

# TRAINING AND DIALOGUE PROGRAMS



GENERAL INFORMATION ON

## *AIR QUALITY MANAGEMENT POLICY*

**集團研修「大気保全政策」**

*JFY 2012*

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

NO. J12-00807 ID. 1280864

Phases in Japan : From January 7, 2013 to February 23, 2013

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**

Due to the recent urbanization, economic growth and industrialization in developing countries, anthropogenic emissions of air pollutants from stationary sources such as factories and mobile sources such as automobiles have kept increasing. Such air pollution causes human health damage and affects ecosystem. Air pollutants include primary pollutants (PM10, SO<sub>x</sub>, NO<sub>x</sub>, etc.) locally generated by pollution sources or transported from other areas, and secondary pollutants (photochemical oxidant, etc.) which were formed through physical/(photo)chemical reactions in the atmosphere.

According to the “OECD Environment Outlook: 2050” published in 2012, the premature death from ozone and PM (particulate matters) is estimated to keep growing, mainly in Asian developing countries, which suggests the importance of countermeasures against air pollution in developing countries.

As Japan is one of the countries which experienced severe environmental pollution, such as Yokkaichi Asthma caused by SO<sub>x</sub> from stationary sources, and tackled mobile exhaust gases in heavily-populated areas, this course offers the opportunity to share the Japanese air quality management policy with participating countries through lectures/discussions and observation tours.

## **For what?**

The course aims to contribute to the improvement of the air quality management policy in participating countries from the technical and socioeconomic viewpoints. By placing emphasis on the air quality management policy of Japan, it is intended to share the Japanese policy and experience with participants to enable participants to assess the applicability and transferability of such knowledge.

## **For whom?**

Officials responsible for air quality management administration, who could utilize the knowledge gained at the course to improve the air quality management policy in their countries.

## ***II. Description***

**1. Title:** Air Quality Management Policy (J12-00807)

**2. Period of program**

**Preliminary Phase in a participant's home country:** December 2012 to January 6, 2013

**Core Phase in Japan:** January 7, 2013 to February 23, 2013

**Follow-up Phase in a participant's home country:** February 24 to May 31, 2013

**3. Target Regions or Countries:**

Argentina, Bosnia and Herzegovina, Cambodia, China, Egypt, India, Morocco, Pakistan, Viet Nam

**4. Program Objective:**

Through the course, participants will be able:

- (1) to acquire the knowledge of whole system of air quality management,
- (2) to understand the benefits of various tools for air quality management (e.g. air quality monitoring, atmospheric transport models, and emission inventory),
- (3) to examine applicability of technical aspects of air pollution countermeasures (stationary and mobile sources) learned through the course in respective country, and
- (4) to formulate an Action Plan for solutions of specific air quality management problems.

**5. Overall Goal:**

Participants are expected to contribute to the improvement of air quality management policy in their own countries by making best use of the knowledge and techniques on air quality management policy acquired in Japan.

**6. Eligible / Target Organization :**

Officials responsible for air quality management administration.

**7. Total Number of Participants :** 9

**8. Language to be used in this project:** 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**

(December 2012 to January 6, 2013)

*Participating organizations make required preparation for the Program in the respective country.*

Modules	Activities
Country Report	Submission of Country Report with Application form to JICA (by November 30th, 2012) Preparation for country report presentation (See the ANNEX I and ANNEX II ) Preparation for necessary documents or data for the action plan. (See the ANNEX III)

**(2) Core Phase in Japan (activities in Japan, subject to minor changes)**

(January 7 to February 23, 2013)

*Participants dispatched by the organizations attend the Program in Japan.*

Output	Subject	Hours	Contents
To acquire the knowledge of whole system of air quality management	History of Japan's countermeasures against air pollution	2.5(L)	Air pollution prevention measures (policies)/ Prevention technology/ Compensation for victims/ Roles of citizens and local government in prevention (mitigation) of air pollution/ Success factors in air pollution mitigation (education for technician, pollution control manager system, polluter-pays principle)/ Air pollution mitigation cost
	Air quality management administration	2.5(L)	Japanese administrative structure/ Current situation of air pollution/ Laws and ordinances for measures related to air quality/ Environmental Quality Standard (Significance, substances under control and standard values)/ Measures in different emission sources (stationary, mobile)/ Citizens' awareness promotion/ Measures against photochemical oxidant and PM/ Hazardous air pollutants
	Photochemical air pollution	2(L)	Present status of photochemical oxidant/ Formation mechanism of oxidant/ Secondary PM formation/ Health effects caused by oxidant/ Photochemical oxidant effects on eco-system
	Environmental quality standard and health effects	2.5(L)	Health effects of air pollutants/ Environmental Quality Standard values (SO <sub>2</sub> , NO <sub>2</sub> , CO, PM, O <sub>x</sub> , etc.)/ Significance of Environmental Quality Standard/ Formulation flow of Environmental Quality Standard/ Establishment of judgment criteria from the viewpoint of human health protection/
	Air pollution and climate change	1.5(L)	Climate impacts of air pollutants/ Co-benefits approach

