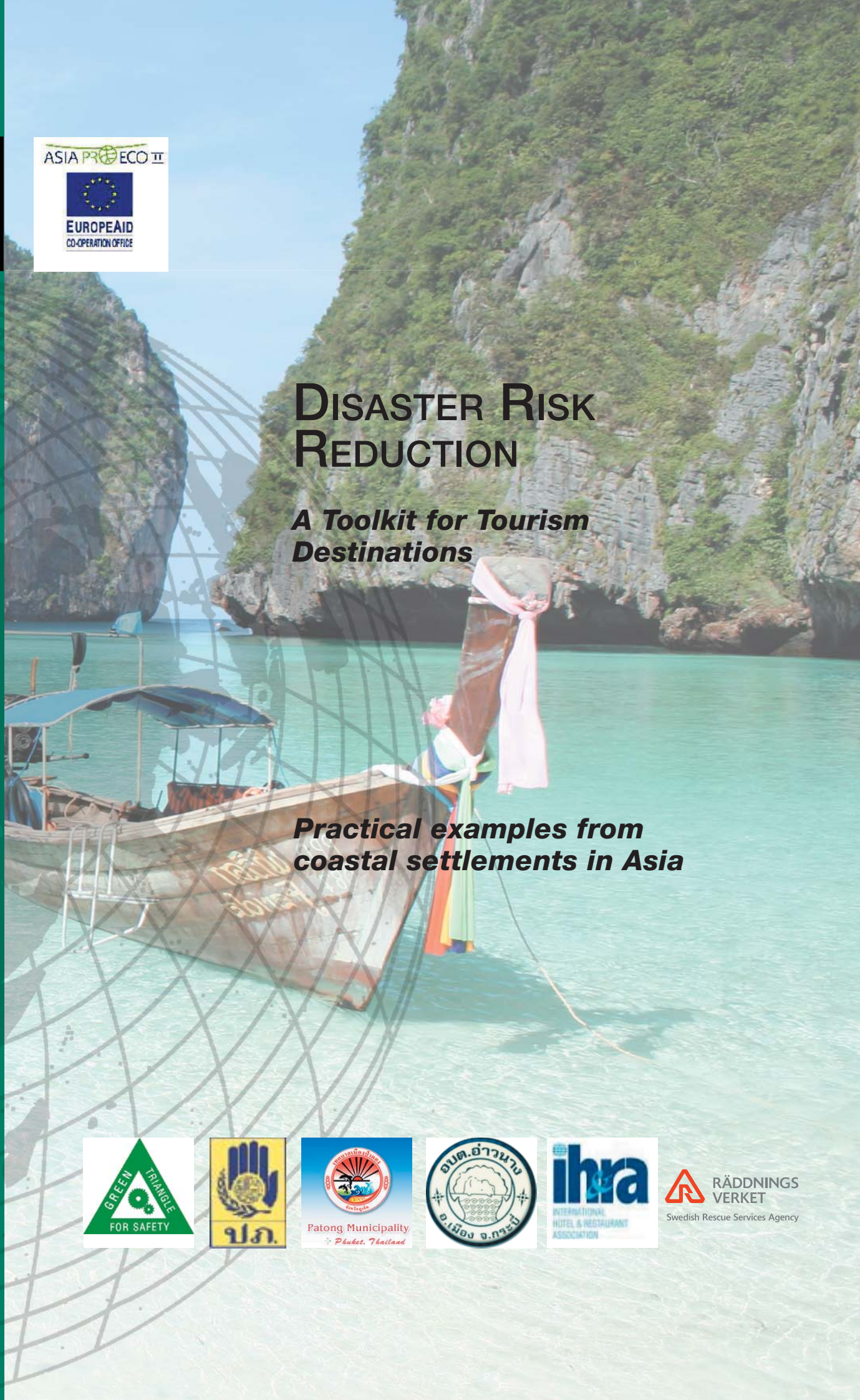

UNEP

ASIA PRO ECO II

EUROPEAID CO-OPERATION OFFICE

# Disaster Risk Reduction

## *A Toolkit for Tourism Destinations*

## *Practical examples from coastal settlements in Asia*

United Nations Environment Programme

GREEN TRIANGLE FOR SAFETY

ปภ.

Patong Municipality
Phuket, Thailand

อบต.อ่าวนาง
อ.เมือง จ.กระบี่

ihra
INTERNATIONAL HOTEL & RESTAURANT ASSOCIATION

RÄDDNINGS VERKET
Swedish Rescue Services Agency

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# DISASTER RISK REDUCTION

## A TOOLKIT FOR TOURISM DESTINATIONS

Practical examples from coastal settlements in Asia

United Nations Environment Programme
Division of Technology, Industry & Economics

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The Disaster Risk Reduction Toolkit for Tourism Destinations is based on the project's successful implementation in three demonstrations sites: Kanniyakumari Town Panchayat in Tamil Nadu State, India; Patong in Phuket; and Phi Phi Islands in Krabi, Thailand.

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# Executive Summary

From October 2006 to the end of 2008, the United Nations Environmental Programme (UNEP) worked with a number of partners to help build capacity for disaster risk reduction in three tsunami-hit tourist destinations. The project, entitled "Disaster Reduction through Awareness, Preparedness and Prevention Mechanisms in Coastal Settlements in Asia: Demonstration in Tourism Destinations" was made possible thanks to funding from the European Union through the EU-Asia Pro Eco II B Post-Tsunami Programme.

The three sites involved in the project were: Kanniyakumari Town Panchayat in Tamil Nadu State, India; Patong Municipality of Phuket (PMP); and Phi Phi Islands in Krabi, Thailand. The United Nation's APELL process (Awareness and Preparedness for Emergencies at the Local Level) was used as the methodology for the project. A number of workshops and exercises guided the three destination sites through a step by step process for improving local disaster prevention and preparedness. As a result of the project, integrated local disaster preparedness plans were developed in the three sites.

This toolkit for tourist destinations has been developed to disseminate the project experience and to allow its replication in other tourist destinations. It is designed for local municipalities and for the various actors involved in emergency planning and response in tourism destinations. The toolkit includes information relating to the various steps that need to be undertaken, from the preliminary assessment, to capacity building, disaster prevention and preparedness planning, to communicating and disseminating key information.

For each step in the process, the toolkit provides an explanation of what should be done and a reference to the project experience. All key project documents are mentioned in the annex and are included in the CD-rom attached to this toolkit.

# User's guide

This toolkit summarises the objectives, methods, experiences and recommendations for disaster risk reduction acquired during the EU financed project. The toolkit is intended for use by authorities at the national, regional and local level and the private sector, including businesses that provide tourist services. Universities and research institutes studying disaster risk management will find descriptions of the methods used during the project. Potential local project managers can use the tools to replicate the project's aims and activities in their own municipality. The toolkit can be disseminated to the various actors who assist in preparing or responding to a disaster such as fire and rescue departments, environmental departments, technical departments, hospitals, school administrators, hotel owners, as well as volunteer organisations.

The toolkit provides disaster managers, local and municipal and community planners, as well as other stakeholders in the tourism sector with practical guidance on how to better prepare for disasters in tourist destinations. The information and resources contained are based on the project experience in the three demonstration sites. The toolkit outlines the necessary steps to be undertaken, from the preliminary assessment, to capacity building, disaster prevention and preparedness planning, to communication and dissemination of the key information. Key success factors for implementing the project include good project planning, involvement of key stakeholders at all levels and effective coordination between players.

The toolkit is divided into 6 sections. Section 1 provides an overview of the project, including background information on the three demonstration sites and on the APELL methodology followed in the project. Section 2 describes the preparatory work for disaster management and planning including the establishment of local coordinating groups and the initial preliminary assessment of local preparedness. Section 3 focuses on capacity building and implementation for disaster prevention and preparedness and covers the following themes: risk assessment, shelter assessment and environmental awareness. Section 4 provides information on developing a local disaster preparedness plan as a key component of disaster prevention efforts. Section 5 describes training requirements and communication of key information. Finally, section 6 highlights key success factors that may serve as useful guidance for toolkit users.

**CD-Rom**

A CD-rom supports the toolkit and contains all the annex documents that are mentioned in the toolkit.

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# 1

# Project overview

## 1.1 Background

Every year, more than 200 million people are affected by droughts, floods, cyclones, tsunamis, earthquakes, wildfires and other disasters associated with natural hazards. Growing populations, environmental degradation and global warming are making the impacts worse, creating greater disasters and making the need to find better ways to protect people more urgent.

Tourism is dependent on an intact ecosystem and on institutional structures that can respond to the needs of local people and visitors. Therefore, disaster preparedness and management (for natural and man-made hazards) should be an essential part of any destinations' integrated management plan. Heat waves (such as that experienced in the European summer of 2003), the Southeast Asia tsunami of December 2004, changes in tropical storm intensity (such as Hurricane Katrina in August 2005) and forest fires (such as those experienced in Portugal and Greece in 2005) are all examples of how disasters and environmental emergencies can impact tourist destinations and holiday experiences.

There have always been, and always will be disasters. The patterns of modern life are exposing more communities to danger then ever before. Tourist areas will be more and more exposed to rising sea levels, and meteorological-related disasters due to climate change. Disaster risk reduction linked with efforts to climate change adaptation and improvement of living conditions are undoubtedly today's major global challenges.

Disasters inevitably bring about crises. It is the degree to which people are prepared for disaster that determines how vulnerable or resilient their community will be.

The "Disaster Reduction through Awareness, Preparedness and Prevention Mechanisms in Coastal Settlements in Asia - Demonstration in Tourism Destinations" project aimed at increasing the disaster management capacity of the main stakeholders in three tsunami-hit tourism destinations:

1) Kanniyakumari in Tamil Nadu State, India;
2) Patong Municipality of Phuket (PMP); and
3) Phi Phi Islands in Krabi, Thailand, part of the Ao Nang Sub-District Administration Organisation (ANSAO) and from onwards referred to ANSAO / Phi Phi Islands.

The project ran from October 2006 to December 2008 and covered the following phases: preliminary assessment, capacity building, disaster prevention and preparedness planning, communication and dissemination of the key information.

## 1.2 Project objectives

The project aimed at the following:

1. Improving disaster preparedness capabilities of the communities (local authorities, local tourism industry and residents) of disaster-prone tourism destinations for effective emergency response through the adaptation of the existing APELL process to tourism destinations, taking into account the challenges inherent to tourism destinations;

2. Raising awareness of local authorities, local residents and tourists, and of the local tourism industry about the importance of natural and man-made disaster prevention and preparedness (through awareness raising events and brochures production and distribution) and about the importance of environmental management and conservation, and its relationship with disaster reduction;

3. Improving local environmental management and planning capabilities of local authorities through the identification of local hazards, assessment of local vulnerabilities, suggestion of preventive measures and production of vulnerability maps with high risk zones that will allow proper risk communication, and land use planning that will in turn promote disaster reduction and environmental conservation;

4. Improving risk communication between the local authorities, the private sector (tourism and other private business) and the exposed community (tourists and local population) on local disaster issues to allow better and effective response in crisis situations leading to less loss of life and less environmental damage; and

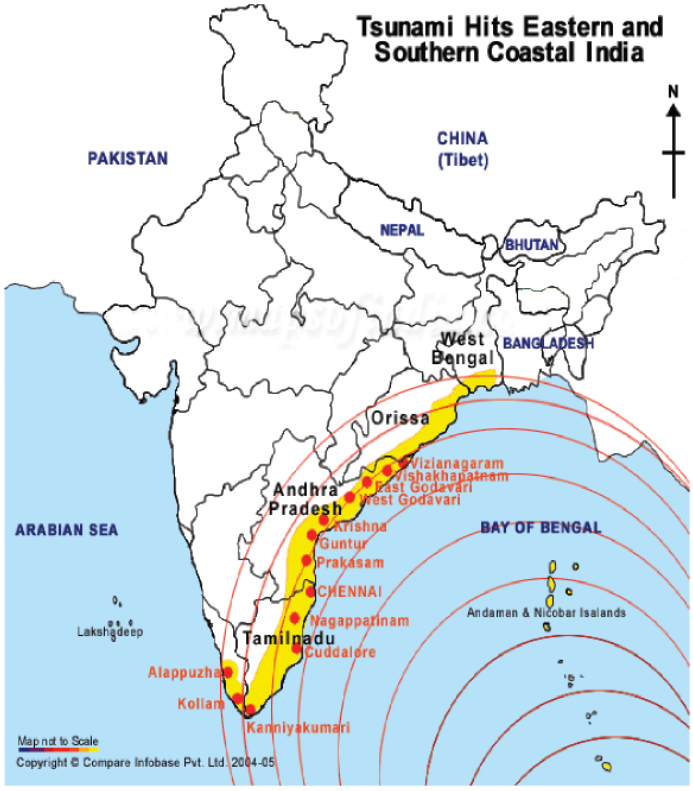
5. Increasing the trust of tourists in the tourism destinations by disseminating the project results and by promoting the application of this proposed project approach to other disaster-exposed tourism destinations in Asia.

