



# DISASTER RISK REDUCTION IN TOURISM

Disaster Reduction through Awareness, Preparedness and Prevention Mechanisms  
in Coastal Settlements in Asia – Demonstration in Tourism Destinations

## ACTIVITY B2, SHELTER ASSESSMENT REPORT

Version 3 (2007-10-17)

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# Introduction

## Background

The main objective of the project “Risk Reduction in Tourism Destinations” is to increase the disaster management capacity of the main stakeholders in three tsunami hit tourism destinations (i.e. Kanniyakumari in Tamil Nadu State of India, Patong in Phuket and Phi-Phi Island in Krabi in Thailand). This will be achieved by improving the local authorities’ and the private sector’s ability to manage natural and man-made disasters and by training the residents and tourists how to properly prepare and react to disasters.

In the APELL demonstration the APELL methodology was applied (hands-on) in each community to develop the integrated emergency response plan. The purpose of the APELL demonstration was to show how APELL could be implemented under local conditions, while also providing hands-on training to concerned stakeholders on local cooperative action to improve community awareness and emergency preparedness. The result of the APELL process in each community will be a new or renewed integrated emergency response plan.

Based on the work described above, this part of the project will focus on the shelter issue and result in conclusions and recommendations for a new or renewed shelter plan for each one of the three destinations.

## Objective for activity B2 (shelter assessment)

Due to the project manual (October 2006) SRSA will:

7. *Assess together with IHRA potential buildings for shelters in safer land, this will be accomplished within two days in each community.*
12. *Provide UNEP-DTIE and the local project manager with a shelter assessment report within 30 days of the missions’ final date.*

Since each of the three destinations has progressed differently in their work on shelter assessment a complementary objective has been formulated.

- *Develop a model for shelter assessment that can be used by communities, towns, villages and municipalities with the same risk profile as the three in the project. The model shall be based on experience and knowledge from local partners, literature studies and lessons learnt worldwide.*

## Limitations and assumptions

For activity B2 (shelter assessment) the following limitations are made:

- The shelter assessment only take existing buildings under consideration,
- In Kanniyakumari the vulnerability mapping was not completed before the visit,
- Since each of the three destinations has progressed differently in their work on shelter assessment, the assessment had to be adjusted to the destinations different needs. Therefore, the conclusions and recommendations for each destination will vary.

## Revises and earlier versions of this report

This report is a updated version of the report ”*Shelter Assessment report, version 1 (2007-09-27)*”.

Revises in this version are marked with a stroke in the right margin.

Earlier versions:

<b>Date</b>	<b>Title och status</b>
2007-09-27	Shelter Assessment report, version 1 (2007-09-27)
2007-10-13	Shelter Assessment report, version 2 (2007-10-13)

# The overall planning and performance of activity B2

The performance of activity B2 has been divided into three different fazes: two carried out in Sweden (faze A and C) and one on site in Thailand and India (faze B). Each faze has included several different steps. The three fazes are illustrated in the figure below.

