4-3. Implementation of Joint Projects

4-3-1. Cambodia: Human Resource Development on Disaster Management

1) Background

Cambodia is a country which is frequently hit by natural disasters such as floods, droughts, and rainstorms. The flood in 2000 affected 21 provinces and damaged farms around the country. Though the NCDM (National Committee for Disaster Management) was able to provide emergency aid through the support of the Cambodian Red Cross, UN organizations, and NGOs, human resources for local disaster management was found to be limited.

For this reason, the NCDM decided to implement training on provincial and district disaster management committee members in charge of disaster reduction in the Mekong River district and three provinces constantly subject to floods: Kampong Cham, Kandal, and Pursat in Cambodia, with the support of the ADRC (total of 10 000 US dollars).

2) Purpose

The four goals of this projects are:

- Clarify the roles and responsibilities of provincial level and regional level disaster management related organizations
- Clarify the rights of organizations and means of conveying instructions, to enable effective coordination of disaster management activities
- Reinforce disaster management capacities of applicable provincial and regional disaster management committee members
- Continue to reinforce NCDM's ability to coordinate organizations

3) Activities

ITEM	Kampong Cham	Kandal	Pursat
DATE OF IMPLEMENTATION	June 2000	January 2001	February 2001
No. OF PARTICIPANT	41	34	34
TRAINING PROGRAM	1. General concept of disaster management 2. Analysis of disasters 3. Analysis of vulnerability 4. Preparation plans for disasters 5. Disaster countermeasures 6. Evaluation of damage and needs 7. Restoration of damages 8. Responsibilities of related ministries and agencies		

4) Training at Pursat

The director of ADRC, Mr. Ogawa, and head researcher of ADRC, Mr. Hidaka, attended the opening ceremony at Pursat, the third training site, to confirm the training situation. The participants were 34 members of the provincial and regional disaster management committee. The opening ceremony was also attended by the NCDM secretariat head, Mr. Peou Samy, and the first and second vice mayors. Eleven staff members were sent from the capital, Phnom Penh, to give lectures. During the three-day program, the participants attended courses on disaster reduction and disaster

Opening ceremony of training at Pursat

countermeasures enthusiastically, and the training ended successfully.

Pursat is situated about 180 km north of Phom Penh. To the north lies the country's largest lake, Tonlesap, and the Cardamoms mountains are located to the month. Floods occur every year in this area during the rainy season due to the rising of the lake and flooding from the mountains. In the year 2000, the area was affected three times.

5) Results

The following results were obtained from the training:

- Participants acquired the knowledge, skills, and experience required in the area of disaster management.
- Participants improved gathering, and evaluation and analysis skills for information related to disasters.
- Members of the provincial disaster management committee learned the responsibilities of disaster countermeasures and coordination.
- Reinforced preparation, disaster management, rescue, and restoration skills to prevent disasters and reduce damage.

6) Evaluation

The largest problem in disaster management in Cambodia is fostering skills of the members of the provincial and regional disaster management committee. All disaster management officers from the three provinces were able to improve their knowledge and skills (coordination, information gathering and provision, disaster reduction plans) through this training program. The participants of this program are also asked to carry out educational programs to improve disaster reduction awareness of the people living in each province. In this sense, this regional government disaster reduction training project is considered to have achieved the end sought, and similar training programs in Cambodia are being planned.

4-3-2. Indonesia: Community-based Flood Mitigation in Bandung City

1) Background

Bandung was selected for this project because it is the fourth largest city in Indonesia, and disasters pose as hurdles in urban development; overcoming these hurdles would draw attention in the country.

Bandung is the capital of the West Java province of Indonesia and a lovely town. Positioned 700m above sea level, it lies on plains and the Bandung basin, surrounded by volcanic mountains formed by ancient lakebeds. There are 32 rivers flowing north and south of the city, and these intercross with the Citarum River, the main river flowing east and west at the south of the city. Extending over this southern part of the city is a relatively flat land form indicating risk of floods.

Bandung is a pleasant town to live in, with an annual average temperature of 28.5 ℃. Today, it has become a major city with a population of 2.4 million living in an area of 167. 29 km2 (1999). Developments are being carried rapidly in this area. Following the changes in how the land is used, impermeable substances have accumulated, aggravating water resources of rivers and canals.