## 1.3 Demonstration sites

Kanniyakumari in India, Patong and Phi Phi Islands in Thailand were chosen as demonstrations sites for the project. All three were affected by the tsunami of December 2004 and are popular tourist destinations.

**Beach in Kanniyakumari**

**Map showing range of impact of the December 2004 tsunami on the eastern and southern Indian coasts.**



**Kanniyakumari** is a small town of 20,000 inhabitants located at the southern-most tip of India, surrounded by the Bay of Bengal on the east, the Arabian Sea on the west and the Indian Ocean on the south. Kanniyakumari has an area of 26 $km^2$ and attracts about 1.8 million tourists per year of which approximate 1,735,000 are domestic tourists and 64,000 international. The livelihood of local people in Kanniyakumari depends mainly on tourism. Man-made disasters are not likely in the town but there is a strong probability for natural disasters. The tsunami that struck in December 2004 affected 33 coastal villages and claimed 798 lives. Thousands of people were injured and significant property was also damaged under the impact of the tsunami. Thed-sa-baan Muang Patong or **Patong Municipality** also participated in the project.

**Patong Municipality: a popular holiday destination for national and international tourists.**

Patong Municipality is one of the local administrative organisations of Ka-Thu District, covering an area of 16.4 $km^2$ where seven communities are located namely: Chai Wat, Baan Mon, Baan Sai Num Yen, Baan Na Nai, Baan Khok Makham, Baan Kalim and Had Patong. According to the census in 2004, the population in Patong Municipality was 15,629 people with a population density of 953 people per $km^2$. Patong Municipality is located on the west coast of Phuket Islands. Its landscape is a plain bordered with mountains to the east, north and south, and the Andaman Sea to the west. The tsunami that struck in December 2004 affected severely Patong and claimed several lives including locals and tourists.

**Maya Bay on Ko Phi Phi Leh, the second largest island.**

**ANSAO / Phi Phi Islands** are located in Thailand between the large islands of Phuket and the western Andaman Sea coast of the mainland. There are six islands in all. The two main islands are administratively part of Krabi province, most of which is on the mainland. Only one of the islands has permanent residents and the villages on the island are under administration of ANSAO. ANSAO / Phi Phi Islands are a popular tourist destination. The islands were devastated by the Indian Ocean tsunami of December 2004 when practically the entire island's infrastructure was wiped out. Redevelopment has however been swift.

The table bellow summarises the relevance of tourism in the local economies.

**Overview of key data in three tourism demonstration sites**

| Destination | Total area sq km | Population | Number of hotels | Number of tourism related companies | Tourists arrivals | Tourism % of the GDP |
|---|---|---|---|---|---|---|
| Kanniyakumari, India | 25,89 | 19,678 | 75 | 166 | domestic: 1.500.000 international: 60.000 | N/A |
| Phi Phi Islands Thailand | 11,12 | 6,333 | 51 | 144 | 547,000 | 24.1% |
| Patong, Thailand | 16,4 | 16,987 | 104 | 191 | 841,000 | 58.8% |

## 1.4 The APELL process

The APELL programme (Awareness and Preparedness for Emergencies at Local Level) was born in the 1980s following various chemical accidents. UNEP suggested a series of measures to help governments, particularly in developing countries, reduce the occurrence and harmful effects of technological accidents and emergencies. One of these measures was to institute a programme – the APELL programme – enabling governments, in cooperation with industry to work with local leaders to identify the potential hazards in their communities. This programme also developed procedures to respond to and control emergencies that threaten public health and safety and the environment.

As an international initiative, the APELL programme was developed in full cooperation with partners in industry e.g. NGO's, governments and other international organisations. In particular, direct support for the APELL programme was received from the International Council of Chemical Associations (ICCA) representing numerous national associations, multinational corporations, the Governments of Canada, France, Germany, Sweden, Switzerland and the USA; and from international organisations such as the Organization for Economic Cooperation and Development (OECD) and the European Commission of the European Union (EU) among others.

During the last two decades, the APELL Programme has made efforts to raise awareness worldwide of the APELL Process, to establish long-lasting stakeholder partnerships and to implement capacity-building initiatives for support of local partners, thus strengthening preparedness and response systems in selected industries and communities throughout the developed and developing world. The APELL process has been implemented successfully in a number of countries around the world.

Since 1994, emphasis has been placed on using APELL as an international programme for accident prevention and preparedness in conjunction with other international organisations. This approach included improving communication with the public and developing tools for transport and port areas. “APELL for Port Areas” was released in 1996 and “TransAPELL, Guidance for Dangerous Goods Transport: Emergency Planning in a Local Community” was published in 2000. Since 2001, closer cooperation with particular industry sectors has resulted in the development of specific guidelines and tools like “APELL for Mining” released jointly with the International Council on Mining and Metals (ICMM) in 2001 and translated into Spanish jointly with the programme for Science and Technology for Development (CYTED) in 2004 as “APELL para Mineria”, the “Good practice in emergency preparedness and response”, a joint UNEP/ICMM publication in 2005 and the “Community Risk Profile Tool”, developed in 2006 in partnership with the French Institute INERIS.

Since 2001, a focus on capacity-building and local demonstration was further emphasised, and several on-site applications took place. Most projects in the last five years were aimed at training and capacity development to allow a more sustained application of the APELL principles by local partners. After recent natural disasters like the earthquakes in Iran and Algeria (in 2003), the Indian Ocean tsunami (2004) and the Pakistan earthquake (in 2005), the APELL programme extended its scope from industrial and technological disasters to a multi-hazard approach, resulting in current project demonstrations and capacity building initiatives in India, Thailand, Sri Lanka and Morocco.

The APELL process helps local people develop information and decision-making procedures for addressing the hazards affecting their community. APELL can be useful in any situation that requires joint planning for local disasters by multiple stakeholders. By engaging stakeholders in a process of structured dialogue and coordination, APELL’s sequential 10-step approach (see figure below) leads to the development of a single, unified emergency response plan for the community. Implementing the process not only develops the emergency plan; it also fosters awareness-raising, collaboration and feedback within the community.

APELL’s 10-step-wise approach to community-focused disaster planning is particularly suited to building awareness and capacity in communities that have not traditionally been involved in national contingency planning and early warning systems. The 10-step approach bears similarities to the classic strategic planning and disaster management cycles, i.e. is systematic in approach. The 10 steps are shown in the figure below.

Although APELL is designed as a stand-alone process, it does not eliminate the necessity for effective disaster management and risk reduction to be undertaken in the context of national or sub-national frameworks. This is the underlying premise of the toolkit: that government has primary responsibility for establishing the national disaster management organisation and for ensuring disaster risk reduction at tourism destinations.

The method of implementation of APELL is to first establish a coordinating group and then proceed with an assessment of the local disaster management situation of a location. The next steps are hazard identification, risk assessment, vulnerability mapping, revision of existing emergency plans and resources and development of a new integrated and agreed emergency plan.

The second part of APELL implementation is to raise awareness of the public exposed to risk, to train local authorities and emergency services on the new plan and to educate and involve the public on the outcomes of the plan.

**The APELL 10-Step Procedure**

The third part of the methodology that served as a key performance indicator for this project is the testing of the emergency plans through emergency drill. This part includes awareness raising activities such as distributing brochures and engaging with the public and tourists.

CD-Rom

**ANNEX 1**

- Project brochure
- General project presentation
- Disaster risk management in tourism destinations – presentation by UNEP
- APELL presentation SRSA
- UNEP-APELL presentation
- Project introduction Kanniyakumari
- Project introduction ANSAO / Phi Phi Islands
- Project introduction Patong

# 2 Preparatory work

## 2.1 Establishment of local coordinating groups

### 2.1.1 Description and objectives

Establishing a coordinating group at the local community level is the first task to be undertaken by the tourism destination. The local disaster management agency or the local municipality could initiate the establishment of this group.

Establishing a formal coordinating group is a key part of the implementation of the APELL process. The coordinating group provides a mechanism for interaction and cooperation between the many players (APELL partners) involved in preventing or responding to emergencies - management, local authorities, and community leaders. It provides a means to achieve a coordinated approach to emergency response planning and to communications within the community. It can gather facts and opinions, assess risks, establish priorities, identify resources for emergency response, evaluate approaches and enhance communication. It can draw in the right people and resources to make sure that following the APELL steps will produce good results.

The cordinating group does not have a direct operational role during an emergency. It has a key role in building and maintaining motivation, communication, commitment, cooperation and momentum during the project.

More specifically, the group's roles include:

- ensuring open lines of communication between all parties;
- identifying key people and organisations to involve;
- setting objectives and a timeline for the process;
- overseeing development of the coordinated emergency action plan (10 steps);
- identifying available expertise;
- establishing working groups for specific tasks;
- ensuring clear risk communication occurs to vulnerable communities;
- preparing the various parties involved to know their tasks should an accident occur; and
- remaining as a central forum for dialogue and review after the planning process is complete.

This is a process that normally lasts one year and requires the members of the coordinating group to meet once or twice a month.

The coordinating group ensures that the appropriate people (i.e. stakeholders), expertise and resources are brought together to collaboratively develop a participatory and responsive process. The group should function in parallel with other groups, committees or sub-committees within the national disaster management organisation. The advantage lies in the organisation of a multi-stakeholder collaborative group with resources and networks that are essential to the response phase of any disaster. Stakeholders include the full range of public, private and non-profit representatives who have responsibility or interest in managing disaster risks at the tourism destination.

### 2.1.2 Project experience

In each location, the Asian project partners identified representatives from the local agencies (fire department, police, etc.), from the community and from the private sector (tourism) to take part in the local coordinating groups. The members of the groups were selected so as to reflect their institutional and professional responsibilities, as well as their personal interest in promoting and maintaining good emergency awareness and preparedness in their community, so as to ensure their long-term commitment.

The coordinating group provides a mechanism for interaction and cooperation between the many players involved in disaster prevention and preparedness. During the course of the project, members of the coordinating groups in the three locations met on a regular basis to steer project implementation.

| Members of the Kanniyakumari Coordinating Group |
|---|
| **Government Sector** |
| District Collector, Kanniyakumari as the Chairman of the CG<br>District Project Officer (Disaster Risk Management Programme) as a Convener<br>District Public Relation Officer<br>Kanniyakumari Town Panchayat - 2<br>Tashildar, Agasthiswaram<br>Dy Superdient of Police<br>District Fire Officer<br>District Health Services<br>Regional Transport Officer<br>Tamilnadu Electricity Board<br>Public Works Department<br>Fisheries Department, Govt of Tamil Nadu<br>Tourism Officeer, Tamil Nadu<br>Water Administration & Drainage<br>Divisional Engineer (Highways)<br>Tamil Nadu State Transport Corpn.<br>Poompuhar Shipping Corp. Ltd. (Ferry Service Operator)<br>State Minor Port Authority<br>Meteorological Observatory at Kanniyakumari<br>All India Radio<br>Bharat Sanchar Nigam Ltd. (BSNL)<br>Life Insurance Corporation of India |
| **Private Sector** |
| Hotel Association<br>Mechanised Boat Owners Association<br>Merchants' Associationn<br>Representative of TourOperator<br>Auto Rikshaw Association<br>Tourist Guides Association<br>Representative of Restaurants |
| **Community** |
| Representative of St. Anthony's School<br>NGO – Mahalir Association for Literacy, Awareness & Rights (Women forum of self-help Group) |
| **National Service Scheme (Student volunteers organisation)** |

### 2.1.3 Guidance and resources

For the benefit of community disaster planning, the following categories of representatives should be considered for membership in the coordinating group:

- An interdisciplinary team of experts most familiar with local hazards, exposure and vulnerability. They should have knowledge of data collection and natural processes e.g. from the meteorological service, geological and earth science institutes, academia, and other professional organisations such as planning, engineering, environmental and architect associations. These persons may already be part of the national disaster management network.

- Local authorities, police, fire and local emergency management personnel (i.e. the first responders) who have been involved with past natural disasters and emergencies and are familiar with community profiles and logistics.

- Representatives from the tourism sector (e.g. hotel managers, tour operators, tourism boards, travel agencies, transportation providers, restaurant owners), worker and trades unions and from other related operators in the community.

- Resident community organisations, women's organisations, NGOs and other relevant civil society groups should also be involved.

| Potential Members of the Coordinating Group | | |
|---|---|---|
| Potential Members of the Coordinating Group | The private sector | Community Leaders |
| Fire department, police, civil defence | Hotel managers | NGOs |
| Health services (including hospitals) | Restaurant managers | Civil servants, university professors |
| Environmental Agency, Provincial Government | Tour operator companies | Industry – fishermen workers/union |
| Land use – coastal zone planners | Local industries with special attention to the fisheries | Hotel union representatives |
| Weather forecast services | | School directors, media representatives |
| Public works/transportation | | Religious leaders |
| Port authorities/fishing authorities | | Tourist associations |

CD-Rom

**ANNEX 2.1**

- List of coordinating group members Patong
- List of coordinating group members ANSAO / Phi Phi Islands
- List of coordinating group members Kanniyakumari

## 2.2 Preliminary assessment

### 2.2.1 Description and objectives

This task aims to assess current mechanisms and existing resources to identify needs and untapped opportunities for effective disaster management. A preliminary assessment considers available resources, existing capacities, operational plans and procedures, as well as communication systems linking the preparedness and response community to higher levels of government decision-making.

