



TRAINING AND DIALOGUE PROGRAMS

GENERAL INFORMATION ON
CLEANER PRODUCTION IN PROCESS INDUSTRIES FOR LATIN
AMERICAN COUNTRIES (FOR MANAGERS AND ENGINEERS OF
PROCESS INDUSTRIES)

**地域別研修「中南米地域プロセス工業におけるクリーナープロダクション」
JFY 2011**

<Type: Solution Creation / 類型: 課題解決促進型>

NO. J1104157 / ID. 1184155

From July 2011 to April 2012

Phases in Japan: From September 4, 2011 to December 10, 2011.

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

Steady and continual economic development is one of the most important issues for developing nations, and many developing nations are progressing with industrialization. But on the other hand, this industrial development leads to issues such as excessive consumption of resources and problems of pollution at the same time, because economy was given priority than the environments. Furthermore, in recent years global warming has become an important issue for the entire world. As a measure to counter it, "Energy conservation" which allows a greater volume of production using a smaller amount of energy, has been gathering attention. Cleaner Production is the continuous application of an integrated preventive environmental strategy to processes, products, and services to increase overall efficiency, and reduce risks to humans and the environment. Cleaner Production can be applied to the processes used in any industry, to products themselves and to various services provided in society. Kitakyushu City, the site of the training course, is one of the four largest industrial areas in Japan. During the high-growth period of the 1950s and '60s it faced severe pollution. So citizens, companies, and the government all started to act together to restore the environment, and Kitakyushu city was able to obtain the present environment. In particular, companies developed Cleaner Production techniques that would allow both lower energy and resource use and less pollution, while accepting government support. And these have now been built up into the world's most advanced systems. On this background, this course is planned to base on the actual results and experiences acquired on both industrial development and environmental protection in Kitakyushu City, one of the most important industrial areas of Japan. This course aims to train the participants the specific methods and procedures of the Cleaner Production techniques that are used mainly in the processing industries of steel, oil refinement, food products, the ceramic industry, and chemistry. And it aims to solve the problems that the participants will describe in their issue analysis sheets through the introduction and development of Cleaner Production techniques.

For what?

This program aims to make and implement plans to solve the issues of participants by using the technologies and techniques related to cleaner production. These plans will include conserving raw materials, water and energy; eliminating toxic and dangerous raw materials; and reducing the quantity and toxicity of all emissions and wastes at source during the production process. They can increase productivity and bring financial benefits to the organizations.

For whom?

This program is offered to governmental or private organization in the field of process industries such as chemical, petroleum refinery, iron and steel, food and ceramic plant.

How?

Participants shall have opportunities to learn concepts of Cleaner Production and technologies that form the foundation of equipment in processing industries in Japan. And they shall gain the ability to plan and carry out the feasible plan for utilizing Cleaner Production techniques, and enhance the ability to design and improve equipment.

Participants will also formulate an Interim Report (Action Plan) describing what the participant will do after they go back to home country. And they will put the knowledge and ideas acquired in Japan into their on-going activities.

II. Description

1. Title (J-No.)

**Cleaner Production In Process Industries for Latin American Countries
(For Managers and Engineers of Process Industries) (J1104157)**

2. Period of program

Duration of whole program: July 2011 to April 2012

Preliminary Phase: July 2011 to August 2011
(in a participant's home country)

Core Phase in Japan: September 4, 2011 to December 10, 2011

Finalization Phase: December 2011 to April 2012
(in a participant's home country)

3. Target Regions or Countries

Argentine, Bolivia, Chile, El Salvador and Nicaragua

4. Overall Goal

Cleaner Production technology is introduced into participants' organizations, communities and countries.

5. Program Objective

All participants settle on the rough draft of the plan to introduce the cleaner production technology into their organization systematically.

i To achieve this program objective, participants are expected to achieve the followings in Japan;

- (1) To be able to explain the concept and specific usage method of Cleaner Production techniques.
- (2) To be able to design or improve equipment to allow the reduction of environmentally-harmful waste products and keep resource and energy usage to a minimum.
- (3) To be able to keep the release of environmental pollutants and raw material and energy loss associated with equipment trouble to a minimum through improving reliability of equipment, and maintaining efficiency.

(4) To be able to create an action plan for the introduction of Cleaner Production techniques.

ii In participants' home country, it is also expected that the action plan written during the Core Phase in Japan is approved by the organization concerned.

6. Eligible / Target Organization

This program is designed for managers and engineers in the field of process industries such as chemical, petroleum refinery, iron and steel, food and ceramic plant, and for trainers to governmental or private organization for Cleaner Production techniques.