Recently, the southern part of the city is the place most frequently hit by floods in Indonesia. The community most effected are the dense low-income population who have no access to information and equipment required for them to evacuate or protect their assets. Current relief activities are restricted to responding to requests. In other words, relief activities start only when disasters occur, and residents are forced to restore the resources, assets, health, and education taken away by disasters and start new lives. Such situations impede the efforts of residents to enhance their development skills, increase assets, and maintain quality of life.

For these reasons, efforts to reduce risks of floods, which occur every year, through plans on reducing damage created by disasters and restorations are necessary. Plans on reduction of damages from disasters should include, in addition to introducing knowledge on protecting lives and assets to the community, encouragement to the community for minimizing risks of disasters and damage, and

continuing to improve quality of life as well.

2) Objectives

This project aims to deepen the understanding of the community on the following and thus heighten the ability to deal with them:
Grasp the risks of living in areas which are easily affected by floods
To gradually reduce the risks of floods, take the initiative in establishing cooperation with social organizations
Draw up plans to reduce risks in anticipated disasters
Take initiative in determining priority action
Develop the projects required for reducing these risks
Community-based flood disaster reduction can be called efforts to determine one's future as residents living in flood-prone regions, by actively campaigning and emphasizing the importance of voluntary participation by community members, and the value of self-endeavor and self-realization in order to do so. The aim of this project is to make decisions through appropriate processes using applicable technologies and provide support to realize these decisions, so that local communities can reduce the risk of flood and lead productive lives while continuing to improve living conditions.

3) Method

Figure 1 shows the draft action of this project. The project consists of nine execution stages.

(1) Preliminary survey

Basic concept

The preliminary survey will comprise of report reviews, studies, analyzing policy documents and information on the geographical position of the project. Efforts will be made to start collaboration with organizations involved in floods, introduce the project, verify expected roles and what can be contributed, and acquire feedback after implementing the project. In this stage, the project site will be selected based on data and information available.

Results

The project team selected two communities, which are related as neighboring regions called RW (Rukun Warga: equivalent to town in Japan). Case studies are conducted on these two RWs (9 and 14). Both communities are located in the same village.

(2) Community analysis

Basic concept

Community analysis is the tracking of the latest conditions of the community in their ability to manage dangerous situations. Community analysis is based on the following items.

- Weakness level of community:
  Communities affected by floods are classified into different groups according to the degree of risk. Classification is done by age or gender in the population, type of housing, position of home, type of infrastructure against flood.
- Unity level of community:
  Indicates the degree to which the community member will carry out voluntary efforts and mutual support, take the initiative for reducing dangers, and participate in joint efforts during floods. Also included in the criteria for analysis are whether the community members have adequate knowledge to make voluntary efforts and provide mutual support in floods, whether the disaster management systems are put to use, and whether the technologies characteristic to the region can be used.
- Economic activities
  Economic activities are a factor which determine the ability to deal with floods. The losses of those working in flood-prone area is double since these people will lose their assets and homes

as well as their jobs, meaning their income will be stopped.

Results
Both communities are located in valleys. Rivers narrow towards the lower course, and they are influenced by the North Bandung river, which causes floods in RW14 and RW9. This is their weak point. The absence of adequate drainage canals in both areas further aggravate damage from floods. However, the residents have individual level management systems showing strong unity in the community.
In other words, if one wants to live in flood-prone areas, it is necessary to understand and participate in the flood management system of the community in the area. Cooperating with each other and participating in group activities is ideal, because these provide the opportunities for each member of the community to help one another or ask for help. From the perspective of economic activities, the living conditions of RW9 were much more dangerous than RW14, because while the income of many of the residents of RW14 depended on the wages paid by their workplaces, many of the residents of RW9 were in the farming or stockbreeding business; in other words, they were working in areas easily affected by floods.

(3)Training and participation, drawing up of plans based on flood disaster reduction

Basic concept
The project team developed training and participation methods so that community members can determine conditions on the items proposed in the project. The training will be implemented by several community members. The aim of the training lies in helping community members become familiar with various aspects shown by technical research organizations and government organizations on flood issues.

Results
The training was conducted on January 20 (Saturday) and 21 (Sunday), 2001 inside the Kelurahan Cisaranten Kidul office hall. Experts, government officials, and NGO staff proposed the following six topics:
Understanding of projects and programs for reducing damage from floods
Policies on reduction and management of damage from floods
Information on technical construction of flood management
Estimation and observation of damage from floods
Measures for community-based reduction of damage from floods
Description on RPA (Participatory Rural Appraisal)

(4) Participation of residents

Basic concept
Resident participation is led by the project team with the help of community leaders who participated in the training. In this stage, the community will launch meetings, set meeting places, promote resident participation and implement activities. The project team will provide the support to promote participation, and if necessary, provide support on special techniques.