A preliminary assessment of local disaster management is important for identifying major deficiencies in existing plans. For tourism destinations without an existing preparedness plan, the capability assessment is an essential tool for evaluating the prevailing physical, institutional, social and economic conditions at destinations. Even if this institutional assessment is undertaken by the local disaster management office, the coordinating group should be aware of the findings and be willing to close the gaps and supplement any deficiencies with its own resources, networks and personnel.

Specific challenges facing tourism destinations should be considered at this stage. These include:

- Managing growth and development while preserving the quality and longevity of a destination's natural attractions and other heritage resources;
- Spreading wealth and opportunity to host communities through responsible tourism operations;
- The highly fragmented nature of the local tourism industry and especially a lack of cohesiveness between policy-makers, suppliers, buyers and other supporting services;
- Signs of stress at the destination e.g. urban decay, excessive building massing along coasts, overcrowding during cruise ship visits, traffic congestion, high levels of pollution in coastal areas, conflict between visitors and locals and between traditional occupations and tourist-based activities;
- Deteriorating utility, health and social services and amenities; this often translates into limited or poor quality services to residents and visitors; and,
- Recurring disaster events disproportionately affecting the more vulnerable members of the community and with extended recovery times for the destination as a whole.

The preliminary assessment phase is an important part of the process as it provides the baseline information for creating and / or reviewing the disaster management plan.

### 2.2.2 Project experience

The assessment was conducted by using on-site research in the three tourist destination areas chosen for the project. A questionnaire prepared by UNEP, SRSA and NSCI based on Annex 3 of the APELL handbook[1] was used to help local partners carry out the assessment.

[1] APELL: Awareness and Preparedness for Emergencies at Local Level, A Process for Responding to Technological Accidents. UNEP, 1988. ISBN 92-807-1183-0.

During the process several authorities were involved including district revenue authorities, police officials at the district level and the local level, district health officials, executive officers from the municipalities, fire officials, and business managers for enterprises such as hotels, ferries and shipping services. Volunteer organisations also participated.

Partners in the three locations prepared reports on the assessment of local current disaster management and plans which provided the necessary baseline information for the next steps in the project.

### 2.2.3 Guidance and resources

The assessment of local disaster preparedness was aimed at determining local capabilities for responding to potential disasters in seven areas:

1) risk identification and assessment,
2) legal authority,
3) organisational structure,
4) early warning systems,
5) communication,
6) resources and emergency planning, and
7) tourism related issues.

A questionnaire prompting a number of questions in relation to each of the above topic was developed for the project to assist with the preliminary assessment. It is contained in the annex together with the examples of the local disaster management assessments of the three demonstration sites.

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**ANNEX 2.2**

- Criteria for assessing local preparedness
- Local disaster preparedness Kanniyakumari
- Local disaster preparedness ANSAO / Phi Phi Islands
- Local disaster preparedness Patong
- Fire safety audit at Hotel Singaar International, Kanniyakumari

# 3 Capacity Building and Implementation for Disaster Prevention and Preparedness

Capacity building programmes for disaster prevention and preparedness, according to the three major theme areas in the APELL process include risk assessment, emergency planning and emergency drills. In addition, training in the APELL process is a useful initial capacity building exercise.

## 3.1 APELL training

The purpose of the APELL demonstration was to show how APELL could be implemented under local conditions, while also providing hands-on training to stakeholders on local cooperative action to improve community awareness and emergency preparedness.

The APELL demonstration consists of the local community following the APELL 10-step process and implementing it through the coordinating group. This process normally takes a year and is supported by APELL workshops.

The workshops start with a presentation on risk management from a community perspective. The fundaments of APELL are described and each participant receives a comprehensive folder with APELL handbooks, brochures and reports from UNEP.

To obtain an understanding of how to work and use the APELL process, a role play exercise is carried out. The participants are divided into groups each with a task to perform such as:

- Group 1: Identify participants, roles, resources and concerns for emergency response
- Group 2: Evaluate the hazards and risks that might occur from natural disasters
- Group 3: Discuss the content of emergency response plans
- Group 4: Identify all the required response tasks that are not covered by existing plans

The APELL approach workshop was applied and implemented for raising public awareness, developing an emergency response system and assigning roles and responsibility for the incident command system.

**Discussion in Kanniyakumari on the local risk assessment**

All materials related to the APELL training are included in the annex for further reference.

**Local and national experts at work at an APELL workshop in Patong Municipality**

**APELL training in Phi Phi Islands**

**Experts from the Swedish Rescue Services Agency**

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**ANNEX 3.1**

- APELL general presentation
- APELL in depth presentation
- APELL role play Patong
- APELL role play ANSAO / Phi Phi Islands
- APELL role play Kanniyakumari
- Crisis and disaster preparedness presentation IH&RA

## 3.2 Risk assessment: hazard and vulnerability mapping

### 3.2.1 Description and objectives

Risk identification and assessment is a process of measuring the potential for loss of life, personal injury, economic impact and property damages resulting from hazards. Risk assessment also involves an evaluation of the vulnerability of people, buildings and infrastructure and answers the question: "What would happen if a natural disaster occurred at the tourism destination?" A starting point for the coordinating group should therefore be an assessment of the current understanding of the community's overall risks and capability to respond to future disaster events.

The assessment should include examination of risks to tourism resources (e.g. biodiversity, water supply), plant and infrastructure (e.g. coastal resorts), business risks (e.g. supply disruptions, changes in insurance coverage), or market risks (e.g. changes in competitiveness through increased transportation costs). Analysing the impacts of hazards and identifying the most vulnerable destination and community locations and assets are essential for establishing the local context. This will allow the coordinating group to better focus their activities when overseeing the development of the disaster preparedness plan.

To complete a hazard and vulnerability mapping, in a first step the coordinating group or its designated risk assessment committee should identify all categories of events that might affect the community and then prioritise the list according to the most serious hazards impacting the community. It is important to take a systematic approach because a hazard not identified at this stage could potentially be excluded from further analysis. The analysis should review the full range of potential hazards and assess the significant impacts upon the community and the environment.

The next step involves determining the level of exposure or the vulnerability to the identified hazards. Vulnerability mapping depicts areas that are at risk from a potentially disastrous event, which could result in death, injury or damage to property and tourism infrastructure. Assessing exposure levels is essential for preparedness planning as it directly affects the destination's vulnerability and ability to respond and recover from natural disasters. There will be differing levels of exposure due to demographic, topographic, geologic and environmental considerations, in addition to the influence that the type and quality of the built environment has on the anticipated consequences of hazard events.

### 3.2.2 Project examples

The risk assessment for **Kanniyakumari** identified four main sources of risks: tsunamis, cyclones, fires and stampedes. While Kanniyakumari does not fall within an earthquake prone area, it can be affected by earthquakes occurring in the following zones: the Indonesian Sea, the Socotra Island Region near African Coast, the Andaman and Nicobar Island Region, the Arakan Coast Region of Myanmar, the Gulf of Aden, the Diego Garcia Island Region in the Indian Ocean and the Makaran coastal region near Pakistan. In addition to earthquakes, occurrences of volcanoes can also generate tsunamis. Moreover, cyclones on the east coast are a frequent phenomenon while on the west coast the frequency of cyclones is somewhat less. However, the available cyclone data from the India Meteorological Department (IMD) for the last two hundred years does not indicate the occurrence of a strong cyclone at Kanniyakumari.

Fire is a further possible cause of disasters, related mainly to the transportation and storage of petrol and diesel in tanks and at petrol pumps. Finally, the risk of stampedes at the Kanniyakumari temple is particularly high during the tourist peak season and festival time and was identified as a possible cause for disaster in the Kanniyakumari area.

**Overview of the identified risks in Kanniyakumari**

| | Risk due to | Probable period of the year | Potential Impact | Vulnerable Areas |
|---|---|---|---|---|
| 1 | Tsunami | Any time | Loss of life, property damage | Sea coast and Vivek ananda Rock Memorial and Tiruval-luvar statue |
| 2 | Cyclone | October to December | Loss of life, property damage | Entire Kanniyakari |
| 3 | Boat Capsize | Any time | Loss of Life | Ferry services between Vive-kananda Rock Memorial and Tiruvalluvar Statue – Jetty |
| 4 | Fire | Any time | Loss of life, property damage | Anywhere but particularly at the market and petrol pumps |
| 5 | Stampede | December - January | Loss of life | Kanniyakumari Temple |

The risk assessment for **Patong Municipality** showed a diversity of risk types including water and climate related disasters (cyclone, gales, flood, and tsunami), geological related disasters (earthquake and landslide), sea erosion, human-caused accidents (traffic accidents, terrorism) and biological related disasters (cattle epidemics, food poisoning). Landslides are likely to occur during the rainy season particularly between May and November. Baan Kalim and Baan Na Nai are identified as landslide prone areas due to the steep slope grade and the lack of plantations to prevent soil erosion. Landslides in this area usually occur when rainfall reaches 100 ml. per day. Although landslides usually do not result in loss of life, they can cause damages to the municipality's infrastructure since eroded soil usually obstructs traffic. As detailed in a following section, Patong Municipality developed a comprehensive disaster preparedness plan focusing on three main risks:

1) landslides, floods and flashfoods;
2) fire; and
3) tsunami.

The risk assessment for **ANSAO / Phi Phi Islands** identified fire as the most prominent cause for disaster. Other sources of risk included accident around the port, boat accidents, tsunamis and landslides. Fires in buildings were considered to be the greatest risk threatening the island, characterised by densely built wooden constructions and roofs often made from flammable materials such as wood, dried leaves and grass. This risk, combined with the lack of fire extinguishing equipment, was seen to contribute to the enormous potential of a fire spreading quickly over a large area. A further issue of concern identified in the assessment related to the handling of waste. Because of the high cost of shipping waste to the mainland, a lot of waste is dumped on the island. An unfortunate solution to the problem seemed to be burning of the waste. Since the waste includes for instance plastic, this generates a lot of poisonous smoke that endangers both human health and the environment.

### 3.2.3 Vulnerability maps

A vulnerability map gives the precise location of sites where people, the natural environment or property are at risk due to a potentially catastrophic event that could result in death, injury, pollution or other destruction. Such maps are made in conjunction with information about different types of risks. A vulnerability map can show the housing areas that are vulnerable to a chemical spill at a nearby factory. They can also delineate the commercial, tourist and residential zones that would be damaged in case of a flood or a tsunami.

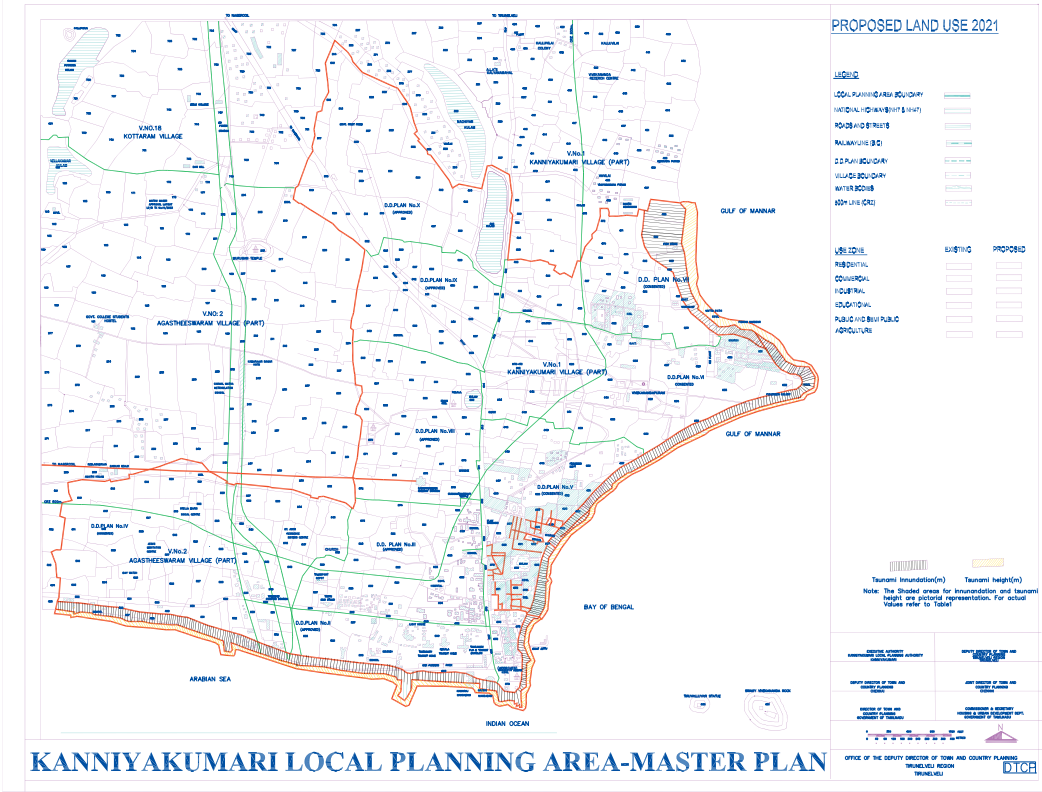
Vulnerability maps are most often created with the assistance of computer technology called geographic information systems (GIS) and digital land survey equipment designed for use in the field. However, vulnerability maps can also be created manually using background maps such as satellite imagery, property boundaries, road maps, or topographic maps. In such cases the municipality's planning office should be involved in order to take advantage of the base maps that have already been made for other purposes.