7. Total Number of Participants

6 participants

8. Language to be used in this project

Spanish (Some training subjects are in English)

9. Contents

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

(1) Preliminary Phase in a participant's home country (July 2011 to August 2011) <i>Participating organizations make required preparation for the Program in the respective country.</i>	
Modules	Activities
Inception Reports	Review of Inception Reports (Job Report, IAS and Questionnaire) in preparation for the training in Japan.

(2) Core Phase in Japan (September 4, 2011 to December 10, 2011) <i>Participants dispatched by the organizations attend the Program implemented in Japan.</i>		
Modules	Subjects/Agendas	Methodology
1) To be able to explain the concept and specific usage method of Cleaner Production techniques.	[Lecture] <ul style="list-style-type: none"> - Cleaner Production - TPM, 5S, and Kaizen Activity - Environment Issue - Economic Valuation - Quality Control [Lecture and Practice] <ul style="list-style-type: none"> - New QC 7 Tools - PCM [Plant Visit] <ul style="list-style-type: none"> - Eco Town - Waste Water Treatment Plant - Garbage Incineration Plant - Mitsubishi Materials Corp. - Environmental Museum - Mitsubishi Chemical Corp. - TOTO Corp. [Study Tour] <ul style="list-style-type: none"> - Marutomi Paper Corp. - Yamatake Corp. - Panasonic Center Osaka - Asahi Brewery Company, Ltd. - Geothermal Power Station 	Lecture Practice Plant Visit Study Tour

Modules	Subjects/Agendas	Methodology
2) To be able to design or improve equipment to allow the reduction of environmentally-harmful waste products and keep resource and energy usage to a minimum.	[Lecture] <ul style="list-style-type: none"> - Selection of Equipment - Selection of Motors - Selection of Material - Finite Element Method [Lecture and Practice] <ul style="list-style-type: none"> - Value Engineering - Process Automatic Control - Sequence Control - Motor Control [Plant Visit] <ul style="list-style-type: none"> - Yasukawa Electric Corp - Nippon Steel Corp - Poli-tech College [Study Tour] <ul style="list-style-type: none"> - Toyota Motor Corp - Mitsubishi Heavy Industry Corp. - Toshiba Science Museum - Shimadzu Corp. - Nissan Motor Corp - Kyocera Co. 	Lecture Practice Plant Visit Study Tour
3) To be able to keep the release of environmental pollutants and raw material and energy loss associated with equipment trouble to a minimum through improving reliability of equipment, and maintaining efficiency.	[Lecture] <ul style="list-style-type: none"> - Maintenance Management - Visual Maintenance Management - Corrosion and Protection - Fracture Mechanics [Lecture and Practice] <ul style="list-style-type: none"> - Inspection Technique - Nondestructive Inspection - Maintenance in Actual Plant - Autonomous Maintenance Practice [Study Tour] <ul style="list-style-type: none"> - ANA Nagasaki Engineering - ANA Aero Tech 	Lecture Practice Study Tour
4) To be able to create an action plan for the introduction of Cleaner Production techniques.	[Lecture] <ul style="list-style-type: none"> - Interim Report (Action Plan) Guidance - Interim Report (Action Plan) Meeting [Presentation] <ul style="list-style-type: none"> - Job Report Presentation - Interim Report (Action Plan) Presentation 	Lecture Presentation

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

(December 2011 to April 2012)

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 Interim Report (Action Plan)	Application and implementation of the action plan (Interim Report) back in the participant's country and submission of its completion report by April 2012.

<Structure of the program>

1. Preliminary phase (activities in your home country)

Preparation of Inception Reports

2. Core Phase (activities in Japan)

See attached tentative schedule and Curriculum

Training Subjects	Details/Purpose	Hours		
		L	LP	F
Outline of Cleaner Production	1. Introduction to Cleaner Production 2. How to plan and implement Cleaner Production idea 3. Relation between Cleaner Production and maintenance	6		
Environmental Issues	1. Outline of global environmental issues 2. Measures against the environmental issues 3. Relation to Cleaner Production	9		
Outline of Quality Control	1. Conception of quality control 2. Process capacity 3. QC circle 4. Reliability control	12		
Practice of TPM, 5S and Kaizen Activity	To understand the out-line of TPM, 5S and Kaizen activity by confirming the specific circumstances of the activity from its concept to practice	12		
Economic Valuation of Environmental Projects	1. Techniques for environmental decision making 2. Method of Environmental Valuation: Contingent Valuation Method (Overview, Application, Case study examples, Summary, Applying the Contingent Valuation Method)	12		
New QC 7 Tools	With the change and expansion of the circumstances surrounding industries, themes of QC have been changing. With the usual QC method it became difficult to solve problems. We study "New QC7 Tools" which are recently dominant.		12	
PCM (Project Cycle Management) Training	PCM is the technique which is useful for identifying the problem, analyzing its causes and making actions plan as a project. To learn the procedure how to use PCM technique through practice.		24	
Selection of main Equipment	To learn how to select main equipment, such as compressor, blower, separator, pump, heat exchanger, tower and conveyor.	12		
Selection of Motors and Motor Control	To learn selection of motors and motor control with special emphasis on inverters which have been applied extensively	6	6	

