

**REPORT ON THE 2ND TECHNOLOGY TRANSFER SEMINAR  
OF THE STUDY ON COMPREHENSIVE  
DISASTER PREVENTION AROUND MAYON VOLCANO**

**Casablanca Hotel, Convention Hall  
Legazpi City  
May 30, 2000**

**PROCEEDING:**

- (1) Invocation and Pambansang Awit by - Ms. Yolanda E. Azucena
- (2) Introduction of Participants from Concerned Agencies - Mrs. Flocerptida B. Azotea  
Administrative Officer V
- (3) Welcome Address - Engr. Eleno U. Colinares, Jr., Regional Director, DPWH V
  - Dir. Colinares gave the welcome address. In behalf of the DPWH, he welcomed the in-house JICA representatives and experts to the conduct of the 2 years study on the disaster prevention around Mayon Volcano. He also welcomed the representatives of the Governor of Albay and Legazpi City Mayor as well as representatives of other line agencies concerned.

He said that Mayon Volcano is captivating to the eyes but deceiving and dangerous. It fascinates and enchants yet behind its mystic scene lies its dangers and unpredictability. The hazards that Mayon Volcano gives to the human lives and properties are disasters so that the conduct of the seminar is a necessity and timely. This is the option and part of the master plan of the 2 year study conducted by the JICA in cooperation with the DPWH. The Japanese friends have so much to share and that we are more than willing to cooperate.

(4) Opening Remarks - Mr. Hideki SATO Leader of JICA Mayon Study Team

- Mr. Sato gave the Opening Remarks, he said that they are very proud on the attendance and that the seminar is the 2nd and last technology. He expressed his sincere thanks to the cooperation of the DPWH to the conduct of the seminar and the kind attendance of the participants.

According to him the study started in October 1, 1998 and will be completed in the year 2000. The study is almost in the final stage, through the 2nd technology transfer seminar. They are very thankful to the kind cooperation extended throughout the study period so that they can complete the study as scheduled.

Before he end, he reminded that in attending seminar they must come on time with punctuality.

(5) Presentations

- Mr. Hideki Sato, Team Leader of JICA Study Team presented the Basic Concept of Disaster Prevention. By the use of “power point”, he presented and discussed their activities during their meeting with the steering committee on October 8, 1998, their activities with the barangay residence nearby Mayon Volcano and others.
- Mr. Fumihiko FURUICHI, JICA Study Team presented the Briefing of the Draft Final Report using the Overhead Projector.
- Mr. Hiroshi Fukasawa, JICA Study Team presented the Sabo Planning Focusing on Design Debris Flow.

Table 1 - Landform Classification of Mountain Slope

Table 2 - Geomorphological Changes of Rivers Around Mayon Volcano

Table 3 - Ejecta Volume for Each Eruption

Table 4 - Comparison Ejecta Volume

- Mr. Norio Takanayagi, JICA Study Team presented the Planning of Forecasting and Warning System

- 1) The Objective of Disaster Forecasting and Warning System
- 2) Procedure for Evacuation and Emergency Response
- 3) Present Situation of the Study Area
- 4) Proposed Observation Improvement Plan
- 5) Layout of Seismograph
- 6) Identification of Coordinates of Active Magma by the Method of the Curve of Travelling Time
- 7) Estimation of Necessary Number of Rainfall Gauging Station
- 8) Evaluation of the Collected Data and Judgement

(6) AM Open Forum

- There was an open forum with the resource speakers.

Question - Engr. Abareta: I want to know whether the disaster by Mayon Volcano in 1814 was caused during the eruption or after the eruption.

Answer - The disaster occurred in 1814. Most of the disasters were caused by mud flow and debris flow not by pyroclastic flow which occurred after eruption perhaps after a long year. According to the announcement of the PHIVOLCS, unstable materials in Pawa Brabod River and Padang River moved down the slopes of Mayon Volcano after eruption. The scale of disaster is not subject to discussion. Even one casualty should be protected hence, forecasting and warning system should be improved and so with the evacuation as soon as possible.

Question - Dir. Roces: In your report, you mentioned about P 3.6 Billion, to implement the projects mentioned in the Master Plan and part will be shouldered by the LGUs. If the LGUs could not afford, what will happen to these projects same with the LGUs.

- Answer - We prepared a Master Plan. I believe the Phil. Government divides if no fund could not be achieved, my suggestion is to apply for foreign assistance.
- We made a plan which shows a very high viability. This is a matter of financial arrangement. If LGU cannot finance, maybe National Government should finance or make negotiation with the national government. It should be discussed between the NGO and LGU.
- Follow-up - Dir. Roces said that this study will come to waste if not implemented. What happened to Master Plan prepared by JICA in 1982. Only 15% were implemented because the government cannot afford, that is why sabo projects were not as expected.
- Dir. Aman, commented on the cost sharing. It is the desire of the government to have a cost sharing with LGUs to value the projects which are for their own benefits. The LGUs should handle the ROW problems.
- Mr. Tulod of NEDA. I just want to air the concern of other LGUs on the prioritization of projects. From Malinao to Quinali-Buang Sabo Facilities in San Vicente.
- Answer - Prioritization of projects were based on criteria and finally, we believed Yawa is the most feasible but we do not exclude other projects such as Buang. Step by step with TCW, we may able to prioritize other projects.
- Follow-up - Mrs. Azotea, Is there a possibility that these could be included in the final draft.
- Answer - San Vicente and Buang Rivers are included in study. But because of very low IRR said projects were moved to Year 2000.
- Question - I've been observing the Table 4 on Sabo Planning. Quinali B has zero sediment. Buang River is included in Quinali A. Quinali B starts from Buang Tabaco. Quinali B should be

given priority because it affects Tabaco and Malinao. Buang is not part of Quinali A. San Vicente is different from Quinali B.

