

Fig. 2.1.2 Result of Hearing Survey in Namtar / Tilar Area

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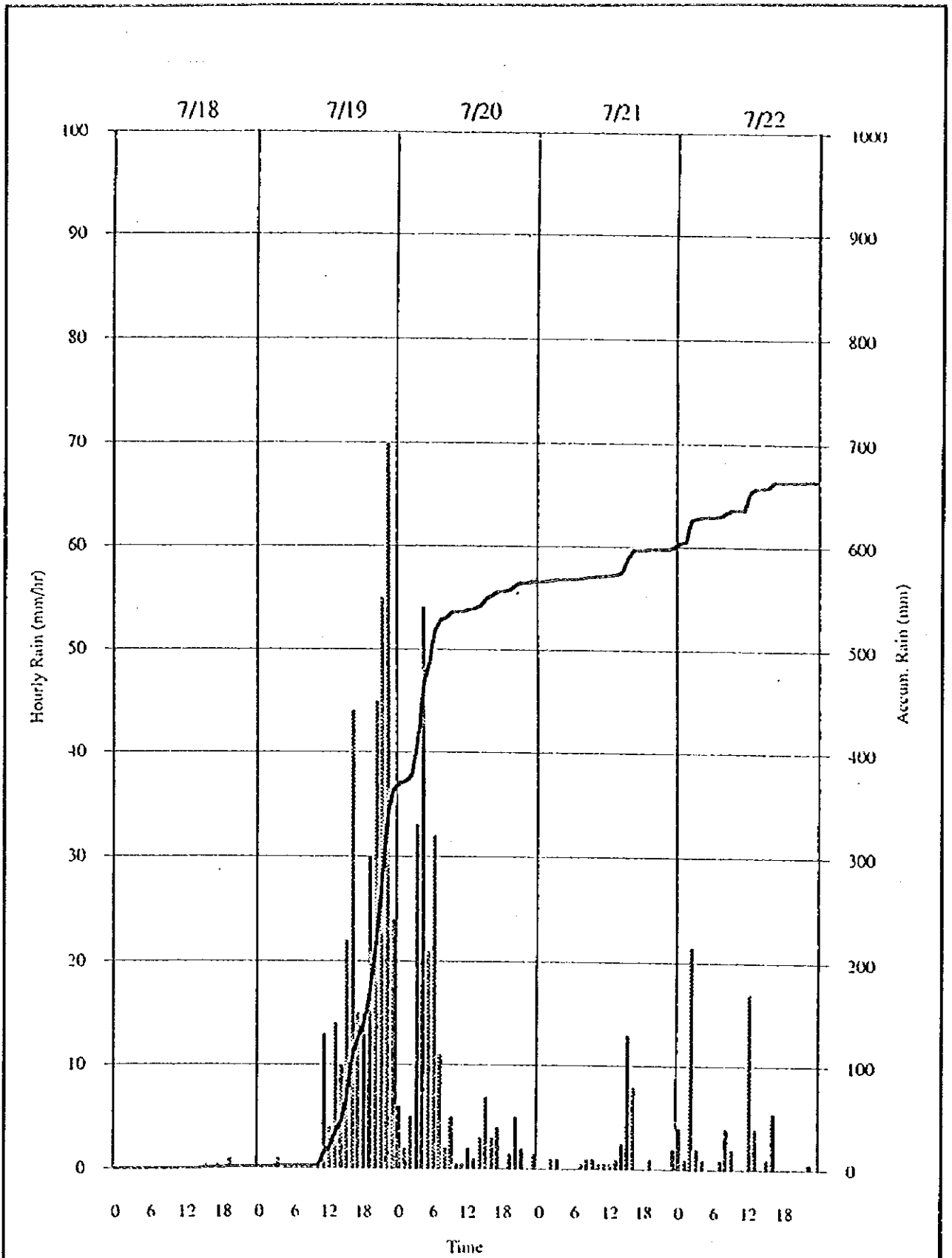


Fig. 2.1.3
Observed Storm Rainfall Pattern at
Tistung at 1993 Disaster

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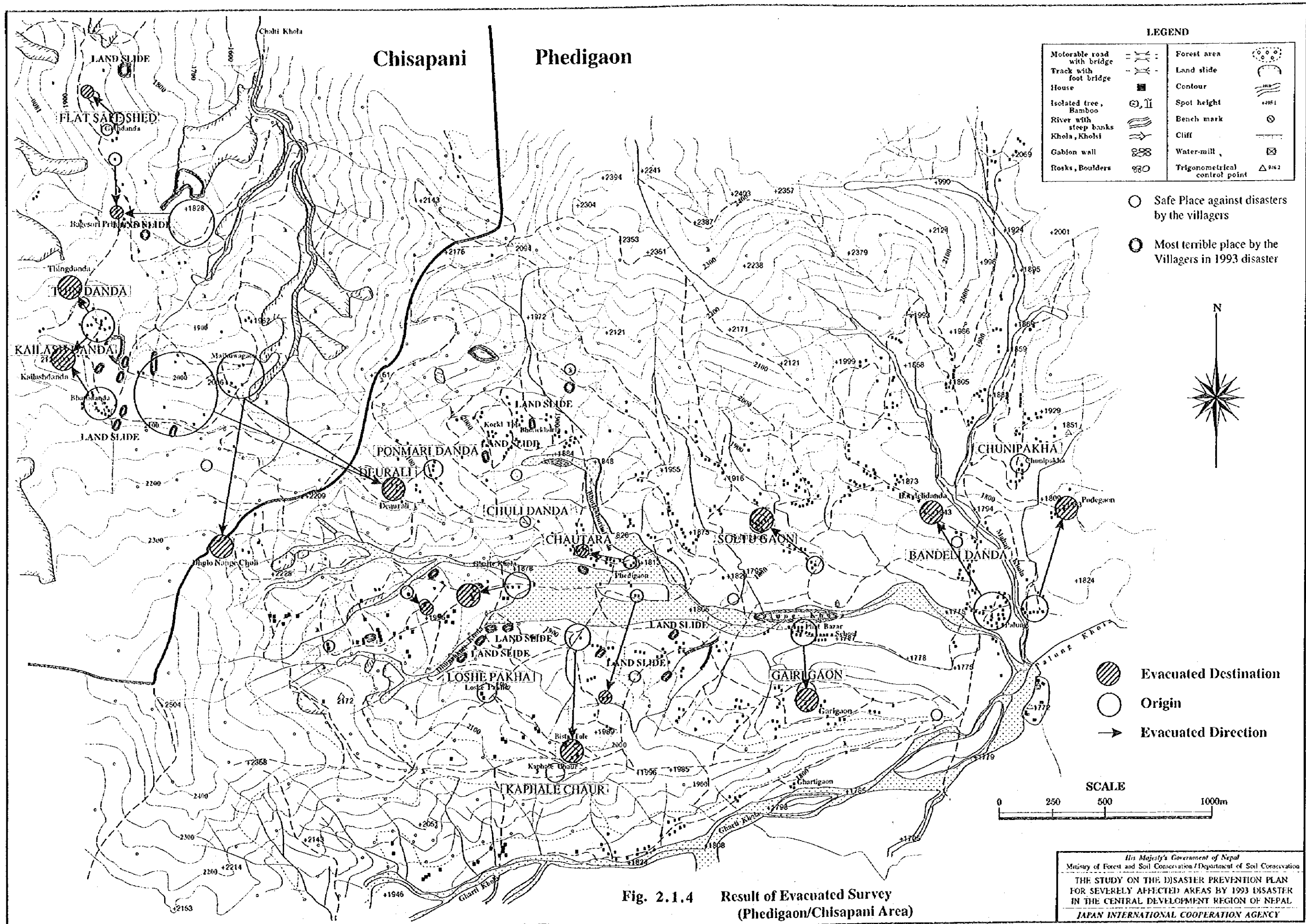
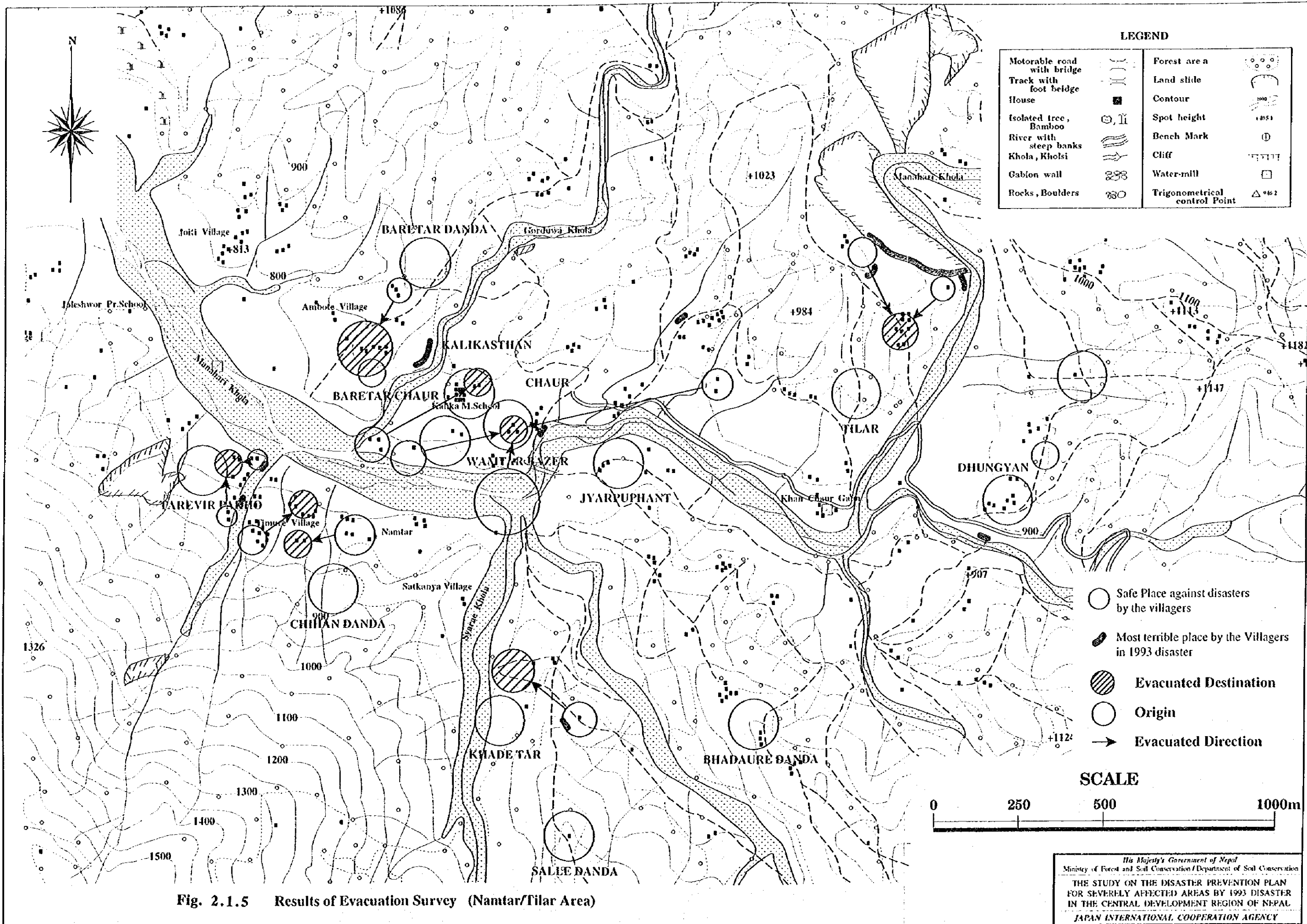


