Socialist Republic of Vietnam
Ministry of Agriculture and Rural Development (MARD)

The Project for Building Disaster Resilient Societies In Central Region in Vietnam

Final Report

March, 2012

Japan International Cooperation Agency (JICA)

EARTH SYSTEM SCIENCE CO.,LTD.
IDEA Consultants,Inc.

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1. Introduction

1-1 Outline of the Project

The Project was started in March 2009 and completed on February 2012. The first year activities were carried out from March to October 2009, the second year activities were carried out from January to October 2011 and the third year activities were carried out from February 2011 to September 2011. The output and findings were reported in the Interim Report (1st year, 2nd year and 3rd year) submitted before.

The fourth year activities were carried out from November 2011 to February 2012. This report summarizes the activities and output of 1st to 3rd year and explains the activities and output of the fourth year. The report mainly presents the activities and output done by Project Experts and does not include the activities and output done by the Long Term Expert in T.T.Hue.

1-2 Purpose and output of the Project

Goal, purpose and output of the project are as follows.

1) Super goal

Measures against water-related disasters and adaptation to the increasing risk caused by climate change are strengthened.

2) Overall goal

Measures against water-related disasters adapted to exacerbating effects by global climate change are strengthened in Central Vietnam.

3) Project Purpose

Community-centered disaster management (CCDM / CBDRM) systems are strengthened in the project area.

4) Output

(1) Organizational capacities of disaster management at provincial, district, and commune levels are developed.
(2) A manual for promoting CCDM / CBDRM is developed.
(3) Appropriate technologies of low-cost small-scale structural measures against river bank erosion are developed.
(4) MARD's supporting capacities in disaster management to local governments are developed.

1-3 Organization of Working Groups and Technical Transfer

Based on the discussion between Vietnamese counterparts and the Japanese Expert team, pursuing smooth execution and fruitful achievement of the project, the following four working teams were organized. Location of the target provinces and pilot project sites are shown in Figure 1-1 and 2.

Working Group 1 Capacity Development of Administration
Working Group 2 Integrated Flood Management (Simulation, Hazard map, Management Plan)
Working Group 3 Community Disaster Management
Working Group 4 Bank Erosion Control

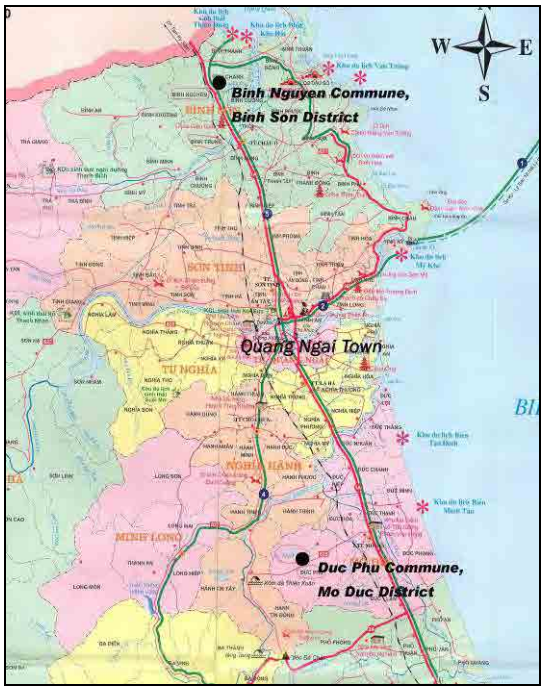
Abbreviation

ADB	アジア開発銀行	Asian Development Bank
AusAID	オーストラリア国際開発庁	Australian Aid
CC	気候変動	Climate Change
CCDM	コミュニティ中心防災対策	Community-Centered Disaster Management
CCDM	堤防維持管理中央委員会	Central Committee for Dike Maintenance
CCFSC	風水害対策中央委員会	Central Committee for Flood and Storm
CDGM	援助物資金配布委員会	Committee for Distribution of Goods and Money
CECI	カナダ国際研究援助センター	Canadian Centre for International Studies and Cooperation
CIDA	カナダ国際開発援助庁	The Canadian International Development Agency
C/P	カウンターデンマーク国際開発庁	Counterpart
DANIDA	デンマーク国際開発庁	Danish International Development Agency
DARD	農業農村開発局	Department of Agriculture and Rural Development
DARD(H)	農業農村開発局(フエ)	Department of Agriculture and Rural Development (Hue)
DARD(Q)	農業農村開発局(クアンナム)	Department of Agriculture and Rural Development (QuangNam)
DARD(Qg)	農業農村開発局(クアンガイ)	Department of Agriculture and Rural Development (Quang Ngai)
DCFSC	風水害対策郡委員会	District Committee for Flood and Storm Control
DDMFSC	堤防管理洪水コントロール局	Department of Dyke Management and Flood Control
DDFSC	堤防管理洪水コントロール局	Department of Dyke Management and Flood Control
DMC	防災センター	Disaster Management Centre
DMD	防災部	Disaster Management Division
DMP	地方防災計画	Provincial Disaster Management Plan
DOF	財務局	Department of Finance
DOF	漁業局	Department of Fisheries
DONRE	資源・環境局	Department of Resources and Environment
DPI	計画投資局	Department of Planning and Investment
DRM	防災計画	Disaster Risk Management
GDHMS	水文気象総局	General Department of Hydro-Meteorological Services
GIS	地理情報システム	Geographic Information System
GoV	ベトナム政府	Government of Vietnam
HFA	兵庫行動枠組み	Hyogo Framewaork for Action
HMS	水文気象サービス	Hydro Meteorological Service
IDA	国際開発アソシエーション	International Development Association
IDRM	総合防災	Integrated Disaster Risk Management
IDRMP	総合防災計画	Integrated Disaster Risk Management Plan
IFMP	統合洪水管理計画	Integrated Flood Management Plan
INDRMP	総合災害管理計画	Integrated natural Disaster Respose and Mitigation Plan
JANI	合同ネットワーク支援イニシアチブ	Joint Advocacy Networking Initiative
JCC	合同コーディネーション委員会	Joint Coordination Committee
JSFD	日本ファンド	Japan Social Development Fund
MARD	農業農村開発省	Ministry of Agriculture and Rural Development
MOET	教育技術省	Ministry of Education and Technology
MONRE	天然資源環境局	Ministry of Natural Resources and Environment
NCSR	国家捜索救助委員会	National Committee for Search and Rescue
NDMP	自然災害軽減パートナーシップ	National Disaster Mitigation Partnership
NDRMP	自然災害軽減プロジェクト	Natural Disaster Risk Management Project
NZAID	ニュージーランド国際援助・開発庁	New Zealand's International Aid & Development Agency
PCFSC	風水害対策地方委員会	Provincial Committee for Flood and Storm Control

Figure 1-1 Location Map

T.T.Hue Province Pilot Project Sites Location Map

Quang Nam Pilot Project Sites Location Map



Quang Ngai Pilot Project Sites Location Map

Figure 1-2 Location of Pilot Project Sites

2. Output of the Project

2-1 List of the Output

Outputs of the project are described on chapter 7 and tabulated in the Table 2-1 List of the output.

2-2 Plan and Actual Operation

Plan and actual operation is shown in the Figure 2-1 Plan of Operation.

2-3 Actual assignment of the Project Expert

Actual assignment of the expert is shown in the Figure 2-2 Assignment of the Project Expert.

2-4 Expert Assignment Schedule

Assignment of the consultant expert is shown in the Figure 2-2 and assignment of the short term expert is shown in the Figure 2-3.

2-5 Training in Japan

The outline of the training in Japan is shown in the Table 2-3 Training in Japan.

2-6 Provided Equipment

The list of the provided equipment is shown in the Table 2-4 Provided Equipment.

2-7 Output materials

The list of the output materials is shown in the Table2-5 List of the Output materials.

2-8 Local expenditure

Local expenditure is summarized in the Table 2-6 Local Expenditure.

2-9 Lesson and ingenuity to carry out project

Lesson and ingenuity to carry out project in each activities and output is described in the chapter 7.

2-10 Transition of PDM and record of JCC

First JCC meeting was held on March 12, 2009. PDM(0) was approved in this JCC meeting. Second JCC meeting was held on August 26, 2010. PDM(1) was approved in this second meeting. Both PDM(0) and PDM(1) were shown on the Appendix 1.

2-11 List of collected material

Names of the collected material are tabulated on the Appendix 2 Collected Material List.

Table 2-1 List of the Output

PDM Output	Output
Organization capacities of disaster management at provincial, district, and commune levels are developed	• Disaster management capacity of regional government staffs was improved through 8 large-scale workshops. • Disaster management capacity for various topics was improved through many seminars (climate change, warning and evacuation, CBDRM, flood management plan, GPS utilization, river bank, hazard map, response for big event, earthquake and tsunami, regional disaster management plan etc.) • Disaster management capacity, especially flood simulation and GIS technique of C/Ps were improved through on the job and individual training • Hard maps of floods, river bank erosion and landslides were prepared. Capacity of C/Ps was improved through on the job training to prepare these hazard maps. • Regional government staffs and C/Ps attended training in Japan three times. Capacity of disaster management was improved by observing the actual situation in Japan. • Flood mark plates were installed in both pilot project provinces. Regional government staffs and resident awareness and ability was improved by this plate installation. • An integrated flood management plan in T.T.Hue was formulated. This plan was approved by PPC of T.T.Hue and utilized as an official plan. Recommendation for disaster management plan based on the flood simulation was proposed in Quang Nam.
A manual for promoting CBDRM is developed Capacity development of community	• CBDRM facilitators were trained through pilot projects. • CBDRM activities were carried out at 9 pilot sites. Commune disaster management plans were formulated at these 9 pilot sites. • A CBDRM promotion manual was formulated. This manual was approved by MARD and utilized as a reference manual. • The engineering point of view was introduced for warning and evacuation in communities.
Low cost small scale river bank erosion structural measures	• The structural measures combining Vietnamese and Japanese methods were developed in this project. This method was constructed in two pilot projects and succeeded. • A guideline of low cost small scale river bank protection was formulated. This guideline was approved by MARD and utilized as the official guideline. • Using the Vietnamese original budget, river bank protection project utilizing this method is scheduled. • This method was employed in river bank restoration by JICA emergency aid in T.T.Hue.
MARD's supporting capacities in disaster management to local governments	• Three training courses "river bank protection" , "community disaster management" and "flood simulation and management plan" were developed. • Two big workshops organized by MARD and four individual seminars were carried out.

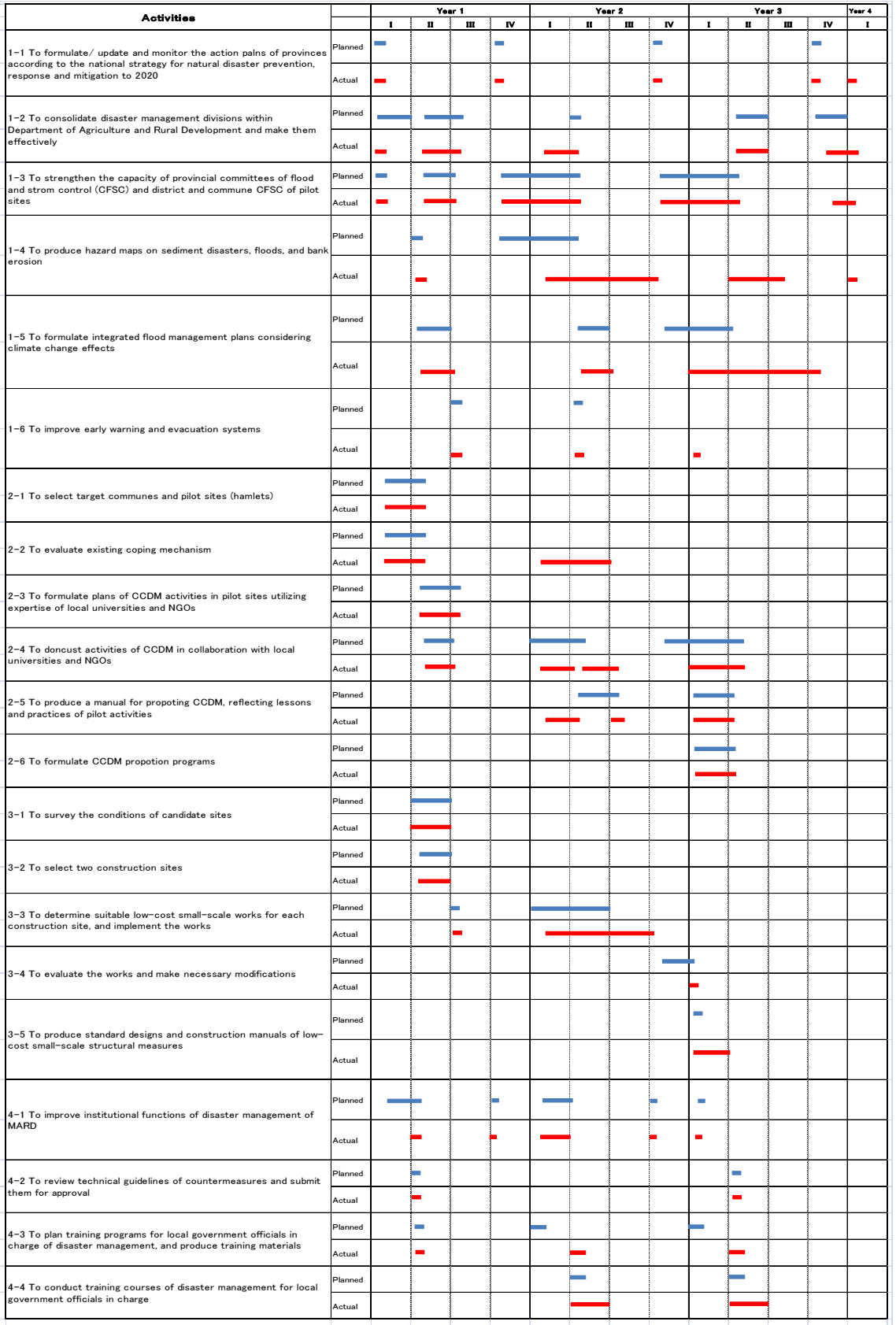
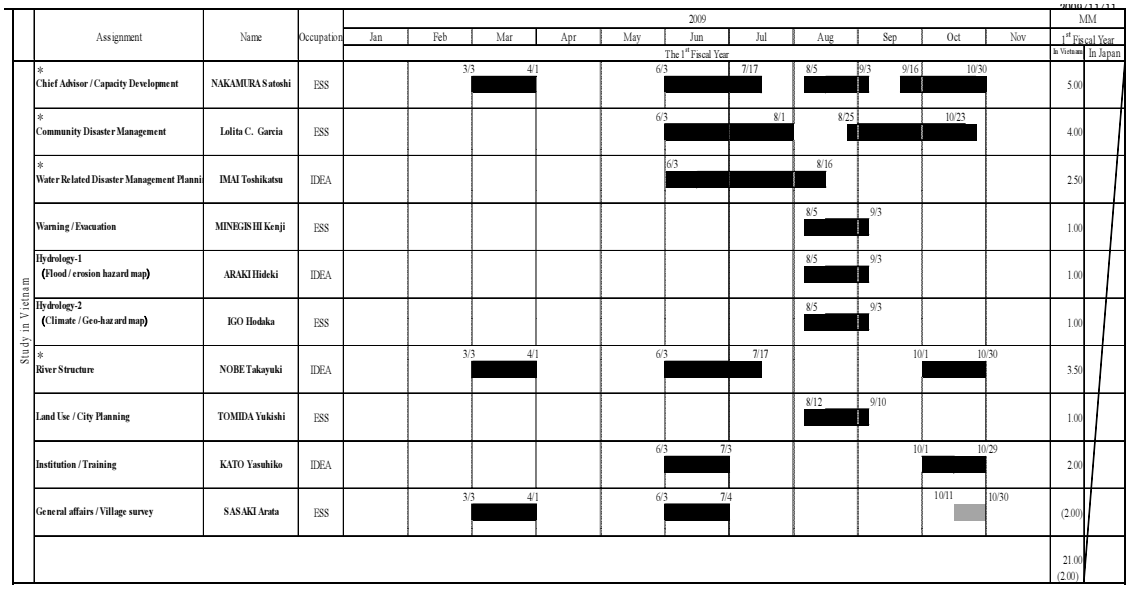


Figure 2-1 Plan of Operation

<1st Year>



<2nd Year>

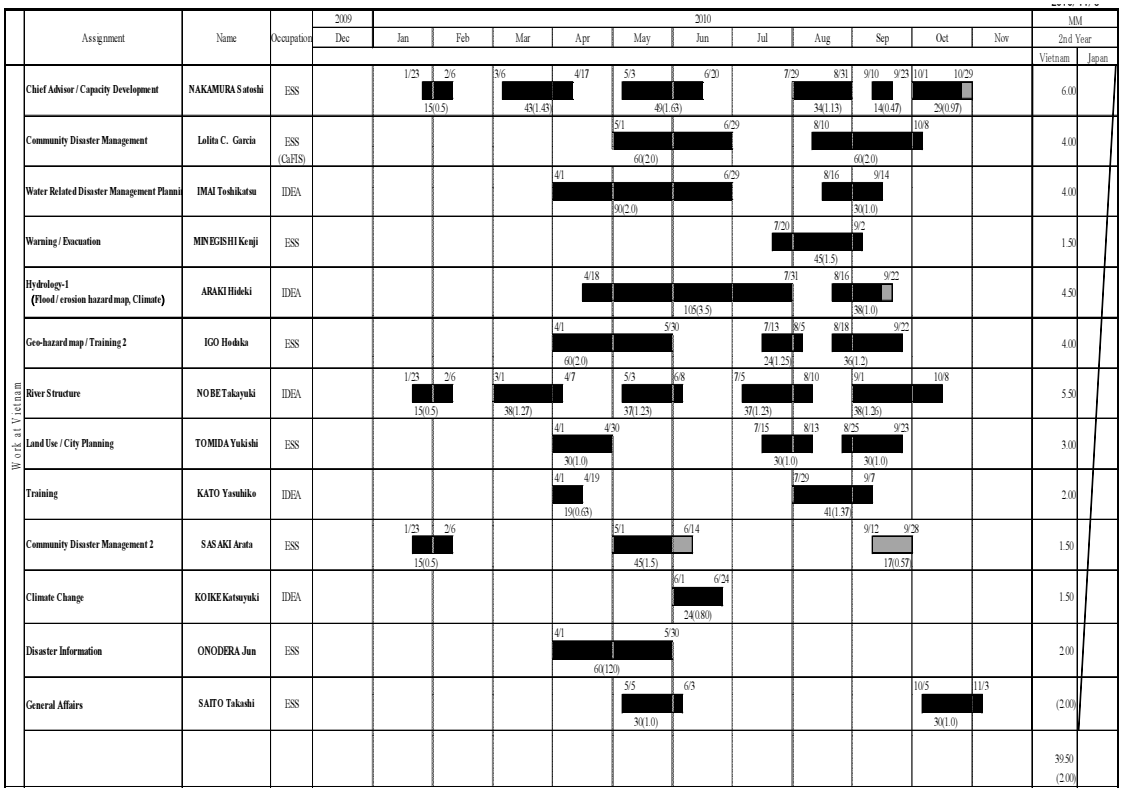
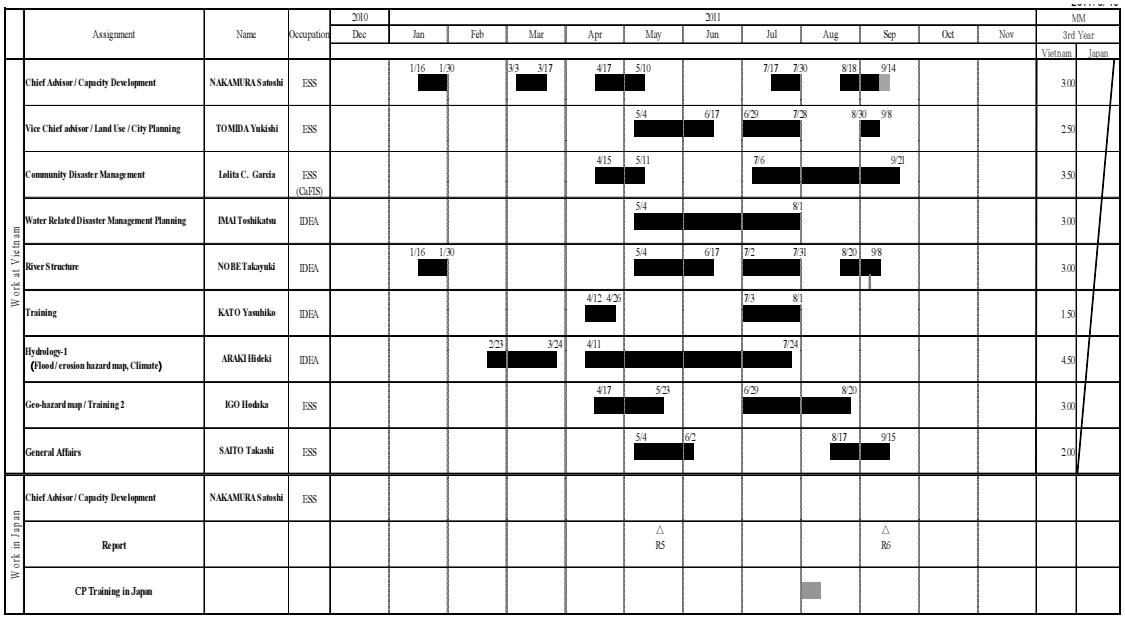


