



TRAINING AND DIALOGUE PROGRAMS

GENERAL INFORMATION ON

PROSTHETIC AND ORTHOTIC TECHNIQUE

集團研修「補装具製作技術」

JFY 2009

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

Program No. J0900810

Project No. 0980321

From August 2009 to May 2010

Core Phase in Japan: From Sep. 01, 2009 to Dec.04. 2009

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

In many developing countries there are quite a number of people who suffer from the amputation due to accidents, illness or the explosion of land mines. There are also many who are in need of various types of prostheses and orthotic devices for their in-born physical handicaps. However, the supply of artificial limb is quite insufficient in quality and quantity.

It is attributable to the fact that the technicians who fabricate such supportive devices as prostheses and orthoses are absolutely small in number. To make the matter worse, these technicians have little chance to develop their skills in their countries.

This training course was designed to provide the participants who are engaged in their work as technicians, professionals or leaders at the hospitals, the fabricating or training institutions with the opportunity of acquiring basic knowledge and techniques on the fabrication of prostheses and orthoses together with the latest information on the development of artificial limb technology by encouraging the use of locally available materials for the fabrication and above all the dissemination of the acquired information to the people concerned in their home countries after they are back home.

In some Asian, African, and the Central and South American countries, there are few institutions to train professionals of the relevant field and therefore the participants in this course are required to learn the Japanese techniques of fabrication and alignment to improve their skills and to apply them as well for the use of their own material back home.

This course was renewed in 2006 and this is the third year. It is the 24th course as the group training course in all since 1981.

For what?

This course is designed to provide opportunities for the participants to acquire the latest knowledge and techniques in manufacturing prostheses and/or orthotic through lectures, practices, and field tours. The participants are expected not only to put the knowledge and techniques into practice by themselves but also to disseminate the knowledge and techniques to other prosthetists and orthotists after finishing this course.

For whom?

This program is offered to those in health care professions, prosthetic and orthotic technicians in particular.

How?

Participants will mainly be engaged with the fabrication of lower limb prostheses and after they complete these models, they will be sent back home for the hint of any appropriate application of their locally obtainable material.

II. Description

1. Title (J-No. J0900810): Prosthetic and orthotic Technique

2. Period of program

Duration of whole program:	Aug. 2009 to May. 2010
Preliminary Phase: (in a participant's home country)	Aug. 2009 to Sep. 2009
Core Phase in Japan:	Sep. 01, 2009 to Dec.04, 2009
Finalization Phase: (in a participant's home country)	Dec. 2009 to May. 2010

3. Target Regions or Countries:

Colombia, Fiji, Dominican Republic, Bosnia and Herzegovina

4. Overall Goal:

The participants are expected to disseminate the knowledge and techniques to other prosthetists and orthotists after finishing this course.

5. Objective:

After finishing this course, participants are expected to improve the quality of prostheses and orthoses at their respective workplaces by utilizing the knowledge and techniques that they learned in the course, as well as to transfer and disseminate the knowledge and techniques to other prosthetists and orthotists.

To achieve the said objective, participants are expected to produce the following outputs in this course:

- 1 to understand and be able to explain the basic structures and functions of human body as well as causing disabilities on lower extremity,
- 2 to understand and be able to explain varieties, structure and theory of lower extremity prosthesis,
- 3 to master the techniques of fabricating basic lower extremity prostheses, including checking stump, measurement & casting, modification of plaster model, temporary fitting, adjustment, fabrication and finishing, through practice, and be able to explain the each process,
- 4 to be able to transfer and disseminate the mastered techniques of fabricating basic lower extremity prostheses to other prosthetists and orthotists after returning home.

6. Eligible / Target Organization :

Organizations including hospitals, rehabilitation centers, training and fabricating institutions where prostheses and orthoses are fabricated.

7. **Total Number of Participants :** 4 participants.

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 (August 2009 to September 2009) <i>Participating organizations are required to prepare for the Program in the respective countries.</i>	
Modules	Activities
Assigned Books	Participants in this course are required to read some assigned books or materials related to prostheses and orthoses before coming to Japan. The assignment will be informed in July 2009.

(2) Core Phase in Japan (Sep. 1, 2009 to Dec. 4 2009) <i>Participants dispatched by the organizations attend the Program implemented in Japan.</i>		
Outputs	Subjects/Agendas	Methodology