Fig. 2.1.4 Result of Evacuated Survey (Phedigaon/Chisapani Area)



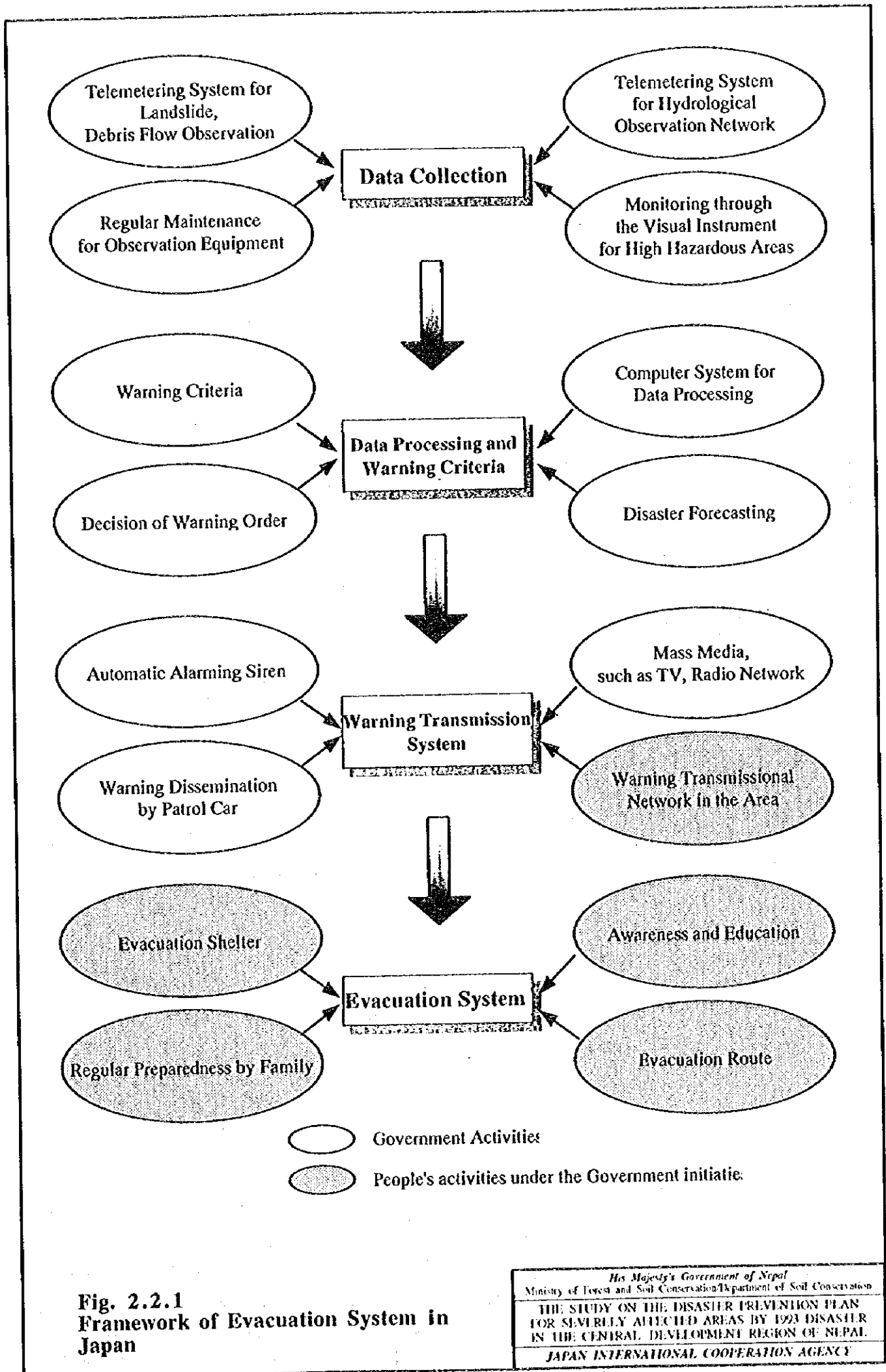
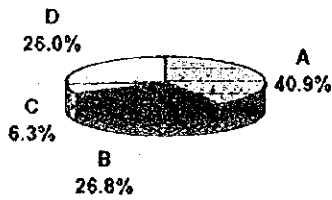
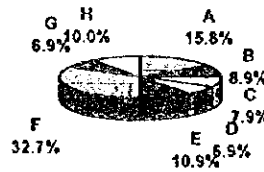


Figure Reasons for Evacuation Order.



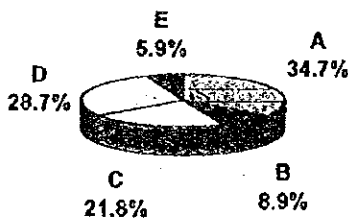
- A: Meteorological Information
- B: Information of disaster from residents
- C: Information of disaster from related organizations
- D: Others

Figure Time Lag from Evacuation Order to occurrence of Disaster



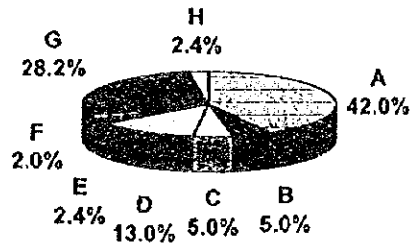
- A: More than twelve hours
- B: From six hours to twelve hours
- C: From two hours to six hours
- D: From one hour to two hours
- E: Less than one hour
- F: Less than six hours from occurrence of disaster
- G: More than six hour from occurrence of disaster
- H: Unknown

Figure Evacuation situation when Evacuation Counsel for Disaster was announced



- A: Evacuation situation when Evacuation Counsel for Disaster was announced
- B: Almost Residents were evacuated independently.
- C: Residents from 20% to 30% were evacuated independently.
- D: Almost Residents were not evacuated.
- E: No answer

Figure Reasons not to be evacuation order



- A: Because, No disaster have been occurred by such of rainfall.
- B: Because, No time for operation of disaster preparedness due to sudden heavy rain.
- C: Because, No smooth communication is possible due to sudden heavy rain in midnight.
- D: Because, There would not be less possibility to affect residential areas directly.
- E: Because, Meteorological Information did not give such as heavy rain to us.
- F: Because, There was much different rainfall condition between disaster areas and observation area.
- G: Others