Answer - Quinali B is a river control area.

Suggestion - It is suggested that Quinali B be given top priority.

Answer - In the original Yawa River System, only 3 rivers, Quinali A, Quirangay, Maninila, Masarawag and Ogsong. I think, we should make correction in these documents.

Mr. Sato - According to our evaluation on each project, we put less priority in San Vicente on the matter of financial arrangement, we prepared based on the assumption that the central government will consider the importance to implement the projects. I cannot say in my position for foreign assistance. Maybe, it will be discussed in detail in central government, we cannot say it can be done at once. It depends on the willingness to do by LGU themselves. It depends on the willingness to do by LGU themselves. Legazpi City always understands. That's why we included forecasting and warning system. Priority projects are based on financial consideration.

Question - During the recent eruption of Mayon Volcano, Daraga has been severely threatened with scarcity of drinking water because of the lava flow in Budiao where the source is located.

Please confirm if this water source of Daraga will be sufficiently protected by the proposed structures.

Answer - The present situation is brought by Bonga Gully. So far, I don't know the effect of lava flow is quality of drinking water. Sabo facilities don't have any positive effect on water quality maintenance.

Question - Related to the Project Evaluation, in order for the project to be reconsidered for funding, present package result in terms

of EIRR to lift these projects which are not viable so that when RDC recommend the project, they will present the whole package.

Answer - If we will package the projects, the total cost of the project will be much bigger.

- That should be question from the NEDA: even if the EIRR is lower than 15%.
- I think the suggestion can be applied in the implementation.

- Mr. Yukihiro Sakatani, JICA-DPWH Expert presented the issues on Countermeasure against Sediment Disaster, using the overhead projector.
- Mr. Masayuki Watanabe, Head of JICA Advisory Committee presented the Community Empowerment (Version 2). He gave some views on how to materialize the dream and make them come true. He presented how the poor life people can be uplifted through the helped of the women in raising cottage industry. He discussed also the great help of the JICA to the poor country by mentioning on how the cocoon was raised into industry and the planting of trees that can produce oil.
- Dir. Roces presented the Sabo Projects by the use of the overhead projector. He showed and presented the rivers that are recipient of the Sabo projects and the present condition of the existing Sabo Project implemented by the DPWH from the time they were constructed to the present.
- Mr. Furuichi, JICA Study Team, presented the review of Technology Transfer. He presented some evaluation results of the workshops and seminars held during the Study period.

(7) Impressions:

- Engr. Bertillo was impressed on how her Japanese friends give to their work. In that, there are two things which we could profitably have in our entire life&hellip; the value of time and the value of work.
- Engineer LIVARRA from the Central Office: he was grateful in working with the JICA Study Team.

- Jun Tulod (NEDA) expressed with gratitude to the resource Speakers and active participation of the participants during the discussions. To the management who served the foods at the right time.
- Ms. Bamba expressed gratitude to the Resource Speakers, active participation of the participants and the facilitators who made the seminar a successful one. She hoped that through the construction of Sabo Projects, damages to lives and properties be minimized and wished that the lead agencies and JICA Study Team will support the projects.
- A seminar evaluation was distributed for accomplishment of the participants. They were collected after the seminar.

After the discussion of the topics as scheduled, an open forum followed.

(8) PM Open Forum

Question: - Jess (DILG): after hearing the community empowerment, I think, it is time for the local executives to lobby in Congress for the increase from 5% to 10%.

Answer: - I've not aware of the percentage. The people must promote cottage industry to increase their funds for disaster prevention; If the cocoon is successful, I can buy it.

Question: - I am intrigue on the plant, please let us know scientific name or its common name.

Answer: - It is common at the foot of Mt. Pinatubo. Its name is castar.

Suggestion: - As of now, LGU can allocate fund for disaster prevention and not only for calamity funds.

Answer: - Director Roces: I think LGU can allocate funds for disaster prevention by passing a resolution on legislation congress from Sanggunian.

- Mr. Furuichi said that based on LG Code, each LGU can allocate fund for disaster prevention from taxes and other sources.
- Mr. Sato: I think Sabo Works are also important so I suggest that you talk with the Central Government.

- Dir. Roces: I agree with you. We will try to follow up with the Central Office on the allocation for Sabo Projects.
- Dir. Aman: Only now that we realize the importance of the Sabo Works, but what we built in the past 20 years, in some cases, less than 2 hours, all roads/bridges will be destroyed by flood.
- Mr. Tulod: (NEDA) Perhaps with this Study, we can now apply with ODA and LGU for funding. So probably, we can consider my suggestion a while ago to package projects to be funded by ODA with EIRR more than 15%.

Answer: - Dir. Roces said that they will do it. In fact we are preparing for possible clustering, so that it will meet the requirements of NEDA.

(8) Closing Ceremony

- Distribution of certificates to the participants.
- The seminar ended at 5:25 PM.

