



TRAINING AND DIALOGUE PROGRAMS

GENERAL INFORMATION ON

INTEGRATED PEST MANAGEMENT FOR PLANT PROTECTION

集団研修「植物保護のための総合防除」

JFY 2010

<Type: Trainers Training / 類型: 人材育成普及型>

NO. J10-00657 / ID. 1080810

From May 2010 to Oct. 2010

Phases in Japan: From June 7, 2010 to Sep. 4, 2010

This information pertains to one of the Training and Dialogue Programs 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.

I. Concept

Background

Global changes of ecosystem brought by climate changes or natural disasters can trigger unexpected outbreaks of plant diseases and insect pests among the vulnerable developing countries, where agriculture is the main sector for the national economy. Degraded ecosystem may cause a fall in agricultural production, resulting in the negative impact on the society. Agrochemicals used for pest control are costly and their improper use can further deteriorate ecosystem.

Therefore, it is indispensable to implement Integrated Pest Management (IPM) to sustain agriculture, economy and welfare of the people. IPM is a comprehensive strategy that uses an array of complementary methods such as predators and parasitoids, pest-resistant varieties, cultural practices, entomophagous pathogens, various physical and chemical measures of control.

This program is designed to upgrade the capacity of participants in planning and implementing IPM, furnishing with the knowledge and technical skills on eco- and human-friendly IPM.

For what?

This program aims to realize implementation of IPM plan suited for the climatic, economic and social conditions of each country. This program helps participants acquire techniques necessary for IPM, and get a better understanding of international and global aspects for safe/sufficient food production as well as environment protection.

For whom?

This program is offered to technical officials presently in charge of plant protection.

How?

Participants shall have opportunities to learn practical approaches and techniques relevant to IPM through lectures, visits on research institutes or other relevant sites, field observations, and individual lab works. Participants will also formulate an integrated pest management plan suitable for various factors of their home country and share it within their organization, putting what they have acquired in Japan.

II. Description

1. Title (J-No.): Integrated Pest Management for Plant Protection (J1000657)

2. Period of program

Duration of whole program:	May 2010 to October 2010
Preliminary Phase: (in a participant's home country)	May 2010
Core Phase in Japan:	June 7 to September 4, 2010
Finalization Phase: (in a participant's home country)	September 2010 to October 2010

3. Target Regions or Countries

Argentina, Afghanistan, Chile, Dominican Republic, Indonesia, Kenya, Micronesia, Pakistan, Sri Lanka and Thailand (10 countries)

4. Eligible / Target Organizations

This program is designed for central and local governmental organizations including research organizations, universities, and extension offices in the field of plant protection.

5. Total Number of Participants

12 participants (2 participants from Chile, Kenya and Sri Lanka. 1 participant respectively from other target countries)

6. Language to be used in this program: English

7. Program Objective:

A draft of the IPM plan (the action plan) formulated by the participant will be studied by the participating organization and the result of study including a future plan will be compiled by the participating organization.

8. Overall Goal

In the jurisdictional area of the organizations to which participants belong, IPM plan will be disseminated and agricultural products will be produced stably, while conserving biodiversity and landscape.

9. Expected Module Output and Contents:

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

(1) Preliminary Phase in a participant's home country (May 2010) <i>Participating organizations make required preparation for the Program in the respective country.</i>	
Modules	Activities
Job Report	Formulation and submission of Job Report Preparation for the report presentation Analyze plant protection related problems faced by the participating organization Make a plan in advance on how to make use of the result of this training program in Japan in order to solve problems.

(2) Core Phase in Japan (June 7, 2010 to September 4, 2010) <i>Participants dispatched by the organizations attend the Program in Japan.</i>		
Modules	Subjects/Agendas	Methodology
1) Background, theoretical basis and practices of IPM	(1) Vulnerable environment and needs for IPM for sustainable society & environment (2) Conservation of biosphere and bio-diversity: A role of agro-ecosystem (3) Current problems and future directions in implementation of IPM (4) Advanced researches (5) Field practices	Lecture Discussion Observation Lab Works
2) Plant diseases; diagnosis and control plan	(1) Recent advances in plant pathology (4) Plant-arthropod-microbe interactions (5) Infection mechanism (6) Identification and inoculation (7) Genetic analysis of tolerance	Lecture Discussion Observation Lab Works
3) Insect pests; diagnosis and control plan	(1) Recent advances in insect science (2) Biological control of arthropod pests (3) Post harvest problems (4) Estimation of insect population density and migration (5) Forecasting the pest occurrence in the field based on the laboratory data (5) Mass-rearing of harmful and beneficiary insects in the laboratory (6) Molecular taxonomy (7) Search for new targets and target-oriented chemical control	Lecture Discussion Observation Lab Works
4) Weeds; diagnosis and control plan	(1) Parasitic weed control (2) Paddy weed control (3) Chemical and ecological control of weeds	Lecture Discussion Observation Lab Works