Figure 2-2 Assignment of the Project Expert (1)

<3rd Year>



<4th Year>

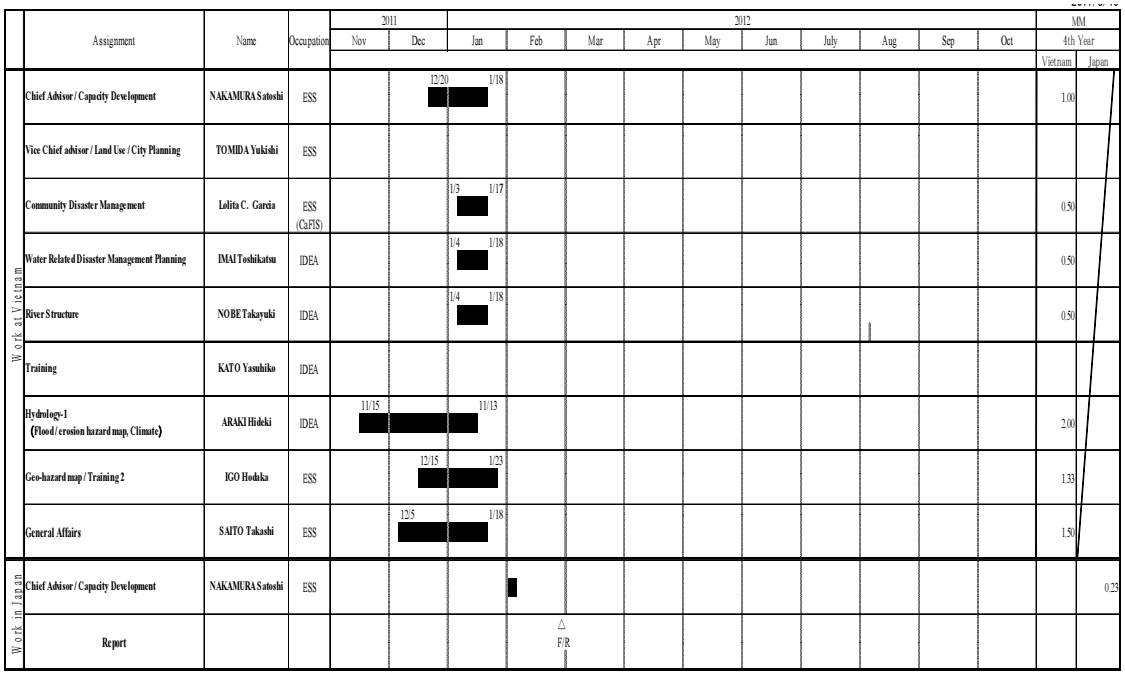


Figure 2-2 Assignment of the Project Expert (2)

Table 2-2 Short Term Expert

Year	Name	Field	Date
1st Year	Oda Hideaki	Disaster Administration	July 8 to July 12, 2009
	Ishiwatari Mikio	Flood Management	June 29 to July 12, 2009
	Noro Tomoyuki	Land slide	June 28 to July 11, 2009
	Rajib Shaw	Community Disaster	June 28 to July 8, 2009
	Matsuki Hirotada	River Bank	June 20 to July 4, 2009
	Oda Hideaki	Disaster Administration	October 18 to 23, 2009
	Ishiwatari Mikio	Flood Management	October 18 to 23, 2009
	Komaki Kenji	Climate Change	October 18 to 23, 2009
	Noro Tomoyuki	Land slide	October 18 to 23, 2009
	Matsuki Hirotada	River Bank	October 14 to 22, 2009
	Rajib Shaw	Community Disaster	October 18 to 23, 2009
2nd Year	Matsuki Hirotada	River Bank	July 25 to August 5, 2010
	Rajib Shaw	Community Disaster	September 13 to 17, 2010
3rd Year	Unoki Kazuhiro	River Bank	July 24 to 30, 2011
	Noguchi Sumihiko	Dam Management	July 24 to 30, 2011
4th Year	Okadumi Toshio	Disaster Administration	January 9 to 15, 2012

Table 2-3 Training in Japan

Year	No.	Date	Main visiting places
1st Year	6	November 14 to 26, 2009	History of Flood Management (Gifu) Traditional river bank protection (Gifu) Landslide (Hiroshima) Community Disaster Management (Saijo)
2nd Year	12	June 27 to July 9, 2010	Community Disaster Management (Nagaoka) Flood management (Gifu) River bank protection (Gifu) Flood Management History (Osaka) Dam Management (Nabari)
3rd Year	12	August 1 to 10, 2011	Flood management history (Gifu) River Bank Protection (Gifu) Integrated Flood Management (Osaka) Integrated Dam management (Nara) Community Disaster Management (Kobe) Earthquake and Tsunami (Osaka)

Table 2-4 Provide Equipment

<T.T.Hue>

No.	Equipment	Detail	Unit
1	Desktop PC for Flood simulation		1
2	Note PC for Flood simulation		1
3	Flood simulation software	Mike11+2D Overland flow	2
4	Plotter	Canon IPF710	1
5	Printer	Cannon iR2022N	1
6	Projector	SONY VPL-EX5	1
7	Fax	Panasonic KX-FP206	1
8	GIS software	Arc View 9.3 Special Analyst 3D Analyst	1

＜Quang Nam＞

No.	Equipment	Detail	Unit
1	Desktop PC for Flood simulation		1
2	Note PC for Flood simulation		1
3	Printer	Cannon iR2022N	1
4	Projector	SONY VPL-EX5	1
5	Fax	Panasonic KX-FP206	1
6	GIS software	Arc View 9.3 Special Analyst 3D Analyst	1

Table 2-5 List of the Output

Year	Name of the Report	Number
1st Year	Inception Report (IC/R)	Vietnamese 22 copies English 10 copies Japanese 10copies CD-ROM 1 copies
	Progress Report (No.1)	Vietnamese 22 copies Japanese 10copies
	Progress Report (No.2)	Vietnamese 22 copies Japanese 10copies
	Interim Report (1st year)	Vietnamese 22 copies English 10 copies Japanese 10copies CD-ROM 7copies
2nd Year	Progress Report (No.3)	Vietnamese 22 copies Japanese 5 copies
	Flood Hazard map(Huong river, Thu Bon River)	Vietnamese 22 copies English 22 copies CD-ROM 10copies
	River Bank Erosion Hazard map(Huong river, Thu Bon River)	Vietnamese 22 copies English 22 copies CD-ROM 10copies
	Geo-hazard map in pilot project district	Vietnamese 22 copies English 22 copies CD-ROM 10copies
	Progress Report (No.4)	Vietnamese 22 copies Japanese 5copies
	Interim Report (No.2)	Vietnamese 22 copies English 10 copies Japanese 10copies CD-ROM 7copies
3rd Year	Progress Report (No.5)	Vietnamese 22 copies Japanese 5copies
	Integrated Flood Management Plan (Huong river, Thu Bon River)	Vietnamese 6 copies English 2 copies Japanese 3copies CD-ROM 3copies
	CBDRM Manual	Vietnamese 6 copies English 2 copies Japanese 3copies CD-ROM 3copies
	Guideline for low cost small scale River Bank Protection	Vietnamese 6 copies English 2 copies Japanese 3copies CD-ROM 3copies
	Progress Report (No.6)	Vietnamese 22 copies Japanese 10copies
	Interim Report (3rd Year)	Vietnamese 22 copies English 10 copies Japanese 10copies CD-ROM 7 copies
4th Year	Integrated Flood Management Plan (Huong river, Thu Bon River)	Vietnamese 22 copies English 22 copies Japanese 3copies CD-ROM 10 copies

	CBDRM Manual	Vietnamese 22 copies English 22 copies Japanese 3copies CD-ROM 10copy
	Guideline for low cost small scale River Bank Protection	Vietnamese 22 copies English 22 copies Japanese 3copies CD-ROM 10copy
	Final Report	Vietnamese 22 copies English 10 copies Japanese 10copies CD-ROM 7copies

Table 2-6 Local Expenditure

1) Subcontract to Local Contractor

Year	Contents	Amount（USD）
1	River Bank Design and Survey(Quang Nam)	10,802
	River Bank Design and Survey（T.T.Hue）	12,798
2	River Bank Construction（Quang Nam）	95,836
	River Bank Construction（T.T.Hue）	92,857
3	Survey of highway and railway	13,240
	Revision of DEM Data	12,650

2) Local Expenditure

Year	Contents	Amount（USD）
1	Printing	5,900
	Rent, Depreciation, Consumables	1,000
	Local staff employment	19,200
	Travelling expense	19,700
2	Printing	4,200
	Rent, Depreciation, Consumables	25,500
	Local staff employment	58,600
	Travelling expense	26,400
3	Printing	4,800
	Rent, Depreciation, Consumables	5,300
	Local staff employment	63,700
	Travelling expense	14,200
4	Printing	900
	Rent, Depreciation, Consumables	5,500
	Local staff employment	11,400
	Travelling expense	5,700

3. Overall Project and Capacity Development

3-1 Evaluation of the Overall Project Effect

A questionnaire survey was conducted to understand the opinion of the Vietnamese side for the effect of the project. Twenty two (22) answers were returned from C/Ps and related agencies. The questionnaire sheet is attached in this report as Appendix 3 and the questionnaire results are summarized in Table 3-1.

Based on the questionnaire results the Vietnamese side evaluated the project as enhancing all areas of disaster management capacity. Especially, capacity was developed in the engineering field such as hazard mapping, community disaster management and general issue of natural disasters. Further, by the comment in the questionnaire (Table 3-2), the continuation and expansion of the project especially river bank protection and community disaster management is expected by the Vietnamese side.

Table 3-1 Result of the Questionnaire for Capacity Enhancement by the Project

1) Summary of the Answer

		Drastically improved	Improved	Slightly improved	No change	Worsened	Not known
Engineering Capacity							
	River Bank Protection	42	58	0	0	0	0
	Community Disaster Management	68	32	0	0	0	0
	Flood Simulation	54	31	15	0	0	0
	Planning for Disaster	48	52	0	0	0	0
	General issue of natural disaster	73	27	0	0	0	0
	Hazard Mapping	59	32	9	0	0	0
Institutional Capacity							
	Early warning	48	52	0	0	0	0
	Evacuation	42	58	0	0	0	0
	Awareness of residents	57	38	5	0	0	0
	Disaster Institution	25	75	0	0	0	0
	Emergency Response	57	37	5	0	0	0
	Structure measures	52	43	5	0	0	0

All items were not answered by all response. So, please note percentage. For example, total 19 response for river bank erosion, and 8 answer is “drastically improved : 42%” and 11 answer were “improved:58%) (unit : %)

2) Comment

Summary of the Comments	Number of comments
・Hope to continue overall project	2
・Hope to continue and expand river bank protection	4
・Hope to continue and expand awareness raising and capacity development for the local residents	4

Based on the above questionnaire, interviews at various organizations / persons and the statement at the final workshop, the project was appreciated from the viewpoint of three Ps.

The first P is “Practical”. The practical technical transfer based on the high engineering level was highly appreciated from the Vietnamese side. For example, the river bank protection technique was effectively transferred through cooperation / discussion between JICA experts and Vietnamese counterparts executing pilot projects. The situation was the same in community disaster management, flood simulation and hazard mapping.

The second P is “Personality”. The project was carried out under the good relationship between JICA experts and their Vietnamese counterparts. This good relationship was owned to the nice personality of the related persons and the mentality of the Vietnamese and Japanese members..

The third P is “Plan”. An integrated flood management plan was formulated based on the detailed flood simulation and impact assessment by using this model. This plan formulation based on the firm engineering base and the technique of GIS and flood simulation was highly appreciated by the Vietnamese side.

In the final workshop, sectional meetings for each output were held. The contents and results of the meetings are described in each section from the next chapter. Based on this discussion the project can be concluded as follows.

a) The project was very useful for disaster management in Vietnam.
b) Comparing other projects, this project is appreciated from the following points.
 - Practical : Various practical technologies were transferred
 - Personality : Good relationship between Vietnamese counterpart and JICA expert
 - Plan : Integrated flood plan based on the engineeering background and detailed simulation
c) Project Phase 2 is essential to proceed Vietnamesse disaster management. It is important to deepen each scheme of project phase 1, and to include diaster education in school. Further, it is important to expand “Low cost small scale riveer bank protecsion technology”,”Enhancement community residents disaster management capacity”,”Ennhance flood simulatoin / GIS / disaster management technology” to other central Vietnam provinces.

3-2 Capacity Development in Central and the Province

3-2-1 Summary of the activities in 1st to 3rd year

1) Workshop and seminar

Various workshops and seminars were held in this project. Large workshops and seminars of more than 30 attendants are as follows.

a) Kick off workshop
: July 2009 at Hanoi and T.T. Hue

b) TOT workshop
: August 2010 at Da nang
: July 2011 at Da Nang

c) Seminar for natural disaster management
: August 2010 at Quang Nam and T.T. Hue

d) TOT seminar for CBDRM failitator
: August 2010 at Quang Nam and T.T. Hue

Further, various small seminars of less than 30 attendants targeting C/Ps and related organizations were held. The main small seminars are as follows.

- Climate change seminar (Da Nang)
- Warning and evacuation seminar (Hue, Quang Nam)
- Community Disaster Management Seminar (Hue, Quang Nam)
- Integrated Flood Management Plan Seminar (Hue, Quang Nam)
- Flood Simulation Seminar (Hue, Quang Nam)
- GPS utilization seminar (Hue, Quang Nam)
- River Bank Protection Seminar (Hue, Quang Nam)
- Hazard Mapping (Geo-hazard) Seminar (Hue, Quang Nam)
- Big Natural Disaster Seminar (Quang Nam)
- Earthquake and Tsunami Seminar (Hanoi, Quang Nam, Quang Ngai, Hue, Da Nang)
- Rural Disaster Management Seminar (Quang Nam)

2) On the Job Training and Technical Transfer

Technical transfer was carried out mainly on the job training during project execution. Further, systematic technical transfers and training for flood simulation and GIS technique were carried out responding to the Vietnamese side's request. The contents of the activities in flood simulation and GIS technical transfer are described in the activities in the 4th year below.

3-2-2 Activities and Output in the 4th Year

1) Project Report Meeting at Hanoi

A project output report meeting was held on January 5th 14:00 to 16:00 at JICA's Hanoi office. The main target of this meeting was Donors, NGO and central government. The attendants total: 2 persons came from AUSAID(1), WVV(1), ADB(1), SCJ （２） ,UNDP （２）、 UNICEF(1), Red Cross(1),WB(1),PDC(1), Oxfam(1) , MOET(1), MARD（3）, JICA（5）.

After explanation of the project output from JICA experts, comments and questions were given from the attendants. Most of the comments were the appreciation of the project output. However, some suggestions "Duplication with other donors activities should be considered", "The target of the river bank protection guideline should be clarified", "Utilization method and target of the CBDRM manual should be clarified more thoroughly" were given from the attendants.

2) Final Workshop

A final workshop was held from January 12 to 13, 2012 at T.T. Hue and Da Nang. Site visiting at T.T. Hue was carried out in the first day. The attendants visited the river bank protection pilot project at Kim Ngoc and community disaster management pilot site at Huong Tho Commune and Quang An Commune. An in- room workshop was held on the second day at Da Nang. The keynote lecture by short term expert Mr.Okadumi, and a presentation from the long term expert Mr. Miura and a presentation from MARD and each province were carried out in the morning session. Sectional meetings and the report from these meetings were carried out in the afternoon. The program of the second day workshop is shown in Table 3-2.

The number of the attendants was 144 persons (MARD 10, other central organization 8, project C/Ps 20, project province, district and commune 54, other provinces 30, Donor / NGO 10, embassy, JICA experts 20).

The workshop was successfully carried out owing to aggressive cooperation and discussion from the Vietnamese side. Further, NHK World staffs pictured and interviewed participants during the workshop. This result will be broadcast as the program of "river bank protection and bamboo gabion".

	
Kim Ngoc (river bank protection)	In room workshop at Da Nang

Table 3-2 Final Workshop Program (2nd day)

PROGRAM

8:30 - 8:50	Opening address, byMr. Nguyễn Xuân Diệu, MARD
8:50 - 9:10	Welcome speech, by Mr.SHIMIZU Akira, JICA Vietnam Office
9:10 - 9:40	Keynote speech, by Mr.OKADUMI Toshio, ICHARM
9:40 - 10:00	Coffee break
10:00 - 10:20	Outline of the project, by Mr. MIURA Hirohisa, JICA expert
10:20 – 10:40	Assessment and effectiveness of the project, by Mr. Nguyễn Hữu Phúc, MARD
10:40 - 11:00	Output in THUA THIEN HUE Province, by PMU T.T.Hue
11:00 - 11:20	Output in Quang Nam Province, by PMU Quang Nam
11:20 - 11:30	Output in Quang Ngai Province, by PMU Quang Ngai
11:30 - 11:40	Explanation of Sectional meetings
11:40 - 13:10	(Lunch)
13:10 – 14:40	Sectional Meetings 1. Overall project and capacity development 2. River bank protection 3. Flood simulation and IFMP 4. Community Disaster Management
14:40 – 15:10	Coffee Break
15:10 – 15:50	Presentation from each section
15:50 – 16:10	Conclusion of the project, by Mr. MIURA Hirohisa
16:10 – 16:20	Closing Remarks, Mr. Nguyễn Xuân Diệu, by MARD

3) Flood Simulation Technical Transfer

(1) Activities and technical transfers in 1st to 3rd year

In T.T.Hue, on the job training (OJT) for the flood simulation and modeling was conducted through the day by day activity with C/P. Half day "Mini Training" was also conducted especially for specific subjects.

In Quang Nam, OJT activity for flood simulation modeling was not conducted, since the Thu Bon river basin flood simulation model was developed by the WB project. However, the training on flood simulation modeling for one month was implemented for DARD Quang Nam personnel.

OJT on flood simulation and compilation of the results were conducted and "Mini Training" especially for specific subjects was also conducted. Further, upon the request of DARD Quang Nam, a technical seminar on "Flood Hazard Map Considering Climate Change Impact" was also conducted on 8, Jul. 2011.

(2) Activities and technical transfers in 4th year

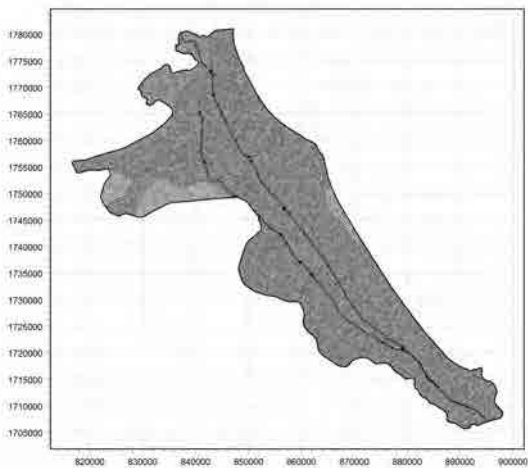
a) Training on the Thu Bon River Basin Flood Simulation in Quang Nam

Around 40 days of training were conducted to enhance the modeling skill of flood simulation and the proposed expressway condition was considered as a case study.

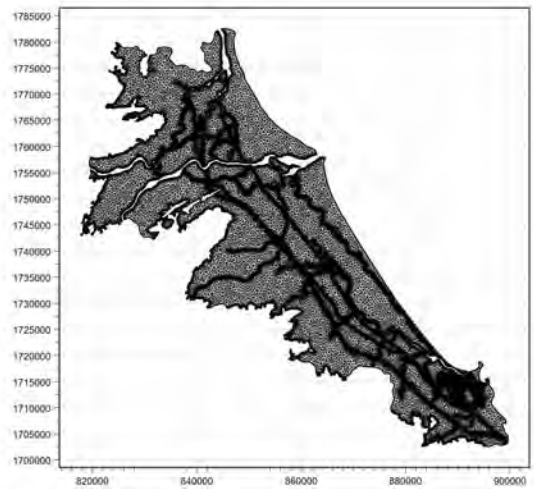
A practical training method was applied and trainees modified and adjusted the existing model by themselves under the guidance of the JICA expert. Major training subjects are as follows;

- Orientation: Outline of the training, scheduling
- Installation of application software: to install MIKE Flood and ArcGIS into the working PC
- Data arrangement 1: to convert hydrological data (rainfall, water level and discharge) into the model input format
- Data arrangement 2: to convert CAD drawing data (topographic survey results) into the GIS data for the modification of the 2D mesh model
- Data arrangement 3: to prepare model input data of drainage opening structures, such as bridge and road and waterway box culvert, based on the structures specifications provided by the Expressway Project
- Data preparation for watershed delineation: to learn the download process of ASTER GDEM and to master raster data analysis (mosaic, conversion of coordinate system and cell size modification) by using GIS
- Watershed delineation by using GIS: to clarify the catchment areas of sub-basins by using ArcGIS (Arc Hydro Tool)
- Modification of the 1D river model alignment: (1) to convert the MIKE11 data into ArcGIS, (2) to modify the river model alignment by using GIS and (3) to convert GIS data into MIKE11 1D river model
- Modification of the 2D mesh model 1: to eliminate the 1D river model area from the existing 2D mesh model
- Modification of the 2D mesh model 2: to setup the expressway mesh model into the modified 2D mesh model
- Execution of flood simulation: to execute the flood simulation model after the detail reconfirmation of all input data
- Compilation of simulation results: (1) to extract maximum flood inundation water level and water depth, (2) to convert extracted data into GIS and (3) to prepare the flood inundation maps using GIS

Outline of the modified 2D mesh model as the result of training is shown in Fig. 3-1.



