



## Investigation report

A 2/2004 Y

# The natural disaster in Asia on 26 December, 2004

Translation of the original Finnish report

The purpose of this investigation report is to improve safety and prevent future accidents. The report does not assign responsibility nor apportion blame possibly generated by the accident. The use of this report for any other purpose other than improvement of safety should be avoided,

Cover photo: The tsunami wave on the island of Phuket

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## SUMMARY

### THE NATURAL DISASTER IN ASIA ON 26 DECEMBER, 2004

On the morning of December 26, 2004, an exceptionally great earthquake occurred to the north-west of the island of Sumatra, which forms part of Indonesia. The earthquake caused a rupture in the earth's crust some 1 200 km long and spawned a tidal wave or tsunami of immense proportions. The tsunami caused widespread devastation particularly on the coasts of Sumatra, Thailand, Sri Lanka and India; about 300 000 people were killed or lost. 179 Finnish citizens were among the dead and 250 were injured. Of the Finns who died, 170 were staying in Khao Lak in Thailand, 106 of them at the same hotel.

Pursuant to section 3 of the Accident Investigation Act (373/1985), the event was classified as a disaster. On 13.1.2005, the Finnish Government appointed an Accident Investigation Commission pursuant to section 1 of the Act.

The earthquake occurred at about 08.00 Thailand time. The tsunami hit the province of Aceh at the northern tip of Sumatra at about 08.30, the west coast of Thailand at about 10.00 and Sri Lanka about one hour later. The tsunami came as a complete surprise to both local residents and tourists. Most of the Finns who died or were injured were staying in Thailand, which is why the investigation was initially focused there. Local residents immediately initiated aid measures and the authorities became involved about one hour after the event. The hospitals in the Phuket and Takuapa areas were overloaded as hundreds of patients were brought in at one time, and so, transfers of the injured to hospitals in the Bangkok area began. The evacuation of Finns, on charter flights, was started at the initiative of Finnish travel agencies in the evening of 26 December. The Finnish authorities got involved on the morning of 27.12., at which point it was decided that all Finns in the region would be evacuated at the government's expense, if necessary. Government-commissioned evacuation flights began in the evening of 27.12. and ended on 2.1.2005. Some 3 300 people were brought back to Finland on these flights; an additional 400 people returned home on commercial flights. Flying out to the disaster area, the chartered planes carried mainly medical personnel from the Finnish Red Cross, other relief personnel, members of the Finnish Police disaster victim identification team and relief aid supplies. Injured persons returning to Finland were admitted to central hospitals. Psychosocial assistance was provided for those requiring it and various services were set up for families and relatives. The repatriated dead were given a solemn reception at Helsinki-Vantaa Airport.

The investigation involved examination of the origin and impact of the natural disaster, the course of events from the point of view of Finns, the actions of the authorities, companies, organizations and communities, the repatriation and evacuation flights, the rescue operation and treatment of the injured and the command system and communications in Finland. Two trips were made to Thailand in order to study local circumstances and the functioning of the rescue, evacuation and health care system. It was established during the course of the investigation that the Finnish authorities are not adequately equipped to take immediate action to help Finnish citizens involved in a serious accident abroad. Once action was initiated, it got efficiently up to speed in a couple of days. Personnel voluntarily performed above and beyond the call of duty, to the brink of exhaustion. Operational leadership was assigned to the Coordination Board of Government Chiefs of Preparedness, a.k.a. as the meeting of heads of preparedness, chaired by the State Secretary,

Prime Minister's Office. The competent authority was the Ministry for Foreign Affairs, and an official from the Ministry was in charge of the evacuation operation. All Finns were evacuated from the area in seven days. Public communications by the authorities was less than successful. The Information Unit at the Ministry for Foreign Affairs restricted itself to official bulletins; these conflicted with the information available to the general public and published by the media, and the latter were subsequently proven correct. This resulted in loss of confidence in official communications, which could not be dispelled during the critical first week. The investigation showed that most of the media did rely on official information in addition to the news services during the first few days following the disaster, but once the official information had been proven incorrect, the media changed their tack.

Being an act of nature, the disaster could not have been avoided. No early warning or alert system existed. Once the tsunami had hit the coast, there was nothing at all that the Finnish authorities could have done to save any of the Finns who perished or disappeared in the disaster. Neither the local residents nor the tourists were aware of or could prepare for the tsunami. Tour operators and hotels were likewise unprepared, and there was no provision for evacuation and medical care facilities to cope with a disaster of this magnitude. Thailand's extensive readiness organization, which extends to the local village level, enabled rapid initiation of relief activities. The Thai military was immediately tasked to participate in the rescue operation. Other countries also sent professional and well-equipped help to the disaster area at short notice.

In Finland, travel agencies, airlines and the Finnish Red Cross had the capacity to initiate aid measures rapidly. However, not all of the available medical, rescue or airline capacity was used. Shortcomings in crisis readiness were revealed in the functioning of the authorities, particularly of the Ministry for Foreign Affairs, including neglecting to address shortcomings that had already been identified earlier. A lack of inter-authority readiness measures and joint operation capacity appeared to be the main cause for this. Also, the authorities did not have sufficient information on companies and other actors capable of providing aid in such a situation. This demonstrated a lack of ability to make use of lessons learned from exercises aimed at improving joint operations between various actors.

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## ABBREVIATIONS

Abbrevia- tion	In Finnish	In English
AC	Vaihtovirta	Alternate current
BBC	Englannin yleisradio	British Broadcasting Corporation
CHF	Sveitsin frangi	Swiss Franc
CNN	Amerikkalainen tv-yhtiö	Cable News Network
DNA	Deoksiribonukleiinihappo	Deoxyribonucleic acid
DVI	Tunnistusjärjestelmä	Disaster Victim Identification
EMA	Suomalainen lääkintäyritys	Emergency Medical Assistance
ERU	Punaisen Ristin avustusyksikkö	Emergency Response Unit
EU	Euroopan Unioni	European Union
Fida Int.	Avustusjärjestö	Humanitarian organisation
FRF	Suomalainen pelastusyksikkö	FinnRescueForce
HUS	Helsingin–Uudenmaan sh-piiri	Hospital District of Helsinki and Uusimaa
KirkkoH	Kirkkohallitus	Church Council (Lutheran church)
KRP	Keskusrikospoliisi	National Bureau of Investigation
KTM	Kauppa- ja teollisuusministeriö	Ministry of Trade and Industry
LVM	Liikenne- ja viestintäministeriö	Ministry of Transport and Communications
Magnitude	Voimakkuusaste	Magnitude
MedFlight	Suomalainen lääkintäyritys	Finnish medical company
Mega	Miljoona(kertainen)	Magnitude in millions
MIC	EU:n monitorointi- informaatiokeskus	EU's Monitoring and Information Centre
MMM	Maa- ja metsätalousministeriö	Ministry of Agriculture and Forestry
MTV3	Mainostelevisio	A Finnish commercial TV-channel
NBC	Amerikkalainen tv-yhtiö	National Broadcasting Company
OM	Oikeusministeriö	Ministry of Justice
OPM	Opetusministeriö	Ministry of Education
PLM	Puolustusministeriö	Ministry of Defence
SLS	Suomen Lähetysseura	Finnish Evangelical Lutheran Mission
SM	Sisäasiainministeriö	Ministry of the Interior
SMS	Massatekstiviesti	Short Message Service (text message)
SOS	Hätäviestitusmerkki	"Save Our Souls" distress message
SOS Int'l	Kansainv. matkahätäpalveluyritys	Int'l travel emergency company
SPR	Suomen Punainen Risti	Finnish Red Cross
STM	Sosiaali- ja terveystieteiden ministeriö	Ministry of Social Affairs and Health
STT	Suomen Tietotoimisto	Finnish News Agency
TM	Työministeriö	Ministry of Labour



TPK	Tasavallan presidentin kanslia	Office of the President of the Republic
TUJE	Tukitoimintojen johtoeelin	Support functions' command element
UM	Ulkoasiainministeriö	Ministry for Foreign Affairs
YK/UN	Yhdistyneet Kansakunnat	United Nations
UNDAC	YK:n kriisihallintaelin	United Nations Disaster Assessment and Co-ordination
UNICEF	YK:n lastenavun järjestö	United Nations Children's Fund
VIRVE	Matkapuhelimen viranomaisverkko	Finland's Public Authority Network VIRVE
VHF	Hyvin suuret taajuudet	Very High Frequency
VM	Valtiovarainministeriö	Ministry of Finance
VNK	Valtioneuvoston kanslia	Prime Minister's Office
WFP	YK:n Maailman ruokaohjelma	UN World Food Program
WHO	YK:n Maailman terveysjärjestö	UN World Health Organisation
www	Internet	World Wide Web
YLE	Yleisradio	Finnish public broadcasting company
YM	Ympäristöministeriö	Ministry of the Environment

## FOREWORD

An exceptionally strong earthquake occurred on the south-western side of the Indonesian island of Sumatra on the morning of 26.12.2004. The earthquake created a 1 200 km long rupture in the Earth's crust as well as a large tidal wave (tsunami). The wave caused extensive damage especially on the coastlines and islands of Sumatra, Thailand, Sri Lanka and India. Several hundreds of Finnish citizens died, disappeared or were injured in the disaster.

Pursuant to section 3 of the Investigation of Accidents Act (373/85), in Finland the event was classified as a major accident. Based on section 1 of the said Act, the Government appointed an Accident Investigation Commission on 13.1.2005, tasked to establish the events, the number of Finns at and the situation in the areas that bore the brunt of the disaster as well as the local chances of survival and rescue, taking into account local and international actors. On behalf of the Finnish authorities and other Finnish actors, the Commission was also tasked to establish the acquisition of information, the flow of information, decision-making and public information as well as inter-authority cooperation and the coordination of activities.

President Martti Ahtisaari was appointed as the Chairman of the Accident Investigation Commission and Councillor of State Harri Holkeri was appointed as Vice-Chair. Members of the Commission were Dr. Eng. Tuomo Karppinen, Special Investigator Esko Kaukonen, Professor Ullamaija Kivikuru, Senior Surgeon Ilkka Kiviranta and Master of Laws Kari Lehtola. Leading Psychologist Merja Hallantie, Senior Lecturer of geophysics Kimmo Kahma and Minister Pär Stenbäck were nominated as permanent experts. Additional experts to the Commission were Dr. Pekka Heikkinen, Director of the Department of Seismology and M.A. Harriet Lonka. From the Accident Investigation Board Finland, Administrative Director Pirjo Valkama-Joutsen was nominated as the Commission's general secretary and Investigator, Colonel (rtd.) Jouko Koskimies was nominated as the secretary of the Commission. Charge Nurse Pekka Piitulainen, Director of Research Hannu Rantanen and Special Investigator Matti Tarvainen also participated in the work as separately invited experts.

As per its tasking, the Commission concentrated on establishing the events in the disaster area and in Finland from the point of view of Finns. Since a great majority of Finnish tourists were in Thailand when the disaster took place, the focus of the investigation abroad was on it. In accordance with the principles of international law, investigating the activities of local authorities is beyond the jurisdiction of the Commission. However, by cooperating with the local authorities in question as well as with similar investigation commissions in other European Union Member States, it has been possible to acquire information on the matter for this report.

The task of the Commission concentrated on investigating the natural disaster in Asia. However, the Commission has also assessed the Government's management system as well as other measures taken during this event in the light of their applicability in different kinds of crises in order to increase general safety.

The Accident Investigation Commission commenced its work on 11.1.2005, pursuant to section 6 of the Investigation of Accidents Act, and organized a press conference on 12.1.2005. The Commission received written reports from participating authorities, public services, corporations and organizations and also interviewed 165 persons. The Commission published a newspaper advertisement on 5.2.2005, in which all involved were requested to send in their accounts of the acci-

dent. Such accounts were written by 194 citizens. In order to gather additional information as well as information on local conditions, members of the Commission travelled to Thailand in two groups from 28.2. to 5.3. and from 1.–9.4.2005.

The investigation was completed on 31.5.2005. The Commission, pursuant to section 24 of the Investigation of Accidents Decree, requested written opinions from the ministries subject to the Commission's recommendations. The opinions are attached to the report as appendices and they have been taken into account in the report.

## PREFACE

The natural disaster in Asia affected 11 nations in a wide geographical area. According to available estimates at the time of this report's completion, approximately 300 000 people lost their lives. The fact that ca. 80% of the victims are estimated to have died within an hour after the tsunami struck characterizes the suddenness of the catastrophe. Material damage was enormous. The UN World Health Organization (WHO) has estimated that 5 million people have been affected by the disaster. The local resources needed to care for the survivors exceeded the estimates of all preparedness plans several times over. It is estimated that international aid will continue to be required for approximately 10 years.

Approximately 2 700 Finns die each year in accidents in Finland. Annually, 300-500 Finns die abroad of various causes. The Asian natural disaster, however, was the most serious single peacetime incident affecting Finns, which, furthermore, occurred in a popular travel destination far away from Finland. No Finnish legislation on crisis or emergency preparedness, including the legislation's justification, has even considered the possibility of this kind of catastrophe affecting Finns abroad. All management and aid activities had to be started with the resources available. Furthermore, the disaster struck at Christmas, a time when the authorities' preparedness was also at its lowest. This was the case in all countries whose citizens became victims of the disaster. All of the nations acted independently in assisting and evacuating their citizens. Assistance and cooperation under the auspices of the EU was scarce.

The natural disaster in Asia greatly touched the citizens of many countries and it received an exceptional amount of publicity. In the Nordic countries, 47 of the victims were Danes, 84 Norwegians and 544 Swedes. At the time of the event, there were approximately 3000 Finns in Thailand and ca. 600 on Sri Lanka. Of them, 179 died or are reported missing and ca. 250 were injured. The number of people subject to emotional distress is difficult to even estimate. It is estimated that the catastrophe in Asia indirectly affected tens of thousands of people in Finland. The sudden and shocking nature of the event makes it difficult to comprehend. People travelling or working in the area had no prerequisites even to consider the possibility of a natural disaster like this.

Due to its magnitude and the widespread public attention received by the Asian catastrophe, it was decided that a major accident investigation should be conducted. The event has been investigated with Finns in mind and from the Finnish standpoint. Therefore, the focus of the investigation's attention was on Thailand and Sri Lanka, which, from the Finnish point of view were the worst areas, as well as on assistance activities for Finns in these countries as well as in Finland. The investigation details the origin and local effects of the natural disaster as well as people's experiences of the event, rescue activities, medical care and evacuations back to Finland, the activities of the authorities and aid organizations as well as communications. The overall aim was to describe the events and the actions they spawned to form a correct picture and, on the basis of the investigation, to make recommendations to authorities and actors in order to improve the efficiency of activities in comparable situations in the future. The nations in the endangered areas have already taken steps to establish an early warning system.

In line with the general principles of accident investigation, this investigation has assessed neither responsibility nor possible culpability. The work has focused on the event itself and on the measures that it generated. In addition, by analysing them, the causes and grounds for taking measures and the background of events have been detailed.

## **1 EVENTS AND MEASURES TAKEN**

### **1.1 Tsunami**

#### **1.1.1 The natural background of a Tsunami**

##### **1. What is a Tsunami?**

A tsunami is a series of long waves that can be generated by earthquakes, lava flows of volcanic eruptions, collapsing volcanic edifices, landslides, explosions and meteorite impacts. The term comes from the Japanese language meaning a large wave in the harbour (harbour “tsu” and wave “nam”). The term was originally coined by fishermen who witnessed the waves’ devastation in the harbour upon returning to port, even though they had not noticed anything out of the ordinary while at sea.

On the open sea, tsunamis are unnoticeable. In deep water the amplitude of the wave only reaches some centimetres or at the most approximately one metre. The wavelength, i.e. the distance between two crests, however, can be hundreds of kilometres and they can reach the speed of a jet aircraft. They can cross an ocean in a matter of hours. Only when it reaches the shore does the tsunami become dangerous. Wave heights can go beyond 30 metres and they can cause damage several kilometres inland in flat littoral areas.

##### **2. The origin of a Tsunami**

The most common cause of a tsunami is an undersea earthquake displacing a mass of water. As the earthquake forces the sea floor to raise, a huge column of water above the same area simultaneously rises which then seeks to regain equilibrium. This is when the potential energy absorbed by the mass of water is transformed into horizontally propagating energy forming a tsunami. A tsunami can also be generated when the sea floor suddenly sinks and the overlying water column surges downwards.

Within minutes from the earthquake, the tsunami splits into two. The amplitude of the two tsunamis moving in opposite directions is approximately one half of the original tsunami.

Any sudden deformation in the sea floor, causing a water column to raise and thus be out of equilibrium, can spawn a tsunami. The deeper the water the larger the water mass is resisting the motion and, as a result, the larger the amount of energy transformed into a tsunami is.

A landslide, a meteorite or an asteroid impact in the sea can also generate tsunamis and as they pierce the surface of the water, they displace it out of equilibrium creating ripple waves very much like a stone thrown in the water. Tsunamis generated by these triggers normally dissipate rapidly contrary to those tsunamis spawned by large underwater disturbances, which, close to the point of their origin, advance as parallel wave fronts without damping out at all. A large landslide or an asteroid impact can, however, spawn a megatsunami several hundreds of metres high. It is estimated that the maximum possible shoreline wave height of tsunamis generated by earthquakes is 30–40 metres.

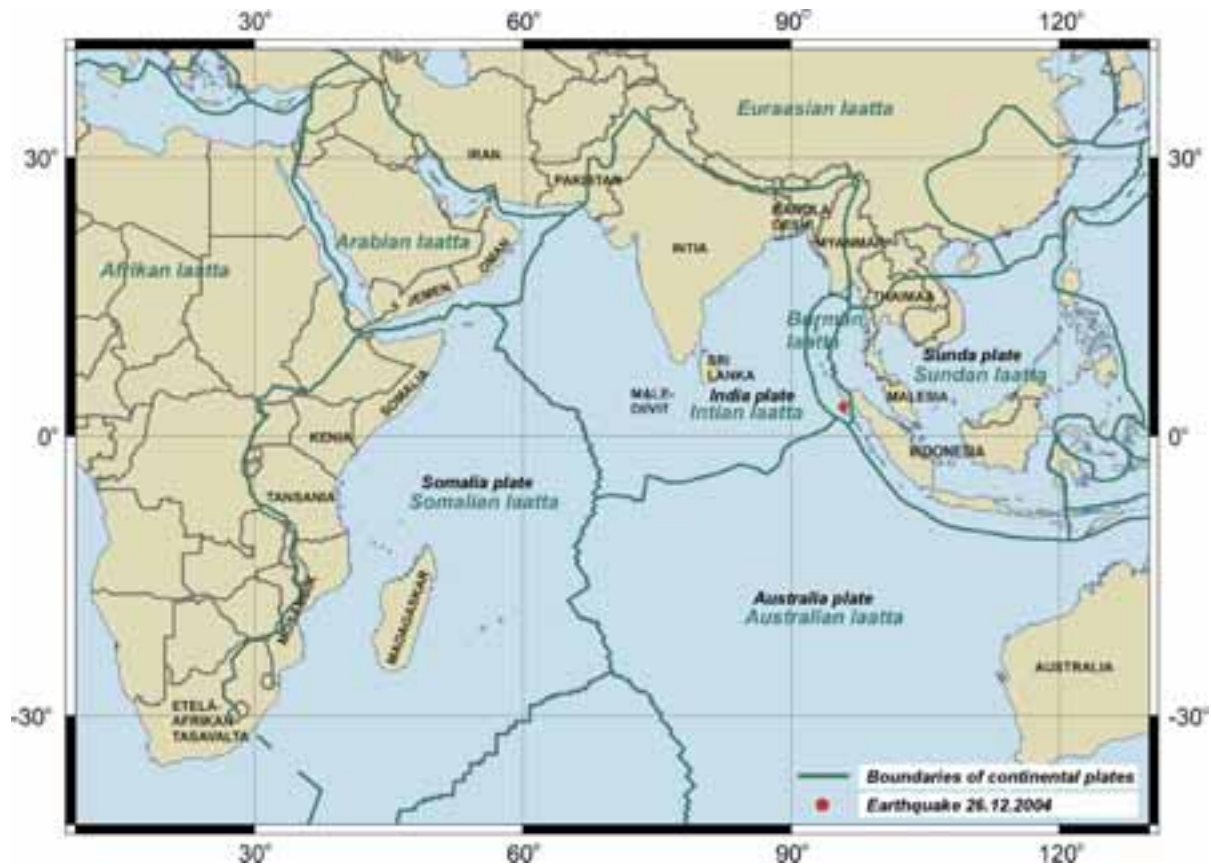


Figure 1. The tectonic plates in the region of the Indian Ocean.

The most destructive tsunamis have been generated by large and shallow earthquakes, whose epicentre or fault line was either close to or right on the sea bed. The strength or magnitude of earthquakes is measured on the so-called Richter scale, a detailed explanation of which can be found in appendix 3. It is generally accepted that in order to spawn a tsunami, an earthquake has to be at least 7,0 or 7,5 on the Richter scale and it has to generate large vertical displacements on the sea floor. These kinds of quakes occur in the subduction zone, i.e. on the edges of plates where oceanic lithospheric plates thrust under the lighter continental plates. The large seismic activity around the subduction zone is caused by the plates colliding into one another. Typically, a tsunamigenic (i.e. tsunami-generating) undersea quake generates 3–5 wave fronts in the ocean, of which the second or the third is the largest.

### 3. A tsunami in the ocean

The movement of a tsunami wave comprises the entire water mass from the seabed to the surface and its velocity is determined by water depth. More accurately said, its velocity is directly proportional to the square root of the depth of the water. In the oceans' deep areas the velocity is ca. 600–800 km/h even reaching 1 000 km/h in the trenches. In the Indian Ocean, for instance, where the average depth is approximately 4 000 metres, a tsunami propagates at about 200 m/s, i.e. 720 km/h.

A tsunami wave differs from a normal wind-generated wave, whose periods are 20 seconds at the most and typically 10 seconds in the ocean. The period of tsunami waves is extremely long ranging from five minutes to one and a half hours. A period is the time

elapsed between successive wave crests at the same stationary point. Tsunami wavelengths vary from kilometres to hundreds of kilometres whereas wind-generated waves are hundreds of metres long at most. For instance, if the width of the area of the seafloor rising in an earthquake is 100 km, the wavelength of a tsunami in the initial phase is a couple of hundred kilometres. As the tsunami propagates wavelength varies as, among other things, water depth changes.

Wind-generated waves have an effect to only a some tens of metres and even the longest oceanic waves, which are ca. 600 metres long, only affect to the depth of 150 m. Tsunami waves are so long that they have an effect all the way to the ocean floor.

Like all waves, tsunamis propagate directly outward from their point of origin. In this case, coasts protected by a land mass are usually safe. However, tsunami waves can sometimes bend (diffract) around land masses, as when the Boxing Day 2004 tsunami hit the western coast of Sri Lanka and the Indian state of Kerala. Furthermore, tsunamis are not necessarily symmetrical. Their destructive impact can be greater in a particular direction depending on the source of the tsunami and the shape of the seafloor. Because the ca. 1 200 km fault line displaced by the quake in the Indian Ocean was in a nearly north–south orientation, the greatest destructive impact of the tsunami waves was in an east-west direction, in which the tsunami initially propagated with hardly flaring to the sides at all.

As the tsunami propagates, it loses very little of its original energy. Its dissipation is mainly based on the wave spreading to an increasingly wider area. Therefore, the tsunami can cause destruction even thousands of kilometres away from its point of origin and several hours after its creation.

#### **4. A tsunami on the shore**

As the velocity of a tsunami depends on water depth, it slows down as it approaches the shore. The tsunami is at its most dangerous when it encounters a seafloor that gradually rises toward the coast because in this case the leading edge of the wave travels in shallower water than the trailing edge, which catches up with the slower leading edge. Wave height rapidly grows and a half-metre wave can become a 10 metre, or in some places even a 30-metre high wave.

A tsunami may hit the shore as a turbulent wall of water, and in such a case transport so much debris from the sea floor that it resembles a muddy sludge instead of water. A tsunami can also appear as a rapidly emerging flood or rise in the water level, bulldozing and taking everything with it. Flooding caused by a single tsunami wave can last from minutes up to one and a half hours whereas a wind-generated wave breaks on the shore and remains there for 20 seconds at the most. Tsunami danger can last for several hours.

As a tsunami arrives, depending of the waveform that the source of the tsunami created, water either draws down from the shore or rushes onto it. Even if the tsunami begins by flooding, the first wave may be so insignificant that the tsunami is noticed only once the water recedes to hundreds of metres away from the shoreline. Even ten minutes can pass from the drawdown to the tidal wave's arrival.

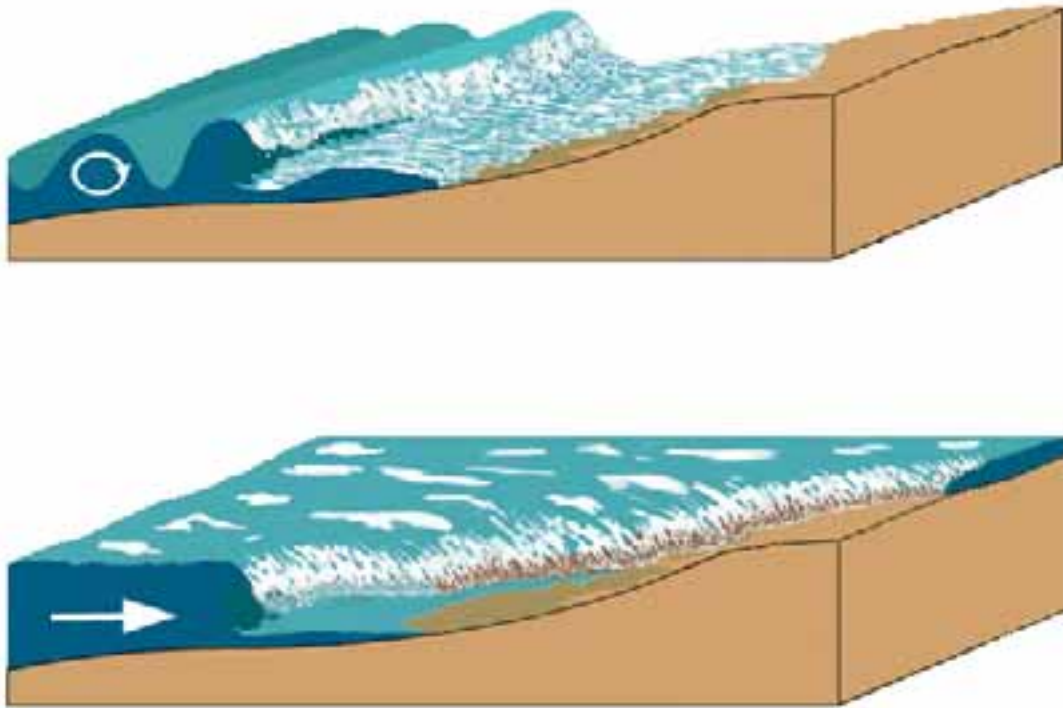


Figure 2. In a wind-generated wave, water does not propagate. Instead, it moves in a circle. The wave transforms into a flow only at the shore without causing a long-distance effect. A tsunami wave is so long that the wave already transforms to flow far away from the shore and on a flat coast area its impact can be felt several kilometres away.