5) Chemical control, biotechnological method, etc.	(1) Chemical and genetic manipulations of arthropod behavior (2) Principles of agrochemicals' mode of action and environmental toxicology (3) GMOs: potentials and problems (4) Bioassay of bioactive substances	Lecture Discussion Observation Lab Works
6) IPM dissemination plan suited for each country	(1) Interim report (IPM plan) preparation and presentation	Discussion

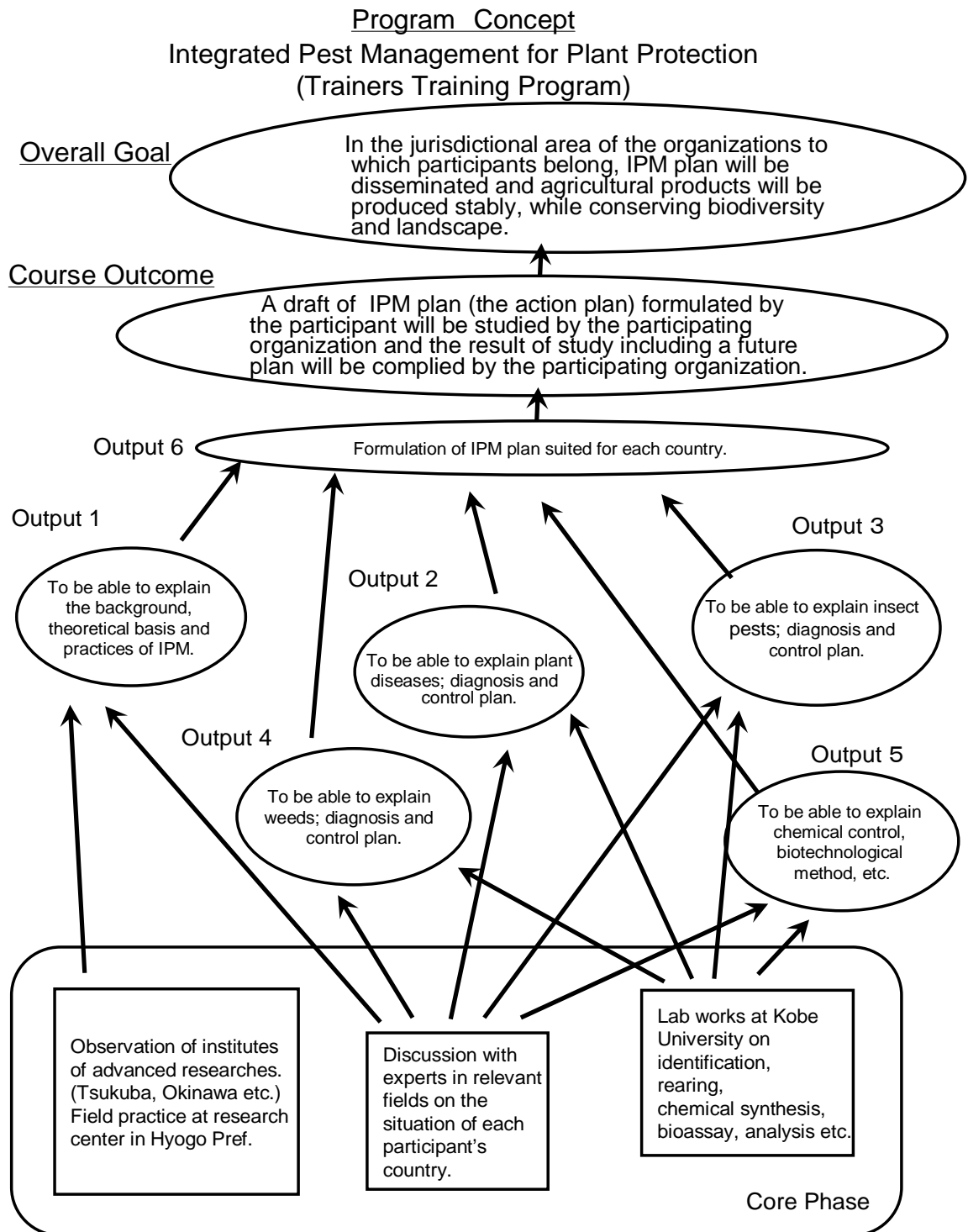
(3) Finalization Phase in a participant's home country