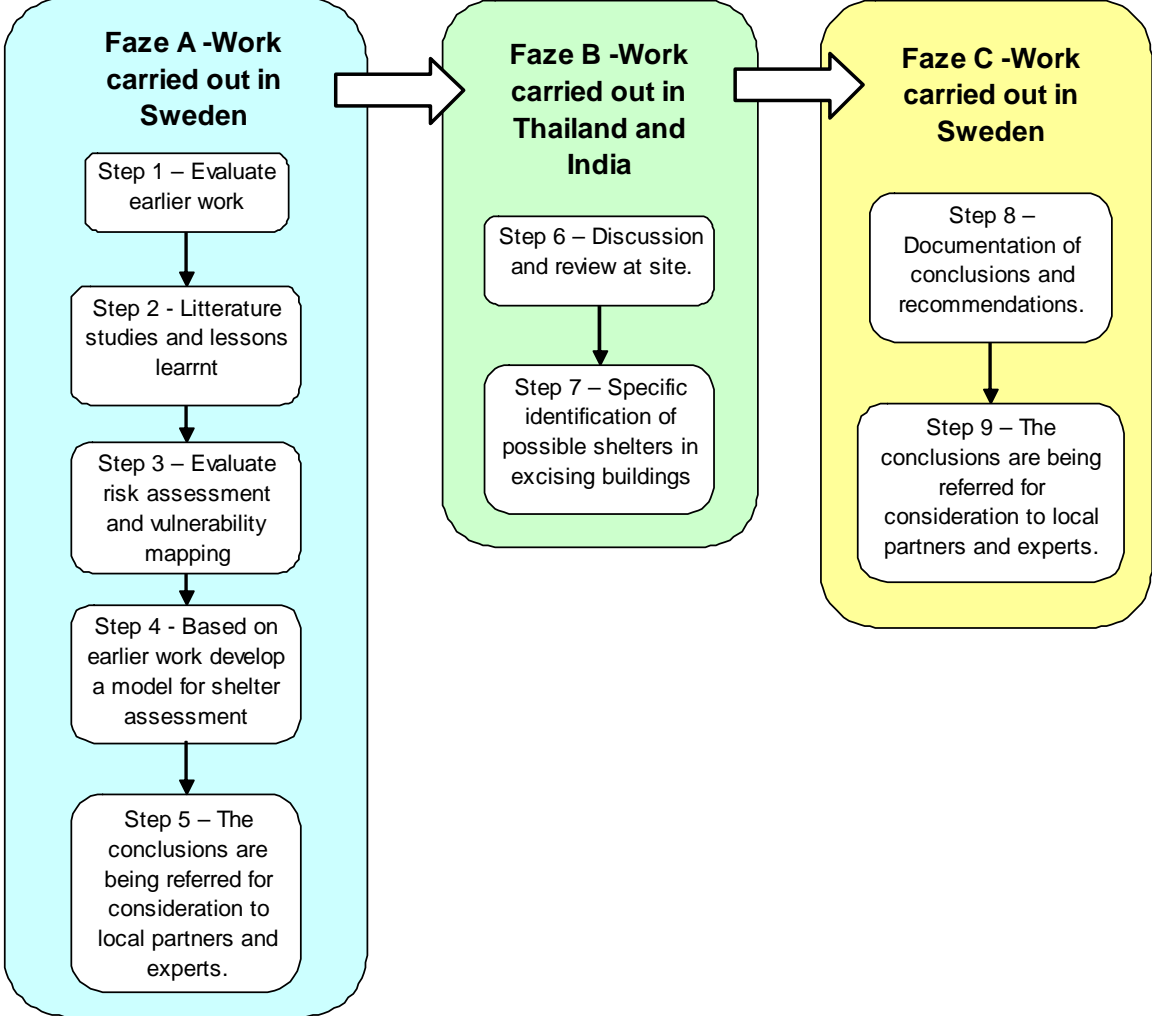


Figure 1. Illustration of the overall plan and performance of activity B2.

Faze A was carried out in Sweden and focused on evaluating earlier work carried out in Thailand and India and lessons learnt world-wide to get a broad base of knowledge to base the following work on (step 1 and 2).

Before continuing with the actual shelter assessment the risk assessment and the vulnerability mapping have to be evaluated. This was planned to be done in step 3. Unfortunately the vulnerability map for Kanniyakumari was not finished before the visit. This is also described in the section “Limitations and assumptions”.

The assessment is strongly depending on several important factors. The factors have to be identified and evaluated separately for each destination. In order to make the assessment a model, based on the knowledge in step 1 and 2, were developed. The model is described separately in the report “Shelter Assessment Model”, 2007-09-10.

In step 5, the conclusions of faze A was referred for consideration to local partners and experts.

Faze B was carried out in Thailand and India and included a discussion about the result of faze 1, especially the Shelter Assessment Model, and a more detailed review of possible or identified shelters at site (step 6). The review focused on possible shelters in excising buildings based on the Shelter Assessment Model (step 7).

Back in Sweden the last faze (Faze C) resulted in this document including documentation of general and specific conclusions (step 8). The conclusions and recommendations have been referred for consideration to local partners and experts and will result in a new or renewed shelter plan (step 9).

## **Kanniyakumari, Tamil Nadu, India**

Kanniyakumari in Tamil Nadu State of India was visited between 2007-09-12 and 2007-09-14. During the visit a case study and several meetings were carried out. The work is described in detail below. On the 12<sup>th</sup> of September a tsunami warning were issued by Indian authorities and our experiences from the warning are described below. Conclusions and recommendations are compiled in the end of the section.