Fig. 2.2.2 Results of Hearing Survey to Local Government in Japan

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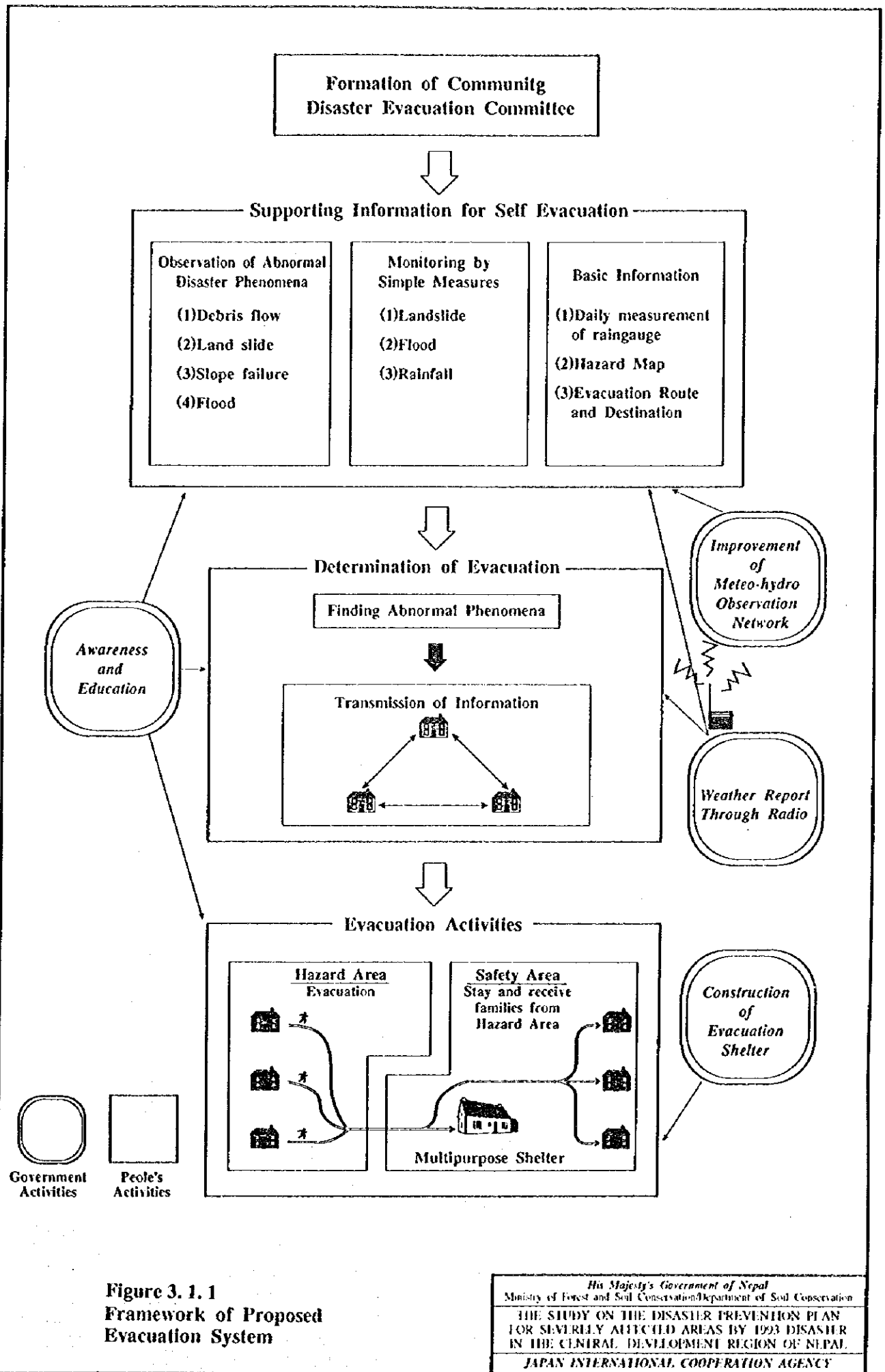
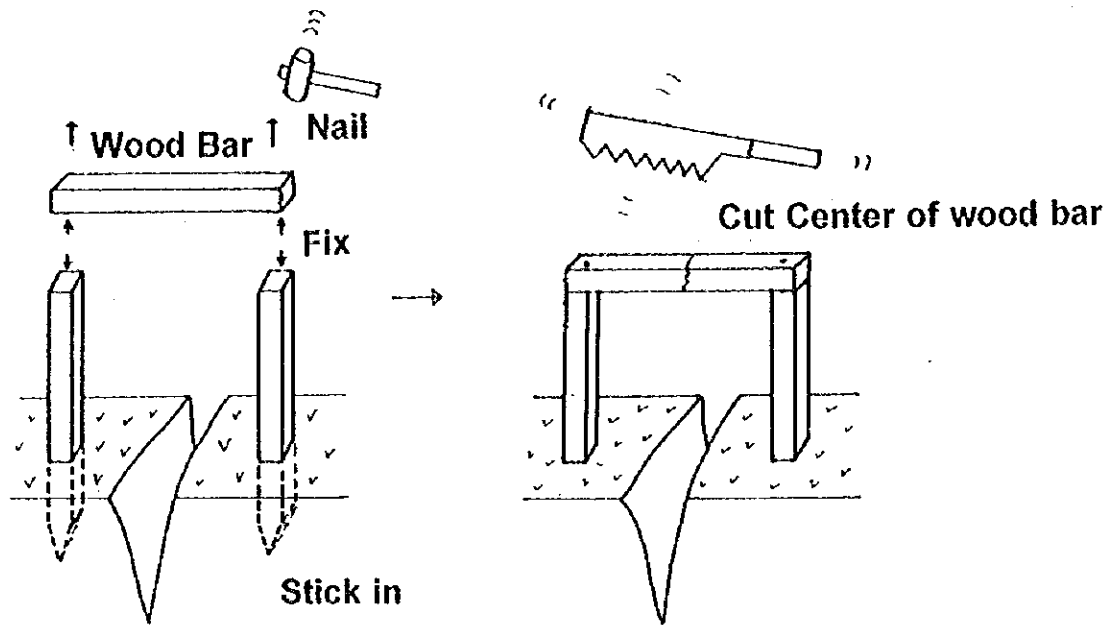


Figure 3. 1. 1
Framework of Proposed Evacuation System

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Stable

Equipment attached on cracks

Active

Direction of Moving Landslide Block

Occurrence of Tension Cracks
 ↓
 Separation of Wood Bar Joint
 ↓
 Warning for Landslide Disaster

Fig. 3.3.1
Simple Monitoring Measure for
Landslide

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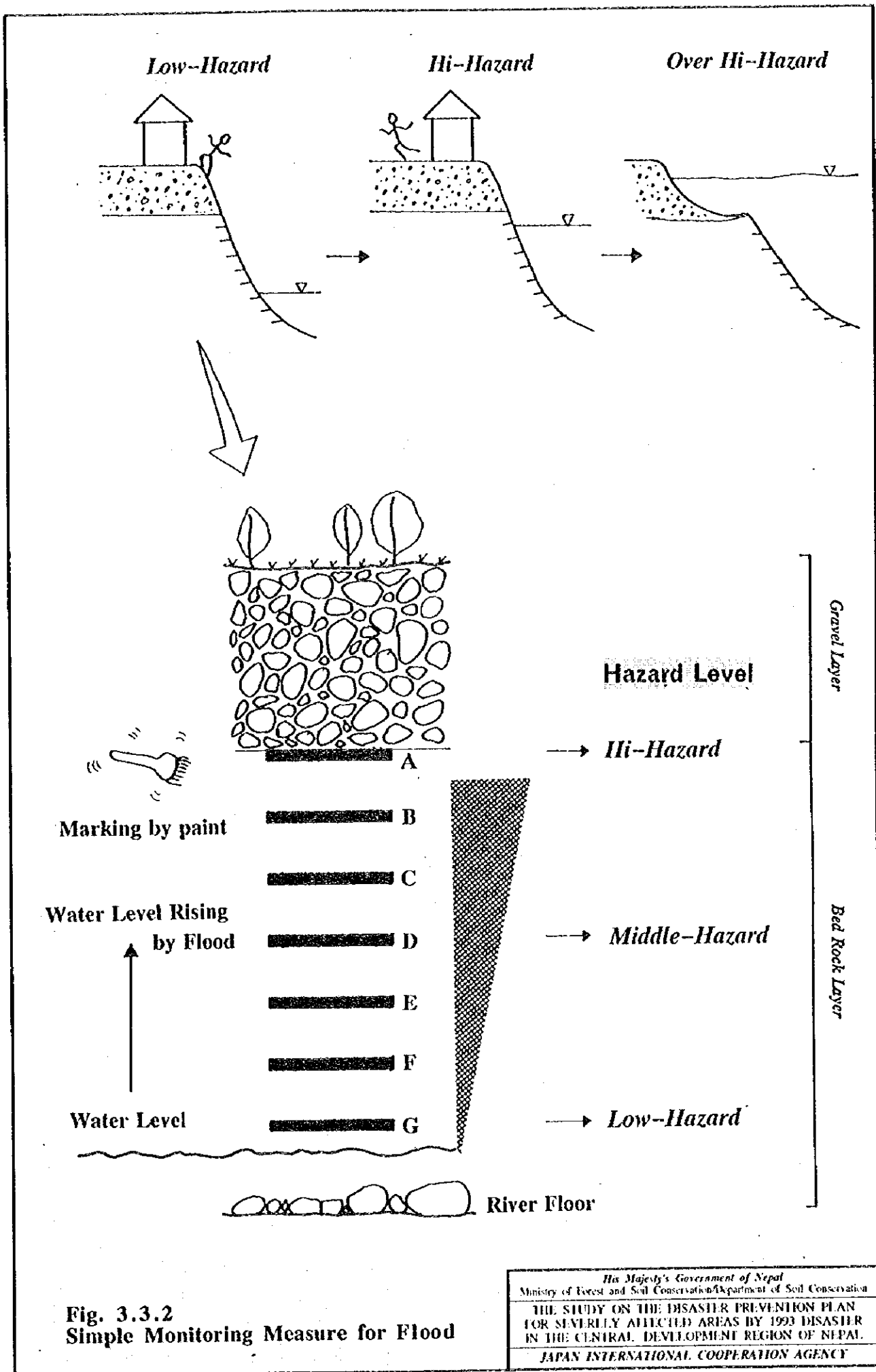