	Subject	Hours	Contents
	National air quality monitoring network	1.5(L)	Air quality monitoring system/ Quality control and quality assurance/ Online data disclosure system/ Pollution warning system/ trend in concentration of air pollutants
	Countermeasures against stationary sources	2.5(L)	Pollution control measures/ Control technology against stationary sources/ Outline of laws and ordinances/ Emission Standard/ Enforcement of regulatory measures (report, spot inspection)
	Environmental impact assessment	2(L)	Concept of Environmental Impact Assessment/ Targeted facilities/ Procedure
	Air pollution control administration by local governments	2.5(L)	Roles and obligations of local government/ Relationship between Laws and Ordinances/ Pollution prevention agreement/ Guidance and spot inspection given to enterprises/ Ambient air monitoring system/ Handling complaints from residents/ Program for citizens' awareness raising
	Automobile exhaust-gas emission control	2(L)	General topics (numbers of automobiles, etc.)/ Automobile exhaust gas emission prevention technologies/ Automobile emission gas regulation (emission substances, volume, effect of low-emission vehicle, etc.)/ Outline of automobile fuel regulation (history, law enforcement situations, emission gas test, etc.)
	Automobile traffic regulation	2(L)	Background and implementation of automobile traffic regulation/ Tax and subsidy/ Awareness raising/ Environmentally Sound Transportation
	Air pollution policy case study for automobiles	8(O)	Observation of automobile traffic regulation, R & D Institute for Automobile, Automobile inspection & registration system, Automobile painting
	Transboundary air pollution	1.5(L)	Transboundary air pollution/ acid deposition/ regional cooperation
To understand the benefits of various tools for air quality management (e.g. air quality monitoring, atmospheric transport models, and emission inventory)	Techniques for measurement of air pollution and sampling	10(L/P)	Introduction/ Sulfur dioxide/ Carbon monoxide/Nitrogen oxide/ Photochemical oxidant/ Hydrocarbon/ PM and heavy metal/ Comparison of analytical methods
	Analysis technology, present situation	5(L/O)	Manufacturer of analytical instrument, Ambient air telemetry system, General ambient monitoring station, Roadside ambient monitoring station

	Subject	Hours	Contents
	Quality Control and Quality Assurance	2.5 (L)	Quality control scheme for environmental monitoring/ national training scheme
	Development of emission inventory	2.5 (L)	Types of emission sources/ Outline of emission inventory/ How to develop emission inventory
	Diffusion of pollutants in the atmosphere (model and practice)	2.5(L)	Pollutants sources and ambient concentration/ Plume model/ Meteorological effects on pollutant dispersion/ Long-term average/ Time-dependent simulation
To examine technical aspects of air pollution countermeasures (stationary and mobile sources)	Air pollution control measures by private enterprises (power, steel, automobile)	6(L)	Control measures in power, steel, and automobile industries and voluntary measures of enterprises (history)/ Corporate engagement classified by industries/ R & D in pollution prevention technologies/ Relief measures to victims/ Comparison between victims' compensation and pollution prevention cost
	Air pollution control case study at manufacturers, power stations	14(O)	Coal-fired thermal power plant/ City waste incineration plant/ Paper mill, Cement factory, Steel factory/ Demolition sites of building (asbestos control)
	Environmental impact assessment and information processing	4.5(L/P)	EIA process/ Technical theory related to evaluation(basic formula of diffusion process)/ Structure of lower atmosphere and generation of turbulence/ Plume gas concentration/ Diffusion model and simulation of air pollution/ EIA practice (including practice on calculator)/ Outline of simulation of environment/ Demonstration of PC based simulation software
To formulate an Action Plan for solutions of air pollution control problems	Country report presentation	6(P)	Presentation of Situations of the environment of participants' countries
	Action Plan workshop	10(P)	Exchanges of experiences of problems and counter-measures in air quality management
	Preparation and presentation of Action Plan	30(P)	Discussion, elaboration and presentation of action plan on air quality management improvement in the participants' countries
	<b>Total</b>	<b>126</b>	

(Notes) L: Lecture O: Observation P: Practice

※1 Participants in this course will make presentation of their Country Reports **at the beginning of the training course**. For this purpose, participants are highly recommended to bring visual materials for their presentation, i.e. Power Points etc. About 30 minutes including Q&A session are allocated to each participant.