A tsunami's velocity in shallow water is clearly lower compared to that of the open ocean and on a shallow coast, the time taken for the tsunami to travel the final tens of kilometres can be manifold compared to the time of its crossing the ocean. For instance, in 40 m deep water the tsunami's velocity is 20 m/s (72 km/h). As the water gets shallower velocity further decreases to a scale of 5 m/s, but velocity has also been observed to increase at the very final stage as water rushes ashore.

The maximum height of a tsunami on the shore is called the run-up-height. Precisely put, the run-up-height is the vertical distance between the tsunami on the shore and the mean sea level. A run-up-height exceeding one metre is always dangerous. At any given point, the run-up-height depends on energy concentration caused by the variation in sea depth, the route of the tsunami waves and the shape of the shore and the coast. There can be significant differences in run-up-height even in places very close to each other. For instance, on small islands abruptly rising from the sea the tsunami waves' run-up-heights are usually very low – only slightly higher than open sea wave amplitudes.



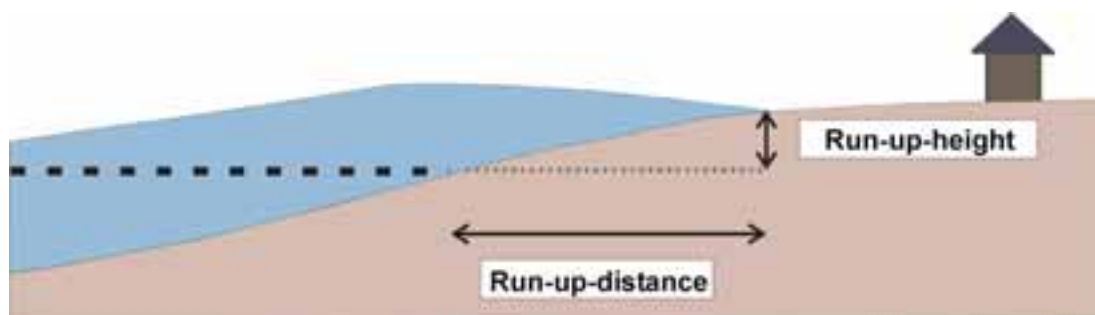


Figure 3. The run-up-height of a tsunami.

## 5. Previous tsunamis

### The Pacific Ocean

In the Pacific Ocean, tsunamis appear more frequently than in any other ocean. In the Indian Ocean, tsunamis have been relatively rare. Approximately 80% of all tsunamis are generated in a region called the Ring of Fire of the Pacific. It is a horseshoe-shaped zone encircling the basin of the Pacific Ocean in the west, north and east where the lithospheric plates slide and grind against each other. Thousands of earthquakes annually occur in this region extending from Alaska and Japan in the north to New Zealand and the southern tip of South America in the south.

Between 1900–2001, 796 tsunamis were observed in the Pacific Ocean. Of these 117 only caused damage or deaths close to their point of origin. There were 9 tsunamis that caused destruction in the entire region of the Pacific. Of these, three occurred during the decade 1992–2001 as presented in the following table.

Table 1. Tsunamis that caused major devastation in the area of the Pacific during 1992–2001.

Location	Date	Magnitude	Run-up-height	Deaths
Nicaragua*	02.09.1992	7,2	10 m	170
Flores Island	12.12.1992	7,5	26 m	1000
Hokkaido	12.07.1993	7,6	30 m	200
Java	02.06.1994	7,2	14 m	220
Kurile Islands*	04.10.1994	8,1	11 m	11
Mindro	14.11.1994	7,1	7 m	70
Peru	21.02.1996	7,5	5 m	12
New Guinea	17.07.1998	7,0	15 m	2000
Peru*	23.06.2001	8,3	5 m	50

\* A tsunami encompassing the entire Pacific.

The strongest measured earthquake, magnitude 9.5 on the Richter scale, occurred on 22.5.1960, right off the coast of Chile. It spawned a tsunami, which caused widespread destruction in Chile, Hawaii, Japan and elsewhere in the Pacific region. In Chile, the combined death toll of the earthquake and the tsunami was estimated at approximately 2 300. On the southern tip of the island, Chiloé off the Chilean coast the tsunami's run-up-height was over 20 metres. Right after the quake, on the northern tip of the island water rose for 20 minutes to ca. 1 metre, whereafter it began to recede from the coast.

When the water finally stopped receding after 30 minutes, the seafloor was exposed to the depth of five metres. After this a 15 metre high tsunami rolled ashore. Even as far as Japan, where the tsunami arrived after 22 hours, its run-up-height was 3 metres.

The strongest measured earthquake in the northern hemisphere occurred on 28.3.1964, in Alaska. The magnitude 9.2 quake extended from the town of Valdez to the Trinity islands in an area almost 1 600 km long and over 300 km wide. As a result of the quake's thrust faulting, in various locations the surface of the Earth shifted upward by up to 15 metres, which generated a tsunami encompassing the entire Pacific and causing serious damage on the south-eastern tip of the coast of Alaska, on the island of Vancouver on the western coast of Canada and in the U.S. states of Washington, California and Hawaii. On the western coast of the United States, the run-up-height was 2–6 metres.

Other large earthquakes after the 1950s that have generated tsunamis affecting the entire Pacific have occurred in Kamchatka on 4.11.1952, and in the Aleutian Islands on 9.3.1957. The Kamchatka magnitude 9,0 quake generated a tsunami, which greatly varied in height on the eastern coast of Russia and in the Kurile Islands depending on the shape of the coast. In the bay of Olga, the amplitude was measured at 13 metres, whereas elsewhere the amplitude varied between 1–10 metres. On the island of Paramushir the tsunami's amplitude varied between 4–18 metres. The maximum run-up-heights measured were 6 metres in Hawaii and 1 metre in New Zealand. The death toll caused by the tsunami was 2 300 people. The Aleutian Islands' quake in 1957 did not cause any deaths even though it was measured at a magnitude of 9,2 and the maximum amplitude of the tsunami on Kauai in the Hawaii Islands was 16 metres. On 1.4.1946, an earthquake had occurred in the Aleutian Islands generating a tsunami, which caused destruction in, among other places, Alaska and Hawaii. Because of this the Pacific Tsunami Warning Center was established in 1949 in Hawaii and the fact that in 1957 there were no casualties after the earthquake was largely due to the activity of this Center.

The highest known tsunami, 520 metres, occurred on 9.7.1958, in the narrow T-shaped Lituya Bay on the coast of Alaska. The tsunami was triggered by a 40 million cubic metre large rock edifice, which, as a result of an earthquake, fell into the sea at the mouth of the bay. However, the tsunami soon dissipated and on the sea, it was barely measurable.

### **The Indian Ocean**

Since 1770, approximately 20 earthquakes stronger than magnitude 7.0 and approximately five quakes stronger than magnitude 8,0 have occurred around the transform fault boundary west of Sumatra, where the 26.12.2004 earthquake that generated a tsunami also took place. At least five of these quakes have triggered destructive tsunamis. In addition, earthquakes of historical proportions and which have generated tsunamis have occurred in the Nicobar and Andaman Islands to the north-northwest of the location of the Boxing Day quake. Table 2 presents a summary of the destructive tsunamis that have occurred in the Indian Ocean.

Table 2. Destructive tsunamis in the Indian Ocean.

Location	Date	Magnitude	Maximum run-up-height	Deaths
Araka coast, Myanmar	2.4.1762			
Middle of Sumatra	10.2.1797	>8,0		over 300
south coast of Sumatra	24.11.1833	8,8–9,2		several
Middle of Sumatra	5.1.1843	7,2		many
Great Nicobar Island	31.10.1847			
west coast of Sumatra	16.2.1861	>8,2		11 700
Car Nikobar Island	31.12.1881	7,9	1,2 m	-
Krakatau volcano	26.8.1883		41,0	36 000
west coast of Sumatra	3.6.1909	7,7		200
Andaman Island	26.6.1941	7,7	1,0	5 000
Mekran coast, Pakistan	27.11.1945	8,0	11,0	4 000

When the information presented in table 2 is compared to table 1 presenting the data on Pacific tsunamis during the decade 1992–2001, one can roughly estimate that the same number of destructive tsunamis occur in the Indian Ocean in a century as do in a decade in the Pacific Ocean.

The eruption of the Krakatau volcano in Indonesia in 1883 generated an exceptionally destructive tsunami. During the course of the eruption, the volcano's magmatic chamber emptied partially and the ocean floor as well as the layers of ground covering it collapsed into the chamber. The seabed's displacement generated a series of tsunamis of which the highest were 40 metres on the coast. The tsunami was observed everywhere in the Indian Ocean, in the Pacific and even in the English Channel. Close to the epicentre in Java and in Sumatra, the tsunami rolled inland for several kilometres.

The earthquake that occurred on the coast of Pakistan in 1945 spawned a tsunami, which destroyed several fishing villages on the coast of Mekra and also caused destruction on the coasts of Iran and Oman. The first tsunami wave was measured in Karachi at 05.30 in the morning and the following ones were observed at 07.00, 07.15 and at 08.15 local time. The last wave's run-up-height was two metres and it was the highest one. The number of deaths presented in table 2 probably also includes those that perished in the earthquake.

### The Mediterranean

Earthquakes capable of generating tsunamis also occur in the Mediterranean, especially on the Italian coast and around the zone extending from the east coast of the Adriatic through Greece to the south coast of Turkey, in other words around the so called Hellenic Arc.

The oldest historical information on tsunamis in the Mediterranean dates back to 1650 B.C. This is when an earthquake occurred on the island of Santorini and which generated a 100–150 metres high tsunami. This, among other things, is considered the background for Plato's story of the demise of Atlantis. During the Turkish earthquake of 21.8.1999, a tsunami was generated in the Bay of Izmits in the Marmara Sea. Its run-up-height, 2,5 metres at maximum, was sufficient to cause houses to collapse.



Figure 4. Collapsed houses in the Turkish tsunami of 1999.

The Messina earthquake and the tsunami of 28.12.1908, caused exceptionally large destruction. The death toll is estimated at 100 000. The epicentre was located in the Strait of Messina, south of Reggio Calabria. The magnitude 7,2 earthquake triggered a tsunami up to 13 metres high on the coast of Calabria. Previous earthquakes that had spawned tsunamis occurred in 1905 (Monteleone), in 1783 (southern part of Calabria) and in 1693 (eastern part of Sicily). In 1783, the amplitude of the tsunami was estimated at 6–9 metres and 12 metres in 1693, respectively.

### **The Atlantic and the Caribbean**

The oldest documented tsunami in Europe was generated with the Lisbon earthquake in 1755, which was estimated at magnitude 8,7 at the very least. The destructive effect of the tsunami was exceptionally high because the inhabitants of the city fled from the collapsing buildings in the quake and the ensuing fires to the shore. The tsunami was preceded by the water level greatly dropping, which caused large areas of the seabed to be exposed in the port of Lisbon. The amplitude of the tsunami at the tower of Belem was estimated as high as 15 metres. In Tanger a tsunami, which was almost equally high, rolled inland for over two kilometres. The tsunami arrived in Madeira two hours from the Lisbon earthquake and its height was estimated at 6 metres. The combined death toll of the Lisbon earthquake and the subsequent tsunami was 60 000 people.

In the Caribbean destructive tsunamis have occurred, for instance, in 1946 in the Dominican Republic, in 1918 in Puerto Rico and in 1867 in the Virgin Islands. On the Atlantic coast of the United States, tsunamis have caused destruction on, among other

places, the north-eastern part of the coast in 1964 and in Maine in 1926 and in 1872. An undersea landslide in the shallows of the Grand Banks off the coast of Newfoundland triggered a tsunami, which killed 27 persons. This has been the worst tsunami in the Atlantic since the Lisbon earthquake of 1755.

Researchers have observed that exceptionally large undersea landslides have occurred in prehistorical times in the Atlantic and that they probably generated large tsunamis. Three of these prehistorical undersea landslides have occurred off the coast of Norway, one of which was ca. 7 000 years ago. Based on numerical models the landslide generated a gargantuan tsunami. According to scientists, it is not impossible that something similar could happen during the course of the coming centuries.

Researchers have also pointed out the possibility that one of the volcanic islands in the Atlantic, such as La Palma in the Canary Islands or Fogo in the Cape Verde Islands, could partially collapse because of a massive earthquake resulting in a tsunami. This kind of event, however, is considered highly unlikely.

### **The Baltic Sea**

Tsunamis have not been observed in the Baltic Sea. The area is geologically so stable that the probability of large earthquakes is very small. Furthermore, the Baltic Sea is so shallow that even in its deepest places the tsunami would get so little energy that it would not become very high on the coast of Finland. In principle, tsunamis triggered by landslides are possible even in the Baltic Sea, but extremely unlikely.

## **1.1.2 Tsunami warning systems**

A tsunami warning system is based on a network of observation stations following seismic events and changes in water level. A tsunami warning is issued when signals indicate a rapidly propagating radial wave front emanating from a single point of origin. When the warning is issued, the event's magnitude, its location and distance from coastal points of interest, sea depth and the shape of the seabed toward the coast, as well as the effect of islands and island groups on the tsunami's strength and direction are taken into account.

Wave detection is an essential part of a functional observation system. Earthquakes are much more frequent than tsunamis and the majority of quakes do not trigger a destructive tsunami. Repeated unnecessary warnings in the Pacific region have resulted in loss of credibility and in order to regain the warnings' credibility, at present a tsunami warning is only issued in the region if a wave is actually detected.

A tsunami can be detected by a coastal water level measuring station. In many cases, the warning arrives too late and in the case of a destructive tsunami, already the first wave can destroy the measuring station. The best device for detecting tsunamis is based on measuring seabed pressure in the deep ocean. This is physically the most reliable method to detect a tsunami. The technology, however, is expensive and laborious to maintain. The latest technological development is about to make it possible to also detect a tsunami on the surface of the sea.



Figure 5. A Pacific Tsunami Warning System buoy is being placed. (Photo NOAA.)

Most of the tsunamis occur in the Pacific region because earthquakes and undersea volcanic activity are frequent on the boundaries of the tectonic plate encompassing the region. The first sensor stations for the tsunami warning system were already established immediately after the Second World War. The region's warning centre is located in Hawaii. The International Coordination Group for the Tsunami Warning System in the Pacific, ICG/ITSU, was established in 1968. The developed nations around the region, i.e. the United States, Australia and Japan, have strongly advanced the Pacific Ocean detection and early warning system. A key player in coordinating the tsunami warning systems is the Intergovernmental Oceanographic Commission, IOC, working under the auspices of the UNESCO.

### 1.1.3 The earthquake on the western side of Sumatra on 26 December, 2004

On Boxing Day, 26.12. 2004, at 00.58 UTC an earthquake occurred in the western parts of Indonesia, triggering a tsunami that was detected everywhere in the region of the Indian Ocean. This quake, west of Sumatra and of magnitude 9,0 is the fifth largest earthquake in a century and the largest one since the magnitude 9,2 earthquake that shook Alaska on Good Friday 1964. Prior to that, the largest quakes occurred in Chile in 1964 (9,5), in Alaska in 1957 (9,2) and in Kamchatka in 1952 (9,0).

During the first three days that followed the quake approximately 140 aftershocks occurred, of which the strongest (magnitude 7,1) took place in the Nicobar Islands three and a half hours after the main quake. Aftershocks occurred for several weeks, even though their number clearly gradually diminished. The aftershock zone, which also indicates the extent of the rupture area, extended from the northern part of Sumatra to the Andaman Islands.

The quake was caused by stress in the tectonic plates, which was created by the India Plate drifting toward the Eurasia Plate by approximately 6 cm/year. The India Plate subducts the smaller Burma Plate on the edge of the Eurasia Plate. The Burma Plate comprises the northern part of the island of Sumatra and the Nicobar and Andaman Islands. Prior to the earthquake, the Burma and the India Plates in this region were probably locked for several centuries. This fault locking, which prevented the Burma Plate from moving in relation to the India Plate, caused accumulation of stress that was released as an earthquake on 26.12. 2004.

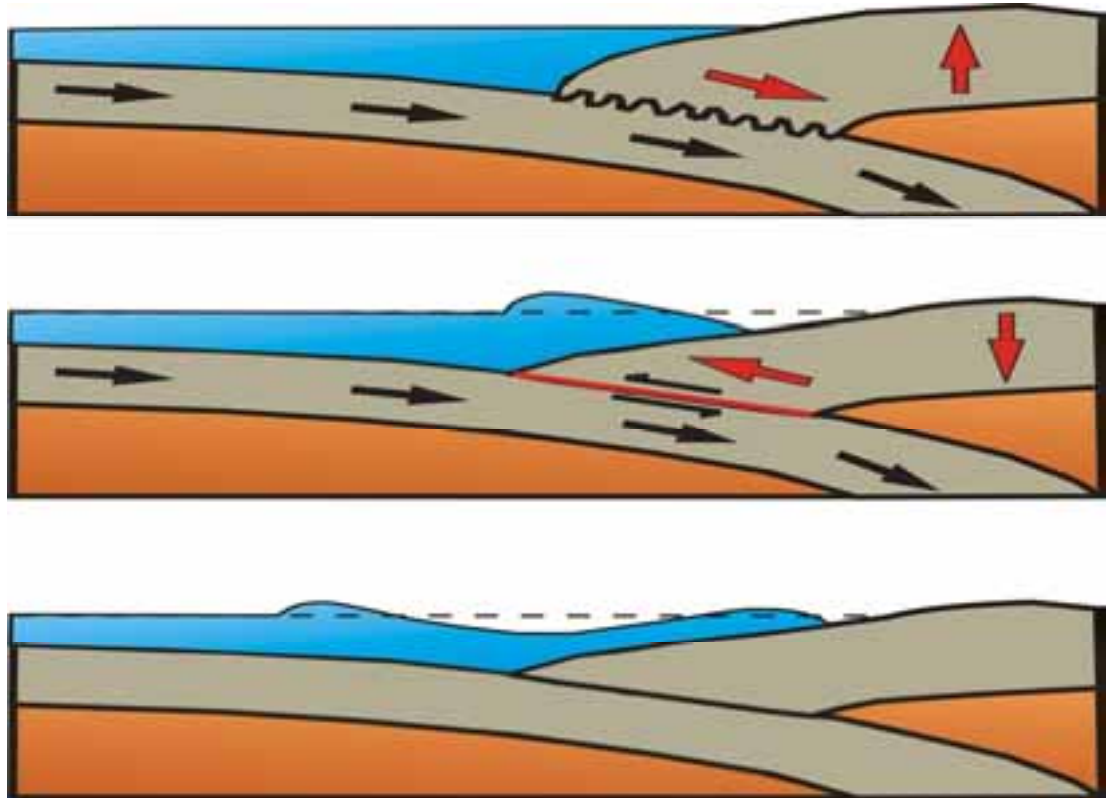


Figure 6. Generation of a tsunami in an earthquake.

The quake originated in the geographical location of 03.3° N and 095.9° E. This epicentre is located 160 km to the west of Sumatra and at less than a 10 km depth. The quake occurred as a rapidly propagating rupture along the fault. The rupture area was exceptionally large, approximately 1 200 km long and ca. 150 km wide in the Earth's crust.

The rupture itself began in the fault proceeding at 23 km/s north-northwest from the epicentre along the fault. It took about 8 minutes for the entire fault to rupture. It has been estimated that in the interplate rupture boundary the Burma Plate slipped as much as 20 cm on top of the India Plate. The total seismic energy generated by the quake was approximately 100 EJ<sup>1</sup> (the total energy consumption of Finland in 2003 was 1,5 EJ).

On the ocean floor at the plate boundary the earthquake generated a vertical shift estimated at 4–5 metres. The shift lifted the entire four kilometres thick ocean water column and caused it to undulate in wave motion. This wave primarily propagated to the south-

<sup>1</sup> 1 EJ = 1 exajoule =  $10^{18}$  J; 1 kWh =  $3,6 \cdot 10^6$  J



west and to the north-east. In Finland, the first seismic waves were observed at seismograph stations approximately 12 minutes after the event. The seismic surface waves caused the Earth to move ca. 2 cm, maximum, in Finland. This undulation of the surface of the Earth occurred within 30 seconds.

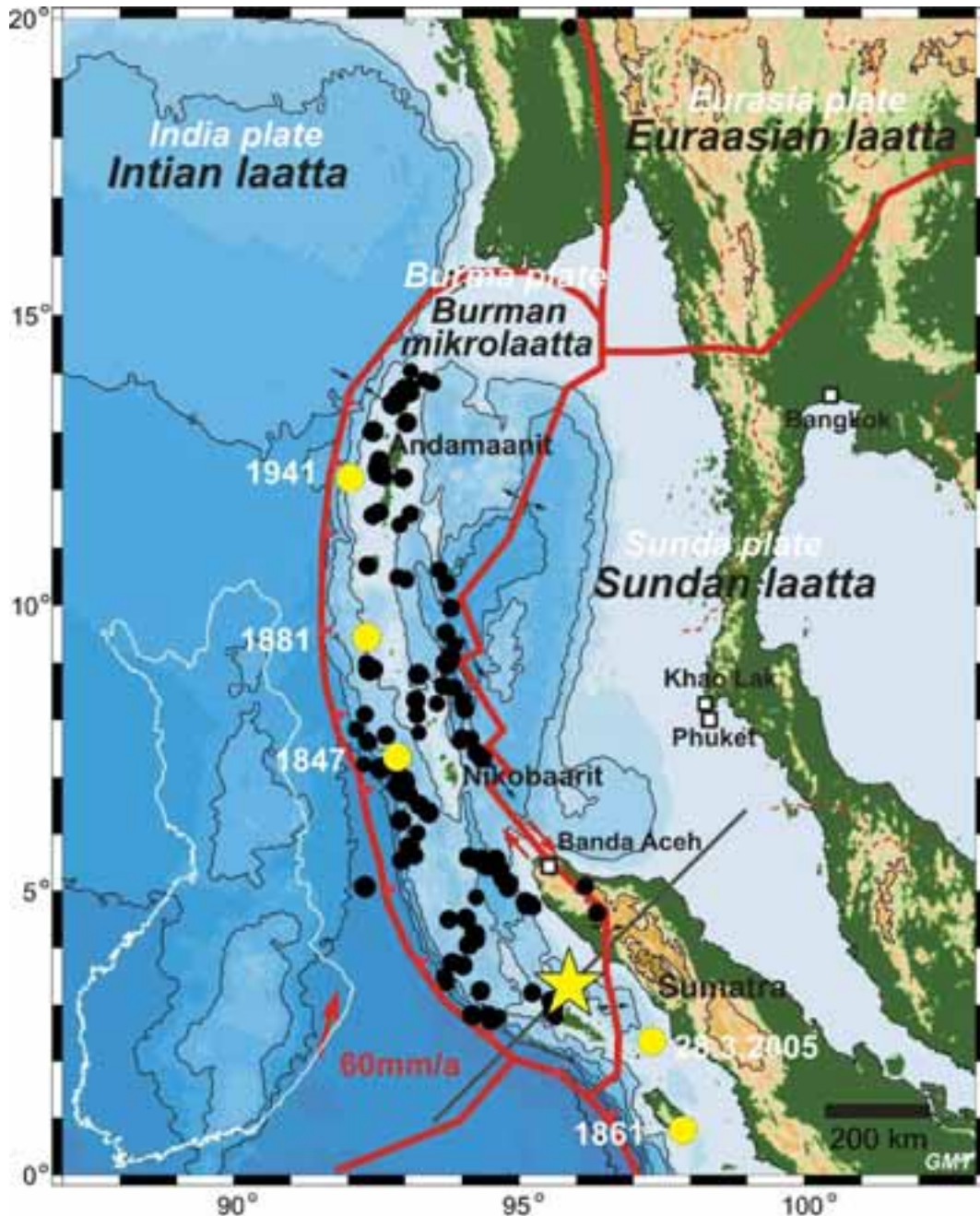


Figure 7. The rupture zone between the India Plate and the Burma Plate. The star indicates the epicentre of the 26.12.2004 earthquake. The yellow circles next to dates show the epicentres of large quakes. The black circles indicate the epicentres of other quakes. The arrow and the numerical value next to it on the bottom of the map indicate the direction and the velocity of the India Plate's annual drift.



In the area between western Sumatra and the Andaman Islands, at least six very large (above magnitude 7,5) earthquakes have occurred during the past two centuries. The latest of these, and of magnitude 8,7, occurred on 28.3.2005, close to the island of Nias, west of Sumatra.

#### **1.1.4 The tsunami and the destruction it caused on the coast of the Indian Ocean**

The earthquake in south-east Asia gave a strong impulse to the four kilometres deep ocean and caused the entire water column to undulate. This wave package then propagated to the south-west and to the north-east.

In the north-east, the wave already hit the shore in Indonesia within 25 minutes and generated a massive tsunami with maximum run-up-heights of 25 metres. The waves arrived on the coast of Thailand ca. 100 minutes after the quake. Sri Lanka and the eastern parts of India were reached by the waves within a couple of hours. Because of the direction of the transform fault the tsunami propagated in these directions without really dissipating at all during the first 1 000 kilometres. The maximum amplitude of the tsunami in the deep ocean was only 60 cm and its velocity was 800 km/h. Toward the north-west and the south-east, though, the tsunami dissipated like a wave propagating from a small spotlike source, inversely proportional to distance, and rapidly became much weaker. According to satellite data, deep ocean waves in this direction were ca. 20 cm high.

The tsunami propagated as several successive waves, of which the period of the longest ones according to satellite data were in the scale of 400 km. Measurements indicate that the wave group also contained considerably shorter waves, unforecasted by tsunami models. The satellite data represents the first tsunami measured from space. This data was of no use for the purposes of warning because the analysis was completed only after the waves rolled ashore.

South of the epicentre one measuring station reported a 60 cm high tsunami proceeding toward Australia. The same can be seen in radar satellite measurements. The waves were detected everywhere around the Indian Ocean and they caused destruction in Indonesia, the Maldives, Sri Lanka, India and Thailand.