Participants investigating the local area

Results

For RW14, on January 27, 2001, attempts on compiling project records and planning daily activities were discussed. The aim was to show the actions that the people should take when faced with floods in flowchart form, define seasonal calendars and Venn diagrams of disasters. On February 18, 2001, the residents performed AMP (Analysis Mata Pencharian: Job analysis), summarized problems, compiled ranking matrix, and developed a program based on priority order.

For RW9, on January 28, 2001, a project record was compiled, daily activities were planned, and flowcharts and seasonal calendars of disasters were compiled along with many other activities. On February 3, 2001, male residents drew maps of water flow from the upper course based on the records on hand (results were not disclosed), while the male residents compiled records, planned daily activities, verified the reasons for floods, and compiled Venn diagrams while exchanging opinions. On February 11 and 17, 2001, the program executive committee devised a program called "Transek (field survey of water)". On February 11, a field survey was conducted, but only in areas intersecting with toll roads. Through this, the residents discovered several problems such as water flow from three drainage canals to one channel of the Tegalluar river.

(5)Community-based proposals

Basic concept

The community is expected to prepare several selectable programs for themselves, determine the priority order, and investigate details such as effects, costs, and duration of each program. The top priority items in the program are determined by the community itself during the ongoing project. Proposals are also submitted by the community. Based on this, the executive community which provides the support required for realizing the proposal will review the proposal.

Results

The draft activities plan of each community is as follows.

Draft Activities Plan in RW9

No.	Item	Current Situation	Problem	Solution	Other selectable programs
1	Water purification (Basic living water, drinking water, etc.)	Polluted	Industrial wastewater from plants	Proposal wastewater control to plant (set wastewater management regulations)	Dig deep well
		Underground water is polluted (yellow fint and has a foul taste)	Industrial waste from plants pollute water	Residents buy water purifier (Cittun, Chlorine)	Set public water purificiation tank (Hygiene control)
2	Cisaranten River	Cannot contain water during rainy season and overflows	Decreasing river width	Increase river width, digging (Drainage area is owned by public works agency)	Increase width of Cisarentan river
		Dirt accumulated blocks flow	Insufficient river depth	City health bureau	Build banks on Cisarentan river
3	Health problems	Skin and eye diseases, coughing, common cold, feverish after floods	Due to pollution of flooded water	Joint work by volunteers	Setup mobile clinics in RW09 during floods
		(Note: As clinics are far, residents cannot ask for the help of doctors)	Due to prolonged flooding	Budget of local government	Setup public toilets
4	Private roads	In rainy seasons, roads become muddy and slippery	Holes and pits are left as they are	Increase river width and deepen river	Widen roads

		Very narrow and small	Roads are made with reddish soil or clay	Budget of local government	Use asphalt and concrete
No.	Item	Current Situation	Problem	Solution	Other selectable programs
5	Cinanbo river	Water flowing from the Cinanbo river causes flooding of RW09	Decrease in river width	Many factories around RW09 (however high unemployment rate amongst residents of RW09)	Widen Cinanbo river
		The water of Cinanbo river is polluted	Sewage system is blocked	Possibility of duck farming	Build banks
6	Economy	Low income, loss of jobs	Rice fields, livestocks, fishing grounds and other sources of income are damaged by flood	Farming of good quality tuna	Repair Citerantan river and widen it

Draft Activities Plan in RW14

No.	Program (Priority Order Criteria)	Aim		Effects	Features		
		Place	Related Groups		New	Continuation	Restart
I	Construction of banks near terminals	Terminals, town offices, Riun, Bandung Road, rice fields	RT2, 3, 4, 5, 6, 7, 8, 9,12	Reduced damage to RW14. Especially in RT2, 3, 4, 5, 6, and 12 areas	V		
II	Construction of banks (near residential area)	Near residential areas	RT 5, 6, 12	Reduced damage in RT2, 3,4, 5, 6, 12	V		
III	Widening of channels in residential area	In front of respective RT homes	RT2, 3, 4, 5, 6	Reduced damage in RT2, 3,4, 5, 6			V
IV	Digging of main channel	Near homes in Riun and Bandung Road	People of Cisaranten and Kidul areas	Reduced damage in Cisaranten and Kidul areas			V
V	Regulations and appeals regarding waste disposal	Residents of upper course of rivers in Cisaranten and Kidul areas	Residents of RW3, 10, 13, 14 of Cisarenten and Kidul areas and Gedebage	Reduced damage in downstream areas (Cisaranten and Kidul areas)			V

*RW is equivalent to a town in Japan. RT is equivalent to neighborhood associations, and is the smallest unit of municipals in Indonesia.