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

Modules	Activities
A draft of IPM plan (the action plan) will be submitted and studied for its feasibility in the participating organization	Participants will share and study the action plan in their organizations and the result of study including a future plan will be complied by the participating organizations. The participating organizations and participants will submit its report by the end of October, 2010.

<Structure of the program>

1. Preliminary phase (activities in your home country): Preparation for the Job Report presentation.
2. Core Phase (activities in Japan):



3. Final Phase (activities in home country)

Participants are expected to propose and implement the IPM plan (Interim Report) in their organizations and report on progress **within two (2) months** after the end of the phase in Japan.

10. Follow-up Cooperation by JICA:

JICA might extend follow-up support to participating organizations that intend to develop the result of the project further. Please note that the support shall be extended selectively based on proposals from the participating organizations.

III. Conditions and Procedures for Application

1. Expectations for the Participating Organizations:

- (1) This program is designed primarily for organizations that intend to address specific issues or problems identified in their operation. Participating organizations are expected to use the project for those specific purposes.
- (2) This program is enriched with contents and facilitation schemes specially developed in collaboration with relevant prominent organizations in Japan. These special features enable the project to meet specific requirements of applying organizations and effectively facilitate them toward solutions for the issues and problems.
- (3) As this program is designed to facilitate organizations to come up with concrete solutions for their issues, participating organizations are expected to make due preparation before dispatching their participants to Japan by carrying out the activities of the Preliminary Phase described in section II -9 .
- (4) Participating organizations are also expected to make the best use of the results achieved by their participants in Japan by carrying out the activities of the Finalization Phase described in section II -9.

2. Nominee Qualifications:

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

(1) Essential Qualifications

- 1) Current Duties: being a technical officer of central/local government research institutes or a university staff member
- 2) Experience in the relevant field: must have more than 3 years' experience in the field of plant protection
- 3) Educational Background: graduation from a university or equivalent
- 4) Language: must have a competence of spoken and written English.
Please attach an official certificate for English ability such as TOEFL, TOEIC, etc, if possible.
- 5) Health: must be in good health, both physically and mentally, to participate in the Program in Japan.

※Pregnancy :

There is higher risk for pregnant women and people with chronic diseases to cause serious medical consequences when infected with the new Influenza A (H1N1) virus according to the past cases.

Under the pandemic situations of the new Influenza, pregnant applicants shall not be accepted for the time being.

And applicants who suffer from chronic diseases, such as respiratory illness, cardiac disease, metabolic disease (diabetes, etc), renal

dysfunction and immune insufficiency (systemic steroid administration, etc), shall not be accepted in principle. However, for those applicants with the chronic diseases, if they and their organizations express strong interest in participating in training programs, JICA shall accept them as an exceptional case after receiving a letter of consent from themselves and their organizations.

Please ask national staffs in JICA office for the details.

6) Must not be engaged in current military service.

(2) Recommendable Qualifications

1) Age: must be between the ages of twenty-six (26) and thirty-five (35) years

3. Required Documents for Application

(1) Application Form: The Application Form is available at the respective country's JICA office or the Embassy of Japan.

(2) 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), please attach it (or a copy) to the application form.

(3) Questionnaire: to be submitted with the application form. Fill in the questionnaire (IV. Annex) of this General Information, and submit it along with the Nomination Form.

4. Procedure for Application and Selection :

(1) Submitting the Application Documents:

Closing date for application to the JICA Center in JAPAN: **April 16, 2010**

Note: Please confirm the closing date set by the respective country's JICA office or Embassy of Japan of your country to meet the final date in Japan.

