



# TRAINING AND DIALOGUE PROGRAMS

GENERAL INFORMATION ON

**TROPICAL BIOMASS UTILIZATION**

集団研修「熱帯バイオマス利用」

**JFY 2008**

<Type: Leaders Training / 類型: 中核人材育成型>

NO. J08-00736 / ID. 0880032

From May 2008 to Dec 2008

Core phases in Japan: From Sep. 30, 2008 to Dec. 6, 2008

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 warming caused by the emission of carbon dioxide is a serious global issue in recent years. Due to that, concrete measure tackled on this issue is inevitable. Since the utilization of recyclable biomass resources is one of the effective measures, developments and disseminations of various kinds of technology in this field are progressed in many aspects globally.

The Government of Japan is also promoting the various measures on this issue based on “Biomass Nippon Strategy”. This idea is important not only in Japan but also in developing countries where there are plenty of potential biomass resources. Moreover, since the issues for an environmental degradation and limited energy resources are serious in tropical and subtropical region, the effective utilization of tropical biomass resources is highly expected.

In conjunction with these situations, this program which aims to realize the effective utilization of tropical biomass resources was established in 2005.

## **For what?**

This program aims to realize the effective utilization of biomass resources through introducing the advanced technologies related to the effective utilizations of tropical biomass.

It is also expected that this program will ultimately contribute to the promotion of sustainable society and biomass related industry in respective countries.

## **For whom?**

This program is offered to administrative or research officials presently engaged in planning, promotion and utilization of biomass.

## **How?**

Participants shall have opportunities in Japan to identify approaches, methods and technologies to create the re-cycling oriented society using biomass as well as to formulate the plan for biomass utilization systems. Participants will also organize the training report describing what the participants learned in this program.

## ***II. Description***

### **1. Title (J-No.): Tropical Biomass Utilization (J0800736)**

### **2. Period of program**

<b>Duration of whole program:</b>	May 2008 to Dec 2008
<b>Preliminary Phase:</b> (in a participant's home country)	May 2008 to Aug 2008
<b>Core Phase in Japan:</b>	September 30 to December 6, 2008

### **3. Target Regions or Countries:**

The Dominican Republic, Colombia, Kenya, and Burkina Faso

### **4. Overall Goal:**

The biomass resources are effectively utilized.

### **5. Objective:**

At the end of the program, the participants are expected to achieve the following;

This program aims to realize the effective utilization of biomass resources through introducing the advanced technologies related to the effective utilizations of tropical biomass.

To achieve this program objective, participants are expected in Japan;

- (1) To understand approaches to create a re-cycling oriented society referring to the concepts of the Biomass Nippon and the Biomass Asia Programs.
- (2) To understand methods of estimating unused biomass resources, planning of utilization systems and their evaluation.
- (3) To understand individual technologies, such as biomass production, collection, transportation, conversion and monitoring, to formulate biomass utilization plan.

### **6 . Eligible / Target Organization :**

This program is designed for administrative or research officials presently engaged in planning, promotion and utilization of biomass.

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

A total of 4 participants from the Dominican Republic, Colombia, Kenya, and Sierra Leone are expected to participate in this program.

### **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:

<b>(1) Preliminary Phase in a participant's home country</b> (May 2008 to August 2008) <i>Participating organizations make required preparation for the Program in the respective country.</i>	
Modules	Activities
Country Report and Questionnaire	Formulation and submission of Country Report and Questionnaire

<b>(2) Core Phase in Japan</b> (September 30, 2008 to December 6, 2008) <i>Participants dispatched by the organizations attend the Program implemented in Japan.</i>		
Modules	Subjects/Agendas	Methodology
1) Approaches to create the re-cycling oriented society using biomass	(1) Environmental problems such as global warming and energy problem: Present and future conditions of global warming Energy problems and its influence to global warming Countermeasures of global warming	Lecture Observation and lab work
	(2) Basic frameworks of Biomass Nippon and Biomass Asia: Importance of biomass utilization Outline of Biomass Nippon Outline of Biomass Asia Role of biomass on re-cycling-oriented society	
2) Planning methods for biomass utilization systems	(1) Estimation of unused biomass resources or production of biomass: Procedures of survey Procedures of estimation	Lecture Observation and lab work
	(2) Planning of biomass utilization systems: Basic procedures of planning and design Material flow and material balance Energy flow and energy balance Management and maintenance	

