

3.2.2 Achievement of Output 2. "Methodology to establish local organizations and systems for promoting disaster mitigation measures are established. (Establish local organizations and systems for disaster mitigation)"

The awareness raising activities and campaigns on disaster mitigation measures were conducted 28 times in total in the forms of seminar in the model areas and national campaign, etc. Lectures on disaster mitigation measures conducted at the schools 20 times with the participants of 40 teachers and 1,590 students in total. The working committees on disaster mitigation are being organized in each model areas. A preparation committee for organizing central working committee on disaster mitigation is being organized.

Methodology to establish local organizations and systems for promoting disaster mitigation measures is under development. To develop this kind of methodology, an integrated sediment-related disaster management model should be established first and then, based on the established disaster management model, a methodology for establishing local organizations and systems is established. In this sense, accumulation of several example cases for establishing a methodology regarding local organizations and systems for promoting disaster mitigation measures will be done by the end of the Project. However, it is hard to say that a methodology will be established fully, which is verified well and applicable surely to the model areas.

3.2.3 Achievement of Outputs 3. "Engineers to implement appropriate countermeasures on disaster mitigation measures are trained. (Train engineers in disaster mitigation)"

The Water Induced Disaster Engineering (WIDE) course, which provides basic knowledge on Sabo engineering, has been conducted 5 times. 104 engineers in total, of which 38 persons from the central government (the Ministry of Public Works) and 66 persons from the local governments (province and regency) have participated to this course. For the OJT course for the model areas, which provides opportunity to strengthen the capacity on planning and implementation of countermeasures on disaster mitigation, 5 persons in each model area have participated. In 2005, the OJT training started for the Bawakaraeng model area additionally.

These training courses were conducted as planned in term of frequency and number of participants. However, there are opinions that more capacity development is necessary for them in order to have appropriate capacity to implement disaster mitigation measures.

In regard to activities of ex-trainees at their offices, the awareness raising seminars on sediment-related disaster mitigation have been planned and implemented in Kebumen and Banyumas regencies in 2002 by the ex-trainees of the WIDE course. Participants were the staff of the local governments of those regencies. Several disaster mitigation projects have been planned, designed and implemented by trainees of the OJT course in the model area of Bali, Merapi, West Sumatra and Palu.



3.2.4 Achievement of Output 4: "Training programs for engineers involved in sediment-related disaster mitigation are established. (Establish training programs for engineers)"

The Natural Disaster Management (MPBA) Course was established at the Faculty of Engineering of Gadjah Mada University and started September 2001. This is 18 months course that awards its graduates the master degree. 3 batches of the MPBA course were completed and 4<sup>th</sup> and 5<sup>th</sup> batches of the students are learning at the course at present. Number of students of each batch is as follows.

Batch	1st	2nd	3rd	4th	5th	Total
Period	Sep. 2001 - Apr. 2003	Sep. 2002 - Apr. 2004	Sep. 2003 - Apr. 2005	Sep. 2004 - Apr. 2006	Sep. 2005 - Apr. 2007	
Number of students	15	16	18	17	16	82

Main target of the course is engineer of the Ministry of Public Works, but there were several students from local governments utilizing scholarship fund of the local governments. In 2005, a staff of the Ministry of Forestry was enrolled in the course.

According to the curriculum of the MPBA course, there are 19 subjects including field training and thesis. Total credits are 46. Textbooks or teaching materials have been prepared for each subjects. (Curriculum of the MPBA course: Annex 8)

The total number of Indonesian lecturers for the course is 34, of which, 28 teachers of the Gadjah Mada University and 6 teachers from the Ministry of Public Works. 4 teachers of the Gadjah Mada University have received training in Japan. Besides, there are several Japanese lecturers for the course, who have been dispatched as short-term expert of the Project.

The steering committee is organized for the course and meeting have been held 3 times in December 2004, February 2005 and November 2005. The members of the steering committee is composed of 6 members from the Ministry of Public Works, 5 members from the Gadjah Mada University and 3 JICA experts.

3.2.5 Achievement of Output 5: "Disaster investigation, planning and implementation methods for disaster rehabilitation measures of devastated areas are established. (Establish methods of disaster rehabilitation measures of devastated areas)"

Twenty-four (24) investigations in total have been conducted under the Project where disasters were occurred. After the investigations, reports and recommendations for implementation of countermeasures have been submitted to the government. The Ministry of the Public Works and local governments allocated budgets for implementation of countermeasures in some cases.

A manual to investigate sediment-related disaster is under preparation. A first draft manual will be developed by the end of the Project.

3.2.6 Achievement of Output 6: "Popular rainfall gauges etc. are developed and distribution plan is made. (Develop popular rainfall gauges etc.)"

Four (4) kinds and 8 rainfall gauges have been produced under the Project. Among those produced rainfall gauges, 2 kinds of popular rainfall gauge are selected and improvement is underway, which are a kind of automatic recording type and a simplified type with alarm. The first draft guidelines (installation manual and users manual) on the developed rainfall gauges will be developed by the end of the Project. In case of the automatic recording type, it is necessary to conduct the laboratory test and the field test in order to verify and modify, but there is no sufficient time to do so by the end of the Project.

3.2.7 Achievement of Output 7: "Database system for Sabo information is established. (Establish database system for Sabo information)"

There are 4 kinds of input data, such as 1) disaster information based on the articles of the newspapers and the data of investigation, 2) data of the telemeter system for the Merapi model area (daily observation data such as rainfall and river discharges, etc.), 3) database of the Sabo facilities in Indonesia (kind and location of existing Sabo facilities), and 4) Data of the documents in the Yokota's library. Access to these data is possible in STC and the Research Center for Sabo (RCS) through computer.

In addition, Homepage of the Project has been developed in English, Indonesian and Japanese. This Homepage is linked with the Homepage of the Ministry of Public Works (but not linked from the Homepage of the Ministry of the Public Works, only from the Homepage of the Project). Design of database system (documents of Yokota's library) is developed and data of the documents of the Yokota's library was input partially and is able to search and read. Data input is underway and it will continue even after the project period. There are around 5,000 documents related Sabo in the library. A users guideline for the database system (documents of Yokota's library) is under development and a draft guideline will be developed by the end of the Project.

### 3.3 Achievement of the Project Purpose

The Project Purpose "Engineers involved in disaster mitigation and local residents become able to plan and implement disaster mitigation measures to reduce the impacts of sediment-related disasters on villages in volcanic areas."

Following 4 kinds of technical guidelines are under preparation.

- 1) The Overall Implementation Plan of ISDM for Mt. Merapi Model Area,
- 2) The guideline on warning and evacuation system (manual on warning and evacuation criteria),
- 3) The guideline on warning and evacuation system (manual on hazard warning system), and
- 4) The guideline on warning and evacuation system (making hazard map of sediment-related disaster).