Before modification (WB model)



After modification (result of training)

Fig. 3-1 Modification of 2D mesh model

Training on Thu Bon river basin flood simulation

b) Training on Huong River Basin Flood Simulation in T.T.Hue

Around 20 days training was conducted to enhance the application skill of the flood simulation model. "Flooding situation depending on the dam operation" was examined through this training and trainees from DARD and DOC (Department of Construction) in Quang Nam province participated in this training course.

In this training, two courses (basic course and advanced training course) were organized. Trainees modified and adjusted the existing model by themselves under the guidance of the JICA expert. Major training subjects are as follows;

- Orientation: Outline of the training, scheduling
- Installation of application software: to install MIKE Flood and ArcGIS into the working PC

Basic training course:

- Review of model components: to confirm the required input data for flood simulation by using existing flood simulation models
- Application of GIS: to clarify the contents of GIS data modified as the drawings for an integrated flood management plan
- Basic GIS operation: (1) to learn the operation of ArcGIS and identify the value of point elevation, maximum flood inundation water level and depth, (2) to examine the cross-section based on the DEM data and to export this into a spreadsheet file

Advanced training course:

- Review of existing model's input data: to confirm the input data of each simulation case for the Integrated flood management plan study
- Modification of input data: to modify the input data based on the new records of rainfall and dam outflow, and to execute a flood simulation
- Study on dam operation scenario: to examine the probable dam operation and required data through the technical meeting with JICA experts
- Preparation of additional input data: to convert the forecasted daily rainfall into a model input format for hourly rainfall
- Elimination of error: to learn the causes of errors in the 2D model which occurred in re-development of the Thu Bon river flood simulation model, and to eliminate the errors by re-modifying the 2D model


Training on Huong river basin flood simulation

(3) Collaboration with "Da Nang – Quang Ngai Expressway Development Project"

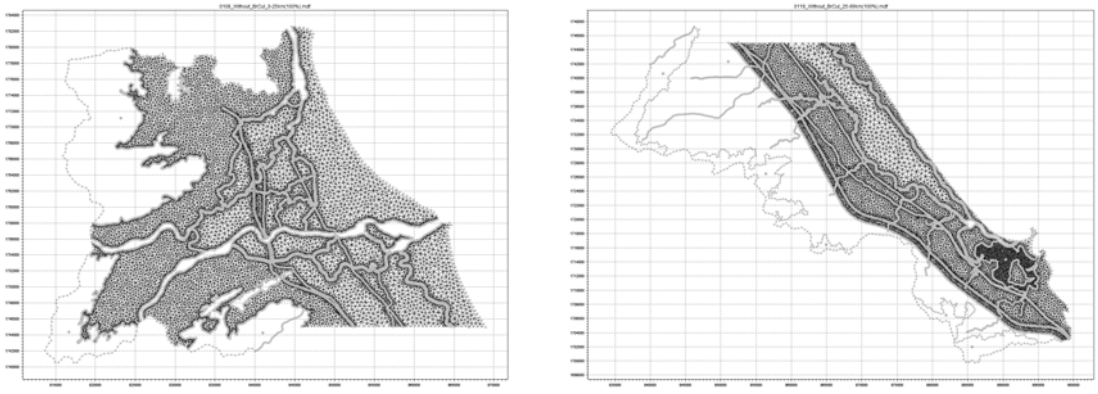
During this activity period, the following data which are required for the modification of flood simulation model were provided by "Da Nang – Quang Ngai Expressway Development Project"

- Hydrological data record (hourly rainfall, water level and discharge) on the 2009 flood
- Detailed topographic survey results along the proposed expressway
- Flood mark survey results along the proposed expressway
- Specifications of drainage opening of structures (bridge and road and water way box culvert)

Based on the above additional data, the following study was conducted in collaboration with the Expressway Project under the technical advice of the JICA flood expert for flood simulation.

- Development of a flood simulation model(Northern model and Southern model) which can simulate the flooding from smaller catchments upstream of the proposed expressway
- Calibration and verification of the model under the conditions of 2009 floods
- Clarification of inundation sections
- Flood inundation analysis on the 2009 flood
- Flood inundation analysis on probable floods (1% and 5% flood)
- Study on flood inundation damage risk shifting

As an example of model development, an overview of the 2D mesh model and verification of the 2009 flood are shown in Fig. 3-2 and 3-3. Example of flood simulation results are also shown in Fig. 3-4.



Northern model　　Southern model

Fig. 3-2　Overview of 2D mesh model

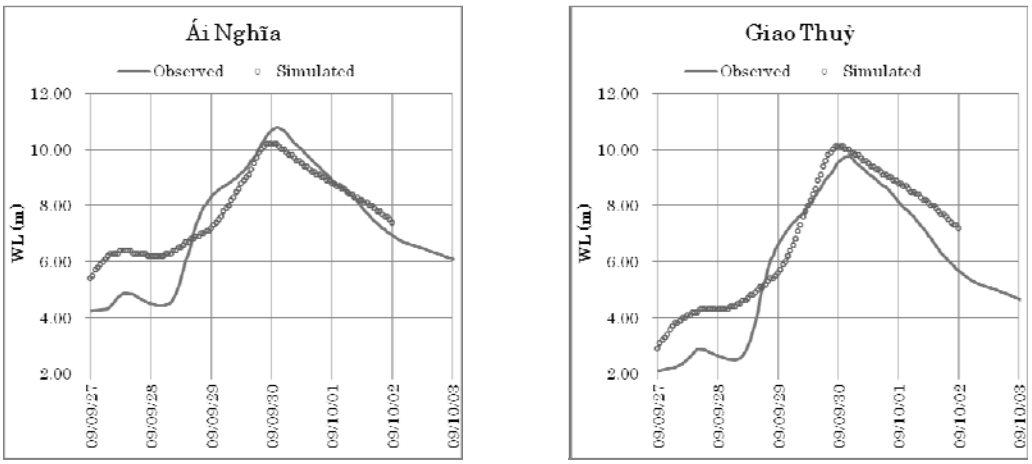


Fig. 3-3 Verification of 2009 flood water level at the station

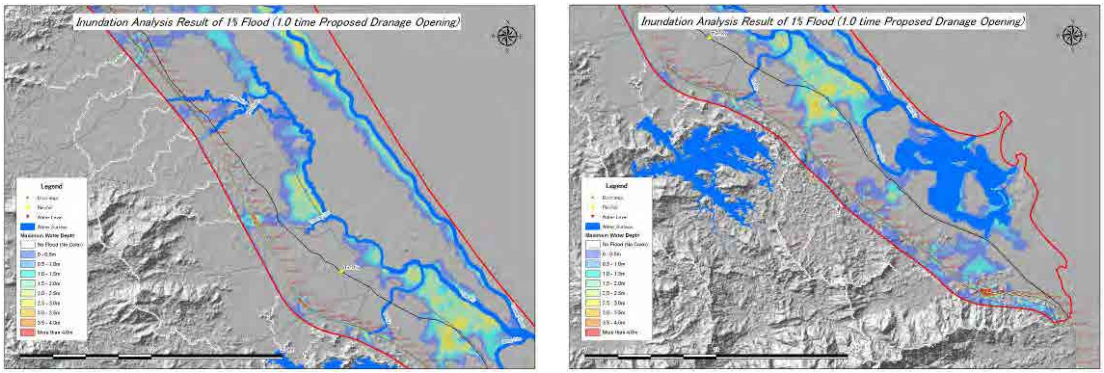


Fig. 3-4 Water depth flood inundation map (1% flood, Southern model)

C/Ps in charge of flood simulation in DARD Hue had an opportunity to visit the Expressway Project office as part of the training when the JICA expert was advising about the development of a flood simulation model as technical collaboration with the Expressway Project. It was a great chance for them and they realized the practical use of flood simulation models.

4) GIS Technical Transfer

(1) Outline of the GIS technical transfer

Technical transfer was implemented through the activity of establishment of this GIS database. The objects and main activities of the training are shown in Table.3-3.

Table 3-3 Objects and Main Activity of Training on the GIS

Object	Main Activity	Period
Spatial Analysis on Arc GIS	Application of raster analysis of Arc GIS <Preparation> -Transformation of ASTER-GDEM -Cut off Raster and Feature Data, -Drawing up of Hliishade-DEM <Extract of Risk Area> -Reclassify Flood Result -Conversion to Polygon from Raster -Extract Risk Area	From 8 Aug 2011 To 13 Aug 2011
Data updating on Arc GIS	Update of the Information - Create New Layer - Edit of the Layer - Edit of Attribute Table	From 8 Aug 2011 To 13 Aug 2011
Attribute Table on Arc GIS	Update of the Information - Reclassification - Basic Operation of Attribute Table - Count houses on flood area	From1 8 Aug 2011 To 19 Aug 2011
Training of Basic Operation of Arc GIS	Theme: To View Results of Flood Simulation Theme: To Create Polygon for Any Flood Depth	2011/12/19~ 2012/12/30 (Quang Nam) 2012/1/3~ 2012/1/20 （Hue）
Training of Data Conversion from Simulation Results of MIKE Series.	Theme: To View Flood Simulation Results of MIKE	2011/12/19~ 2012/12/30 (Quang Nam) 2012/1/3~ 2012/1/20 （Hue）
Training of Spatial Analysis of Arc GIS	Theme: Extraction of Point Data, Line Data and Polygon overlapped on Flood Area Polygon Theme: To Count Features of Flood Area Theme: To Process Raster Data	2011/12/19~ 2012/12/30 (Quang Nam) 2012/1/3~ 2012/1/20 （Hue）
Training of Updating of GIS Database	Theme: Utilization of the Arc GIS as Database	2011/12/19~ 2012/12/30 (Quang Nam) 2012/1/3~ 2012/1/20 （Hue）

(2) The Fourth Year Activities and Output

The Training of the GIS Database in the 4th year was implemented as shown in Table 3-3. All counterparts could not attend this training course at the same time due to their own roles in the flood season, divided short time training courses (on the job training of about 1.0 hour) were carried out every day. The same courses were repeated in response to requests from absentees.

GIS Training (Quang Nam)

GISTraining（T.T.Hue）

The training courses were held by using an operation guide in each course as training material. Since the ArcGIS software has multiple functions, training without a clear object might make trainees forget operation experience. In this view, training with operation guide material makes it possible to repeat the training and makes it unforgettable. Moreover, the trainees are able to be trainers by using these materials.

An example of the operation guides is shown in Figure 3-5. The training guide was prepared for T.T.Hue C/Ps and Quang Nam C/Ps separately. In this report the training guide for T.T.Hue is attached as Appendix 4 as an example.

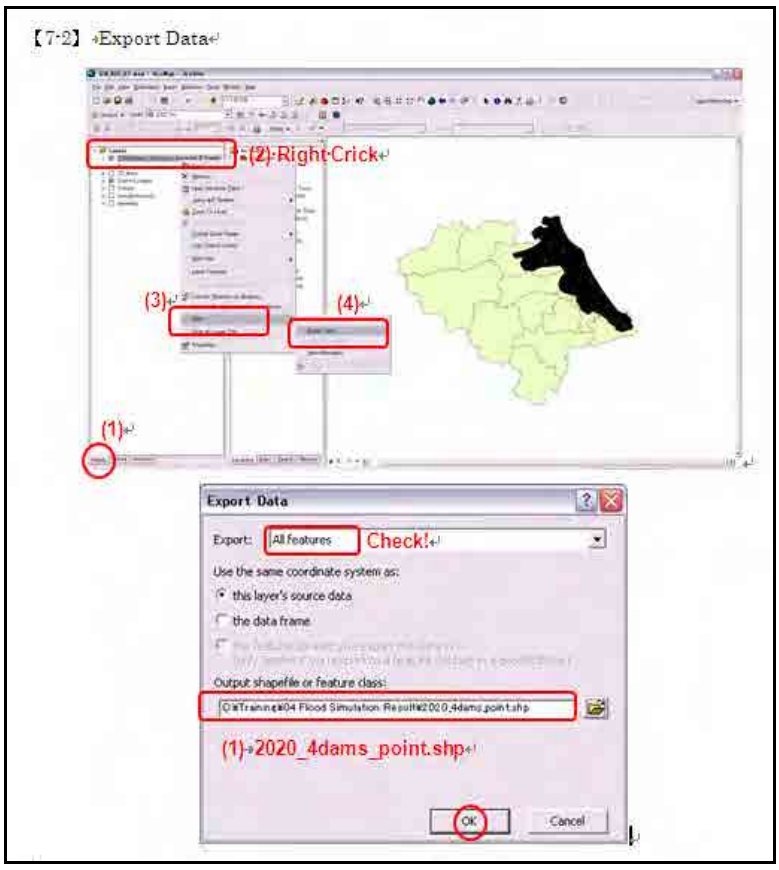


Figure 3-5　Example of GIS Training Guide

4. Integrated Flood Management Plan

4-1 Summary of the Activities and Output from 1st year to 3rd year

In the first to second year, collection of information, site reconnaissance, formulation of hazard maps (inundation map, river bank erosion map, land slide map), discussion with C/Ps and related organizations, establishment of the formulation policy of an integrated flood management plan and establishment of a flood simulation model for impact assessment was carried out.

As a policy for integrated flood management formulation, the following policy was decided upon.

1) Identification between INDRMPs and IFMPs
INDRMPs (Integrated Natural Disaster Risk Management Plans) have been formulated and cover almost all types of natural disasters taking place in the entire area of T.T.Hue and Quang Nam provinces. INDRMPs list of definite structural and non-structural measures against natural disasters to be implemented by the year 2020 together with a time schedule, expenditures, and priority of projects and responsible organizations.

On the other hand, IFMPs (Integrated Flood Management Plan) which will be formulated in this project, adopted a river basin management approach and concentrates on flood management in the Huong River basin in T.T.Hue province and the Gia /Thu-Bon River basin in Quang Nam province. IFMP's basic policy is to consider such climate change impact as increase in rainfall intensity and rising sea-levels in the future. The result of INDRMPs shall be incorporated into IFMPs as much as possible in formulating IFMPs through mutual consultation among relevant organizations.

2) Items to be evaluated in IFMPs
a) Evaluation of the inundation area and depth considering climate change impact
It is obvious to evaluate flood inundation areas and depths considering climate change impact in order to practically formulate IFMPs. The method for its evaluation should be set up based on the latest MONRE's report on climate change and sea level scenarios.

b) Selection of priority projects to the year 2020
In order to select priority projects to be proposed in IFMPs, Impact assessment using the flood inundation simulation model produced in the second year of the Project will be carried out for the purpose of evaluating effects to reduce and mitigate applied structural measures. On the basis of outcomes of the impact assessment, provincial socio-economic, land use and urban development plans 2010-2020 shall be partly reviewed and revised if necessary. The items to be considered in impact assessment are as follows:

c) Effect of structural measures to be applied evaluation

- Effect of flood control by dam and reservoir operation
- Effect of coastline dyke system
- Effect of forest conservation (recovery of rate of forest cover)
- Effect of widening and drainage of river course
- Effect of application of other structural measures

d) Current disaster prevention capacity of natural conditions evaluation

- Effect of flood mitigation capacity of present paddy fields as retarding ponds
- Effect of present national highways and railways as continuous dykes
- Effect of lagoons as flood control and mitigation ponds
- Hue City's on-going sewerage development project funded by JICA to reduce flood inundation areas and levels

e) Specific View Points

- Poverty eradication
- Socio-economic development Plan 2010-2020
- Land use plan 2010- 2020
- Promotion of tourism industry
- Conservation of world heritage
- Integrated water resources plan 2010-2020
- Agricultural Production
- Fishing and aquaculture industries
- Transportation policy and the infrastructure for transportation
- Forest conservation
- Municipal functions
- Military defense
- Public education/ School disaster education
- Public and human health
- Change of community
- Others

In the third year, an Integrated Flood Management Plan formulation team composed of related organizations was established in T.T.Hue. Based on discussion among the formulation team, site reconnaissance and flood simulation, IFMP (Integrated Flood Management Plan) was formulated in T.T.Hue. In Quang Nam, the flood simulation by World Bank was delayed but a recommendation report on better future implementation of the INDRMP (Integrated Natural Disaster Reduction Management Plan) based on the flood simulation considering climate change. Both IFMP in T.T.Hue and the recommendation report for INDRMP were submitted separately.

In the first stage of the formulation of the plan, experts helped CPs to monitor and evaluate implementation of both the "Integrated Disaster Risk Management Plan of T.T. Hue province to 2020 (IDMP)" and the INDRMP of Quang Nam province. In T.T.Hue province, the expert assisted CPs to review relevant socio-economic development and land use plans in order to formulate the IFMP effectively and efficiently. In addition, the expert supported establishing and mobilizing the IFMP formulation team as one of the main tasks for the CPs.

In Quang Nam province, the expert helped to prepare a recommendation report on future better implementation of the INDRMP in consideration of climate change impact in mutual collaboration with the CPs in the province.

Formulated flood management plans are attached in this report as a separate volume.

To formulate the integrated flood management plan, impact assessment by using computer flood simulation was employed. The condition of the impact flood simulation is summarized as follows.

a) Climate Change Impact

Following conditions were agreed on IFMP meeting.

Table 4-1 Conditions of Climate Change Impact

Year	2020	2050	2100
Rainfall Increase	+1.5%	+4.0%	+7.7%
Sea-Level Rise	+12 cm	+30 cm	+75 cm

b) Flood mitigation measures for Impact Assessments

The following model conditions were applied for the impact assessment study on flood mitigation measures.

• Flood control dam operation	Huong Dien Dam: 0,30,50,70, 90,100,150,200MCM Binh Dien Dam: 0, 70MCM Ta Trach Dam: 0, 390MCM
• Widening of drainage culvert across the road and railway	Present condition, Widening of culvert
• Recovering of forest water retention functions	Rich Forest rate: 60% in 2020, 75% in2050, 100% in 2100
• Conservation of natural flood retarding basin	Present condition, Elimination of flood retarding area

MCM : Million Cubic Meter

Example of inundation prediction by flood simulation and impact assessment result is shown on the Figure 4-1 and 2.