### **Description of work carried out during the visit**

#### **Case study, Tsunami warning, 2007-09-12**

On the 12<sup>th</sup> of September at 11:10 (UTC) (16:40 Indian time) a major earthquake occurred 100 km south-west of Sumatra, Indonesia. The quake measured a magnitude of 8,4 in the Richter scale. The major quake was followed by over 60 aftershocks including one quake of a magnitude 7,1 and one 7,8 on September 13<sup>th</sup>. The huge force of water displaced was pushed out to sea rather than towards land. “It was very fortunate that the plate mechanism that triggered the earthquake caused the tsunami to go to the south-west, out in the Indian Ocean and then the Southern Ocean,” Seismologist Mike Turnbull of the Central Queensland University says. He explained that the quake created the opposite effect of the massive tsunami in 2004 which caused an Indian Ocean-wide tsunami, killing more than 230.000 people. Within minutes of the temblors off Indonesia’s western coast officials at the Indian Ocean Tsunami and Mitigation System sent out a warning by SMS, e-mail and fax to costal communities in the path of potential waves, including costal communities at the Indian east coast.<sup>1</sup>

In India, the Department of Housing announced a tsunami warning to the District collector who informed the Assistant Director of the district and finally the Executive officer of Kanniyakumari. Locally the Executive officer of Kanniyakumari informed the priest. Approximately 17:30 the local priest announced the Tsunami warning and the residential areas closest to the water were told to bring valuables and leave their homes for land with higher altitude. A few minutes past 18:00, the church bells rang twice to announce that something serious has happened or were wrong (one ring announce prayer). At the church the tsunami warning was given.<sup>2</sup>

#### **Meeting, 2007-09-13, Nagercoil, Tamil Nadu**

The objective of the meeting was to get a personal presentation of the participants and an opportunity for us to give a presentation of the Shelter Assessment Model. The participants of the meeting were representing the local project group, the tourist industry (tour operators, tourist office and the local ferry company), the fire and rescue service, UN and the Kanniyakumari district. A list of the participants to the meeting is presented in Appendix A. The presentation was followed by an interesting discussion about the model and the work carried out.

Mr. P. M. Rao, Deputy Director General, National Safety Council and Mr. A. Y. Sundkar, Assistant Director, National Safety Council wrote down comments from the meeting as follows:

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<sup>1</sup> The Straits Times, Friday September 14, 2007

<sup>2</sup> Based on local sources

- *The Project Officer, UNDP informed that the shelters have already been identified in the district. He further, emphasised that the SRSA model will help them to re-assess the identified shelters.*
- *The members informed that while selecting the shelters, religious places would be selected carefully.*
- *The Executive Officer, Kanniyakumari Town Panchayat informed that the already have identified 18 shelters.*
- *The President, Tours Operators informed that there are no shelters particularly for tourists.*
- *The members also discussed about the security arrangement of the tourists during any disaster.*
- *One of the member suggested that small booklet giving do's and don'ts during any disaster has to be developed and copies of the same are be kept in the Kanniyakumari Town Panchayat Office and may be distributed free of cost to the people.*

The meeting 2007-09-13 resulted in two other official meetings with the Executive Officer of Kanniyakumari Town Panchayat and Mrs. Jothi Nirmala, District Revenue Officer, to discuss the project and the Shelter Assessment Model further. The results of these two meetings are described below. The meeting 2007-09-13 was also covered by four daily Tamil newspapers (viz. Dinakaran, Dina Malar, Dan Tandi and Dina Mani). This, together with the tsunami warning the day before, gave the project good publicity in the press.

#### **Meeting and case study, 2007-09-13, Kanniyakumari, Tamil Nadu**

The objective of the meeting was to review the previous and ongoing local work within the shelter area. The focus was on the following:

- How the overall planning and inventory of shelter has been carried out,
- What areas are chosen for shelter, and
- What specific objects are chosen for shelters,
- Your experiences in the shelter assessment work so far (pitfalls and decisive factors),
- What are the results of your previous and ongoing work (strengths and weaknesses), and
- What actions were undertaken during the Tsunami warning 2007-09-12?

The overall planning and inventory of shelters is based on four initial factors i.e. the shelters are well known to locals, manly situated in areas with a high altitude, government owned, and have a good accessibility. This resulted in 18 possible shelters, which basically include major schools, community halls, churches, and temples. As described above the early warning system is based on local traditions and knowledge of places, functions and structures.

In the case study two possible shelters, due to the tsunami risk, were visited:

- Mary Immaculate High School, and
- Puthukiraman (community hall).