For further information on the country report requirements, please see Annex II. The country report will be the basis of Action Plan elaboration.

※2 Course participants are expected to work on personal computers intensively for various assignments during the course including elaboration of action plans. Desktop computers are available in the training center. But it is recommended that the participants bring their own personal computers, if possible, for their convenience.

<b>(3)Follow-up Phase in a participant's home country</b> (February 24 to May 31, 2013) <i>Participating organizations produce final outputs by making use of results brought back by participants. This phase marks the end of the Program.</i>	
Modules	Activities
Follow-up Report	① Present the Action Plan in your organization, ② Disseminate your knowledge and information you obtained in your organization, and ③ Report your progress to JICA by the end of May, 2013

※3 All participants are required to submit the report (questionnaire) on the result of the discussion and implementation (in participants' organizations or countries) based on the Action Plan **within three (3) months after the end of the phase** in Japan. (Detail will be explained after the arrival in Japan)

### ***III. Conditions and Procedures for Application***

#### **1. Expectations for the Participating Organizations:**

- (1) This training program is designed primarily for organizations that intend to address specific issues or problems related to air quality management, identified in their operation. Participating organizations are expected to utilize this opportunity 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 program 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 outputs produced by their participants in Japan by carrying out the activities of the Follow-up Phase described in section II-9.

#### **2. Nominee Qualifications:**

Applying organizations are expected to select nominees who meet the following qualifications. Applicants should:

- (1) be nominated by their government in accordance with the procedures mentioned in Section III-4 below,
- (2) be officials responsible for air pollution control administration especially in a position to participate in planning and decision making in either central or local governments or public organizations with his/her more than 3 years of experience,
- (3) have a sufficient command of spoken and written English,
- (4) be university graduates or those who possess equivalent technical qualification or relevant operation in this field,
- (5) be under 50 years of age (in principle),
- (6) be in good health, both physically and mentally, to undergo training, and
- (7) not be serving in the military.



### 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) Country Report:** to be submitted with the application form. (See the **Annex I and II**)

All participants are required to make presentation on their own reports. Approximately 30 minutes will be allocated to each presentation, for which participants are able to use Power Points and video-projector. In such case participants are requested to bring related data or materials on their arrival in Japan.

\*Pregnancy

Pregnant participants are strictly requested to attach the following documents in order to minimize the risk for their health.

A) letter of the participant's consent to bear economic and physical risks

B) letter of consent from the participant's supervisor

C) doctor's letter with agreement of her training participation.

Please ask National Staffs in JICA office for the details.

### 4. Procedure for Application and Selection :

**(1) Submitting the Application Documents:**

Closing date for application to the JICA Tokyo : **November 30<sup>th</sup> 2012**

**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 Tokyo, which organizes this project. Selection shall be made by the JICA Tokyo 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 December 7<sup>th</sup> 2012.**

### 5. 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 Japanese laws and ordinances. If there is any violation of said laws and ordinances participants may be required to return part or all of the training expenditure depending on the severity of said violation.
- (7) to observe the rules and regulations of their place of accommodation and not to change the accommodation designated by JICA, and
- (8) to participate in the whole program including the preliminary phase prior to the core phase in Japan. The beneficiary organizations are expected to support implementation of the action plans by the course participants and to utilize the knowledge/skills which participants have gained in Japan.