Fig. 3.3.2
Simple Monitoring Measure for Flood

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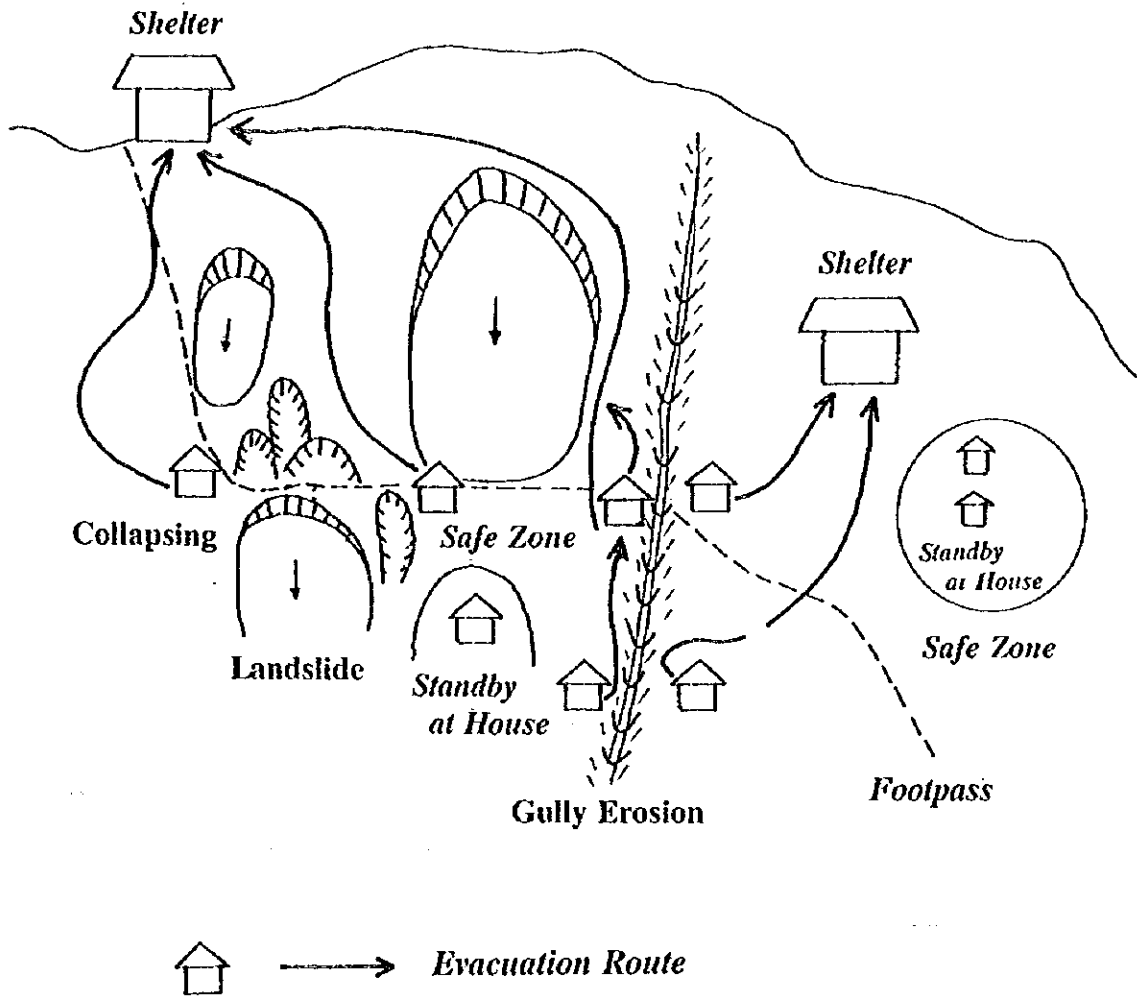
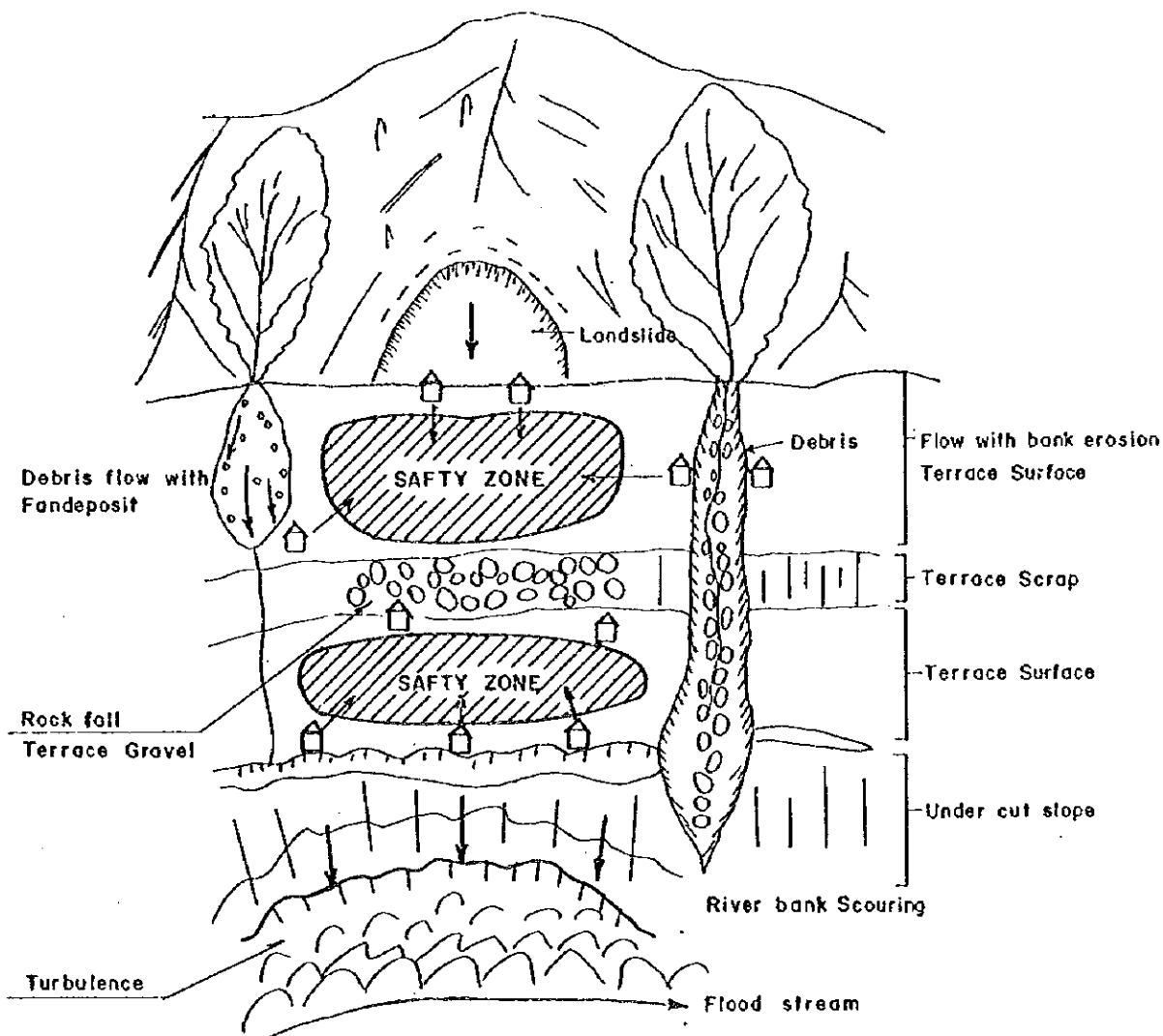


Fig. 3.3.3
General Procedures to design the
Evacuation Route and Destination for
Mountainous Area

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LEGEND:

↑ High Hazard House

Image of the Relation between Disaster and Evacuation

Fig. 3.3.4
General Procedures to design
Evacuation Route and Destination for
River Terrace Area

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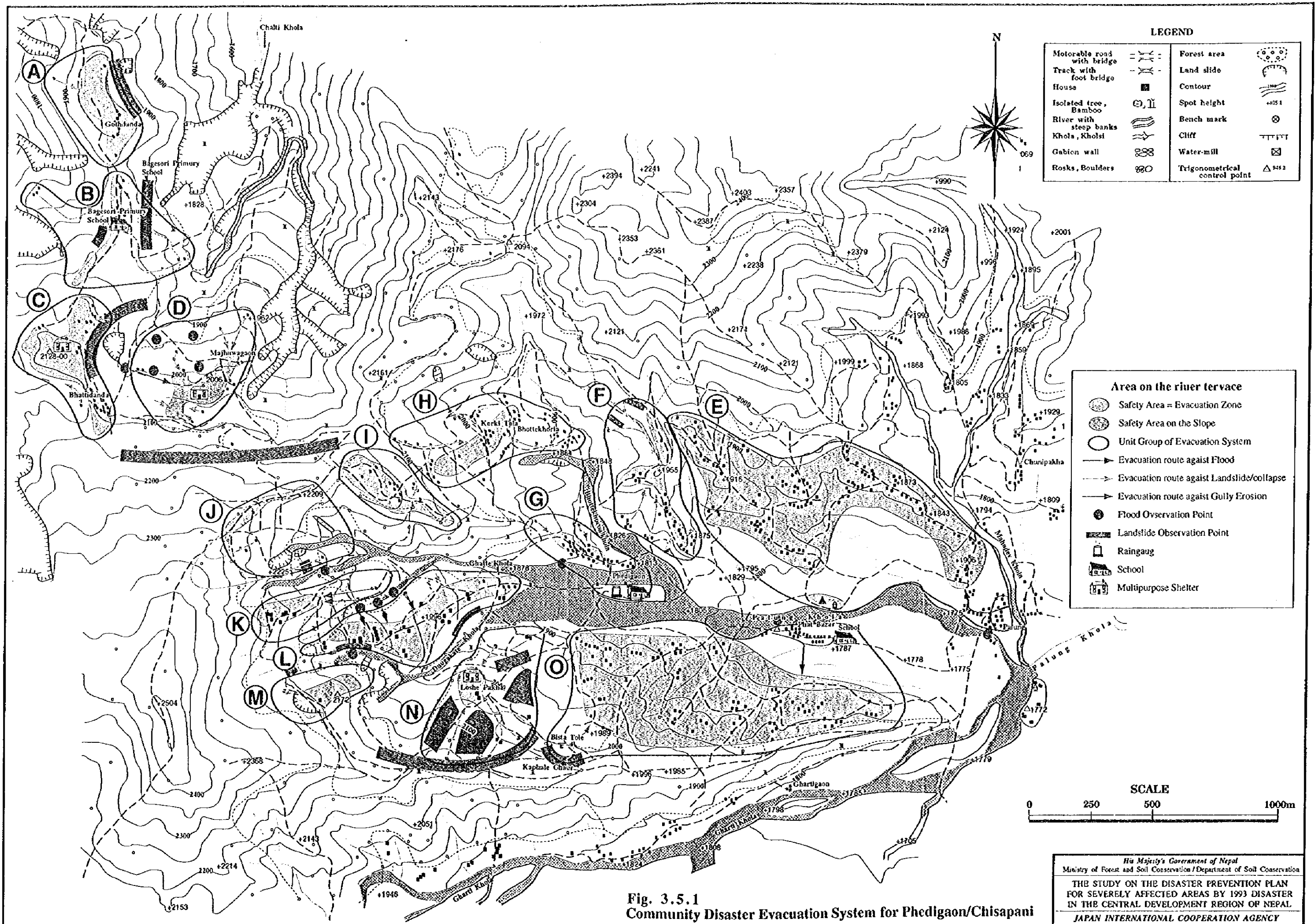
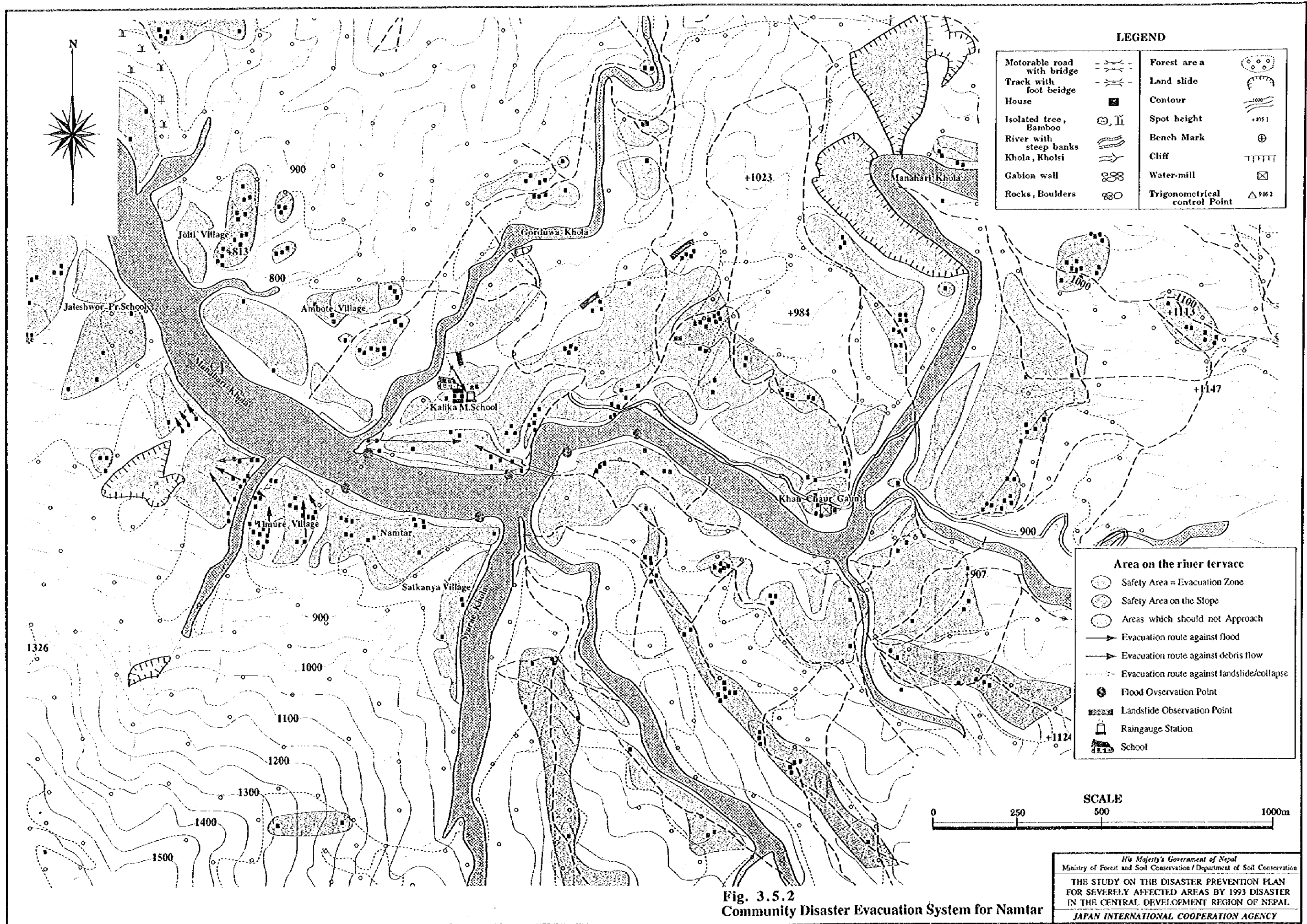