#### **Meeting, 2007-09-14, Nagercoil, Tamil Nadu**

During the meeting the local project group presented the project and we had the possibility to present and discuss the Shelter Assessment Model with Mrs. Jothi Nirmala, District Revenue

Officer. In our opinion the meeting was successful in order to introduce the Shelter Assessment Model as more structured tool for shelter assessment.

## **Conclusions and recommendations**

As described above the system for early warning and evacuation is based on local traditions and knowledge of places, functions and structures. This is both the advantage and disadvantage of the present system. The case study of the tsunami warning 2007-09-12 shows that the communication and evacuation went fast, robust and efficient but the question is what will happen during the peak season, when approximately 200.000 national and international tourists visit Kanniyakumari each day? The normal population of Kanniyakumari is approximately 20.000. Even with national tourists visiting Kanniyakumari there might be a problem with the warning and evacuation to a shelter because of other languages, traditions or religions. Further, the tourists might not have any local relation or knowledge about infrastructure, places, functions or structures, which also has to be taken into account. Traffic problems also have to be taken under consideration if an evacuation is needed. Normally the tourists arrive in their own vehicle (bus, car, motorcycle etc.) that might course huge traffic jams during an evacuation.

Besides the above, there is an Emergency and Disaster Plan for the district but not for the local level. There has not been any structure in the shelter assessment at the local level yet.

Our recommendations for the shelter assessment in Kanniyakumari are as follows:

1. The use of shelter is depending on what actions are taken before reaching the shelter i.e:
  - The robustness of the early warning system,
  - A fast and correct decision making process made by central, regional and local authorities,
  - A wide spread announcement of the warning, and
  - An efficient evacuation to the shelter.

Therefore, focus on the four factors above before the actual shelter assessment.

2. Perform a shelter assessment based on the information of the vulnerability maps, the risk assessment and the presented Shelter Assessment Model. Do also include private owned buildings such as hotels and restaurants and not only government owned buildings.
3. The two visited shelters (Mary Immaculate High School and Puthukiraman community hall) seems to be suitable as shelters due to the tsunami risk because of they are both well known, situated in the highlands and have a good accessibility. Use the model to assess these two possible shelters further.
4. The existing system is not enough as the only local early warning system. The existing system is also very person related which makes is vulnerable. The local early warning system has to be examined to reach a larger population with higher accuracy and robustness. Considerations have to be taken to religion, traditions and language.
5. Kanniyakumari has a few large tourist attractions. Find a few suitable distribution places for the information about warning, evacuation routes and shelters. For an

example, all tourists have to use the ferry service when visiting Devi Kumari Temple or Vivekananda Rock Memorial. Here the information can be distributed or printed on the backside of the ticket. Information can also be distributed through tour operators, the tourist office, on the tourist map or at reception desks at hotels or restaurants.

6. Incorporate the District Emergency and Disaster Plan with the local.
7. Perform an annual risk analysis concerning the Local Emergency and Disaster Plan and examine the strengths and weakness.

## Patong, Phuket, Thailand

Patong in Phuket, Thailand was visited between 2007-09-17 and 2007-09-18. During the visit several meetings, workshops and case studies were carried out. The work is described in detail below. Conclusions and recommendations are compiled in the end of the section.

### Description of work carried out during the visit

#### Meeting and workshop, 2007-09-17, Patong, Phuket

The objective of the meeting was to get a personal presentation of the participants, to review the previous and ongoing local work within the shelter area and an opportunity for us to give a presentation of the Shelter Assessment Model. The participants of the meeting were representing the Department of Disaster Prevention and Mitigation (DDPM), the local project group, the tourist industry (hotel industry), the fire and rescue service and the Municipality of Patong. A list of the participants to the meeting is presented in Appendix B. The presentation was followed by an interesting discussion about the model and the work carried out earlier in the project.

In the workshop the local project group used the Shelter Assessment Model to identify possible shelters for different types of accidents or disasters. The workshop resulted in a shelter assessment for the general part in the following scenarios:

- Major fire in Royal Paradise Hotel.
- Landslide in Ban Kalim area, which is an area in the northern part of Patong beach that had a major landslide 3 years ago.
- Tsunami hitting risk zone number 4 “Bang La road and Sawanderak” (one out of seven risk zones throughout Patong beach).

Possible shelters for each of the three scenarios were identified.