(6) Execution and monitoring

Basic concept

Projects are mainly executed by the community.
The community handles overall coordination, allotment of resources, formation of organizations, and assignment of roles to the residents.
The project team monitors the progress of projects.

Results

Currently ongoing.

(7) Evaluation and feedback

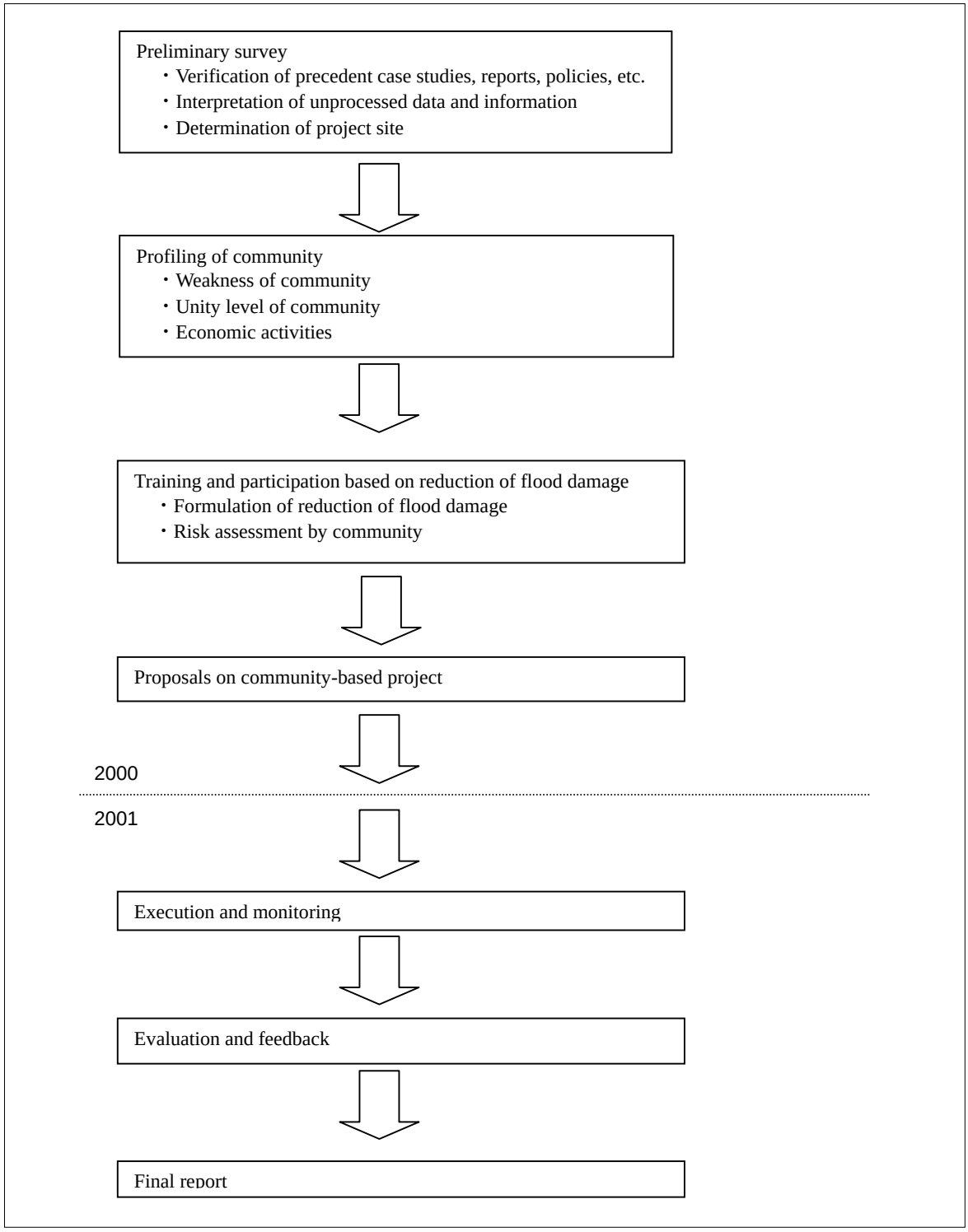
Basic concept

Evaluation and feedback is done by the project team and reported to the executive committee.
The committee is required to provide adequate feedback.
The project team prepares the final report and announces the results.