Training Subjects	Details/Purpose	Hours		
		L	LP	F
Selection of Materials	To learn the selection of proper types of steels for designing equipment and machine parts. 1. Important points in the selection of materials suitable for intended service conditions 2. Selection of corrosion resistant materials	6		
Corrosion and Protection	1. Basic theory of rust prevention and corrosion prevention. 2. To learn how to detect equipment corrosion and appropriate remedies thereof.	6		
Fracture Mechanics	To learn the Fracture Mechanics for evaluation of the harmfulness of defects in the equipment and foresee the remaining time of the equipment with those harmful defects.	3		
Finite Element Method	To understand actual conditions of analysis by Finite Element Method, through observing the process using the latest program for this method.	3		
Value Engineering	In designing, manufacturing and modification of equipment and parts, it is essential that such equipment and parts satisfactorily perform the required functions. At the same time, waste must be avoided and it is necessary to ensure minimum cost.		18	
Process Automatic Control	1. Introduction to process automatic control 2. Temperature and flow rate control 3. Simulated process control of model plant		18	
Sequence Control	1. To learn the fundamentals and application of automatic control with the use of relays and PLC 2. To learn automation by means of sequence control		18	
Maintenance Management	To learn how to implement effective "Maintenance Management" 1. Repair planning 2. Maintenance management	6		
Visual Maintenance Management	Introduction of a computer program which can perform maintenance management, equipment management, document management and analysis etc.	6		
Maintenance in actual plant	1. Organization for maintenance 2. Maintenance system and activity 3. Maintenance information control system		3	

Training Subjects	Details/Purpose	Hours		
		L	LP	F
Non-destructive Inspection	To acquire techniques of checking presence or otherwise of either existing or latent flaws(or defects) in equipment. 1. Ultrasonic inspection 2. Magnetic particle inspection 3. Dry penetrate test 4. Radiographic test 5. Eddy current flaw detection test		24	
Autonomous Maintenance	To learn how to advance autonomous maintenance of the production sector by the lecture and the practice. It is one of the most important activity in TPM to reduce the equipment failures.		6	
Inspection Techniques	1. Basic concept of machine condition diagnosis 2. Principle and method of utilizing diagnosis devices for machines/equipment (bearing, gear and rotary machine)		12	
Job Repot Presentation and Meeting	1. Job Report Presentation (10 minutes/a person) 2. A Job Report meeting for all participants to understand each participant's problem		6	
Action plan guidance	1. Lecture how to make action plan 2. Discussion and guidance of action plan 3. Preparation for presentation of action plan		15	
Action plan presentation	The lecturers and the members of JICA and KITA (refer to IV-2) take part in the conference.		3	
Plant Visit	at 12 enterprises			36
Study Tour	1. Nagasaki Area			24
	2. Kyoto and Tokyo Area			30
Sub Total		99	165	90
Ceremony, Meeting, etc		12		
Grand Total		366		

3. Final Phase (activities in home country)

Participants are expected to implement the action plan (Interim Report) and report on progress within four (4) months after the end of the phases in Japan.