		(2) Evaluation of effects of biomass utilization: LCA( Life Cycle Assessment ) and effects to environment Economical effects to agriculture, forestry and industry Social effects	Lecture Observation and lab work
3) Individual technologies for the planning of biomass utilization		(1) Production, collection and transportation of unused biomass: Photosynthesis and biomass production Unused biomass and its collection Sugarcane production Energy crops Pasture and cattle biomass Forestry biomass	Lecture Observation and lab work
		(2) Energy conversion technologies: Theory of energy conversion Gasification Methane fermentation Ethanol fermentation Carbonization Bio-diesel fuel Others	
		(3) Conversion of biomass as materials and its utilization: Compost production and its utilization Charcoal production and its utilization Cattle feed production and its utilization Bio-plastic Others	
		(4) Measurement, monitoring and evaluation of biomass: Theory and application of biomass measurement Monitoring technology Remote sensing Evaluation of property of biomass and material flow: Identification of issues, advocacy strategy process	

### **<Structure of the program>**

1. Preliminary phase (activities in your home country): Preparation of the country report and questionnaire.

2. Core Phase (activities in Japan):

Topic outline (subject to minor changes)

1st and 2nd week (10/6-10/17) Lecture and discussion

- (1) Country Report Presentation
- (2) Basic concept of biomass utilization

3rd week (10/20-10/24) Site visit

- (1) BDF (Bio Diesel Fuel) related facilities
- (2) Biomass related research center
- (3) Biomass exhibition

4th to 6th week (10/27-11/14) Lecture and laboratory work

- (1) Biomass energy conversion methodology (gasification and its utilization, waste treatment, BDF, and methane fermentation and its utilization)
- (2) Biomass Utilization as Materials (biomass plastic, comprehensive utilization of sugarcane, bagasse charcoal, composting and feeder production)
- (3) Photosynthesis and Sugarcane Production Technique
- (4) Resource Crop and Bio-Ethanol Production Technique
- (5) Biomass Utilization General Practicum

7th week (11/17-11/21) Site visit

- (1) Biomass related research center and plant

8th to 9th week (11/25-12/5) Lecture, laboratory work and practice

- (1) Biomass measurement methodology (remote sensing)
- (2) Evaluation of biomass utilization system
- (3) Biomass material conversion and utilization
- (4) Biomass utilization system planning
- (5) Final report making

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

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

- (1) This project is designed primarily for organizations that intend to address specific issues or problems identified in their operations. Applying organizations are expected to use the Program for those specific purposes.
- (2) This project is designed primarily for organizations that intend to address specific issues or problems identified in their operations. Applying organizations are expected to use the Program for those specific purposes.
- (3) Applying organizations are also expected to be prepared to make use of knowledge acquired by the nominees for the said purpose.

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

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

##### **(1) Essential Qualifications**

- 1) Educational Background: be bachelor's or master's degree holders in agriculture / forestry or chemical / mechanical engineering or equivalent science (except PhD. holders)
- 2) Current Duties: be administrative officials presently engaged in planning of biomass utilization / research officials involved in planning process of biomass utilization / presently work as an adviser to planning and promoting biomass utilization
- 3) Experience in the relative field: have more than three (3) years' experience in the field of above mentioned in 2)
- 4) Language: have a good command of English enough to give an oral presentation and write a report in English
- 5) Health: be in good health, both physically and mentally, to undergo the course of training (as the schedule includes many field / lab. works for pregnant women, pregnancy is regarded as a disqualifying condition for participation to this training course)
- 6) Must not be serving any form of military service.

##### **(2) Recommendable Qualifications**

- 1) Age: be between the ages of twenty-five (25) 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) Country report and Questionnaire:** to be submitted with the Application Form. Fill in VI. Annex of this General Information.

#### 4. Procedure for Application and Selection :

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

Closing date for application to the JICA Center in JAPAN: **July 30, 2008.**

**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 August 29, 2008.**

#### 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 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 -9 and section -4.

## **IV. Administrative Arrangements**

### **1. Organizer:**

(1) **Name:** JICA Okinawa

(2) **Contact:** Training Program Division, JICA Okinawa E-mail: oicctp@jica.go.jp

### **2. Implementing Partner:**

(1) **Name:** The faculty of agriculture, University of the Ryukyus

(2) **URL:** <http://www.u-ryukyu.ac.jp/>

### **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 Okinawa International Center (JICA OKINAWA)

Address: 1143-1, Aza-Maeda, Urasoe-shi, Okinawa-ken 901-2552, JAPAN

TEL: +81-98-876-6000, Fax: +81-98-876-6014

(where "81" is the country code for Japan, and "98" is the local area code)

If there is no vacancy at JICA OKINAWA, JICA will arrange alternative accommodations for the participants.