Fig. 3.5.1
Community Disaster Evacuation System for Phedigaon/Chisapani

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ANNEX - 5

APPENDIX

Q1. Name (SHOWN ON THE TABLE)

Q2. Caste (SHOWN ON THE TABLE)

Q3. Occupation (SHOWN ON THE TABLE)

Q4. Number of Family (SHOWN ON THE TABLE)

Q5. Location of Residence (SHOWN ON THE MAP)

Other Information

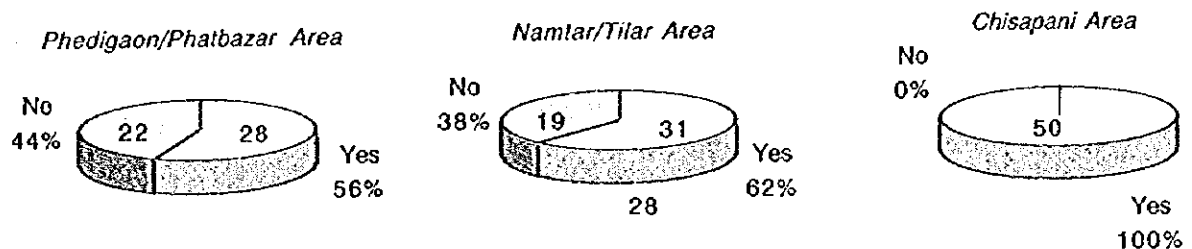
(Namtar Area)

- My house was on the river bed which was flown by 1993 disaster. <Sample No.1-3,7-8>

(Chisapani Area)

- My house was in Majuwagaon before, but that was washed out by landslide. Now I am setting new house at Bhatt Danda. <Sample No.7>

Q6. Whether you and your family have evacuated or not at 1993 disaster?

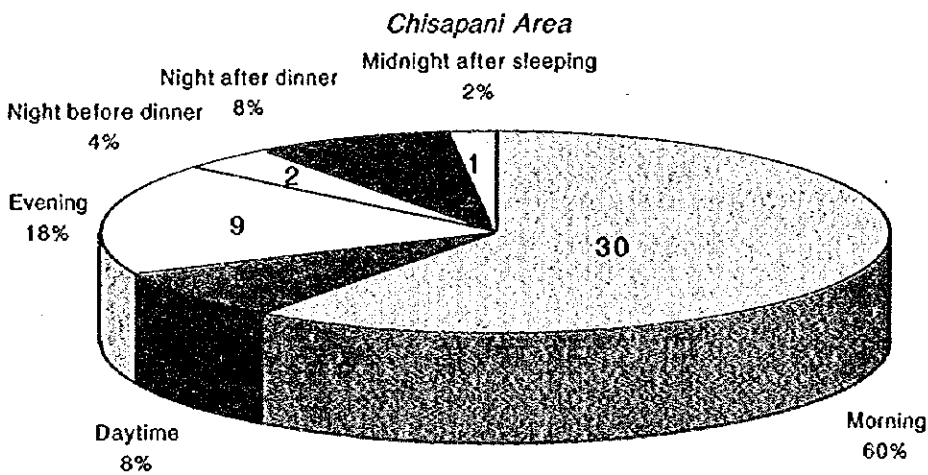
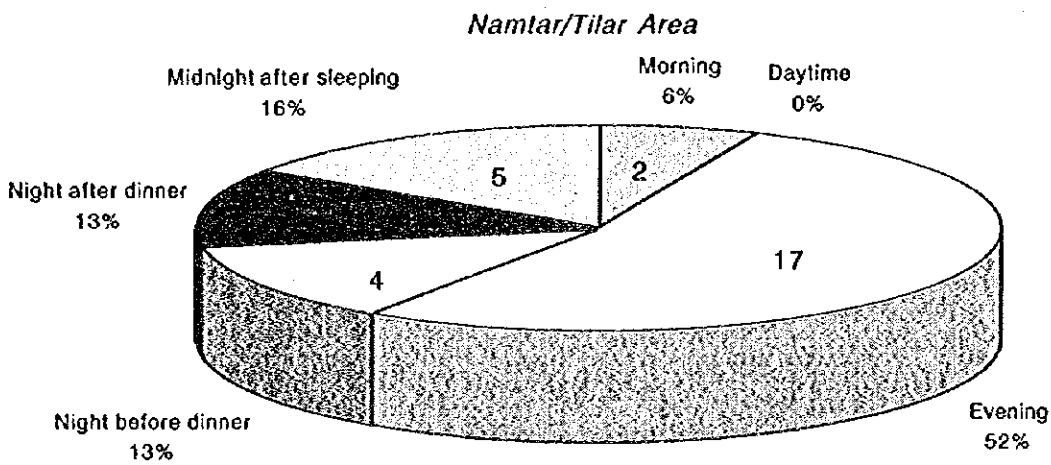
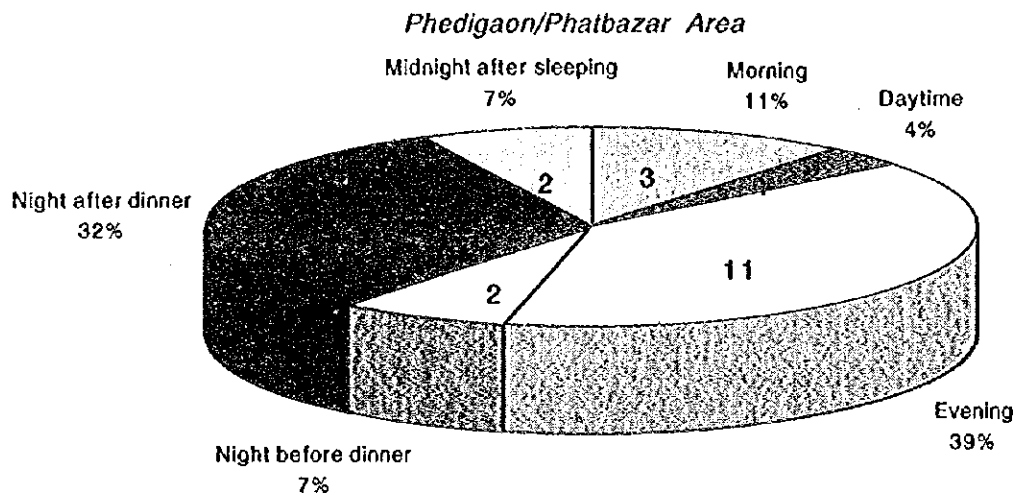


Other Information

(Phedigaon/Phatbazar Area)

- All family except me evacuated, and I did not evacuate. I was looking after my house and ready for evacuation. In case flood comes, I can be secure, but I did not like to take risk of my family. <Sample No.8>
- Sometimes I had gone to see the flood, but I did not evacuate. <Sample No.11>

Q7. When you have evacuated?