The destructive effect of the tsunami extended to over 4 000 kilometres away on the eastern coast of Africa in Somalia, Kenya and Tanzania. The waves that managed to make their way to the Pacific Ocean had already dissipated to a height of a few tens of centimetres but even in Chile a 2 m high tsunami was measured, which was caused by the concentration of local depth conditions.

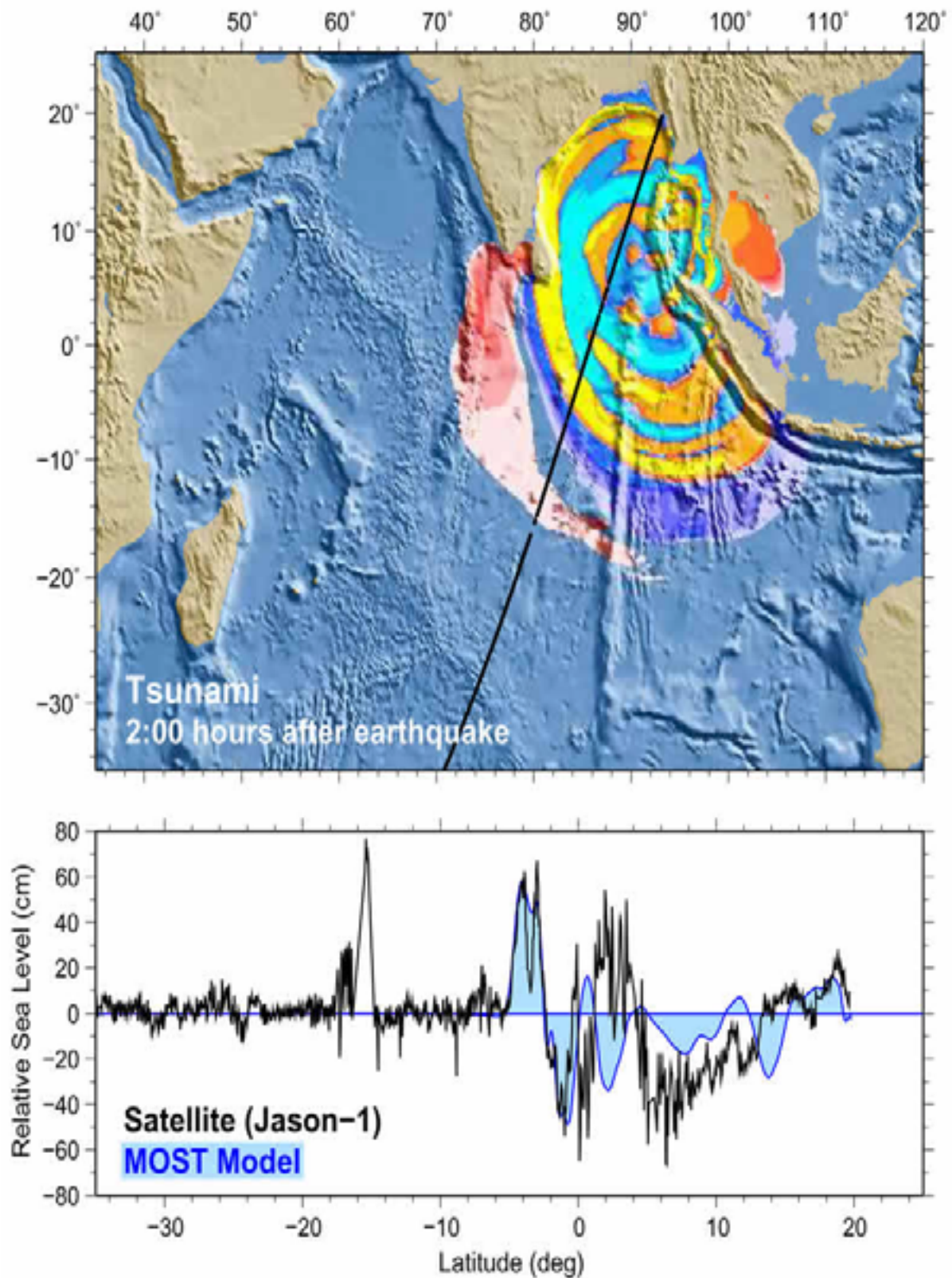


Figure 8. Satellite measurements of the tsunami's progression. (By courtesy of NOAA)

On the western coast of Sumatra in the town of Lhokanga, close to the epicentre, the maximum run-up-height of the tsunami was estimated to be even 25 m. Banda Aceh on the north-western tip of Sumatra was already substantially damaged in the earthquake and the up to 9 metre thick layer of waves, which rolled into town 25 minutes after the event, caused widespread destruction. Many buildings disappeared and wide areas of land as well as an entire bridge were washed away. The immediate area around the shore was covered by 4–6 metres of water and the impact of the tsunami extended 3–4 kilometres inland.

Farther away from the rupture, the amplitude of the tsunami generally remained below 5 metres. On the Indian coast, for example, run-up-heights varied between 2,5 metres to 5,2 metres and run-up-distances did not exceed one kilometre. In Thailand and Sri Lanka, however, there were areas where local conditions helped the tsunami to rise to similar proportions as in Indonesia. Some of the Finns' tourist destinations were in these areas.



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Figure 9. Banda Aceh, northern shore before the tsunami on 23.6.2004.

The best way to study the event on the shore was to view videos, which are abundantly available. By analysing the video images flow velocities close to the shore have been measured at 5–13 m/s. Reliable information on the time of the waves' arrival and on how long they lasted is only scarcely available from interviews. The sound of the tsunami arriving was depicted as the roar of ten trains. The event was so exceptional that many people began to shoot videos of the event totally unaware of what was to be expected even ten minutes before the waves hit the shore. Even when people escaped the event unscathed, they said that their sense of time was totally blurred due to the immense proportions of the destruction.



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Figure 10. Banda Aceh, northern shore after the tsunami on 28.12.2004.

The tsunami caused deaths and great material damage in Sumatra, part of Indonesia, Sri Lanka and India as well as in the Andaman and Nicobar Islands, which are part of India. Fewer people died in Myanmar and in the Seychelles on the coast of eastern Africa, Mauritius, Tanzania, Kenya and Somalia. In the beginning of March the UN World Health Organization (WHO) published the following list of deaths and missing persons:

Country	Deaths	Missing	Total
Indonesia	124 404	111 888	236 292
Thailand	5 395	2 991	8 386
Sri Lanka	31 147	4 115	35 262
India (incl. islands)	10 872	5 764	16 636
Maldives	82	26	108
Total	171 900	124 784	296 684

The figures give a general picture of the scale of the number of victims.

### Thailand

In Thailand, the tsunami destroyed many tourist destinations as well as local communities in Phuket and on the coast to its north. The fact that the tide was simultaneously high added to the devastation. In Phuket run-up-heights varied from a couple of metres to five metres. Run-up-distances were in the scale of tens or hundreds of metres. The run-up-height was five metres also on the islands of Similand and Raya Yai but run-up-distances there only were 100 metres or so. The tsunami especially caused large destruction in Khao Lak, where ca. 5 400 persons perished or disappeared. Run-up-heights typically varied between 6–11 metres with a maximum of up to 15 metres. In places, the tsunami extended to two kilometres from the shore and the depth of the wa-



ter layer on land areas was 4–5 metres. In Khao Lak, the tsunami's power was about the same as in Banda Aceh.



Figure 11. The Khao Lak hotel resort area and run-up-heights there. The dark green colour depicts the area inundated by the tsunami, which can also clearly be seen in the satellite image.

Both the shape of the seabed at Khao Lak and the direction of the fault line zone that triggered the tsunami probably contributed to the tsunami's force. There is a wide shallow water area between Khao Lak and the fault line zone and it took hours for the tsunami to cross it. The first waves that hit the Khao Lak area, therefore, were the ones that had taken the longer deep water route and arrived from the south-west. Thereafter, waves that took the slower routes kept on arriving for a couple of hours.

Wave energy has the tendency to concentrate on the tips of points or in the region of a subsurface shallow. The centre of the Khao Lak shore seems to have such a shallower area, to which the waves arrive later compared to other places. The run-up height there reached almost 11 metres and water rose to the third floors in buildings. In many places in Khao Lak damage was limited to the first or the second floor.

Photos show that at least in some places water flowed along the main highway from the south to the north. Then again, the western wall of one building collapsed even though on the eastern side there was a fairly loose steel wire mesh that had bulged from water having rushed against it from the inside after the wall's collapse. It seems that the direction of the water flow was difficult to predict.



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Figure 12. The first noticeable sign of the arrival of the tsunami was the water receding hundreds of metres from the shore. The video image was taken 7 minutes before the breaking bore, visible in the horizon, hit the shore at 10.30.



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Figure 13. The second bore is visible behind the first one 4,5 minutes before the first big wave rolled ashore. The second wave is clearly farther away compared to the first wave in figure 12 and, therefore, the distance between the waves was longer than the 2,5 interval of when the photos were taken.



© Anukul Charoenkul

Figure 14. Water has reached the shore at Khao Lak National Park and is diagonally advancing to the north along the shore. The biggest run-up-heights in the area shown in this photo were measured at the beach yet to be inundated, as the wave front hit it from several directions.

At the tip of cape Pakarang the tsunami's energy also seems to have concentrated but the cove of the cape, where more Finns perished, compared to other places was not one of the worst places in Khao Lak when determined by run-up-heights. However, even there the run-up-height was about the same (ca. 8 m) as in Banda Aceh, Indonesia, and clearly higher compared to elsewhere in Thailand.

Satellite imagery shows how river branches at the cove of cape Pakarang have been eroded and turned into fjords. Flow resistance is smaller in the riverbed where the layer of water is thicker. Right next to the riverbed, buildings were washed away whereas further away from the river they remained erect. In this area, the flow is assumed to have been stronger than elsewhere where run-up-heights were similar.



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Figure 15. The Blue Village Pakarang Resort hotel before the tsunami at low tide and immediately after the tsunami.



The other factor that increased the impact of the flow was the run-up-distance, which in this area is among the longest in Khao Lak, i.e. approximately 2 kilometres. If the run-up-height is the same, the force of the flow is directly proportional to the run-up-distance. It is probable that the long-lasting and strong flow close to the river in this area contributed to the destruction and to the number of victims.



Figure 16. The Blue Village Pakarang Resort hotel reception before and after the tsunami. The satellite image shows that the gazebo in the traffic circle survived the tsunami. Water depth on land was approximately 5 metres.

In Thailand the tsunami caused widespread destruction in the six provinces of Phang Nga, Krabi, Phuket, Ranong, Trang and Satun.

Table 3. Thai authorities' statistics on tsunami victims in various provinces.

Province	Deaths				Missing	Total
	Thai	Foreigners	Unknown	Total		
Phang Nga	1 266	1 633	1 325	<b>4 224</b>	1 733	<b>5 957</b>
Krabi	357	203	161	<b>721</b>	569	<b>1 290</b>
Phuket	151	111	17	<b>279</b>	620	<b>899</b>
Ranong	156	4	0	<b>160</b>	9	<b>169</b>
Trang	3	2	0	<b>5</b>	1	<b>6</b>
Satun	6	0	0	<b>6</b>	0	<b>6</b>
<b>Total</b>	<b>1 939</b>	<b>1 953</b>	<b>1 503</b>	<b>5 395</b>	<b>2 932</b>	<b>8 327</b>





Figure 17. Sturdy buildings survived, especially if they had light walls and windows that were not load bearing and which could collapse due to water pressure. The top floors of three storey houses remained totally intact.

## 1.2 Events in south-east Asia

### 1.2.1 Finnish citizens at the affected locations

The number of Finnish tourists in south-east Asia has greatly increased during the past few years. In 2000, for instance, approximately 40 000 Finns visited Thailand but in 2004 there were ca. 70 000.

Most of the Finns travelling in these countries are on travel agency package tours and can be reasonably well contacted. However, the whereabouts of the increasing number of independent travellers are generally not known and so it is difficult to contact them. The people staying in Thailand or Sri Lanka for extended periods form their own group. Many of them rent apartments in Thailand and move there for the winter season. People working in south-east Asia have leisure homes in the region. Finnish missions do not have information on the whereabouts and addresses of all of these people.

According to travel agencies, there were 2353 Finnish tourist in Thailand on package tours at the time of the natural disaster and 630 in Sri Lanka. In addition to these, the independent travellers and the Finns on extended stay in the region must be taken into account. Package tours from Finland to Thailand were organized by Aurinkomatkat, Detur Finland, Finnmatkat and Tjareborg. The agencies' package tour travellers in the disaster area were as follows:

Furthermore, travellers from Åland Islands (Ahvenanmaa) and Finnish citizens residing in Sweden had bought package tours from Swedish travel agencies. Some Finnish travel agencies organized independent, tailored trips to their customers. For instance, KohdematkatKaleva had 42 tourists on these kinds of independent trips in Phuket and

16 in Krabi, Thailand, 3 in Malaysia and 2 in Myanmar. The tourists in Malaysia and Myanmar were in the danger zone but did not get hurt.

Table 4. Finnish package tour travellers in Thailand according to travel agencies.

Areas in Thailand	Aurinko-matkat	Finn-matkat	Detur	Tjareborg	Total
Phuket – Karon Beach	196	342	14	138	<b>690</b>
Phuket – Kata Beach	158	106	36	28	<b>328</b>
Phuket – Patong Beach	251	-	168	135	<b>554</b>
Phuket – Kamala Beach	-	-	-	103	<b>103</b>
Khao Lak	119	308	-	-	<b>427</b>
Krabi	149	102	-	-	<b>251</b>
<b>Total</b>	<b>873</b>	<b>858</b>	<b>218</b>	<b>404</b>	<b>2 353</b>

It is impossible to estimate the exact number of independent travellers. According to the estimates of experienced travel agency staff there were ca. 300 independent travellers in the disaster area in Thailand and approximately 100 on Sri Lanka. In Thailand the independent travellers were largely concentrated in the area of Phuket. When a mass SMS message concerning gathering centres was sent from Finland to Thailand, in Phuket ca. 200 independent travellers came to the hotel designated as a gathering centre. There were 200 persons at most on an extended stay in the disaster areas at the end of 2004.

As per the situation on 31.5.2005, 142 Finns died and 36 disappeared in the disaster.

Finns on package tours were in the provinces of Phuket, Phang Nga and Krabi. The major tourist centres are located on the western coast of the island of Phuket. They are Kata Beach, Karon Beach, Patong Beach and Kamala Beach. They are approximately 10-20 minutes away from Phuket Town, the provincial capital. Some Finnish tourists also were on the beaches of Nai Harn, Kamak and Mang Tao. On the island of Phuket the most serious devastation occurred on Patong Beach. Altogether 1 685 Finns on package tours were on the island.

In Thailand, the most serious destruction took place in the area of Khao Lak in the province of Phang Nga. The area itself is an approximately 15 kilometre long strand on the western coast of Thailand, about 90 km north of Phuket. The area is divided into two parts. The Khao Lak beach comprises the southern part and the cape of Pakarang forms the northern part. Tap Lamu harbour and a Thai naval base are located at the southern end of the area. The centre of Khao Lak is on the road from Phuket to Bangkok about one kilometre inland of the sea shore.

The Krabi province is on the eastern side of the Bay of Phuket. No Finns died or disappeared in Krabi. The majority of those that perished in the province of Krabi were on the Phi Phi Islands, off the coast of Krabi. On these islands, there were seven Finnish customers of Tjareborg who were unhurt.



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Figure 18. Travel destinations in western Thailand.

At the time of the disaster, there were also Finnish tourists on diving trips organized by diving schools. These trips were organized, among other places, on the islands of Similan, Raya Yai and Phi Phi. Both on the islands of Similan and Raya Yai Finns were exposed to mortal danger. Finns also were on boating and canoeing trips as well as on trips inland.

The numbers of dead and missing Finns according to area, hotel and age group are presented in table 5.

Table 5. The number of dead and missing Finns on 30.5.2005.

	Adults		2–12 yrs		Under 2 yrs		Total		Grand total
	Dead	Missing	Dead	Missing	Dead	Missing	Dead	Missing	
<b>Thailand, Phuket, Patong Beach</b>									
Seaview Patong	2						2		2
Comfort Resort	1						1		1
Patong Beach Hotel	1						1		1
Phuket, hotel unknown	4						4		4
<b>Phuket total</b>	<b>8</b>						<b>8</b>		<b>8</b>
<b>Thailand, Khao Lak</b>									
Seagull Andaman Resort	1				1		1	1	2
Khao Lak Resort	4						4		4
Orchid Beach Resort	7						7	0	7
Khao Lak Seaview Resort and Spa	3						3		3
Khao Lak Tropicana	2						2		2
Palm Andaman	5						5		5
The Beach Resort	1						1		1
Bang Niang Beach Resort	11	1		1			11	2	13
Emerald Resort Spa	4		1				5		5
La Flora	1		2				3		3
Grand Diamond Resort	3	1					3	1	4
South Beach Pakarang	2						2		2
Blue Village Pakarang	60	6	15	25			75	31	106
South Sea Pakarang	5						5		5
Palm Beach Resort	1						1		1
Khao Lak, hotel unknown	6		1				6	1	7
<b>Khao Lak total</b>	<b>116</b>	<b>9</b>	<b>18</b>	<b>26</b>		<b>1</b>	<b>134</b>	<b>36</b>	<b>170</b>
<b>Sri Lanka, Hikkaduwa</b>									
Private accommodation	1						1		1
<b>Sri Lanka total</b>	<b>1</b>						<b>1</b>		<b>1</b>
<b>All together</b>	<b>125</b>	<b>9</b>	<b>18</b>	<b>26</b>		<b>1</b>	<b>143</b>	<b>36</b>	<b>179</b>

## 1.2.2 The events from the point of view of Finns

### THAILAND, Phuket

**Kata Beach** and **Karon Beach** are very close to each other. Kata Beach lies a little more to the South. Both tourist resorts are on the map in Figure 19. On Kata Beach, there were 158 Aurinkomatkat customers in four hotels. Finnmatkat had 106 customers in four hotels, as well, Tjareborg had 28 customers and Detur had 14 customers.



© phuket-maps.com

Figure 19. The island of Phuket and its travel destinations.

Of all the hotels where Finns stayed only the first floor of Hotel Kata Than was damaged. The hotel established an evacuation spot on a nearby hill, where the patrons received food and drink. There was time to evacuate the relatively low-lying Kata Sea Breeze and to move its patrons to nearby hills.

On **Karon Beach**, the beach promenade is very close to the shore. On the edge of the promenade, on the side of the beach, there is a nearly two metre tall sand embankment. On the inland side of the promenade, there are shops and offices in low, terraced-house style buildings in many places. The Phuket office of Aurinkomatkat was on the promenade by the Hotel Hilton Arcadia. When the waves rolled ashore water rose, at its highest, a little past the hotel to its parking lot.



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Figure 20. The map of Kata Beach and Karon Beach.

Many Finns on Karon Beach observed two waves, of which the second one was clearly taller.

A couple from Hollola were sitting on the balcony. At approximately 8 o'clock, they experienced a tremor and their plastic chairs slid sideways a few centimetres. A man from Kouvola woke up to his bed shaking.



When the couple from Hollola went to the beach in the morning, they were astonished to witness that the shoreline had receded far away out to sea. Where they had been swimming the day before women were gathering sea shells. They saw that the water far in the distance became suddenly unreasonably high and was approaching the shore. Someone yelled "tsunami". The man did not know what it meant but then somebody yelled "run, run, run".

The Aurinkomatkat destination manager related that the first wave came over the embankment at approximately 10 o'clock and that water flooded the office. In front of the office, the water was shallow deep. The manager, along with a colleague tourist guide, ran past the parking lot of Hotel Hilton Arcadia, on the inland side, but then the water stopped rising and began to flow back. At this phase, however, the water carried beach chairs etc. over the embankment. The water picked up and moved cars that were on the promenade as well.

The guides returned to the pool side area of Hotel Hilton Arcadia where they peeked into their office. Soon, however, a second wave arrived and created a total mess. This wave completely destroyed the Aurinkomatkat office. The guides started running and ran even farther than they did after the first wave, but not as far as to Patak highway east of the hotel area.

The destination manager said that the patrons at Hilton Arcadia did not notice anything until they came out of the hotel.

Some tourists, however, said that when the first wave hit the water then remained behind the sand embankment.



Figure 21. Water receded prior to the tsunami for about 500 metres. The speed boats in the forefront of this picture were almost beached.

There were 554 Finnish tourists in the hotels of **Patong Beach**. Figure 22 is a map of the Patong Beach area. Here the devastation was the worst in all of Phuket. Most of those who perished in the area died on this beach. A cape, extending the farthest out to the sea at its northern tip, separates Patong Beach from Kata Beach and Karon Beach, which are more to the South. Patong Beach is at the cove of the three kilometres wide and deep Au Patong bay. The reason for Patong Beach suffering more damage than other beaches may have been because wave energy tends to concentrate on cape points. The beach area ends in a north-south promenade. East of it, there is another, parallel, street and between them, there are several side streets. Hills encircle Patong Beach. The receding of water was also observed at Patong Beach. The shoreline shifted by approximately 500 m. The first wave extended to ca. 500 metres from the shore. Water surged over the promenade and then overflowed into the side streets. To paint a picture of the force of the wave, on the beach it moved one cubic metre-sized cement



blocks. Lighter structures on the promenade collapsed but the stronger buildings that were made of concrete mostly remained intact, even though windows and doors broke.



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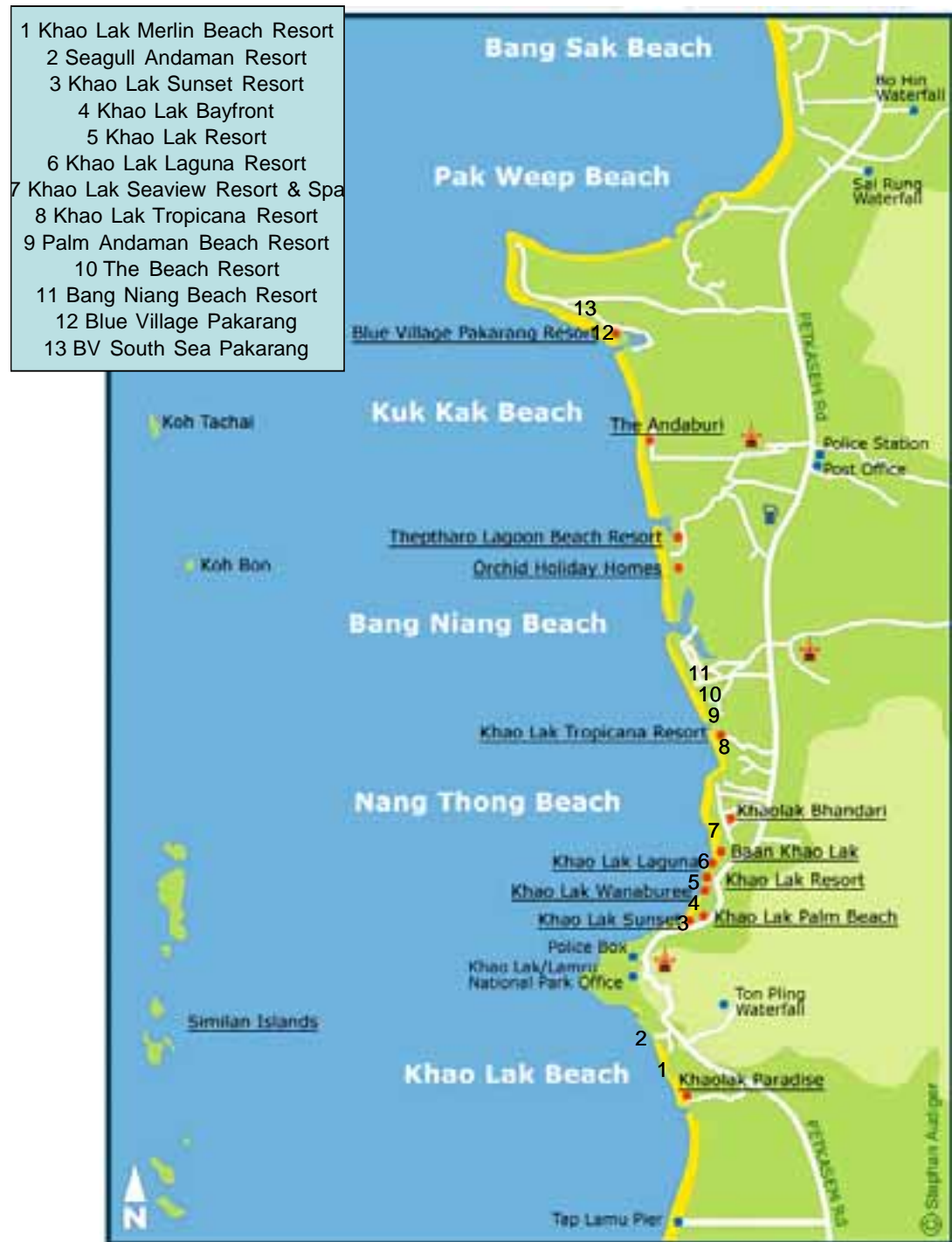
Figure 22. Map of Patong Beach.

**Kamala Beach** is approximately 10 km north of Patong Beach, from which a cape separates it. There were 103 Tjareborg customers at the hotel. The patrons and the hotel escaped unscathed but Kamala Beach was isolated for a while because road connections were cut off.

When a woman from Pori staying at the Grand Tropicana came to the beach with her friend at ca. 09.30, she saw that the water had receded and took a photograph (fig. 21). She heard a loud roar and saw a large black wave coming. She thought that she would escape into the department building on the promenade, which, however, was not yet open. She was in front of the door when the mass of water broke the doors and threw her inside. She was washed to the shoe department of the store. Later on local inhabitants carried her to higher floors because she could not put weight on her injured leg. In the underground floor of the same department store, there was a

food store, which was also open on Sundays from 9 o'clock. Scores were trapped and perished there.

### THAILAND, Khao Lak



© khaolak-maps.com

Figure 23. Khao Lak beaches and the hotels of the two biggest travel agencies.

The Khao Lak area splits into two parts. The Khao Lak beach comprises the southern part and in the north lies the cape of Pakarang, where the most Finnish lives were lost. The Khao Lak area and its hotel resorts are shown in figure 23.

By far the biggest losses occurred at the Blue Village Pakarang hotel in the area of the cape of Pakarang. Right next to it is the South Sea Pakarang hotel. The hotel area is shown in figure 24. Evidently, the concentration of wave energy at cape points had its effect here as well.

The Blue Village Pakarang beach is low-lying. There is a lagoon into which rivers run. At low tide, the river beds are practically dry. During high tide, the lagoon may fill up. The lagoon and river beds may have steered the waves.