### **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:**

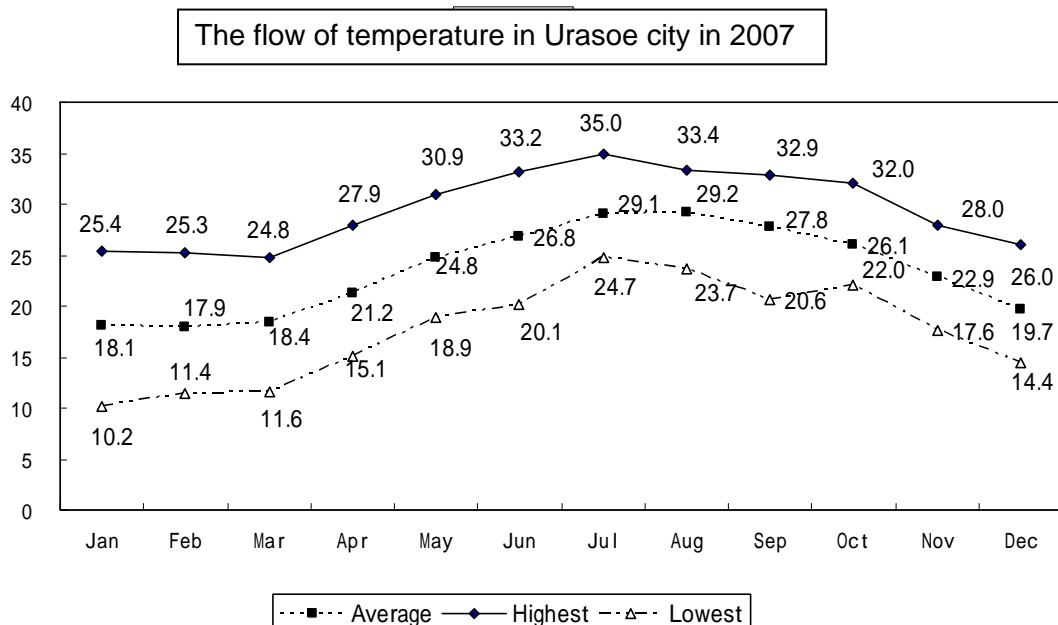
A pre-departure orientation will be held at the respective country's JICA office (or Embassy of Japan), to provide participants with details on travel to Japan, conditions of the workshop, and other matters.

## V. Other Information

### 1. Climate in Okinawa

Okinawa is located in sub-tropical zone (southern edge of Japan) however climate varies depending upon seasons. While it is hot as well as heavily humid in summer season (June through October), it becomes a bit chilly due to the strong wind in winter season (December through March). So, participants are recommended to bring suitable clothing (details are mentioned in below 4.)

The following diagram is the flow of temperature in Urasoe city where JICA Okinawa (or “Okinawa Kokusai Center” in Japanese) is located (Data source: <http://8761234.jp/kikaku/toukei/xls18/toti.xls>).



### 2. Main facilities in JICA Okinawa

JICA Okinawa is equipped with a variety of facilities for training and welfare activities such as seminar rooms, a library, a computer room (connected to the Internet), accommodation rooms (details are mentioned in below 3.), a dining hall, a clinic for medical consultation, a gym, a tennis court, a play-ground, a swimming pool (available from May to October), a Japanese-style room for tea ceremony and a recreation room.

Supplementary, “HALAL” meals for the Muslim and vegetarian meals are available in the dining hall.

### 3. Accommodation in JICA Okinawa

JICA Okinawa’s accommodation building has three stories and 118 single rooms. Training participants basically use these single rooms. Every single room is furnished

with a bed, a desk, a chair, a TV equipped with video, a DVD player, room lamps, a safety box, a bathroom and a telephone set which enables you to call inside JICA Okinawa and receive all incoming calls including international calls.

Accommodation building is equipped with laundry room on each floor. And also washing machines and irons are available for free. However, towels and toiletries are not available and cooking facility is not equipped. Cooking in the room is strictly prohibited.

#### **4. Outfit**

It is recommended to bring suitable clothing depending upon the season, especially ensure to have warmed enough clothes if your program runs through the winter season.

There are a few occasions like opening and closing ceremonies when training participants are kindly requested to wear formal clothing. Nevertheless, casual clothing is acceptable even during training hours of most of the training program.

It is welcomed to bring your national or traditional dress for cultural exchange activities that you are likely to join. And also any other items which may be used to exhibit your culture are welcomed (JICA Okinawa has displays which introduce world culture to the visitors).

If your training program includes practices such as plant visit or outdoor activities, suitable uniform/clothing will be provided by JICA or a visiting site upon arrival.

#### **5. Environmental conservation activities in JICA Okinawa**

JICA Okinawa emphasizes on the environmental conservation activities such as energy saving, rubbish separation and recycling etc. JICA Okinawa has been certified ISO14001 (International Organization for Standardization) since Oct, 2004 and renewed it in Oct, 2007. ISO 14001 is the international specification for an environmental management system. Therefore, training participants are also kindly requested to cooperate to these activities during stay in JICA Okinawa. Details are instructed by a staff member of JICA Okinawa at beginning of the training program.