If it is not possible to develop a vulnerability map using a GIS system or to employ a cartographer to prepare the map, a risk group can nevertheless prepare a risk and vulnerability map for the local area. A detailed analogue map should be used as the base map. Several plastic sheets each one representing a different theme can then be used and superposed on the base map. For example, one sheet can highlight the various types of vulnerable sites such as hotels, schools, day care centres, public places and critical infrastructure. Another plastic layer can illustrate for risk sources such as industrial sites, storage dangerous chemicals etc. A third layer can show depots for emergency response equipment. Another sheet can pinpoint the location of fire stations and rescue units etc. The overlays can be used together to locate very vulnerable areas, or they can be used one theme at a time.

Vulnerability mapping can facilitate improved communication about risks and what is threatened. Such maps can be used for visual presentations and provide for a better understanding of the risks and vulnerabilities. Decision-makers can see where resources are needed in order to protect these areas. Vulnerability maps will allow them to decide on mitigating measures to prevent or reduce loss of life, injury and environmental consequences before a disaster occurs. An interdisciplinary risk group considers where mitigating measures should be taken before, for example, a flood occurs. Those preparing the maps can overlap flood inundation and slope stability zones with property maps in order to determine which properties and buildings are at risk. They can then notify the landowners and inform them of government subsidies or other support available for undertaking a measure that would protect their homes from potential damage by, for example, floods or slope failure.

During the course of the project, three vulnerability maps were completed one for each of the tourist destinations. As part of this work, a tsunami survey was undertaken for Kanniyakumari. A closer look at the penetration of tsunami waves inside the shore is an indication of the level of destruction. Collection of such data helps in planning of future mitigating measures. For this purpose, the entire coast of Kanniyakumari was surveyed. A team of three postgraduate students studied the entire coastline of about 4.8 km in length. The locations were selected at 50m intervals. The locations of the survey points were noted by a GPS and these locations were recorded in a table. At each location, whenever possible some persons were interviewed and information from them was recorded. The data was analysed and presented in graphs. One graph shows the heights of the tsunami at different locations and another graph shows the extent of the inundation.

## Kanniyakumari's land use planning map including zones prone to inundation as a result of a tsunami.




## Patong Municipality Vulnerability Map

### Tsunamis

A tsunami is a series of destructive waves affecting shorelines Tsunamis are usually generated by earthquakes.
A natural indication of Tsunami can be detected by the fast and unexpected retreat of the sea.

**What should I do ?**

Before disaster:

- Locate tsunami prone areas and evacuation routes and shelters in the map based on the zone you are in.

- Know well in advance what your safest evacuation route will be.
- Follow the news for a tsunami forecast.

During a disaster:

- Follow warning signs and indication evacuation routes to higher ground and to shelters.
- Move to higher ground or inland.
- If no higher ground is near, go to upper levels of reinforced buildings.

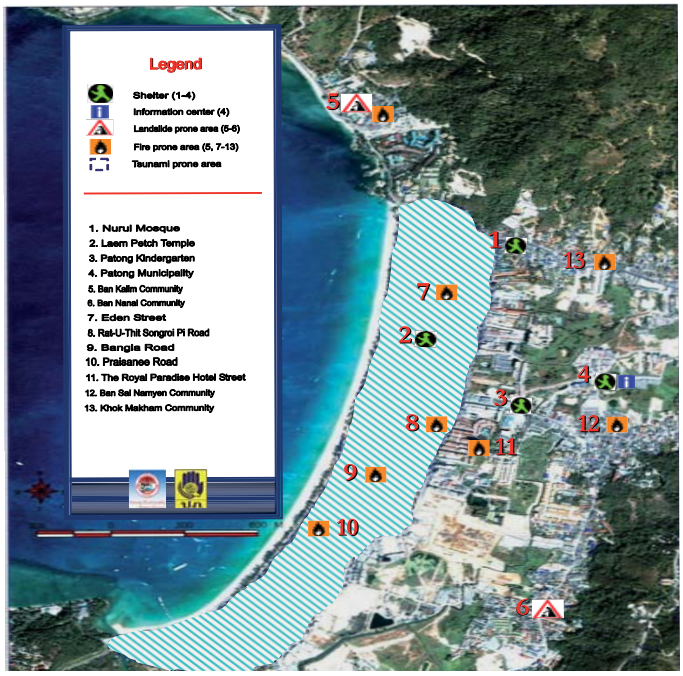
After a disaster:

- Continue to monitor your local radio for further information and instructions.
- Once you are notified the emergency is over, go back to the hotel.

**How can I be informed?**

Warning sirens and warning towers located along Patong beach.

- Warning information via radio and warning towers in communities.
- Vans will disseminate tsunami warning messages and advice to evacuate.



### 3.2.4 Guidance and resources

During the course of the project, the theory and practice of risk assessment was discussed during a specific workshop, focusing on hazard and vulnerability mapping. All documents relating to the workshop are included in the annex for reference.

In addition, a vulnerability mapping handbook was created for the project. It describes the importance of various stages including identification of local hazards, assessment of local vulnerabilities and production of maps showing risk zones as well as threatened sites within those zones. It is also included in the annex.

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**ANNEX 3.2**

- Handbook for vulnerability mapping
- Introduction to emergency planning presentation SRSA
- Risk management presentation SRSA
- Riskmatrix SRSA
- Fires in public buildings and hotels presentation SRSA
- Scenario fire in discotheque presentation SRSA
- Tourism and risk management presentation UNEP
- Tourism risk management for Asia-Pacific region – checklist
- Tsunami survey report Kanniyakumari
- Agenda for Risk Assessment and Emergency Planning – Patong
- Agenda for Risk Assessment and Emergency Planning - Phi Phi Islands
- Agenda for Risk Assessment and Emergency Planning - Kanniyakumari
- Natual Hazard risk mapping in Sweden presentation SRSA

## 3.3 Shelter Assessments

### 3.3.1 Description and objectives

A shelter assessment can be an important aspect of disaster prevention and preparedness efforts. The objective of the shelter assessment is primarily to determine the requirements for designated shelters. Potential shelter sites should be investigated and then assessed for suitability. Local authorities have the responsibility for determining shelter sites. During the EU project, recommendations were made to the authorities in the three tourism destination sites, allowing them to create shelter plans or review existing ones.

Studies show that survivors from disasters often prioritise shelter in the following order:

1) to remain as close as possible to their damaged or ruined homes;
2) to move temporarily into the homes of families or friends;
3) to improvise temporary shelters as close as possible to the site of their ruined homes;
4) to occupy buildings which have been temporarily requisitioned;
5) to occupy tents erected in, or next to, their ruined homes;
6) to occupy tents on campsites; and
7) to be evacuated to distant locations.

The assessment focuses on situations where people are evacuated to occupy temporarily requisitioned buildings or constructions. In order to decide what buildings or constructions are suitable for temporary shelter, there are many factors that have to be evaluated. For example, depending on the type of disaster or number of affected people, preference might be given to a specific type of shelter. Other factors such as target group or time constraints will also affect the choice of shelter.

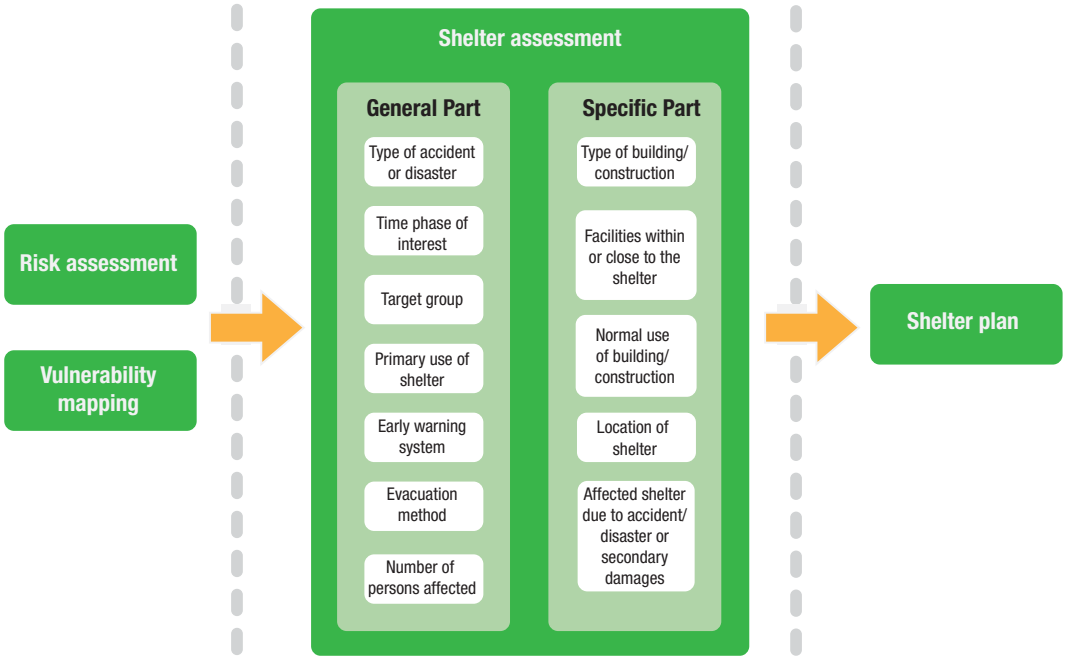
### 3.3.2 Project examples of Local Shelter Assessments

Shelter assessments were made at all three local tourist destinations, through a site visit of SRSA and IH&RA experts. Adequate shelters can be created at community halls, public or private schools, church halls or offices of NGOs and hotels. The following map shows the various safe areas and how an evacuation would occur on ANSAO / Phi Phi Islands.

**Shelter areas on Phi Phi Islands**

Tsunamis safe Areas: Zone A,B,C,D,E
Fire safe Areas: Zone H, I and J

**Shelter Assessment Model**




### 3.3.3 Guidance and resources

A general model for shelter assessment has been developed by SRSA and was used in this project. The shelter assessment model is divided into two separate parts.

The first part (general part) contains general questions about the type of disaster or accident, the target group, the time phase of interest, the primary use of interest, the early warning system, the evacuation method and the number of persons affected. The first part is conducted with input from the risk assessment and the vulnerability mapping. It is used to define and clarify basic conditions before the second and more hands-on part of the assessment begins. The second part (specific part) focuses on local conditions such as evaluation of different buildings, location of the shelter, normal use of the shelter, facilities within or close to the shelter and if the shelter can be affected by secondary damages. A detailed description for each step in the shelter assessment model can be found in the Shelter Assessment Model provided in the annex.

In the course of the shelter assessment, consideration should also be given to the activities that will take place in the shelter, once evacuees have arrived. Issues to consider include how information channels will be secured and how basic needs of evacuees will be met during their time in the shelter.

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**ANNEX 3.3**

- Shelter assessment model
- Shelter assessment report
- Shelter assessment for Kanniyakumari

## 3.4 Environmental awareness

### 3.4.1 Description and objectives

Environmental management has an important role to play in reducing many of the risks posed by natural disasters. Healthy ecosystems and well planned environmental management have the greatest capacity to mitigate at least certain categories and scales of natural hazards. Several governments have already recognised the important social and economic benefits of maintaining healthy environments. The protection role of mangrove and alpine forests for example are highlighted in the legislation of Malaysia and Switzerland respectively.

Ecosystems need to be appropriately managed to provide a substantial buffering effect to potential natural disasters. Many cases demonstrate that when natural barriers – such as coastal vegetation, coral reefs and sand dunes – are removed or degraded, these areas become highly vulnerable to natural hazards. However, natural buffers cannot protect against all hazards, or offer complete protection. Instead, they must be used in integration with other risk management components, such as early warning systems and awareness raising mechanisms.

### 3.4.2 Project experience

To raise awareness of the public and of the tourism sector on the relationship between environmental conservation and disaster impact reduction, a capacity building event in the form of a workshop was organised in the three pilot destinations. The events focused on potential actions to minimise disaster impacts through environmentally-friendly actions and considerations to be included in the integrated emergency plan.

**Participants at the Sustainable Tourism Management seminar in Patong Municipality**

**Environmental management workshop in Phi Phi Islands**

### 3.4.3 Guidance and resources

During the workshop, participants discussed the following questions:

1) what are the major environmental, social and economics threats facing our destination or business?;
2) What control and monitoring measures could we implement to address these threats?; and
3) What can you do in your hotels, resorts, and communities to improve environmental awareness and social performance that will minimise negative impacts?

Documents related to the workshop are included in the annex for reference.