## IV. Administrative Arrangements

### 1. Organizer:

**Name:** Economic Infrastructure Development and Environment Division ,  
JICA Tokyo,  
Contact: Ms. Sanae YOSHIDA    [tictee@jica.go.jp](mailto:tictee@jica.go.jp)

### 2. Implementing Partner:

**Name:** Ministry of the Environment  
**URL:** <http://www.env.go.jp/en/>  
**Contact:** Address: 1-2-1, Kasumigaseki, Chiyoda-ku, Tokyo, 100-8975, Japan  
Tel: 81-3-3581-3351    FAX: 81-3-3580-7173  
(81: country code for Japan, 3: area code)

**Name:** Japan Environmental Sanitation Center  
**URL:** <http://www.jesc.or.jp/en/index.html>  
**Contact:** Address:10-6, Yotsuyakami-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa-ken,  
210-0828, Japan  
Tel:81-44-288-4937    Fax :81-44-288-5217  
(81: country code for Japan, 44: area code)

### 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:

<p>JICA Tokyo International Center (JICA Tokyo) Address: 2-49-5 Nishihara, Shibuya-ku, Tokyo 151-0066, Japan TEL: 81-3-3485-7051    FAX: 81-3-3485-7904 (where "81" is the country code for Japan, and "3" is the local area code)</p>
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If there is no vacancy at JICA Tokyo, JICA will arrange alternative accommodations for the participants.

Please refer to facility guide of JICA Tokyo at its URL,  
<http://www.jica.go.jp/english/contact/domestic/pdf/welcome.pdf>

## **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.

## **Air Quality Management Policy (JFY 2012)**

### Country Report

Name \_\_\_\_\_

Country \_\_\_\_\_

The role of country report is not just to describe the present state of air quality in your county. It is also to provide the clue for finding the causes of air quality problems and their solutions. So please specify the problems, their causes, and what YOU can do to solve them in detail.

This document will be used as a screening material. Therefore, please describe as precise as possible unless related data is unavailable. The report should be typewritten in English and submitted together with the Application Form by **November 30th, 2012.**

1. Name of your organization
2. Your organization chart (including main duties, budget, and the number of staff related to air quality management)
3. If any, other organizations' charts related to air quality management (including duties, budget, and the number of staff)
4. Historical background of air quality and its control
5. Present status of air quality
6. Air quality management legislations and their contents
7. Ambient air quality standards
8. Main sources of air pollution
9. The number of complaints and health damage caused by air pollution.
10. Measurement of air pollutants and monitoring systems for air quality

11. Air pollution control techniques

12. The role of central government, regional government (Prefecture) and local government (Municipality)

13. Technical problems or problems for implementing air quality management policy

14. Topics you would like to learn in the course

15. Theme you would like to describe in your Action Plan (see the Annex III)

#### **Important Notice**

- The accepted participants will need to prepare presentation material based on the Country Report and send it to [ticttee@jica.go.jp](mailto:ticttee@jica.go.jp) (JICA Tokyo) by **January 5<sup>th</sup> 2013**.
- Each participant will have a chance to present their report in the first week of this course. (Length of presentation per participant; 20 minutes of presentation and 10 minutes of Q & A session).
- In the presentation, please briefly explain the background information on your country, your organization and your job. Please put your emphasis on the problems your organization is facing, and possible solutions for that.
- The important part of the presentation is to share your experiences in ongoing efforts in your countries with Japanese experts and participants from other countries.

**Annex II**

1. Please fill in Ambient Air Quality Standards, currently measured values and countermeasures to achieve the Standards in your country.

Fill in the Current Annual Average with the value of your country or the area under your direct control.

Year: \_\_\_\_\_ country: \_\_\_\_\_ area: \_\_\_\_\_

	Unit (ppm or mg/m <sup>3</sup> )	Standard Value		Current Annual Average	Countermeasures
		1 hour	1 day		
Sulfur Dioxide					
Nitrogen Dioxide					
Photochemical Oxidant					
Carbon monoxide					
Suspended Particulate Matter					
Others					

2. Please indicate status of emission standards in your country (and area if applicable) including controlled specific air pollution sources and pollutants.

Year: \_\_\_\_\_ country: \_\_\_\_\_ area: \_\_\_\_\_

Targeted Air Pollution Sources	Title of Emission Standards and/or Related Laws and Regulations	Controlled Air Pollutants (such as TSP, PM10, SO2, NOx, CO and others)	Current Status of Compliance
Stationary Sources (such as power plants and factories):			
Mobile Sources (such as auto vehicles and vessels):			
Others:			



3. Please fill in the number of main air pollution sources except motor vehicle pollution sources by facility type, and describe countermeasures against air pollution from those facilities in your country or the area under your control directly.

Year: \_\_\_\_\_ country: \_\_\_\_\_ area: \_\_\_\_\_

Facilities	Fuel					Countermeasures
	Coal	Crude Oil	Coal Oil	LPG	Other	
Power stations						
Steelworks						
Petrochemical plants						
Cement plants						
Mining and manufacturing industries						
Medium and small-sized industrial complex						
Landfill sites						
Cooking and heating at households						
Others						



5. Please clarify the roles of central government, regional government (province or state) and local government (municipality) for the regulation of air pollution in your country. (Please fill in the check mark on the responsible organization.)