#### Case study and workshop, 2007-09-18, Patong, Phuket

During the day a case study were performed at the following objects:

- Ban Kalim area regarding the risk for landslides,
- Royal Paradise hotel regarding the risk for a major fire, and
- Sainachyen School chosen as a shelter in a major fire scenario.

The case study was followed by the specific part of the shelter assessment. Two possible shelters were identified for the landslide scenario and the scenario with a major fire at the Royal Paradise Hotel.

#### Comments

Mrs. Duangnapa Uttamangkpong, DDPM staff, wrote down comments from the case studies, meetings and workshops as follows:

- Mr. Chatchai Keeratiwattananusan’s comment:  
*“The workshop today made him understand shelter assessment model and related factors according to disaster planning in advance. The curriculum had focused on the participant’s analyzing and brainstorming among one another.”*

- Ms. Apiratee Sittiongkool's comment:  
*"This was such a good workshop which provided the planning theory during disaster occur. Moreover, she will able to apply this knowledge with her daily life and her tasks systematically. Besides, if the emergency crisis happens, the operation team will work automatically and efficiently."*
- Mr.Eakarat Pakdeemai and Mr.Phutarak Srisamoot's comment:  
*"On behalf of Disaster Prevention Division (Fire Brigade), Patong Municipality, after participation in this workshop, they learned shelter assessment theory and realized that it will be useful with their organization. In addition, the lecturer's (Mr. Fredrik Ryber) specialties and his experiences will be implemented and developed Disaster Prevention Division (Fire Brigade) effectively."*
- Ms. Noppachanok Chindawong's comment:  
*"She is a primary school teacher at Bansainamyen School and her responsible task as a computer teacher. It was very glad to meet all excellent lecturers. This workshop was very interesting and had opportunities to learn new knowledge and the attendants had chances to share their experiences and participation."*
- Ms. Nantiya Puttarak' comment  
*"She was very glad to be well equipped with new knowledge which she had never known before. That was such a good knowledge which the lecturer had taught to the class. From now on, she will implement this assessment shelter model to her job and she will also adapt to each task suitably. Mr. Fredrik could make her understand the shelter assessment model clearly."*
- Ms. Saowapark Malakarn's comment  
*"Such an interesting workshop, good knowledge and funny."*
- Mr. Teerapon Muangprom's comment  
*"Very well curriculum and very useful course. It was suitable to be implemented with his organization. Whenever disaster occurs, the knowledge will be benefits to all stakeholders."*

## **Conclusions and recommendations**

When discussing risk reduction, it is important to reflect on the situation in the Ban Kalim area, which had a major landslide 3 years ago. Even though the authorities know that the Ban Kalim area is a landslide area there are no actions taken to reduce the risks. The damaged houses are built on the same spot as before and the consequences will be the same next time a landslide occurs. In order to reduce the risk for landslides in the social planning process, it is important to include a risk valuation based on an accurate risk analysis. There is no right or wrong in this reflection but, the authorities have to decide what risks are acceptable and what risks are not.

Our recommendations for the shelter assessment in Patong are as follows:

1. Perform a shelter assessment for the whole of Patong based on the information of the vulnerability maps, the risk assessment and the presented Shelter Assessment Model.

Continue the work that started during the workshop. Do also include private owned buildings such as hotels and restaurants and not only government owned buildings.

2. Be aware of the presented Shelter Assessment Model is a theoretical model. It always has to be accomplished by knowledge and experience from full-scale exercises.
3. Be critical to your own assumptions and results, especially towards the time for announcement, decision, transport and evacuation. A useable tool is to sketch a time scale as a complement to the shelter plan.
4. After the shelter assessment has been carried out, the local project group should present a proposed shelter plan to the Mayor of Patong for decision.
5. The Brochure “Enjoyable and Safe stay in Patong” has to be complemented with a map showing the evacuation routes, shelters, risk zones and safety zones. We are also thinking that the numbers of population and tourists in each sector, which are presented in the brochure, are too low. The information is a very important factor when planning the shelter capacity and it needs to be correct, but is the information necessary to be presented in the brochure?
6. Evaluate the existing evacuation routes concerning signs, directions and final destination.

## **Krabi and Phi-Phi Island, Thailand**

Krabi and Phi-Phi Island, Thailand was visited between 2007-09-20 and 2007-09-21. During the visit several meetings, workshops and case studies were carried out. The work is described in detail below. Conclusions and recommendations are compiled in the end of the section.