Figure 24. Tourist map of the Blue Village Pakarang hotel area.

Some of the survivors gave relatively clear recounts on the waves' arrival.

A Finnish tourist guide, who was at her residence on the road leading north from the Pakarang hotels, recounted that at first the wave rolled "along the road" from the north. Prior to the wave, she had observed a strong whirling wind.

A man from Helsinki staying in a two storey building at Blue Village Pakarang said that water came around the building as if from behind and flooded his patio. He could not distinguish a separate tidal wave. It was like a cross-swell, a forceful mass of water moving with strong pressure, and he felt as if he was in a "washing machine".

His friend, who was at the Blue Village Pakarang swimming pool, however, said that from where she was it was possible to clearly distinguish a wave coming from the direction of the lagoon.

In the investigation on the tsunami's arrival, it has been established that the first tidal wave hit Khao Lak at around 10.30. This is also corroborated by the accounts of the survivors.

A woman from Järvenpää had attended a 09.30–10.30 aerobics class at the Blue Village Pakarang. She made it to the pool area just before the wave hit.

Right before the wave hit, many in Khao Lak had received phone calls from Phuket that they had experienced tidal waves.

The Khao Lak survivors' impressions of the number of the waves, their intervals and heights vary. In places around the Pakarang hotel areas, water rose at least to the height of 5,5 metres from the ground.

A man from Espoo, staying in a two storey building at the South Shore Pakarang, witnessed the receding of the water from the beach, approximately 100 metres away, as well as the wave arriving. He managed to get to safety behind the hotel's reception building as the wave rolled ashore. He recounted that several waves arrived at ca. 10 minute intervals. Water ceased to rise between the waves. He and his son first perched on a half-metre tall ledge on the back wall of the hotel reception building, but later on they escaped by climbing onto a nearby utility pole.

The previously mentioned Finnish tourist guide escaped in a tree. She later had her photo taken under the very same tree. Since the guide's height is known, it can be estimated that the branch of the tree, on which she stood, was approximately 4,5 metres high. She clearly distinguished two waves. When the second wave rolled in, water rose to her chest and she had to hold onto the same tree branch with her already badly injured leg.

The previously mentioned man from Helsinki stated that the water level rose roughly to roof height of the two storey Blue Village Pakarang buildings and he estimated the water level to have been 3-4 metres high. Roofs and tree tops could be seen on the horizon.

The residences at the Blue Village Pakarang generally were two storey detached houses, which could accommodate several families. The houses were badly damaged. People are known to have also died in the reception building, which was also destroyed. As the tsunami hit, there were already many people in the hotel pool area.

The dwellings closest to the beach at the South Sea Pakarang were single storey houses, the next closest ones were two storeys and the last ones, close to the edge of the jungle, were three storey buildings. The single and two storey houses were badly damaged. However, the top floors of the three storey buildings remained intact.

A strong wave collapsed on those close to the shoreline. The force of the wave at maximum can be compared to falling into water from a height of 9 metres. There were observations of people close to the shore being tossed into various obstructions, such as fences and concrete walls. In such cases, the chances of survival were low. The wave even hurled people through buildings. Even good swimmers did not necessarily

have any use of their skills in the strong currents. Nor was it possible to escape the wave that had hit the shore by running.

A woman from Hämeenlinna was in an open field between the Blue Village Pakarang pool and the beach. The wave was so strong that it carried her in through one window of a residence and out another.

A man from Lahti was at the pool of the South Sea Pakarang when he saw the wave coming. He ran toward the jungle but the wave caught up with him. He hit a tree and dislocated his shoulder. He found a block of wood and floated with it for a couple of kilometres until he drifted to a hill. He had to spend the night in the jungle where, among other things, you had to be on your guard against snakes. The following day he was found by locals searching for their family members and they took him to the hospital.

When entire families with children have died or disappeared, it is entirely possible that they have been trapped in hotel rooms, even though this cannot be tangibly proven. Since there were thousands of victims in the area, it has not been possible to establish the locations of where they were found. Some of the survivors have been in rooms filled with water, where there were practically no air pockets. However, when water pressure made a window break or wall collapse, they managed to get out.

The Finns, too, who were on the beach of the Khao Lak village, clearly distinguished two waves. Water marks were left even at one kilometre inland from the shore. These marks were noticed by, among others, the survivors of the South Sea Pakarang area, who walked away from the area along a "tractor track" in the terrain. A police boat that provided safety for a member of the Thai royal family drifted about one kilometre from the shore to the edge of the jungle.

The tidal wave, as it rolled in, picked up sand and mud from the shore. Aerial photos show that the shoreline's shape has been greatly changed. Soil was mixed with water. The same phenomenon was observed everywhere in the disaster area. Divers and skin divers reported that they first noticed the tsunami by the water turning black. In many cases sand and mud was found in the lungs, ears and sinus cavities of the dead and injured.

The Blue Village Pakarang area provided many activities for families with children. Some programs, however, were not organized on Boxing Day and a few families had gone on trips inland. The children's Bamse club programmes would have started at 13.00.

### **THAILAND, Krabi**

In the Krabi province, there were 251 Finns on package tours. They were mainly in Ao Nang village, where the tsunami did not cause serious damage. The wave, however, was so strong that it destroyed stone walls and jetties on the shore. Many "long-tail boats" were also destroyed as they crashed into the breakwater.

A reporter from Helsinki arrived at the Andaman Holiday Resort hotel on the beach of Ao Nang on the day of the disaster right after midday. She sent a report to her paper saying that the swimming pool looked like a sewage pool, boats like piles of boards and the garden looked like a hurricane had hit it. Apart from intermittent power breaks, the hotel itself was in proper condition.

Approximately 1 300 people died or disappeared in the province of Krabi. The Phi Phi Island with its many hotels is a major tourist destination. In the middle of the island there are two bays, one of which opens out to the south and the other one to the north. The

ends of these bays are separated by a low neck of land, over which the wave rushed destroying a number of hotels on it. Tjareborg had seven customers on Phi Phi. They stayed at the Phi Phi Island Village on the north-eastern part of the island.

No Finns were mortally wounded on Krabi. Two Finnish women were transported by helicopter to the Krabi Central Hospital for treatment. One of them had a badly hurt knee and she had to remain hospitalised. The wounds of other Finns, too, were treated at the Krabi Central Hospital. Most of them had cuts and bruises.

A woman from Kotka staying at the Aonang Buri Resort hotel saw the waves from her room. There were several waves and she says that the first one arrived at around 11 o'clock. She estimated the third wave to be the biggest one. It reached the hotel's garden but not the pool. The woman and her husband estimated this wave to be around 5 metres. Because of this wave, power went out at the hotel and all patrons were evacuated to another hotel.

A family was on a trip on Hong Island off the coast of Krabi. They were tossed by the wave at ca. 10.45. All of them suffered injuries, the worst of which was the adult daughter's cut to her head. After the wave there were many badly injured and also many dead people on the beach. The people were evacuated from the beach to higher inland on the island. Evacuations back to hotels were done by boat. The local organizers of the trip did not seem to have the ability to take responsibility for evacuating people and no evacuation measures by the authorities could be observed. The mother of the family, a nurse by profession, treated her family's wounds herself once they got back to the hotel.

About ten Finns were on an island off the Krabi coast, approximately 15 minutes by boat from the beach of Ao Nang. The Railey Beach beaches are on this island. No Finns were hurt.

A man from Helsinki was on the beach and his wife was swimming. All of a sudden, the water receded all the way to the edge of deep water. As he was examining the exposed sea shells, he suddenly heard a loud roar. He looked to the sea and saw two large waves coming. Right then he remember a nature document he had seen on TV and realized that a tsunami was on its way. The couple ran to the upstairs of a nearby bungalow. Later on they went to a restaurant on a high mountain, where they spent the night. The Thai volunteers ran the evacuation well and at some stage an Australian man took charge. Many bloodied people were there. The following day all were evacuated first by boat and then by ship to mainland Krabi.

When the tidal wave arrived, Finnish tourists were also on their way by speed boat to the Maya Bay lagoon in the Phi Phi Islands. Close to the shore, the ocean water suddenly turned grey. They had not yet laid anchor and they managed to return to the island of Phuket. However, they had time to see the panic inside the lagoon as divers and skin divers attempted to get back on their boats and the boats tried to escape the lagoon.

### **THAILAND, islands**

Approximately 60 km west of Khao Lak are the Similan Islands and South of Phuket lies the island of Raya Yai. Diving schools organize diving trips to these islands. Among these diving schools were also two partially owned by Finnish diving entrepreneurs. On the Similans and on Rao Yai Finns were in mortal danger.

The Similan Islands comprise of nine islands, which are only numbered, six of which permit tourists while the remaining three are nature conservation areas. Approximately 80 Finns were on the Similans at the time of the disaster.

Fifty-one Finnish tourists attended the trip that was organized by the partially Finnish owned Raya Divers diving school and departed from Tap Lamu harbour for Similan by two speed boats led by diving instructors on 26 December at around 8 o'clock. Approxi-

mately one half of the tourists were Aurinkomatkat customers and the other half Finnmatkat customers mainly from Khao Lak. They arrived at Honeymoon Beach on Similan at 09.30. One half of the tourists went on a support vessel and the other half to the northern bay of island number 4. As the director of Raya Divers explained the day's program to the clients on the support vessel, his business partner sent a "Watch for big waves" SMS from Phuket. His business partner had also notified him of an earthquake in Phuket right after 8 o'clock.

Soon one of the instructors came in and urged the others to look at the beach, which was entirely flooded. The time was 09.35–09.45. For a tide, the water was abnormally high. Soon the water began to recede back. At 10.06, it began to rise again. Now the water reached halfway to the vegetation and began to recede again. The speed boat that had left for the northern bay of island number 4 was radioed to go to the other side of the island. The support vessel, too, went there and those in the speed boat embarked the support vessel.

Another Finnish owned diving school, the Chalong Sea Sport, had organized a four day long sea safari to the Similans. Boxing Day was the safari's third day. There were nine Finns on the trip. The tourists slept on the support vessel, which was tied to a buoy close to the shore but on the deep water side. The vessel was at the mouth of the Donald Duck Bay of island number 8. Divers had already been diving before breakfast. After breakfast, they went to the beach, arriving there at 09.15. Some of the divers swam to the shore wearing skin diving gear; others came ashore in zodiac boats. As they started swimming, the divers were astonished by the strong ebb. They could not get through the coral reef at the edge of the deep and shallow water. However, they found an opening in the reef through which they could get ashore and through which the zodiac also came.

On the beach, they thought that it must have been a case of the strong full moon tidal phenomenon. All of a sudden, the water receded 100 metres from the shoreline. The long-tail boats in the water were beached. Then the water began to rise. The people on the beach were in a willow thicket and water reached chin level. The second wave was so strong that it picked people up with it.

A diver from Hämeenlinna and a mother with her 10 and 12 year old children, who were on the beach, were picked up by the second wave. The diver had time to see that the mother and her children were carried toward the jungle in the "orthodox" feet first position. The diver and a diving instructor stayed, supported by a flagpole. Water then receded to thigh level. Simultaneously, a third wave arrived and they had to climb up palm trees. The diver estimated the depth of the water at over 6 metres. Corrugated tin roofs, toilet waste and oil drifted in the water. Then the water began to recede and the following wave no longer pushed them forward and they managed to get to firm land. The diver found the others in his party at a nearby house. One of them had hurt his leg and another his head. All of them managed to get back to the support vessel at around 13.00 on a zodiac, which had been untied from the buoy as the waves arrived. The captain of the vessel, however, waited until 20.00 hours until he dared to commence the return to port.

The ones on the support vessel of the Raya Divers observed that the sea foamed but they did not see anything else out of the ordinary. All vessels around the Similan Islands little by little gathered in the same spot on the south-western side of the island.

The island of Raya Yai is an important diving industry destination, approximately 25 kilometres to the South of Phuket. On it are hotels, bungalow villages and various travel services. The island is the location of the Finnish Raya Divers diving school's home base and its equipment storage, which was completely destroyed in the disaster. The



diving school daily organizes diving trips to the island. Fifteen customers and three diving school employees were on such a day trip on Boxing Day.

The boat transporting the customers came ashore on the western beach of the island at 09.45. Soon after this water was seen to recede followed by it immediately rising clearly higher than normally. As the second wave came, water rose knee deep on the beach and the staff noticed that all was not normal. They began to usher people to the slope of a hill and to safety. Two of the diving school employees on the island took off on a speed boat to circle the island and to investigate the situation.

A Finnish diving instructor was diving at Raya Yai with her mother. At the depth of ca. 7 metres, they experienced strong currents. The daughter signalled her mother for them to go back to the surface. After they came to the surface, they were in constant danger of being hurled onto the shoreline rocks. The other instructors lifted them to a zodiac and they waited in the boat for several hours until they dared to go ashore.

The tidal wave surprised the on shore day trip diving instructors and they ended up being carried by the wave. Both of them were washed into the diving equipment storage, which was on the shore, but found their way out while submerged. One of the instructors hurt his leg.

A Raya Divers diving party with Finns along was on its way to the island of Raya Yai. However, they did not make it to the island before the tsunami hit. The school's buildings on the shore had disappeared. The waves had moved jetties onto the rooftops of buildings higher up.

All tourists on the island, totalling approximately 250 persons, were evacuated to the Van Raya bungalow village on the East side of the island. In the restaurant of the village, there was a satellite supported standard telephone. This was of great help in communicating because the strength of the cellular network on the island was weak. Two persons were seriously injured and were evacuated to the mainland by military helicopter on the evening of Boxing Day. The others had to spend the night on the island and were evacuated by Navy boat on the morning of 27 December. One English diver on the island perished in the disaster.

## **SRI LANKA**

Sri Lanka is an island state with over 19 million inhabitants. The country's travel destinations are smallish islands on the western and south-western coasts, south of the capital city Colombo. The most important ones are Hikkaduwa, Ahungalla, Beruwela, Bentota, Kalutara and Mount Lavinia.

The tsunami wave caused damage along almost the entire length of the Sri Lankan coastline, most severely on the east coast. Only the area between the capital Colombo up to the northern town of Jaffna was spared from significant destruction. Elsewhere in the country the wave extended 100–1 000 metres in from the shoreline and even further on the low-lying areas of the eastern coast.

According to information supplied by the Centre of National Operations on 23.1.2004, over 38 000 people perished as victims of the tsunami, 15 600 were injured and over 430 000 persons were made homeless. Of the homeless, 225 000 lived in temporary camps established at schools and in the terrain. Only one Finn died on Sri Lanka but

scores were injured or faced mortal danger. After the disaster, the Finnish Red Cross set up a field hospital in the north-eastern part of the island inhabited by the Tamil minority.

Over 75 000 buildings were destroyed and of the country's fishing vessels, over 80%. Roads, railways and bridges, too, were severely damaged. The coastal road leading to the South from Colombo was unusable and, therefore, traffic had to take detours along inland roads.

In Sri Lanka Aurinkomatkat had 167, Tjareborg 227 and Finnmatkat 236 customers on package tours. Independent travellers were also in Sri Lanka as well as Finns who live there during the Finnish winter season.



© Cartographica, Trondheim

Figure 25. Sri Lanka. The travel destinations mentioned in the body of the text are located in the area between Hikkaduwa and Tangalle with the exception of Mount Lavinia, which is immediately to the South of Colombo. The badly damaged town of Galle is close to Unawatuna.

A 66 year old Finnish woman on independent travel perished on Sri Lanka. She was swimming at the beach of Hikkaduwa, was picked up by the wave and drowned. Many Finns on Sri Lanka escaped alive because they were on inland trips when the tsunami wave arrived. For instance, ca. 70 Finnmatkat customers were on such trips. The trips were organized, among other places, to go to the historical inland temples and to the animal park called the “elephant orphanage”.

Those who visited the elephant orphanage later said that a little before the waves arrived, the elephants behaved strangely. They darted off as a herd in a certain direction. The park staff had told them that elephants never behave like that during that time of day.

A man from Oulu driving a jeep in the Yala nature park in the southern part of Sri Lanka had a similar experience. A herd of elephants going toward the shore did a rapid about-face accompanied by trumpeting calls. A moment later, the tsunami hit and the man and his company had to speed to safety in the hills.

Many in Thailand, too, have recounted that animals somehow seemed to sense the tsunami and that they fled before the people did.

### **SRI LANKA, Hikkaduwa**

It has not been possible to establish the exact number of the dead in Hikkaduwa but soon after the disaster people talked about 400–500 dead in the town. According to eyewitness accounts, the waves hit the beach, which lies in a north-south direction, from the south-west. The reason for this is that the tsunami diffracted to the west coast by going around the southern tip of the island.

A couple from Helsinki was skin diving at the coral reef approximately 150 m from the shore when they noticed that the water suddenly got cloudy and came over the reef. Underwater they heard a buzzing sound. They saw people fleeing on the shore and water rising along the wall of a building. The tidal wave flung them over the coral reef and began to carry them away. Once they were washed ashore, they managed to get hold of palm trees but the wife, left on the downstream side, lost her grip. The man went after her. They then were washed into an alley between buildings and got hold of the top of a roof. Then – even unbeknownst to themselves how – they managed to get to the roof of the opposite building.

The third person in the same party was swimming close to the shoreline as the wave arrived. He had been swimming for half an hour when suddenly swimming felt cumbersome. Suddenly the tidal wave came. He was washed along with it until the shoreline where he managed to get hold of a boat and finally onto its mooring line. He hung supported by the line until the water receded and his feet touched bottom. He walked ca. 500 m to the hotel, where his first floor room was completely destroyed.

Based on the accounts of those that climbed into palm trees, the markings on walls and roof top heights the level of the water was estimated at 3–4 m.

In Hikkaduwa the bed of the railway parallel to the shore and its tracks were shifted in places by 10 m. The worst railway accident in the history of the country was caused by the tidal wave hitting a train resulting in approximately 1 200 persons perishing.



Figure 26. The alley into which the couple from Helsinki was washed. At first they managed to get hold of the eaves of the house on the right and subsequently they managed to get on the roof of the house on the left.

### **SRI LANKA, Beruwela-Bentota**

Two tidal waves were observed in Beruwela. Initially the first one was thought to be a stronger-than-normal full moon tide. It arrived around 09.30. At breakfast time the patrons and staff at Hotel Bayroo noticed that sea water had flooded the beach. The water kept on rising and soon reached the hotel yard. Finally, it flowed onto the floors of the hotel reception and first floor rooms. Already this wave carried boats and flotsam onto the courtyard of the hotel.

The second wave arrived at around 10.30. It was significantly stronger than the first one. Many of the hotel customers fled to nearby hills and several to the top floors of the hotel and to rooftops.

At around 10.30, the human resources director of a Finnish travel agency was in the yard of hotel Bayroo trying to escape to a hill ca. 300 metres away. He looked back and saw the wave coming through the hotel building. Water completely flooded the ground floor. Later on it was noted that the South side of the hotel had collapsed. The wave picked him up. Soon he noticed a telephone pole and clutched onto it. The water level was about 3–3,5 m. He estimated that he spent approximately 30–60 minutes on the pole. He was afraid that the cars the wave had picked up, and which were floating in the water, might hit either him or the telephone pole thereby snapping it. Then the water steadily receded. When it was chest-high, the man waded to a nearby house and as water still receded, to the roof terrace of his hotel.

The ones who had fled to the hotel's roof terrace left it around 13.00 to go to a temple on a nearby hill, where people were gathering from everywhere. At this stage, water was still knee deep and the roads were filled with debris. In Beruwela, too, people were known to have died. One staff member of Hotel Bayroo, among others, was killed.

## THE MALDIVES

Seventy-four persons died or disappeared from the Maldives. At the time of the disaster, there were seven Tjareborg customers on the islands, all of them at the Kuredu Island Resort hotel. The hotel was not damaged in the disaster and its patrons were in no danger. A satellite phone facilitated good communications to the hotel at all times.

### 1.3 Measures taken in Finland on 26 December

The tidal wave generated by an earthquake hit the west coast of Thailand at 05–05.30 Finnish time. The Indonesian earthquake was mentioned for the first time in Finland in the Finnish News Agency's newflash and after that, on the Finnish Broadcasting Company's (YLE) Radio Suomi and on Radio Nova. At around 05.15 Air Finland's change crew called the company's 24 hour traffic service number in Finland by mobile phone and reported that a tidal wave had hit Phuket. At about 05.45, the emergency number of Aurinkomatkat received a message about the tidal wave and the official on duty at the Ministry for Foreign Affairs' Communications Centre received a similar message. The Communications Centre forwarded the call to the official on duty in the ministry's Unit for Consular Services, who subsequently informed the official on duty in the Unit for Consular Services at Finland's Bangkok mission. A private person from Finland had also informed him of the event. The Ministry for Foreign Affairs requested the embassy to provide a report of the situation. At 06.47 Finnish time Finnair received the aviation authorities' message of the closing of Phuket's airport due to a tsunami. At the same time the State Secretary of the Prime Minister's Office received a phone call from his family member in Thailand. He mentioned the tidal wave and said that for his part everything was all right. In the 07.00 Radio Suomi broadcast Finns in the disaster area were interviewed regarding the devastation caused by the tidal wave.

The messages that arrived in the morning regarding the closing of Phuket's airport as well as phone calls to travel agencies' service numbers and to the Ministry for Foreign Affairs' Communications Centre triggered immediate internal action in the ministry and in companies. At 08.30 Finnair's crisis leaders were alerted. The official on duty at the Unit for Consular Services had notified the head of the Unit at 07.05 of the phone call concerning the tidal wave. The Finnish Red Cross began to alert its staff and aid workers at around 09.00. Travel agencies' offices were manned and by midday, their crisis management groups were operating.

During the following hours messages came to travel agencies' service numbers, to Finnair, to the officials on duty at the Ministry for Foreign Affairs and at the Ministry of the Interior, to the Helsinki Emergency Response Centre, to the Finnish Red Cross and to the media. At this phase, information was incoherent and there was no overall picture of the catastrophe. From the areas worst affected there was hardly any information because communications had broken down. When persons over there noticed that SMS messages managed to get through information began to arrive from these areas as well.

At 07.30, the Ministry for Foreign Affairs received a message by phone regarding a tidal wave in Sri Lanka. The consular officer at the New Delhi Embassy heard about the earthquake on the news. An hour later upon arriving at the embassy she heard that the tidal wave had hit the coasts of India and Sri Lanka.

At 08.05 YLE interviewed the Ministry for Foreign Affairs official on duty at the Unit for Consular Services for the Radio Suomi 08.30 morning newscast. Half an hour later, the official on duty at the Department for Rescue Services of the Ministry of the Interior received a message regarding a tidal wave having hit Thailand. The UN's humanitarian aid office OCHA and the EU's monitoring and information centre MIC notified the Helsinki Emergency Response Centre that they had activated themselves and had decided to send observers to the disaster areas. During the morning, the UN's information channel *Virtual OSOCC*'s internet pages began to display compiled information of the event and of the authorities' actions in various countries. Monitoring this information source is not part of the duty official's tasks and, therefore, the data was not immediately available at the Ministry of the Interior.

The Ministry for Foreign Affairs' Unit for Consular Services decided to open the Crisis Response Centre (crisis centre) at 09.25. Once the duty officials were summoned, the crisis centre was able to be opened at 10.45. Its phone numbers were made public. At the crisis centre's disposal were three telephone lines, which had no facilities for queuing. The task of the crisis centre was to collect information on missing persons and to relay this information to the Bangkok mission for search and rescue activities. Alarming information poured into the crisis centre but the Ministry for Foreign Affairs was unable to form an exact picture of the seriousness of the situation and to forward this picture.

Approximately 10 o'clock it was decided to divert the Finnair plane, which was enroute to Phuket, to Bangkok instead because it was uncertain whether it was possible to land in Phuket. The passengers were informed of the tidal wave in Phuket. About one hour later Air Finland established a crisis management group.

The first official information on the event reached the Ministry for Foreign Affairs at 11.10 when the Bangkok mission sent its report. Foreign newscasts and TV networks (BBC, CNN) began to report additional facts. The Finnish media, too, began to expand its information gathering networks but regarding the situation of Finns, the information did not become more accurate. The UN and the EU authorities informed the Ministry of the Interior duty officer of their undertakings.

The Prime Minister's and the Foreign Minister's assistants notified them of the natural disaster by SMS. Members of the Government and the most important officials were informed of the event by noon but because of an inadequate situation picture, the information was insufficient.

At 14.00 Finnair and travel agents decided that no more tourists would be flown to the area and that the travel agencies' customers would be flown back home. Simultaneously, the duty officer at the Ministry of the Interior got word that the phone numbers published by the Ministry for Foreign Affairs did not work because right after a taped message every phone call was disconnected. The Ministry for Foreign Affairs' consular duty official was notified of the matter but nobody could do anything about the situation.

During the night of 26–27 December the Finnish Embassy in Thailand became aware of the catastrophe's scope but not of the death toll. Information supplied by Thai and Indian authorities was conservatively estimated.

The Ministry for Foreign Affairs' crisis centre became jammed in the very beginning. Citizens received information of the event by mobile phone from family members or from acquaintances in the disaster area as well as by following the internet and foreign TV newscasts. Active measures taken by the Finnish diving enterprise Raya Divers in Thailand as well as a list of Finns on the internet also helped to provide more information.

#### **1.4 Action taken by the Finnish authorities**

##### **1.4.1 Measures taken by the Government leadership**

The Prime Minister decided that the Coordination Board of Government Chiefs of Preparedness would be put in charge of activities instead of the Government or the Ministry for Foreign Affairs, which in this case would have been the competent ministry. Ministries executing the decisions of the Coordination Board of Government Chiefs of Preparedness were the Ministry for Foreign Affairs, the Ministry of the Interior, the Ministry of Transport and Communications and the Ministry for Social Affairs and Health.

The Government Information Unit took overall charge of public information arrangements. Press conferences were held almost daily either at the Government Palace press room or at the Ministry for Foreign Affairs. The Prime Minister and the Foreign Minister gave a situation update and answered the questions of the media. The Prime Minister held the most extensive press conference on 2.1.2005 at the Helsinki-Vantaa airport after all evacuation flights had been flown. At this press conference, the representatives of all relevant actors addressed the media.

The Prime Minister's Office kept the President of the Republic informed of the situation. The President held a press conference at the Presidential Palace on 29.12.2004. Her televised New Year's address exclusively dwelled on the natural disaster in Asia.

##### **1.4.2 The activities of the Coordination Board of Government Chiefs of Preparedness**

In addition to ministries, the representatives of the Finnish Red Cross, travel agencies Aurinkomatkat and Finnmatkat also participated in the first meeting of the Coordination Board of Government Chiefs of Preparedness on 27.12.2004 at 08.30. In the meeting, decisions were made regarding the crisis composition of the Coordination Board of Government Chiefs of Preparedness, operational management of implementing the measures, compilation of the situation picture, arrangement of crisis assistance and public information. It was also decided that all Finns in the disaster areas would be evacuated back to Finland as soon as possible and, if necessary, at the government's expense.