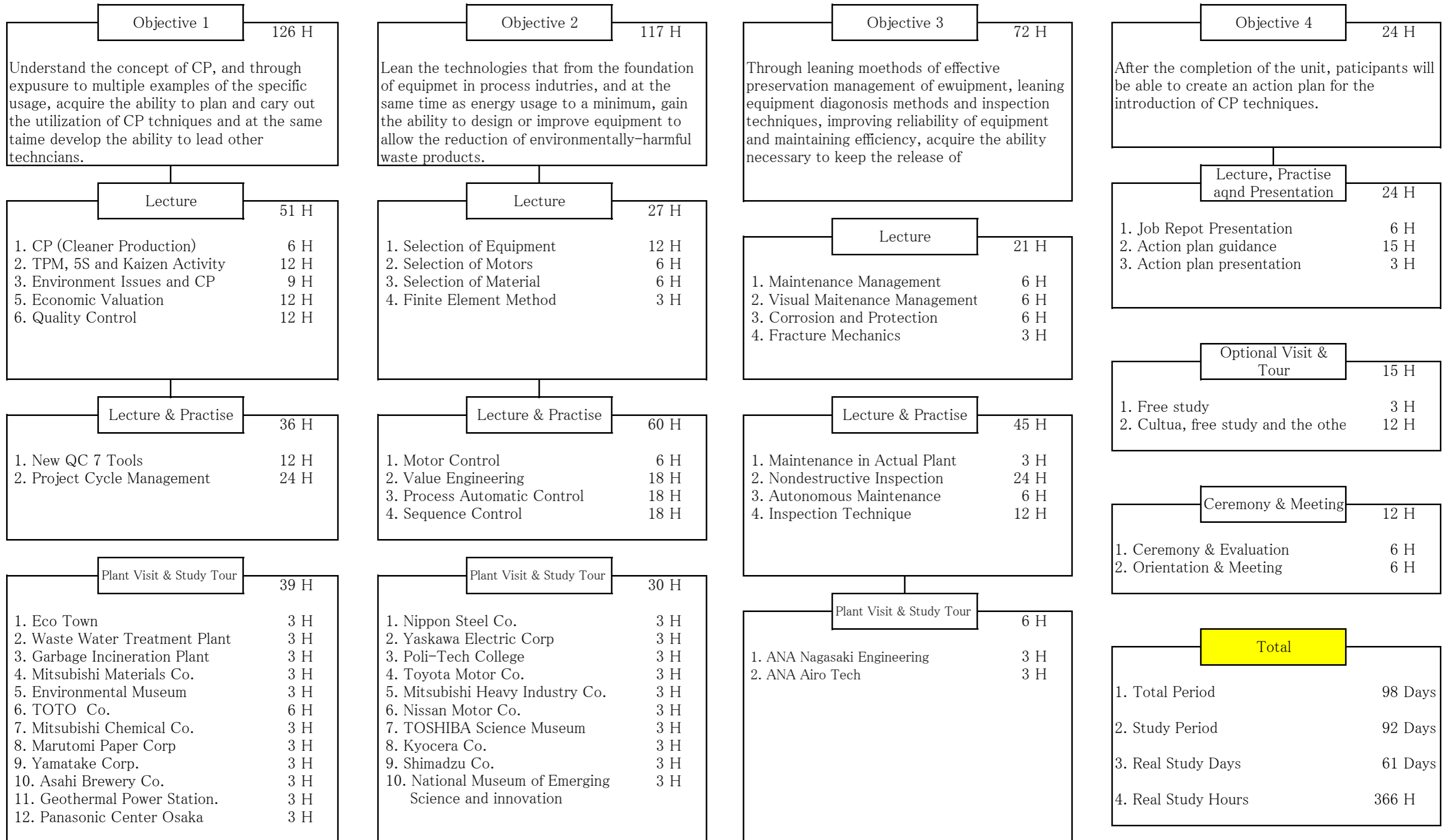
The topic (objective or target) of your action plan does not have to be drastic or large-scale. Could be a small idea but should be something feasible and concrete.

Participants should set the topic of an action plan from the problem described in the IAS. Therefore, It is important that the problem described in IAS is the one to which the participant can play center role.