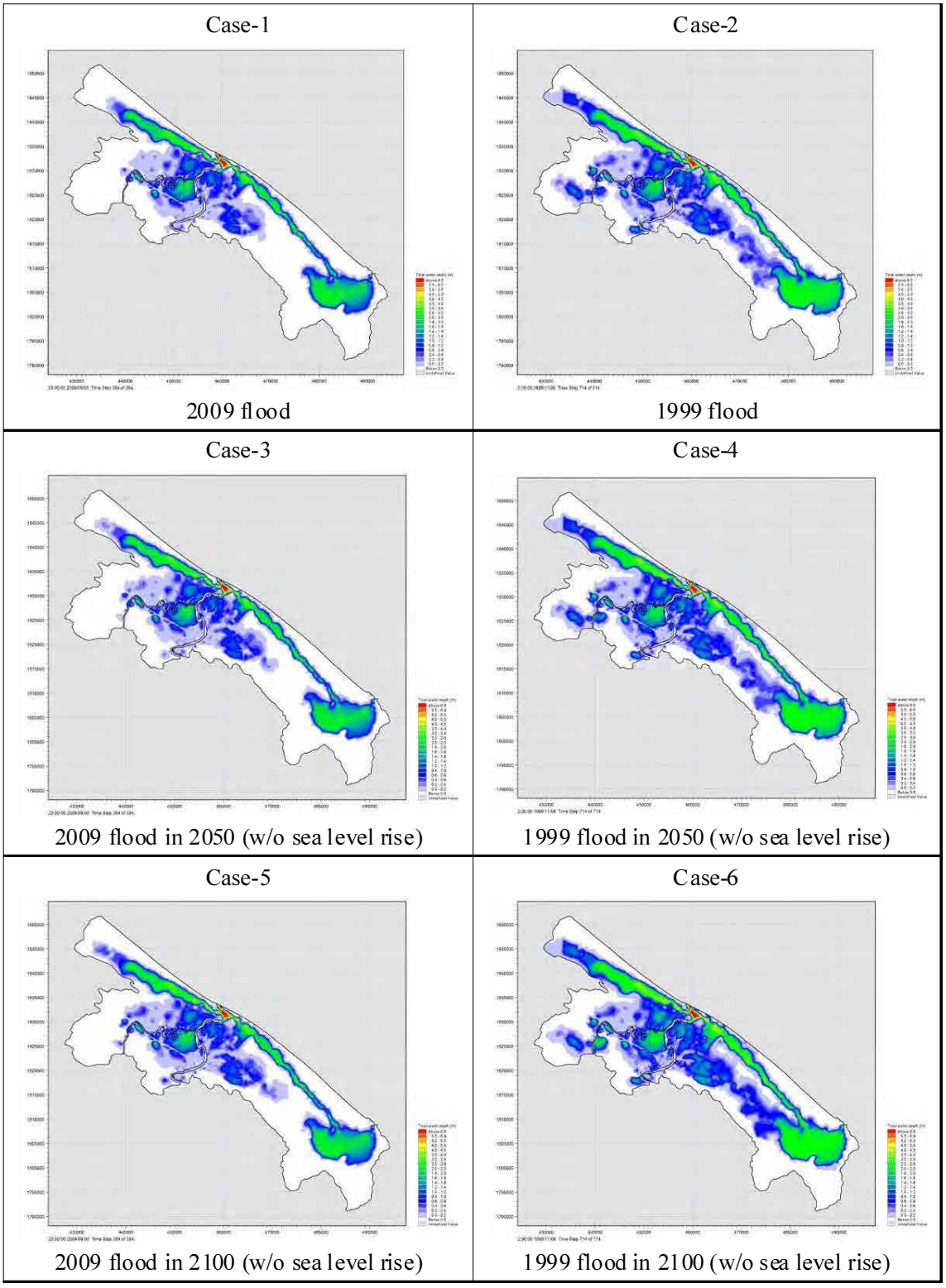


Fig.4-1 Example of the results for Huong River Basin Flood Simulation under Climate Change

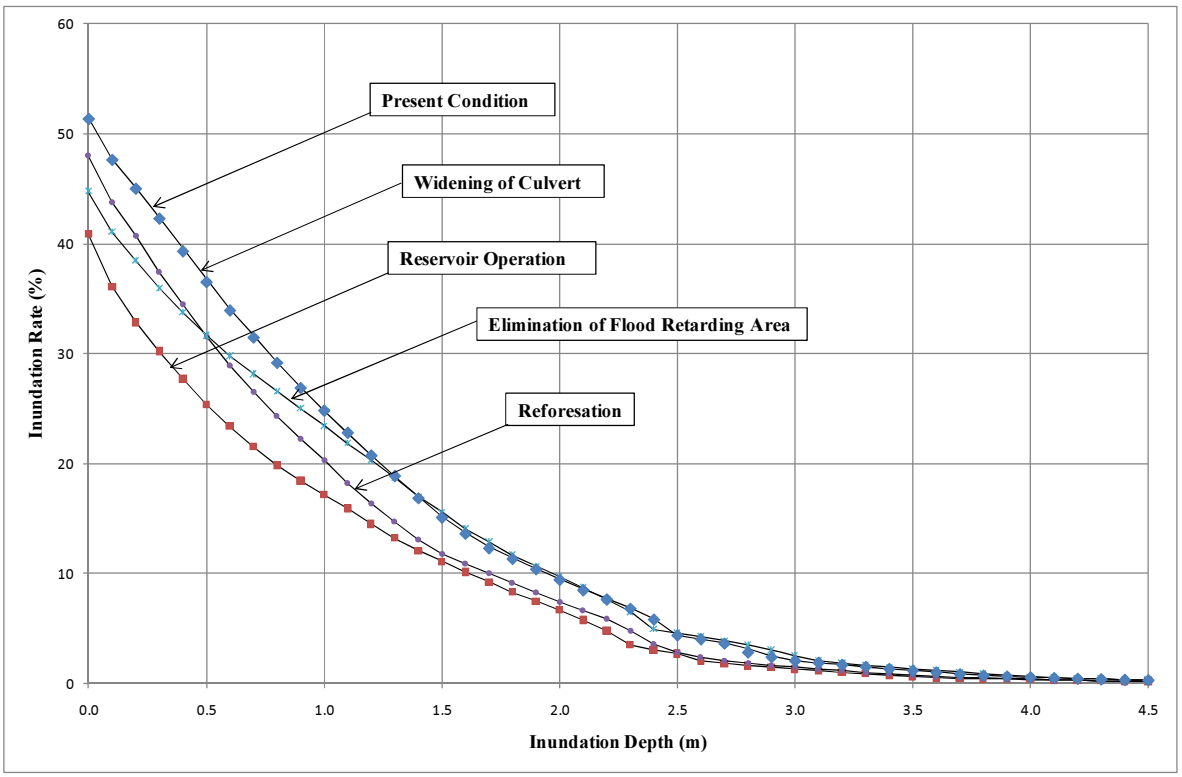


Figure 4-2 Example of the Impact Assessment Result

4-2 Activities and Output of 4th year

In the 4th year, the assignment of the expert for integrated flood management plan management was only 15 days. During this assignment period, the expert carried out the following matters.

- visited related organizations and persons and conversed about their opinions
- confirmed situation of the flood management plan in Quang Nam and T.T.Hue
- made presentation and co-chaired the final workshop and report meeting

1) Opinions for integrated flood management plan activities

Based on the workshop (especially in the sectional meeting) and visits, the opinions and suggestions from Vietnamese side can be summarized as follows.

a) The integrated flood management plan was formulated based on an engineering background and impact assessment by flood simulation. It is very good and useful.

b) The number of calculation cases for impact assessment was not enough. After the project, the Vietnamese counterpart should continue the simulation.

c) However, the training time was not enough to fully utilize the flood simulation model. The Vietnamese side wishes to continue simulation training in the second phase.

d) A dam management plan is essential to utilize and improve the accuracy of the plan. It is a very urgent matter.

2) Situation of integrated flood management plan in T.T.Hue

a) A formulated integrated flood management plan was approved from PPC of T.T.Hue on January 5, 2012. From now, the activities for disaster management (floods) in T.T.Hue will be carried out based on this plan.

b) The urgent establishment of a hydro meteorological station was suggested in the plan. PPC T.T.Hue has already proposed it to the central government. However, the final decision is not known yet.

3) Current situation for the recommended items for a flood management plan in Quang Nam

a) Establishment of provincial disaster risk management center

It is necessary to establish the center within 5 years. But for this, enactment of a government law is needed. This should be responded to by MARD. It is beyond our scope. It might be difficult since this is a political issue. But the draft for establishment of the center has already been prepared by MARD.

b) Adequate budget allocation to disaster risk management

Presently the budget for disaster risk management is very limited. Half of the budget is allocated for data acquirement at the provincial level. The budget at district level is none at present. The present situation is that the remaining budget is used for urgent rescue works for the people and the area at the time of the disaster, not for the preparation stage.

c) Appropriate combination of non-structural and structural measures under the cooperation of all related agencies

The cooperation will be enhanced by the opportunity of this project.

d) Reviewing of provincial socio-development plans using flood hazard map in consideration of climate change impact

Now, proposing this to DARD.

e) Establishment of disaster forecasting and early warning network

Waiting for the establishment of the above system, at the commune level, people observe the rainfall amount by themselves and when the rainfall amount reaches a certain threshold value, then the warning on a disaster such as a flood or landslide should be given to the people and necessary actions would be taken to minimize the disaster at commune level.

f) CBDRM should be deployed in the school curriculum

At the provincial level, the above is already decided to be implemented according to decree No. 1002. But due to the lack of budget, it has not been implemented yet.

g) Promotion of riverine and coastal forests

This is very important. In the northern part of the province, there exists a tourism industry and forestation is difficult to implement. In 2003 to 2004, there was a project of forestation. But after that a tourism project was started and some part of the forest was cut down.

h) Establishment of an integrated operation system for multi-purpose large dams

Presently there exist 10 power generation reservoirs. In 2015, 8 power generation reservoirs are planned to be constructed. These will have a serious impact on the downstream areas. Accordingly the above recommendation is very important. Presently cooperation of 3 reservoirs now exists, but there are many issues due to conflict among the stakeholders.

i) Establishment of a flood drainage plan and guarantee for a flood drainage corridor in the plain areas of Vu Gia Thu Bon

Presently it is very difficult. In the province, each sector has its own development plan and they are not synchronized. At the provincial level they should be synchronized.

j) Raising residential houses' foundation: invest in and construct a community evacuation house at deeply inundated areas

In line with the above recommendation, 3 evacuation centers are now under construction. The provincial government has a plan.

k) Planning for construction of a resettlement area, evacuate people in vulnerable areas out of the riverbank erosion areas

This is now under implementation. 10,000 people in landslide areas and deep inundation areas are now being moved. In the plan, 51 areas are target areas.

l) Provision of training to improve institutional capacity for officials as well as to strengthen disaster management capacity from provincial to commune levels

The training is quite necessary but no manpower and time.

m) Establishment of a flood proofing road network

It is urgently required, but due to lack of the budget, it has not been started yet. Anyway when the road surface is to be raised, the provision of culverts must be taken into consideration.

n) Promotion of small scale river bank protection works

Construction at one site has been conducted. We have a plan to conduct river bank protection works, when possible.

o) Construction of protection works at river mouths and coastline areas

Presently we have 15 seacoast erosion sites of 70 km long. But it costs a great deal. Accordingly it is very difficult to implement.

p) Construction and upgrade of salinity prevention dike in coastal and riverine areas

There are 215 km salinity prevention dike. It was constructed in 1990 by an FAO project. But presently it is much deteriorated and need to be renovated. However there is no budget.

q) Solidification of irrigation channels and community roads

Eight hundred kilometer irrigation channel out of 3000 km has been solidified. We are waiting for another budget.

5. Community Disaster Management

5-1 Summary of the Activities and Output from 1st to 3rd year

In the 1st year, the situation of community disaster management in Vietnam was surveyed and understood. Further, a pilot project site was selected based on the criteria. A set of criteria has been identified to serve as a basis for selecting the pilot site, to wit:

- Disaster history (flood disaster and/or disaster caused by geo-hazards)
- Level of Community risk to either floods or geo-hazards
- People's Committee Officials' willingness to host the CBDRM activities
- Community's willingness to participate in the CBDRM activities
- Site accessibility
- Existence of community based organization that can take the lead in CBDRM at the pilot site
- No existing or previous CBDRM activities implemented in the candidate sites
- Site selected for riverbank protection works
- Recommended by DARD T.T.Hue or DARD Quang Nam

Considering the DARD and Commune Leaders' recommendation, results of site reconnaissance survey and using the pre-set criteria for site selection, the CBDRM pilot sites were finally selected. These are:

Table 5-1 Selected CBDRM Pilot Sites

T.T. Hue	Quang Nam	Quang Ngai
Kim Ngoc Ward in Huong Tho Commune	Thanh Xuyen Ward in Duy Thu Commune	Phuoc Loc Ward in Duc Phu Commune
La Khe Bai Ward in Huong Tho Commune	Trung Ha Ward in Cam Kim Commune	Group 12 of Chau Tu Ward in Binh Nguyen Commune
Luu Hien Hoa in Phong My Commune	Ward # 3 in Tien Loc Commune	
Com Bai Group in An Xuan Ward of Quang An Commune		

The following were implemented in the 2nd year, after the selection of pilot sites implemented during the 1st year.

a) Conduct of flood preparedness planning in nine (9) pilot sites using the CBDRM approach

- Preparation of workshop materials and translation to Vietnamese
- Organizing the workshops at the selected pilot villages
- Planning using the participatory approach

b) Review and practice of the flood preparedness plan using the role play approach where the members of the village organization implementing the flood preparedness plan execute their roles.

The 6-day planning workshops in the pilot villages were conducted. The following model was used:

Table 5-2 Model of the CBDRM Planning Workshop

Composition of participants	• Members of the CCFSC at the Village level • Commune Chairman and/or head of the Commune CCFSC • Leaders of the Women's Union • Representative of the Youth Union • Members of the Senior Citizen Group • Members of the Farmer's Union or Fishermen's Union • Other Unions that are actively operating in the pilot village
Number of participants	20-25 with 90% of the participants coming from the pilot Village. The remaining 10% comes from the Commune and District Level
Venue of planning workshop	Community Hall, school room and/or Commune Hall.
Facilitators	Quang Ngai: CMMND staff as counterpart staff designated by DARD Quang Ngai (2 staff) Quang Nam: Counterpart staff designated by DARD Quang Nam (1 staff) T.T. Hue: Counterpart staff designated by DARD Hue (2 staff)

For the 3rdyear, the following activities were carried out.:

- Review and Modification of the Flood preparedness Plan - The evacuation drill conducted in 2010 offered the opportunity to practice the functions of the members of the flood preparedness team in each commune. It also practiced the evacuation procedures and the use of the warning communication equipment.
- Action Planning - This is the last activity in CBDRM which identifies the activities needed to support the implementation of the flood preparedness plan.
- Developing the CBDRM Promotion Manual
- Final survey to determine any impact of the CBDRM in pilot sites

The following table shows the activities and the results from each activity.

Table 5-3 CBDRM Activities and Result

CBDRM Activity	Results
Review and modification of the flood preparedness plan	
Consideration for the review: • Results of the evacuation drill • New development such as new roads constructed or elevation of roads above flood level, or construction or rehabilitation of new dam • Revised composition of the Flood and Storm Control Committee at the Ward Level • Construction of new evacuation shelter	• Revised flood hazard map and therefore revised and finalized risk assessment based on the changes in the pilot wards • Finalized the evacuation procedures in consideration of the results of the evacuation drill and the location of the new evacuation shelter
Action Planning	
Consideration for Action Planning • The spread of CBDRM in other wards within the pilot commune • Sustaining the CBDRM implemented in the pilot ward • Capacity building to support the functions of the flood preparedness team • The provincial CBDRM framework for implementation of Decision 1002/QD/TTG dated July 2009.	• The commune plan to conduct CBDRM in other wards took into consideration the Provincial CBDRM framework. According to their action plan, CBDRM will be conducted in other wards of the pilot commune within the next five years. • A plan was prepared for each pilot ward, which is aimed to conduct awareness-raising and also information dissemination to make sure that the residents are well informed on the content of the Flood preparedness Plan which details the things that the residents need to do before, during and after a flood event. • Awareness-raising, according to the action plan will be complemented by the conduct of evacuation drill. Some communes plan to conduct evacuation drill annually, the others, bi-annually.
Develop CBDRM Promotion Manual	
Consideration for the CBDRM Promotion Manual • The manual is based largely on the experience of CBDRM activities in the pilot sites • The existing policies and enactments on CBDRM • The experience of other JICA projects	• A CBDRM Manual that describes the disaster context of Vietnam, provides the step-by-step implementation of CBDRM, and the requirements for the promotion and sustainability of CBDRM works.

Final Survey to determine any project impact	
Consideration for the survey • Content of the evacuation plan • Content of the flood preparedness flyers developed and distributed by the Project • Evacuation Drill experience	A random survey of household heads was conducted in all nine pilot sites. The survey was focused on the topics of things to do when flood occurs (at the beginning of the flood episode when warning information is given to the residents, during the flood when flood water has already invaded the residential areas, and after the flood when flood water has already receded and it is safe to venture out of the safe place)

	
Community Hazard Map by CBDRM	Preparation of Hazard Map

5-2 Activities and Output of 4th year

In the 4th year, the assignment of an expert for community disaster management was only 15 days. During this assignment period, the expert carried out the following matters.

- visited related organizations and persons and exchanged opinions
- confirm the situation of the pilot site and counterpart activities
- made a presentation and co-chaired the final workshop and report meeting

Based on the workshop (especially in sectional meetings) and visits, the opinions and suggestions from the Vietnamese side can be summarized as follows.

a) CBDRM activities enhanced the capacity of the pilot communes and villages in terms of an improved early warning system and evacuation procedures

a.1 Flood pole is useful to help assess the level of danger from floods

a.2 Establish the way of observing and communicating on the flood situation from commune to village and to local residents

a.3 Establish an evacuation plan: identify and summarize the information, organize teams responsible for assisting the residents to evacuate, allocate responsibilities

a.4 Evacuation drill - Organize the plan of an evacuation drill

a.5 Construct a multi-purpose structure that can serve as an evacuation center, community house or pre-school.

b) Ideas for expanding the CBDRM

b.1 Expand the coverage of CBDRM to other villages with focus on flood and landslide - mountain and coastal areas

b.2 Include a Fishermen Safety program using CBDRM

b.2 Organize CBDRM TOT training courses for District and Provincial Staff especially for provinces outside the pilot provinces of T.T. Hue, Quang Nam and Quang Ngai

b.3 Modify the CBDRM Manual to be user-specific

b.4 Use the CBDRM approach for a combined objective of livelihood development, preparedness (early warning and evacuation) and other disaster risk prevention actions

c) Identified challenges for expanding CBDRM

c.1 Too many communities vulnerable to flood and flooding. It is challenging to prioritize communities for CBDRM

c.2 Not a sufficient number of CBDRM Facilitators to cover the many vulnerable communities

c.3 Lack of sufficient financial allocation from the local institution to conduct CBDRM

Based on the confirmation and discussion during assignment period, the following matters can be recommended for community disaster management in central Vietnam.

6. Low Cost Small Scale River Bank Protection

6-1 Summary of the Activities and Output from 1st to 3rd year

In the first year, the policy of low cost small scale river bank protection was decided based on information collection, site reconnaissance and discussion with C/Ps and related organizations.

Among candidate sites inspected so far, the sites for the pilot project on riverbank protection works in DRSC were examined and discussed in collaboration with DARD taking into consideration technical, economic, social and environmental viewpoints including community willingness to participate, ease of maintenance, becoming a model for further replication to other sites, and others.

The following are the selected sites and basic concepts of the protection measures in the two targeted rivers.

1) Huong River System (T.T.Hue)

Location: Kim Ngoc Ward, Huong Tho Commune, Huong Tra District in the left bank of lower Ta Trach River

Site Selection Criteria:

- The riverbank has been eroded (300 m in long, 15 m in width eroded since 2007 Flood) and further erosion is be expected
- Flow directly attacks these eroded sites,
- The main community road (with ferry) is closely running along the river course. This road will be destroyed by bank erosion.
- 120 households in the target community, many persons affected by bank erosion
- Easy access to the site,
- Some part (slope leveling and sodding) of the protection works can be jointly carried out by community people as part of self help (community participation), and
- Community has been suffering from recurrent flooding. Therefore, Community Based Disaster Risk Management (CBDRM) in Working Group 1 and Training for Disaster Management in Working Group 1 will be jointly conducted to improve community flood management capacity.

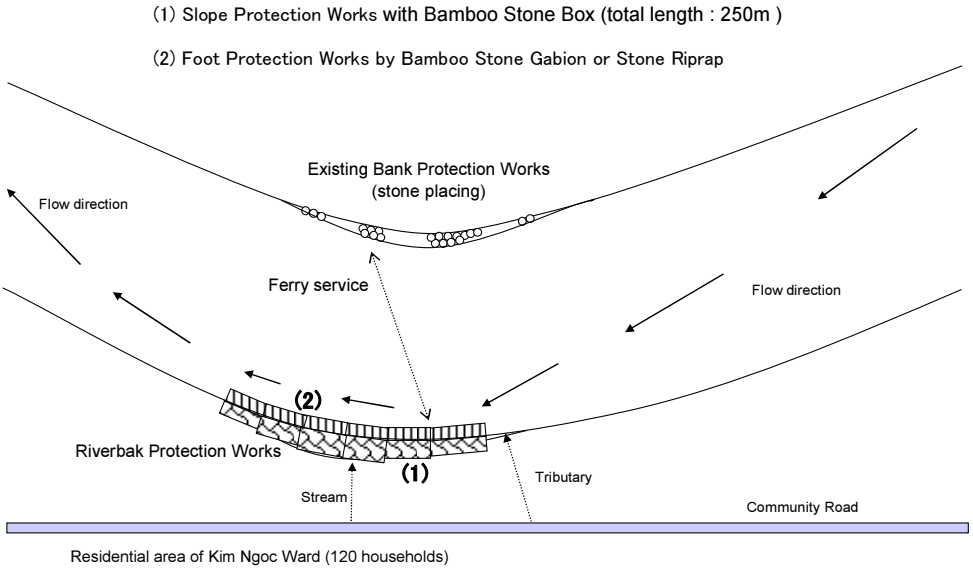
Structural Measures to be applied

The basic concept for structural measures will be determined using local materials of stone, bamboo and turf (sodding or other plants). The riverbank protection design will take into consideration the following;

- Protection works: construction of a slope protection system against eroded riverbanks,

- The slope protection system consists of (1) upper slope protection by sodding, (2) lower slope protection by stone placement, (3) foot protection by bamboo stone mattress and (4) river bed in front of root protection by bamboo stone gabion, and
- The above (1) works will be carried out mainly by community people in view of community participation.

The following shows the basic design of the slope protection system at Kim Ngoc in T.T.Hue Province.