NOTED TAKEN BY:

ELEANOR a. BERTILLO  
*Engineer II*

YOKANDA E. AZUCENA  
*HRMO I*



**Schedule for  
the 2nd technology Transfer Seminar  
of the Study  
on Comprehensive Disaster Prevention around Mayon Volcano  
May 30,2000-06-05**

8:00 A.M. - 8:15 A.M.	:	<b>Registration</b>
8:15 A.M. - 8:30 A.M.	:	<b>Opening Ceremony</b>
8:30 A.M. - 8:40 A.M.	:	<b>Welcome address</b> <i>(by Mr. Eleno U. Colinares, Jr., Director of DPWH, Region V and Mr. Hideki Sato, Team Leader of JICA Study Team)</i>
8:40 A.M. - 9:10 A.M.	:	<b>Basic concept of Disaster prevention</b> <i>(by Mr. Hideki Sato, Team Leader of JICA Study Team)</i>
9:10 A.M. - 9:50 A.M.	:	<b>Briefing of the Draft Final Report</b> <i>(by Mr. Fumihiko Furuichi, JICA Study Team)</i>
9:50 A.M. - 10:10 A.M.	:	<b>Break</b>
10:10 A.M. - 10:50 A.M.	:	<b>Sabo Planning focusing on Design Debris Flow</b> <i>(by Mr. Hiroshi Fukasawa, JICA Study Team)</i>
10:50 A.M. - 11:30 A.M.	:	<b>Planning of Forecasting &amp; Warning System</b> <i>(by Mr. Norio Takayanagi JICA Study Team)</i>
11:30 A.M. - 12:00 Noon	:	<b>Open forum with the Resource Speakers</b>
12:00 Noon - 1:00 P.M.	:	<b>Lunch</b>
1:00 P.M. - 1:40 P.M.	:	<b>Issues on Countermeasures against Sediment Disasters</b> <i>(by Mr. Yukihiro Sakatani, JICA-DPWH Expert)</i>
1:40 P.M. - 2:20 P.M.	:	<b>Community Empowerment (Version 2)</b> <i>(by Mr. Masayuki Watanabe, Head of JICA Advisory Committee)</i>
2:20 P.M. - 3:00 P.M.	:	<b>Present Conditions of Mayon Sabo Projects</b> <i>(by Mr. Orlando B. Roces, Assistant Regional Director of DPWH Region V)</i>
3:00 P.M. - 3:20 P.M.	:	<b>Break</b>
3:20 P.M. - 3:40 P.M.	:	<b>Review of Technology Transfer</b> <i>(by Mr. Fumihiko Furuichi, JICA Study Team)</i>
3:40 P.M. - 4:30 P.M.	:	<b>Open Forum (Issues of Technology Transfer)</b>
4:30 P.M. - 5:00 P.M.	:	<b>Closing Ceremony</b>

**PARTICIPANTS TO THE 2ND TECHNOLOGY  
TRANSFER SEMINAR OF THE STUDY ON  
COMPREHENSIVE DISASTER PREVENTION  
AROUND MAYON VOLCNO  
May 30,2000**

**A. LINE AGENCIES**

	NAME	DESIGNATION	SIGNATURE
1	NELSON C. LIVARA	Engineer III	BOD, DPWH Manila
2	TIRSO PERLADA, JR.	Engineer IV	BOC, DPWH Manila
3	ORLAND M. CASIO	Engineer III	Planning Service, Manila
4	TEODORO M. CERALDE	Engineer III	BOD, DPWH Manila
5	FRANCISCO C. FUJIRINDOLA	Engineer III	BOD, DPWH Manila
6	MA. LOURDES A. PASOBILLO	TIDS	DTI-Albay
7	EDUARDO B. TALASTAS	Engineer V	DPWH R.O.V
8	MIA B. PALENZUELA	Engineer II	PMO-MFCP, DPWH Manila
9	POSY A. CANTARA	Engineer IV	DPWH R.O.V, Leg. City
10	ORLANDO S. AREVALO	CRO I	OCD R.O.V
11	ALEX V. BALOLOY	SRA	PHIVOLCS, Leg. City
12	GUILLERMO TULOD, JR.	CEDS	NEDA R.O.V
13	BENJAMIN G. BUITRE, JR.	Engineer III	DPWH R.O.V
14	CRISTETA E. MESIAS	Engineer A	NIA-Albay
15	IGNACIO T. ODIAMAN	Engineer III	DPWH R.O.V
16	BERNARDO P. AMAN	Project Director	PMO-MFCP, DPWH, Manila
17	ALEJANDRO SOSA	Engineer V	PMO-MFCP, DPWH, Manila
18	SALVADOR L. MANTO	engineer V	BOC, DPWH, Manila
19	ELEANOR A. BERTILLO	Engineer II	DPWH R.O.V
20	VICENTE A. MIRABALLES	Engineer III	DPWH R.O.V
21	JOSE T. ABARETA	Engineer III	DPWH R.O.V
22	YOLANDA G. SA-ONG	SFMS	DENR R.O.V
23	JESUS VILLAREAL		DILG R.O.V
24	MARLENE CA. P. PODRIGUEZ	Regional Director	NEDA R.O.V
25	MILAGROS ORTICIO	SWO IV	DSWD R.O.V
26	DEXTER I. ATUTUBO	Engineer III	DPWH R.O.V
27	ORLANDO B. ROCES	Asst. Reg'l director	DPWH R.O.V
28	RENATO AREVALO	Regional Director	OCD R.O.V
29	ELENO COLINARES	Regional Director	DPWH R.O.V

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**May 30,2000**

**B. Local Government Units (LGU's)**

1	GERALD GAPAYAO	CSR-DMS	PNRC-Legazpi City
2	MARGIE GUEVARRA	Draftsman I	Daraga-LGU
3	MEDIA TRIX BALBIN	Clerk IV	Daraga-LGU
4	FRANCISCO BRON	Asst. P.A.	Provincial Agricultural Services, Albay
5	PODRIGO BILAN		Malilipot-Albay
6	ROWENA ONDIZ		PDMO-Albay
7	JUAN BERCES		MPDC-Tabaco
8	HERMEZ AUSTERO	MPDC	Malinao-LGU
9	MARIANO L. GARCIA, JR.		Ligao-LGU
10	FERNANDO ROBLES, JR.		Ligao-LGU
11	NELIA BALAORO	Municipal Mayor	Sto. Domingo, Albay
12	ROMEO CABRIA	MPDC	Sto. Domingo
13	DOMINICA LORBES	Planning Officer	CPDO, Legazpi City
14	EDUARDO A. LUNA, JR.	HRMO III	City Planning – Leg. City
15	TIRSO C. PAGUIO	MPDC	Guinobatan-LGU