SCHEDULE OF "CLEANER PRODUCTION IN PROCESS INDUSTRIES FOR LATIN AMERICAN COUNTRIES" COURSE

September - '11					October - '11					November - '11					December - '11				
Date	Subject	Instructor	Place	Date	Subject	Instructor	Place	Date	Subject	Instructor	Place	Date	Subject	Instructor	Place				
1 Thu				1 Sat				1 Tue	Selection of Equipment	MCC	KIC	1 Thu	Study tour (Tokyo, Kyoto)	Kyocera Shimazu	Kyoto				
2 Fri				2 Sun				2 Wed								2 Fri	Bus tour Panasonic	Kyoto Osaka	
3 Sat				3 Mon	TPM Activity	KITA	KIC	3 Thu				3 Sat							
4 Sun	Arrival at KIC			4 Tue	5S & Kaizen	MCC	Yahata-W	4 Fri	Autonomous Maintenance	KITA	Yahata-W	4 Sun							
5 Mon	Briefing	JICA	KIC	5 Wed	Selection of Motor & Invertor Control	Yasukawa Electric	Kokura-N	5 Sat				5 Mon	Process Automatic Control	MCC	KIC T.R.No1				
6 Tue	Orientation	JICA	KIC	6 Thu						6 Sun							6 Tue		
7 Wed							7 Fri	Plant Visit	Water Treat. TOTO(No.1).	Kokura-N	7 Mon	Fracture Mechanics Plant Visit	KITA Yaskawa Elec.	KIC Yahata-W	7 Wed				
8 Thu	Cultural Exchange Program	JICA	KIC	8 Sat				8 Tue	Non-destructive Inspection	SNNI	KIC T.R. No3	8 Thu	Evaluation Meeting A/P Meeting	JICA KITA	KIC				
9 Fri	KITA Orientation J/R Meeting	KITA	KIC	9 Sun				9 Wed							9 Fri	A/P Presentation Closing Ceremony	JICA	KIC	
10 Sat				10 Mon				10 Thu							10 Sat	Leave KIC			
11 Sun				11 Tue	Project Cycle Management	IC-Net	KIC	11 Fri				11 Sun							
12 Mon	J/R Presentation Course Guide	JICA KITA	KIC	12 Wed							12 Sat				12 Mon				
13 Tue	Cleaner Production	KITA	KIC	13 Thu							13 Sun				13 Tue				
14 Wed	Quality Control	KITA	KIC	14 Fri							14 Mon	Economic Valuation of Enviromental Projects	Shiga Univercity	KIC	14 Wed				
15 Thu						15 Sat				15 Tue							15 Thu		
16 Fri	Plant Visit	Env. Museum Eco-town	Yahata-E Tobata	16 Sun				16 Wed	Plant Visit	Politech TOTO(2)	Kokura-S	16 Fri							
17 Sat				17 Mon	Selection of materials	KITA	KIC	17 Thu	Inspection Technique	KITA	KIC T.R.No3	17 Sat							
18 Sun				18 Tue	Plant Visit Actual Maintenance	MCC	Yahata-W	18 Fri							18 Sun				
19 Mon				19 Wed	Value Engineering	Yaskawa Electric	KIC	19 Sat				19 Mon							
20 Tue	Environmental Issues	KITA	KIC	20 Thu							20 Sun				20 Tue				
21 Wed	Environmental Issues Plant Visit(Cement)	KITA M. Material	KITA Yahata-E	21 Fri							21 Mon	Plant Visit	NSC Garbage Inci.	Tobata Kokura-N	21 Wed				
22 Thu	Action Plan	KITA	KIC	22 Sat				22 Tue	Sequence Control	KITA	KIC	22 Thu							
23 Fri				23 Sun				23 Wed				23 Fri							
24 Sat				24 Mon	Mid-term Evaluation Action Plan	KITA	KIC	24 Thu	Sequence Control (Practice)	MCC	Yahata-W	24 Sat							
25 Sun				25 Tue	Study Tour (Nagasaki)	Toyota Motor Asahi Brew.	Miyawaka Fukuoka	25 Fri							25 Sun				
26 Mon	Maintenance Management	MCC	KIC	26 Wed			MHI Musium	Nagasaki	26 Sat				26 Mon						
27 Tue	Visual Maintenance						27 Thu		ANA Eng Airo Tech	Isahaya	27 Sun				27 Tue				
28 Wed	New QC 7 Tools	KITA	KIC	28 Fri			Mt.Aso Geothermal P.	Aso Sujiyu	28 Mon	Study tour (Tokyo, Kyoto)	Yamakake Nissan Motor Toshiba National Muse.	Tokyo	28 Wed						
29 Thu						29 Sat							29 Tue				29 Thu		
30 Thu	Finite Element Method Laboratry Tour	MERI	MERI	30 Sat				30 Wed					Marutomi Paper	Fuji	30 Fri				
				31 Mon	Corrosion & Protection	KITA	KIC					31 Sat							

CARRICULUM OF "CLEANER PRODUCTION IN PROCESS INDUSTRIES FOR LATIN AMERICAN COUNTRIES" COURSE



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) Experience in the relevant field:** have more than 5 years' experience in operation, design or maintenance in the field of process industries such as chemical, petroleum refinery, iron and steel, food and ceramic plant.
- 2) Education:** be university graduates, who have majored in engineering, or the equivalent
- 3) Language:** have a sufficient ability to read English. Although the training will be conducted with an interpreter for Spanish-Japanese, the half of the text books will be written in English.
- 4) Health:** must be in good health, both physically and mentally, to participate in the Program in Japan. As the training includes much field works (trips), that may give risks to pregnant body, pregnancy is regarded as a disqualifying condition for participation in this training course.
- 5) Personality:** be able to enlighten and guide many people about technology and experience which will be obtained in this course.
- 6) Must not** be serving any form of military service.

(2) Recommendable Qualifications

Age: be under 40 years of age

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) Inception Reports

(a) Job Report (Annex 1)

- To be submitted with the application form
- Job Report is a report to understand an outline of an organization that an applicant belongs to, his/her jobs and his/her expectations for the training course.

(b) IAS: Issue Analysis Sheet (Annex 2)

- To be submitted with the application form.
- The purpose of IAS is to logically organize relationship between problems that an applicant and the organization to which he/she belongs has faced and contents of fields taken in this training course.
- The sheet is to be utilized as a logical process control sheet to draw an improvement plans for problems by filling out the sheet in the primary phase in a participant's home country through the end of training.

(c) Questionnaire (Annex 3)

- To be submitted with the application form.