Result
Currently ongoing.

Figure 1 shows a brief outline according to research stages.

Figure 1 Execution Progress of Project



4-3-3. Nepal: Raising Public Awareness for Disaster Reduction

Purpose
In Nepal, information is difficult to convey due its topographical makeup, and literacy is low; because of the awareness towards disaster reduction, efforts to increase awareness will be started from influential leaders in various regions.

Costs borne by ADRC
10,000 US dollars

Date of Implementation
January 2001 to March 2001

Details

① Program to raise awareness and train regional leaders
10 districts in Nepal (mountainous areas threatened by landslides and plains threatened by floods) will be selected and the program implemented on regional leaders.

Subjects
Regional leaders
About 20 persons per program, totalling approximately 200. Consists of school principals, village chiefs, disaster officers of local instruments of the government, leaders of boy scouts, Red Cross, NGO, police, military, etc.

Lecturers
Internal Ministry staff, Central Red Cross, disaster officers from different provinces, police officials, Soil Conservation Officers, etc.

Duration
About 3 days

Example of training program
- Disaster reduction laws and plans in disaster management
- Land management and environment
- Raising awareness in disaster management
- Relief and rescue activities
- Role of disaster officers during disasters
- Police Action immediately after disaster

② Compilation of awareness pamphlets and posters

③ Radio broadcast
Broadcast on national TV every morning for two months

(Explanation)
Due to lack of transportation means from topographical reasons in Nepal, it is very difficult to gather trainees in one location. Therefore instead of gathering trainees (regional leaders) at one location, trainers from the central government or prefectural government went from village to village and provided grassroot-based training.
Such efforts demonstrated the government's strong enthusiasm in promoting and spreading disaster reduction, including cooperation between the country and prefectures. Considering the low literacy rate in Nepal, awareness pamphlets were compiled using mainly illustrations.

The response of trainees taking down notes and debating with their lecturers enthusiastically was quite impressive. Their enthusiasm can be explained by the fact that disasters such as floods and landslides are a serious problem every year, and this was the first time they had ever participated in a training program; they did not have any previous knowledge of the subject taught at this time.
Furthermore, as televisions are uncommon in the mountain villages of Nepal, nationwide radio broadcasts serve as an effective means of conveying information, and programs were intentionally aired during high audience rating times after the morning and evening news.

Lecturer in Nepal was once a guest researcher at ADRC

The project manager of this program in Nepal had worked at the ADRC as a guest researcher in the past. The project manager plays an important role by making adjustments in Nepal during the preparation stage and through correspondence with the ADRC. In this case, the achievements of the guest researcher program can be evaluated as having linked to the local joint project.

4-3-4. Sri Lanka: Human Resource Development on Disaster Management

Purpose
This training program was conducted for personnel involved in disaster reduction activities at the regional level of districts and divisions.
25 to 30 persons participated each time; 150 in total.
Costs borne by ADRC
10,000 US dollars

Date of Implementation
March 2001 (Carried out on two other occasions in July and November 2001)

Details
Subjects
Largely managers of disaster vulnerability divisions from each district

Example of training program

- Concept of disaster management
- Organization, laws, plans, education, training
- Disaster reduction technology, warning, decision-making
- Orientation, organization formation
- Mobilization immediately after disaster, damage evaluation, maintenance of lifeline, evacuation sites
- Procurement, storage, and distribution of goods
- Transition to recovery and restoration

Explanation
Sri Lanka is prone to natural disasters such as floods, landslides, cyclones, and droughts, and the nurturing of local staff to handle these disasters is an urgent task. Since this project was carried out twice last year, this year it was implemented on the heads and deputy heads of 25 provincial governments at capital Sri Jayawardenepura Kotte. The training centered around lectures, and was comprised of 22 courses such as field trips, tours of international organizations, etc. The lectures

incorporated a group discussion as well as the showing of self-made awareness videos to avoid one-way style lectures. Field trips were made more interesting by incorporating town-watching trips together with the villagers of flood-prone regions. The diverse courses offered and resource persons who made these possible were impressive.
The training was held at a government training center equipped with various equipment, lodging facilities and canteen, in consideration of the functions and economic merits available. It was very popular with the participants, and further enhancement of disaster reduction efforts at the regional government level can be expected in Sri Lanka.

A Seminar in Sri Lanka