Data source: JICA Expert Team

Figure 6-1 Basic Concept at Kim Ngoc Ward in Huong River

2) Thu Bon River System (Quang Nam)

Location: Thanh Xuyen Ward, Duy Thu Commune in Duy Xuyen District in the right bank of middle Thu Bon River

Site Selection Criteria:

- Riverbank has been eroded (500 m in length) and further erosion is be expected
- The main community road is closely running along the river course,
- 250 households along the above community road, many persons affected by bank erosion
- Flow directly attacks these eroded sites,
- Easy access to the site and workability is good,
- Community has been suffering from recurrent flooding. Therefore, CBDRM and training

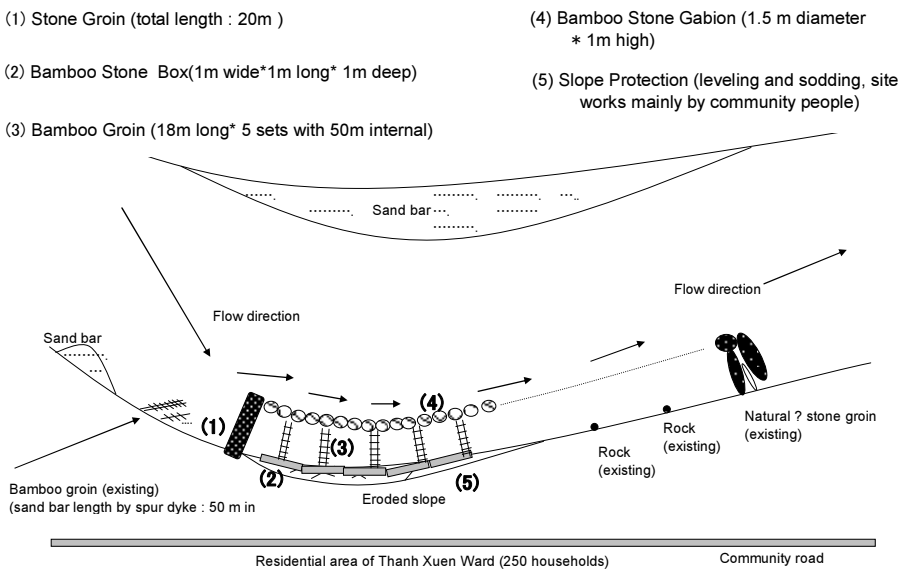
will be jointly conducted to improvement of community flood management capacity,

- Objective commune constructed bamboo spur dyke in February 2009,
- Some part (slope leveling, sodding and prefabrication of bamboo gabion nets) of the protection works can be jointly carried out by community people as part of self help (community participation), and
- Similar situation can be found along Thu Bon river. The method can be utilized in another sites.

Structural Measures to be applied

The basic concept for structural measures will be determined using local materials of stone, bamboo and turf (sodding or other plants). The riverbank protection design will take into consideration the following and further discussion will be needed for finalization.

- Protection works: construction of a flow control system by means of stone spur dyke, bamboo stone mattress, bamboo stone gabion and bamboo spur dyke,
- Flow control system consists of (1) stone spur dyke to change flow direction towards the center of the river course, (2) bamboo stone mattress to protect the foot of the eroded riverbank, (3) bamboo spur dyke decrease of flow speed aiming at acceleration of sedimentation and (4) bamboo stone gabion to guide flow direction.



Data source: JICA Expert Team

Figure 6-2 Basic Concept Thu Bon River

In the second year, design and construction work of the pilot project was carried out. The structures were handed over to the commune or district on Sept.18 2010 (Kim Ngoc Site) and on Oct.2 2010

(Tanh Xuen site).

The situation of pilot project site is shown on the picture below.

Kim Ngoc Pilot Project Site (T.T.Hue Province)

Before Works

Overview from Downstream

Overview from Upstream

Stone Groin

Bamboo Groin and Gabion

Thanh Xuyen Pilot Project (Quang Nam Province)

In the third year, monitoring and evaluation of the pilot project and formulation of the low cost small scale river bank protection guideline was carried out.

Based on the evaluation, it can be said that the objectives of the pilot projects were satisfactorily attained in the pilot project on riverbank protection works in view of: 1) verifying small scale and low cost riverbank protection works to cope with community needs three Key Factors of 1) Material Availability, Technical Capability and Financial Reasonability), 2) develop disaster coping capacity for related persons in community/commune/district level by participation in construction works (totally 970 person/day participated) and 3) learn lessons for further implementation of similar nature works throughout the nation.

The low cost small scale guideline was elaborated in MARD and will be approved soon. The guideline has been attached to this report as a separate volume.

6-2 Activities and Output of 4th year

1) Pilot Project on Riverbank Protection Works

After completion of the pilot project implemented in 2010, the constructed riverbank protection works (at Kim Ngoc and Thanh Xuyen sites) have been going for almost 2 years. The general conditions of the works have been monitored by the community people.

On Jan. 5 and 9 2012, the counterparts and JICA expert conducted site inspections including interviews to the concerned persons at the sites. According to the interviews, it revealed that it has no serious issues with the works at both the sites. By visual judgment at the sites, the works are functioning well not only as riverbank protection measures but also from the environmental aspect, which is creating biotope spaces covering the whole of the respective riverbanks. The following pictures show the present conditions.

Downstream View Upstream View

Site Pictures at Kim Ngoc

Downstream View Slope Condition

Current Condition of Stone Groin (as of Aug.2011)

Site Pictures at Thanh Xuyen (as of Jan.2012)

At Thanh Xuyen site, there is no problem on the whole for the works. However, it was observed in the system, that some stones in the head of the groin were washed out by the last 2010 floods, as seen in the above picture. It is recommended as a forward-looking effort, that additional foot protection works be made by means of riprap stones in view of further consolidation of the head of the stone groin against flood power in the typhoon season. Furthermore, some parts on the berm in the slope covered

by grass have been cultivated by local people as seen in the above picture. This activity will be one of reasons for slope failure in the future. It is recommended to regulate this by discussion in the target community.

2) Final Workshop

MARD and the JICA team opened a briefing session at Hanoi and a final workshop in Hue and Da Nang for explanation of the outcome obtained throughout various activities of the project.

The main comments / suggestion in river bank protection sectional meeting in the final workshop can be summarized as follows.

- Low cost small scale river bank protection is very important. The pilot project and guideline in this project was very useful. It is strongly desirable to continue and expand this assistance by JICA.
- The guideline is effective for installing small-scale and low-cost structures. The guideline has been submitted and will be approved; it is more suitable to expand this structure work.
- In the guideline, an implementation structure for small scale and low cost is clearly explained so as to expand similar nature works easily at community levels.
- For further expansion/replication of similar nature works nation-wide, dissemination of an implementation structure should be made widely to community levels by each participant in the sectional meeting.
- However, for large rivers, it is difficult to apply a small-scale and low-cost structure.
- Structural measures should be applied considering target river characteristics. However, the basic concept for the works is the same as this guideline's indications (to control/weaken flow speed and provide structures to protect riverbank slopes against flow speed, rainfall and groundwater).
- In the implementation of the works, community people in the target site must participate from the preparation to operation stages, especially in construction of the site works and monitoring after completion (maintenance by community).

6-3 Suggestion for the Low Cost and Small Scale River Bank Protection Works

The guideline is to be attached as a reference document to the revised Sectoral Standard: Flood Control Riverbank Protection Works by MARD. Small scale and low cost protection works with a community participatory approach is one of the activities to build a disaster resilient society. For effective utilization of this guideline and further project implementation nationwide, the following recommendations are provided.

A guideline on riverbank erosion management has been prepared focusing on: 1) small scale and low cost riverbank protection works by using local materials of stone, wood, bamboo. etc., and aiming at 2) development of disaster coping capacity for the community/commune/district level by means of participation in the site works during construction and 3) further replication of constructing similar nature works in and out of the pilot sites nationwide. Based on the formulated guideline, the necessary items

will be officially promulgated and regulated by MARD for further replication of similar nature works on a nation-wide basis.

The agenda will be raising funds (budget allocation) for the implementation of the works. Raising funds and implementation structures in the guideline will surely be regulated and legislated within MARD and the PPC administration.

In the guideline, implementation structures for small scale river bank protection are stipulated as follows ;

Survey/design: by Commune or District under direction of PPC and PCFSC,
Financing of required cost for planning, design and construction works: by PPC in line with Regulation by Laws on the State Budget,
Construction works: by Contractor hiring community people as laborers,
Supervision of construction works: by Ward or Commune under direction of PCFSC,
After construction of works: transferred ownership to Commune and
Monitoring/maintenance/repair: by Ward (as actual owner of structures) under technical direction and financing by PPC including PCFSC.

The PPC of local government is to manage small scale and low cost works. Ahead of pilot project formulation, implementation structures or the process of such small scale works was repeatedly discussed in many communities in T.T.Hue and Quang Nam provinces. Similarly, the same discussions were held in the outdoor and indoor workshops organized in the 1st and 2nd working period in this Project. A proposition was for implementation structure and the responsibility for carrying out small scale and low cost works.

Based on the above discussions, an implementation structure and responsibility consisting of a community basis process was specified in view of improving mutual and self help in the target community. In the pilot project, necessary coordination and site works were favorably carried forward in the integration approach of local government, community and contractors. Throughout the practices at 2 pilot sites, the proposed implementation structure and responsibility was proven as a framework of the implementation process to be standardized. In the following workshop, some provinces organized a special section for implementation of such works. From the above, the proposed system for implementing small scale and low cost works was adopted in the guideline.

In order to implement and replicate the small scale riverbank protection works and ensure their sustainability, the following 3 key factors are important and must be kept in mind.

Technical capability: easy construction and repair works having simple and flexible structures
Material availability: easy procurement of materials of stone, bamboo, grass, etc.

Financial reasonability: low initial and maintenance cost

In addition to the above, effective construction supervision is important to construct the works in line with the design document.

7. Project Outcome

Project activities and outputs were described in the chapter before. In this chapter, the project outcome is summarized according to the PDM.

7-1 Organization capacities of disaster management at provincial, district, and commune levels are developed

1) Capacity development through big workshops

Seven big workshops were held and 710 persons attended these seminars. The main theme of the workshops are connected to project activities such as “Integrated flood management”, “Community disaster management”, ”River bank management”. The main target of these workshops is counterparts in 3 provinces and responsible persons for disaster management in the central region of Vietnam.

More than 70% of the answers of the questionnaire for these workshops described these workshops as “Very good” or “Good”. It can be said that these workshops were highly appreciated by the Vietnamese side.

In the 1st to 2nd year, these workshops were mainly carried out by Japanese experts but in the third to fourth year, trained Vietnamese engineers (Mainly counterparts) actively joined in the execution of the workshops. After this project these engineers and organizations will carry out workshops and seminars by themselves. It can be said that a base was established to expand the project outcome to all Vietnam through the counterpart engineers and organizations of this project.

2) Capacity development through various small seminars

Many small seminars such as “Climate change”, “Warning and evacuation”, ”Community disaster management”, “Flood management plan”, “GPS utilization”, “River bank protection”, “Hazard map”, “Big disaster management”, “Earthquake and tsunami”, “Regional disaster management plan”, “Dam management” were held during the project. The main target of these seminars is counterparts and the regional governmental staffs. The number of the attendants for each seminar was 3 to 20 and the duration of the seminars was half a day to 2 days.

One hundred percent of the answers on the final questionnaire in this project said that the capacity of general natural disasters was “Drastically developed” or “Developed”. It can be said that these small seminars were very useful for the capacity development of the counterparts and regional governmental staffs.

3) Capacity development for flood simulation and GIS

For the field of flood simulation and GIS, a technical manual was developed and continuous training was carried out for the counterparts. As a result of this training, counterpart capacity was developed. They reached the level to create a simulation model, conduct calculations and express the results on

the GIS format.

4) Capacity development through on-the-job training and individual training

In addition to the above activities, various training such as general natural disaster knowledge, disaster management plan, community disaster management, river bank protection, climate and hydrology and sediment disaster were conducted. Almost one hundred percent of the answers on the final questionnaire in this project said that the engineering capacity for disaster management for the above fields was “Drastically developed” or “Developed”. It can be said that the capacity development through on-the-job training and individual training succeeded.

5) Capacity development through hazard map preparation

Hazard maps of floods, river bank erosion and sediment disasters in T.T.Hue and Quang Nam were prepared under the cooperation of counterparts and JICA experts. Technical transfer of the hazard maps was conducted through these activities. Counterpart’s capacity was developed to prepare hazard maps by themselves.

6) Capacity development through training in Japan

Three times training in Japan were conducted during the project. Counterparts and regional governmental staffs attended these training sessions. The contents of the training are composed of community disaster management, history of flood management, river bank protection, integrated flood management, earthquake and tsunami, etc. These contents are connected to this project activity. After this training, the attitude of attended counterparts and governmental staffs changed to becoming more aggressive. It can be said that the combination of the desktop training in Vietnam and seeing the actual situation in Japan worked well.

7) Capacity and consciousness upgrading through flood mark installation

Around 1,000 flood mark plates were installed in T.T.Hue and Quang Nam under the technical guidance of JICA experts. By this activity the importance and technique of the registration of past floods was understood by counterparts and related organizations. After this project this activity will be continued by the Vietnamese side.

8) Capacity development through integrated flood management preparation

In T.T.Hue, integrated flood management using technical methods such as impact assessment was prepared under the cooperation of counterparts and related organizations. This plan has been approved by the T.T.Hue PPC and used as the official flood management plan. In Quang Nam, recommendation for the flood management plan using computer flood simulation was prepared under the cooperation of counterparts and JICA experts.

Through this activity, the importance of technical background to formulate a plan was understood by

the counterparts and related organizations and the capacity of the preparation of the plan was developed.

7-2 Capacity development of community disaster management

1) Cultivating CBDRM facilitators

In this project, counterparts and employed staffs were trained as CBDRM facilitators. During the project, CBDRM training seminars composed of desktop lectures and training on site were conducted. As a result of these activities, 10 persons acquired the basis of community disaster management knowledge and 5 of these persons became facilitators of CBDRM activities.

2) Capacity development of the community level disaster management plan formulation

Community level disaster management plans in 9 pilot sites were formulated. The capacity for disaster management at commune level was highly developed through this activity. The formulated plans will be used as model plans at community level in central Vietnam.

3) Capacity development through preparation of CBDRM manual

A CBDRM manual was prepared based on the project activities under the cooperation of JICA experts and counterparts. This manual is appreciated because of its practical descriptions. This manual will be used as a reference of CBDRM activities directed by MARD in Vietnam.

Counterpart's capacity was developed through preparation of the manual. Also, this manual will develop the capacity of CBDRM activities in Vietnam.

4) Introduce technical viewpoint for warning and evacuation

River water measuring poles in pilot sites were installed and a technical point of view for warning and evacuation in pilot project was introduced. However, no big flood occurred after the 2nd year of this project and this data was not utilized for the formulation of evacuation criteria. After this project, it is expected that counterparts and local residences will continue the observation of river water and utilize it in the evacuation criteria revision.

7-3 Capacity development for river bank protection

1) Capacity development of low cost small scale river bank protection through pilot project

Low cost and small scale river bank protection pilot projects were carried out at 2 pilot sites. After two rainy seasons sufficient sediment was observed at the toe of slope. It was confirmed that this pilot project is effective for river bank protection.

The capacity of counterparts was developed through this pilot project. The counterparts became to be engineers who can conduct similar river bank protection work by themselves.

Also, a river bank protection project using the budget of the Vietnamese is planned at T.T.Hue. Further, similar technique was employed for JICA emergency restoration support in T.T.Hue.

2) Capacity development through formulation of river bank protection guideline

A guideline for low cost and small scale river bank protection was formulated based on the pilot project. This guideline will be approved by MARD and used as the official guideline for river bank protection. Training using this guideline was carried out for MARD and other related engineers. The capacity of river bank protection in Vietnam was greatly developed by this activity.

7-4 Capacity development of MARD's supporting capacity to local governments

1) Establishment of 3 training courses

Three training courses "river bank protection", "community disaster management" and "disaster management plan (include flood simulation)" were established in this project. As the result of these activities, 2 big workshops and 4 individual seminars were organized by MARD.

8. Suggestions and Recommendations

8-1 Problem, ingenuity and lessons of the Project

There were some problems in carrying out activities in the project. However, these problems were solved by the effort and ingenuity of both the Vietnamese and Japanese sides. The main problems, ingenuity and lessons learned during the project can be summarized as follows.

1) Necessity to understand the difference of manpower and system in each province

The main activities were carried out in T.T.Hue and Quang Nam. However, the manpower and work system in both provinces were not the same. For example, T.T.Hue was accustomed to carry out international donors' projects and had enough manpower but Quang Nam province was not. Therefore it was difficult to carry out the same level of technical transfer in the project.

During the project, the JICA expert investigated and understood the system, ability and the requests of the Vietnamese side and carried out technical transfer according to the actual situation of each province.

It is important to understand the difference of manpower and the work system in each province when the project was in the preparatory stage.

2) The necessity for understanding the JICA technical transfer project principle by counterparts

In the JICA technical transfer project, it is essential that the JICA expert and Vietnamese counterpart carry out the activities under close cooperation. In this project, the Vietnamese side did not understand the JICA technical transfer principle in the early stages of the project..

The JICA expert repeatedly explained this principle and prepared many examples (to prepare a document to explain this project together, to carry out lectures by counterparts and to carry out group discussion by the Vietnamese side only) for cooperative activities. As a result, the Vietnamese side understood the principle and aggressively joined in project activities from the latter half of the second year.

Usually, most of the projects in Vietnam are supported by other international donors, counterparts do not work together with donor's engineers so closely. It is important if the project is going to proceed smoothly for understanding the JICA technical transfer project principle when the project is in the preparatory stage.

3) Necessity for understanding of true counterpart's needs and flexible program

After the commencement of the project, the essential item and request of the Vietnamese side for technical transfer was identified. For example, practical techniques for flood simulation, GIS, river bank protection etc was strongly desired by the counterparts. Based on these findings, contents of the

technical transfer and JICA expert assignment was flexibly changed according to the situation.

It is important to understand counterpart's true needs and requests in the project preparatory stage. Also, it is important to change the project program by flexibly responding to C/Ps needs.

4) Importance of the confirmation of budget allocation at the preparatory stage

Until the second half year of the project, the organization of MARD and responsible persons were drastically changed. As a result, approval of the project was delayed

Due to this situation, the JICA expert strongly requested adjustment of the structure and approval of the project to MARD. At the same time, the JICA expert conducted actual activities in the central region without waiting for the approval under the cooperation of the JICA Vietnamese office.

As a result, in the 1st and early 2nd year of the project there was some trouble in the budget and MARD coordination, but after the latter half of the 2nd year, MARD coordinated the project well and the budget was allocated.

It is said that most of the project in Vietnam faces the problem of budget preparation on the Vietnamese side. It is important to confirm the budget preparation of the Vietnamese side in the project preparatory stage.

5) Necessity of flexible cooperation between long term expert and consultant expert

The project was carried out under the cooperation of the long term expert assigned at T.T.Hue and the consultant expert. The cooperation of both experts was essential for the success of the project. The long term expert and consultant expert cooperated flexibly without a bureaucratic attitude. The allocation of both duties was decided beforehand but both experts cooperated flexibly in the spirit of no constraints.

Basically the long term expert was responsible for the field of dam management, organization, regulation and the example of Japan, the consultant expert covered the field of practical analysis, design and calculation. As a result, both experts closely cooperated to carry out the project. It can be said that a synergetic effect was produced by the cooperation of both experts.

To expect a synergetic effect of both experts, it is important to decide the segregation of both expert duties but to cooperate flexibly in the spirit of no constraints.

8-2 Suggestion to achieve super and overall goal

1) Suggestion to deepen project output and develop the capacity in three provinces

As described in this report, the project produced fruitful results and was appreciated from the Vietnamese side. Especially, practical technical transfer based on high level engineering background and the method of cooperation between the JICA expert and the Vietnamese counterpart were highly appreciated.

To expand and deepen this fruitful result in three provinces targeted in this project, the following things can be recommended.

(1) Technical transfer in dam management field

In this project, the technical transfer of dam management was not fully done. In Vietnam, dam management during floods was not sufficiently done and the knowledge of dam management was not accumulated.

In three provinces of this project, many dams were under construction and effective dam management is needed. Further, there are some opinions that dam discharge affected the flood in 2009.

It is important to carry out technical transfer in the dam management field to develop the capacity for floods in central Vietnam.

(2) Introduce more technical and scientific flood management by using river and rain observation in community

The judgment for evacuation in Vietnam is done in each community. However, most of the judgment is based only on qualitative experience and no observation of rainfall and river water level is done. To develop the disaster management capacity in the community, it is essential to introduce technical and scientific procedures. In this project, river water level poles were installed in each pilot project sites However, after the 2nd year of the project, no big floods struck this area and formulation of evacuation criteria by using observation could not be done.

The observation of river water level is continued by counterparts and local residents. It is recommended to formulate a technical and scientific flood management system by using this observed data.