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**ANNEX 3.4**

- A manual for water and waste management
- A practical guide marine recreation
- A practical guide marine recreation –self evaluation checklist
- Climate change adaptation and mitigation in the tourism sector
- Climate change and tourism - advanced Summary
- Industry as a partner for tourism
- Integrating sustainability: a guide for tourism coordinators
- Managing environmental and social issues in the accommodation sector
- Marketing sustainable tourism products
- Environmental management systems in hotels
- Environmental issues related to disaster and accidents presentation SRSA
- Environmental awareness workshop agenda Kanniyakumari
- Environmental awareness workshop report ANSAO / Phi Phi Islands
- Environmental awareness workshop report Patong

# 4 Disaster Prevention and Preparedness Planning

## 4.1 Description and objectives

The objective of emergency preparedness planning is to decide who does what, where and when and to provide knowledge for everyone responsible for emergency preparedness. This information is compiled in a disaster preparedness plan. Its main purpose is to assist victims in the immediate aftermath of the disaster and to set the destination on a path of recovery and business continuity in accordance with the plan. The disaster preparedness plan must be relevant to the size and complexity of the tourism destination and community and consider all relevant hazards. It should also be clear and concise, delineating the roles and responsibilities of all collaborating local governmental agencies, groups and emergency support functions for all phases of the disaster management cycle (prevention, preparedness, response, and recovery).

Among other procedures, it should explain warning systems and triggers for activating or deactivating emergency actions, evacuation and sheltering including critical access and exit routes, and the procedures for mobilising emergency personnel and resources. Procedures for activating and operating national, regional or local emergency operations centres and the incident command system should also be clearly specified.

The following points illustrate the essential components of local disaster preparedness plans:

1. **Early Warning Systems:** Warnings should be timely, authoritative, and precise. Whether a disaster or emergency comes with little or no warning, or whether, as in the case of a tropical cyclone, they are preceded by advance notice, mechanisms need to be in place.

2. **Evacuation and Sheltering:** These are critical concerns for tourism destinations because of their vulnerability to storms, cyclones, storm surges, and flooding. Evacuation planning should consider the vulnerability mapping and risk scenarios developed previously. Specific shelter assessments (described in section 4.3) can be conducted ahead of time. Depending upon the intensity of the hazard, protective actions could involve sheltering in place or evacuation inland to congregate emergency shelters, e.g. such as pre-designated schools or other public facilities.

3. **Mobilising Emergency Personnel and Resources:** Procedures need to be specified for the process of mobilising emergency personnel and others with secondary emergency management roles when a threat is detected or notification of an impeding threat is issued.

4. **Command and Control Functions:** The plan should match the preparedness and response activities to the resources of the identified stakeholders. A clear definition of responsibility is a key element for emergency plans: the writer should make sure that the roles of each stakeholder are defined and that gathering locations are indicated, in addition to names, function and telephone. Responsibilities for initiating evacuation and for rescue operations should be clearly defined. The plan should define a clear line of command, taking into account hierarchy, in particular for the communication system and for operational safety.

5. **Communications Plan, Coordination and Informing the Public:** Communication provides the critical links among stakeholders active in the field and disaster managers operating from an existing or makeshift Emergency Operations Centre. The stakeholders include not only those responders internal to the emergency management organisational structure but also the network of tourism industry personnel, volunteers, NGOs, tourists and the general public. The plan should have procedures in place for a designated spokesperson to inform the general public with clear and consistent messages on preparedness, response and recovery issues, with specific attention paid to languages as foreign visitors may not be fluent in the prevalent local language.

6. **Risk Scenarios and Contingency Planning:** Risk scenarios are the tools for contingency planning. They are normally included as annexes to the core preparedness plan (the core document is generally applicable to all hazards). Contingency plans address the operational requirements necessary to effectively respond to a specific hazard by delineating roles, responsibilities and procedures for essential management functions.

7. **Restoring Public Services:** The plan should anticipate the need for temporary and permanent restoration of critical facilities, infrastructure, and essential public services following a disaster event. The destination's risk assessment provides valuable information on the vulnerability of these critical facilities that must be addressed through contingency planning for each priority hazard. This recovery function is normally discussed in a "functional annex" to the preparedness plan.

8. **Records Management:** Often ignored during the chaos of disaster response and recovery, records management is important and should be addressed in the preparedness plan.

9. **Planning for Recovery:** Preparedness plans have traditionally focused solely on preparedness and emergency response functions. However, there has been an emerging trend in recent years to incorporate a long-term recovery element in

these plans. This innovative approach can help achieve long term disaster resilience in tourism destinations.

10. **Plan Revision and Updating:** The plan must be viewed as a living document, one that must be monitored over time, evaluated for its continued relevance and updated periodically to address growth in the destination, along with changes in key personnel and institutional structures.

## 4.2 Project examples

The three locations developed integrated disaster preparedness plans as a result of the project.

In the case of Kanniyakumari, a very detailed document was drawn-up, covering the following areas:

- hazard and vulnerability analysis and identification of disaster scenarios;
- mitigation measures;
- disaster management organisation;
- trigger mechanisms and operational directions at the district levels; and
- procedures for testing and up-dating the plan.

The stated purpose of **Kanniyakumari's** plan is to develop, implement and maintain an integrated emergency management system for the protection of people, property and the environment in the event of natural events such as a cyclone or tsunami, fires in congested areas and to avoid a stampede in Kanniyakumari Temple. The ultimate goal is to reduce the vulnerability of the area, to save lives and protect property and environment by developing capabilities that mitigate the effects of, prepare for, respond to and recover from any emergency that could affect the area. For developing the plan, the historical data about cyclones, fires and other accidents was used. Vulnerability assessments carried out by the National Safety Council of India (NSCI) team in December 2007 were also used. The Kanniyakumari Town Panchayat Disaster Management Committee was responsible for the plan.

**Patong Municipality** also developed a very comprehensive disaster preparedness plan, focusing on three main risks:

1) landslides, inundations and flashfloods;
2) fire; and
3) tsunami.

For each risk category, the plan provides the following information: procedures for emergency management, related operation units, line of command, communication system and budget. The stated objectives of the overall plan are:

- to provide the prevention measures and coordinate among concerned agencies including the main responsibility agencies and operation units;
- to reduce losses of lives and properties; and
- to evacuate the victims to safety areas systematically without panic.

A directing center of Patong Municipality is set-up for each risk category, under the responsibility of the Mayor of Patong Municipality as the Incident Commander.

The disaster preparedness plan developed by **ANSAO / Phi Phi** Islands covers the following areas: principles of practice, implementation procedures, incident command

and resources, communication and operational procedures. The plan focuses on the following risks: fire, accident around the port, boat accident, tsunamis and landslide.

The stated objectives of the plan are:

- to save lives and properties of people in the risk area;
- to ensure the safety evacuation;
- to ensure the local disaster preparedness before, during and after emergency;
- to support the systematic coordination and cooperation of multi-organisations; and
- to promote the participation of all stakeholders, including private sectors, NGOs, and local people.

The Chief Executive of ANSAO is responsible for the plan.

## 4.3 Guidance and resources

The disaster management plans prepared by the three project locations can be used as guiding examples. They are included in the annex for reference. The following table also summarises the steps involved in the preparation of a disaster preparedness plan, specifically for coastal tourist destinations.

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**ANNEX 4.3**

- Disaster management plan for Patong
- Disaster management plan for ANSAO / Phi Phi Islands
- Disaster management plan for Kanniyakumari

## 15 ACTIONS TO DEVELOP A DISASTER PREPAREDNESS PLAN FOR A COASTAL TOURISM DESTINATION

| | Actions | Sub-actions | Tips |
|---|---|---|---|
| 1 | Identify and engage key stakeholders | Identify all relevant stakeholders in the destination that are involved in disaster related issues – from the private sector (including the tourism sector), the local authorities (including emergency services, planning services and meteorological services) and from the local population.<br><br>Establish communications with the above mentioned stakeholders.<br><br>Select a leading agency, define the problem and objectives. These will be framing the process that will be followed by the development of the Disaster Preparedness Plan.<br><br>Reach common understanding on the process. | Stakeholders should have responsibility or interest in managing disaster risk at the coastal tourism destination.<br><br>Remember to integrate various productive and service sectors at the destination that interface with the tourism sector.<br><br>Include the media as key partner. |
| 2 | Raise awareness | Organise awareness raising workshops and involve the above mentioned actors – propose an approach for a participatory process for the development of an integrated Disaster Preparedness Plan for the coastal tourism destination.<br><br>Establish an awareness platform that will last at least during the timeframe of the process. | The media will be a key partner throughout the process to convey messages. Involving the media allows them to better understand and communicate the issues.<br><br>Workshops will allow for presentation of the process, and to create awareness on risks and disaster preparedness. |
| 3 | Establish a coordinating group (CG) | Among the identified group of stakeholders, establish a coordinating group to lead and support the participatory process, with selected representatives of all stakeholder groups. | Activities and priorities of the CG:<br>- To bring local industry focus ; and<br>- To ensure that the right people (i.e. stakeholders), expertise and resources are brought together to collaboratively develop a participatory and responsive process. |
| 4 | Define a work plan to the process (both for the CG and taking into account external assistance needed) | The CG should establish an objective, a work plan with timeline and activities, deadlines, and key roles and responsibilities.<br><br>Identify stakeholders outside the CG that will have to be regularly contacted.<br><br>Set-up a consultation phase to ensure that the work plan addresses the different stakeholders' needs. | Do not forget to inform the national / regional /local authorities, especially the ones that will officially approve the plan. |
| 5 | Undertake a local capacity assessment | Undertake a legislative check.<br><br>Undertake a capacity assessment in terms of human, financial and response resources.<br><br>Review existing plans, and consider information included. | You certainly have identified gaps, and maybe have solutions / ideas to improve it. Put the solution into practice now if possible, or take the gaps into account when developing the plan.<br><br>The CG must liaise with the local disaster management office (if conducting the assessment) to exchange the information. |
| 6 | Assess the current situation of the location | Assess:<br>Geographic location, weather, seasons.<br>Tourism and local population flows, and seasonality in the destination. | Consider some of the unique aspects of coastal tourism destinations. |
| 7 | Evaluate and assess the risks: | Identify all climate change-related hazards in the coastal tourism destination (map them if possible) and prioritize them taking into account the likelihood of a disaster.<br><br>Identify potentially threatened assets, facilities and infrastructure, and networks.<br><br>Determine the destination's level of exposure/vulnerability (including exposure of tourism supply chain networks).<br><br>Assess the coastal tourism destination's risks.<br><br>Evaluate risk reduction options. | Take an All Hazards approach by also evaluating the human-induced incidents that may be a key risk.<br>When identifying potential threatened assets… consider: Tourist resorts, hotels and amenities; hospitals and clinics; port facilities, airports and road networks; etc. |

| 15 ACTIONS TO DEVELOP A DISASTER PREPAREDNESS PLAN FOR A COASTAL TOURISM DESTINATION | | | |
|---|---|---|---|
| 8 | Develop vulnerability maps | Use output from the risk assessment.<br>Collect information (a survey may be necessary).<br>Identify on the map, the vulnerable areas related to the local community, tourism infrastructures and facilities, to property and to the environment.<br>Develop the vulnerability map. | Consider tourism flows.<br>Map key assets, critical facilities and networks (i.e. life line services and tourism supply networks). |
| 9 | Undertake a shelter assessment: | Based on the risk assessment and the vulnerability map.<br>Select shelters by location (review the defined key community assets and for each building, i.e. hotels, or upper land areas the potential for being a shelter).<br>Identify evacuation routes. | When reviewing the potential shelters and their location, keep in mind the nature of the disaster, the accessibility of the evacuation routes to the shelters and the tourism flows.<br>Consider vulnerable population groups. |
| 10 | Define specific scenarios | Come up with a set of representative scenarios – make sure to include scenarios for different weather seasons and tourism seasons. | Use hazard and vulnerability maps to estimate damages and secondary effects.<br>Consider the disaster management implications considering the local tourism specificities. |
| 11 | Draft the disaster preparedness plan | Review and compare existing plans, in light of the previous actions.<br>Draft the plan taking into account previous actions – vulnerability map, shelter assessment, specific scenarios. | Clearly define: lines of command, and responsibilities<br>Ensure that emergency meeting points are indicated and rescue operations are outlined. |
| 12 | Submit the plan to local authorities | Official approval of the Disaster Preparedness Plan. | |
| 13 | Build capacities / Train responders and local authorities on the plan | Objective: to reinforce ability to respond effectively to disaster events.<br>Organize capacity building seminars on the Disaster Preparedness Plan, to train responders, local authorities and members of the CG.<br>Prepare drills, exercises and training on what to expect during implementation. | Emphasize tasks and responsibilities of each of the responders and authorities. |
| 14 | Educate and outreach | Develop awareness raising documents.<br>The objective is to educate all stakeholders (tourists, workers and local populations) on plan objectives and requirements<br>Develop brochures, Radio/TV broadcasts etc. for local population and tourists.<br>If needs be, develop pictorial signs indicating vulnerable areas and evacuation routes to shelters.<br>Build a dissemination strategy of awareness raising documents.<br><br>Organize awareness raising events:<br>Apply the dissemination strategy.<br>Organise awareness raising workshops and campaigns, involving tourism sector representatives, media, public and tourists.<br>Prepare a drill, selecting a specific disaster scenario before hand.<br>Establish an observation team to identify the plan weaknesses and shortfalls. | Use pictures and drawings<br>Use simple and clear language, “catchy” or concise phrases.<br><br>Tourism sector representatives can convey relevant and appropriate messages to the tourists.<br>The drill will help to test and evaluate components of the plan.<br>The drill observation team should include key actors from the tourism sector, local disaster management and other collaboration agencies. |
| 15 | Update and review the plan | Share observation team findings.<br>Identify the corrective actions needed.<br>Amend the plan accordingly.<br>Assign follow-up actions to ensure that all changes are made.<br>Designate someone to be responsible for reviewing the plan, as well as a timeline for revision. | Consider the legislative consequences if major changes have been made to the plan. |

# 5 Information Communication and Dissemination

## 5.1 Description and objectives

The training of relevant players that are involved in disaster management and response is an essential exercise to ensure that the disaster management plan can be effectively implemented in practice. Training should target agencies represented in the coordinating group, including the fire brigade, police, health services, civil defence, etc. so that all emergency responders (services) know what to do in case of an emergency. During the course of the project, training sessions with emergency respondents were organised in the three locations. The sessions focused on all the potential scenarios identified in the emergency plans.