### **Description of work carried out during the visit**

#### **Meeting and workshop, 2007-09-20, Krabi**

The objective of the meeting was to get a personal presentation of the participants, to review the previous and ongoing local work within the shelter area and an opportunity for us to give a presentation of the Shelter Assessment Model. The participants of the meeting were representing the Department of Disaster Prevention and Mitigation (DDPM), the Disaster Prevention and Mitigation Regional Office (Suratthani Province) (DPMRC 11), the Disaster Prevention and Mitigation Academy (DPMA) and the Disaster Prevention and Mitigation Provincial Office (Krabi Province) (DPMP, Krabi). A list of the participants to the meeting is presented in Appendix C. The presentation was followed by an interesting discussion about the model and the work carried out.

In the workshop the local project group used the Shelter Assessment Model to identify possible shelters for different types of accidents or disasters. The workshop resulted in a shelter assessment for the general part in the following scenarios:

- A major fire in a crowded shopping street, and
- A tsunami (similar to the one hitting Phi-Phi Island in December 2004)

Possible shelters for each of the two scenarios were identified.

#### **Case study, 2007-09-21, Phi-Phi Island.**

During the day a case study were performed at the following objects and sites:

- Three possible shelter areas (west, central, and east) were examined during the case study. The three shelter areas are shown in figure 2 below.
- The “tsunami village” in the eastern shelter area, which is planned to be used by evacuated residents of Phi-Phi Island.
- Two evacuation sites (including Emergency Disaster Boxes).
- Evacuation routes and signs.

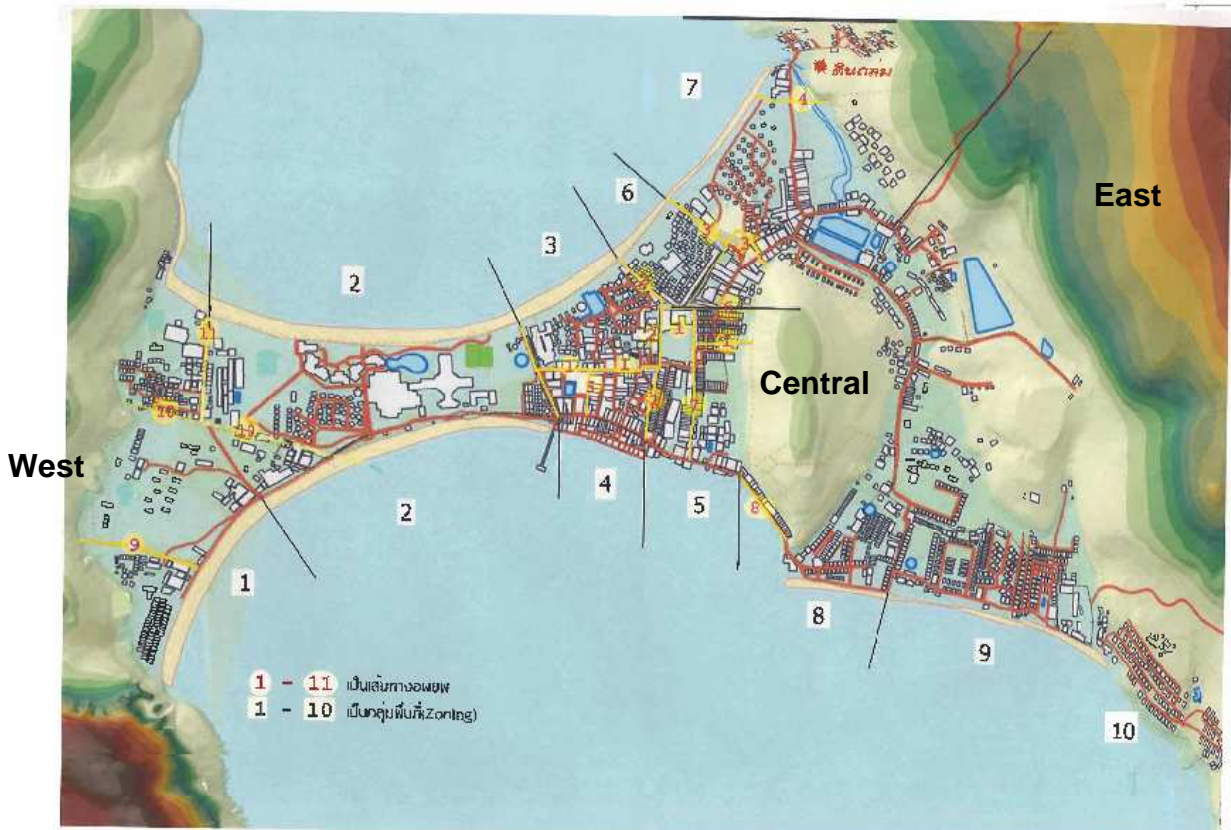


Figure 2. Map of Phi-Phi showing the three identified shelter areas. The map also shows evacuation routes (marked with red colour and numbered from 1 to 11) and risk zones (marked with black colour and numbered from 1 to 10).