Other Information

(Phedigaon/Phatbazar Area)

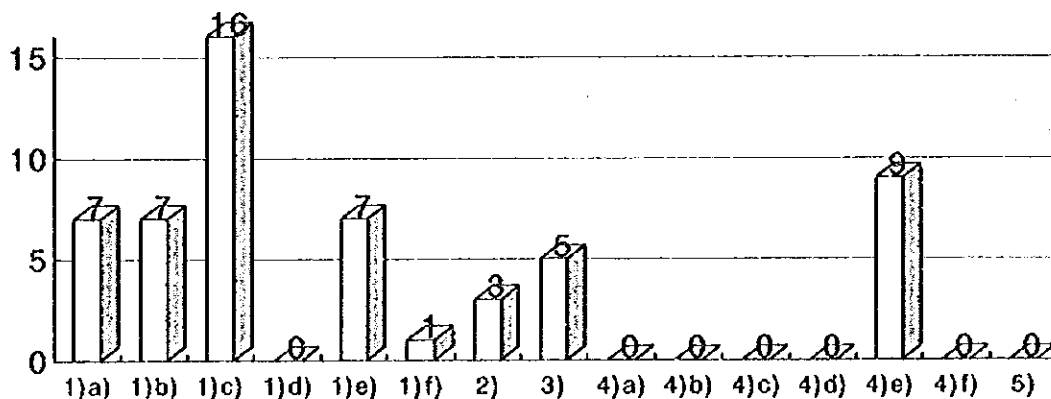
We heard the sound of landslide at midnight, then we woke up. I saw our house in danger, then we evacuated. <Sample No.12>

Q8. Why you have decided to evacuate?

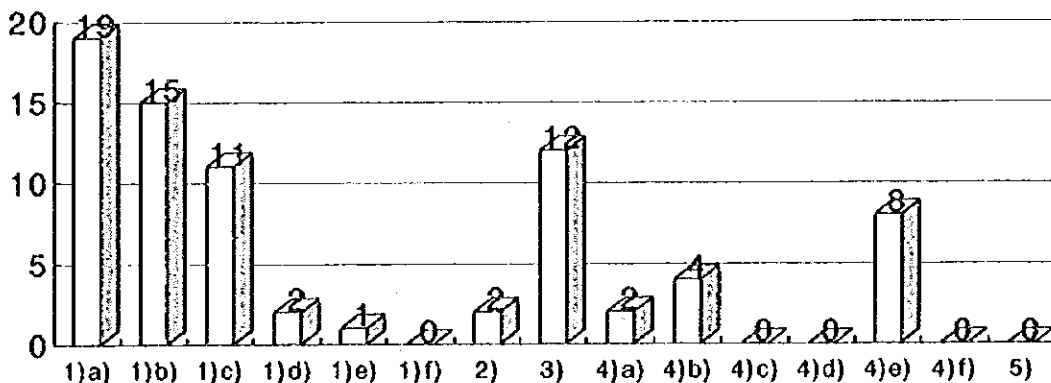
(Plural answer is possible.)

- 1) Because I observed abnormal natural phenomena, such as
 - a) Heavy rain
 - b) Occurrence of landslide or slope failure
 - c) Flush flood in the stream
 - d) Big sound by rolling stones
 - e) Bank erosion by the flood
 - f) Others
- 2) Because I found that neighbours are evacuating.
- 3) Because my family / neighbours suggested me to evacuate.
- 4) Because I found that my house is nearly collapsed by
 - a) Heavy rain
 - b) Landslide or slope failure
 - c) Debris flow
 - d) Bank erosion
 - e) Flush flood
 - f) Others
- 5) Others

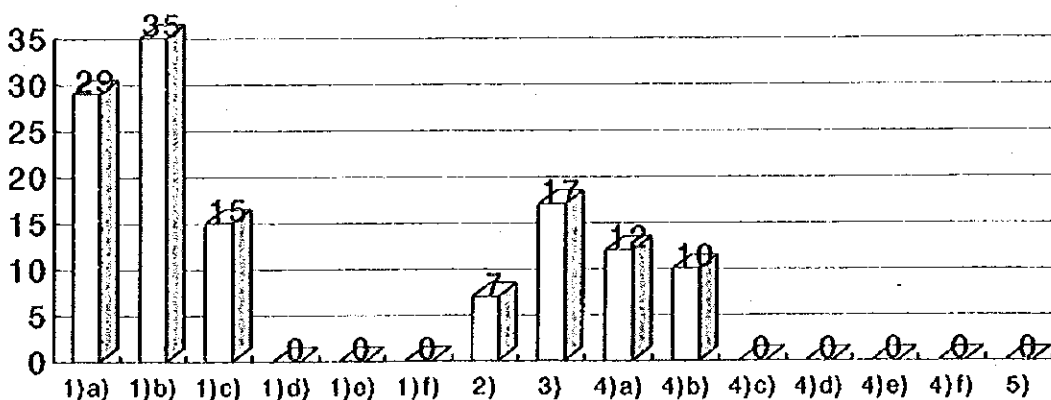
Phedigaon/Phatbazar Area



Namtar/Tilar Area



Chisapani Area



Other Information

(Phedigaon/Phatbazar Area)

- I saw my neighbour's house was going to collapse, so I decided to evacuate. (Sample No.1,3)
- I saw my neighbour's house was washed by floods, so I decided to evacuate. (Sample No.22)
- Before evacuation of my family, there was bridge. But after half to one hour it has broken. Even now we can see the broken part of that bridge in Palung. <Sample No.46>

(Chisapani Area)

- Land was quaked around house because of big land slides. <Sample No.41>

Q9. Where did you evacuate? (SHOWN ON THE MAP)

Other Information

(Phedigaon/Phatbazar Area)

- I shifted Deaurali because I thought it is safe place and our relatives are there so that we will not have food problem. <Sample No.19>
- We wanted to evacuate at Makshe Narayan school, but it was already crowded by other people. So we evacuated to Soltu (Ward No.7). <Sample No.44>
- We evacuated toward Bardeli Danda crossing the Palung Khola. After 4 days we returned to our own house, when there was no flood in the river. <Sample No.46>

(Chisapani Area)

- We evacuated to Kailash Danda where is at height and it is near by my house. We wanted to evacuate to Chuli but there was large landslide, so we did not. <Sample No.2>
- We evacuated in the shed for 3 days which was used for cattle. After 3 days we came back to our house thinking there will be no problem in our house. <Sample No.42>
- We have been in Bagesmori primary school for 4 months, after that at cattle house then we have constructed our own house in public land with loan. <Sample No.44>
- Thirteen families and over 100 people were evacuating in Bagesmori primary school. <Sample No.46>
- We evacuated to Bagesmori primary school at 5 o'clock a.m. We came through small ridge and both side of ridge was land slide. At 7 o'clock my house was collapsed by land slide. <Sample No.49>

Q10. With whom you have evacuated? (SHOWN ON THE TABLE)

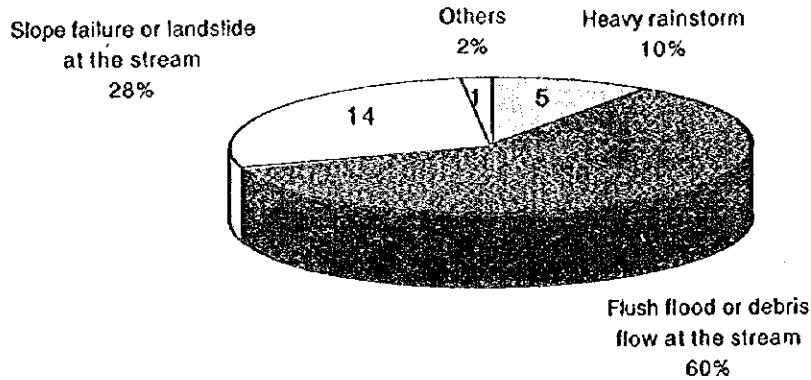
Other Information

(Phedigaon/Phatbazar Area)

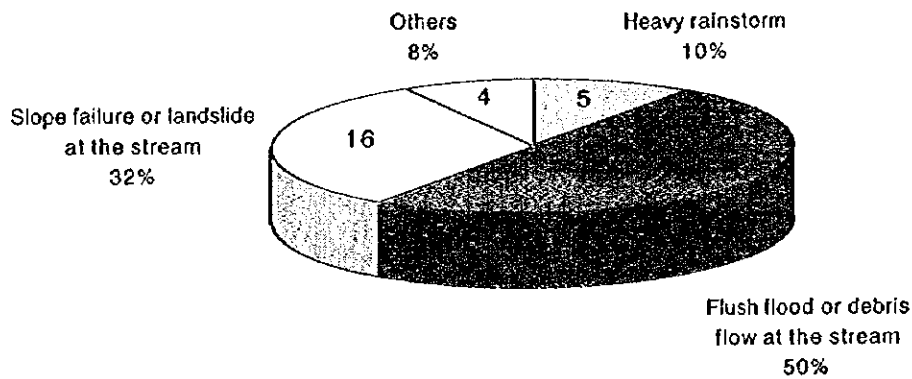
- I evacuated with my wife. My children were already evacuated to my father's house. Children were evacuated at about 3 o'clock p.m., they decided to evacuate themselves. <Sample No.1>
- We evacuated with young people of Gairigaon, who were interested to shift them. At that time the young people were moving informing them to evacuate, because the situation was going more serious. <Sample No.41>
- Young people of Soltu (Ward No.7) came to help them at that time. <Sample No.44>

Q11. What was the most terrible things for you at the 1993 disaster?