The public should also be kept informed on the formulation and implementation of the emergency plans. Too often, disaster management planners underestimate the importance of public education and outreach. Tourism communities need to be educated about plan objectives and requirements. It is especially important to educate the participating groups and their membership regarding the integrated plan.

A public outreach programme for the disaster preparedness plan should consider the following points:

1. **Develop a public outreach objective and strategy:** This should be a clearly enunciated policy and strategy informed by a specific goal and objective aligned with the overall community-based disaster management strategy. The purpose is to ensure that the outreach efforts are effective and can be digested and transformed into concerted action by the community for all phases of the disaster management cycle.

2. **Identify target audiences:** The tourism industry is multi-stakeholder and multi-sectoral based. There is therefore a variety of potential target recipients who will need to be informed and educated on the disaster preparedness plan. Some of these targets include: hotel and resort owners, managers and workers; cruise ship, terminal and pleasure craft operators and workers; Industry contract carriage

and other operators e.g. tours, attractions, transportation (air, sea, land), diving, entertainment, food and beverage etc.; tourists; local population; hospitals, emergency rooms/triage and other primary care facilities etc. Each target group may require differently structured information and messages. Be alert to their particular communication needs in order to focus the outreach exercise. For example, ensure where necessary that the messages are gender sensitive and multi-lingual for the spectrum of visitors at the destination. Use also an appropriate combination of signage and pictures for the messages to be conveyed to the illiterate or to those who do not speak the native language.

3. **Media as Key Partner:** The media should be considered partners in public outreach and education rather than as merely targeted recipients and hence should be involved in the development and implementation of the communications strategy for all disaster management phases.

4. **Develop the message:** The message content and delivery mechanisms are important elements of the outreach strategy. Communication specialists are especially relevant to this task. Consistency, relevance, accuracy, conciseness and timeliness are important considerations. Depending upon the target group, maintain interest and engagement through the use of varied styles of narrative and story telling.

5. **Communication Tools:** Dissemination of the targeted messages should utilise tools such as electronic and print media e.g. brochures, websites, email, community message boards, annual reports, newsletters, periodic updates, advertising, radio and TV, as well as awareness raising events. Some communities also have periodic meetings and annual festivals which provide good opportunities for sharing information, distributing printed matter and hosting themed events and activities on disaster preparedness.

To communicate with the broader community the findings and changed implemented during the project, small-scale drills were planned and implemented and information was distributed in leaflets.

## 5.2 Project example of an awareness raising drill

The objective of a small scale drill is to test the disaster management plan and ensure that all concerned emergency services are aware of what needs to be done. When planning the drill, it is useful to set up a comprehensive working group on each local destination and then assign local coordinators. Representatives from authorities and organisations concerned with emergency planning should be invited to participate. The working group should include the district administration, the national agency for fire and rescue services, police, public health services and the local hospital, the media, transport authorities and project partners.

The municipal disaster management plan should form the basis for the drill. A number of preparations need to be completed ahead of carrying out a drill. Consideration should be given to who will take part in the drill, for example the municipal fire and rescue department, emergency care centre employees, the police, transportation department, railway station employees, the municipal environmental department, the fisheries department, reporters from the media, managers of hotels and lodges, automobile and taxi drivers. Tourists, businesses and authorities need to be informed in advance. The local media including newspaper and local TV channel can relay the message. Information can also be provided through leaflets at key points in the city, for example the railway station.

Observation points need to be identified in advance. These will depend on the selected scenario. Some observation points that are common to many scenarios are the accident site of the emergency, boat docks, railway station, hospital, transportation centre, main road or a popular tourist site.

Steps to follow for organising and implementing a drill include the following:

1. chose a chairman for the drill;
2. decide on the members of the planning group;
3. agree on the date and time for the drill;
4. inform the public about the drill;
5. write the emergency scenario;
6. determine how the objectives of the drill will be met;
7. assign the players;
8. find controllers;
9. determine observer points and select observers;
10. arrange for a video shooting and;
11. equip the emergency control centre.

The preparation and execution of a small scale drill should be followed by an evaluation. Hold a follow-up meeting after the drill to discuss the procedures and find areas for improvement. Then the final step is to revise the emergency plan if necessary.

### Example drill in Kanniyakumari

The scenario was modelled after the disaster management plan for Kanniyakumari town. An earthquake occurs near Anandman Sea that poses the threat of a tsunami. Early warning of a tsunami is received from the Emergency Operations Centre (EOC) at Nagercoil informing that there is an earthquake near Andaman Islands region and a tsunami warning has been received from the state government. The tourists from the Vivekananda Rock Memorial are to be evacuated to the shelter at the Kanniyakumari Railways Station.

The rescue team

The objectives of the drill are to test the following: 1) effectiveness of communication, 2) procedure of evacuation of tourists, 3) medical preparedness 4) effectiveness of rescue operations and 5) transportation of tourists to shelter. An orientation seminar was organised to discuss the scenario and clarify the roles of every organisation as per the pre-decided objectives. It was attended by 45 persons from various organisations. They also decided who would be the observers and their locations. There were 10 observers selected for 8 locations as follows the 1) manager's cabin of Poompuhar Shipping Corporation (PSC), 2) ticket counter at the shipping corporation, 3) jetty, 4)Vivekananda Rock Memorial, 5) all women police station, 6) railway station (identified as a shelter for tourists), 7) government hospital, and 8) the road between the PSC Gate and the jetty.

The drill exercise started at 11.00 am. The district collector, through emergency operations centre at Nagercoil, communicated the receipt of the tsunami warning through the wireless system to the village administrative officer (VAO) at Kanniyakumari. Simultaneously, the warning went to all the 32 locations along the sea coast of Kanniyakumari District. The VAO, in turn, informed the PSC manager, police station, fire and rescue services and the government hospital by telephone. At 11.00 am the Manager, PSC receives a call from VAO about the receipt of a tsunami early warning. Immediately, he informs the staff at the ticket counters and at the jetty through walkie-talkie and over the telephone to the supervisor of the Vivekananda Rock Memorial (VRM) at the Rock about warning and evacuation of tourists. He also informs the State Transport Corporation that organises buses to take the tourists from the jetty to the railway station that serves as a shelter for the tourists. Immediately, he makes an announcement on public address system about tsunami and requested tourists to keep calm. The supervisor closes the ticket counters. About 150 tourists are in queue to buy tickets and they are sent back. At the Rock Memorial a siren is blown at 11.00 am. At 11.01 am the police arrive at the ticket counter in two jeeps and asked people to go back. They close the main gate. One police jeep drives to the jetty. At 11.03 am all the ticket counter area was completely evacuated by the police. At 11.03 a.m. two ambulances from the health department arrive. The director of the health department arrives at the gate and then proceeds to the jetty. At 11.04 the fire and rescue team arrived at the gate and proceed to the jetty.

The tourists at the jetty who are waiting to board the ferry are sent back by the police. The police, medical and fire and rescue teams boarded the ferry and walk towards the Rock Memorial to rescue the tourists and victims. The police, medical and rescue teams reached the VRM by 11.07 am. The first evacuation ferry arrives at Rock Memorial at 11.11 am. All tourists including the injured are put in the ferry and sent back to the jetty at shore.

A total six services of three ferries are used to evacuate all the tourists from the VRM and two ferries are used to take rock memorial staff and response personnel. The entire VRM is evacuated within 36 minutes and at 11.37 hours the siren is blown to inform everyone that the drill is over.

Victims being attended to

The rescue team bring all the injured at ferry point where medical team provide first-aid and send them to the hospital. At the hospital, the patients are treated and categorised as follows: a black band for the dead, a red band for those who need urgent treatment and a green band for those with light injuries who can be treated later.

Distribution of leaflets by the Collector (Mayor)

At the jetty, the PSC supervisors are receiving the tourists and guiding them to board the buses. The State Trans port Corporation provides four buses to take the tourists from the jetty and to the Kanniyakumari railway station.

All the tourists are taken in six buses. The medical team along with ambulances and nurses and doctors provide the first-aid to the victims and send them to the hospital.

Drill de-brief

The entire drill was completed within 55 minutes. About 760 tourists were evacuated from the Rock Memorial. The coordinator arrives at jetty at 12 noon and visits the VRM. Thereafter, the coordinator goes to the government hospital, met and enquired the injured persons. The coordinator also visits the shelter place (Railway Station) and listens to the grievances of the tourists.

The debriefing meeting is held by the coordinator at the Hotel Singaar International at 1.30 pm wherein all the observers, other officials and role players participate. The coordinator thanks all and congratulates them for the success of the drill.

The observers present their observations. Everybody decides to use all these recommendations for further improvement.

After the drill recommendations are made to improved future emergency actions. For this particular drill, the following suggestions were presented

1) Consider the physical terrain and assure that the emergency siren is audible throughout the risk area. It might be necessary to relocate or provide a new siren with a higher range so that it can be heard easily.

2) Consider increasing the number of transport vehicles, rescue ferry etc. in order to facilitate a rapid evacuation.

3) Assure that there is an adequate means for people to enter and exit aircraft, vehicles and boats so that no one is injured in the process of evacuation.

4) Assure that no vehicles park and obstruct the free movement of rescue buses and ambulances.

5) Determine where road blockages occur and initial measures for improvement before an emergency occurs.

## Scenario for the Drill in Patong

| No. | Time/Date | Scenario | Procedure/Method | Tools/ Equipment | Operation Area | Responsible person | Operation Units |
|---|---|---|---|---|---|---|---|
| 1 | Sept.17, 2005 06.00 a.m. | Department of Meteorology (Thai Meteorology Department) released warning messages for tropical depression occurred in Bangal Bay, Sumartra Island, at Latitute at 05.5' and Longtitute 0.0 ".. Its speed at the epiccenter increase to Tropical Cyclone ( 117 kilometers/hour). Then, it moves toward the northest at the velocity of 15 minutes/ hour and is expectated to come close to the coast of Thailand at Phuket on September 19, 2008. Consequently, there are increasing chances of stong winds, flashfloods and landslide. Thus, 6 Andaman Coastal provinces have to keep closed watch to update the situation, especially in Phuket. | DDPM Provincial Office, Phuket, informs the warning situation messages to Patong Municipality by facsimile and radio communication system. | Facsimile and radio communication | DDPM Provincial Office, Phuket | Chief of DDPM Provincial Office/ Phuket Provicial Office | Prevention Officer, DDPM Provincial Office |
| 2 | 06.05 a.m. | PMP Mayor formally informs community leaders and private entrepreneurs especially at Kalim Community which is the most vulnerable risk prone area to landslide in order to follow up weather situation from TMD via radio stations, T.V, PMP Mobile Vans and community radio towers. | Warn the public to follow up the weather situation<br>PR Division provide mobile vans to inform and update information to local residents in Patong.<br>Disaster Prevention and Mitigation Division, PMP will keep up with the situation and surveillance for disaster preparedness around the clock. | Community Radio towers<br>PMP mobile vans | Patong Municipality | PMP Mayor | Disaster Prevention Division<br><br>Public Relations Division |
| 3 | Sept.18, 2005 | Department of Meteorology releases the 2nd warning message to the public to keep up with the weather forecasting for cyclones which head to Phuket during September 19-20, 2008. The waves height 2 to 4 meters and small boats should not depart from the shores. | Warn the public to follow up the weather situation<br>PR Division provide mobile vans to inform and update information to local residents in Patong.<br>Disaster Prevention and Mitigation Division, PMP will keep up with the situation and surveillance for disaster preparedness around the clock | Community Radio towers<br>PMP mobile vans | Patong Municipality | PMP Mayor | Disaster Prevention Division<br>Public Relations Division |
| 4 | 09.55 a.m.<br>Sept.19, 2008 | Housekeeper notices fire triggering at the guest room on the 4th floor at Phuket Graceland Resort and Spa. Then, she informs the chief of security Division for control and suppress it. | Report the fire incident to Executive Level.<br>Hotel's fire fighter uses portable fire extinguisher to put off fire in the first stage. | Portable fire extinguisher | Phuket Graceland Resort and Spa | Chief of Security Division, Phuket Graceland Hotel | Fire fighter in Phuket Graceland Resort and Spa |
| 5 | 09.57 a.m.<br>Sept.19, 2008 | Fire fighter of Graceland Hotel could not control the fire. | Chief of Security Division reports the situation to Disaster Prevention and Mitigation, PMP and Katu Police Station. | Telephone | Phuket Graceland Resort and Spa | Executive Level and Chief of Security Division at Phuket Graceland | Operator<br>Chief of Security Division |