### Comments

Mrs. Kanokporn wrote down comments from the case studies, meetings and workshops as follows:

#### Overall

- Activity B2 is so comprehensible and useful for us, especially for the GIS and the shelter assessment model which could assist our future works.
- The experts have knowledge and can explained and solve the problems to meet the need and existing resources of the local partners.
- All the procedures including vulnerability mapping and shelter assessment should be clear out and outlined into steps among the expert team and the local partners at an earlier stage; for example the local partners should be clearly explained about step of GIS map development and requirements so that the local partners have sufficient time to be able to better prepare related data.

#### Shelter Assessment Model

- The model is very useful for not only the local authority but also DDPM to apply it to develop and improve our emergency plans.
- For Phi Phi Island, it is difficult to appoint existing buildings as shelter because most of the buildings are private owned. So, instead of using the existing buildings or construction, the area/space should be taken into account. As such, the model should include this point and suggest how to select the safe area or how to be prepared for selecting, appointing and managing the shelter area.

### *Methods of instruction and Presentations*

- *The presentations are very interesting and attractive.*
- *The instruction is clear and comprehensive.*
- *Give theory first and then practice individually and in group work are good for learning.*

## **Conclusions and recommendations**

Our recommendations for the shelter assessment in Phi-Phi Island are as follows:

1. Perform a shelter assessment for the whole of Phi-Phi Island based on the information of the vulnerability maps, the risk assessment and the presented Shelter Assessment Model. Do also include private owned buildings such as hotels and restaurants and not only government owned buildings. The assessment should include the identified shelter areas and the twelve already identified evacuation sites. Note that many of the identified evacuation sites are situated in areas severely damaged or affected by the devastating tsunami 2004.
2. Be aware of that presented Shelter Assessment Model is a theoretical model. It always has to be accomplished by knowledge and experience from full-scale exercises.
3. Be critical to your own assumptions and results, especially towards the time for announcement, decision, transport and evacuation. A useable tool is to sketch a time scale as a complement to the shelter plan.
4. After the shelter assessment has been carried out, the local project group should present a proposed shelter plan to the Mayor of Krabi for decision.
5. The twelve evacuation sites that are identified throughout the island are all equipped with Emergency Disaster Boxes including medicals, first-aid kits, water etc. This equipment can be life saving in case of a disaster but their location and future status raises some questions that have to be evaluated and answered, for example:
  - a. Many of the identified evacuation sites are situated in areas that were severely damaged or affected by the devastating tsunami 2004. A tsunami with the same magnitude will probably wash most of them away and make them useless. Is there a more suitable place to keep them? Why they are not placed in the shelter areas?
  - b. Who or which organization donated the equipment?
  - c. Who is responsible for maintaining their status, annual controls and replacing expired equipment?
  - d. Who know how to use the equipment? Who is responsible for drills and training?
6. Evaluate the existing evacuation routes concerning signs, directions and final destination.

7. The eastern shelter area was impossible to reach, because of vegetation and difference in altitude. If the area is to be used as a shelter it has to be complemented by signs and suitable evacuation routes.
8. Gather information about the overall planning (early warning signals, escape routes, evacuation sites (shelters) on the Island and distribute the information to hotels, guesthouses, restaurants, tourist offices, tour operators etc. A good example is the information put on every room at Phi Phi Hotel.
9. According to local sources, two out of four sirens in the Early warning system are out of order. To create security, the Early warning system should be tested regularly, for an example at the same time once a month. Information about the signal has to be spread, see also point number 8 above.