**C. NGO's/PO'S**

1	MYRNA PEREYRA	Social Worker	BSBI BU-Leg. City
2	CYNTHIA C. ORESTE	CEO	BSBI Found. Inst.
3	MARCIAL TUANQUI, JR.	Gov. PCC/ACCI Leg.	Albay Chamber of Commerce and Industry, Albay

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**D. JICA**

1	NORIO TAKAYANAGI	Forecasting & Warning Expert	JICA
2	HIROSHI FUKASAWA	Sabo Project Expert	JICA
3	FURUICHI FUMIHIKO	Study Team	JICA
4	HIDEKI SATO	JICA Mayon Team Leader	JICA
5	MASAYUKI WATANABW	Head of Advisory Committee	JICA
6	YUKIHIKO SAKATANI	JICA-DPWH Expert	JICA
7	NORIKO BAMBA	A.R.R.	JICA

**E. SECRETARIAT**

1	MILA MATEUM-RICO	Economist II	DPWH R.O.V
2	MA. FE E. VALENZUELA	Eng'g. Asst	DPWH R.O.V
3	YOLANDA AZUCENA	HRMO I	DPWH R.O.V
4	ISABEL CRUZ	Secretary	DPWH Manila
5	FLOCERPIDA AZOTEA	Admin. Officer V	DPWH R.O.V
6	NILO SANOSA	Utility Worker I	DPWH R.O.V
7	PEDRO CASTILLO	Photographer	DPWH R.O.V.
8	HENRY HERNANDEZ	Driver	DPWH R.O.V
9	NICOLAS PALIMA	Driver	DPWH R.O.V

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**EVALUATION OF THE 2ND TECHNOLOGY TRANSFER SEMINAR  
BY THE PATICIPANTS  
MAY 30 , 2000**

TOTAL NO. OF PARTICIPANTS: 56

TOTAL NO. OF RESPONDENTS: 33 (58.92 % of Total No. of Participants)

QUESTIONS	NUMBER OF RESPONSES	PERCENTAGE (%)
<b>Q.1 Impression</b>	33	100.00
1. Excellent	3	9.1
2. Very Good	25	75.8
3. Fairly Good	5	15.2
4. Not So Good	0	0.0
<b>Q.2. Reasons for Q.1</b>	38*	(100.00)
<b>a. Excellent</b>	3	100.00 (7.89)
1. It covered a very wide range of subjects.	1	33.3
2. Provided opportunities to gain insight or the development of disaster prevention mechanism around Mayon volcano.	1	33.3
3. It is very informative and educational, logical supports.	1	33.3
<b>b. Very Good</b>	30	100.00 (78.94)
1. Well organized	7	23.33
2. Speakers were good.	8	26.66
3. Topics discussed were clearly.	2	6.66
4. The lectures were all validated with graphs, picture and mathematical presentation to support the program.	1	3.33
5. Good venue	3	10.00
6. Very good on the technical presentation.	1	3.33
7. It was not presented on the Economic side.	1	3.33
8. The afternoon session is very good.	1	3.33
9. Presentation is clear and very interesting.	3	10.00
10. The participants were all positive in the final draft report.	1	3.33
11. I appreciate the importance of Sabo Dam.	1	3.33

12. Very informative	1	3.33
<b>c. Fairly Good</b>	5	100.00 (13.16)
1. Time is very limited.	1	20.00
2. There were topics that I was interested in.	2	40.00
3. I have attended this seminar only as MPDC representative, so I have a little background and knowledge about this JICA Sabo Dam Study.	1	20.00
4. I did not attend the 1 <sup>st</sup> seminar, so I don't have any idea.	1	20.00

<b>Q.3 Interesting Subject</b>	51*	(100.00)
1. Basic Concept of Disaster Prevention	3	5.88
2. Briefing of the Draft Final Report	3	5.88
3. Sabo Planning focusing on Design Debris Flow	7	13.73
4. Planning of Forecasting and Warning System	4	7.84
5. Issues on Countermeasures against Sediment Disasters	9	17.65
6. Community Empowerment (Version 2)	14	27.45
7. Present Conditions of Mayon Sabo Projects	2	3.92
8. Review of Technology Transfer	1	1.96
9. All Subjects	2	3.92
10. Others	5	100.00(9.8)
1. Giving importance to the prevention of disaster	1	20.0
2. Prioritized Projects	1	20.0
3. Progression of the living standard of a society	2	40.0
4. Flood and inundation mitigation	1	20.0
11. No answer	1	1.96

<b>Q.4 How did you find the Seminar?</b>	55*	100.00
a. Very good occasion to get the latest information about the disaster prevention	26	47.3
b. Very good for getting the consensus among the agencies and staffs concerned	13	23.6
c. Very good to exchange opinions and views among the participants	15	27.3
d. Others	1	1.8
1. The results of EIRR of the projects, as a package		

<b>Q.5 Opportunity to learn something new or useful for work</b>	33	100.00
a. Yes	33	100.00