| Scenario for the Drill in Patong | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | 09.58 a.m. Sept.19, 2008 | Radio communication officer, PMP, receives the emergency call of fire incident at the 4th floor of Graceland Hotel. | Radio Communication officer reports to Chief of Disaster Prevention and Mitigation Division and supervisor<br>Chief of Disaster Prevention and Mitigation Division orders fire fighter Team A to suppres the fire at the Hotel. | Radio Communication Equipment<br>Mobile Van<br>Fire Engines<br>Water Trucks | Phuket Graceland Resort and Spa | Chief of Disaster Prevention and Mitigation Division, PMP | Disaster Prevention and Mitigation Division<br>Mobile Van Officers<br>Fire fighters<br>Water Truck Officers<br>Electricians/ water works officers/ Policemen/Civil Defence Volunteers |
| 7 | 10.01 a.m. Sept.19, 2008 | Mobile Van and fire engines arrive the hotel with fire fighter Team A | Chief of Disaster Prevention and Mitigation, PMP has been reported fire incident and received Hotel Map from Chief of Security Division, Graceland Hotel<br>Chief of Disaster Prevention and Mitigation orders his fire figther Team A to operate and conduct SAR victims | - Radio Communication Equipment<br>- Mobile Van<br>- Fire Engines<br>- Water Trucks<br>- Ropes | Phuket Graceland Resort and Spa | Chief of Disaster Prevention and Mitigation Division, PMP | - Disaster Prevention and Mitigation Division<br>- Mobile Van Officers<br>- Disaster Prevention and Mitigation, PMP<br>- Mobile Van Officers<br>- Fire fighters |
| 8 | 10.05 a.m. Sept.19, 2008 | PMP Mayor arrives Phuket Graceland Hotel | Chief of Disaster Prevention and Mitigation, PMP reports situation to the Mayor | | Phuket Graceland Resort and Spa | PMP Mayor | Disaster Prevention and Mitigation Division, PMP |
| 9 | 10.21 a.m. Sept.19, 2008 | Fire fighter Team A is able to control and extinguish fire | Hotel Officers verifies the guest list and inform Chief of Disaster Prevention and Mitigation, PMP<br>Chief of Disaster Prevention and Mitigation, PMP verifies the fire fighter list | - Guest list<br>- fire fighter list | Phuket Graceland Resort and Spa | PMP Mayor | - Disaster Prevention and Mitigation Division<br>- Mobile Van Officers<br>- Fire fighters<br>- Water Truck Officers<br>- Electricians/ water works officers/ Policemen/Civil Defence Volunteers |
| 10 | 10.18 a.m. Sept.19, 2008 | According to the strong wind, the wave height about 3 meters causing the capsized (overturn) boat in the front of Ban kalim Beach. Concurrently, the electricity pole collaspes to building at Ban Kalim School | Director of Ban Kalim School notice this incident in his school and fisherman sees the sea accident<br>Both of them informs Disaster Prevention Division (Fire Brigade)<br>Then, the Director orders to evacuate school children according to the school emergency Plan | | Ban Kalim School | Director of Ban Kalim School | |

| Scenario for the Drill in Patong | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11 | 10.19 a.m.<br>Sept.19, 2008 | A radio officer is informed that electriity pole collasped to the Building at Ban Kalim School and overturn boat fron of Ban Kalim School<br>Therefore, the request for victim assistance from SAR Unit, Royal Thai Navy | RadioCommunication officer reports this situation to Chief of Disaster Prevention and Mitigation, PMP and his supervisor.<br>SAR Team Operation<br>Katu Policemen and Civil Defence Volunteers control and facilitate traffic system<br>Patong Electricity Authority will cut off electricity circuit, dispatch equipment and tools for victim assistance<br>SAR Unit, Royal Thai Navy carry out victim assistance operation in the sea | - SAR Truck<br>- Electricity Authority Truck<br>- Rubber dinghies | Ban Kalim School | - Chief of Disaster Prevention and Mitigation, PMP<br>- Chief of SA Team, Royal Thai Navy | - Disaster Prevention and Mitigation Division (SAR team)<br>- Electricity Authority Officers /Policemen/Civil Defence Volunteers<br>- EMS from Patong Hospital<br>- SAR team, Royal Thi Navy |
| 12 | 10.23 a.m.<br>Sept.19, 2008 | PMP Mayor arrives the incident area at Ban Kalim with SAR Trucks and officials | Director of Ban Kalim School reports the situation to the Mayor<br>PMP Mayor is set up Ad Hoc Directing Center and preminary report the situation to Chief of Katu District and Phuket Governor respectively | | Ban Kalim School | Chief of SAR Team, PMP | SAR Team<br>Kalim School Director and teachers |
| 13 | 10.24 a.m.<br>Sept.19, 2008 | Students in Ban Kalim School get stuck in Building at Ban Kalim School and victims from overturned boat in the sea, front of Kalim Beach | Director of Ban Kalim verifies that some students get stuck in the building so he reports the situation to PMP Mayor<br>PMP Mayor orders SAR team to carry out SAR operation the victims and perform the first aid<br>In case of severely injured, transfering victims to Patong Hospital<br>SAR Team, Royal Thai Navy also carries out the victim assistance operation, performs first aid and transfer severe injured to the hospital | Student List<br>Map of Building<br>SAR Trucks<br>Ambulance<br>Rubber dinghies | School Building at Ban Kalim School<br>Front of Kalim B each | PMP Mayor<br>Chief of SAR Team, Royal Thai Navy | Director of Ban Kalim Shool and teachers<br>SAR Team<br>Doctors and Nurses (Emergency Medical Services, EMS) |
| 14 | 10.34 a.m.<br>Sept.19, 2008 | The bad weather is recovery to normal weather | All participants and organizations get together at Ad Hoc Directing Center Chief of Disaster Prevention and Mitigation, PMP reports the opration result.<br>Chief of SAR Team reports the operation result<br>The Incident Command order to end the drill | Victim List<br>Damage Assessment List | Ad HocDirecting Center | PMP Mayor | All concerned agencies |

**Illustrations of the drill in Patong**

**Illustrations of the drill in Phi Phi Islands**

**CD-Rom**

**ANNEX 5.2**

- Drill scenario for ANSAO / Phi Phi Islands
- Drill scenario for Patong
- Drill scenario for Kanniyakumari
- Report of the Drill at Vivekananda Rock Memorial Kanniyakumari
- Training for the agencies report Patong

## 5.3 Project examples of awareness raising brochures

Awareness raising brochures were created in all three of the destination sites. They describe the risk, locate vulnerable areas on maps and provide information that a tourist and the public need to know about disaster preparedness.

### Risk information brochure for tourists, Kanniyakumari, India

**TSUNAMI**

**What's a Tsunami?**
A tsunami is a series of destructive waves affecting shorelines. Tsunami is usually generated by earthquakes. A natural indication of Tsunami can be detected by the fast and unexpected retreat of the sea.

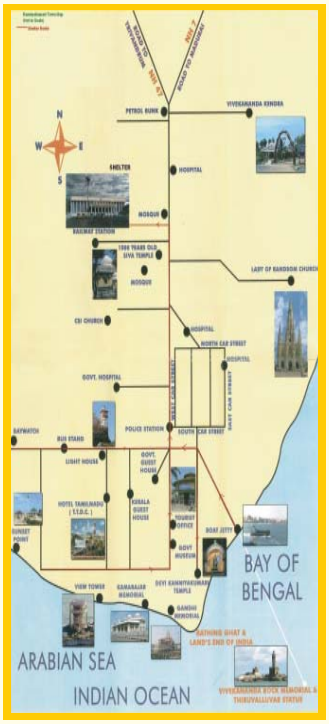
**What should I do during a Tsunami?**

**Before disaster:**
- Locate tsunami prone areas and evacuation routes and shelters in the map based on the zone you are in.
- Know well in advance what your safest evacuation route will be.
- Follow the news for a tsunami forecast.

**During a disaster:**
- Follow warning signs and indicated evacuation routes to higher ground and to shelters.
- Move to higher ground or inland.
- If no higher ground is near, go to upper levels of reinforced buildings.

**After disaster:**
- Continue to monitor your local radio for further information and instructions.
- Once you are notified the emergency is over, go back to the hotel.

**How can I be informed?**
- Listen to the local radio and official authorities and follow the instructions.
- Go to the hotel manager.
- Follow the official authorities alerts and instructions



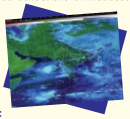

**CYCLONE**

**What's a Cyclone?**
A cyclone is a tropical storm with winds that have reached a constant speed of 119 km/h or more. Tropical cyclone winds blow in a large spiral around a relative calm centre known as the "eye."

As a cyclone approaches, the skies will begin to darken and winds will grow in strength.

As a cyclone nears land, it can bring torrential rains, high winds, and storm surges.

**What should I do during a Cyclone?**
**Before disaster:**
- Discuss evacuation plans and preparation with the hotel manager.
- Identify evacuation routes and shelters location.
- Identify objects that can be potential flying debris, and place them in a safe place.
- Keep your valuables and documents safely, so that they cannot be damaged by water.
- Listen to warning bulletins and follow instructions of local officials.



**During a disaster:**
- During the alert go to the reception of the hotel and follow hotel manager instructions.
- Remain calm.
- During the storm do not venture out unless advised to evacuate.
- Telephone lines and metal pipes can conduct electricity, stay away from them. Unplug electrical appliances.
- Stay close to the ground and away from windows.
- Avoid taking shelter near old and damaged buildings or near trees.
- Beware of the 'eye' of the cyclone. If the wind velocity suddenly drops, don't assume the cyclone is over; violent winds will soon resume from the opposite direction.

**After disaster:**
- Do not approach electric or phone lines.
- Beware of fallen power lines, damaged bridges, buildings and trees, and do not enter flood waters.
- If you are in the hotel, stay inside and follow instructions.
- If you are in a shelter, wait to receive instructions by the authorities.
- Once back to the hotel, try to find your belongings.

**How can I be informed?**
- Listen to the local radio and follow the instructions.
- Go to the hotel manager.

The municipalities used different approaches in order to get the message across to residents, business owners, and tourists. One brochure uses simple drawings showing how people should behave during an emergency. A checklist of do's and don'ts allows the reader to easily understand what he or she needs to do during an emergency.

### Disaster Awareness brochure, Kanniyakumari, India

**TSUNAMI**

**Do's and Don'ts under Risk from Tsunami**

If you are staying in an area near the sea coast, identify in advance the best evacuation route to lead you to higher ground.

If your children's school is under risk from Tsunami, check in advance whether the school has a Disaster Management Plan and discuss it with school authorities.

If you feel an earthquake that lasts 20 seconds or longer when you are in a coastal area:

- First protect yourself and your family from the earthquake damages,
- Contact nearest disaster control center,
- Tune Transistor/TV for news; if there is a Tsunami warning, leave the area immediately and try to reach higher ground.
- If you are in a high, multi-story, reinforced concrete building which withstood without no damages during the earthquake then reach the upper floors to protect yourself from Tsunami waves.
- Don't believe in hear-says, as they may be rumours, follow instruction from authorities.

**After Tsunami**

- Continue watching transistor/TV for latest information or instructions.
- If someone needs to be rescued, call the Fire & Rescue services.
- Help people who require special assistance infants, large families, people with disabilities, etc.
- Avoid going to disaster areas.
- Contact nearest disaster control center,
- Use the telephones only for emergency calls.
- When re-entering buildings or homes, use extreme caution. Examine walls, floors, doors, staircases and windows to make sure that the building is not in danger.
- Use battery-powered lanterns or flashlights
- Look for fire hazards, check for gas leaks if you smell or hear a blowing or hissing noise, check the electrical system, sewage and water lines, etc.

**CYCLONE**

**Before the Cyclone Period**

- Check your dwellings before onset of cyclone period and carry out whatever repairs required.
- Secure all doors, windows and openings.
- Keep your valuables and documents safe, to prevent damage by water.

- Store enough stock of essential food articles, medicines and water. Prepare a family emergency kit.
- Keep lanterns filled with kerosene, torches and spare batteries in a secure and handy place.
- Maintain a battery powered transistor in working condition.
- Listen to warning bulletins and keep in touch with local officials.
- Evacuate to shelters when advised.