The following meeting of the Coordination Board of Government Chiefs of Preparedness took place in the evening of 27.12. at 17.00 in the composition agreed upon during the morning meeting. This set-up comprised of the Prime Minister's Office, the Ministry for Foreign Affairs, the Ministry of the Interior, the Ministry of Transport and Communications and the Ministry for Social Affairs and Health as well as representatives of the Finnish Red Cross, travel agencies and Finnair. After the situation update, it was decided that the responsibility for evacuation flights would be given to Finnair and the responsibility for medical arrangements would be given to the Finnish Red Cross. Evacuation



flights were to be flown twice a day from 28.12.2004 to 1.1.2005. This would provide enough capacity to evacuate the 2 300 Finns in the disaster area who were on the travel agencies customer lists as well as willing independent travellers. Travel agencies were to take care of evacuations from Sri Lanka. It was decided that the Finnish Red Cross would deploy a nine member medical team to the disaster area in Thailand and that it would coordinate the patients' return and follow-on treatment arrangements in Finland with the Hospital District of Helsinki and Uusimaa. It was also decided that the aim was to direct Finns in the disaster area to designated gathering centres.

After the situation update on 28 December at 17.00 the Coordination Board of Government Chiefs of Preparedness decided that the Finnish Red Cross would dispatch a 15 member reinforcement team to Phuket, the National Bureau of Investigation and a two-member identification team and that the National Bureau of Investigation would henceforth take overall responsibility for maintaining a list of the missing. The Ministry of the Interior was to prepare a bulletin on the decisions. In addition, it was decided that disaster relief materiel would be carried on every flight to Thailand. The Ministry for Social Affairs and Health reported that it was prepared for contagious diseases. Finnish embassies were to see to the connecting transportation to Finland of those Finns flown to the other Nordic countries

After the situation update on 29.12. at 17.00 the Coordination Board of Government Chiefs of Preparedness decided that the Finnish Communications Regulatory Authority, together with mobile service operators, would send a mass SMS message urging Finns to leave the Phuket area for reasons of health and safety. The Finnish Red Cross was responsible for all aid and relief activities concerning Finns. The Ministry of the Interior was tasked to investigate the possibilities for publishing a list of the missing as well as to gather the names of Finns permanently residing in the area and to prepare a plan for receiving the repatriated deceased. The Ministry of Education was to draw up a general guideline for schools on how to observe the event in the opening ceremonies of the spring term. The Ministry for Social Affairs and Health had overall responsibility of medical care and psychosocial assistance of the evacuees.

The chair of the Coordination Board of Government Chiefs of Preparedness, meeting with his aides on 30.12. at 08.30, decided to book a B747 air ambulance flight from Fin-nair. Preparations were to be started immediately.

After the situation update on 30.12. at 17.00 the Coordination Board of Government Chiefs of Preparedness decided that the Finnish Red Cross would prioritise the ones to be evacuated from Thailand, also taking into account independent travellers, and that in cooperation with the embassy, the Finnish Red Cross would notify the travel agencies of their respective quotas on each flight. It was decided that the Ministry of the Interior and the Ministry for Social Affairs and Health would take care of evacuation arrangements also at other Finnish airports, that the Ministry for Foreign Affairs send reinforcements to the Finnish Embassy in Thailand and that the Ministry of Finance would start calculating a cost estimate.

After the situation update on 31.12. at 12.00 the Coordination Board of Government Chiefs of Preparedness decided that evacuations were to be completed by 2.1.2005 and that the Finnish Red Cross prepare to continue its activities in the disaster area. In addi-

tion, it was decided that henceforth every ministry would be responsible for issues under their respective purview. It was noted that the National Bureau of Investigation's list of the missing was performing its function and that a unit for searching for the deceased had arrived and activated itself in Thailand.

After the situation update on 3.1.2005 at 17.00 the Coordination Board of Government Chiefs of Preparedness decided that a group looking into the economic and judicial issues related to evacuation flights would be established, that the State Treasury would prepare to assist those travellers without travel insurance and that travel agencies would continue to receive information from the National Bureau of Investigation on those reported missing. The National Bureau of Investigation reported that victim identification is cumbersome and slow and that they need reinforcements for the task. The participants of the meeting were told that the Parliament was expediting the updating of the Act on Declaring a Person Dead (the new Act entered into force on 9.3.2005) and that the Government would appoint an Accident Investigation Commission to investigate the disaster. It was noted that the Government Chiefs of Preparedness would end activities regarding the evacuations.

#### **1.4.3 Measures taken by the ministries**

Along with the Prime Minister's Office, which coordinated all activities, the Ministry for Foreign Affairs, the Ministry of the Interior, the Ministry of Transport and Communications, the Ministry for Social Affairs and Health and the Ministry of Education were the competent ministries concerning the evacuation. All of them, in their own jurisdiction and expertise, executed the decisions taken by the Government Chiefs of Preparedness. In addition to that they allocated personnel resources for the task, provided public information, organized themselves as well as planned for follow-on measures and for any required psychosocial measures regarding their own personnel.

##### **Ministry for Foreign Affairs**

Activities at the ministry commenced on 26.12. at 06.15 when the official on duty at the Communications Centre of the Ministry for Foreign Affairs received a phone call where the caller reported that three of his family members were washed out to the sea by a tidal wave in Thailand. Based on the report received from the mission in Bangkok during the same day it was decided that the deputy chief of mission along with an assistant would travel to Phuket to establish a temporary consular office. Both of the ministers in the Ministry for Foreign Affairs were informed of the situation by phone in the afternoon.

In the morning meeting of the Coordination Board of Government Chiefs of Preparedness on 27.12. it was decided that the overall command of activities in the disaster area as well as of the evacuations and inter-authority cooperation was assigned to the Ministry for Foreign Affairs, which was the competent ministry in the issue. The Director of the Unit for Consular Services was designated as the person in charge. He represented the Ministry for Foreign Affairs in all meetings of the Coordination Board of Government Chiefs of Preparedness.

The capacity of the Ministry for Foreign Affairs' crisis centre to receive phone calls was immediately overloaded, nor was it otherwise ready to operate. Finnair's call centre offered its 25 phone lines to the Ministry for Foreign Affairs, but the Ministry for Foreign

Affairs did not consider this necessary. The operation of the crisis centre only improved in the morning of 28.12. when the number of phone lines was increased to five and the system was supposed to have a 20 person queuing possibility. It was not until 1 March that it became evident that the phone service operator had installed the service under the misunderstanding that the crisis centre would have had 20 additional phones and duty officials. Instead, at the Ministry for Foreign Affairs it had been assumed that a 20 person queuing service was to be installed. Due to this misunderstanding, the queuing option did not exist. During the crisis the phone line was called 67 000 times, 6 000 of which went through. Altogether approximately 150 volunteers manned the crisis centre taking turns. The phone calls primarily concerned the missing, about whom information was first written down and then transferred to tables. The reporting and noting procedure on the missing operated insufficiently and it only started to work properly once the responsibility was transferred to the National Bureau of Investigation.

The resources of the mission in Bangkok soon proved to be insufficient and the Ministry for Foreign Affairs had to continuously send reinforcements as well as additional equipment to the area. Even in spite of that, the personnel became exhausted and they had to be ordered to take a rest after the evacuation operation ended.

Arrangements for humanitarian aid commenced on 27.12. and the first decisions were made on Thursday 30.12. when the minister returned to her workplace. During the first phase, a total of €4.5 million in relief aid was granted. In the second phase on 6.1.2005 a total of €7.5 million was earmarked to the Finnish Red Cross, the World Food Programme, the World Health Organization, UNICEF, FinnChurchAid, Fida International and to Save the Children. A reserve of €8 million was left untargeted. All in all the Ministry for Foreign Affairs granted €20 million in humanitarian aid.

### **Ministry of the Interior**

The Director General of the Department of Rescue Services, also doubling as the chief of preparedness of the ministry, participated in the Coordination Board of Government Chiefs of Preparedness. In addition, as the role of the police became more important, representatives of the Police Department and the National Bureau of Investigation participated in the meetings as well.

**The Department of Rescue Services** was responsible for delivering aid personnel and equipment to the airport, which was then to be flown to the disaster area. Based on the Rescue Act, the Ministry of the Interior also decided to publish a list of the missing and subsequently, to discontinue publishing it. The ministry studied in great detail the possibility of deploying the rescue element FinnRescueForce to the disaster area. However, since the requirements for medical care and humanitarian aid were seen as having precedence, the force was not deployed. Nevertheless, by utilizing the FinnRescueForce system, on Tuesday 28.12. materiel aid was sent to the countries affected by the catastrophe in Asia. In addition, a four-member FinnRescueForce group was sent to Thailand on 30.12. as part of a Disaster Victim Identification (DVI) unit led by the National Bureau of Investigation. This group returned to Finland on 10.1.2005.

**The Frontier Guard Department** was mainly involved in border control at the Helsinki-Vantaa airport, where the Helsinki border control detachment, subordinate to the Gulf of

Finland Coast Guard District, is in charge. Ninety-eight border guards participated in the activities.

The Frontier Guard made preparations for using its Super Puma helicopters to airlift patients from Helsinki to hospitals elsewhere in the country. This, however, was unnecessary.

The official on duty at the top command of the **Police Department** received a message about the catastrophe from the National Bureau of Investigation on 26.12. at 14.00 and subsequently informed the Minister of the Interior and two police commanders of the event by SMS. On 27.12. at 11.10 the official on duty at the Department for Rescue Services informed the Police Department's duty official of the disaster and notified him of the information received regarding help requests. The devastation in Thailand was much more extensive than what had been told to the public. At 13.50 the Department for Rescue Services requested the police to prepare for the arrival of travellers at the Helsinki-Vantaa airport, who were evacuated from the disaster area. At 15.00 the chief of the airport police provided more exact information on the ones arriving as well as on agreed arrangements. In the afternoon, the support functions' command element was activated at the airport and from then on, it convened daily and, led by the airport unit of the National Traffic Police, it coordinated the measures concerning evacuation flights as well as reception arrangements for the evacuees.

On Tuesday 28.12., the senior officer of the Rescue Services briefed the police high command of the situation and requested the readiness of the police's Disaster Victim Identification unit be raised. Based on negotiations conducted during the day and because of assistance requests received from Thailand and from Interpol it was agreed with the National Bureau of Investigation that a 2–6 person strong DVI unit would go to the area.

On Wednesday 29.12. it was decided that the strength of the DVI group would be 5 persons and that the rescue branch and the Ministry for Foreign Affairs would second the same number of people. In addition, it was decided that another group led by the police be established, represented by the police, the Ministry for Foreign Affairs and the Office of the (Lutheran) Church Council. Representatives of the police high command and the National Bureau of Investigation also henceforth participated in the meetings of the Co-ordination Board of Government Chiefs of Preparedness. The police established an Asia group, exclusively tasked to concentrate on issues related to the natural disaster in Asia.

On Thursday 30.12. plans were drafted for the repatriation of the deceased, communications and for a list of the missing. On the following day, 31.12. the guidelines for delivering the news of a family member's death and the reception arrangements for persons returning from the disaster area were issued, as well as directions on the national project code. On Sunday 2.1.2005, directions on the coroner's inquest (investigation of the cause of death) and on heightened police surveillance around the homes of the missing were issued.

As soon as the evacuation phase was over, the police's Asia group concentrated on issues related to the missing, to repatriation and victim identification. Reinforcements were dispatched to Thailand for disaster victim identification tasks and on 5.1. a request for executive assistance on guarding the refrigerated morgue containers containing the

repatriated dead was made to the Defence Staff. A reception ceremony for the first deceased was held at the airport on 10.1. and the personal information of all missing persons was given to the Ministry for Social Affairs and Health.

Representatives of the State Provincial Office of Southern Finland participated in activities at the Helsinki-Vantaa airport under the auspices of, inter alia, the support functions' command element.

### **Ministry of Transport and Communications**

Along with the Ministry for Foreign Affairs and the Ministry of the Interior, the ministry was instrumental in the decision-making regarding the measures required to manage the disaster. Within the ministry's sphere of authority, the **Finnish Civil Aviation Administration** from the very outset fully authorized the Helsinki-Vantaa airport to perform any required activities, including necessary temporary structures and other arrangements. The airport provided all requested services without any problems and the normal operation of the airport was never affected. The Flight Safety Administration flexibly provided the required exceptional permits for airline working hour regulations and, inter alia, for the ambulance aircraft's temporary structures. The **Finnish Communications Regulatory Authority**, in cooperation with mobile service providers, sent the mass SMSs requested by the Government Chiefs of Preparedness to Thailand and Sri Lanka.

### **Ministry of Education**

The ministry issued guidelines on how to approach the Asian catastrophe at the beginning of the school spring terms. In the ministry's sphere of authority, the **Church Council** activated its crisis organization and gave directions to parishes, to its employees in Thailand and to the employees participating in repatriating the deceased. A representative of the Church Council also participated in the meetings of the chiefs of preparedness. The **Psychosocial Assistance of the Church** was activated at the airport, where 80 persons participated in its work. **FinnChurchAid** initiated its operation in India and Sri Lanka by assisting its local cooperation partners. The **Finnish Evangelical Lutheran Mission** had six workers in Thailand who participated in the relief activity by searching for Finns in hospitals, by interpreting and by providing mental support to the victims. This support proved to be extremely important to victims of the disaster, who were alone and anxious.

### **Ministry of Social Affairs and Health**

The ministry immediately activated health care preparedness measures throughout hospital districts and with the help of the Finnish Red Cross. The ministry's task, in cooperation with the Finnish Red Cross, was to provide emergency care for the affected in the disaster area, to facilitate the evacuation flights' health care services and to provide the evacuees with medical care and mental support at the Helsinki-Vantaa airport. The ministry also began preparations for long-term activities, for instance, in the field of psychosocial support. Representatives of the Ministry of Social Affairs and Health continuously participated in the meetings of the Coordination Board of Government Chiefs of Preparedness.

The Ministry of Social Affairs and Health arranged meetings in which the ministry, its subordinate branch of administration, organizations and other bodies representing survi-

vor's pension security, and other social insurance participated. The meetings dealt with the catastrophe's after-care as well as management of employment pension, survivor's pension and accident insurance cases, along the principles of informing of these matters and agreeing on the practices of how to pay the benefits. Protection of privacy issues regarding the name lists of the missing and the ones who had returned initially created some problems.

### **Ministry of Justice**

The ministry's web page [www.om.fi](http://www.om.fi) contained an information package on the judicial questions regarding a person's death or disappearance. During the first week alone over 3 000 hits were registered. On 1.2.2005, the Ministry of Justice established two phone lines dedicated to the victims of the disaster and their family members. Public legal advisers provided legal guidance to callers and, during the first two weeks, lawyers also provided advice on the help line. Advice was provided in Finnish as well as in Swedish. Calls mostly dealt with estate inventories and division of inheritance, declaring a person dead as well as financial and money matters. Questions of trusteeship and the status of orphaned children were also made. By 22.4.2005, the help line received 148 phone calls.

Private advocates have also provided advice and taken cases pro bono. Over one hundred legal offices or advocates signed up for the catastrophe assistance organized by the Finnish Bar Association.

**The Ministry of Defence and the Defence Staff** mainly supported the activities of the Finnish Red Cross and the police by providing materiel assistance and guarding as executive assistance. The possibility of using the Air Force's transport aircraft for follow-on transportation mainly from various European airports was investigated but these services were not needed.

The **Consumer Agency**, part of the administrative branch of the **Ministry of Trade and Industry**, on its web page [www.kuluttajavirasto.fi](http://www.kuluttajavirasto.fi) provided extensive information to consumers on trips, cancellations, reimbursements, insurance, compensation of damage, management of money matters, etc. in relation to the Asian crisis.

After the primary situation in the disaster was over, each ministry initiated internal activities to eliminate the shortcomings observed during the management of events. The Ministry for Foreign Affairs launched an extensive internal inquiry regarding its entire sphere of authority. This inquiry was completed on 28.1.2005.

## **1.4.4 Activities of Finnish missions**

### **1. Thailand**

The Finnish Embassy in Thailand is also co-accredited to Cambodia, Lao People's Democratic Republic and Myanmar. The mission's personnel at the time of the disaster comprised the ambassador, the seconded officials and 10 locally hired persons, four of whom were Finns. Outside office hours, an official is the mission's official on duty for Consular Services for a week at a time. The duty official's phone number is given in the taped welcome message on the embassy's answering machine.

The ambassador, visiting his Thai acquaintances, was informed of the event at approximately 13.00 when the deputy chief of mission called him. The Thais did not consider the information on the tidal wave as credible and, instead, thought that a storm was in question. After having received additional information on the situation, the ambassador went to the mission at around 18.00. At 16.00, the mission had sent its first report regarding the situation to Finland. At 21.00, the deputy chief of mission and the ambassador's secretary flew to Phuket on a flight organized by the Thai Foreign Ministry and once they arrived, established a temporary consular office at the airport. Another consular point was later established at city hall, where the Thai authorities had established a crisis centre. During the night, the deputy chief visited the Phuket Hospital and also received patient information from the other hospitals in the area. Sending them by telefax to Finland, however, failed.

During the following days, the consular station concentrated on writing travel documents for Finns that had lost their passports. In the beginning, the Thai authorities required a very bureaucratic procedure with photos and fingerprints until the ambassador managed to agree with the Thai Foreign Ministry on a simplified procedure, according to which a certificate from the mission alone sufficed as a travel document.

The mission coordinated the arrangements of the evacuation flights with the Finnish Red Cross and Finnair and helped Finns to get on these evacuation flights. Especially the independent travellers required assistance. Since the injured took precedence over the others, the following quotas were agreed upon with the travel agencies: Aurinkomatkat 2/5, Finnmatkat 2/5, Tjareborg 1/5 and 5 seats for every agency to be used by the mission, which translated into 15 seats reserved mainly for independent travellers.

On 27.12. the consular station was reinforced by two persons and another four persons seconded from Finland came to Phuket to set up a liaison office. The embassy was reinforced by two persons seconded from Finland on 29.12., by four persons on 31.12. and by three persons on 7.1., who were sent to clear the backlog of the mission's other tasks.

The ambassador was in Bangkok on 26–28 December, where he participated in an information and discussion event organized for foreign missions by the Thai Foreign Ministry and he also met the Thai Prime Minister, who in turn informed the ambassador on the measures taken by the Thai government. Simultaneously, the employment of Finnish volunteers living in Thailand, who had arrived in Bangkok and Phuket, was organized.

In the initial phase, the situation was fairly chaotic and Finns were searched for several times in different hospitals in Phuket and Bangkok, since patients had to be transferred to other hospitals due to lack of space. In the beginning, searches and assistance were conducted by the staff members of a Finnish diving company, travel agencies and later on by the staff of the Finnish Red Cross and the EMA-Group together with the workers from the Finnish Evangelical Lutheran Mission. After 27.12. Finland's mission no longer had the capacity to carry out searches.

In 2001–2002, the Ministry for Foreign Affairs' Unit for Consular Services issued all missions a written directive on services in a crisis as well as a directive on preparedness and evacuation plans. The Bangkok embassy had drafted a preparedness and evacua-



tion plan, dated 18 October, 2004, for Finns in Thailand, Cambodia, Laos and Myanmar. The plan emphasizes that even in spite of directives, every person is primarily responsible for his own safety and for the safety of his family. A comparable directive for tourists does not exist. Finland's Embassy in India, too, has made a similar plan.

## **2. India**

In addition to India, Finland's New Delhi Embassy bears responsibility over Sri Lanka and the Maldives. At the time of the disaster the mission's manning, in addition to the ambassador, comprised of four persons and after 28.12. six seconded officials. During the weekend, the embassy has an on duty official at home. Outside office hours on weekdays, phone calls are diverted to the guards of the mission, who are able to contact the embassy staff.

The mission received the news of a tidal wave in the morning of 26 December through local TV channels and from the BBC and CNN morning news. In the afternoon, the mission received more accurate information from the Finnish honorary consul in Tamil Nadu, across from Sri Lanka, regarding the actual devastation caused by the tidal wave. Due to bad communications, it was not until 27.12. when travel agencies could provide information and then it was decided that a consular official be dispatched to Colombo. She began her work there on 28.12. The mission sent a daily situation update to the Ministry for Foreign Affairs. Neither the Maldives nor the Finnish tourists there could be contacted.

The consul dispatched to Colombo wrote travel documents for Finns and, together with other EU missions and especially that of Sweden, assisted the ones to be evacuated with transport and with getting them on the flights. Independent travellers, here as well, were the ones that required the most help. The Colombo temporary duty was terminated on 5.1.2005.

## **3. Indonesia**

Finland's Embassy in Jakarta, in addition to the ambassador, comprised of two seconded officials and five locally hired persons. The disaster did not cause any tasks out of the ordinary to the mission.

## **4. Malaysia**

Finland's mission in Kuala Lumpur had three persons present, one of whom was a locally hired person. The ambassador was on vacation in Finland. The disaster did not cause any tasks out of the ordinary to the mission.

### **1.5 Activities of companies, organizations and communities**

#### **1.5.1 Activities of the travel agencies**

##### **1. Aurinkomatkat Oy**

Aurinkomatkat is a Finnish travel agency, owned mainly by Finnair Oyj. The person on duty for Aurinkomatkat received information of the disaster at 05.15 Finnish time, when the Phuket destination manager phoned the emergency service number of the office's person on duty. A similar message received from Sri Lanka arrived at 06.45. The com-

pany's management received information of what had happened at around 07.00. Staff began to gather at the office and by 09.00 its crisis centre was activated. Later on there were 11 persons taking phone calls in the Aurinkomatkat crisis centre.

Traveller information was compiled in a single database. Information on the travellers that were contacted was also entered into the database. Information was actively sought from various files (so-called divers list, hospital web pages of countries in the area, etc.). The following day tour guides actively began to look for their customers in hospitals.

The Phuket destination manager informed them that the company's office on Karon Beach, including computers and customer information, was totally destroyed. Some of the hotels were damaged. On Patong Beach, even four out of five hotels were damaged. The destination manager also told the office and Finnair that the beach resorts in Phuket were unable to accommodate the customers, whose flight was about to arrive in Phuket on 26.12. in the afternoon, local time. The customers who were scheduled to return on the same plane had fled to the hills, to the top floors of hotels and to rooftops. They would not have made it to the airport anyway, because roads were covered by mud and debris. Furthermore, the Phuket airport was closed.

The flight to Phuket was already in the air after a stopover in Ahmadabad, India, when Finnair was informed that the Phuket airport was closed. The flight was ordered to divert to Bangkok. The aircraft later brought back Aurinkomatkat customers, the first to be evacuated. For the first night, Finnair put the travellers up at airport hotels. Aurinkomatkat offered them a choice of either flying back home on a regular flight or to continue on the trip to other, safe, destinations in Thailand. The majority of them, i.e. 200 out of 227 passengers, chose the latter option.

At around noon on Boxing Day Aurinkomatkat and Finnair agreed that for the time being, they would stop the flights to Phuket for two weeks. During the same day discussion on continuing the trips were conducted with other travel agencies as well. As it turned out, trips to Phuket were discontinued until early February. Trips to Khao Lak in Thailand and to Sri Lanka were discontinued until further notice.

Aurinkomatkat had 11 tour guides in Thailand and 5 in Sri Lanka. Destination managers were in Phuket and in Krabi. As early as the evening of Boxing Day, five additional persons were sent to Phuket, 3 from Finland and 2 from other parts of Thailand. They arrived on Monday 27.12. Later on, 4 more persons were sent from Finland.

The Phuket destination manager already started to go to the Kata Beach and Karon Beach hotels at noon Thailand time on 26.12. Over the next 5–6 hours, the manager had visited all Aurinkomatkat hotels. Customers were instructed to stay at their hotels. Those who had fled to the hills or elsewhere outside the hotel area could spend the night at the hotels where only the ground floor had been destroyed. They were told in person as well as by bulletins on notice boards that every day at a given time there would be a briefing at every hotel.

One Karon Beach guide stayed there to help people and one went to Patong Beach. All tour guides on Patong Beach, however, were told by the authorities and hotel staff to move to the hotel roofs for reasons of safety.

The Khao Lak village office by the main road remained intact. The two guides in it, however, had to move to the hills encircling the beach for the first 24 hours. Having made it to the meeting point organized by the locals the next day and later on to the temple school, they could participate in traveller evacuation and organizing transport. On Tuesday 28 December, the guides participated in the evacuation of the Finns that still remained at the Takuapa Hospital. During the entire time of the situation, the guides worked in close cooperation with the staff of the diving school Raya Divers.

All of the travellers brought to Phuket Town could not be accommodated in hotels. Emergency accommodation was organized for them at a school close to the Phuket city hall evacuation centre, where office staff and doctors were available. Two Aurinkomatkat hotels were damaged in Sri Lanka, but nobody was injured. Travellers were transported by bus to Colombo, where they were accommodated in one hotel. They flew back to Finland on their normally scheduled day of return.

The Boxing Day evening Finnair flight to Phuket, which carried Aurinkomatkat reinforcement personnel, also carried a doctor and two nurses representing the EMA-Group, as commissioned by Finnair.

By 01.00 on 27.12. in Phuket the tour guides managed to compile lists of those getting on the first evacuation flight. The Finnair charter aircraft that had been diverted to Bangkok on Boxing Day arrived in Phuket in the morning of 27.12. and brought the first evacuees back to Finland. The following day the evacuation programme continued in cooperation with the various travel agencies.

## **2. Detur Finland Oy**

Detur Finland Oy is part of an international corporation and its parent company is Detur International from the Netherlands. The owners of the conglomerate are mainly Turkish and the corporation actively operates within the Turkish tourist industry.

The managing director of the Finland branch was informed of the disaster right after 07.00 when the managing director of the Sweden branch called him. He had received the information from the company's destination manager in Phuket. The destination manager, in turn, had heard it from the tour guides. The guides were on their way from one hotel to another when the authorities ordered them to go to the hills for safety. Already at this stage, communications were breaking down.

In Phuket Detur had a destination manager, two guides and an office manager, who worked in the office of a local agent. One of the guides was off duty. The destination manager and the second guide were in the office. The office manager and the agent were travelling by car to Khao Lak but did not manage to get through. On their way, they witnessed the disaster. At the office, the destination manager heard the Thai authorities' announcement that due to the tidal wave, they have issued a curfew in the area and that everyone had to return home. He began to make phone calls from his home and soon managed to pass the information up the chain of the organization. The destination manager lived in a house high on a hill and 1 500 persons who had escaped the tsunami soon gathered in his yard.

