible).
5) IT Literacy: must be needed. Nominees must know how to use Windows or Windows Office.

(2) Recommended Qualifications

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.

3. Required Documents for Application

(1) Application Form: The Application Form is available at **the JICA overseas office.**

* 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(Or ID): 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) Inception Report: to be submitted with the application form. Fill in the form (ANNEX) of this General Information, and submit it along with the Application Form.

(4) Nominee's English Score Sheet: to be submitted with the application form. If you have any official documentation of English ability. (e.g., TOEFL, TOEIC, IELTS)

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.**

（All required material must arrive at **JICA Center in Japan** by June 27th, 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

Notification of results will be made by the JICA office not later than 4th July 2022.

5. Conditions for Attendance:

(1) to enable you to deepen your understanding on the course, you are recommended to familiarize with the background of Hokkaido development by the video, using the link: https://www.youtube.com/watch?v=ZTw5Dtcu8o4

(2) to strictly adhere to the program schedule.

(3) not to change the program topics.

(4) not to record online lessons or use contents providing during the program without JICA's permission since all the copy right belong to JICA. Arrangement will be made for streaming the program in case of network problem.

IV. Administrative Arrangements

1. Organizer:
   (1) Name: JICA Hokkaido (Sapporo)
   (2) Contact :Shigeyoshi.Rintaro@jica.go.jp / Huang-Midori@jica.go.jp
2. Implementing Partner:
   (1) Name: Rakuno Gakuen University
   (2) URL: http://en.rakuno.ac.jp

V. ANNEX:

202107963-J001
Remote Sensing of Forest Resources
(JFY 2022)

Inception Report

Each Participant is requested to prepare the Inception Report on the following issues and submit it to JICA Hokkaido along with the application form by ,27th June 2021 The report should be typewritten in English on A4 size paper (21 cm x 29.5 cm) in single spacing at maximum of 10 pages.
This Report shall be used for selection of participants.

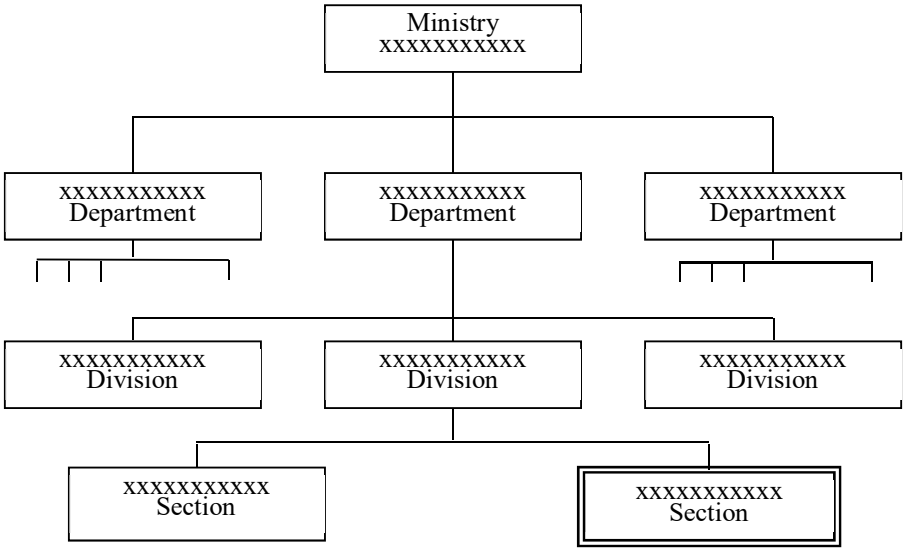
NOTE: Participants are requested to give a 15 minutes presentation and discuss about the situation of forestry management in respective country at beginning of the program by country. It is recommended to use Microsoft Power Point for the presentation.

1. Basic information

Name	
Country	
Organization	
Position	
Period	From to
Outline of duties	

2. Outline of the participant's Organization

(Example :)



3. Describe present condition and/or historical trend of forests and forest management with specific figures in the applicant's country, in accordance with the following indicators respectively;

(Choose more than 2 indicators from among the following for the description)

① Area and percent of forest by forest ecosystem types
② Area and percent of forest specifically for conservation
③ Area, percent and growing stock of plantations by species
④ Value and volume of production of wood, wood products and non-wood products
⑤ Status of legal and institutional framework on forest planning, policy development and coordination with relevant sectors
⑥ Status of forest inventory, assessment and monitoring

If there is no national data on the indicators, you can use provincial data or data at the project level as well.

4. Current development of remote sensing of Forest Resources in the applicant's country

5. Problems/constraints on the development of remote sensing in the applicant's country (Itemize 3 main issues which the applicant directly faces on and describe them)

6. On-going efforts to specifically cope with the problems mentioned in 5. above (If any)

7. The applicant's role in development and application of remote sensing in the country

8. What is your personal challenge that you want to solve through this training program?

9. The applicant's experiences about remote sensing and GIS software specifically

	QGIS	ArcGIS	ERDAS IMAGINE	Ecognition	ENVI	Google Earth Engine	GPS	Others
Version:								
Experience: (How often are you using this in your current duties?)								
Purpose: (What do you use this for?)								
Satellite data: (Describe specific data which you have analyzed)								

10. The applicant's knowledge and interest about remote sensing, GIS and GPS

Items	Detail	Example	Please scale your knowledge by 1 ~ 4 1: I don't know it 2: I know it a little 3: I know it 4: I know it very well	Please check ○ the boxes which you are interested. *You could check more than one
*Example	○○○○	○○○○	1	○
	○○○○	○○○○	3	
Measuring	Aerial photos using a drone			
	Collecting field data using mobile device	GPS, smartphone, tablet etc.		
Storing	Downloading satellite imagery and GIS data.			
	Create GIS data	Georeferencing paper maps and tracing them		
	Drone data processing	Ortho rectified mosaic photo and making 3D model		
	Pre/post processing optical satellite images	clipping /mosaicking / reprojecting/ layer stacking satellite imagery		
		Calibration (calculating Reflectance value, atmospheric/topographic correction)		

	Pre/post processing microwave satellite images	Calibration (calculating db value (sigma, beta, gamma naught)		
Analyzing	Calculating index	NDVI, NDSI, NDWI		
	Classification (Unsupervised, Supervised classification)	Pixel based classification		
		Object based classification		
	Change detection			
	Spatial data analysis with GIS	Carbon stock mapping		
		Mapping with statistical models		
Programming based remote sensing or GIS	Google Earth Engine			
	Other programing language	R, Python, etc.		

11. Knowledge or skills which the applicant intends to acquire from this KCCP program. (example: knowledge of technical issues about REDD+, skills of using remote sensing software for change detection of land use in your site)

12. In the applicant's country, what kind of effort/action for REDD+ can be made? (example: law, policy, finance and aid)

13. Plans/projects, which you are likely to be involved in your country after completing the KCCP, if any.

14. Describe the target area, which you want to deal with in your action plan in concrete terms. *Please attach the Map below

Area Name: Longitude and Latitude:

MAP:

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 and adaptation, 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.

CORRESPONDENCE
For enquiries and further information, please contact the JICA office.
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