## Appendix A - Participants to Meeting, 2007-09-13, Nagercoil, Tamil Nadu

<b>Name</b>	<b>Position</b>	<b>Organization</b>
Mr Vijaya Kumar	District Project Officer, Disaster Risk Management Programme,	Kanniyakumari District
Mr Jaganathan	Executive Officer	Town Panchayat, Kanniyakumari
Mr S. Malaiah	Assistant Tourist Officer	Tourist Office, Kanniyakumari
Mr Winsly Roy	Dy. Manager	Poompohar Shipping Corporation Ltd., Kanniyakumari
Mr Krishna Pillai	President	Tour Operators, Triveni Tours & Travels, Kanniyakumari
Mr S. Sathia Kumar	Station Officer	Fire & Rescue Service, Kanniyakumari
Mr M. Thurai	Station Officer	Fire & Rescue Services, Thulalay, Kanniyakumari Dist
Mr S. Hari Hara Subramaniam	Medical Assistant	Directorate of Health Services, Nagercoil
Mr T. Naras Khan	Assistant Public Relation Officer	Govt. of Tamil Nadu, Nagercoil
Mr A. Sathivaseelam	Extension Officer, Collectorate	Govt. of Tamil Nadu, Nagercoil
Mr. Poulose	District Project Officer,	District Risk Management Programme, United Nations Development Programme (UNDP), Nagercoil.
Mr V. Vimal Raj		UNDP – Volunter, Early Warning System
Mr S. Ponni		UNDP, Rubber Factory Colony, KuttakariThukalay, Kanniyakumari District Nagercoil
Mr J. Harabin Princy		UNDP, Nagercoil

## Appendix B - Participants to meeting and workshop, 2007-09-17, Patong, Phuket

<b>Name</b>	<b>Position</b>	<b>Organization</b>
Mr.Chatchai Keeratiwattananusan	Computer System Officer	Patong Hospital
Ms.Apiratee Sittiongkool	Assistant Data Recording Officer	Patong Municipality
3.Mr.Eakarat Pakdeemai	Fire Brigade	Disaster Prevention Division, Patong Municipality
4. Mr.Phutarak Srisamoot	Fire Brigade	Disaster Prevention Division, Patong Municipality
5. Ms. Noppachanok Chindawong	Teacher	Bansainamyen School (Primary School)
6. Ms.Nantiya Puttarak	Assistant Tourism Development Officer	Patong Municipality
7. Ms.Saowapark Malakarn	Scientist	Disaster Prevention and Mitigation Academy, Phuket Campus
8. Mr.Teerapon Muangprom	Civil Servant Officer (Trainer)	Disaster Prevention and Mitigation Academy, Phuket Campus

## Appendix C - Participants to meeting and workshop, 2007-09-20, Krabi

<b>Name</b>	<b>Position</b>	<b>Organization</b>
Mr. Wanchai Chaovanapanja	Director of Disaster Prevention and Mitigation Regional Office 11, Suratthani Province (DPMRC 11)	DPMRC 11
Mrs. Chatsama Juntrakul	Administrative officer level 7	DPMRC 11
Mr. Wanchai Sainoi	Mechanical Engineer level 7	DPMRC 11
Mr. Phichan Tuntiwiwat	Mechanic level 6	DPMRC 11
Mrs. Wattana Nookaew	Policy and Planning Analyst level 5	DPMRC 11
Mr. Pornthep Jirarat	Communications Officer level 5	DPMRC 11
Mr. Wirot Thongprasert	Driver of Light Machinery	DPMRC 11
Mr. Ekachai Suramane	Driver of Medium Machinery	DPMRC 11
Ms. Kanokporn Chucherd	Foreign Relations Officer level 4	Department of Disaster Prevention and Mitigation, Bangkok Office (DDPM)
Mr. Prasong Thammapala	Scientist level 4	DDPM
Mr. Surin Werasuk	Mechanic level 6	Disaster Prevention and Mitigation Academy, Songkhla Campus (DPMA)
Mr. Chalernpol Tulayaniska	Policy and Planning Analyst level 7	Disaster Prevention and Mitigation Provincial Office, Krabi Province (DPMP, Krabi)
Ms. Nunthawan Prathumsuwan	Disaster Prevention and Mitigation Officer	DPMP, Krabi
Ms. Hathaithip Wilairat	Policy and Planning Analyst level 4	Ao-Nang Sub-district Administrative Organization (ANSAO)
Ms. Wilaiwan Aphimote	Tourism Promotion Officer	ANSAO
Ms. Jarunee Chuchuay	Educator	ANSAO
Mr. Prasarn Hemkij	Sub-district Administrative Organization Officer	ANSAO