(2) Selection:

After receiving the document(s) through due administrative procedures in the respective government, the respective country's JICA office (or Japanese Embassy) shall conduct screenings, and send the documents to the JICA Center in charge in Japan, which organizes this project. Selection shall be made by the JICA Center in consultation with the organizations concerned in Japan based on submitted documents according to qualifications. *The organization with intention to utilize the opportunity of this program will be highly valued in the selection.*

(3) Notice of Acceptance

Notification of results shall be made by the respective country's JICA office (or

Embassy of Japan) to the respective Government by **not later than May 7, 2010.**

5. Document(s) to be submitted by accepted participants:

Job Report -- to be submitted by **May 21, 2010:**

Before coming to Japan, only accepted participants are required to prepare a Job Report (detailed information is provided in the ANNEX "Job Report". The Job Report should be sent to JICA or the Japan International Cooperation Center by **May 21, 2010**, preferably by e-mail to [jicahic @jica.go.jp](mailto:jicahic@jica.go.jp)

6. Conditions for Attendance:

- (1) to observe the schedule of the program,
- (2) not to change the program subjects or extend the period of stay in Japan,
- (3) not to bring any members of their family,
- (4) to return to their home countries at the end of the program in Japan according to the travel schedule designated by JICA,
- (5) to refrain from engaging in political activities, or any form of employment for profit or gain,
- (6) to observe the rules and regulations of their place of accommodation and not to change the accommodation designated by JICA, and
- (7) to participate the whole program including a preparatory phase prior to the program in Japan. Applying organizations, after receiving notice of acceptance for their nominees, are expected to carry out the actions described in section II -9 and section III -4.

IV. Administrative Arrangements

1. Organizer:

(1) **Name:** JICA Hyogo

(2) **Contact:** jicahic@jica.go.jp

2. Implementing Partner:

(1) **Name:** Graduate School of Agricultural Science, Kobe University

URL: <http://www.kobe-u.ac.jp>

Remark: The National University Corporation Kobe University consists of 11 faculties; Letters, Cross-Cultural Studies, Human Development, Law, Economics, Business Administration, Science, Medicine, Engineering, Maritime Sciences and Agriculture. The number of students enrolled and the number of faculties are ranked as number 3 among all National University Corporation in Japan.

Faculty of Agriculture consists of five departments; Animal Science, Plant Resource Science, Biological and Environmental Science, Bio-functional Chemistry and Agricultural and Environmental Engineering.

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:** Term of Insurance: From arrival to departure in Japan. The traveling time outside Japan shall not be covered.

4. Accommodation in Japan:

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

JICA Hyogo International Center (JICA HYOGO)

Address: 1-5-2, Wakinohama-kaigandori, Chuo-ku, Kobe, Hyogo
651-0073, Japan

TEL: 81-78-261-0341 FAX: 81-78-261-0342

(where "81" is the country code for Japan, and "78" is the local area code)

If there is no vacancy at JICA HYOGO, JICA will arrange alternative accommodations for the participants. [Please refer to facility guide of JICA Hyogo at its URL, http://www.jica.go.jp/english/contact/domestic/.](http://www.jica.go.jp/english/contact/domestic/)

5. Expenses:

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

(1) Allowances for accommodation, 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 p. 9-16 of the brochure for participants titled

"KENSU-IN GUIDE BOOK," which will be given to the selected participants

before (or at the time of) the pre-departure orientation.

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.

V. Other Information

1. Participants who have successfully completed the seminar will be awarded a certificate by JICA.

2. Internet Access

There are computer rooms in JICA Hyogo. Besides each guest room has the internet access by LAN cable. It is advisable to bring a laptop computer in order to avoid congestions.

3. School Visit

For the promotion of mutual friendship, JICA Hyogo encourages international exchange between JICA participants and local communities, including school and university students as a part of development education program. JICA participants are expected to contribute by attending such activities and will possibly be asked to make presentations on the society, economy and culture of their home country.

VI. ANNEX:

Information on Individual studies

The program prepares the participant to receive intensive research training in given laboratory of Kobe University. Each laboratory offers several research subjects to the participant. The applicant has to choose some of the research subjects and carry out experiments in one of the subjects chosen by himself/herself. Through the experimental work, the participants will be able to acquire techniques and ideas under the guidance of the staffs of the University.

A. Laboratory of Plant Pathology

a. Diagnosis (material: *Magnaporthe* spp.)