Inception Reports (Annexes 1-3) are necessary documents for screening of an applicant and an applicant is required to submit his/her Inception Reports with the Application form. An applicant should submit his/her IAS with approval of his/her superior. IAS without approval of an applicant's superior is not accepted.

4. Procedure for Application and Selection

(1) Submitting the Application Documents

Closing date for application to the JICA Center in JAPAN: **July 4, 2011**

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.

(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 August 4, 2011.**

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

None.

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 in the whole program including a preparatory phase prior to the program in Japan. Applying organizations are expected to carry out the actions described in section II -9, after receiving notice of acceptance for their nominees.

IV. Administrative Arrangements

1. Organizer

(1) **Name:** JICA Kyushu

(2) **Contact:** Ms. Yumi KIMURA (Kimura.Yumi@jica.go.jp/ikemoto-Tomoko@jica.go.jp)

2. 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 at Japan to departure from Japan. *the traveling time outside Japan shall not be covered.

3. Accommodation in Japan

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

JICA Kyushu International Center (JICA Kyushu)

Address: 2-2-1 Hirano, Yahatahigashi-ku, Kitakyushu-shi, Fukuoka, 805-8505, Japan

TEL: 81-93-671-6311 FAX: 81-93-663-1350

(where "81" is the country code for Japan, and "93" is the local 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, <http://www.jica.go.jp/english/contact/domestic/>

4. 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.

5. 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, living conditions in Japan, and other matters. Participants will see a video, "TRAINING IN JAPAN", and will receive a textbook and cassette tape, "SIMPLE CONVERSATION IN JAPANESE". A brochure, "GUIDE TO TRAINING IN JAPAN" will be handed to each selected candidate before (or at the time of) the orientation.

V. Other Information

1. Reports & Presentation

(1) Inception Reports

As written in the previous page, each applicant is required to submit his/her own Job Report and IAS. Participants will have a presentation of his/her Job Reports and IAS up to 10 minutes at the earlier stage of the training in order to share knowledge and background with other participants as well as instructors. Visual materials such as Power Point and pictures may be helpful for your presentation if you bring them with you.

(2) Interim Report

Participants are required to make an Interim Report (Action Plan) at the end of the training to express idea and plan, which you carry out after you return, reflecting the knowledge and method you acquire from the training. Each person is required to give a presentation in 10 minutes. The report would be sent to each JICA office in participant's country.

2. Certification

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

3. International Exchange Program with Local Communities

JICA encourages international exchange between JICA participants and local communities. Participants will have a chance to visit schools, lifelong learning or other institutions. Therefore, participants are recommended to bring their national costumes or crafts and materials such as cassette tapes and photographs that will make the exchange program more fruitful.

4. Remarks

This training is designed for the purpose of acquiring the knowledge and the techniques of Japan, NOT for a specific participant's country. Participants are kindly requested to understand the differences and not to insist on the techniques of their countries.

VI. ANNEX-1

CLEANER PRODUCTION IN PROCESS INDUSTRIES FOR LATIN AMERICAN COUNTRIES (FOR MANAGERS AND ENGINEERS OF PROCESS INDUSTRIES)

(JFY 2011)

Job Report

Name:
Country:
Organization:
Present post:
E-mail:
Fax:

Remarks1: The report should be **typewritten in English** (12 point font, approximately spaced, A4 size paper) and total pages of the report should be limited to 3 pages including the organization chart.

Remarks2: A brief meeting for 'Job Report Presentation' is held at the first stage of the training. Further more detailed, 'Job Report Discussion' among all the participants and the Course Leader will be held the day before, for the purpose of making the training more effective and fruitful by comprehending the situations and problems of the participants each other.

Remarks3: Please itemize your answer and describe them concretely.

1. Organization and main tasks

(1) Main task of the organization.

(2) Organization chart:

(Please draw a chart of your organization and write the names of the departments (sections). In addition, please add the number of staffs of each department (section) in it and clarify the department (section) to which you belong.)

(3) Brief description of your work:
(What kind of important role are you playing now?)

2. Expectations for the training course

(1) Most interesting subjects or topics in this training course:
(What do you want to learn in this training course? Why do you want to learn them?)

(2) How do you expect to apply the technologies and methods listed in the curriculum after you return to your country?
(How are you intending to use them for the problem that you describe in your IAS?)

(3) Other matters you are expecting for this course, if any.