(3) Technical transfer of river bank protection in Quang Ngai Province

In this project, only the activity for community disaster management was done in Quang Ngai province. However, the Quang Ngai province frequently expressed their wish to have the same level of activities (especially river bank protection) in the other two provinces.

The capacity for community disaster management and flood simulation in Quang Ngai was developed by the support of Aus Aid etc. However, the capacity of river bank protection was not developed and remained at the same level as the other two provinces.

It is recommended to carry out technical transfer of river bank protection in Quang Ngai also.

(4) Additional technical transfer to fully utilize flood simulation and GIS

The need for flood simulation and GIS was very strong in T.T.Hue and Quang Nam. Therefore technical transfer in these fields was carried out intensively. As a result of technical transfer, counterparts can prepare a simulation model, carry out calculation and express this result by using the GIS technique.

However, the capacity has not reached the level to utilize the simulation and GIS freely by adapting various simulation cases and superimpose the simulation results on GIS.

It is essential to use the simulation and GIS freely to formulate a disaster management plan and explanation for PPC. It is recommended to carry out further training of simulation and GIS to utilize it freely.

(5) Widen the target of CBDRM

The activities of community disaster management in this project were carried out mainly targeting governmental staffs of province to ward. Few activities were done at schools and hospitals and were not largely implemented. However, school and hospital is the essential point of community disaster management.

First, it is essential to introduce flood preparedness to the children so that they have the basic knowledge of flood preparedness, knowledge that they can take with them as they get older and become pillars of the community. This knowledge can be shared with their parents through the concept called the T-C-P approach.

Schools are considered a community in the sense that there are many at-risk students and school staff in the school compound. Should flash floods occur which provide a very short lead time between warning and the occurrence of a flood, the school has a plan that the authorities could follow. The children and teachers know what to do and therefore reduce the risk to floods. The same rationale applies in the situation when children are caught by inundation in school compounds during regular school hours.

Hospitals belong to critical facilities that should be protected during floods. More than the facilities, the patients who are staying in the hospital along with the medical staff need to be protected. In this

context, it behooves disaster management authorities to consider preparing a hospital preparedness plan using CBDRM. Unlike a traditional community, the people in the hospitals are short-term residents who, due to their medical condition, are considered persons-at-risk to disasters. However, the medical staffs are long-term occupants of the hospitals and, therefore, can be regarded as the core community to invest on a hospital preparedness plan.

(6) Technical transfer of tsunami

It is feared that a tsunami caused by the earthquake in the Manila trench could hit the east coast of Vietnam. However, no knowledge and experience of tsunami has been accumulated either at governmental or residential level. In this project, some lectures about tsunami were carried out but they were not enough. It can be recommended to transfer technology and knowledge of tsunami to establish proper measures against tsunami.

2) Suggestion to deepen project output and develop the capacity in central Vietnam and all over Vietnam

In this project, representatives from other central provinces attended a seminar. However, technical transfer was not fully done in other central provinces.

The situation of other central provinces is similar to the three provinces of this project. Therefore the same technology and knowledge can be utilized in other central provinces. To achieve the overall goal (enhance the capacity of disaster preparedness in Central Vietnam), it is essential to expand this project output to central Vietnam provinces by MARD and the counterparts of this project.

While expanding the project output, it is essential to transfer practical techniques not only desktop knowledge. To facilitate this technical transfer, JICA support may be needed in some fields. In that case, the following issues must be considered.

(1) Practical technical transfer must be executed

As described in a former section, practical and useful technical transfer was appreciated from the Vietnamese side. Therefore, considering this matter, practical technical transfer such as actual river bank protection techniques, flood simulation / GIS, actual CBDRM execution techniques, flood management plan based on impact assessment, must be executed.

(2) Understanding of JICA technical transfer policy must be encouraged

JICA technical transfer must be carried out under close cooperation between the counterpart and the JICA expert. In this project, the biggest problem in the early stages was the lack of understanding for this JICA technical transfer policy. This policy must be explained in the preparatory stage and it is expected that the counterparts of this project will explain this policy to other central provinces.

(3) Cooperation with other donors

In this project, communication with other donors was not sufficiently done because project activities were located mainly in central Vietnam and not at Hanoi. It is recommended to establish regular meetings with other donors at Hanoi from the start of the project.

(4) Understanding the conditions in each provinces

The situation in the central provinces is similar to the situation in the three provinces of this project. However, it is not completely the same. For example, river conditions change from place to place and the capacity of the counterpart is different from province to province. It is essential to investigate and understand the actual situation of each province carefully using more time.

(5) Utilize counterpart and staffs developed in this project

In this project, Vietnamese experts for community disaster management, river bank protection and computer simulation / GIS were developed. It is recommended to utilize these experts to expand project output under the direction of donor's experts.

Appendix 1

JCC (Joint Coordination Committee)

MM (Minutes of Meetings)

MINUTES OF MEETINGS
ON
INCEPTION REPORT
FOR
THE PROJECT FOR BUILDING DISASTER RESILIENT SOCIETIES
IN CENTRAL REGION IN VIETNAM

Following the signing of the Record of Discussions (hereinafter referred to as "R/D") for the "Project for Building Disaster Resilient Societies in Central Region in Vietnam" (hereinafter referred to as "the Project") on December 15, 2008, JICA dispatched to Vietnam an Advisory Team headed by Mr. Mikio ISHIWATARI, Senior Advisor, JICA and the Project Expert Team (hereinafter referred to as "the Team") headed by Dr. Satoshi NAKAMURA, Project Chief Advisor, from March 3rd 2008 to explain the Draft Inception Report (hereinafter referred to as "the Report") to the Vietnamese authorities.

As a result from discussions, the contents of the Report and to the issues mentioned in the attached document were agreed by representatives of related agencies at the meeting held on March 12, 2009.

Hanoi, March 12, 2009

Mr. Mikio Ishiwatari
Senior Advisor
JICA

Mr. Nguyen Xuan Dieu
Acting Director General
Department of Dyke Management and Flood Control, Ministry of Agriculture and Rural Development

Dr. Satoshi Nakamura
Project Chief Advisor

Mr. Tran Kim Thanh
Deputy Director, Department of Agriculture and Rural Development,
Thua Thien Hue Province

Mr. Tran Kim Long
Deputy Director General
International Cooperation Department,
Ministry of Agriculture and Rural Development

Mr. Nguyen Van Tien
Deputy Director, Department of Agriculture and Rural Development,
Quang Nam Province

Mr. Ngo Huan
Deputy Director, Department of Agriculture and Rural Development,
Quang Ngai Province

ATTACHMENT

Participants have (attached on ANNEX I) agreed on the following:

1. Project Inception Report

The Project Steering Committee Members of the Project, in principle, agreed on the contents of the Project Inception Report as explained by the Team. The Project will be implemented according to the Project Design Matrix (PDM) and Plan of Operations (PO) as attached in ANNEX II.

2. Project Implementation Arrangements

(1) The Project counterparts were confirmed as listed in ANNEX III. The responsibilities of each position are as noted in the R/D signed on December 15, 2008 (ANNEX IV). The Project Team will be assigned full time during times when the Japanese experts of each component are in Vietnam and also carry on works during other times when the Project requires.

(2) Meetings will be held at least once a year by the Joint Coordinating Committee (JCC) and at least once every 6 months by the Provincial Steering Committee (PSC) with the committee members as agreed in R/D signed on December 15, 2008. Aside from the timing mentioned above, meetings can be called upon by either side whenever necessity arises. The first JCC and PSC will be held in June 2009.

(3) MARD and the relevant DARD offices will promptly provide the necessary facilities and other arrangements, including working space for the Team, so that they will be able to immediately commence their work for the Project.

(4) MARD and other relevant Vietnamese authorities will ensure that the documents to dispatch Vietnamese trainees (A2/A3 forms), dispatch Japanese experts (A1 form) and receive equipments for the Project (A4 form) will be promptly processed so that the Project implementation schedule will not be delayed.

(5) MARD and other relevant Vietnamese authorities will arrange to ensure that topographic maps and data such as on rainfall and river flow will be promptly provided to the Project so that the Project implementation schedule will not be delayed. A list with the details of the required data will be provided to the Vietnamese side by June 2009.

(6) Both sides will continue to work and share necessary information to process the documentation required in calculating the budget provisions needed from the Vietnamese side to implement the Project.

3. Project Kick-Off Workshops

The Vietnamese authorities agreed to co-host and work together with the Team to organize the Project Kick-Off Workshops planned in June 2009 in Hanoi and Danang. The participants to these workshops will not only be the Project counterparts, but also other relevant authorities, donors, NGOs, research institutions and universities.

4. Donor coordination

MARD and other relevant Vietnamese authorities will assist the Project in sharing information and coordinating with other disaster management projects of other donors to prevent inefficient overlaps of activities of these projects.

5. Coordination with Japanese Grant Project in Quang Ngai Province

The Project plans to coordinate its activities with the "Project for Disaster Mitigation Through Rehabilitation and Upgrading of Small-scale Reservoirs in Quang Ngai Province", which is currently conducting its Preliminary Study. The concerned parties on both sides will further discuss on the coordination of the 2 projects.

END

ANNEX I	List of Participants to the Project Steering Committee
ANNEX II	Project Design Matrix (PDM) and Plan of Operations (PO)
ANNEX III	List of Project Counterparts
ANNEX IV	Record of Discussions (R/D) signed on December 15, 2008

ANNEX I ATTENDANTS LIST

Vietnamese Side

Ministry of Agriculture and Rural Development (MARD)

- Mr. Tran Kim Long, Deputy Director General, ICD, MARD
- Mr. Nguyen Anh Minh, Director Bilateral Cooperation Division, ICD, MARD
- Mr. Nguyen Xuan Dieu, Acting Director General, DDMFC, MARD
- Mr. Phan Van Truong, Deputy Director of Disaster Management Center, DDMFC, MARD
- Mr. Shigeo Karimata, JICA Expert, MARD

Department of Agriculture and Rural Development (DARD)

- Mr. Tran Kim Thanh, Deputy Director, DARD, Thua Thien Hue Province
- Mr. Nguyen Van Tien, Deputy Director, DARD, Quang Nam Province
- Mr. Nguyen Minh Tuan, Manager of Sub-Department of Water Resources, DARD, Quang Nam province
- Mr. Ngo Huan, Deputy Director, DARD, Quang Ngai Province
- Mr. Phan Van On, Director, Center for Management and Mitigation of Natural Disaster, DARD, Quang Ngai Province
- Mr. Tran Van The, Vice Manager of People Committee Office of Quang Ngai province

Japanese Side

JICA Advisory Team

- Mr. Mikio ISHIWATARI / Senior Advisor
- Mr. Shohei MATSUURA / Associate Expert

JICA Project Expert Team

- Dr. Satoshi NAKAMURA / Project Chief Advisor
- Mr. Takayuki NOBE / River Structure

JICA Vietnam Office

- Mr. Katsuhiro ANDO / Senior Project Formulation Advisor

PROJECT COUNTERPART LIST

Project Directors

- Mr. Nguyen Ngoc Quang, Vice Chairman, People's Committee of Quang Nam Province
- Mr. Nguyen Van Cao, Vice Chairman, People's Committee of Thua Thien Hue Province
- Mr. Truong Ngoc Nhi, Vice Chairman, People's Committee of Quang Ngai Province

Project Managers

- Mr. Nguyen Van Tien, Deputy Director of the Department of Agriculture and Rural Development of Quang Nam Province
- Mr. Tran Kim Thanh, Deputy Director of the Department of Agriculture and Rural Development of Thua Thien Hue Province
- Mr. Ngo Huan, Deputy Director of the Department of Agriculture and Rural Development of Quang Ngai Province

Project Team

Quang Nam Province

- Nguyen Minh Tuan, Head of the Flood and Storm Control and Irrigation Division (Coordinator)
- Mr. Huynh Tan Tuan, Water Resource Engineer, Expert of Water Resources Sub-Department of Quang Nam Province (Hydrology)
- Mr. Nguyen Thanh Phat (Structure)
- Mr. Cu Van Tuan (Community Support)
- Mr. Le Van Thu, Water Resource Engineer (Training and Institution)

Thua Thien Hue Province

- Phan Thanh Hung, Manager, Sub-Department of Water Resources and Flood and Storm Control (Coordinator)
- Mr. Dang Van Hoa, Head, Division of Flood and Storm Control (Disaster Management)
- Ms. Le Dien Minh, Officer, Sub-Department of Irrigation and Flood and Storm Control (Hydrology)
- Mr. Le Van Binh, Manager, Division of Structure Management (Structure)
- Mr. Nguyen Xuan Duyen, Vice Manager, Division of Planning (Training and Institution)

Quan Ngai Province

- Phan Van On, Director, Quang Ngai Centre for Management and Mitigation of Natural Disasters (Coordinator)
- Ms. Dang Thi Thao, Eng. of Agricultural Extension & Rural Development, Center for Management & Mitigation of Natural Disasters in Quang Ngai
- Mr. Bui Duc Thai, Flood Simulation Expert, Centre for Management and Mitigation of Natural Disasters

*MARD will provide the counterpart names to the Project when they are determined.

Project Design Matrix (PDM)

Project title: the Project for Building Disaster Resilient Societies in Central Region in Vietnam

Implementing agencies: Provincial People's Committees of Thua Thien Hue, Quang Nam, and Quang Ngai

Coordinating agency: Ministry of Agriculture and Rural Development Target area: Thua Thien Hue, Quang Nam, and Quang Ngai Provinces

Cooperation period: 3 years from the Japanese fiscal year 2008 Version 1.0 Date: December 2008

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Super Goal Measures against water-related disasters and adaptation to the increasing risk caused by the climate change are strengthened.	1. Existence of flood hazard maps, taking the effects of climate change into consideration, in all provinces 2. Existence of provincial DMPs for water-related disasters in all provinces 3. Existence of specialized DMDs in the governments of all provinces 4. Existence of activities led by provincial governments for promotion of CCDM in all provinces	1. Survey of the availability and contents of flood hazard maps in all provinces 2. Survey of the availability and contents of provincial disaster management plans for water-related disasters in all provinces 3. Verification of the organization of provincial governments of all provinces 4. Survey of provincial government activities for promotion of CCDM in all provinces	
Overall Goal Measures against water-related disasters adapted to the exacerbating effects by the global climate change are strengthened in Central Vietnam.	1. Existence of flood hazard maps, taking the effects of climate change into consideration, in central provinces 2. Existence of provincial DMPs for water-related disasters in central provinces 3. Existence of specialized DMDs in the governments of central provinces 4. Existence of activities led by provincial governments for promotion of CCDM in central provinces	1. Survey of the availability and contents of flood hazard maps in central provinces 2. Survey of the availability and contents of provincial disaster management plans for water-related disasters in central provinces 3. Verification of the organization of provincial governments of central provinces 4. Survey of provincial government activities for promotion of CCDM in central provinces	1. MARD and international development partners continue to provide assistance to all provinces for strengthening their disaster management capacities. 2. The effects of climate change on each region of Vietnam are analyzed.

Project Purpose Community-centered disaster management (CCDM) systems are strengthened in the project area	1. Level of awareness and knowledge of the residents in pilot sites (hamlets) about disaster risks, measures to be taken before and after disasters, location of evacuation shelters, and evacuation routs (target value: 70% of residents have sufficient knowledge) 2. Level of disaster management capacities of target provincial, district and commune governments (target value will be determined at the time of a baseline survey) 3. Level of central government's capacities of the disaster management support for local governments (target value will be determined at the time of a baseline survey)	1. Field survey in pilot sites 2. Comparison of the results of the capacity assessment of target provincial, district and commune governments at the beginning and the end of the Project 3. Comparison of the results of capacity assessment of the central government at the beginning and the end of the Project	1. MARD and international development partners continue to provide assistance to the central provinces for strengthening their disaster management capacities.

Output 1 Organizational capacities of disaster management at provincial, district, and commune levels are developed.	1-1. Existence of specialized DMDs in Quang Nam and Thua Thien Hue Provinces 1-2. Number of DMPs and integrated flood management plans (target value: 1 DMP for each target province, district and commune, and 1 integrated flood management plan for each target province) 1-3. Number of hazard maps in the project target area (target value: 2 flood hazard maps, 2 river bank erosion maps, and 4 sediment disaster maps) 1-4. Level of achievement of the delivery of flood information to every resident in pilot site (target value will be determined at the time of a baseline survey)	1-1. Organizational charts of provincial governments 1-2. Survey of availability of DMPs and integrated flood management plans 1-3. Survey of availability of hazard maps 1-4. Comparison of the results of interview surveys to the residents of pilot sites at the beginning and the end of the Project	1. There is no substantial turn over and/or redistribution of counterpart personnel 2. The political significance of disaster management in central region does not decline. 3. Projects supported by other development partners will be implemented without delay.
Output 2 A manual for promoting CCDM is developed.	2-1. Existence of the manual for promoting CCDM	2-1. Verification of the availability of the manuals	
Output 3 Appropriate technologies of low-cost small-scale structural measures against river bank erosion are developed.	3-1. Existence of the standard designs and construction manuals for the low-cost small-scale river structure	3-1. Verification of the availability of the standard designs and construction manuals	

Output 4 MARD's supporting capacities in disaster management to local governments are developed.	4-1. Existence of draft new technical guidelines for river structures integrating low-cost small-scale structural measures for bank erosion 4-2. Number of disaster management training courses for local government officials (target value: 3 courses are newly established)	4-1. Verification of the contents of the draft new technical guidelines for river structures 4-2. Verification of the availability of the new training courses for local government officials	

Activities 1-1. To formulate/update and monitor the action plans of provinces according to the national strategy for natural disaster prevention, response and mitigation to 2020 1-2. To consolidate DMDs within Departments of Agriculture and Rural Development and make them effectively function 1-3. To strengthen the capacities of provincial committees of flood and storm control (CFSC) and district and commune CFSC of pilot sites 1-4. To produce hazard maps on sediment disasters, floods, and bank erosion 1-5. To formulate integrated flood management plans considering climate change effects 1-6. To improve early warning and evacuation systems	Inputs of Japanese side: 1. Dispatch of experts Fields of expertise to be covered by Japanese experts (1) Chief advisor (2) Disaster management administration (3) CCDM (4) DMP (5) Planning for water-related disaster management (6) Planning for sediment disaster management (7) Hydrology (8) River improvement works (9) Early warning and evacuation system (10) Institutional development and training (11) Urban planning 2. Training in Japan: 3-4 counterparts/year 3. Provision of equipment: (1) Equipment related to early warning and evacuation (2) Equipment related to training (3) Office equipment (4) Other equipment mutually agreed upon as	Inputs of Vietnamese side: 1. Assignment of counterpart personnel and administrative personnel 2. Permanent office spaces in Hue and Tam Ky, and a provisional office space in Hanoi, with furniture, facilities of communication and public utilities, and meeting rooms 3. Space for the construction of small scale infrastructure 4. Machinery, equipment, instruments, vehicles, tools, and spare parts 5. Running expenses	1. The functions of central and local governments are not paralyzed by the occurrence of natural disasters of enormous scale. 2. The fiscal state of the Provincial People's Committees of project target area does not fall into crisis.

2-1. To select target communes and pilot sites (hamlets) 2-2. To evaluate existing coping mechanisms 2-3. To formulate plans of CCDM activities in pilot sites utilizing expertise of local universities and NGOs 2-4. To conduct activities of CCDM in collaboration with local universities and NGOs 2-5. To produce a manual for promoting CCDM, reflecting lessons and practices of pilot activities 2-6. To formulate CCDM promotion programs			

3-1. To survey the conditions of candidate sites 3-2. To select two construction sites 3-3. To determine suitable low-cost small-scale works for each construction site, and implement the works 3-4. To evaluate the works and make necessary modifications 3-5. To produce standard designs and construction manuals of low-cost small-scale structural measures			
4-1. To improve institutional functions of disaster management of MARD 4-2. To review technical guidelines of countermeasures and submit them for approval 4-3. To plan training programs for local government officials in charge of disaster management, and produce training materials 4-4. To conduct training courses of disaster management for local government officials in charge			Pre-conditions 1. The Project receives cooperation of the collaborating organizations of the Project, and district and commune people's committees of pilot sites.