1) to understand and be able to explain the basic structures and functions of human body as well as causing disabilities on lower extremity.	1.Functional anatomy, amputation and rehabilitation of lower extremity 2.Introducation of rehabilitation	Lectures
2) to understand and be able to explain varieties, structure and theory of lower extremity prosthesis	Variety, application and evaluation of lower extremity prosthesis 1.Trans-tibial prosthesis: PTB & TSB and Foot 2.Trans-femoral prosthesis: IRC and Knee joint	Lectures and demonstration
3) to master the techniques of fabricating basic lower extremity prostheses, including checking stump, measurement & casting, modification of plaster model, temporary fitting, adjustment, fabrication and finishing, through practice, and be able to explain the each process.	To acquire technique and theory of casting, and checking & restoration of alignment at trial fitting of socket through practice from casting to finishing of trans-tibial prosthesis and trans-femoral prosthesis. Demonstration of liner type trans-tibial prosthesis.	Mostly by practices with a few lectures
4) to be able to transfer and disseminate the mastered techniques of fabricating basic lower extremity prostheses to other prosthetists and orthotists after returning home.	(Duplication with (3)Finalization Phase in a participant's home country	

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

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

Modules	Activities
Report of Activities in home country	After the end of the training course in Japan, participants are required to disseminate the knowledge and techniques which they learned in the course to their colleges, subordinates, and technicians outside of their organizations, and the organizations to which the participants belong are also required to support their activities. The result of the activities after the training course should be reported to JICA Tokyo International Center after six months since finishing the course (<i>by the end of May 2010</i>). The participants will be further requested to submit the answer to a questionnaire afterwards upon the request by JICA.

<Structure of the program>

1. Japanese Language Course 2 weeks
2. Technical Training Course 2.5months

This course is conducted in the form of lecture/discussion and practical training on lower extremity prosthesis.

The curriculum includes:

- (1) lectures on
 - (a) Anatomy , amputation and rehabilitation of lower extremity
 - (b) Outline of lower extremity prosthesis
 - (c) Clinical use of lower extremity prosthesis, and
 - (d) Upper extremity prosthesis (lecture and demonstration)
- (2) practicum on lower extremity prosthesis
 - (a) Trans-tibial prosthesis: From casting to temporary fitting of PTB and TSB. And fabricate one of them to finishing.
 - (b) Trans-femoral prosthesis: Fabrication of IRC (Ischial-Ramal-Containment Socket). With focusing on casting and temporary fitting, participants understand sufficiently the process of fitting socket to stump.
 - * Fabrication training will be carried out on the model of actual amputees.

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) Future Duties: be going to be involved in fabrication and education of prostheses and orthoses in applicant's respective country after completion of the course
- 2) Experience in the relevant field: have experience of 10 to 20 years of fabrication of lower extremity prostheses.
- 3) Language: have a good command of spoken and written English to understand medical and biomechanical aspects of prosthetics and orthotics.
- 4) Health: must be in good health, both physically and mentally, to undergo the training
- 5) Must not be serving any form of military service.

※Pregnancy : Pregnant participants are strictly requested to complete the required procedures before departure in order to minimize the risk for their health. The procedures include ① letter of the participant's consent to bear economic and physical risks ② letter of permission from the participant's supervisor ③ letter of consent from your Embassy in Japan, ④ medical certificate. Please ask National Staffs in JICA office for the details.

(2) Recommendable Qualifications

1) Age: be under forty-five (45) years of age.

3. Required Documents for Application

(1) **Application Form:** The Application Form is attached to this General Information.

(2) **Nominee's English Score Sheet:** If you have any official documentation of English ability (e.g., TOEFL, TOEIC, IELTS), please attach it (or a copy) to the application form.

(3) **Questionnaire:** to be submitted with the application form. Fill in Annex-2 of this General Information, and submit it along with the Nomination Form.

(4) **Country Report:** Applicants are requested to prepare country report typewritten (doubled spaced) in accordance with the attached form (ANNEX I). The report should be submitted together with Nomination Form to JICA office (or the Embassy of Japan).

4. Procedure for Application and Selection:

(1) Submitting the Application Documents:

Closing date for application to the JICA Center in JAPAN: **June 27, 2009**

Note: Please confirm the closing date set by the respective countries' 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 governments, the respective countries' 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 countries' JICA office (or Embassy of Japan) to the respective governments by **not later than July 25, 2009.**

5. Document(s) to be submitted together with the Nomination Form:

Country Report -- to be submitted by **June 27, 2009.** (detailed information is provided in the ANNEX I "Country Report". The Country Report should be typewritten (doubled spaced) and sent to JICA or the Japan International Cooperation Center, or the Embassy of Japan together with Nomination Form

6. Conditions for Attendance:

(1) to observe the schedule of the program,

(2) not to change the program subjects or extend the period of stay in Japan,

(3) not to bring any members of their family,

(4) to return to their home countries at the end of the program in Japan according to the travel schedule designated by JICA,

(5) to refrain from engaging in political activities, or any form of employment for profit or gain,

(6) to observe the rules and regulations of their place of accommodation and not to change the accommodation designated by JICA, and

- (7) to participate the whole program including a preparatory phase prior to the program in Japan. Applying organizations, after receiving notice of acceptance for their nominees, are expected to carry out the actions described in section II -9 and section III-4.