**During Cyclone**

- Remain calm.
- During the storm do not venture out unless advised to evacuate. If advised, move to the nearest shelter or any other safe place if so advised by the government agency
- If you have a vehicle and wish to move out of your house, leave at the time of the initial warning.
- Telephone lines and metal pipes can conduct electricity, stay away from them. Unplug electrical appliances. Avoid using the telephone or any other electrical appliances.
- Avoid staying on the top of the house. Stay close to the ground.
- Avoid taking shelter near old and damaged buildings or near trees.
- Beware of the 'eye' of the cyclone. If the wind velocity suddenly drops, don't assume the cyclone is over; violent winds will soon resume from the opposite direction.
- Fishermen should keep boats and rafts tied up in safe places.

- If driving, stop the vehicle taking care to be well away from the coast and in an area clear of trees, power lines and water courses. Stay inside the vehicle.

**After The Cyclone**

- Do not go outside until officially advised that it is safe to do so.
- Check for gas leaks. If wet do not use electric appliances.
- If you had to evacuate, or did so later, do not return until advised. Use a recommended route for returning and do not rush.
- Be careful of snakebites and carry a stick.
- Beware of fallen power lines, damaged bridges, buildings and trees, and do not enter floodwaters.
- Keep your surroundings clean and spray disinfectants.
- Do not go for sightseeing

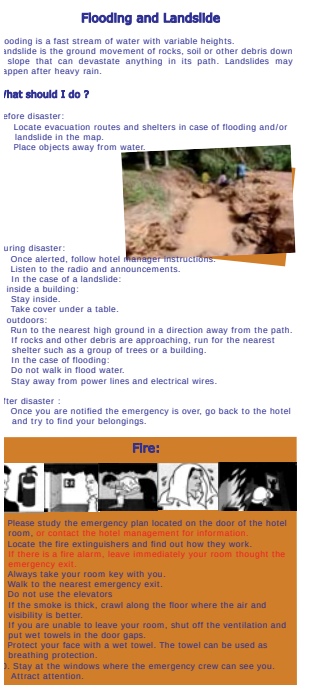
**FIRE**

- If observed any fire, which is uncontrollable, immediately call the Fire & Rescue personnel. While calling, give exact location with landmark and direction.
- Identify the cause of the fire and act accordingly.
- Practice 'stop', 'drop' and 'roll', which will help you in the case your clothes catch fire. Running only makes the fire burn faster.

- Adopt the suitable 'put-off' measures.

For **ANSAO / Phi Phi Islands and Patong Municipality,** the risk information brochure describes a range of risks and what tourists should do to be safe. It includes detailed information about where the shelters are and how to reach them. A picture of the warning signs and the warning towers are shown so that the tourists can acquaint themselves with these before an emergency occurs.

## Brochure developed for ANSAO / Phi Phi Islands



**Flooding and Landslide**

ooding is a fast stream of water with variable heights.
ndslide is the ground movement of rocks, soil or other debris down slope that can devastate anything in its path. Landslides may appen after heavy rain.

**/hat should I do ?**

efore disaster:
- Locate evacuation routes and shelters in case of flooding and/or landslide in the map.
- Place objects away from water.

uring disaster:
- Once alerted, follow hotel manager instructions.
- Listen to the radio and announcements.
- In the case of a landslide:

inside a building:
- Stay inside.
- Take cover under a table.

outdoors:
- Run to the nearest high ground in a direction away from the path.
- If rocks and other debris are approaching, run for the nearest shelter such as a group of trees or a building.
- In the case of flooding:
- Do not walk in flood water.
- Stay away from power lines and electrical wires.

fter disaster :
- Once you are notified the emergency is over, go back to the hotel and try to find your belongings.

**Fire:**

Please study the emergency plan located on the door of the hotel room, or contact the hotel management for information.
Locate the fire extinguishers and find out how they work.
If there is a fire alarm, leave immediately your room thought the emergency exit.
Always take your room key with you.
Walk to the nearest emergency exit.
Do not use the elevators
If the smoke is thick, crawl along the floor where the air and visibility is better.
If you are unable to leave your room, shut off the ventilation and put wet towels in the door gaps.
Protect your face with a wet towel. The towel can be used as breathing protection.
. Stay at the windows where the emergency crew can see you. Attract attention.

**More Information**

Ao Nang Sub-District Administrative Organization (ANSAO) is the main actor in Phi Phi Islands, safeguarding its residents, visitors and communities. Here are important contact numbers in case of an emergency:

| | |
|---|---|
| Warning and Communication Team | Tel: (66) 08 1894 4304 |
| Emergency Response and Search & Rescue team | Tel: (66) 08 1894 0345 |
| Evacuation and Relief Team | Tel: (66) 08 1978 9635 |
| First Aid Team | Tel: (66) 08 1894 9204 |
| | Tel: (66) 075 660 719 |
| Security Team | Tel: (66) 08 1894 2306 |

This brochure was developed under the project "Disaster Reduction through Awareness, Preparedness and Prevention Mechanisms in Coastal Settlements in Asia – Demonstration in Tourism Destinations", funded by the European Commission, under the Asia Pro Eco Programme. Implementing partners are:United Nations Environment Programme (UNEP), Swedish Rescue Service Agency (SRSA), International Hotels and Restaurants Association (IH&RA), the Department of Disaster-Prevention and Mitigation (DDPM), National Safety Council of India (NSCI), Patong Municipality of Phuket (PMP), and the Ao nang Sub-District Administrative Organization (ANSAO).

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August 2008 – Phi Phi Islands, Thailand

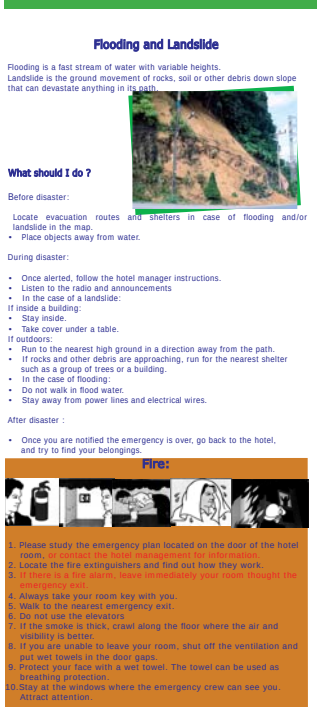
**TOURIST EMERGENCY RESOURCE GUIDE**

Information for tourists
Phi Phi Islands

The Phi Phi Islands are an important tourist destination in the Krabi province. Their natural scenic beauty, particularly the white beaches have attracted tourists from all over the world to travel to and invest their resources in. Due to their location in the Andaman Sea and urbanization and development process of the area together with the climate change effect, Phi Phi Islands are unavoidably prone to various types of natural and man-made hazards. **Tsunamis, flooding and landslides, building fires, and boat accidents** are the most common hazards which tourists and people might encounter.

*In order to enjoy your stay in the Phi Phi Islands, you are advised to study the necessary emergency information and be prepared for any events.*

## Brochure developed for Patong



**Flooding and Landslide**

Flooding is a fast stream of water with variable heights.
Landslide is the ground movement of rocks, soil or other debris down slope that can devastate anything in its path.

**What should I do ?**

Before disaster:
- Locate evacuation routes and shelters in case of flooding and/or landslide in the map.
- Place objects away from water.

During disaster:
- Once alerted, follow the hotel manager instructions.
- Listen to the radio and announcements
- In the case of a landslide:

If inside a building:
- Stay inside.
- Take cover under a table.

If outdoors:
- Run to the nearest high ground in a direction away from the path.
- If rocks and other debris are approaching, run for the nearest shelter such as a group of trees or a building.
- In the case of flooding:
- Do not walk in flood water.
- Stay away from power lines and electrical wires.

After disaster :
- Once you are notified the emergency is over, go back to the hotel, and try to find your belongings.

**Fire:**

1. Please study the emergency plan located on the door of the hotel room, or contact the hotel management for information.
2. Locate the fire extinguishers and find out how they work.
3. If there is a fire alarm, leave immediately your room thought the emergency exit.
4. Always take your room key with you.
5. Walk to the nearest emergency exit.
6. Do not use the elevators
7. If the smoke is thick, crawl along the floor where the air and visibility is better.
8. If you are unable to leave your room, shut off the ventilation and put wet towels in the door gaps.
9. Protect your face with a wet towel. The towel can be used as breathing protection.
10. Stay at the windows where the emergency crew can see you. Attract attention.

**More Information**

Patong Municipality of Phuket (PMP) is the main actor, safeguarding its residents, visitors and communities. Here are important contact numbers in case of an emergency

| | |
|---|---|
| Patong Municipality | Tel: (66) 076 342600 (24 hrs.) |
| Katu Police Station | Tel: (66) 076 342719 |
| Patong Hospital | Tel: (66) 076 342633 |
| Royal Thai Navy Security | Tel: (66) 076 341197 |
| Tourism Authority | Tel: (66) 076 212213 |
| Civil Defence Volunteer | Tel: (66) 076 342600 |
| DDPM Office Phuket | Tel: (66) 076 273019 |
| Hotline 1784 | |

This brochure was developed under the project "Disaster Reduction through Awareness, Preparedness and Prevention Mechanisms in Coastal Settlements in Asia – Demonstration in Tourism Destinations", funded by the European Commission under the Asia Pro Eco Programme. Implementing partners are: United Nations Environment Programme (UNEP), Sweish Rescue Service Agency (SRSA), International Hotels and Restaurants Association (IH&RA), the Department of Disaster Prevention and Mitigation (DDPM), National Safety Council of India (NSCI), Patong Municipality of Phuket (PMP), and the Aonang Subdistrict Administrative Organization (ANSAO).

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**TOURIST EMERGENCY RESOURCE GUIDE**

Information for tourists
Patong Beach, Phuket

Patong Municipality of Phuket province (PMP), is located in Katu district. Its natural scenic beauty, particularly the white beaches have attracted tourists from all over the world to travel to and invest their resources in. Due to its location in the Andaman Sea and urbanization and development process of the area together with the climate change effect, PMP is unavoidably prone to various types of natural and man - made hazards. **Tsunamis, Flooding and Landslide and building fires** are the most common hazards which tourists and people might encounter.

*In order to enjoy your stay in Patong, you are advised to study the necessary emergency information and be prepared for any events.*

CD-Rom

**ANNEX 5.3**

- Leaflets for locals Kanniyakumari
- Leaflets for tourists Kanniyakumari
- Tourist emergency response guide ANSAO / Phi Phi Islands
- Tourist emergency response guide Patong

# 6

# Success factors

A number of success factors were identified following the project implementation in the three destination sites. They are mentioned here as tips for users of the toolkit.

**The involvement of all stakeholders:** an inclusive and participatory process involving all key stakeholders from the local authorities, the emergency services, the private sector, NGOs, the supporting tourist services etc. will raise the chances of a successful implementation of the project.

**The establishment of local coordinating groups:** this is an essential step in the process and it is important to ensure an effective coordination group is set-up. The Group should have knowledge of local issues, be representative of all stakeholder groups mentioned above and should form a cohesive group with good personal connections between members.

**Expertise and international / national support:** the expertise brought by international organisations such as UNEP and SRSA was considered highly valuable in the project. A recommendation for future projects would be to seek support from international organisations or relevant national organisations to ensure the right expertise is brought to the project.

**Management structure and local project leaders:** it is important to have a clear management structure and a central command to oversee project implementation. Project leaders selected locally will have a better understanding of the issues and will have easier access to local stakeholders.

**Financial aspects:** financial discipline is an important aspect of good project planning and management. Flexibility should however allow for changes or additions to the initial plan of action.

## Notes

## About the UNEP Division of Technology, Industry and Economics

The UNEP Division of Technology, Industry and Economics (DTIE) helps governments, local authorities and decision-makers in business and industry to develop and implement policies and practices focusing on sustainable development.

The Division works to promote:

> sustainable consumption and production,

> the efficient use of renewable energy,

> adequate management of chemicals,

> the integration of environmental costs in development policies.

**The Office of the Director, located in Paris, coordinates activities through:**

- **The International Environmental Technology Centre** - IETC (Osaka, Shiga), which implements integrated waste, water and disaster management programmes, focusing in particular on Asia.
- **Production and Consumption** (Paris), which promotes sustainable consumption and production patterns as a contribution to human development through global markets.
- **Chemicals** (Geneva), which catalyzes global actions to bring about the sound management of chemicals and the improvement of chemical safety worldwide.
- **Energy** (Paris), which fosters energy and transport policies for sustainable development and encourages investment in renewable energy and energy efficiency.
- **OzonAction** (Paris), which supports the phase-out of ozone depleting substances in developing countries and countries with economies in transition to ensure implementation of the Montreal Protocol.
- **Economics and Trade** (Geneva), which helps countries to integrate environmental considerations into economic and trade policies, and works with the finance sector to incorporate sustainable development policies.

***UNEP DTIE activities focus on raising awareness, improving the transfer of knowledge and information, fostering technological cooperation and partnerships, and implementing international conventions and agreements.***

For more information, see **www.unep.fr/scp**

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UNEP

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*The toolkit provides information and resources based on the project experience in the three demonstration sites. It is destined to local municipalities and to the various actors involved in emergency planning and response. Users will find information relating to the various steps that need to be undertaken, from the preliminary assessment, to capacity building, disaster prevention and preparedness planning, to communicating and disseminating key information. A CD-Rom containing all the relevant documents is attached to the publication.*

**DTI/1116/PA**