Yes with reason	(23)	
b. No	0	0.00
c. Other comments	0	0.00
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<b>Reasons for Yes</b>	23	100.00
1. Manner of presentations and the very substantial contents (presentations)	1	4.35
2. Learned more about planning work, especially about the satellite images presented	1	4.35
3. Learned many knowledge and information about disaster prevention	3	13.04
4. Topics of Mr. Watanabe	2	8.70
5. Informed us of the new scheme of project program	1	4.35
6. This seminar will give me information how government is responding to the current situation of the Mayon Volcano.	1	4.35
7. Warning System	1	4.35
8. Understood past, present and future of Mayon	1	4.35
9. Sabo planning	4	17.39
10. Community Empowerment	2	8.70
11. Key to success is to increase the living standards	1	4.35
12. Various aspects or evaluation of the data collection	1	4.35
13. Rates of sedimentation	1	4.35
14. The commitment to finish work with strong initiative	1	4.35
15. Planning should be on the macro level before the details.	1	4.35
16. Additional technology that would apply to own job	1	4.35
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<b>Q.6 What did you expect the most on the priority projects and programs?</b>	35*	100.00
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1. Our living area should be included in the priority projects of JICA Study.	6	17.14
2. Priority project are well explain.	3	8.57
3. Expecting for the fast implementation	6	17.14
4. Flood mitigation of disaster and hazard	4	11.43
5. Sabo projects	4	11.43
6. Forecasting and warning system	1	2.86
7. Considering the socio economic impact	2	5.71
8. The realization of the projects and programs as scheduled	3	8.57
9. Projects should have all been prioritized.	1	2.86



10. If the government funds for other grants as funds covering for other countries are available, there will be implemented.	1	2.86
11. No suggestion	4	11.43
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<b>Q.7 What is your opinion about the beneficiary-to-pay principle or cost-sharing concept?</b>	33	100.00
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1. Approval	22	66.67
This is a good method.	11	33.33
Maybe possible	2	6.06
It's just fair and very reasonable.	2	6.06
There is really a need for beneficiary to adopt such projects.	2	6.06
It's a good way to start an being self-reliant.	2	6.06
Contribute their shore, counterpart fund and cost in the implementation of the project	1	3.03
Other comments	2	6.06
2. Opposite	6	18.18
The beneficiaries may not be able to pay.	5	15.15
The LGU will be having difficulty	1	3.03
<hr/>		
3. No answer	5	15.15
<hr/>		
<b>Q.8 (1) What project and/or program do you expect to be realized first?</b>	43*	100.00
<hr/>		
1. Sabo project	11	25.58
2. Flood control	7	16.28
3. Forecasting & warning system	4	9.30
4. Project with high IRR	2	4.65
5. Yawa river and tributaries improvement	2	4.65
6. All of them	2	4.65
7. Sediment prevention	1	2.33
8. The priority projects	1	2.33
9. The completion of the structures	2	4.65
10. The project concerned to the area of Legazpi city and Sto.Domingo.	3	6.98
11. The Quirangay A river project	1	2.33
12. Relocation and livelihood rent	1	2.33
13. Flying over bridge in Basud	1	2.33
<hr/>		
14. No answer	5	11.63
<hr/>		

<b>Q.8 (2) Do you want to implement them as a whole or a part?</b>	33	(100.00)
1. As a whole	16	48.48
2. By part	3	9.09
3. Priority project only	1	3.03
4. It appears that all findings of the JICA team are important to disaster prevention, we must prioritize what is necessary to achieve the objective of the study.	1	3.03
5. No answer	12	36.36
<b>Q.8 (3) In either case, are you ready to share its cost?</b>	33	100.00
Yes :	16	48.48
Others :	2	6.06
1. As an NGO, maybe we are not in a position to share costs.		
2. The province of Albay had already given this part by purchasing resettlement sites and providing livelihood organized already donor's forum from corporate donors.		
No answer	15	45.45
<b>Q.9 Suggestions / comments or Expectations</b>	33	100.00
1. Immediate action of the project	11	33.33
2. Create new budget / jobs to establish livelihood	1	3.03
3. Follow-up and coordinate projects	3	9.09
4. Commitment, service, support and transparency of agencies concerned and involved	8	24.24
5. No comment	2	6.06
6. No answer	8	24.24


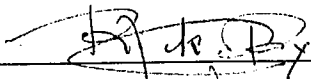
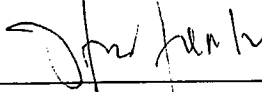
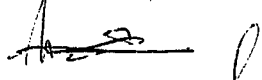
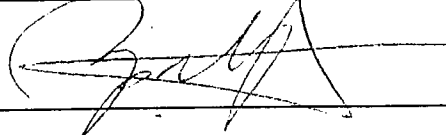
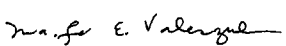
\* Multiple answers

**WORKSHOPS FOR THE SECOND PILOT PROJECT**

JICA  
Study on the Comprehensive Disaster Prevention  
Around  
Mayon Volcano in the Republic of the Philippines

THE LIST OF THE ATTENDEES  
OF  
THE 1<sup>st</sup> WORKSHOP FOR THE 2<sup>ND</sup> PILOT PROJECT

- The Maintenance and Improvement of System Software
- June 05, 2000
- DPWH Region V

Name (Print)	Signature	Position
Norio Takayanagi		JICA Study Team
Ricardo Dy		
Orlando S. Arevalo		CIVIL DEFENSE OFFICER I
Brigildo Fabia		engineer Planner
Vicente Repolles		DRAFTSMAN I
Ma.Fe E. Valenzuela		Eng's Asst.

Study on Comprehensive Disaster Prevention  
Around Mayon Volcano in the Republic of the Philippines

**Plan of Operation for Pilot Project (II)**  
**of**  
**Forecasting, Warning and Evacuation**

1. Background

The JICA is undertaking the captioned study in accordance with the request made by the Government of the Philippines. The objectives of the study are:

- formulation of a Master Plan for disaster prevention
- feasibility study on the priority projects selected in the Master Plan
- technology transfer to the staff of GOP

The JICA is carrying out the Study entrusting the works to the Study team formed by the selected consultants and formulated the proposed Master plan as presented in the Interim Report prepared in July 1999. The Steering Committee and Working Group organized by the GOP to steer and cooperate the works of the JICA duly accepted the proposed Master plan at the meeting held in August 1999 in Manila.