Jurisdictions of Central and Local Government in Air Quality Management Administration

Please put the check mark on the appropriate column.

Responsibility of APC Administration	Central Government	Regional Government (Province or State)	Local Government (Municipality)
Preparation of Law and Regulation			
Preparation of Guideline			
Setting of Standard			
Preparation of Ambient Air Monitoring Plan (National Level)			
Installation of Equipment for Ambient Air Monitoring(National Level)			
Analysis of Samples from Ambient Air Monitoring(National Level)			
Inspection of factory(including Law Enforcement)			
Inspection of factory(without Law Enforcement)			
Administrative Guidance to Factory			

## ANNEX III

# Air Quality Management Policy 2012 Action Plan

All participants are required to formulate an Action Plan during the training course and make its presentation at the end of the course.

Please pick up one topic to tackle from issues that you mention in your country report, and formulate an Action Plan, by utilizing the knowledge that you have gained through the training course. Try to formulate the plan in consideration of the existing human and financial resources in your organization in as efficient and effective way as possible.

You are requested to submit the Action Plan including the items mentioned below.

### <Contents (Recommended)>

- a. Theme
- b. Background
- c. Objectives (Goals)
- d. Direct and indirect beneficiaries
- e. Action components
- f. Implementation schedule
- g. Responsible agencies and their roles
- h. Strategies and tactics for implementation
- i. Monitoring and evaluation
- j. Budget and resources

Typewrite on the A4 sized paper and also prepare presentation materials.

More detailed guidance is provided after your arrival in Japan.

**\*In order to formulate a better Action Plan, you are recommended to bring necessary documents or data from your country.**

## ***For Your Reference***

### **JICA and Capacity Development**

The key concept underpinning JICA operations since its establishment in 1974 has been the conviction that “capacity development” is central to the socioeconomic development of any country, regardless of the specific operational scheme one may be undertaking, i.e. expert assignments, development projects, development study projects, training programs, JOCV programs, etc.

Within this wide range of programs, Training Programs have long occupied an important place in JICA operations. Conducted in Japan, they provide partner countries with opportunities to acquire practical knowledge accumulated in Japanese society. Participants dispatched by partner countries might find useful knowledge and re-create their own knowledge for enhancement of their own capacity or that of the organization and society to which they belong.

About 460 pre-organized programs cover a wide range of professional fields, ranging from education, health, infrastructure, energy, trade and finance, to agriculture, rural development, gender mainstreaming, and environmental protection. A variety of programs are being customized to address the specific needs of different target organizations, such as policy-making organizations, service provision organizations, as well as research and academic institutions. Some programs are organized to target a certain group of countries with similar developmental challenges.

### **Japanese Development Experience**

Japan was the first non-Western country to successfully modernize its society and industrialize its economy. At the core of this process, which started more than 140 years ago, was the “*adopt and adapt*” concept by which a wide range of appropriate skills and knowledge have been imported from developed countries; these skills and knowledge have been adapted and/or improved using local skills, knowledge and initiatives. They finally became internalized in Japanese society to suit its local needs and conditions.

From engineering technology to production management methods, most of the know-how that has enabled Japan to become what it is today has emanated from this “*adoption and adaptation*” process, which, of course, has been accompanied by countless failures and errors behind the success stories. We presume that such experiences, both successful and unsuccessful, will be useful to our partners who are trying to address the challenges currently faced by developing countries.

However, it is rather challenging to share with our partners this whole body of Japan’s developmental experience. This difficulty has to do, in part, with the challenge of explaining a body of “tacit knowledge,” a type of knowledge that cannot fully be expressed in words or numbers. Adding to this difficulty are the social and cultural systems of Japan that vastly differ from those of other Western industrialized countries, and hence still remain unfamiliar to many partner countries. Simply stated, coming to Japan might be one way of overcoming such a cultural gap.

JICA, therefore, would like to invite as many leaders of partner countries as possible to come and visit us, to mingle with the Japanese people, and witness the advantages as well as the disadvantages of Japanese systems, so that integration of their findings might help them reach their developmental objectives.



***CORRESPONDENCE***

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

**JICA Tokyo International Center (JICA TOKYO)**

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

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