IV. Administrative Arrangements

1. Organizer:

- (1) **Name:** JICA Tokyo
(2) **Contact:** JICA/Mr. SAITO Toru (ticthd@jica.go.jp)
: JICE/Mr. YAMABE Tomohiro (yamabe.tomohiro@jice.org)

2. Implementing Partner:

- (1) **Name:** National Rehabilitation Center for Persons with Disabilities (NRCD)
(2) **Contact:** NRCD/Ms. Nishimura Yoko(whoclbc@rehab.go.jp)
(3) **URL:** <http://www.rehab.go.jp/english/index.html>
Remark: The National Rehabilitation Center for Persons with Disabilities was established in 1979 to contribute to the promotion of the welfare of persons with physical disabilities by comprehensive rehabilitation services and by developing rehabilitation techniques. For these services it has a hospital, a training center, a research institute and a college.

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:

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| <p>1) 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> <p>2) NRCD dormitory
<u>Address:</u> Namiki 4-chome, Tokorozawa City, Saitama Prefecture 359-8555, Japan
TEL: 81-4-2995-3100 FAX:81-4-2995-3661</p> |
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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 "KENSHU-IN GUIDE BOOK," which will be given to the selected participants before (or at the time of) the pre-departure orientation.

6. Pre-departure Orientation:

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

V. Other Information

Participants who have successfully completed the course will be awarded **certificates** by JICA.

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.

ANNEX-I

Country Report Group Training Course for Prosthetic and Orthotic Technique (2009)

1. Name of Applicant
2. Name of Organization
3. General Information
 - (1) State of the country (population, per capita income, etc.)
 - (2) Welfare for the disabled (number of the disabled, etc.)
4. Subsidies for Prosthesis and Orthosis
 - (1) Systems and kinds of subsidies by the Government
5. Foreign Aids for Prosthesis and Orthosis (organization, objective, duration, outline)
6. Manufacturer of Prosthesis and Orthosis
 - (1) Scale and number of public and private manufacturers
 - (2) Number of prosthetists and orthotists
7. Education and Training Institutes for Prosthetists and Orthotists
 - (1) Number of the institutes and their names
 - (2) Duration and target groups of the educational/training program offered by each institute
 - (3) Qualification system of prosthetists and orthotists
8. Organization of the Applicant (attach photographs if available)
 - (1) History, scale and objectives of the organization
 - (2) Procurement of parts and their kinds
 - (3) Organization of participant (organizational chart, function, etc.)
9. Annual Production and Cost (in US\$ for exoskeletal prosthesis and endoskeletal prosthesis)
- attach photographs if available -
 - (1) Lower extremity prosthesis
 - (a) Foot prosthesis
 - (b) Trans-tibial prosthesis
 - (c) Trans-femoral prosthesis
 - (d) Hip disarticulation prosthesis
 - (2) Body powered upper extremity prosthesis
 - (a) Hand prosthesis
 - (b) Below elbow prosthesis
 - (c) Above elbow prosthesis
 - (d) Shoulder disarticulation prosthesis
 - (3) Cosmetic upper limb prosthesis
 - (a) Finger prosthesis
 - (b) Hand prosthesis
 - (c) Below elbow prosthesis
 - (d) Above elbow prosthesis
 - (e) Shoulder disarticulation prosthesis
 - (4) Orthosis
 - (a) Lower limb orthosis
 - (b) Spinal orthosis
 - (c) Upper limb orthosis
 - (d) Orthopaedic shoes, etc.
 - (5) Others
 - (a) Wheel chair
 - (b) Cane, etc.

10. Applicants must attach photographs of workshop and lower extremity prosthesis made by him/herself recently.

ANNEX-II

Questionnaire for Applicants to the Group Training course
for Prosthetic and Orthotic Technique, 2009

1. Have you studied following subjects and had much experience in making the following items ?

a. Structure of lower extremity prosthesis

	Yes	No
i) Endoskeletal	_____	_____
ii) Exoskeletal	_____	_____

b. Trans-femoral prosthesis

i) Quadrilateral type	_____	_____
ii) IRC	_____	_____
iii) Liner typ	_____	_____

c. Trans-tibial prosthesis

i) PTB	_____	_____
ii) TSB	_____	_____
iii) KBM	_____	_____
iv) PTS	_____	_____
v) Liner type	_____	_____

2. Subjects you are interested in

a. Structure of lower extremity prosthesis

i) Endoskeletal	_____	_____
ii) Exoskeletal	_____	_____

b. Trans-femoral prosthesis

i) Quadrilateral type	_____	_____
ii) IRC	_____	_____
iii) Liner type	_____	_____

c. Trans-tibial prosthesis

i) PTB	_____	_____
ii) TSB	_____	_____
iii) KBM	_____	_____
iv) PTS	_____	_____
v) Liner type	_____	_____

d. Others of lower extremity prosthesis

	_____	_____
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Japan International Cooperation Agency(JICA)
Tokyo International Center (JICA Tokyo)

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