Isolation and maintenance of isolates, Determination of cultivar-specific pathogenicity using a traditional technique (i.e., inoculation of differential cultivars), Determination of species-specific pathogenicity using a molecular technique, PCR

b. Biological control (material: *Ralstonia solanacearum*)

B. Laboratory of Entomology

a. Ecological studies of pest insects and their natural enemies

Estimation, monitoring and comparison of insect and spider populations, and rearing of parasitic wasps as control agents of insect pests.

b. Mass culture techniques of pest species in the laboratory and life cycle analyses under controlled environmental conditions.

Laboratory rearing techniques of pest species include cockroach, crickets, grasshoppers, flour moth, wax moths, noctuid moths, sawfly, Ichneumonid wasps, *Tricogramma* wasps, two spotted spider mites, bean bugs etc.

c. Toxicological and pharmacological analyses of certain insecticides and miticides

Toxicological tests should be conducted for IGRs, BT, and organic pesticides. The Magnus assay will be conducted for the receptor binding. Effects of agonists and antagonists should be learned.

d. Preliminary molecular techniques will be learned for improving beneficial insects, such as PCR techniques, sequence analysis, transposon-DNA injection etc.

e. Pathological effect of *Bacillus thuringiensis* will be investigated by histological techniques.

f. For post-harvest pest management, the effect of various temperature treatments will be studied including supercooling point and mortality.

C. Laboratory of Genetics

a. Genetic study of resistance to biotic and abiotic stresses

Bioassays for reaction to brown plant hoppers and coldness, Molecular mapping of resistance genes

D. Laboratory of Agrochemical Science (the following practices will be conducted in other labs due to the staff retirement this year)

a. Efficacy test of various agrochemicals

b. Pesticide residues and environmental hazardous chemicals by enzyme-linked immunosorbent (ELISA) assay.

E. Laboratory of Functional Phytochemistry(Weed Science A)

a. Studies on the host plant – parasitic plant interactions

Purification and characterization of germination stimulants for root parasitic weed seeds. Physiological and biochemical studies on germination stimulation mechanisms

F. Laboratory of Tropical Botany (Weed Science B)

a. Study on the herbicide resistant weeds

Control measure for paddy weeds which sulfonylurea resistant biotypes such as *Monochoria vaginalis*, *Scirpus juncooides*, *Lindernia* spp. Pot experiment and lab experiment.

* The applicant is requested to choose the subject among the above to be trained in the order of his/her interest and fill in the Questionnaire.

(Example)	1st choice	Da
	2nd choice	Ca
	3rd choice	Ab

* This questionnaire should be submitted together with Application Form.

QUESTIONNAIRE

**FOR APPLICANT OF THE GROUP TRAINING COURSE
ON
INTEGRATED PEST MANAGEMENT FOR PLANT PROTECTION**

1. Indicate the choice of your research subject in individual studies shown in the previous pages.

1st choice ()

2nd choice ()

3rd choice ()

2. Have you studied the following subjects? (Please tick either Yes or No.)

	Yes	No
Agronomy	()	()
Plant Pathology	()	()
Applied Entomology and Zoology	()	()
Weed Science	()	()
Pesticide Science	()	()
Biochemistry and Molecular Biology	()	()
Statistics	()	()

3. Indicate your special interests in particular aspect or research techniques below:

- * Only accepted participants should submit JOB REPORT by e-mail.
JOB REPORT should be prepared in accordance with the format below.
Presentation of the report for about 30 minutes per each participant will be carried out prior to entering program.

JOB REPORT

THE GROUP TRAINING COURSE ON INTEGRATED PEST MANAGEMENT FOR PLANT PROTECTION

- (1)** Name of Participant
- (2)** Name of Organization
- (3)** Organizational Chart, indicating plant protection system
- (4)** Climatic conditions and growing seasons on rice and/or main crops
- (5)** Occurrence of diseases, pest insects and weeds on rice and/or main crops
- (6)** Plant protection related problems faced by the organization you belong to
- (7)** Plant protection related problems you face in your daily work
- (8)** Situation of extension service to the farmer's level and relevant problems in the field of plant protection

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 Hyogo International Center (JICA HYOGO)

Address: 1-5-2, Wakinohama-kaigandori, Chuo-ku, Kobe, Hyogo 651-0073, Japan

TEL: +81-78-261-0341 FAX: +81-78-261-0342