Plan of Operation (PO)

Activities	Year 1				Year 2				Year 3			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
1-1. To formulate/update and monitor the action plans of provinces according to the national strategy for natural disaster prevention, response and mitigation to 2020												
1-2. To consolidate disaster management divisions within Departments of Agriculture and Rural Development and make them effectively function												
1-3. To strengthen the capacities of provincial committees of flood and storm control (CFSC) and district and commune CFSC of pilot sites												
1-4. To produce hazard maps on sediment disasters, floods, and bank erosion												
1-5. To formulate integrated flood management plans considering climate change effects												
1-6. To improve early warning and evacuation systems												
2-1. To select target communes and pilot sites (hamlets)												
2-2. To evaluate existing coping mechanisms												
2-3. To formulate plans of CCDM activities in pilot sites utilizing expertise of local universities and NGOs												
2-4. To conduct activities of CCDM in collaboration with local universities and NGOs												

ANNEX II

2-5. To produce a manual for promoting CCDM, reflecting lessons and practices of pilot activities												
2-6. To formulate CCDM promotion programs												
3-1. To survey the conditions of candidate sites												
3-2. To select two construction sites												
3-3. To determine suitable low-cost small-scale works for each construction site, and implement the works												
3-4. To evaluate the works and make necessary modifications												
3-5. To produce standard designs and construction manuals of low-cost small-scale structural measures												
4-1. To improve institutional functions of disaster management of MARD												
4-2. To review technical guidelines of countermeasures and submit them for approval												
4-3. To plan training programs for local government officials in charge of disaster management, and produce training materials												
4-4. To conduct training courses of disaster management for local government officials in charge												

MINUTES OF MEETINGS
ON
THE MEETING
OF
JOINT COORDINATION COMMITTEE
FOR
THE PROJECT FOR BUILDING DISASTER RESILIENT SOCIETIES IN CENTRAL REGION IN VIETNAM

Following the signing of the Record of Discussions (hereinafter referred to as "R/D") on December 15, 2008 and Minute of Meetings (hereinafter referred to as "M/M") on March 12, 2009 for the "The Project for Building Disaster Resilient Societies In Central Region in Vietnam" (hereinafter referred to as "the Project"), JICA Expert team started activities from March 2009 and fruitful results have been achieved so far.

However, despite of the agreement that the Joint Coordination Committee (JCC) will be held at least once a year, as noted in the M/M mentioned above, reorganization of MARD and changes in the appointed Vietnamese C/P personnel has drastically delayed the project approval processing on the Vietnamese side. As a result, the first JCC had been postponed until today.

Given the situation above, the members of JCC held discussions and agreed on the matters referred to in the document attached hereto.

Hanoi, August 26, 2010

Mr. Shimizu Akira
Senior Representative
Japan International Cooperation Agency
Vietnam Office

Dr. Dao Xuan Hoc
Vice Minister
Ministry of Agriculture and Rural Development - MARD

Mr. Miura Hirohisa
Chief Advisor
JICA Expert Team

Miura

Mr. Le Truong Luu
Vice Chairman
People's Committee of Thua Thien Hue Province

Dr. Nakamura Satoshi
Chief Advisor
JICA Expert Team

Mr. Nguyen Ngoc Quang
Vice Chairman
People's Committee of Quang Nam Province

Mr. Truong Ngoc Nhi
Vice Chairman
People's Committee of Quang Ngai Province

I. On the contents of the Project

1. The JCC members confirmed the achievements so far and the activities of the second year as explained by the Vietnamese side.

2. The JCC members confirmed and agreed on the revised Project Design Matrix and Plan of Operation (hereinafter referred to as "the PDM") (Annex I). Modifications to the PDM (since the M/M signed on March 12, 2009) and newly set target indicators are as below:

(a) Level of disaster management capacities of target provincial, district and commune governments is set as "100% of staffs responsible for natural disaster management in target provincial, district and commune attend the workshop / seminar held by the Project". (Project purpose 2 indicator)

(b) Target indicator of the level of central government's capacities of the disaster management support for local governments is set as "disaster management training courses for local government officials shall be held annually by central government's staffs". (Project purpose 3 indicator)

(c) The number of the hazard maps for sediment disaster shall be reduced from 4 to 2 because 2 of the 4 pilot sites have less possibility of sediment disasters. (Output 1-3)

(d) Level of the achievement of the delivery of flood information in pilot site is set as "100%". (Output 1-4)

(e) "Guideline for Riverbank Erosion Management" shall be formulated instead of the "Standard design and construction manual for the low cost small scale river structure and draft new technical guidelines" to avoid duplications of existing standards and manuals. (Output 3-1 and 4-1)

II. Support for Counter part's budget and ownership of Vietnamese side

1. The JCC members agreed that the Japanese side will provide support for the counterpart budget proposed on Annex II, if the Vietnamese side is able to make necessary budget provision to allocate adequate amount for the counterpart budget in

2011 and 2012. This budget provision by the Vietnamese side is important to insure the sustainability of the project activities even after the conclusion of the Project.

2. The JCC members reconfirmed and agreed on the ownership of the Project by the Vietnamese side. Therefore, the project activities, in principle, shall be executed by the Vietnamese counterparts. JICA project team will provide the required technical transfer and other technical support.

3. The JCC members confirmed and agreed to allocate counterpart personnel to implement the project activities to achieve the project output as listed in Annex III.

III Other issues

1. The JCC members confirmed and agreed that the development of Integrated Flood Management Plan in Quang Nam Province will be delayed and will be conducted in the third year of the Project due to the delays in flood simulation development by the World Bank project.

2. JCC members agreed that delays in other project activities will be recovered by the mid-term review of the project that is planned to be conducted in January 2011.

3. The Vietnamese side requested JICA to support Disaster Managemen Center at the central level with equipment, and human resource traning in order to better the disaster management activities.

4. JCC members agreed that until the specialized Disaster Management Divisions (DMDs) are established, "Sub-Department of Water Resources and Flood and Storm Control of Quang Nam Province" and "Sub-Department of Water Resources and Flood and Storm Control of Thua Thien Hue Province" shall be the target organizations for capacity development of the Project.

Appendix 2

Collected Material List

Appendix 2 Collected Material List

No.	Name of the Material	Organization	Form						Language
			Book	Pamphlet	Paper	Map	etc.	Electrical	
4	Enhanceing community resilience and livelihood security to cope with natural disasters in centaral vietnam	Hue university Kyoto Univedrsity			X				E, J
5	Centre for management and mitigation of natural disaster (CMMNFD)	AusAID		X					V,E
6	Child – led disaster risk reduction : a practical guide	Save the Children	X						E
7	United Nations – JICA, List of documents	–			X				E
8	Evaluation workshop on : ″Enhancemednt community resilience and livelihood security to cope with natural disasters in central vietnam″	Hue university Kyoto Univedrsity	X						E
9	Participatory construction of traditional community house in mountainous village of central vietnam	Hue university Kyoto Univedrsity	X						V,E
10	Participatory rural development for sustainable livlihoods in central Vietnam	Sansai Gakurin			X				E
11	Working together to reduce disaster risks in Vietnam National progress report on the implementation of the Hyogo Framework for action in 2008	United nations							E
12	Safety Kit for Fissherman	Quang Ngai	X				X		V
14	Kick off workshop, 09/07/2009	JICA Expet Team			X				E
15	Climate Change Adaptation Survey (Quang nam)	East meets West	X					X	E
16	CBDRM Workshop Document	JANI					X	X	E
17	World Bank Disater Management Plan Workshop	World Bank					X	X	E
18	IDRM Document	World Bank					X	X	E
19	Tsunami Hazard, Risk and Preparedness for Viet Nam	IGP					X	X	E
20	National Starategy Progress Report	World Bank					X	X	E
21	Action Plan Framework for Adaptation and Mitigation of Climate Change of the Agriculture and Rural Development Sector Period 2008–2020	MARD					X	X	E
22	Provincial Disaster Management Plan (Quang Nam)	Qnm PPC			X				V
23	Provincial Disaster Management Plan (T.T.Hue)	TT Hue PPC			X				V
24	Handbook on storm & flood control and disaster mitigation	Central steering committee on storm&flood control	X						V
25	Newsletter on natural disaster mitigation	Central committee for flood&storm control standing office		x					E
26	Early warning for typhoon for fishing people at sea, (training material for TOT)	UNDP		x					V
27	CBDRM guiding material	ADPC		x					V
29	Guidance on disaster prevention for primary school pupil	Vietnam Red – Cross Association		x					V
30	Guiding material for execution of program on disaster prevention for primary school pupil	Department of Education & Traning of Quang Ngai	x						V
31	Indigenous knowledge for Disaster Risk Reduction	UN/ISDR Asia Pacific		x					E
32	Reducing urban risk in Asia Status Report and Inventory of initiatives	Kyoto University		x					E

33	Indigenous knowledge for Disaster Risk Reduction Policy Note	Kyoto University		x					E
35	COMMUNITY AWARENESS STRENGTHENING AND COMMUNITY BASED DISASTER RISK MANAGEMENT (CBDRM)" ACTION PLAN	MARD					x	x	E
36	Flood Modeling and Early Warning Capacity Development	Pacific Disaster Center					x	x	E
37	Claimate Change Adaptation Survey (Quang Nam)	East meets West	x					x	E
38	Integrated Disaster Risk Management Planning Manual	TANDRM Project	x					x	E
39	Flood Modeling and Early Warning Capacity Development, Stakeholder Workshop	Pacific Disaster Center			x				E
40	Pacific Disaster Center	Pacific Disaster Center		x					E
42	Dicision, Project Community awareness raising and CBDRM	MARD						x	E
43	Natural Disaster Risk Management Project, CBDRM Instruction Sheet	MARD	x						V
44	Papar of World Bank Workshop on May 22, Hanoi	MARD			x				E
45	Material : Workshop at Vung Tay, April 19, 2010,	MARD			x				V
46	Material : Workshop at Vung Tay, May 13, 2010	MARD			x				V
47	Reacing the Unreachable（届けよう！移動式防災教室）	Sheed		x					J
48	Material of Three Project Meeting in Danang (Sep.17, 2010)	－			x				
52	Kick Off Project Ceremony ″ Integrated approaches to the vulnerable to cope with natural disasters in central Vietnam″	Kyoto University			x				
53	The JICA study on Integrated Development Strategy for Danang City and its Neighboring Area	JICA		x					
54									

Language E: English, J : Japanese, V : vietnamese

Appendix 3

Questionnaire of the Effect of the Project

Questionnaire for the Effect of JICA DRSC Project

We JICA project team hope to know whether this project improved capacity and knowledge in disaster management field. Please give us your honest opinion and suggestion to us.

Your Name and Position : _____

Organization: _____

Province : _____

District and Commune :_____

Date of Answer:_____

1. Was the engineering knowledge, capacity improved by this project?

1) Knowledge/capacity of River bank protection

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

2) Knowledge/capacity of Community Disaster Management

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

3) Knowledge/capacity of Flood simulation

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

4) Knowledge/capacity of disaster management planning

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

5) Knowledge of general natural disaster

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

6) Knowledge/capacity of hazard map

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

2. Was the institutional capacity and structural measures improved by this project?

1) Warning capacity

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

2) People evacuation

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

3) Public awareness

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

4) Capacity of institutional organization

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

5) Capacity of planning for disaster response

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

5) Structural measures (evacuation house, river bank protection)

a) Drastically improved b) Improved c) Slightly improved

d) No change e) Worsened f) Not known

3. Please tell us your suggestion, opinion for this project freely

Appendix 4

News Letter (No.1 - No.6)

2. Capacity development of personnel and organizations

Capacity development of the people and organizations from country level to commune level shall be carried out. One long term expert will remain in Hue and carry out technical transfer through daily work. Further, all JICA experts will carry out technical transfer through their activities and seminar / lecture / training. In this output, the following 3 types of training courses will be established.

1) Implement training courses in Hanoi or Da Nang targeting provincial staffs
Three training courses (for example: River bank protection, Community Disaster management, Hazard map) will be established. In this year, some training materials will be prepared and TOT (Training of Trainers) will be conducted.

2) Training courses in Hue and Quang Nam targeting related persons from province to village
Basic (wide and various) knowledge / technique of natural disaster shall be studied. In this year, some training materials will be prepared and TOT (Training of Trainers) will be conducted.

3) Hold various specific seminars related to disaster management
Various specific seminars and training relating to natural disasters shall be conducted by JICA short term experts. For example, themes such as “Dam operation and floods”, “Natural disaster and mass communication” are expected.

Workshop at Hanoi, July 2009

Counterpart Training in Japan, Nov. 2009

3. Integrated Flood Management Plan

Integrated flood management pursues reduction of flood disasters by a combination of hard measures and soft measures. Hard measures are composed of the dams, dykes, etc. Soft measures are composed of warning, land use, forest conservation and the concept of “living with floods”. The plan in two river basins (Hung river and Thu Bon river) will be formulated in this project.
Data collection, field reconnaissance etc. were conducted in the last year. Flood simulations shall be conducted using this information in this year. Global climate change such as rainfall and sea level change shall be considered in this simulation. Further, hazard maps for floods, bank erosion and land slides shall be prepared in this output. The activity for this output shall be started in April and simulation and hazard map preparation shall be finished in September of this year.
An integrated flood management plan shall be formulated next year considering this year″s output.

News Letter No.1

The Project for Building Disaster Resilient Societies In Central Region in Vietnam

March 20, 2010

1. Introduction

Last year, Central Vietnam was hit by Typhoon Ketsana and heavily damaged. Central Vietnam is vulnerable for floods and has been frequently damaged by natural hazards. The natural condition of this area is featured by a short distance between mountain and sea, water related hazards by tropical cyclones, steep mountains, etc. This natural condition is similar to Japan, so the experience and knowledge in Japan can be useful for building disaster resilient societies in this region.

The project “The Project for Building Disaster Resilient Societies In Central Region in Vietnam” has been carried out by JICA (Japan International Cooperation Agency). The main purpose of this project is to enhance the community – centered disaster management (CCDM) system in 3 central Vietnam provinces „T.T.Hue, Quang Nam and Quang Ngai). The project was started in March 2009 and continues to February 2012. The 1st year activity has been finished and the 2nd year activity is starting now.

Various fields of JICA experts will be involved in this project. These experts will cooperate with Vietnamese counterparts and related organizations to conduct various activities. Most of the JICA experts are engineers, scientists and researchers. The main feature of this project is “Technical (Engineering) Oriented Project”.

Four main outputs (Capacity development of the personnel and organizations, Formulation of integrated a flood management plan, Community disaster management, and River bank erosion control) are expected in this project. This first newsletter will explain the outline of these 4 outputs and the plan from now.

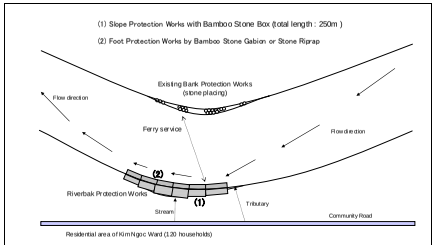
Typhoon Ketsana

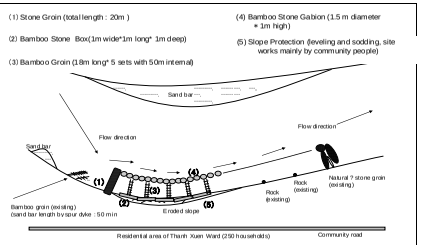
Huong River（T.T. Hue）

Thu Bon River（Quang Nam）

News Letter No.1, March 20, 2010
“The Project for Building Disaster Resilient Societies In Central Region in Vietnam”

in September of this year. Formulation / revision of the manual and standards for river bank protection in Vietnam shall be conducted in the next year.





Kim Ngoc Ward in Huong River | Thanh Xuyen Ward in Thu Bon River

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4. Community Disaster Management

Community activity is very important to reduce natural disaster damage. The CBDRM (Community Based Disaster Risk Management) activities shall be carried out under the technical cooperation of all the JICA experts.
The activities in this year shall be done mainly in the pilot project area. The following 8 pilot project communities have been selected last year through site reconnaissance, data collection, and discussion in the communities. The activities in the communities are composed of flood marking, warning evacuation drills, hazard map preparation, various training etc. Activities shall be carried out from May to September in this year. An evacuation drill will be conducted in September.
Construction of an evacuation house, roads and preparation of a manual, as well as disaster management plan formulation is expected in the next year.

Pilot Project Communes for Community Disaster Management

T.T. Hue	Quang Nam	Quang Ngai
Kim Ngoc Ward, La Khe Bai Ward in Huong Tho Commune	Thanh Xuyen Ward in Duy Thu Commune	Phuoc Loc Ward in Duc Phu Commune
Luu Hien Hoa in Phong My Commune	Trung Ha Ward in Cam Kim Commune	Group 12 of Chau Tu Ward in Binh Nguyen Commune
Com Bai Group in An Xuan Ward of Quang An Commune	Ward # 3 in Tien Loc Commune	

Survey in the Community

Gathering in the community

5. River Bank Protection

River banks in central Vietnam have been heavily damaged (eroded) by floods. Low cost and small scale river bank protection measures shall be carried out using Japanese and Vietnamese traditional methods.
The following 2 pilot project sites and measures have been selected last year through site reconnaissance, data collection, field interview and technical analysis. These 2 sites coincide with the community pilot project sites above. It is expected this river bank protection pilot work will be done with cooperation of local residents.
The construction of the pilot project shall be conducted in this year. Construction shall be completed

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3. Flood Mark Survey in T.T. Hue Province

Flood mark survey was carried out in T.T.Hue province. During the survey, the plates showing the highest water levels of the flood in 1999 and 2009 were installed in various places in the province. The location of the plate (address, contact, type of building, water level, latitude, longitude and other information) was tabulated and administered by the PPC of the district and commune.

The installation has been completed in T.T. Hue and additional installation and survey shall be conducted in Quang Nam Province.

Flood Mark Plate and Children

4. Typhoon Ketsana Response Survey

Typhoon Ketsana hit Central Vietnam last year. The situation of the warning and response during typhoon Ketsana was investigated in T.T. Hue and Quang Nam. The item of the investigation is composed of 1) issued information and warning from the administration 2) Propagation of this information and warning 3) Recognition and response of the residents and 4) other information. The result of the investigation is summarized in the diagram of "Time – warning, information and response" below.

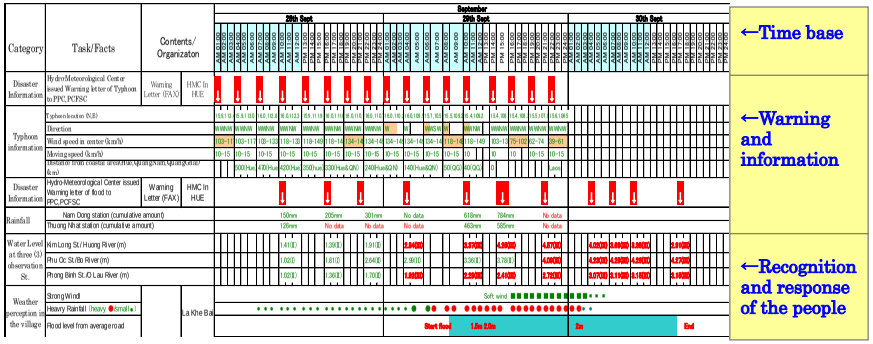

Diagram of Warning/Information and Response During Typhoon Ketsana

News Letter No. 2

The Project for Building Disaster Resilient Societies In Central Region in Vietnam

July 10, 2010

1. Introduction

The Project for Building Disaster Resilient Societies In Central Region in Vietnam has been carried out by JICA (Japan International Cooperation Agency). The main purpose of this project is to enhance the community – centered disaster management (CCDM) system in 3 central Vietnam provinces T.T.Hue, Quang Nam and Quang Ngai. The project was started in March 2009 and will continue to February 2012. The second year main activity has been commenced on April 2010. Various activities have been done until now.

This News Letter No. 2 will report various activities and achievements of this project from April to June of this year.

2. Vice Minister of MARD and 4 PPC Vice chairman Visit Japan

Dr. Dao Xuan Hoc Vice Minister of MARD and 10 persons from MARD and PPC visited Japan from May 22 to 26. They visited th Yodo river, the Shigenobu river in Ehime (drill), the Edogawa ground settlement low land area and the disaster management center of the Ministry of Land Infrastructure Transport and Tourism (MLITT). Further, they visited and exchanged opinions with JICA, Japan Water Agency, Ministry of Agriculture, Forestry and Fisheries and MLITT. An agreement of cooperation was signed between MARD and MLITT.

Rope work training by Expert
(Drill at Shigenobu river)

Shaking hands after signing of the Minutes
(at MLITT)

7. River Bank Protection Pilot Project

A river bank protection pilot project is being carried out in two project sites. In this pilot project, low cost and small scale river bank protection measures shall be carried out using Japanese and Vietnamese traditional methods. Now, the construction works in both sites in Hue and Quang Nam have been started. The construction works shall be completed by the end of August. These pilot sites corresponded to the community disaster management pilot project. Construction and maintenance will be conducted under the cooperation with local residents.

Ground breaking ceremony (Kim Ngoc、Quang Nam)

Construction of the protection work (Tam Xuen, T.T.Hue)

8. Workshops and Seminars Schedule

Various workshops and seminars will be held in this project. The following workshops and seminars are scheduled in August and September.

1) River bank protection workshop : August 2nd to 3rd
2) Natural Disaster Comprehensive Workshops :
   August 24 to 25 (Quang Nam), August 26 to 27 (Hue)
3) CBDRM Facilitator Training Seminars :
   August 19 to 20 (Hue), August 30 to 31 (Quang Nam)
4) Counterpart Training in Japan : June 26 to July 9 (Japan)

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5 Workshops in the Community

Three day workshops in the pilot project communes (T.T.Hue : 3 communes, Quang Nam : 3 communes, Quang Ngai 2 communes) were held in May and June. Around 20 persons from various organizations attended these workshops. Various activities such as desktop exercises, preparation of hazard maps, discussion of past disasters, analysis of vulnerability and preparation of vulnerability maps were conducted in the workshops.

