

Terminal Evaluation

Asia

1. Outline of the Project

Country:

Indonesia

Project title:

Structural Safety Design for Building Engineers

Issue/Sector:

Architecture/Housing

Cooperation scheme:

Third-Country Training Program

Division in charge:

Southeast Asia Division, Regional Department I (Southeast Asia and Indo-China)

Total cost:**Period of Cooperation**

Fiscal Years 1999 - 2003

Partner Country's Implementing Organization:

Research Institute for Human Settlement, Bandung - Indonesia (RHIS)

Supporting Organization in Japan:**Related Cooperation:****1-1 Background of the Project**

Indonesia and the surrounding area are located in one of the regions where the seismic and volcanic activities are most active in the world. Notably, two of the three seismic belts of the world are located around Indonesia, more than 400 earthquakes are observed annually. Severe earthquakes occurred every year causing huge damage on villages around the seismic center, and damage was concentrated in the area where there were houses and schools for people with low income.

Furthermore, in Asia and Pacific regions there are many countries where there are seismic belts which cause earthquakes quite frequently. Those frequent earthquakes caused many damages such as loss of lives as well as the second disasters such as fire and strong winds. Therefore, it was desired to become able to cope with the damages and reduce the losses by the earthquakes by constructing durable buildings and preparing preventive systems for fire and other possible disasters.

Under these circumstances, the government of Indonesia made certain requests to the government of Japan which held the most advanced earthquake engineering techniques for a Third-country Training Program, concerning aims of dissemination of specialized knowledge and techniques on disaster prevention such as earthquake and fire in Asia and Pacific areas.

1-2 Project Overview

To improve the safety technique on building structure against earthquake in the Asia and Pacific region the project implemented training on necessary knowledge and appropriate techniques in the field of sustainable structural safety design against disaster and on the management after construction, setting the Research Institute for Human Settlement(RIHS)as the implementing organization.

(1) Overall Goal

- 1) Improvement of the techniques and knowledge of the participant countries in the field of sustainable structural safety design.
- 2) Improvement of capability of RIHS to conduct technical transfer.

(2) Project Purpose

Improvement of the trainees from Asia and Pacific countries on necessary knowledge and appropriate technique in the field of sustainable structural safety design against disaster, mainly earthquake and fire, and to manage and maintain the facilities.

(3) Outputs

Improvement and upgrading of the relevant techniques and knowledge of the following:

- 1) Building performance criteria.
- 2) Disaster mitigation strategy and techniques.
- 3) The structure and foundation of high buildings.
- 4) The design on earthquake-resistant/fire-resistant buildings.
- 5) Laboratory experiments and tests.
- 6) Post construction evaluation for buildings.
- 7) Restoration and repair work of buildings.

(4) Inputs

Japanese side:

Short-term Experts	2	Local Cost	287 million rupee
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Indonesian Side:

Lecturers & Staff	27	Local Cost	84 million rupee
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(5) Participant Countries

Bangladesh, Cambodia, China, Fiji, India, Laos, Malaysia, Nepal, Pakistan, Papua New Guinea, the Philippines, Sri Lanka, Samoa, Thailand and Vietnam.

2. Evaluation Team

Members of Evaluation Team	JICA Indonesia office (Commissioned to PT. INDOKOEI INTERNATIONAL)
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Period of Evaluation	28 February 2003 - 28 March 2003	Type of Evaluation: Terminal Evaluation by Overseas Office
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3. Results of Evaluation

3-1 Summary of Evaluation Results

(1) Relevance

The contents of the course mostly matched with the expectations of the participants, and the knowledge and skills acquired through the training were useful in their daily work after returning to their respective countries.

According to the answers to the questionnaire survey of the participants (11 out of 47 participants answered), many respondents (82%) indicated that the contents of the course matched their expectations and their government policy. They indicated that the knowledge and skills acquired through the course were useful in their daily work. However, one of ex-participants from China and another from Papua New Guinea mentioned that the course did not satisfy their expectations and the contents of the training were not useful in their daily work. The answers given by those participants from China and Papua New Guinea pointed out that the course was not relevant to the situations in their countries. In the case of China, it should be considered whether China should be put as one of the third countries or not, because China has more advanced technology and knowledge than that of the other third countries in Asia.

Judging from the above facts, the training had high relevance.

(2) Effectiveness

Through the training, the capacities of the participants were improved in the field of sustainable structural safety design for building engineers, through the practice or in solving various problems of the structural safety design. According to the questionnaires of the ex-participants, 91% of the respondents mentioned that they could understand all or the most part of the training, and they acquired the necessary skills and knowledge to a standard or advanced level. Exchanges of opinions and

information with other participants and the latest and advanced knowledge and techniques that they acquired through the training have made significant contribution to the participant countries to reduce the loss of life caused by the disasters.

Considering the above evaluation, the project purpose has been successfully achieved for the most part, and the training was judged to be effective.

(3) Efficiency

Based on the training report submitted by the participants at the termination of the training, the training was carried out efficiently in terms of the coverage of curriculum and appropriateness of the materials for training activities. According to the questionnaire survey of the ex-participants, 91% of the respondents highly evaluated the lecturers, textbooks, training facilities and contents of the training. They mentioned that the contents, methods and duration of the course activities were appropriate. Some proposed to take more time on practices or discussions. As the contents of the lectures were specialized for engineers, the understanding of the participants would be deepened by introducing more practices and discussions to the training.