The Master plan focused on the following plans as effective measures to disaster:

- Structural mitigation plan
- Resettlement plan and
- Forecasting, warning and evacuation plan

The implementation of a Pilot Project to conduct forecasting, warning and evacuation in a selected barangay is one of the highlights of the study. In this connection, the Steering Committee and the Working Group agreed to specify the Pilot Project as follows:

- Barangay : Mabinit
- Hazard : Mud and debris flow
- Schedule : End November 1999
- Activity : Disaster prevention  
(Forecasting, warning, evacuation and release)

2. Objective

The objective of the Pilot Project is to examine the forecasting, warning and evacuation methods proposed in the Master Plan for their effectiveness. The identified issues are to be reflected in the final forecasting, warning and evacuation plan.

### 3. Concept of the Pilot Project

#### 3.1 Scenario

- a. 1<sup>st</sup> warning/ROCD/DPWH/PDCC/CDCC/BDCC (lead time of 4 hours?)

PAGASA gives situationer on the possibility of the heavy rainfall in the area. OCD and DPWH monitor the rainfall in the watershed area of the Pawa-Burabod river on the basis of the rainfall data transmitted from the rainfall gauging stations established on the right bank of the Pawa-Burabod river and the left bank of the Padang river. The rainfall depth in the watershed area is to be estimated automatically in accordance with the program installed in the data processor.

In case the combination of accumulated rainfall and rainfall intensity exceeds the designated value, the processor will disseminate the first warning to the staff of ROCD and DPWH. The first warning is to arouse the attention of the staff of both agencies. The responsible staff of the agencies must sit in front of the monitor and watch the fluctuations of rainfall. Staff of both agencies shall watch and wait for further development in accordance with the manual. The ROCD will issue a status report to PDCC. PDCC will issue warning to CDCC and BDCC and ask them to be on stand by for further instruction.

- b. 2<sup>nd</sup> Warning/ROCD, PDCC, CDCC, BDCC and individual persons (lead time of 3 hours?)

The next warning will be disseminated automatically to ROCD and DPWH if the rainfall increase further, either accumulated rainfall or intensity or both, and exceed the designated value. The second warning is to urge to start the preparations for evacuation. The information will be transmitted through the existing SSB communication system to the provincial and city DCC from ROCD. The information will be transmitted to barangay DCC from CDCC through cellular telephone. The BDCC disseminates the 2<sup>nd</sup> warning to individual persons in accordance with the procedure stipulated in the Manual. The warning will also be announced through radio in coordination with the Public Information Agency (PIA). Each family commences to prepare to evacuate in accordance with the procedure written in Manual. CDCC prepares the evacuation vehicle to fetch the evacuees and request the evacuation center (Gogon Elementary School) to receive evacuees.

c. 2<sup>nd</sup> warning/DPWH

The warning is, on the other hand, to urge DPWH to commence the preparation to preserve infrastructures to secure the availability of the facilities. DPWH shall organize Disaster Coordinating Body. The staff are to be dispatched to the sites to investigate the strategic parts of infrastructures in accordance with the Manual. Staff shall report the situations of infrastructure to the organized DCB in the regional office. The DCB formulates emergency response plan such as the emergency protection of dikes. The DCB prepares to execute the plan.

d. 3<sup>rd</sup> warning/ROCD, PDCC, CDCC, BDCC and individual persons (lead time of 2 hours?)

The 3<sup>rd</sup> warning is to be disseminated when the occurrence of hazard is convinced. The information is to be transmitted from ROCD to PDCC, CDCC through SSB and to BDCC through cellular telephone. BDCC advises the individual person to evacuate. ROCD, PDCC and MDCC shall monitor evacuation through the communication system. CDCC sends vehicles for evacuation to the designated pick up points and fetch evacuee to convey them to the center. The evacuation center receives and registers evacuees. The center allocates rooms and supplies necessary goods to the evacuees.

e. 3<sup>rd</sup> warning/DPWH

DPWH starts to execute the plan.

f. Release

When rainfall subsides and hazard is confirmed not to occur any more, release information is to be disseminated and all the staff and individual persons may resume their ordinary activity.

CDCC sends vehicle to the center to send evacuees back to the pick up points.

DPWH prepares the report on the emergency response to record the activities and to materialize for the future improvement of maintenance works.

### 3.2 Participants

Agencies :	ROCD, PDCC, CDCC, BDCC (Mabinit) Legazpi City, CSWDO, CHO, PNP, BFP, DECS, Gogon Elementary School, DPWH, PAGASA, PHIVOLCS
Barangay :	Mabinit
Observer :	JICA Study Team

### 3.3 Facility and Equipment

Forecasting	:	Telemetered rainfall-gauging system Gauging station – Mabinit and Buyuan Control Station – ROCD and DPWH Region V
Warning	:	ROCD, PDCC, CDCC – VHF CDCC, BDCC – Cellular phone
Evacuation	:	City truck
Inspection	:	4WD vehicle
Emergency response	:	Dump truck or other heavy equipment
Evacuation Center	:	Gogon Elementary School
Release	:	City truck
Manual	:	Barangay – Barangay Disaster Management Manual (Evacuation) ROCD - Emergency Response Manual DPWH – Emergency Response Manual

### 3.4 Observation and Analysis

Motion-Time Study	:	Forecasting, warning, evacuation, inspection and emergency response
Analysis	:	Assessment of the proposed forecasting system, warning system, evacuation procedure, accommodation of evacuation center, the procedure of the organization of Disaster Coordinating Body, the procedure to inspect site, the procedure to implement the emergency response and manuals and SOP.