The Detur Helsinki office was manned. In the evening of the same day, a flight was supposed to take off for Phuket. One employee began to call and notify the customers of

the flight cancellation. Additional personnel was not sent from Finland since in Thailand Detur has locally hired personnel who speak the Thai language. The destination manager's phone operated, with the exception of a total break in service between 16.00–19.00 local time, so that he could be in continuous contact with the Finland office. In the Phuket area, on the other hand, communication was difficult because 95% of all phone calls did not go through.

The curfew was lifted at 16.15 local time and at 16.30 Detur's staff convened at the Phuket office. By 20.00, they had made contact with all hotels. During the evening, they visited all Patong Beach hotels twice. Due to traffic restrictions, they were only able to make it to Karon Beach hotels the following morning but they could keep their customers posted by means of fax and phones. All customers could not be contacted. The first Detur evacuation flight departed on 27.12. and the second one on 31.12.

### **3. Finnmatkat Oy**

Finnmatkat Oy, like the Swedish Fritidsresor, belongs to the Tui Nordic subsidiary corporation, which is a part of the German Tui consolidated corporation. Finnmatkat markets the conglomerate's package tours in Finland but the Tui Nordic, for instance, is managed from Stockholm. Tour guides at destinations have Swedish contracts.

Finnmatkat received the information of the event at 06.15 from the Stockholm 24 hour service. The Finnish agent on duty received the message. The information was on the web page at 10 o'clock. During the morning, the company's office was manned. The help line was operated by 10 persons and the phone number had a queuing service. When the phone number was activated at 12.30, callers immediately congested the line. The questions for the most part concerned the departure scheduled for the same evening at 23.40. At 14.30, it was decided the flight be cancelled and office staff started to call their customers about the cancellation. It was decided that the aircraft be sent to Phuket empty in order to pick up returning customers. Five employees were sent on the flight to assist the tour guides and local actors. A representative of the company's Indian agent and a Finnish guide staying in Goa, India, at the time were sent to Sri Lanka.

On the evening of Boxing Day at 22.00 information on Khao Lak was still extremely rudimentary. It was known that Thai authorities had blocked the roads leading there. Some of the customers were safely at evacuation camps and others were in hospitals. The following morning a methodical review of traveller lists was commenced. All arriving messages were electronically registered. Flights to Phuket on 4 January and on 11 January were cancelled.

Three of the corporation's guides toured the Khao Lak area and its hospitals on the night of 26–27 December. As soon as Monday morning, together with those Khao Lak destination managers present at the Takuapa Hospital, they organized transportation for mildly injured patients to Phuket and to the airport. These transports were done by tourist bus. The first transport of this kind left at around 13.00–14.00 on Monday and the last one around 17.00.

The conglomeration lost five of its tour guides in Khao Lak, one of whom was a Finn. Khao Lak guides were also evacuated to hospitals and gathering centres but they remained capable of functioning and so helped other people. The Finnmatkat representa-

tives arrived in Phuket on Monday afternoon and they were able to effectively participate in the evacuations from Tuesday 28.12. onwards.

Finnmatkat established a gathering centre for its customers at the hotel Blue Star Phuket Orchid Resort on Karon Beach, where the company's Phuket office also is. The Ministry for Foreign Affairs sent a mass SMS on 29.12. urging Finns in the Phuket area to gather at the Phuket city hall and at the hotel Orchid. Nobody informed the Finnmatkat staff about this decision and, therefore, they were astonished to see customers of other travel agencies even arriving from intact hotels as well as independent travellers. The Finnmatkat staff had problems in managing the situation. The ones arriving said that their family members had called them from Finland saying that Finnish authorities had instructed people in Thailand to go to gathering centres.

#### **4. KohdematkatKaleva**

KohdematkatKaleva is a Finnish company (Ltd.). It does not produce its own package tours. Instead, it sells other organizers' trips and provides unique, "tailored" trips to its customers. The majority of the trips, i.e. ca. three-fourths of them, were tailored. At the time of the disaster, KohdematkatKaleva had 16 persons in Phuket and 9 persons on Sri Lanka on other travel agents' trips in the disaster areas. In the statistics, they were classified as customers of the travel agent in question. In addition, in Thailand there were 42 people in Phuket and 16 in Krabi and 4 people in Monado, which is close to the Indonesian province of Aceh, as well as 2 travellers in Myanmar on tailored and independent trips.

The travel agency heard of the disaster on 26.12.2004 at around 10.30 from foreign newscasts. The agent that first got the information alerted his superior and came to the office along with the Director of Communications. Immediately they printed customer lists, contacted the customers about to depart on the same day to inform them of cancellations and began contacting those in the disaster area. Customer lists were sent to the other agents so that they would be able to begin contacting them first thing in the morning.

On Monday 28.12. all 10 sales agents attempted to contact their customers. A reporting centre was set up in the office in which information on contacted customers was compiled. The marketing director was the crisis manager. Every day several situation updates were briefed to the staff and the crisis management held a meeting. Information was being sought from hospital web pages and from the so-called divers' list. The passenger listing was expanded on 28.12. because the agency had sold, for instance, only flights to Bangkok and it could be inferred that some of their customers could be on independent trips in the disaster area. By 29.12. the agency drafted guidelines for the substitution and cancellation policies regarding the trips planned for January.

Within the provisions of occupational health care, crisis support was made available to the personnel.

#### **5. Tjareborg**

Tjareborg, a subsidiary of the English MyTravel conglomerate, belongs to the MyTravel Northern Europe consolidated corporation. Information of the disaster was received at 07.30 when a YLE reporter called the director of human resources in Kuopio. She then

immediately called the corporation's emergency centre in Stockholm, which had received the information from Thailand at 05.20 and from Sri Lanka at 06.30. The alarm by SMS that the Stockholm emergency centre had sent to Finland earlier in the morning had not been received. The human resources director alerted the managing director and the commercial director. These, in turn, summoned agents to the offices. The Helsinki and Tampere offices were manned by 09.00. On Boxing Day 13 persons worked in the Helsinki office. After Boxing Day evening, help lines were kept open all night and on the following days they were manned until 22.00 or 23.00. On New Year's Eve, the help line was transferred to the Airpro phone number. During the first night, calls were taken throughout the night. The regular flight to Phuket on Monday 27.12. had already been cancelled on Boxing Day and customers were informed of this.

Communications with destination managers both in Phuket and in Sri Lanka worked relatively well already on Boxing Day. At this stage, all customers on the Maldives were safe. Eight tourists in Sri Lanka were missing and as for Phuket, they were in the middle of establishing the situation. Information of the situation was posted on the company's web page. In the early evening, the corporation management informed that many hotels on Sri Lanka had been damaged and that people had perished but, however, no customers of the corporation had died. It was imperative to get the customers home post-haste.

The news in the evening claiming that all Finns were all right in the disaster area was met with disbelief at the Tjareborg crisis centre. The human resources director called the Ministry for Foreign Affairs emergency number where they responded that the Ministry for Foreign Affairs was not the source of such information. The Ministry for Foreign Affairs said that there were several Finns that had perished in the disaster area and that they could not contact Khao Lak at all. In the evening it was decided two agents be sent to Phuket. They departed on Tuesday and, together with their Nordic colleagues, set up a 24/7 contact point at the Phuket airport.

On Monday 27.12. a situation picture began to form. One of the two hotels on Kamala Beach was damaged and its patrons were transferred to other hotels. The road to Kamala Beach was cut off. On Patong Beach, the patrons of one hotel had to be transferred to another hotel that had remained intact. On Karon Beach, one hotel was without electricity. On Kata beach, there were no problems. There were 7 Finns and 19 other customers of the corporation on the Phi Phi Islands. They, as all others who had been on diving or boating trips on Sunday were all right. Tour guides went around hospitals looking for their customers. During that evening trips to Phuket were cancelled until further notice and trips to the Maldives and to Sri Lanka were cancelled for the entire winter season.

During the week a computerized traveller list was updated, in which every piece of information received on every tourist was entered. Constant contact was kept with the Ministry for Foreign Affairs' crisis centre. The crisis centre provided Tjareborg with lists and, as quid pro quo; the travel agency gave its updated information to the crisis centre. On Wednesday 29.12. the updated lists were also sent to the National Bureau of Investigation. On Wednesday evening, information on the whereabouts of 44 customers in Phuket was still missing.

In the destination areas of Tjareborg and of the entire corporation, employees continuously informed their customers of the evacuation flights. On 30.12., however, information arrived from Phuket explaining that some tourists wanted to continue their vacation. These tourists were then required to sign a waiver according to which they would be responsible for their own return flight, unless they agreed to return on the evacuation flights. In the end, nobody stayed at the destination. All customers from Sri Lanka and the Maldives returned by 31.12. and the customers from Phuket by 1.1.2005.

## **1.5.2 Activities of the airlines**

### **1. Finnair Oyj**

Finnair Oyj is a partly state-owned national airline operating scheduled passenger routes and charter flights. Pursuant to the Civil Aviation Act, the company has a preparedness requirement for exceptional situations.

#### **Resources**

##### **Fleet:**

- six MD 11, 297 seats, endurance 11 h (no stopover required to fly to Thailand)
- seven Boeing 757, 227 seats, endurance 8 h (flight to Thailand requires one stopover)
- 29 Airbus versions (version 321 = 181 seats, version 320 = 150 seats, version 319 = 118 seats), endurance for all 5 h
- 11 MD 80, to be discontinued in 2006
- coming 12 Embraer, 76 seats, endurance 3,5 h.

The B757 is the most suitable aircraft for long-haul evacuations due to its characteristics. The availability of the aircraft depends on the situation. Options include flying by night when there are no regular flights, taking advantage of maintenance slots, changing the type of aircraft on regular flights or, in a critical situation, cancelling regular flights altogether. The company operates a 24/7 Network Control Center, NCC. Contact to aircraft in the air is made by High Frequency (HF) radio. The MD 11 is also equipped with a satellite phone.

Finnair has an updated emergency response plan and activities commence within two hours from an alert, at the latest. A so-called Airport File on different airports exists and crews have acquainted themselves with the airports. The company will decide whether to fly to crisis areas and this determination is done by taking into account the urgency of the situation, its inherent danger as well as the insurance companies' position. Finnair cooperates with the EMA-Group in medical matters and has signed a contract on medical consultation services with the U.S. company MedAir.

Maintenance provides some flexibility for making aircraft available. Maintenance is normally conducted at Helsinki-Vantaa during night time. It is possible to perform maintenance in advance. For the MD 11 24-hour slots have been scheduled during which the aircraft can be made available for evacuation flights. Route destinations have technical personnel and, if necessary, a mechanic will be on the flight. Airlines provide mutual support to each other in aircraft on ground (AOG) situations as well as in situations requiring spare parts. Destination airports normally have adequate ground equipment.



Temporary changes to the passenger compartment required by the evacuation flights are rapidly made. Seated passengers are evacuated as if on normal flights. To transport stretcher cases, a stretcher compartment is built into the back of the plane. It takes a couple of hours to prepare. Any other arrangements depend on the situation. The Civil Aviation Administration is flexible on crisis arrangements but Finnair must document the procedures and it also carries the ultimate responsibility. At the moment the company has two flight-certified stretchers. Finnair has requested information from manufacturers on suitable airborne medical modules.

### **Measures taken**

Information of the disaster came to the NCC on 26.12. at 06.47 when the Phuket airport was told to close. A little later, a travel agent in Phuket reported problems. The NCC alerted the company's emergency director (chief pilot) to the airport where he arrived at around 09.00. The seriousness of the situation was understood and the other members of the crisis management group were summoned to the airport. Active measures to manage the crisis had already been started by phone at 08.30 and the CEO of the company was informed of the situation. Since the event did not involve an aviation accident, the company's emergency organization was not activated.

Finnair's critical measures taken were

- At 10.00 the decision to divert the aircraft already enroute to Phuket to Bangkok instead
- At 14.00 the decision, made in concert with travel organizers, not to fly any more passengers to the destinations in question and that passengers already over there would be brought back, for which purpose a tentative evacuation plan was drafted
- At 18.00, the decision to send an EMA-Group medical team to Phuket, for which purpose Finnair's chief flight surgeon started medical cooperation with the EMA-Group.

According to the decision made in the crisis leaders' meeting at 18.00 in the evening

- An EMA-Group doctor and two nurses, eight staff members representing travel agencies as well as relief equipment and potable water were put on the plane to Phuket, which departed at 23.55
- It was agreed that an Air Finland flight would bring back passengers from Colombo on 27.12. whom Finnair had previously flown there.

On 27.12. the company drafted a tentative flight schedule for eight B757 and two MD 11 evacuation flights. During a meeting with travel organizers at 12.30, the schedule and the efficient use of aircraft capacity were agreed upon. At 14.30, the plan was finally approved and it was decided that overflight permits would be applied for as rescue flights. Finnair's representatives participated in a Ministry for Foreign Affairs' press conference at 15.00 and in the Coordination Board of the Government Chiefs of Preparedness at 17.00. In this meeting, the responsibility to carry out the evacuation flights was assigned to Finnair and the medical responsibility to the Finnish Red Cross.

The company designated two B757 and one MD 11 aircraft for evacuation flights from 26.12.2004 to 2.2.2005, which flew a total of 11 flights. Ten of the flights were flown to

Phuket and one to Colombo. More aircraft could have been designated but it was determined that there was no need for more planes.

A temporary installation, approved by the Civil Aviation Administration, was made to one of the B757 in order to fly an ambulance flight commissioned by the state. The temporary installation comprised of attaching civil defence-type stretchers on top of the folded backrests of the middle seats. The installation was exceptional but it was completed in three hours. The Hospital District of Helsinki and Uusimaa delivered the medical equipment. The hospital equipment's high power consumption requirement was a problem in the ambulance plane as the aircraft did not provide 220 volt electricity. The power requirement was solved by extra batteries and the requirement for extra illumination by hand torches. Extra cabling for electrical power was not installed.

Finnair had enough crews for the evacuation flights and the Civil Aviation Administration flexibly gave permission to exceed normal working hours by allowing the application for overtime retroactively. The motivation of the entire personnel to help was high and more volunteered than could be assigned. Many in the cabin crews were trained nurses.

Overflight permits worked well. The very first flights were flown under normal permits but for the following the status was changed (rescue flight, rescue mission).

On the evacuation flights Finnair transported 2 351 Finns from Thailand and Sri Lanka and took 173 aid workers, a field hospital and ca. 40 tonnes of relief equipment to the destination area. Approximately 300 tourists returned from the destination on normal regular flights.

## **2. Air Finland Oy**

Air Finland is a Finnish-owned company flying mainly charter flights. The company does not have any preparedness requirement.

### **Resources**

The company's fleet comprises three Boeing 757-200 ER aircraft, 219 seats in each and the endurance of 8 h. A fourth B757 is being procured.

Aircraft can be made available from other tasks within 2–3 hours and usually two aircraft can rapidly be assigned to other missions depending, however, on where they happen to be at the time. The company routinely flies charter flights and other flights commissioned by other airlines. There are only a few scheduled routes flown. Therefore, the fleet can rapidly be made available for specific missions.

Crews are available within 2–3 hours from notice and they are very motivated. In this situation, the Civil Aviation Administration permitted the working hour limits to be exceeded and the application regarding this could be submitted afterwards. The responsibility for arranging working hours and maintaining flight safety was left to the company. Normally daily working hours are limited to 14 hours. The EU's aviation safety authority (EASA) is planning to impose a limit of 13 hours for working hours.

The company's Movement Control (MC) is operational 24/7, manned by one person. A total of eight trained persons run the three-shift work. Crews have the ability to fly anywhere in the world. Airborne aircraft can be contacted by high frequency (HF) radios.

Since Air Finland mostly operates charter flights, no permanent overflight permits are in place and, therefore, they have to be separately applied for. In this case there were problems in obtaining them for India. In some situations flights may have to be rerouted and this increases the flying time.

Air Finland's maintenance is performed by Finnair at the Helsinki-Vantaa airport. The maintenance turnaround time is one night. It is also possible to carry out maintenance in Stockholm and in Iceland. Major overhauls are done in Switzerland. If required, a 10% extension can be applied for the maintenance interval. When it comes to repairing malfunctions overseas, the company cooperates with other airlines. When necessary, spares will be carried along. Ground equipment does not pose a problem because it is either provided by the aviation authority's organization or a separate company. The catering's pallet loader truck can be used to hoist and lower stretcher cases.

Air Finland has signed a medical cooperation contract with MedFlight, which provides medical consultation to aircraft enroute when required, and in the case of an aeromedical transport, it provides battery-operated and flight certified medical equipment. Air Finland does not have stretchers that would fit the seat rails in the cabin.

### **Measures taken**

Air Finland was informed of the event on 26.12. at 05.15 when the change crew in Phuket called and told them of the tidal wave. The situation picture was maintained by phone until 08.00, whereafter international TV news channels were followed. The company raised its personnel crisis readiness in the morning. The CEO of the company arrived at his workplace at 11.00 and the first crisis meeting was held at 14.00. Evacuation flights to the destination area were planned jointly with travel agencies and cooperation with the Finnish Red Cross, MedFlight and SOS International was started.

The first evacuation flight to Phuket took off on 26.12. at 22.57 with four Danish doctors, MTV reporter as well as medical supplies, blankets and drinking water aboard.

Air Finland flew a total of five evacuation flights commissioned by travel agencies, of which three were to Phuket, one to Bangkok and one to Colombo. The situation at destination area airports was incoherent at times, as on 27.12. in Colombo, where the airport personnel was thoroughly unprepared for the situation (rescue flight) and due to chaotic ground communications they had to wait for passengers. The company prepared for several days of relief and evacuation flight operations and offered its assistance to the Ministry for Foreign Affairs several times. The Ministry for Foreign Affairs, however, informed them that their help was not required.

Air Finland transported 571 passengers to Finland and 252 passengers to Sweden as well as ca. 5 tonnes of relief equipment.

### **3. Jetflite Oy**

Jetflite is a privately owned Finnish company flying charter flights and which has a continuous readiness for aeromedical transport. The company has no national preparedness requirement.

## Resources

- Fleet:
- three Falcon 20F-5 aircraft, all of which have two Intensive Care Units, ICU positions and two seats for seated patients, endurance 4 h
  - one Bombardier CL 600 Challenger aircraft with two ICU positions, one normal stretcher position and 4 seats for seated patients, endurance 7–8 h.

All aircraft have auxiliary power units (APU) for producing electrical power when the aircraft is on the ground as well as electrical systems required by medical equipment.

The aircraft and the office communicate by satellite phone (Challenger only) and by HF radio, also capable of transmitting data. The company has a 24/7 operating Movement Control, manned by a pilot and a technician on duty for a week at a time. In addition, all crew members (12 full-time pilots) can be reached by phone so as to be able to take off within two hours from notice. In aircraft on ground (AOG) situations the matter is remedied either by the help of on-site maintenance, cooperation partners in Europe (Air Alsie ja Norsk Flyg Ambulance) or by sending the company's own mechanic to the site. Depending on the malfunction, another aircraft may be sent to transport the patient.

The medical cooperation partners bear the medical responsibility. These are the EMA-Group and MedFlight, occasionally SOS International, whose medical equipment are flight certified by the aviation authority and fitted to the aircraft. The abovementioned companies provide the medical staff and equipment.

The company has two aviation authority-certified LifePort stretcher units, two stretchers in each unit. The medical partner provides the medical staff, medical supplies and equipment (basic ICU equipment), which mainly operate by batteries. The batteries can be charged while aloft. The aircraft supply 220 V AC. Prior to the mission the medical partner consults the hospital where the patient will be treated (close to his home). In Helsinki, the patients are transferred directly to the ambulance inside the flight hangar.

Annually, some 150–180 evacuation missions are flown. Problems affecting readiness are long lead times for processing overflight permits (10–24 hours) in certain countries and cumbersome bureaucracy at some airports (e.g. cash payments only).

## Measures taken

News of the catastrophe was seen on morning TV on 27.12. at which time takeoff readiness was raised, inter alia, by applying for overflight permits. The raised readiness was maintained until 3.1.2005. During the crisis the Ministry for Foreign Affairs was informed of this several times but they never called back.

The company flew one commissioned aeromedical evacuation from Thailand (Hat Yai) departing at 00.35 on 30.12. and arriving at 08.20 on 31.12. on the Falcon aircraft. Two stretcher cases and one seated patient were transported on the flight. EMA saw to the enroute medical care. Stopovers were made on both legs (one per leg) and the overall duration of the mission was 32 hours.

From 27 December to 1 January, the company could have flown four return flights to the disaster area and eight ICU stretcher cases and 8–24 seated patients could have been evacuated.

No critical decision-making situations occurred. Neither were there problems with foreign authorities. In Thailand the Lutheran Mission's ministers, who spoke the local language, provided assistance. In Finland, all cooperation was normal cooperation with authorities and no problems emerged. No contacts were made to other airlines (Finnair, Air Finland).

#### 4. Evacuation flights

The airlines flew the return flights commissioned by travel agencies, on which flights aid was also transported to the area, as well as the relief and evacuation flights commissioned by the state. The flights are listed in the table in appendix 5.

Finnair flight = AY, Air Finland flight = FIF, Jetflite flight = JEF. All times are Finnish times.

##### 26.12. Sunday

- AY 1965, normal travel agent commissioned charter flight from Helsinki to Bangkok, where the passengers were left. On the morning of 27 December the plane continued empty to Phuket
- FIF 911, charter flight from Helsinki to Phuket at 22.57. Four Danish SOS International doctors, MTV reporter and relief equipment aboard
- AY 1961, charter flight from Helsinki to Phuket at 23.55. One doctor and two nurses from the EMA, travel agencies' staff, relief equipment and water aboard.

##### 27.12. Monday

- FIF 001, charter flight from Helsinki to Colombo at 03.13
- AY 1966, charter flight from Phuket to Helsinki at 06.48 arriving at 20.20 with 222 passengers aboard
- FIF 912, charter flight departing from Phuket at 15.03 and arriving in Helsinki on 28 December at 03.55 with 218 passengers aboard.
- AY 1962, charter flight at 16.15 from Phuket to Helsinki, arriving on 28 December at 06.15 with 228 passengers aboard, of whom ca. 30 patients; one EMA nurse
- FIF 002, charter flight at 20.24 from Colombo to Helsinki, arriving on 28.12. at 09.35 with 212 passengers aboard
- AY 1957, relief flight at 21.58 from Helsinki to Phuket with two Finnair airport staff, travel agency staff, Finnish Red Cross and EMA medical staff and relief equipment. Altogether 19 persons aboard.

##### 28.12. Tuesday

- AY 1995, relief flight at 03.33 from Helsinki to Colombo. EMA medical staff, relief equipment and a Finnish Red Cross field hospital with staff (13) aboard
- FIF 931 charter flight at 03.41 from Helsinki to Bangkok
- AY 1958, evacuation flight departing at 14.30 from Phuket to Helsinki, arriving on 29.12. at 04.58 with 221 passengers aboard, of whom ca. 70 injured; two EMA nurses

- AY 1996, evacuation flight departing at 16.32 from Colombo to Helsinki, arriving on 29 December at 04.39 with 227 passengers aboard, of whom 20 injured; one doctor and one nurse (EMA)
- FIF 932, charter flight at 22.05 from Bangkok to Helsinki, arriving on 29 December at 13.14. with 227 passengers aboard, of whom 27 injured; two doctors and a nurse (MedFlight)
- AY 1963, relief flight at 22.55 from Helsinki to Phuket. Travel agencies' staff, EMA and Finnish Red Cross medical staff totalling 12 persons and 3 000 l drinking water aboard.

**29.12. Wednesday**

- AY 1955, relief flight at 07.58 from Helsinki to Phuket. Two EMA nurses, air equipment and 3 000 l water aboard. Stretchers.
- AY 1957 (MD 11), relief flight at 10.50 from Helsinki to Phuket. One doctor and two nurses (EMA), Finnish Red Cross evacuation group (31 persons) as well as National Bureau of Investigation personnel (2), totalling 36 persons aboard. Relief materiel and water as cargo.
- FIF 003, charter flight at 12.05 from Helsinki to Phuket
- AY 1964, evacuation flight at 13.08 from Phuket to Helsinki, arriving on 30 December at 02.45 with 206 passengers aboard, of whom 24 injured; EMA nurse
- AY 1956, evacuation flight at 21.51 to Helsinki, arriving on 30 December at 11.15 with 222 passengers aboard of whom one stretcher case and a couple with lesser injuries; EMA nurse
- AY 1958 (MD 11) evacuation flight at 23.20 to Helsinki, arriving on 30 December at 10.19. 253 injured passengers aboard; two doctors and three nurses from EMA
- Three patients were transported on the regular flight AY 098.

**30.12. Thursday**

- JEF 429, aeromedical transport commissioned by Fortum at 00.44 from Helsinki to Hat Yai airport
- FIF 004, charter flight at 05.53 from Phuket to Arlanda, arriving at 19.27 with 217 passengers, two doctors and a nurse aboard
- AY 1961, relief flight at 06.34 from Helsinki to Phuket with EMA medical personnel (5), relief materiel and water aboard
- JEF 429, aeromedical transport from Hat Yai airport to Helsinki, arriving on 31 December at 08.35 with two stretcher cases and one seated patient, a doctor and a nurse
- AY 1965, air ambulance at 19.59 from Helsinki via Bangkok to Phuket with 44 medical staff and 11 National Bureau of Investigation staff (DVI) aboard, space for 22 stretcher cases. The plane picked up six stretcher cases from Bangkok on the morning of 31 December and continued to Phuket
- AY 1962, evacuation flight at 20.23 from Phuket to Helsinki, arriving on 31 December at 10.31 with 227 passengers, one doctor and three nurses aboard
- FIF 005, charter flight at 21.53 from Arlanda to Phuket
- On the regular flight AY 092 18 injured, accompanied by a doctor and a nurse (EMA), were transported.

### 31.12. Friday

- AY 1963 (MD 11), relief flight at 11.03 from Helsinki to Phuket. Three Finnish Red Cross staff, relief equipment and water aboard
- FIF 006, charter flight at 13.14 from Phuket via Arlanda to Helsinki arriving at Arlanda on 1.1.2005 at 04.58, where 30 of the 144 passengers aboard got off. The flight carrying 114 passengers arrived in Helsinki at 06.07
- AY 1966, air ambulance at 14.13 from Phuket to Helsinki arriving on 1 January at 03.41 with 16 patients and 44 medical staff aboard
- AY 1964 (MD 11), evacuation flight at 22.54 from Phuket to Helsinki, arriving on 1 January at 09.24 with 280 passengers aboard, of whom some were returning relief personnel and travel agencies' staff.