Future activities in the pilot project communes shall be conducted from August to September. In the future activities, second workshops and evacuation drills aiming at the reduction of disaster risk shall be conducted.

BDRM Workshop（Kam Kin, Quang Nam）

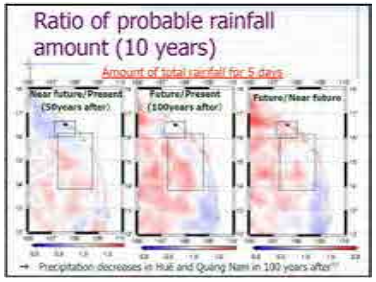
BDRM Workshop（Kam Kin, Quang Nam）

6 Flood Simulations

A computer flood simulation is being carried out in T.T. Hue. The collection and analysis of the basic data, installation of the simulation / GIS software and test run has been completed.

In this flood simulation, the change of precipitation after a climate change will be taken into consideration. One expert of climate change came to Vietnam and elaborated precipitation value which will be used in the simulation. Further, this expert held one seminar for climate change and had a discussion with Vietnamese experts.

Seminar for Climate Change (Da Nang)



Material for the Seminar

3) TOT (Training of Trainers) program for CBDRM facilitators
: Aug.19 – 20 at Hue, Aug. 30 – 31 at Tam Ky (Quang Nam)
These programs were carried out targeting responsible persons to carry out CBDRM activities in the province. Lectures and table top exercises were carried out in this program.

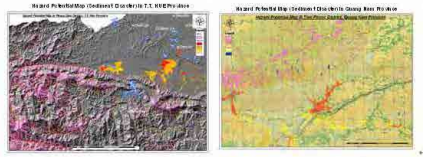
4) Seminar for climate change : June 14, Da Nang
This seminar was carried out targeting Vietnamese experts who are concerned for climate change. Relatively specific themes such as Downscaling, Statistical bias correction, Pseudo global warming experiments ware lectured and discussed.

TOT for CBDRM facilitator

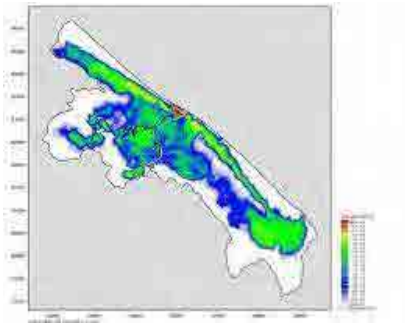
Climate change seminar

3. Flood Simulation Modeling (Hue) and Hazard map (Land Slide) Completed

Computer flood simulation modeling in Hue has been completed and verification of past floods, expected floods after climate change etc. were calculated. Hazard maps (geo-hazard : land slide))preparation by using the GIS technique in T.T. Hue and Quang Nam have been completed.



Hazard Maps for geo-hazard (Land slide)



Inundation map considering climate change

4. CBDRM Workshops and Role Play Training

CBDRM (Community Based Disaster Reduction Management) workshops and role play training were carried out in the pilot communities (3 sites in Hue, 3 sites in Quang Nam and 2 sites in Quang Ngai). Confirmation of the disaster risk, preparation of hazard maps, and formulation of flood management plans was executed in the workshops. The validity of flood management plans was tested through role play training supposing future typhoons and flood situations.

News Letter No. 3

The Project for Building Disaster Resilient Societies In the Central Region in Vietnam

October 10, 2010

1. Introduction

The Project for Building Disaster Resilient Societies In the Central Region in Vietnam has been carried out by JICA (Japan International Cooperation Agency). The project was started in March 2009 and will be continued to February 2012. The second year activities have been almost completed now. This News Letter will report the main activities, output of the latter half of the 2nd year and the activities of 3rd and 4th year.

2. Various workshops and seminars ware held

Various workshops and seminars were held in Da Nang, Hue and Tam Ky in this year. The main workshops and seminars are as follows.

1) Workshop of River Bank Protection : Aug.2nd – 3rd at Da Nang
This workshop was held targeting engineers of DARD (Department of Agricultural and Rural Development). Various lectures of river engineering, introduction of Japanese traditional methods, site visiting to pilot project sites were carried out in this workshop.

2) General workshop of Natural Disaster Management
: Aug.24 – 25 at Tam Ky (Quang Nam), Aug. 26 – 27 at Hue
These workshops were held targeting responsible persons for natural disaster management at province, district and commune organizations. Various lectures by Japanese experts and site visiting to pilot project sites were carried out in these workshops.

Workshop of River Bank Protection

General workshop of Natural Disaster Management

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"The Project for Building Disaster Resilient Societies In Central Region in Vietnam"

7. Counterpart Training in Japan

Counterpart training in Japan was carried out from June 27 to July 8. Vietnamese counterparts visited many places in Japan such as Nagaoka city, Misogawa Dam, Aichi Canal, Upper Kiso river office, Gifu flood prevention team, Yodo river office, Yodo river integrated dam management office, Kidugawa dam, Hinachi dam, Shorenji dam, Murou dam, Disaster reduction museum etc. Further, many Japanese persons and organizations cooperated with this training in Japan. It was a very tight schedule but nobody took ill and every counterpart executed the training earnestly.

8. JCC Meeting was held on August 26

To steer, assist and provide advice for this project, a Joint Coordination Committee (JCC) has been established. On August 26, a JCC meeting was held under the chair of Dr. Dao Xuan Hoc, Vice minister of MARD (Ministry of Agriculture and Rural Development). In the meeting, the activities and outputs, future program and policy was reported and discussed.

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Confirmation of past disaster

Examination of flood Management Plan

Evacuation Drill

Evacuation Drill

6. Completion of River Bank Protection Pilot Construction

In this pilot project, low cost and small scale river bank protection measures shall be carried out using Japanese and Vietnamese traditional methods. The pilot construction works have been completed in T.T. Hue and Quang Nam. These facilities have been transferred to local authorities and will be maintained by local residents.

Tan Xuyen (Quang Nam)

Kim Ngo c (T.T. Hue)

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"The Project for Building Disaster Resilient Societies In Central Region in Vietnam"

3. Construction of Evacuation shelter in Pilot project site

Eight (8) Evacuation shelters will be constructed at the pilot project sites of CBDRM in this project. Currently, selection of the sites and designing of the shelter are in process. Safe and useful (can be used during usual time) evacuation shelters will be constructed based on the lessons learned from 1st and 2nd year activities and knowledge of the Vietnamese people and JICA experts.

Explanation for residents (Huong Tho, T.T. Hue)

Examination of the site (Huong Tho, T.T. Hue)

4. Installment of Flood Mark Plate

Flood mark survey has been carried out from last year in T.T. Hue and Quang Nam. In this period, 600 plates were installed in Quang Nam. Several plates were installed in Hoi An historical area. Please look these plates when you are in Hoi An.

Installed Flood Mark Pates (Hoi An, Quang Nam)

5. School Disaster Education

School disaster education was carried out at 3 primary schools in T.T. Hue. Opening ceremony, painting contest, evacuation game, prize giving ceremony were carried out in this activities.

Pupils eagerly respond evacuation game

News Letter No. 4

The Project for Building Disaster Resilient Societies In the Central Region in Vietnam

July 1st, 2011

1. Introduction

The Project for Building Disaster Resilient Societies In the Central Region in Vietnam has been carried out by JICA (Japan International Cooperation Agency). The project was started in March 2009 and will be continued to February 2012. The third year activities have been commenced and many outputs were achieved. This News Letter will report the main activities, output of the 3rd year and the programmed activities of remain.

2. Lesson from Japan Earthquake and Tsunami

We received many supports from Vietnam and overseas during earthquake and tsunami, March 11, 2011. We Japanese encouraged by these hurtful supports. We engineer believe that we must transfer our experience learned from this earthquake and tsunami to all over the world. Especially, tsunami is expected at the east coast of Vietnam caused by Manila Trench earthquake. JICA expert made presentation in Quang Ngai, Quang Nam and T.T. Hue what we have learned from this earthquake and What Vietnamese people take care for tsunami disaster. This presentation will be continued in Hanoi and Da nang.

Presentation of Earthquake and tsunami, 3.11, 2011 (T.T.Hue, Quang Nam)

First committee meeting （2011/5/27）

Second committee meeting（2011/6/14）

8. River Bank Protection

Pilot project constructions for low cost and small scale river bank protection were carried out at T.T. Hue and Quang Nam. The pilot sites protect erosion of the bank during flood in last year. Based on the lesson in this pilot sites Guideline of the low cost and small scale river bank protection will be formulated and adapted for all over the Vietnam. The draft of the guideline has been completed. This draft will be elaborated with MARD engineers and finalized within this year.

River bank protection pilot site (Quang Nam)

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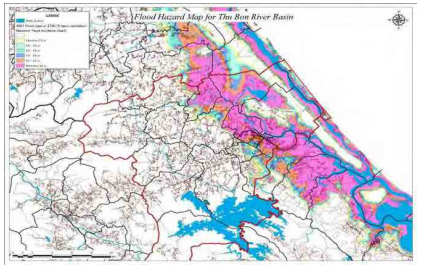
6. Flood Simulation

Computer flood simulation has been carried out in T.T. Hue and Quang Nam. In this period, the flood at 2050 and 2100 considering climate change were conducted at Quang Nam. This flood simulation is carrying our under the cooperation of Vietnamese engineers and JICA experts and ital technical transfer is carrying out during execution of the simulation. It is expected that Vietnamese engineers will be able to carry out flood simulation by themselves after this project.



Example of flood simulation result considering climate change (Quang Nam)

Discussion of the modeling

On the job training

7. Integrated Flood Management Plan

Formulation of the integrated flood management plan has been carrying out based on the survey, analysis and flood simulation in this project. Integrated plan pursue flood management by the combination of various methods not only by hard method such as Dam and dyke. Further, various cases after the plan is executed are simulated as the impact assessment by the established flood simulation model.

The committee which is composed of main 10 organizations (PPC, DARD, DOIT, BIFSC, PHC, DOC, DONRE, DOY, DOF, DPI) members was established to formulate integrated flood management plan. The formulation committee is held every half moth. Vital and substantial discussions are exchanged between organizations

<Integrated River Management at Yodo river>

Trainees learned river management history and facilities in the Yodo river at the Yodo river management office and Yodo river museum. TheYodo river has a very old history of river management and struggled with floods in recent years. The condition and the problem of environment / flood of the Yodo river is similar to the river in Central Vietnam. An activel discussion was held between Japanese and Vietnamese.

Yodo river museum

Left bank of Yodo river (Hirakata)

＜Integrated dam management at Yodo river＞

A lecture for integrated dam management at the Yodo River Integrated Dam Management Office and a visit to Amagase Dam was held. Recently, dam management for flood control has become a big issue in central Vietnam. This training will be a very useful for the trainees.

Lecture at Yodo river integrated dam management office

Visiting to Amagase Dam

＜Visiting Community Disaster Management activities in Kobe＞

NGO SEEDS Asia arranged a lecture and visit of the community disaster management in Kobe. The trainees visited the community of Uozaki town and Hiyodori town in Kobe. The trainees were impressed by the various activities of Japanese community and the heartful welcome by the residents.

News Letter No. 5

The Project for Building Disaster Resilient Societies In the Central Region in Vietnam

January 1st, 2012

1. Introduction

The Project for Building Disaster Resilient Societies In the Central Region in Vietnam has been carried out by JICA (Japan International Cooperation Agency). The project was started in March 2009 and will be continued to February 2012. Now various outputs are emerging in relation to the termination of the project. This newsletter reports on activities in the training in Japan and various activities in the second half of 2011.

2. Training in Japan

The third training in Japan was held from August 1st to 10th inviting 12 Vietnamese persons. The training sessions in Japan were held last year and two years ago. This year, considering the inconvenience of the electrical conditions, the training was held in mainly central Japan and western Japan. The main contents and places visited for the training is as follows. Plentiful information and sufficient lecture / explanation was supplied in all the places visited. The weather condition during training was very hot but all Vietnamese trainees studied enthusiastically without showing any fatigue.

<History of river management, river bank protection and facilities for river management at Gifu>

They visited the Kiso River management Office, Ministry of Land, Infrastructure, Transport and Tourism (MLIT). The Kiso three rivers area is noted for Japanese river management history and many types of river bank protection can be found here. The training must have been very useful for the river management in Vietnam.

5. Dam Management Training at Hue

The counterpart organization DARD Hue held dam management training on November 25. In this training, the long term JICA expert lectured on dam safety management. Nowadays, the fear of dam safety is being raised all over Vietnam. Responding to this, the training was held to upgrade the ability of the technique of dam management.

The JICA expert gave a lecture of institution of dam inspection in Japan, manual for storage reservoir at Totori Prefecture Japan and calculation of flood management effects by the dam in T.T.Hue. Further, the "storage reservoir inspection manual" was translated and distributed by the cooperation of the JICA expert and Japan Water Agency. Attendants commented that this manual is very useful because the dense contents were easy to understand by use of pictures. It will be greatly utilized for the dam management in Vietnam.

6. JICA expert appeared on TV discussion program

The JICA expert appeared as commentator on the TV discussion program "Disaster Management and Climate Change at coastal area" broadcast by the Vietnam state run station Hue branch office. The purpose and outputs of the project were introduced with various pictures of the project. Further, some questions such as "What must be done to cope with natural disasters in Vietnam" , "Any suggestion for tsunami disasters in Vietnam?" came to the expert from the attendants and hotlines. This program was broadcast from 09:00 AM to 10:45 AM on October 22. There is a possibility that this program will be sent to Hanoi and broadcast all over Vietnam.

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Lecture at Uozakitown

Visiting Hiyodori town

＜Earthquake and Tsunami training at Kobe, Osaka＞
The trainees visited the Disaster Reduction and Human Renovation Institution in Kobe and Tsunami and the High-Tide Station Center in Osaka. There is less possibility of earthquake and tsunami disaster in Vietnam. However, the possibility of Tsunami caused by the Manila earthquake is feared now. All trainees learned much about earthquake and tsunami disasters.

3. General Training Workshop for Disaster Management

A general training workshop was held on July 26 and 27 under the cooperation of DMC (Disaster Management Center), MARD and JICA expert team. The workshop is composed of three themes which are: 1) Flood simulation and hazard mapping, 2) Community disaster management and 3) Low cost and small scale river bank management. In the workshop, site visiting was held to see the situation of community disaster management and river bank protection in pilot sites. Sixty four engineers mainly from 19 provinces in central Vietnam attended this workshop and had meaningful discussions during the two days.

Attendants from Central Vietnam

Visiting Community Disaster program

4. Terminal Evaluation was completed

A terminal evaluation survey was carried out for about three weeks. The result of the evaluation was approved by the JCC meeting with the presence of Vice minister Dr. Hoc MARD. It was confirmed that there were some problems in the early stages but a fruitful result was achieved by the arrangement of the experts who were dispatched, and the high ownership of the Vietnamese side .

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"The Project for Building Disaster Resilient Societies In Central Region in Vietnam"

3. The suggested method of the project that was employed by JICA emergency aid for river bank protection

Monument at site

The middle stream of the Huong River was affected by the flood in 2010. The river bank was eroded and part of the community road was destroyed. This damage was repaired by JICA emergency aid.

A low cost small scale river bank protection pilot project was carried out in this project. This method is a combination of the Japanese method and Vietnamese method. This method does not use expensive materials but mainly uses stone and bamboo which is easily obtained in the local site. This time is the first case that this low cost and small scale method is employed for river bank protection. It is expected that this method will be used in many places.

4. JICA training mission visited this project

The JICA training mission for「Capacity Building for policy making on water resource management in the field of Climate Change Adaptation」visited this project on December 6 and 7 the same as last year.

Lecture by JICA expert

This training targeted vice-ministerial people responsible for climate change and natural disaster from the Philippines, Indonesia, Myanmar Bangladesh and Vietnam. Such third country training efficiently carried out to understand other similar countries situation.

On December 6, they visited our counterpart office of flood and storm control. Vietnamese staffs explained the situation of flood and climate change in central Vietnam and the JICA expert explained the project outline. In the afternoon, they visited the electricity dam which is expected to control floods. On December 7, they visited the pilot project site of low cost small scale river bank protection and community disaster management.

5. Workshop for the utilization of lagoon to reduce flood damage in T.T.Hue

JICA Expert Presentation

In T.T.Hue, there is a biggest class lagoon in south east Asia. This lagoon is located at the down stream of Huong river and connected to sea by two lake mouth. T.T.Hue was hit by flood repeatedly and low land of lagoon was submerged for long period every year.

To reduce such flood damage, MARD (Ministry of Agriculture and rural Develpment) is studying the method to utilize the lagoon connecting with the dam operation in the upper stream. The workshop chaired by Dr. Hoc vice ministeer of MARD was held to introduce the result of the

News Letter No. 6

The Project for Building Disaster Resilient Societies In the Central Region in Vietnam

February 15, 2012

1. Introduction

The Project for Building Disaster Resilient Societies In the Central Region in Vietnam has been carried out by JICA (Japan International Cooperation Agency). The project was started in March 2009 and will be continued to February 2012. Now, most of the activities are coming to an end. This news letter No.6 is the final news letter of this project. Here, we would like to inform activities and output in this year and latter half of last year.

2. Big Scale Evacuation Drill

A big scale evacuation drill was carried out on August 19 at Quang An commune T.T. Hue. Around 140 members including PPC (Provincial Peoples Committee) Chairman, residents and staffs from District, Commune, woman union, youth union attended.

Explanation by the PC Chairman

In this commune, hazard maps and a disaster management plan had been formulated during the project. This maps and plan will be revised based on the evacuation drill.

In the drills, a flood response meeting drill was carried out first at the commune office. In this meeting, the role of each responsible person and estimated disaster situation was confirmed.

Explanation by commune leader

Next, an evacuation and leading drill by the residents was carried out. Evacuation using a boat was carried out, because this pilot site is located in low land. Not only residents, but also poultry (fowl, duck) joined this drill. Further, a rescue drill and cardiopulmonary resuscitation drill was carried out supposing one person was drowned.

At the final stage of the workshop, discusison and result of each sectional meetings was presentedt. In this presentation, the project was concluded as follows.

1) The project was very useful for disaster management in Vietnam.
2) Compared to other project, this project is appreciated in the following points.
- Practical : Various practical technologies such as river bank protection, CBDRM, computer simulation & GIS etc. were transfered
- Relationship among project team
: Good relationship between Vietnamese counterpart and JICA expert
- Plan : Integrated flood plan based on the engineeering background and detail simulation
3) Project Pase 2 is essential to proceed with Vietnamesse disaster management. It is important to keep each scheme of the project phase 1, to include diaster education in school. Further, it is important to expand "Low cost small scale riveer bank protecsion technology","Enhancement of community residents disaster management capacity such as natural disaster knowledge, warning and evacuation etc.","Ennhance flood simulatoin / GIS / disaster management technology" to other central Vietnam provinces.

It is expected that expanding and deepening the project output as concluded in the above workshop will be implemented in the phase 2 off this project.

We would like to express sincere thanks for all persons involed in this project. We wish this project activities and output will contiribute Vietnamese disaster management and save Vietnamese peoples life from natural disaster.

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study and discussion.

Bureau of water resource MARD introduced relationship between flood management and upperstream dam /lagoon, Academy of wateer resouse introduced drainage plan from lagoon during flood and T.T.Hue province introduced current situation of lagoon, study in the past and project. JICA expert introduced flood simulation result in this project and Kasumigaura project as the similar project in Japan.

6. Dam Management Training was held at T.T.Hue

Safety and management of the dams is a concern all over Vietnam. The JICA expert gave a lecture for the safety of dam management at the training seminar of dam management on November at T.T.Hue.

The JICA expert explained the regular dam inspection system in Japan, introduced the pond inspection manual in Tottori prefecture Japan and gave a lecture of calculation of the effect of floods on the electric dam in T.T.Hue.

The pond inspection manual of Tottori prefecture was translated to Vietnamese under the cooperation of Japan Water Agency. This translated manual was distributed to the attendants of this training.

Workshop at Hai Phong

7. Final workshop was held on January 12 to 13

Visiting river bank project site, Jan.12, T.T.Hue

The Final workshop of this project was held from January 12 to 13 at Hue and Da Nang. Vice director from Directorate general of water resource MARD and vice chariman of T.T. Hue Peoples Committee attended this workshop. More than 100 people from the central government, provincial government, NGOs, DARD, district staffs, commune staffs and representative from pilot site communes.attended this workshop.

First day Jan.12, attendants visited pilot sites of T.T.Hue and observed the output of CBDRM activities and low cost small scale river bank protection pilot project.

Workshop, Jan.13 Da Nang

Second day Jan.13, a desk top workshop was held at Da Nang. Counterparts agencies explained outline and output of the project. Further, they explained that they have started some projects project by their own budget according to the this project output. Also, Mr.Miura long term expert presented outline of this project and Mr.Okadumi short term expert gave key note lecture.

In the afternoon, a sectional meeting was held. In this meeting detail project output and achievement was discussed and summarized including continuation and expansion of the project output.