### 3.5 Time Table of the Scenario

ACTIVITY	EXPECTED OUTPUT	TIME	OPR
<b>ALERT LEVEL I</b>			
<b>Situation :The Buyuan and Mabinit rainfall gauging stations detect a heavy rainfall</b>			
a) Issuance of information on the possibility of heavy rainfall in the area	- PDCC activated	5 minutes	PAGASA
a) Issuance of 1 <sup>st</sup> warning to CDCC and PDCC	- CDCC and BDCC activated	5 minutes	ROCD
	- BDCC on stand-by	5 minutes	CDCC
b) Dissemination of the			



<p>warning to BDCC through VHF radio.</p> <p>c) Close monitoring of the rainfall fluctuations</p>	<p>- Issuance of appropriate notice determined</p>	<p>60 minutes</p>	<p>ROCD and DPWH</p>
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ACTIVITY	EXPECTED OUTPUT	TIME	OPR
<p><b>ALERT LEVEL II</b>  <b>Situation: Monitoring systems both at the ROCD and the DPWH Region V detect that rainfall reached the critical level</b></p>			
<p>a) Issuance of 2<sup>nd</sup> warning to CDCC and PDCC</p>	<p>- Notice for preparation to evacuate transmitted</p>	<p>5 minutes</p>	<p>ROCD</p>
<p>b) Dissemination of the warning to BDCC</p>	<p>- Required manpower and logistics mobilized to disseminate notice to residents</p>	<p>5 minutes</p>	<p>CDCC</p>
<p>c) Dissemination of the warning to the people by siren blast or church bells  radio announcement</p>	<p>-Residents informed of the preparation to evacuate</p>	<p>5 minutes</p>	<p>BDCC PIA</p>
<p>c) Preparation of evacuation kits</p>	<p>- Residents prepared to go to the designated pick-up points</p>	<p>15 minutes</p>	<p>Residents</p>
<p>d) Preparation of the evacuation center to receive evacuees</p>	<p>- Required manpower, rooms and facilities in place</p>	<p>60 minutes</p>	<p>Gogon Elementary School</p>
<p>e) Sending of warning to the District Engineer</p>		<p>5 minutes</p>	<p>DPWH</p>
<p>f) Investigation of the Pawa-Burabod river at strategic points</p>	<p>-Disaster Mitigation Team activated to undertake repairs</p>	<p>60 minutes</p>	<p>DPWH</p>
<p>g) Planning of the emergency maintenance of the channel</p>	<p>-Need for any type of emergency maintenance determined  - Damage control plan formulated</p>	<p>30 minutes</p>	<p>DPWH</p>

ACTIVITY	EXPECTED OUTPUT	TIME	OPR
<b>ALERT LEVEL III</b>			
<b>Situation: Residents will have to be evacuated to Gogon Elementary School</b>			
a) Issuance of the 3 <sup>rd</sup> and final warning to CDCC and PDCC	-Notice for immediate evacuation transmitted	5 minutes	ROCD
b) Dissemination of the final warning to BDCC	-Required manpower and logistics mobilized to disseminate notice to residents	5 minutes	CDCC
c) Dissemination of the notice to evacuate to the residents through siren blast or church bells and radio announcement	-Residents prepared to go to the pick-up points	5 minutes	BDCC PIA
d) Movement from residences to pick-up points	- Residents informed of assigned vehicles	15 minutes	Residents, BDCC
e) Mobilization of manpower and vehicles	- Required number of manpower and vehicles dispatched to pick-up points	15 minutes	CDCC
f) Organization of medical teams in Barangay Mabin it and in the evacuation center	- Required medical personnel and medical supplies dispatched to the barangay for first aid and emergency treatment on site and at the evacuation center	60 minutes	CHO
g) Transport of evacuees to Gogon Elementary School	- All evacuees brought to the evacuation center according to the prioritization	50 minutes	CDCC, BDCC
h) Barangay Mabin it secured	- Security in the area maintained	180 minutes	PNP, BDCC
i) Designation of the evacuees to respective rooms	- All evacuees were registered and given room assignments at the evacuation center	120 minutes	DECS, CSWDO
j) Conduct of session with the evacuees	- Evacuees provided information on disaster management	60 minutes	CSWDO
k) Preparation and distribution of the food to the evacuees	- Evacuees given their meals at the evacuation center		CSWDO BSBI

ACTIVITY	EXPECTED OUTPUT	TIME	OPR
l) Provision of water supply at the evacuation center	Adequate water supply assured	60 minutes	BFP
m) Maintenance of peace and order at the evacuation center	Evacuation center secured	240 minutes	PNP
n) Dispatch of the emergency response team to the site	Damage control plan implemented	40 minutes	DPWH
o) Transport of the medical team from Barangay Mabinit to the city	Medical team returned to normal duty	50 minutes	CHO
<b>NORMAL ACTIVITY</b>			
<b>Situation : The rainfall subsides</b>			
a) Issuance of notice to CDCC and PDCC that the danger is over	- Notice to return to the barangay recommended	5 minutes	ROCD
b) Announcement to the BDCC that the situation is back to normal and the evacuees can return home.	- Notice to return to the barangay is issued	5 minutes	CDCC
c) Dissemination of the information to return to the barangay to the residents	- Residents prepared to go home	5 minutes	BDCC PIA
d) Mobilization of manpower and transportation facilities	-Total number of manpower and vehicles dispatched	15 minutes	CDCC
e) Movement from the evacuation center to the vehicles	- Residents get into the assigned vehicle	15 minutes	CDCC, BDCC, Residents
f) Transport of residents to Barangay Mabinit	-All residents assisted in their return to the barangay	50 minutes	CDCC, BDCC
g) Transport of the medical team at the evacuation center back to the CHO	-Medical team resumed normal duty	10 minutes	CHO
h) Preparation of report on The emergency response	-Improvement plan recommended	15 minutes	DPWH