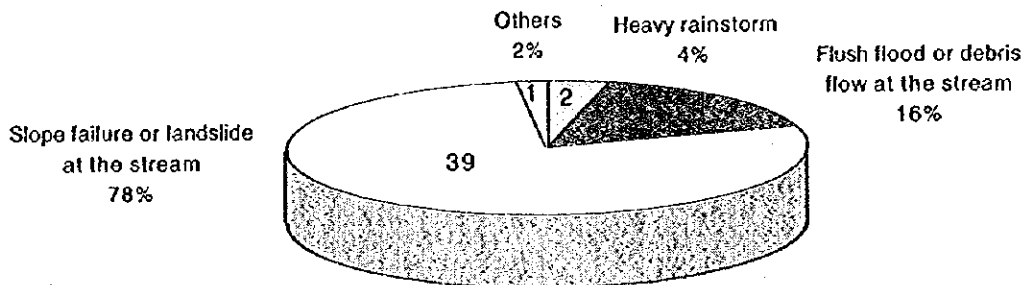
Phedigaon/Phatbazar Area



Namtar/Tilar Area



Chisapani Area



Other Information

(Phedigaon/Phatbazar Area)

- Harke's landslide (Thulipakho) sounds very danger due to the rolling of stones. <Sample No.12>
- Harke's landslide. <Sample No.4,11,13>
- I did not afraid anything and did not feel terrible anything. I want to see landslide and slope failure near my house what will happen in the future. <Sample No.17>
- Flood from streams such as Paingaire Kolsa was terrible. <Sample No.11>

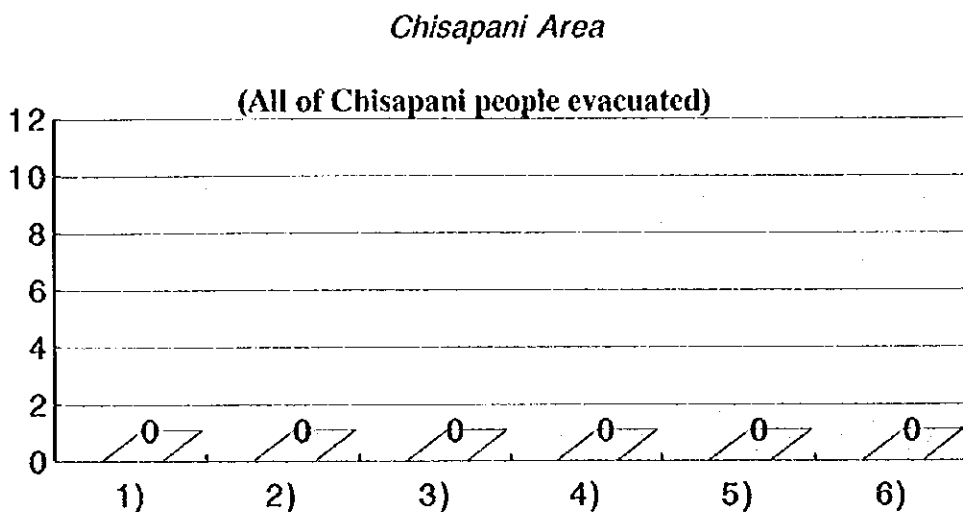
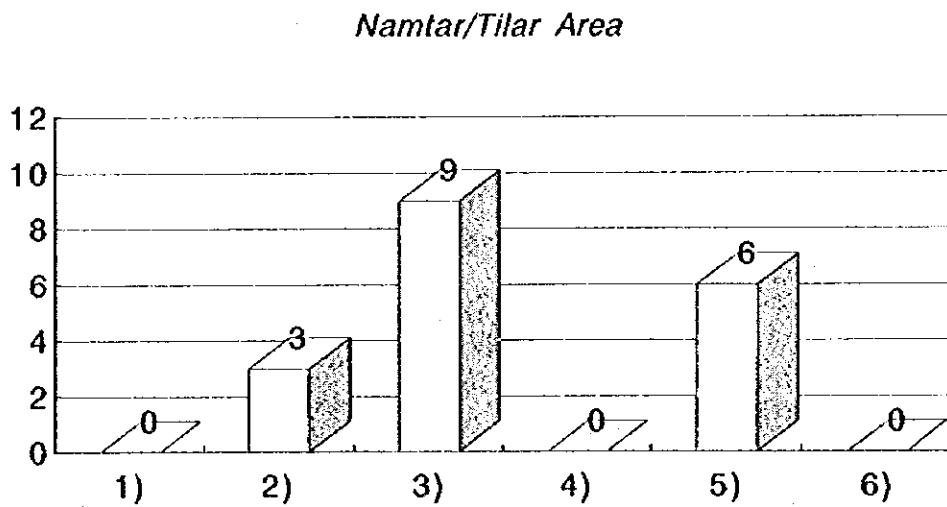
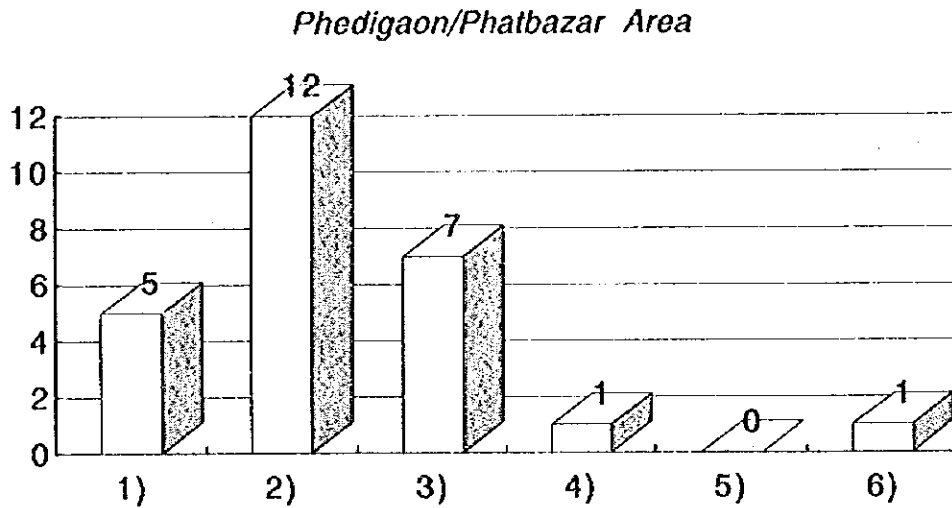
(Namtar/Tilar Area)

- I fear due to loud sound of Manahari Khola, my house might fall down. <Sample No.19>
- Sound of lightning in the sky was the most terrible things. <Sample No.32,42,44>
- We did not feel any terrible things. <Sample No.37>

Q12. Why you have not evacuated?

(Plural answer is possible.)

- 1) I wanted to evacuate, but I was too fear to go.
- 2) I wanted to evacuate, but I did not know where to go.
- 3) Because I felt that staying is much safer than going out.
- 4) Because My family suggested not to go.
- 5) Because I did not feel that it is serious disaster.
- 6) Others



Other Information

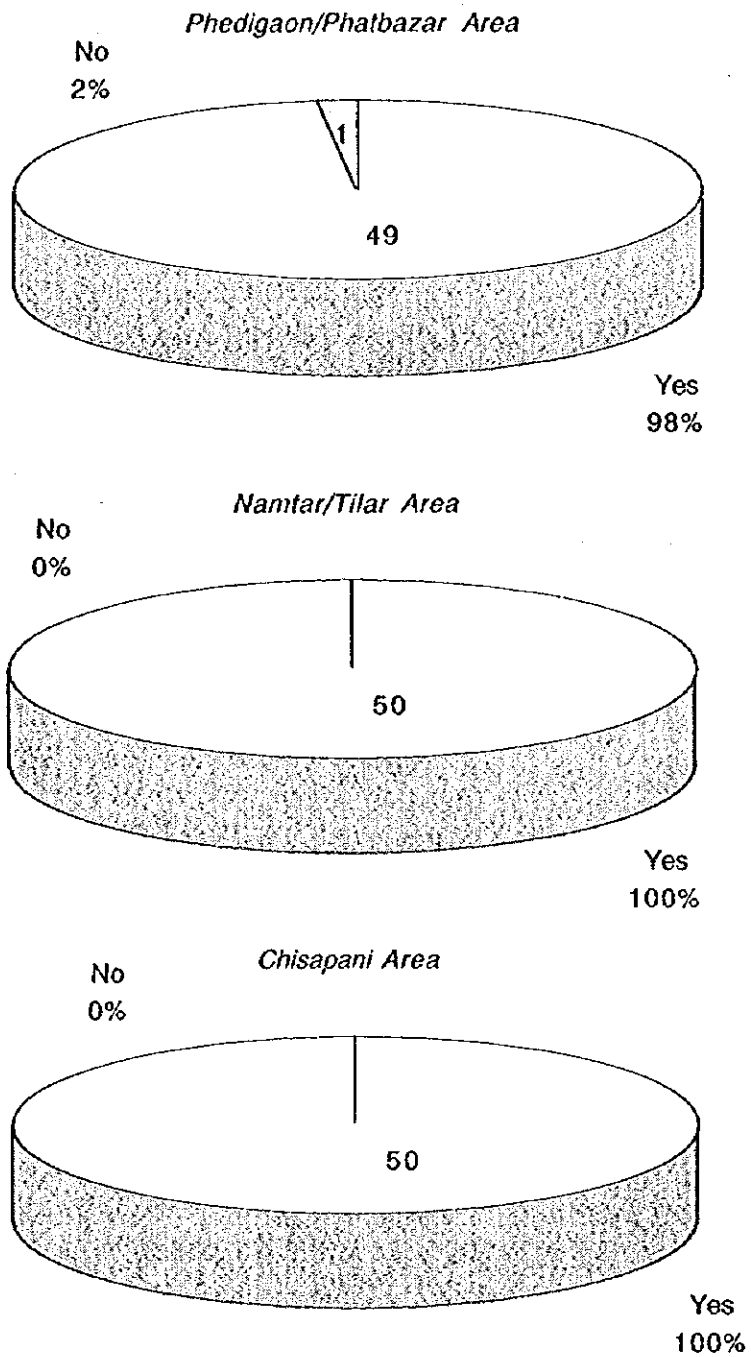
(Phedigaon/Phatbazar Area)

- Because at that time my neighbours were collected at my house for safe, then I felt I was at safe and did not evacuate. <Sample No.2,12>
- I wanted to evacuate, but I did not have time to evacuate. Flood washed out suddenly my house with all seven members of my family, and only two members were found after 3 days. <Sample No.5>
- At that time, my husband was sick, so I did not want to leave him. That is why we did not evacuate. <Sample No.12>
- Because I am too old and did not fear of dying. <Sample No.16,24>
- My elder told that we should not go to others' house, and we did not feel there was no any safe place to go. That is why we did not evacuate. <Sample No.18>
- I did not evacuate because I could not leave alone my cattle. <Sample No.32>

(Namtar/Tilar Area)

- I found those who left house were killed by slope failure, so I did not like to evacuate. <Sample No.15>
- I thought it is more safer than other place, though there is small landslide in Gorduwa. <Sample No.31>
- I wanted to evacuate but I could not do so because we have old person who could not walk. <Sample No.49>

Q13. Do you think evacuation system is necessary in your community?