(4) Impact

The sending agencies of the participants improved their capacities in the field of structural safety design mainly against earthquake. As the network has been established among the participants, they have got the opportunities to exchange opinions on application methods of techniques in their respective countries. They have also gained the chance to learn up-to-date information in the field of structural safety design against earthquake and fire. As a result, the training contributed to improvement in the organizational level of the sending agencies of the participants.

The training gave RHIS the opportunity to improve the organizational capacity in conducting technological transfer to Asia and Pacific countries. In addition, it could obtain information about the research activities in the participants' countries, and could cope with problems in the field of earthquakes and construction design with those countries. At the same time, they have become able to promote utilization of their research results through establishing networks among other implementing organizations including RHIS and the participants' countries.

No negative impact of the training was observed. All the respondents mentioned that they got some positive impacts from the Training. They have become more confident in conducting their daily work, because they have acquired enhanced technical knowledge related to structural safety design.

Judging from the above facts, the training had a constructive and positive impact on the third countries, mainly for the participant countries from Asia and Pacific from the implementing organization.

(5) Sustainability

The ex-participants have disseminated the skill and knowledge obtained through conducting lectures, submitting the reports to their colleagues, and providing workshops related to housing planning. The ex-participants have applied the skills and knowledge they obtained from the training at their workplaces. They can now cope with issues by using the skills and knowledge acquired.

In general, the developing countries face the constraints to secure budget and resources to conduct similar activities. This could be one of the key factors for sustainability of the training. Yet, they could sustain the dissemination of the acquired skills in their countries by reusing the materials obtained in the training and conducting workshops. Some of the ex-participants still keep in touch with the implementing organization, and through this relationship, they could exchange and share technical information with others.

The RHIS has the capacity to conduct the training as well as the facilities, such as the laboratories and equipment. The RHIS also has the qualified lecturers and staff in the field of structural safety design. The RHIS is judged to have sustainability even though there were some cases where it required financial support.

3-2 Factors that promoted realization of effects

(1) Factors Concerning the Planning

- 1) RHIS as the implementing organization has the experience in cooperation with JICA in the past and had good capacity in implementing the training. It has executed many engineering activities in the field of housing, human settlement, building technology, safety, and environment.
- 2) RHIS has good facilities which matches with the contents of the training, such as building and construction, building science, fire test and building physics related to the main subjects of the training.
- 3) RHIS have conducted a lot of research related to the structural safety design against natural disasters and fires. Many

research results had been presented through the training and contributed to the improvement of the knowledge of the participants.

(2) Factors concerning the Implementation Process

Japanese short-experts helped the participants and local lecturers from RHIS to improve their techniques. The skills and knowledge transferred by them contributed to the achievement of the results of the training. The presence of Japanese experts was a big support for the participants to solve some of the specific problems and to maintain the quality of the training. The experts also greatly contributed in developing the structural design in other Asia and Pacific countries.

3-3 Factors that impeded realization of effects

(1) Factors Concerning the Planning

N/A

(2) Factors concerning the Implementation Process

- 1) The communication facilities (such as internet and public telephone for international call) in the RHIS are insufficient. The internet can be used to establish a network among the participants, lecturers and the RHIS to share information continuously.
- 2) The proper facilities are often unavailable in some ex-participants' countries after returning to their country. It is necessary for the ex-participants to gain support from the organizations which they work for in order to disseminate and improve the acquired skills and knowledge.

3-4 Conclusion

In general, it can be concluded that the overall effects that the project has brought about are positive. The contents of the Training were in line with the necessity of the third countries, especially the beneficiary countries in Asia and Pacific regions.

The ex-participants have acquired profound skills and knowledge about the structural safety design against earthquakes and fires and have tried to disseminate the knowledge and skills in their daily work. The training was useful and in addition to the above mentioned dissemination activities, the ex-participants have organized workshops and seminars for dissemination. Though dissemination of skills and knowledge has been continuously implemented in the participant countries, the way to disseminate is changing due to financial problems.

Indonesia, the host country, has high international management training capacity and is appropriate as the host country of training. The participants highly evaluated the lectures on the structural safety design for buildings presented by local lecturers.

3-5 Recommendations

- (1) It is recommended to establish networks among lecturers, ex-participants and implementing organizations in order to continue sharing information among them or to solve problems they face after they returned home. By using the network, the participants can easily make a report on the contents of the training.
- (2) It is recommended that the RHIS, together with donor organization, should design advanced low cost technique to be transferred to third countries which are suitable to their condition to promote dissemination and utilization of the training results after they return home.
- (3) It is recommended to select beneficiary countries considering whether they can support participants in order to conduct smooth technical dissemination after the completion of the training.
- (4) It is recommended to implement training on higher level technique for lecturers in countries other than Indonesia such as in Japan or in China to improve the capacities of lecturers of the RHIS.
- (5) It is recommended to severely select participants in the third countries so as to disseminate the techniques at full length after the completion of the training. Applicants selected by the organizations they work for should have appropriate knowledge and experience and be in the suitable position to realize structural safety design.
- (6) It is recommended that the governments of the respective countries should provide support for the dissemination activities by ex-participants so that they can disseminate the attained techniques to full extent after the completion of the training.

3-6 Lessons Learned

N/A.

3-7 Follow-up Situation

N/A.