END

VI. ANNEX-2 [Example 1] Issue Analysis Sheet (IAS)

CLEANER PRODUCTION IN PROCESS INDUSTRIES FOR LATIN AMERICAN COUNTRIES (FOR MANAGERS AND ENGINEERS OF PROCESS INDUSTRIES) (JFY 2011)

1. Applicants are required to fill in the required blanks on the attached IAS and submit it with a Nomination Form and Job Report by due process. If applicants have more than two problems, sheet should be separated (One problem in one sheet).
2. This IAS should be linked with Job Report Presentation at the beginning of the training course and Action Plan Presentation at the end of the course.
3. Applicants need to get prior approval from his/her superior officer (supervisor) for what he/she writes on the IAS. If applicants change the problems after the course starts, he/she is required to get approval from superior officer again, in advance.
4. Participants accepted to the Course are requested to bring this IAS in electronic file when coming to Japan.

Issue Analysis Sheet

Course Objective	Category	A: Problems your organization faces	B: Backgrounds that cause the problems	C: Measures taken in Japan	D: Proposal to your country
(1) Understand the <u>concepts of Cleaner Production</u> , and through exposure to multiple examples of specific usage, <u>acquire the ability to plan and carry out the utilization of Cleaner Production techniques</u> and at the same time develop the ability to lead other technicians.	<ol style="list-style-type: none"> 1. Cleaner Production Technology 2. TPM, 5S and Kaizen Activity 3. New QC7 Tools 4. Value Engineering 	<p>【Example】 A lot of energy is being consumed in the ammonia plant.</p>	<p>【Example】</p> <ul style="list-style-type: none"> - Lack of understanding concerning what the situation is - Lack of understanding concerning importance of this problem - Low awareness of this problem - Lack of necessary information, knowledge, and improvement case, etc. 		
(2) Learn the <u>technologies that form the foundation of equipment in processing industries</u> , and at the same time as keeping resource and energy usage to a minimum, <u>gain the ability to design or improve equipment</u> to allow the reduction of environmentally-harmful waste products.	<ol style="list-style-type: none"> 1. Selection of Main Equipment 2. Selection of Motors 3. Inverter Control 4. Selection of Materials 5. Process Control 6. Sequence Control 		<p>【Example】</p> <ul style="list-style-type: none"> - Lack of methods, knowledge and technologies to analyze the current state - lack of knowledge and technology concerning method that reduces energy consumed 	<div style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none"> • You don't have to fill in these blanks. You will have to fill in these blanks during the training course and make an Action Plan Presentation on the final day. </div>	

<p>(3)Through learning methods of effective preservation management of equipment, learning equipment diagnosis methods and inspection techniques, improving reliability of equipment, and maintaining efficiency, acquires <u>the abilities necessary to keep the release of environmental pollutants and raw material and energy loss</u> associated with equipment trouble to a minimum.</p>	<ol style="list-style-type: none"> 1. Maintenance Management 2. Visual Maintenance Management 3. Maintenance in Actual Plant 4. Non-destructive Inspection 5. Machine Condition Diagnosis Techniques 		<p>【Example】</p> <ul style="list-style-type: none"> - Waste of energy due to breakdown of equipment - Lack of maintenance management - Low level of maintenance management technology 		
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Name of Superior Officer _____

- Select the problem that the applicant can solve in a center role.
- Describe in a brief sentence or two but not by just keywords.

Designation/Position of superior officer _____

Signature _____

VI. ANNEX-2 [Example 2] Issue Analysis Sheet (IAS)

1. Applicants are required to fill in the required blanks on the attached IAS and submit it with a Nomination Form and Job Report by due process. If applicants have more than two problems, sheet should be separated (One problem in one sheet).
2. This IAS should be linked with Job Report Presentation at the beginning of the training course and Action Plan Presentation at the end of the course.
3. Applicants need to get prior approval from his/her superior officer (supervisor) for what he/she writes on the IAS. If applicants change the problems after the course starts, he/she is required to get approval from superior officer again, in advance.
4. Participants accepted to the Course are requested to bring this IAS in electronic file when coming to Japan.

Issue Analysis Sheet

Course Objective	Category	A: Problems your organization faces	B: Backgrounds that cause the problems	C: Measures taken in Japan	D: Proposal to your country
(1) Understand the <u>concepts of Cleaner Production</u> , and through exposure to multiple examples of specific usage, <u>acquire the ability to plan and carry out the utilization of Cleaner Production techniques</u> and at the same time develop the ability to lead other technicians.	1. Cleaner Production Technology 2. TPM, 5S and Kaizen Activity 3. New QC7 Tools 4. Value Engineering	【Example】 A lot of defective goods have been generated in the wrapping process.	【Example】 - Lack of understanding on the current situation - Employees' Low awareness of the issue - Knowledge and technologies to analyze the problem are insufficient.		
(2) Learn the <u>technologies that form the foundation of equipment in processing industries</u> , and at the same time as keeping resource and energy usage to a minimum, <u>gain the ability to design or improve equipment</u> to allow the reduction of environmentally-harmful waste products.	1. Selection of Main Equipment 2. Selection of Motors 3. Inverter Control 4. Selection of Materials 5. Process Control 6. Sequence Control		【Example】 - Knowledge concerning the device and the equipment is insufficient. - Insufficient technical data and information concerning the equipment and the device used in this process..		