Other Information

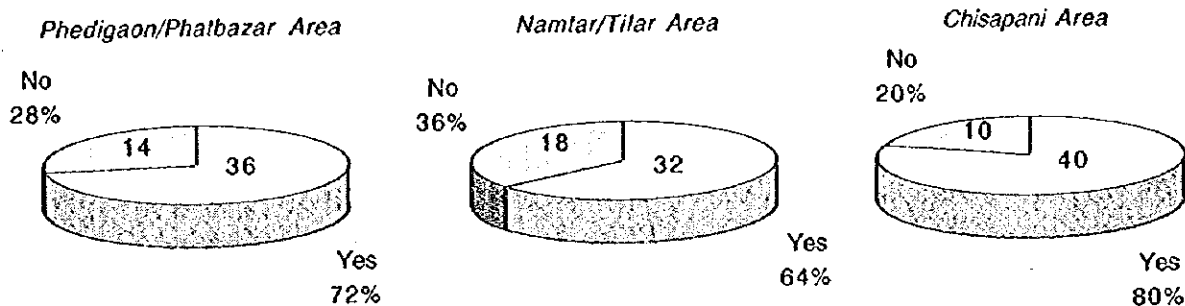
(Phedigaon/Phatbazar Area)

~ If we were warned before disaster, we can manage where to go and where to live at the stage. <Sample No.19,46,47,49>

(Chisapani Area)

~ Warning system before disaster is better if possible so that we can manage ourselves what we should do. <Sample No.28>

Q14. Are there any places which are thought to be safe against disasters?



Other Information

(Phedigaon/Phatbazar Area)

(Yes)

- Pokari Danda (About 15 minutes from Phedigaon) is thought to be safe. And more suitable place is Chuli Danda (About 10 minutes from Phedigaon). There is cliff on both side, the place is flat area, and landslide cannot occur. <Sample No.1>
- Deaulali or Pokhari Danda. <Sample No.2>
- Phedigaon Chautari (The place has big tree with seating step). <Sample No.3,9>
- Chuli Danda is safe, because the area is rocky where stream cannot make any harm, and cannot occur landslide. . <Sample No.4,6,7,8>
- Lose Pakha is safe, because 1993 disaster did not affect this area. <Sample No.5,24>
- Deaurali is safe. Because my relatives are there. I think living with relatives is much safer, I can get help from their side. <Sample No.12>
- Sample No.32-35 show the same place (the south side hill of Phedigaon). That place is flat and covered with grass. In this place about 20 person (2 camps) from Phedi Khola area were evacuated. <Sample No.32-35>
- We feel Gairigaon (Akashdevi Danda;Ward No.8) is not problematic area, because there is no chance of landslide and flood. <Sample No.41-43,45-46>
- Soltu (Word No.7) and Makshe Narayan School are safe place. Because I think there is no chance of landslide and flood that is why they choose that place. <Sample No.44>
- Flood cannot reach Chuni Pakha. It was safe in 1993 disaster. But for slope failure and landslide, there is no safe place. <Sample No.47,48>
- There is no streams in Bandeli Danda, and that place has less possibility to occur landslide. <Sample No.49>

(No)

- If there is heavy rain in this area any part, any where may slide down. That is why there is no any place in my thought. <Sample No.19>

(Namtar/Tilar Area)

(Yes)

- Around Kalika School. High place, flat area, cliff on the base, so it is safe. <Sample No.1,4-8>
- Around VDC office is safe area, because it was not damaged by 1993 disaster, and flood cannot reach there. <Sample No.2,3>
- Tarebhir Pakka. Because it is rocky and was not damaged by 1993 disaster. <Sample No.12>
- Chihan Danda. Landslide cannot occur there because of dense forest. <Sample No.14,15,17,18,20>
- I feel Tilar is less chances of sliding and flooding. <Sample No.21,50>
- Baretar Danda is safe because there is hard rock in its base and it is a dense forest area. <Sample No.31>
- Baretarchaur, because it cannot be effected by stream and was not damaged by 1993 disaster. <Sample No.32>
- Our village Baretar is more safer than other place. <Sample No. 35>
- At Bhadaure Danada. We feel that there is less chance of sliding and flood, and it is suitable to gather people. I think Jyapu Phant near by suspension bridge is safe, too. <Sample No.39>
- Upper part of Dhungyan (this village). Because flood cannot reach there as the stream being far from that place. <Sample No.42>

(No)

- All the area in our village is the same except those damaged by 1993 disaster. So if safe, the remaining part is safe. Otherwise there is no safe area. <Sample No.34>
- Our village is safer than other places, though there may occur landslide towards the road, which is due to blasting during road construction. <Sample No.41>
- I saw that in 1993 disaster where we feel safe, so I cannot say which place is more safe. <Sample No.43>
- Our house is in hilly region, any where of this region may be damaged by disaster anytime. So I think no safe place here. <Sample No.44>

(Chisapani Area)

(Yes)

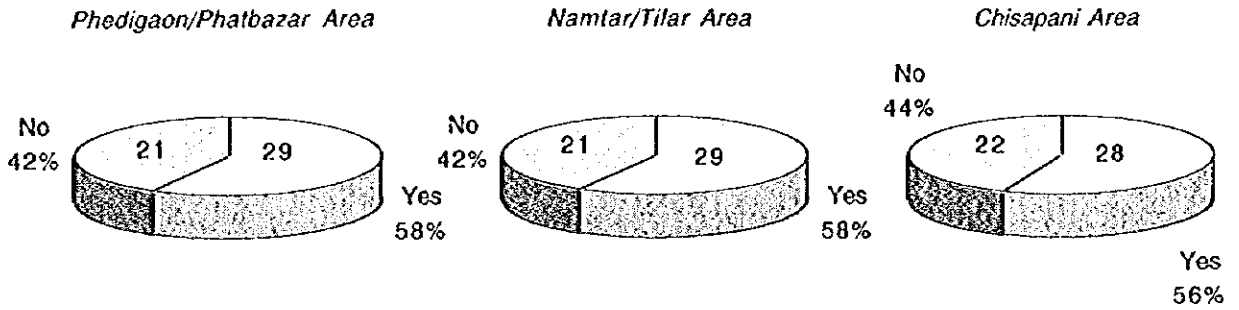
- Kailash Danda and Thing Danda. Kailash is less safe than Thing Danda because there are also slope failure on Kailash Danda, but no such chances in Thing Danda. <Sample No.6,9>
- Thing Danda is safe place because of rocks, but in 1993 the way to go to Thing Danda was blocked. <Sample No.27>
- Deaurali is safe because the place is rocky and thought to be no chance of landslide and slope failure. <Sample No.38>
- Deaurali and Thing Danda are safe. Thing Danda is easy to go for us because no stream on the way to Thing Danda, but we should cross Bhatti Khola to Deaurali. <Sample No.40>

(No)

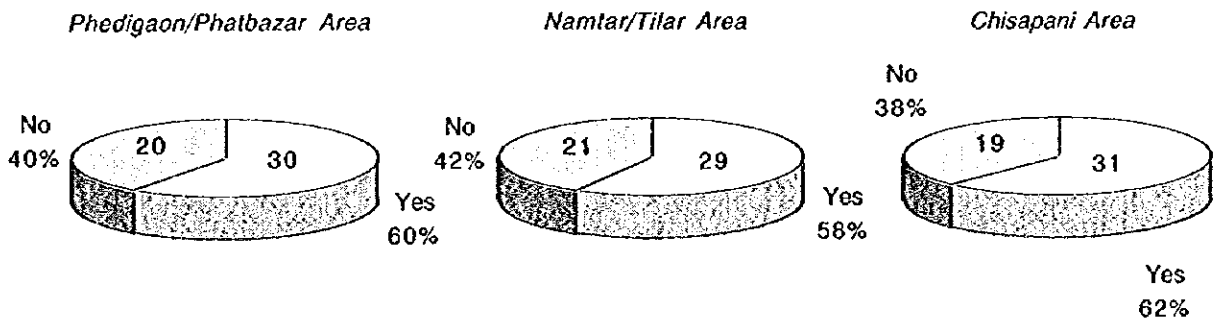
- Every where there may occur landslide and slope failure, so here is no any safe place. Where can I go? <Sample No.21,22,25,26>
- I want to ask to the study team of JICA where is safe place. <Sample No.22>
- Bagesmori primary school is safer than another place but not enough safe because of land slide. <Sample No.44>

Q15. Do you have following equipment?

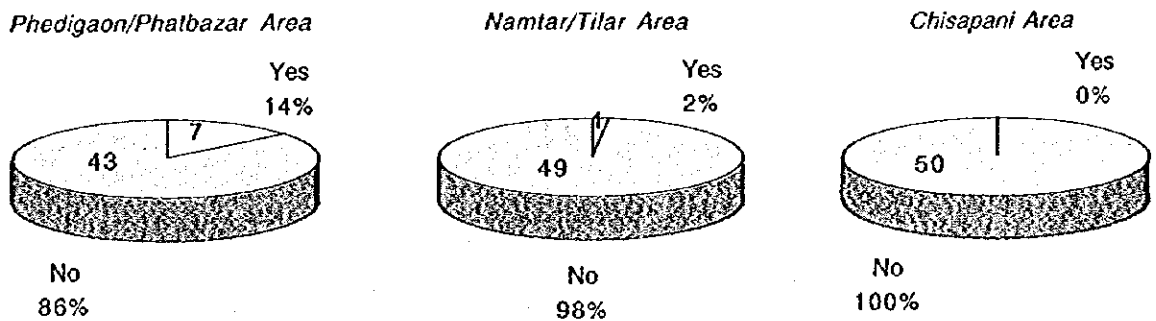
1) Watch



2) Radio



3) TV



JICA