#### **6. Activities out of training program**

JICA Okinawa offers a various kinds of welfare activities for the participants such as a home-stay program to the local family, exposition of Japanese/Okinawa traditional cultures and Japanese language/conversation classes etc. Training participants can try any of them whenever seats are available.

#### **7. For your Information**

Information of Okinawa is available at following URLs.

(1) HP of Urasoe city: <http://www.8761234.jp/kokusai/english/index.html>

Basic information of Urasoe city is covered in English.

(2) HP of Okinawa Prefecture: <http://www.pref.okinawa.jp/english/index.html>

Basic information of Okinawa prefecture is covered (Urasoe city is one of the municipalities of Okinawa prefecture) in English.

(3) HP of Okinawa Convention & Visitors Bureau:

[http://www.ocvb.or.jp/index.php?current=General\\_Page&action=Top\\_Page&mode=isel&lang=en](http://www.ocvb.or.jp/index.php?current=General_Page&action=Top_Page&mode=isel&lang=en)

More information is available at the reception of JICA Okinawa.

# VI. ANNEX:

## Country Report and Questionnaire

Nominees are requested to prepare a country report on the following issues and submit it with the application form by July 30, 2008. These documents are requested to be typewritten in English on A4 size paper (21 cm x 29.5 cm) in single spacing at maximum of 20 pages.

### Country Report

<b>1. Full Name</b>	[Family]	[First]	[Middle]
<b>2. Organization</b>			
<b>3. Country Report (Please describe as clearly and minutely as possible)</b>			
<b>4-1. Description of your organization</b>			
<b>(1) Roles and responsibilities of your organization</b>			
<b>(2) Organization Chart</b>			
<p>Referring to the example, draw the chart of your organization and indicate your department / division /section with double line.</p> <p>(If it is difficult to incorporate into this form, you can attach Organization Chart separately.)</p>		<p><b>Organization Chart Example</b></p> <pre> graph TD     Ministry["Ministry of xxxxxxxxxxxx"] --- Committee["xxxxxxxxxxxx Committee"]     Ministry --- D1["xxxxxxxxxxxx Department"]     Ministry --- D2["xxxxxxxxxxxx Department"]     Ministry --- D3["xxxxxxxxxxxx Department"]     D1 --- Div1["xxxxxxxxxxxx Division"]     D2 --- Div2["xxxxxxxxxxxx Division"]     D3 --- Div3["xxxxxxxxxxxx Division"]     Div1 --- S1["xxxxxxxxxxxx Section"]     Div2 --- S2["xxxxxxxxxxxx Section"]     S2 --- Persons["xx Persons"]     </pre>	
<b>(3) Your specialized field of study and practical experience.</b>			

<b>(4) Outline of agriculture including forestry in your country.</b>
<b>(5) Biomass resources and its utilization, present condition and future outlook.</b>
<b>(6) Special topics of the biomass utilization, especially your practice or research.</b>

## Questionnaire

1. What is the field of biomass you are or were actually researching? Select any item that applies.

(1) *Waste-Based Biomass*

- Livestock-based resources (livestock manure and other such material)
- Food-based resources (residue from food processing, raw garbage, etc.)
- Industrial-based resources (e.g., pulp waste)
- Forestry-based resources (scrap lumber and sawdust from sawmills, waste from construction, etc.)
- Sewage sludge
- Other

(2) *Non-Utilized Biomass*

- Forestry resources (slash and other logging debris, fast-growth trees, etc.)
- Agricultural resources (rice straw, chaff, wheat straw, etc.)
- Other

(3) *Product Resources*

- Sugar-based resources (sugar cane, sugar beets, etc.)
- Starch-based resources (rice, potatoes, cassava, corn, etc.)
- Oil- and fat-based resources (rapeseed, palm, soybean, peanut, etc.)
- Other

(4) *Which of the following describes the form of use for the biomass at that time?*

- Energy
- Compost
- Animal feed
- Foodstuffs
- Plastics or other material resources
- Other

2. In your country, what other types of non-utilized resources can be used as biomass? What type of material do you hope to utilize?
  
3. Please describe specifically the uses of biomass you have researched thus far.
  
4. Please list dates, titles, conferences, journals, etc. for any papers you have published or presentations you have made at conferences. Also please note specific examples of biomass utilization in your country.
  
5. What are the benefits of promoting utilization of and research into biomass in your country?
  
6. Does your country have any laws or systems for actively promoting utilization of and research into biomass?
  
7. After you have completed this training course, what materials are you thinking of using in your own country, and in what ways do you hope to apply such biomass?
  
8. Please describe what kind of training content you expect in this training course.

Thank you very much.

## ***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 and 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 Okinawa International Center (JICA OKINAWA)**

**Address : 1143-1, Aza-Maeda, Urasoe-shi, Okinawa-ken 901-2552, JAPAN**

**Tel: +81-98-876-6000, Fax: +81-98-876-6014**