### 1.1.2005 Saturday

- AY 1961, relief flight at 14.44 from Helsinki to Phuket with 11 National Bureau of Investigation personnel (DVI) and one Swedish embassy staff member aboard. Relief equipment and water as cargo.

### 2.1. Sunday

- AY 1962, the final evacuation flight at 04.18 from Phuket to Helsinki, arriving at 17.11., 200 passengers aboard, of whom some were Finnair airport staff and travel agencies' staff.

### Summary:

Type	Finnair	Air Finland	Jetflite	Passengers
Charter	2	5	-	1 438
Evacuation	8	-	-	1 836
Air ambulance	1	-	-	16
Aeromedical transport	-	-	1	3
<b>Total</b>	<b>11</b>	<b>5</b>	<b>1</b>	<b>3 293</b>

A total of 17 flights were flown and 3 293 passengers were transported. These numbers include the returning relief personnel.

## 1.5.3 Activities of organizations and companies

### 1. The Finnish Red Cross

Activities of the Finnish Red Cross were divided into four functional fields, the first of which was an **international emergency response operation**, by which personnel, material and monetary aid was sent to the disaster area, in accordance with modus operandi of the International Red Cross/Red Crescent. The sending of an Emergency Response Unit, ERU, to Sri Lanka was part of this field. In addition to Sri Lanka, the Finnish Red Cross participated in relief operations in Thailand, India and Indonesia. The second field was an **international evacuation operation**, where the Finnish Red Cross assisted in bringing Finns back after the disaster. The bulk of the activities took place in Phuket, Thailand, whereas in Sri Lanka only a little of this was done. The third field was the **reception and psychosocial support operation** in Finland, which entailed sup-



porting the reception of the evacuees and setting up help lines and organizing debriefing events with the help of volunteers from the Helsinki and Uusimaa district and the network of Finnish Red Cross psychologists. The fourth field was the **domestic information and fundraising operation**. The Finnish Red Cross gave communications on its own relief activities as well as on those of the International Red Cross in the disaster areas and on the newly initiated fundraising campaign, the objective of which was to raise funds to finance short-term as well as long-term relief activities.

The Finnish Red Cross was alerted by the International Red Cross on 26.12.2004 at 09.15, after which the Finnish Red Cross raised its readiness and began to wait for relief requests. On Monday 27.12. a representative of the Finnish Red Cross was invited to a meeting of the Government Chiefs of Preparedness, in which the Finnish Red Cross was assigned the overall responsibility for medical care. A medical team from the Finnish Red Cross departed to Phuket on 27.12. at around 22.00. The group comprised of two doctors, a psychologist, three nurses and experts on technology and administration, one of each. Altogether 11 Finnish Red Cross doctors and 23 nurses worked in the destination area.

## 2. The EMA-Group

The EMA-Group (EMA) is a Finnish company, whose main field is providing medical services for travellers. The company operates out of Helsinki. Other fields are helicopter doctor services, emergency care training and research. Operations are conducted both in Finland and abroad and the company has 15 years of experience in assessing the health situation and organizing the transportation of patients that have taken ill or become injured abroad. The EMA cooperates with several Finnish insurance companies and corporations. Foreign companies specialized in travel emergencies, too, commission the EMA's services. The company has a contract with Finnair regarding an assessment of the flying condition of persons who have taken ill abroad or in Finland.

The company employs 6–10 full time doctors, 10 part time doctors and 20 part time nurses. In addition to the president and vice president there are three coordinating nurses in the EMA's operation centre. Annually the company participates in supervising the medical treatment of approximately one thousand patients hospitalised abroad, arranges the transport of ca. 300 patients back to Finland and assesses the flying condition of some 1 200 patients.

The EMA has arranged two multiple patient exercises, in which the Ministry for Foreign Affairs, Finnair, insurance companies and Finnish industrial companies have participated. The scenario in the multiple patient exercise in May 2004 was the transportation of injured patients from Bangkok to Finland. This exercise clearly proved to be beneficial as the EMA's activities started on 26.12.2004.

A patient in Thailand reported to the EMA operations centre on 26.12.2004 at around 08.00 of the earthquake and of a chaotic situation. As per the catastrophe directive, the company raised its readiness and continued to follow the situation on the internet and on the news media. A Finnish insurance company gave the first commission at 15.20 to aid people injured in Krabi. Finnair's flight surgeon contacted the EMA at 18.00 and requested them to put a medical team on the plane departing at 23.00 in the evening. An hour later Finnair requested a second medical team on the plane but due to the tight

schedule the EMA could only deploy one team. The first team comprised a doctor and two nurses. The team was furnished with several cases of medical equipment, among other things two vital signs monitors, several intravenous transfusion pumps, two arterial blood gas analysis devices, two suction devices as well as dressing materials. In addition, to treat 300 patients, they took along sufficient amounts of antibiotics for gastrointestinal infections, pain-relieving drugs, infusion fluids and miniheparin for the prevention of venous thromboses.

All in all the EMA deployed 9 doctors and 23 nurses to the disaster area.

### **3. MedFlight Finland**

MedFlight Finland is a Finnish travel emergency company, with its headquarters in Vantaa. The company operates both domestically and globally and has 10 years of experience in consulting on health situations and arranging the transportation of persons taken ill or injured abroad. MedFlight Finland cooperates with most Finnish travel insurers. Assignments are received from foreign companies specialized in travel emergencies, too. The company has a cooperation contract with Air Finland regarding a 24/7 emergency phone service in the case of medical emergencies of its customers and personnel.

The company employs five persons in permanent positions and, in addition to them, it can use the services of 12 doctors, 13 nurses as well as 7 nursing assistants or ambulance drivers. During the past few years, MedFlight Finland has carried out over one thousand commissions annually. Each year it transports ca. 130 patients back to Finland from abroad. For transportation, it uses an ambulance furnished with ICU equipment. Patients are transported from abroad on ambulance flights, regular flights or by boat.

On Boxing Day at 15.00 Air Finland contacted MedFlight Finland and the companies agreed on cooperating on flights possibly departing to the disaster area. On the first Air Finland flight additional blankets, water and a first aid kit, containing the most often needed medicinal products and dressing materials, were taken aboard. Two doctors and a nurse were on the third Air Finland flight.

On 27–28 December MedFlight Finland contacted the Foreign Ministry, Finnair and the Finnish Red Cross informing them of its preparedness to participate in activities.

#### **1.5.4 Activity of the Evangelical Lutheran Church of Finland**

Crisis management for the Evangelical Lutheran Church of Finland was coordinated by the steering group of the Church Council. The various departments of the Office, the Communications Centre of the Evangelical Lutheran Church of Finland as well as FinnChurchAid see to crisis management. The Finnish Evangelical Lutheran Mission is a close partner.

##### **1. The Church Council**

Representatives of the Church Council participated in the reinforced working group of the Government Chiefs of Preparedness from 29.12.2004 to 3.1.2005. On the basis of principles agreed upon in these meetings the Office instructed parishes, organized ministers to work in the crisis area and assigned representatives to working groups implementing measures. In addition, the Office carried out nationwide communications and

produced material related to the handling of the disaster. As far as after-care of the situation, the Office has cooperated with the Ministry of Education, the Ministry of Social Affairs and Health and with various organizations.

Church representatives participated in the working group organized by the Ministry of the Interior Police Department and took responsibility over the reception ceremonies for the deceased in Finland. Two ministers have been working part time with the Disaster Victim Identification unit in Thailand.

**The Psychosocial Assistance of the Church** is an organization created in the dioceses and parishes and which implements practical measures in crisis situations. The Helsinki, Espoo and Vantaa parish consortiums have Psychosocial Assistance of the Church groups that can be activated on very short notice and to which scores of trained workers belong.

In the Vantaa area, the Vantaa Crisis Centre is responsible for coordinating emergency psychosocial assistance. It alerted the Vantaa parishes' psychosocial assistance of the church, which, in turn, requested executive assistance from the Helsinki and Espoo parishes' psychosocial assistance. Representatives of the parishes' Psychosocial Assistance of the Church operated at the airport in cooperation with the police, the Finnish Red Cross and the Vantaa Crisis Centre. They received people arriving from the disaster area and provided support to their family members waiting at the airport as the evacuation flights arrived. At any given time, there were 16-20 Psychosocial Assistance of the Church persons on duty at the airport, altogether approximately 80 persons.

Family counselling centres of the church prioritised the ones needing help due to the disaster in Asia. Hospital pastoral care and the Telephone Emergency Service intensified their preparedness to provide assistance. For their part, the employees of various parishes have also provided mental support.

## **2. The Finnish Evangelic Lutheran Mission**

As the dimension of the disaster became apparent, the Finnish Evangelic Lutheran Mission contacted the Foreign Ministry and travel agencies and offered the help of its personnel in Thailand for crisis relief. The personnel of the Finnish Evangelic Lutheran Mission also contacted the local embassy. Two Finnish Evangelic Lutheran Mission ministers, together with Finnish Red Cross and EMA doctor teams, worked at the airport and in the hospitals of Phuket until the departure of the last Finnish evacuation flight. Three Finnish Evangelic Lutheran Mission persons were on call at hospitals in Bangkok. One employee organized a crisis centre and took care of public information. The Mission's personnel worked as liaisons, interpreters, assistants to hospital and embassy staff and they assisted in the search for Finnish patients and in checking the hospitals' lists of names.

Approximately 170 persons, representing the church's various organizations and associations, participated in the crisis support of south-east Asia. This number does not include the dioceses' or parishes' personnel.

## **3. FinnChurchAid**

FinnChurchAid received its first information on what kind of help was needed through its international contacts and from its local partners. FinnChurchAid participated in provid-

ing and organizing immediate materiel relief aid together with the Foreign Ministry and domestic and foreign organizations. It also launched a fund raising campaign and continues to participate in long-term rebuilding in the disaster area.

### **1.5.5 Activities of International Organizations**

#### **1. The International Red Cross**

The International Red Cross consists of two parts: the International Committee (ICRC) and the Federation (IFRC). The latter takes responsibility over natural disasters and it operates a 24/7 emergency service in its headquarters in Geneva. On the morning of Sunday 26.12. the first alert was sounded to the Federation's member societies and it was received at the office of the Finnish Red Cross in Helsinki at 09.15. On Sunday afternoon, the Federation published its first appeal for 7.5 million Swiss francs to launch the operation and immediately released one million Swiss francs from its own Disaster Response Fund. The operation was launched as per standard procedure because on Sunday morning even the Federation did not have a clear picture of the magnitude of the disaster. This procedure comprises of the deployment of so-called Field Assessment Teams to the disaster area to assess the dimension of the catastrophe. On Monday, these so-called FACT teams were deployed to Sri Lanka, Indonesia and the Maldives. Seven Emergency Response Units (ERU) were deployed to Sri Lanka and six to Indonesia.

The Federation mobilized ca. 10 000 of its volunteers in the countries affected by the disaster, dispatched approximately 300 international delegates to these countries and organized 189 relief flights during the first month. All in all, 40 countries participated in the Red Cross relief operation.

According to the Federation's top management, the Finnish Red Cross reacted rapidly to the Federation's messages and appeals. As requested by the Federation, the Finnish Red Cross deployed a field hospital in Sri Lanka. Thailand was not a primary destination, because the Federation felt that the Thai Red Cross was sufficiently strong and maintained good disaster preparedness.

Representatives of the Federation have pointed out during conversations that one way to raise preparedness would be to organize basic training courses on disaster information and disaster skills to various countries' ambassadors and/or to their embassy staff. In some cases, this type of training has already been provided and it has not been very difficult to organize.

#### **2. The United Nations' Office for the Coordination of Humanitarian Affairs (OCHA)**

The Office for the Coordination of Humanitarian Affairs, OCHA, operates out of Geneva and New York. Its mandate is to coordinate the UN agencies' activities in disaster situations but it also attempts to guide the work of voluntary organizations. The organization has an Operations Coordination Centre in Geneva, which was already partially in use as the tsunami rolled ashore in the affected countries. OCHA representatives met with the representatives of the IFRC and ICRC already on Monday to coordinate activities. The Humanitarian Emergency Branch (HEB) of OCHA operates in New York and the Response Coordination Branch (RCB) in Geneva. In total, 68 persons work in these units.

OCHA requests the UN member nations to provide experts at the Office's disposal, which are then deployed to the disaster area to assess the scope of the disaster and the relief aid (UNDAC) requirement. A similar request was also sent to Finland on Sunday and the Ministry of the Interior immediately provided two names. The UNDAC group arrived in Bangkok in the evening of 28.12. and, among others, a Finnish doctor arrived along with the group. The following day the group travelled to Phuket and immediately began to assess relief requirements and to coordinate the activities of the UN and other organizations.

### **3. Action of Churches Together, ACT**

The primary partner of ACT in Finland is FinnChurchAid, which is Finland's second-largest provider of humanitarian relief. ACT's headquarters are in Geneva and its function is to coordinate the activities of different churches in crisis situations. Churches almost always have both local and international representation and a presence in the disaster area. Even though they do not have quite the same mechanisms as the Red Cross does to deal with the situation in the immediate phase, if needed, they can provide massive amounts of emergency supplies.

In Thailand ACT benefited from the fact that its functionaries and member churches were already in the area as the disaster struck. At some stage, the Thai Ministry of Culture Religious Affairs Department summoned a coordination meeting.

The Finnish Evangelic Lutheran Church Mission also operates as ACT's cooperation partner and in Thailand, the Finnish Evangelic Lutheran Mission placed its Thai speaking employees at the Finnish Embassy's disposal.

### **4. The EU's preparedness system**

As the disaster took place the EU's civil protection mechanism and its Monitoring and Information Centre, MIC, was activated in the morning of 26 December. Through it, six experts were deployed within 24 hours to the disaster area to assess and coordinate the requirement of emergency aid and where it should be focused. Based on reports, MIC coordinated the relief provided by the EU Member States. MIC informed the Member States of its activities and in Finland, the Ministry of the Interior.

The EU's humanitarian aid office ECHO mobilized €3 million in emergency aid during the disaster weekend through the International Red Cross. On 30.–31.12. €10 million more in aid was provided and in the beginning of January, €100 million.

The EU's president, the Netherlands, published its first press release of the disaster on Monday evening 27 December. The matter was handled from the Hague until 1 January, 2005, when Luxembourg assumed the Union's presidency. An extraordinary meeting of the General Affairs and External Relations Council was organized on 7.1.2005.

The EU institutions in Brussels played no role in consular cooperation. This was locally implemented between the EU missions in the disaster areas. In contrast, the country of the presidency and the secretariat of the Council of the European Union had direct contacts to the Capitals' consular service units.

## **2 RESCUE EFFORTS, EVACUATION AND CARING FOR THE VICTIMS**

### **2.1 Search and rescue for victims in the affected areas**

#### **2.1.1 Independent escape and first phase evacuation**

##### **THAILAND**

On the first day immediately after the disaster in Khao Lak victims were rescued by other victims, local inhabitants, hotel workers and travel agencies' tour guides. Many of the hotel and travel agencies' staff were victims themselves. The first step in independent rescue was to move away from, and to help others to move away from, the low-lying areas and the beach as well as to transport the victims to the side of the road. A wide variety of devices was used in carrying people, such as doors, chairs or boards. If these were not available, victims were carried in other's arms or on piggyback. In places next to dwellings, it was possible to irrigate wounds. The wounds were also disinfected by iodine and they were bandaged with strips of cloth. Something to drink was offered to fight dehydration. In addition, clothing was given to victims because the wave had stripped off clothes from many of them.

Diving schools and their staff played an important part in rescuing victims in the Khao Lak area. For example, diving school staff spontaneously organized the first "Meeting Point" in a bungalow village in the southern part of the Khao Lak area. At its largest, 250 tourists migrated to the meeting point, tens of Finns included. A doctor, a co-traveller himself in the area, treated the injured and medical supplies were obtained from the local chemist's shop. Local inhabitants brought food and drink as well as blankets and clothes. The owner of the bungalow village under construction donated spaces for lodging the injured. In addition to this independently organized meeting point people also slept under the stars on the slopes of the hills. The fear of new tsunami warnings prevented the people from moving away from safe spots even though information on the meeting points was efficiently disseminated in the area.

The authorities' rescue and evacuation activities already started early on Sunday. A meeting point was in front of a store at the intersection of the road from Blue Village Pakarang and the Phuket-Bangkok highway. There all survivors provided their names as well as pertinent hotel information and food and drink was available. After this, survivors were transferred to hospitals. Transports to hospitals were made with pickup trucks, which were suited for transporting the most badly injured in a lying position. Some of these pickup trucks were used by the authorities, such as the police. Army trucks were used to transport people from meeting points to evacuation centres, such as temples and temple schools in the Khao Lak area. Tourists were transferred from these evacuation centres to Phuket mainly by tourist coaches. Soldiers evacuated some of the injured by helicopter as early as Sunday. A few Finns were also evacuated by helicopter from the roof of the Blue Village Pakarang bungalow hotel to the Phuket Hospital.

In Phuket and Krabi, it was mainly hotel personnel that saw to the rescue and evacuation in the initial phase. People were evacuated from beach hotels to safe places on the hills or to hotels in higher locations. Some of the hotels also evacuated their patrons to

hotels in Phuket Town. Authorities directed the hotel evacuations to some degree, closed streets and limited free movement in the devastated areas. Some of the travel agencies' tour guides could not participate in the initial phase evacuation, because they themselves were evacuated.

According to Thai authorities, by the evening of 26 December all of the injured had been rescued and transferred from land and sea areas either to meeting points or directly to care facilities. Individual persons floating in the sea or missing somewhere inland were, however, discovered and rescued the following day and even later on. A least two Finns are known to have spent the night injured in the terrain and that only on the following day they managed to reach the help available.

## **SRI LANKA**

In the travel destinations of Sri Lanka Finns mainly escaped on their own. Very few were so badly injured that they required medical attention. In most cases first aid administered by co-travellers, hotel staff or guides, sufficed. If a doctor was needed, hotel staff and tour guides assisted the person in question in finding one. Just as in Thailand, also in Sri Lanka the local inhabitants helped the victims by providing accommodation in their own homes on the slopes of the hills and by offering food and drink.

The natural phenomenon in Sri Lanka acted differently compared to, for instance, the one experienced in Khao Lak, Thailand. In Sri Lanka at the destinations where Finns were, the tsunami appeared as a flash flood-like rapid rise in the water level. Under these conditions people taken by the tsunami could either swim, or in some cases, wade ashore. In addition, as far as is known, during the event Finns were positioned in such a way that they were not trapped, for example, in flooded buildings.

### **2.1.2 The authorities' activities**

#### **THAILAND**

##### **The Thai authorities' organization**

The Thai administrative organization consists of provinces, municipalities, communes and villages. The province is led by a governor and the provincial police and civil protection units are subordinate to him. The organization of local civil protection activity is the responsibility of the leaders of other administrative echelons.

The management system for major disasters in Thailand is based on an Act on civil protection, dated 1979. According to it, the highest coordination responsibility for civil protection is assigned to the National Civil Protection Committee, chaired by the minister of the interior. Governors, in whose provinces the disaster occurs, are responsible for organizing and leading the actual rescue activities. In such case, with the exception of the armed forces, all state and other administrative branches operating in the province's area are subordinated to the governor. A total of 12 regional support centres, operating under the Ministry of the Interior, support the provinces. In this case, the destruction extended to six coastal provinces, which were supported by two regional coordination centres.



At state level, rescue and evacuation activities were led by the Ministry of Defense (sic) and its subordinate service headquarters and troops, the Foreign Ministry command centre, the Justice Ministry command centre as well as the relief centre of the Ministry for Social Development and Human Security. The interior ministry's Department of Disaster Prevention and Mitigation, DDPM, is tasked to identify disaster risks, to assess and to prevent them, to train rescue and relief personnel, to support civil protection activities and to provide civil protection.

Organizations that participated in activities were the Thai Red Cross, civil defence volunteers, the TV station relief centre and several private relief organizations.

### **The Thai authorities' action**

The basic civil protection organization of the Thai authorities was overloaded as the tsunami struck. Initially, efficient activity by the authorities was not organized. In addition, later on recurring and false tsunami alarms hampered the authorities' activities. Instead, local inhabitants, volunteers arriving at the scene, persons employed in the various fields of the tourist industry as well as tourists themselves formed the backbone of rescue activities during the first hours after the tsunami's strike.

The Thai authorities immediately began to reinforce the command structure. The armed forces played the key role in search and rescue and evacuation activities. The commander of the third Fleet of the Royal Thai Navy was in charge of this operation. All army, navy and air force units as well as other countries' military assistance units operating in the area were subordinated to him. Army units were tasked with an organized search and rescue operation on land areas. Navy units were comparably tasked on the sea. Scores of air force aircraft and helicopters performed Search and Rescue (SAR) operations, transported the injured as well as rescue personnel and equipment. Due to the lack of ambulances the injured were not only transported by military vehicles but also on several privately and volunteer-owned pickup trucks.

The Southern Coordination Centre, led by the minister of the interior, was established as the civil command centre in Phuket to assist in disaster relief in the area of six provinces. It was tasked with SAR of the victims, collecting the dead, identification of the dead, assisting travellers, repair of roads, restoring the telephone network and the electric grid as well as receiving and distributing relief aid. At the same time, a support centre was established in Bangkok to take charge over more extensive state-wide support and relief activities as well as to provide additional resources to the disaster provinces. This included a telephone exchange for international and domestic calls, a donation centre as well as an organization for transporting relief personnel and disaster victims.

From the day of the disaster on, several public and private aid organization units came from all over Thailand to the disaster area and began to assist in disaster relief activities. There are several of these organizations in Thailand and when it comes to relief activities, they did make an impact. However, the Thai authorities claimed that benefits derived from them were reduced by the fact that the organizations' activities as part of other relief efforts were unplanned and poorly coordinated.

In the initial phase, the Thai authorities concentrated on SAR, on getting the victims to medical care and on treating injuries as well as on providing security and on preventing

looting. In the later phase, the most important thing was to provide medical care to the victims in various hospitals as well as to transfer patients from the most overloaded hospitals to hospitals in the area of Bangkok. Patients were transported by surface and by air. This later on caused problems to, for instance, Finns because transferred patients' information was not recorded. Finnish relief workers were burdened by repeatedly having to search for them in different hospitals. Thai authorities did not intervene with the work of Finnish relief workers. Neither did they request any help but from the location the message was received that all help would be welcomed.

On 4.1.2005, the Thai Government made a resolution to reimburse travellers their post-disaster costs of accommodation and food as well as their domestic transport costs to the airport of departure. Furthermore, medical care for the injured would be covered in case they did not have sufficient travel insurance. For the deceased, handling in Thailand, the coffin as well as repatriation costs would also be reimbursed.

## **SRI LANKA**

In Sri Lanka there was no rescue system organized down at the village level. The focus of attention of the authorities was probably on rescuing local inhabitants on the east coast of Sri Lanka, which was badly damaged by the tsunami wave, on rescuing the 1 200 passengers on the train destroyed by the wave as well as maintaining law and order in disaster areas. There was a curfew imposed in the area but it was hardly observed. Soldiers had been organized to provide security for coaches transporting travellers and they themselves organized transports. Sri Lankan helicopters flew over the area but they did not participate in any evacuations. A gathering centre was established in a sports hall outside of Colombo. Medical supplies were freely available there and people could stay overnight on mattresses on the floor. Several hundreds of victims of the disaster gathered there and the hall was completely full.

### **2.1.3 Various countries' participation in rescue activities**

Within a few days, several countries sent help to the disaster area. French rescue and military units with their equipment came to Sri Lanka. Japanese, German, Singaporean and American rescue and military units came to Thailand and Indonesia. The 1 500 strong Japanese relief unit had special training and equipment to operate in disasters resembling a tsunami. The Japanese and Singaporean units had vessels and helicopters at their disposal and they could, among other things, perform maritime rescue operations. The German and French units consisted of rescue personnel and firefighters. Within approximately 2 days from the event the Americans deployed a helicopter carrier unit and escort ships from the US 6<sup>th</sup> Fleet in the Philippines to the coast of Indonesia. This unit made a big impact there because the infrastructure of the Aceh province including communications and roads was destroyed. In the initial phase when road transports were impossible, the helicopters of the naval unit provided basic supplies to the people that had survived the disaster in the province of Aceh.

According to Thai authorities, approximately fifty nations, from Europe, south-east Asia, southern and western Asia as well as from the regions of the Americas and the Pacific Ocean, with varying degrees of resources and equipment participated in the international rescue and relief operation. Only a few of them, however, made it to the actual

rescue phase and even fewer were actually useful in saving human lives. The Japanese, Singaporean and French rescue detachments made an impact because their equipment and training made it possible for them to find and rescue people at sea.

## 2.2 Evacuation and medical care in the area

### 2.2.1 The number of injured in the disaster areas

The tsunami caused widespread devastation on the coasts of the Indian Ocean and killed people at least in eight countries (Indonesia, India, Maldives, Seychelles, Somalia, Sri Lanka and Thailand). According to WHO statistics some 34 000 persons were injured in the disaster. Country-by-country numbers are shown in table 6. The worst damage in Thailand occurred in the provinces of Phang Nga, Phuket, Krabi and Ranong, all of which are popular tourist areas. Of the Finnish victims of the tsunami, the most were in Thailand and in the Phang Nga province, which was the worst devastated area in the whole of Thailand. Numbers shown by hospital are in table 7.

Table 6. The injuries caused by the tsunami in different countries.

Country	Injured
Indonesia	1 736 (hospitalized)
Thailand	8 457 (hospitalized)
Sri Lanka	23 059
India	7 214 - Tamil Nadu 3 432 - Kerala 1 707 - Andaman and Nicobar Islands 1 514 - Pondicherry 561
Malaysia	73 (hospitalized), 694 (treated in the emergency room)
Maldives	1 313
Myanmar	43
Seychelles	No information
Mauritius	No information
Tanzania	No information
Kenya	No information
Somalia	No information

Source: WHO Situation Reports 31 ja 34. [www.who.int/hac/crises/international/asia\\_tsunami/sitrep/en/](http://www.who.int/hac/crises/international/asia_tsunami/sitrep/en/)

Table 7. Tsunami patients brought to the hospitals in the province of Phang Nga.

Hospital	Total	ER patients	Patients in the ward	Foreign (ER+in the ward)	Perished in hospital within 24 h	Referred directly to follow-on treatment
Phangnga	648	233	415	474	0	90
Takuapa	2 926	955	1 971	473	3	367
Tabpood	25	0	24	15	0	0
Takuatung	156	122	34	37	0	78
Taimuang	618	567	51	148	0	21
Bangsai	267	162	105	59	0	10
Kapong	107	94	13	20	0	4
Kuraburi	550	496	54	29	0	3
Kohyao	34	0	34	7	0	8
<b>Total</b>	<b>5 331</b>	<b>2 629</b>	<b>2 701</b>	<b>1 262</b>	<b>3</b>	<b>581</b>

Source: Tsunami and Medical & Public Health Assistances, Phangnga Province. Phangnga Provincial Public Health Office, 23.2.2005.