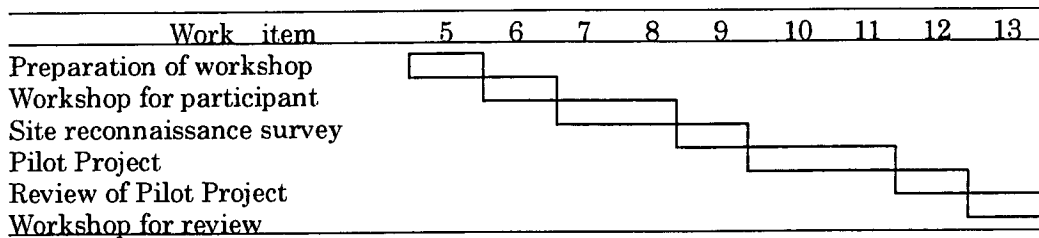
4. Schedule

First meeting (participants)	10 (Fri) Aug. 1999
Preparation of Manual (BDCC)	by 15 Nov. 1999
Preparation of Manual (DPWH)	by 15 Nov. 1999
Preparation of Manual (OCD)	by 15 Nov. 1999
Second Meeting (Participants)	17 (Thu) Nov. 1999
Workshop (Barangay)	24 (Wed) Nov. 1999
Pilot Project ( I )	27 (Sat) Nov. 1999
Workshop (Barangay)	2 (Thu) Dec. 1999

5. Pilot Project ( II ) and Its Schedule

Pilot Project focussing warning and evacuation was conducted on 27 Nov. 1999. However forecasting and emergency response were not conducted on that occasion because forecasting facility in the office of DPWH region V had not been installed. The Study is to execute the Pilot Project ( II ) focussing on the emergency response activity of DPWH.

The contemplated time schedule for Pilot Project (II ) is as follows;



ACRONYMS

BDCC  
BFP  
BSBI  
CDCC  
CHO  
CSWDO  
DPWH  
PAGASA

PDCC  
PIA  
PNP  
ROCD

Barangay Disaster Coordinating Council  
Bureau of Fire Protection  
Bicol Small Business Institute  
City Disaster Coordinating Council  
City Health Office  
City Social Welfare and Development Office  
Department of Public Works and Highways  
Philippine Atmospheric, Geophysical and  
Astronomical Services Administration  
Provincial Disaster Coordinating Council  
Public Information Agency  
Philippine National Police  
Office of Civil Defense, Region V

**DPWH Regional Disaster Coordinating Body  
(Organization and Activity)**

**1. DPWH Regional Disaster Coordinating Body**

**1.1 Function**

- Preparation of Regional Disaster Preparedness (RDPP)
- Oversee of RDPP
- Preparation and submittal of necessary reports on disaster operations, rehabilitation activities and situation reports
- Coordination with RDCC and provision of support/assistance as may be required of DPWH in the region.

**1.2 Organization**

- |   |   |  |
|---|---|--|
| Chairman                                      | - | Regional Director                            |
| Vice-Chairman                                 | - | Assistant Regional Director for<br>Operation |
| Executive Officer<br>(Representative to RDCC) | - | Assistant Regional Director for Admin.       |
| Member  | - | All Division Chiefs                          |

**1.3 Operation Center**

The body shall establish an Operation Center which will be the nerve center for directing disaster operations and of disaster-related communications and reports.

**1.4 Operational Staffs and Action Team**

To carry out its functions, the body shall organize its Operational Staffs and Action Teams

- Administration and Communications Staff
- Transportation and Supply Staff
- Monitoring and Survey Team
- Rescue and Evaluation Team
- DPWH Assistance Team
- Technical Planning Staff
- Repair and Restoration Team

**1.5 Coordination among  
District/City Disaster Coordinating Bodies**

A District/City Disaster Coordinating Body responsible for the implementation of its disaster preparedness program in its district/city or city is to prepare and submit situation reports to RDCB. The RDCB coordinates the activities of D/C DCBs through

the assessments by the staffs and teams. The RDCB assists the activities of D/C DCBs upon the request therefrom. The RDCB, however, also takes action on the basis of its own judgment cooperating relevant D/C DCB.

- 2 Functions of Staff
  - 2.1 Administration  
Provide administrative supports (personnel, equipment and financial)
  - 2.2 Communication Staff  
  
Provide communication support (telephone, telegraph, radio and courier)
  - 2.3 Transportation Staff  
  
Provide transportation support (transporting facilities)
  - 2.4 Supply Staff  
Provide supply materials (construction materials)
  - 2.5 Technical Planning  
Formulation of disaster mitigation plan (emergency response, rescue, evacuation, repair and rehabilitation)
- 3 Functions of Team
  - 3.1 Monitoring and Survey
    - Monitoring, forecasting and warning
    - Inspect and survey damages to infrastructure
    - Inform and describe the surveyed results to RDCB operation center
    - Monitor emergency activities or various team
  - 3.2 Rescue and Evacuation
    - Rescue and moving the injured or trapped
    - Help evacuation
  - 3.3 Assistance
    - Dismantling and demolition
    - Assist relief operation of red cross and social services by providing vehicle and personnel
    - Salvage and recovery operations

### 3.4 Repair and Restoration

- Maintain, repair and restore the damageable or damaged road and bridges
- Maintain, repair and restore the damageable or damaged river and drainage facilities
- Maintain, repair and restore the damageable or damaged infrastructures.

### 4 Participants to the Second Pilot Project

- Establishment of RDCB
- Establishment of Operation Center
- Activation of Monitoring Team
- Repair and restoration team