• You don't have to fill in these blanks. You will have to fill in these blanks during the training course and make an Action Plan Presentation on the final day.

<p>(3) Through learning methods of effective preservation management of equipment, learning equipment diagnosis methods and inspection techniques, improving reliability of equipment, and maintaining efficiency, acquires <u>the abilities necessary to keep the release of environmental pollutants and raw material and energy loss</u> associated with equipment trouble to a minimum.</p>	<ol style="list-style-type: none"> 1. Maintenance Management 2. Visual Maintenance Management 3. Maintenance in Actual Plant 4. Non-destructive Inspection 5. Machine Condition Diagnosis Techniques 		<p>【Example】 - Lots of trouble of equipments - Lack of maintenance management - Low level of maintenance management technology</p>		
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Name of Superior Officer _____

- Select the problem that the applicant can solve in a center role.
- Describe in a brief sentence or two but not by just keywords.

Designation/Position of superior officer _____

Signature _____

VI. ANNEX-2 [Format] Issue Analysis Sheet (IAS)

CLEANER PRODUCTION IN PROCESS INDUSTRIES FOR LATIN AMERICAN COUNTRIES (FOR MANAGERS AND ENGINEERS OF PROCESS INDUSTRIES) (JFY 2011)

<Name> _____ <Country> _____ <Organization and present post> _____

Issue Analysis Sheet

Course Objective	Category	A: Problems your organization faces	B: Backgrounds that cause the problems	C: Measures taken in Japan	D: Proposal to your country
(1) Understand the <u>concepts of Cleaner Production</u> , and through exposure to multiple examples of specific usage, <u>acquire the ability to plan and carry out the utilization of Cleaner Production techniques</u> and at the same time develop the ability to lead other technicians.	<ol style="list-style-type: none"> Cleaner Production Technology TPM, 5S and Kaizen Activity New QC7 Tools Project Cycle Management 				
(2) Learn the <u>technologies that form the foundation of equipment in processing industries</u> , and at the same time as keeping resource and energy usage to a minimum, <u>gain the ability to design or improve equipment</u> to allow the reduction of environmentally-harmful waste products.	<ol style="list-style-type: none"> Selection of Main Equipment Selection of Motors Inverter Control Selection of Materials Process Control Sequence Control Value Engineering 			<div style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none"> You don't have to fill in these blanks. You will have to fill in these blanks during the training course and make an Action Plan Presentation on the final day. </div>	

<p>(3) Through learning methods of effective preservation management of equipment, learning equipment diagnosis methods and inspection techniques, improving reliability of equipment, and maintaining efficiency, acquires <u>the abilities necessary to keep the release of environmental pollutants and raw material and energy loss</u> associated with equipment trouble to a minimum.</p>	<ol style="list-style-type: none"> 1. Maintenance Management 2. Visual Maintenance Management 3. Maintenance in Actual Plant 4. Non-destructive Inspection 5. Machine Condition Diagnosis Techniques 				
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Name of Superior Officer _____

Designation/Position of superior officer _____
Signature _____

VI. ANNEX-3

CLEANER PRODUCTION IN PROCESS INDUSTRIES FOR LATIN AMERICAN COUNTRIES (FOR MANAGERS AND ENGINEERS OF PROCESS INDUSTRIES) (JFY 2011)

Questionnaire

Name:
Country:

Remarks: To the following questions, please itemize your answers and make them specific.

1. Have you ever studied the following subjects? (Please check either YES or NO)

	YES	NO
- Value Engineering -----	()	()
- TPM, 5S -----	()	()
- QC 7 Tools-----	()	()
- Chemical Engineering-----	()	()
- Quality Control -----	()	()
- Strength of Material -----	()	()
- Electrical Engineering -----	()	()
- Automatic Control -----	()	()
- Sequence Control -----	()	()
- Plant Maintenance -----	()	()
- Nondestructive Inspection -----	()	()
- ISO14000 -----	()	()

2. Please answer the following items for your proficiency in English by checking the corresponding level.

- Listening	() Excellent	() Good	() Fair	() Poor
- Speaking	() Excellent	() Good	() Fair	() Poor
- Reading	() Excellent	() Good	() Fair	() Poor
- Writing	() Excellent	() Good	() Fair	() Poor

3. Please state how many years of experience you have on the following point concerning plant engineering.

- Plant Engineering -----	() years
- Machine or Equipment Design -----	() years
- Maintenance -----	() years
- Supervision of Construction -----	() years
- Plant Operation -----	() years

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

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