## 2.2.2 The Thai health care system

Thailand has a developed health care system providing 90% of all health care services. The services of the public health care are organized in a similar fashion as in Finland. Health centres provide basic health care services and regional hospitals, central hospitals and university hospitals are responsible for providing specialized medical treatment (table 8). In addition, in Thailand there are more than 14 000 private clinics and almost 450 private hospitals with room for 40 000 patients. Many of the private clinics in Bangkok and other cities are of a very high standard. An indicator of the high standard of health care is the fact that many Finnish companies operating in Asia have contracted their employees' health care services in Thailand. However, there is a lack of doctors because the number of doctors in Thailand is about the same as in Finland even though the population of Thailand is a little over 62 million. In Thailand there is one doctor for every 3 100 inhabitants, whereas in Finland the comparable number is 252. According to Thai authorities the deficit of doctors is approximately 7 000. Distribution of health services is regionally unbalanced. In Bangkok and in the popular tourist destinations there are enough doctors but the sparsely populated north-eastern part of the country experiences an acute lack of doctors (Thailand Health Profile 1999–2000, [www.moph.go.th/ops/thealth\\_44](http://www.moph.go.th/ops/thealth_44)).

Table 8. The hospitals and health centres of the Thai public health care system.

	Univer- sity hos- pital	Central hospital	Special hospital	Regional hospital	Health centre	Health- care sta- tion
Bangkok	6	29	19	3	60	
Districts	5	25	41			
Provinces		67 + 57*				
Munici- palities				720	214	
Com- munes					9 738	
Villages						72 192

\* Thai armed forces' hospitals

The Thai Ministry of Health updated its preparedness plans in 2000. These plans also include instructions on providing emergency medical care in major accidents. Narenthorn Center, subordinate to the Ministry of Health, coordinates emergency medical care in Thailand and it is also responsible for developing the emergency telephone service. The free emergency telephone number 1669 is in nationwide use in Thailand. Major accident plans had been prepared with normal accidents in mind and no guidance existed for a major accident such as the tidal wave catastrophe. The magnitude of the devastation this time required that all available resources from all units had to be put to use, which slowed the start of the rescue effort. Ten hospitals in the disaster area (four in Phuket, two in Phang Nga as well as the Krabi, Ranong, Satung and Trang hospitals) operated as the primary medical care facilities. All of them were spared by the tsunami's devastation and they were able to activate their exercise-tested accident contingency plans.

### **2.2.3 The activity of the Thai health authorities**

The Thai Ministry of Health established its head command centre in Bangkok and regional command centres in each of the six disaster provinces. One hundred and five mobile emergency medical care units were deployed to disaster areas from several provinces. The first medical care unit already arrived in the badly devastated Phi Phi Islands within 6 hours after the disaster. Surgical teams were dispatched from Bangkok and from the other parts of the country to assist in the disaster area hospitals. Transportation of surgical and other medical supplies was started soon after the disaster. Doctors on leave came to their workplaces without having to be summoned. Retired doctors as well as medical students also went to assist in emergency rooms. The Thai Ministry of Health urged doctors residing outside the disaster area to report for relief duties. These doctors started to arrive within a couple of hours from the accident.

On the day following the tsunami the assisting units were already operating in Phuket (Vachira and Patong Hospitals) and at the ICU unit of the Surat Than Hospital. The dispatched units operated as change-over personnel, in which case non-stop operations could be conducted. During the first day, there was a lack of red blood cells, blood products, surgical supplies and antibiotics. Even in spite of the large numbers of patients and continuous surgery, medical supply services operated in a satisfactory manner. Hospital morgues soon filled up and the deceased were transferred to temporary collection centres at temple areas. In order to intensify psychological care the Ministry of Health dispatched six mobile mental health units to six provinces. Each unit comprised a psychiatrist, 2–3 psychologists, a social worker, a pharmacist, an assistant and a chauffeur.

The devastation also touched hospitals and the health care personnel. In the area of six provinces, altogether 65 health care facilities were damaged. The Phi Phi Islands' hospital in the Krabi province and the Phra Thong health centre in the Phang Nga province were totally destroyed.

After immediate emergency health care, the Thai authorities soon began to clean up the environment and to prevent possible contagious diseases. Ever since 1970, the Thai Ministry of Health has regularly charted the prevalence of 68 infectious diseases. After the tsunami, 20 of these diseases were monitored. Information was collected from 77 health centres, 22 public hospitals, four private hospitals, two temporary shelters and two coronary units. Members of the monitoring team visited these places daily and analysed and compared the results with the prevalence figures of the same time of the preceding year. An increase in infected wounds and patients with diarrhoea was found. There were generally many causes of the infections. Among the pathogenic agents there was a remarkable abundance of enteric bacteria, which could have been caused by the fact that the sewer system was demolished in the disaster area. Efficient underground waste disposal, sanitation activities and inoculation campaigns among the general public prevented the outbreak of epidemics.

Pursuant to Thai law, the police and doctors have to perform a coronary inquest (investigation of the cause of death) as soon as possible on a person who has died accidentally. Since doctors were not available for these tasks, inquest times became drawn out. Places where the deceased were kept soon became full and new spaces for preserving the bodies were either found in hospitals or temporary morgues were built. In hospitals,

for the purpose of identifying the deceased, any available personal identification was saved, they were photographed and given an identification code. Reinforcements from medical faculties and from police DVI (disaster victim identification) units arrived to the disaster areas to perform victim identification.

In time the identification process became much harder and due to tissue decomposition it was difficult to obtain proper DNA samples. They attempted to keep the deceased who were thought to be European at common sites. The intermittent lack of body bags and coffins hampered the handling of the deceased. Thai deceased were given temporary burials before the identification process to preserve the bodies a little better when proper morgues were not available. These burials spawned false rumours about intentional annihilation of the bodies.

#### **2.2.4 Medical treatment of the injured in the area**

As soon as the tsunami passed, local inhabitants began to transport the injured to the health centres and to hospitals in the area. In the province of Phang Nga (234 000 inhabitants) the Thai civil protection authorities had 60 ambulances at their disposal. Due to the small number of ambulances, patients were transported from the disaster areas and from the gathering centres with all available vehicles, especially with small pickup trucks. From the beaches of Khao Lak, people had already been rescued during the morning. In the afternoon, the Navy and the Air Force joined the evacuations and some of the deceased were transferred to temples.

In the area of Phang Nga those that were only slightly injured were transported to the area's health centres (Lamkaen and Natoey) and to local hospitals (Thaimuang, Kuraburi, Kapong, Bansai, Tubpud, Takuatung). The seriously injured were taken to the Phang Nga Hospital and to the Takuapa Hospital, which was the busiest hospital at the time in the disaster area.

During the first day, the Navy used 10 helicopters and the police five type Bell 212 transport helicopters. According to the director of relief operations at 16.00, they had altogether 22 helicopters at their disposal. On the second day, an additional number of 10 Army helicopters reinforced these. The French and the Singaporean relief units brought one helicopter each. In addition, C130 Hercules transport aircraft were available for air-lifts.

##### **Takuapa Hospital**

The victims from the worst affected disaster areas in Thailand, Khao Lak and Pakarang, were taken to Takuapa Hospital, which under normal conditions is responsible for providing specialized medical care for 100 000 inhabitants in four municipalities. The hospital has 177 beds, a six-bed intensive care unit, four operating theatres as well as an internal disease ward, a surgical ward and a paediatric ward. The staff comprises of 118 nurses and 14 doctors, of whom one is a general surgeon and two are orthopaedic surgeons. The normal ER duty roster, which was also in effect at the time of the tsunami, comprised one doctor on call, two nurses and one medical assistant. As it is known that 600 patients entered the hospital during the first two hours, the glaring discrepancy between the requirement for help and available resources can well be understood.

Information of the disaster reached the hospital at 10.30 when an unknown caller from the village of Bob Nam Khem said that a wave had swept over the village causing great devastation. The hospital ambulance sped to the scene and the ambulance drivers encountered many injured and dead. When the picture of the magnitude of the disaster began to form, the Takuapa Hospital staff implemented the disaster preparedness plans. The start of the implementation was helped by the fact that two weeks prior the hospital had conducted a disaster exercise in which the scenario was a traffic accident involving 80 patients. Nurses were summoned to work by bullhorns from nearby residences and doctors were summoned by phone. Nine doctors could be contacted and they arrived at the hospital within an hour. Three doctors became victims of the tsunami themselves; one perished but the remaining two were well enough to come to work on the second day after the tsunami. Of the hospital staff, one nurse and a library assistant also perished. One of the hospital's four ambulances had to be written off as material damage.

On the basis of the patients' injuries, experienced nurses performed triage. Patients whose injuries required immediate medical care to save their lives received a red label. These patients were directly taken to the ward or to the ICU. The patients whose bruises contusions were not about to put them into immediate shock or who were not bleeding received a yellow label. The doctors examined them as soon as they became available from the more urgent cases. Patients with only small cuts and minor injuries received a green label. Nurses treated these patients in the ER area and after treatment released them from the hospital. The deceased and the patients deemed hopeless received a blue label. The bodies were initially taken to another building and once it filled up, directly to a nearby temple area to wait for the victim identification. Temporary shelters for the victims' family members were erected on hospital grounds.

During the first day, a total of 986 patients came to the Takuapa Hospital ER. The patients' problems mainly consisted of breathing difficulties due to having been submerged or were various kinds of injuries such as cuts, bruises, fractured bones and head injuries. Within a week almost 2 300 injured in the tsunami were brought to Takuapa Hospital. According to Takuapa doctors ca. 250 patients were seriously injured, almost 400 were moderately injured and approximately 1 600 patients had minor injuries. Takuapa treated 54 Finns.

During the first day, more doctors arrived from other hospitals bringing with them more dressing materials and drugs. Surgery was performed in the operating theatres around the clock. Even in spite of the surgical cleansing of the wounds and antibiotic treatment many wounds became infected and required repeated surgery. Altogether 100 doctors arrived to assist from elsewhere in Thailand or from abroad. Japan sent a team of 30 doctors and a Finnish Red Cross doctor performed operations in the hospital. During the first week, 683 operations were performed at Takuapa on those injured in the tsunami.

Already on the first day, when local doctors noted that all patients could not be treated as well as was required, foreign patients, especially, were sent to Bangkok and to other hospitals. A large, twin rotor, Chinook military helicopter waited in a nearby school's field ready for medical transfer transports. Depending on the relationship between stretcher cases and seated patients, the helicopter could transport 40–60 patients. Patients were also transported by ambulance to Phuket airport, from where they were flown to Bangkok. To receive follow-up treatment 116 patients were transferred to Bangkok, 66 to Su-

rathan, 57 to Sonchla, 17 to Phuket and 22 to three other hospitals, totalling 277 patients from Takuapa Hospital. By 28 December all foreigners had been transferred to Bangkok or elsewhere for follow-up treatment. Volunteers continued to work at Takuapa Hospital until 3 January.

### **Phang Nga Hospital**

The other central hospital in the area was Phang Nga Hospital, which treated a total of 626 patients after the disaster. There are 217 beds on the internal medicine, surgical, orthopaedic and paediatric wards. In addition, there is a post-op ward and an ICU. Of the staff, 19 are doctors and 130 nurses. Four Finnish patients were treated at Phang Nga.

### **Taimuang Hospital**

The Taimuang local hospital also significantly contributed to treating the injured. The hospital has 30 beds and three doctors normally work there. The hospital could be compared to a Finnish health centre with its own medical ward. Immediately following the disaster nurses living close by and doctors from nearby private clinics came to the hospital. In the hospital's operating room, wounds could be sutured but the seriously injured were taken elsewhere for further treatment. During the first day, seven doctors worked at the hospital. On the second day, more doctors from other cities arrived. Taimuang treated a total of 751 patients most of whom, i.e. 589, were foreigners. Of the patients, 17 were Finns. All foreign patients had been transferred to follow-up treatment mainly in Phuket within three days of the disaster.

### **The hospitals in Phuket**

Of the hospitals in Phuket where Finns were treated, the most important ones were Bangkok Phuket, Vachira, Phuket International and Patong.

Of these **Bangkok Phuket** is a private 120 patient hospital, employing 55 doctors. During the first day, the hospital ER received 700 patients, when normally they only see ca. 300 per day. All in all 1 247 patients were treated at Bangkok Phuket, of whom 160 were operated on. One patient perished in hospital. The hospital treated 26 Finns.

**Vachira** is a 500 bed public health care hospital, employing 70 doctors. The hospital treated 1 088 tsunami patients, of whom 138 were operated on. Nine patients died while in hospital. Vachira treated six Finnish patients.

**Phuket International** is a private 90 bed hospital, where 18 doctors work. During the first day, 500 patients were brought to the hospital. A total of 134 patients were treated on wards, of whom 65 were operated on. Phuket International treated 15 Finns.

**Patong** is a 60 bed public health care hospital, which normally does not perform any surgery. Eight doctors work in the hospital. After the tsunami, the 30 doctors working in the hospital also performed operations in the three operating theatres. Patong treated six Finnish patients.

### **The hospitals in Bangkok**

Depending on the source, Finnish patients injured in the tsunami were treated in seven hospitals in Bangkok: Bangkok Nursing Home, Chulalongkorn University Hospital,



Bangkok Hospital, Param Hospital, Samitivej Sukumvit, Piyavet Hospital and Bangkok General. A total of 50 Finnish patients were treated in these hospitals. Some of the patients were flown to Bangkok directly after the disaster, others had already received medical care in other hospitals in the disaster area. The hospitals were well equipped but due to the large number of patients, some of them had to wait one or two days before they had their necessary operations.

### **2.2.5 Treatment of Finns in the hospitals and health centres in Thailand**

By combining the information from various hospital sources, 225 Finns were treated in Thai hospitals and health centres. Scores of patients were operated on and patients received care in ICU units and on normal wards. In spite of having received proper medical treatment, one Finn perished in a Thai hospital. Finns were treated at 23 different hospitals or health-centres.

The most prevalent medical problems were breathing problems with patients that had been submerged as well as various contusions, cuts and fractures. Contaminated water entering the lungs often led to pneumonia, which was difficult to treat. Dirty wounds combined with hot weather soon led to deep infections and to sepsis. High risk of gangrene, resulting in amputations, is associated with compound fractures of extremities. The primary objective of the Thai doctors was to save the patient's life and limb. In addition to the above, a large group of patients had received bruises and cutaneous cuts of varying degrees.

#### **The activity of the Finnish medical teams**

The first medical team to arrive in Phuket in the afternoon of Monday 27.12. was the EMA-Group team, comprising of a doctor and two nurses. Finnish patients with various kinds of contusions were already waiting at the Phuket airport. Most of them were ambulatory. The fact that boarding the plane took so long created a practical problem. The crew was approaching its maximum daily working hours and the plane should have taken off. The Civil Aviation Administration, however, had granted an exceptional permit for the crew to exceed the working hours. The flights were categorized as rescue flights and in this case, the doctors were consulted as the plane's departure time was planned. The boarding was finally complete and one of the EMA-Group's nurses flew back to take care of the travellers.

After the plane's departure the EMA doctor and nurse, accompanied by Aurinkomatkat travel guides, went to Phuket city hall, where the local authorities had established an information point and where there was also a Finnish consular office. At city hall as well as at a school rented by Aurinkomatkat the injured were examined, treated and the survivors' names were recorded. During the same night the EMA team went to Bangkok Phuket Hospital, Vachira Hospital, Phuket International Hospital and Patong Hospital. Name lists categorized by country were posted on the hospitals' bulletin boards, but the data, however, was unreliable. Therefore, the team searched for the Finnish patients, room by room, established their injuries and recorded their personal information as well as information on missing family members. The patients were told that flights from Finland were on their way, which they now just had to wait for. The same procedure was repeated in all hospitals. The main objective was to establish the number of Finnish pa-

tients and the severity of their injuries as accurately as possible. The primary task was to select the patients for the next evacuation flight on medical grounds. By Tuesday morning, 78 Finnish patients had already been found in the four Phuket hospitals.

The hospitals' outpatient clinics were overflowing with patients. The ones with lesser injuries had been put on mattresses to rest in lobbies, categorized by country. Wards were peaceful. In the private hospitals (Bangkok Phuket and Phuket International) the patients' epicrisis were written in English, whereas in the public hospitals (Vachira and Patong) they were written in Thai. The public hospitals are more modestly equipped and they were even more burdened with patients than the private hospitals. This was partly because patients are often channelled from health centres and smaller public hospitals to larger public health care units. The local population also more often sought their way to public hospitals. Due to the chaotic situation and the large number of patients, hygiene and medical care standards were occasionally inadequate.

On Tuesday 28.12. the first Finnish Red Cross group and the second EMA medical team arrived in Phuket and thus the search area could be expanded. On the whole the EMA continued its work in those hospitals where it was already established and the Finnish Red Cross went to destinations farther away. Ambulances and vans transported 28 patients to the flight due to depart for Finland in the afternoon and other seats were assigned to patients with lesser injuries as well as to other passengers. Travel agencies' staff and medical teams did not always see eye-to-eye on who should be on the flights, who should make that decision and what kind of quotas the different travel organizers have on each flight. All patients brought from hospitals were taken along. Some of the passengers with lesser injuries had to stay at the airport and wait for another flight.

Soon after the disaster, Thai authorities had transferred patients to Bangkok for medical treatment. Insurance companies provided the EMA with the information on transferred Finnish patients on Monday 27.12. An EMA nurse that had travelled to Bangkok was in the process of establishing the Finns' situation. On Wednesday, the EMA sent a team of one doctor and three nurses to Bangkok. Workers of the Lutheran Mission performed a valuable service by volunteering to go around the Bangkok hospitals in search of Finnish patients. Even though the hospitals in Bangkok are of very high standard, the large number of patients had created a lack of resources in many hospitals. In order to give life-saving emergency care to some patients, other patients requiring surgery had to be left untreated. On Tuesday, for instance, compound fractures requiring urgent care were still not operated on and too few infected wounds could be cleansed. On Wednesday, there were several Finnish patients in critical condition in the hospitals of Bangkok. The patients required surgery to treat deep soft tissue infections as well as intensive care to treat life-threatening infections and damaged lungs. The administration of pain-relieving medication and infusion, at times, was also inadequate. The delay in cleaning even cutaneous wounds had caused severe infections.

The Finnish Red Cross and EMA medical teams transported patients from the various hospitals in Thailand to the Phuket and Bangkok airports and treated others with lesser injuries in hotels and at airports. Since Monday 27.12. Finns had been transported back to Finland on Finnair and Air Finland flights. As patients were able to get back home, the requirement for medical teams in Thailand diminished. The daily variance of personnel

is shown in figure 27. The total number of Finnish Red Cross and EMA personnel in the disaster area is shown in table 9.



Figure 27. The daily numbers of Finnish medical personnel.

At the airports treatment was focused on selecting the passengers for flights as well as assessing and ascertaining their flying condition. Airports lacked personnel and equipment and wheelchair patients were transported, for example, on baggage carts. As the roles between actors became more defined and when relief flights from Finland brought along more medical supplies and personnel, little by little the activities became more efficient. From then on, the biggest challenge was the correct timing for transferring patients to be evacuated to the airport.

Table 9. Finnish medical personnel in the disaster area.

	doctor	nurse	psychologist	other	total
<b>Thailand</b>					
Finnish Red Cross	10	16	6	13	45
EMA	8	22	0	0	30
<b>Sri Lanka</b>					
Finnish Red Cross	1	7	0	7	15
EMA	1	1	0	0	2
Total	20	46	6	20	92

Local nurses and assistants were at hand at Phuket airport to assist Finnish medical staffs. Mattresses were spread on floors for those evacuees requiring a lying position. Intravenous equipment and supplies for infusion and medication was available for patients that were in the worse condition. Food and clothing, too, were provided to the

evacuees. During the waiting periods, Finnish helpers supported the most traumatized evacuees by talking with them.

## **2.3 The evacuation flights and medical care on the flights**

### **2.3.1 The evacuation flights**

#### **Thailand**

Finland evacuated travellers from Thailand on a total of 17 flights, of which one was flown to Arlanda, Sweden, and the rest to Helsinki-Vantaa. Of the flights 10 were Finnair proper evacuation flights, three were Air Finland evacuation flights, one flight was an air ambulance flight (Finnair/Hospital District of Helsinki and Uusimaa), one was an aero-medical transport (Jetflite) and two were regular Finnair flights. Apart from four flights, all had Finnish medical staff aboard (appendix 6).

Evacuation of the Finnish travellers by air can be said to have started when Finnair received information of a natural disaster in the area of Thailand on the morning of Sunday 26 December. On the basis of information received from the disaster area Finnair's flight surgeon contacted the EMA at around 18.00 so as to be sent to Thailand to assess the situation and the requirement for medical assistance. An EMA medical team (doctor and two nurses) flew to Thailand on a Finnair flight that evening and arrived on the scene on Monday 27.12.

As the overall situation of the disaster began to unfold in Finland, the Coordination Board of Government Chiefs of Preparedness took the decision on Monday 27.12. that all Finnish travellers would be evacuated to Finland as soon as possible. Responsibility for organizing the evacuation flights was assigned to Finnair and the responsibility of coordinating medical assistance was assigned to the Finnish Red Cross. Later on that afternoon the Coordination Board of Government Chiefs of Preparedness approved Finnair's plan regarding the evacuation flights and at that time it was decided that the outgoing legs to the destinations be used as relief flights, on which relief personnel and materiel was flown to the disaster area. Crews on the Finnair evacuation flights were selected from volunteers so that at least one half of the cabin crew had prior medical (nurse) training. On Air Finland flights, the MedFlight staff was responsible for medical care.

On the flights, the number of patients varied from a couple to almost cabin capacity. The severity of injuries, too, greatly varied from flight to flight. On aircraft without stretcher places but with a business class instead, the patients in the worst shape were seated in the business class. In this way, they were able to travel in a position as close as possible to the lying position of stretchers.

During the flights the intravenous infusion of patients was initiated to fight diarrhoea, high fever and infected wounds and medication of various kind was administered (antibiotics, pain-relieving, antipyretics, anti-nausea, sedatives as well as antithrombotic injections). Cuts and bruises were inspected, cleaned and dressed. Almost all passengers were traumatized by the event and many required psychosocial assistance and discussion therapy (appendix 6)

## **Sri Lanka**

Finland evacuated patients from Sri Lanka on two flights (Air Finland and Finnair). The first flight arrived in Finland on 28.12.2004 and the second on 29.12. Patients had similar, albeit lesser, injuries compared to those evacuated from Thailand. While enroute, wounds were cleaned and dressed and patients were given pain-relieving and anti-nausea medication. Intravenous infusion and medication was administered to a few patients.

### **2.3.2 Aeromedical evacuation**

During the time when Finns were being evacuated from Thailand, one aeromedical evacuation was flown on Jetflight's Falcon aircraft. A Finnish company, in cooperation with an insurance company, commissioned the evacuation. On the flight, an EMA doctor and a nurse cared for three seriously injured patients, who were brought back to Finland. Initially the commission concerned one patient only but EMA doctors decided to take advantage of the full capacity of the plane. The flight departed Finland for Hat Yai on 30 December at 00.35 and returned to Finland on 31 December at 08.35.

### **2.3.3 Air ambulance flight**

During Tuesday 28.12. and Wednesday 29.12. the Finnish Red Cross and EMA got an overall picture of the number of Finns in hospitals and of the severity of their injuries. At the same time, it became evident that infections were about to threaten the lives of seriously injured Finns, who were being treated in hospitals. This is when the idea to convert a passenger aircraft into a flying hospital – an air ambulance aircraft – in order to bring the patients home, came up. Therefore, EMA Helsinki twice contacted the Ministry for Foreign Affairs, Finnair and the Hospital District of Helsinki and Uusimaa management. The joint Hospital District of Helsinki and Uusimaa meeting of internal medicine and surgery on Thursday morning 30.12. also agreed that a rapid medical evacuation by air was the only option to save the lives of the seriously injured in the area.

On Thursday morning 30.12. Finnair and the Hospital District of Helsinki and Uusimaa were tasked to organize an ambulance flight to evacuate the seriously injured from Thailand. Finnair performed the required alterations to the aircraft and the Hospital District provided the necessary staff and medical equipment. The Hospital District management made the decision at 10 o'clock to go ahead with the ambulance flight.

Finnair commenced the required modifications to a B757 aircraft on 30.12. at 12.00. The Hospital District of Helsinki and Uusimaa provided the medical supplies and the EMA furnished stretchers suitable for the aircraft as well as other supplies. Medical supplies were brought along by the personnel of Pirkanmaa Hospital District, too. The medical gear was collected and delivered to the airport by 16.00 and the required aircraft modifications were completed at the same time as well. In order to provide beds in the cabin, stretchers were strapped to the folded seat backs of the middle seats on both sides of the aisle. While the modifications were being made, preliminary information on the number of patients to be evacuated and their injuries was available. On the basis of this data as well as the aircraft's capacity, 7 intensive care unit (ICU) stations and 15 other treatment stations were constructed for a total of 22 patients in lying position. The ICU sta-

tions were constructed in the back of the plane to secure adequate power supply (figure 28).

The plane also carried 44 000 litres of medical oxygen and compressed air as well as 12 respirators. In addition to the fluids and pharmaceutical supplies required in intensive care, 10 units of red blood cells and 10 units of fresh frozen plasma were brought along. Surgical equipment in view of possible operations as well as surgical dressings and drapes were also taken along.



Figure 28. Inside the cabin of the air ambulance

The medical staff of the aircraft comprised 13 doctors (one general surgeon, one orthopaedic surgeon, one plastic surgeon, 9 anaesthetists and one consultant of infectious diseases) as well as 27 nurses specialized in ICU operations and surgery from different Hospital District of Helsinki and Uusimaa hospitals and the Pirkanmaa Hospital District (Tampere University Hospital) as well as two EMA technical assistants. The medical team was ready at Meilahti Hospital at 17.00 when the pre-flight briefing commenced. The medical staff was ready for the flight at 18.00. Work aboard was organized so that a team of one anaesthetist and two nurses was responsible for every ICU patient. A team of similar size was responsible for two conventional patients on each side of the aisle. The orthopaedist, the plastic surgeon and the specialist for infectious diseases acted as consultants to the rest of the medical staff and, when required, treated all patients. The medical staff was also assigned other special tasks such as recording information, providing medical service and communications.

The air ambulance departed for Bangkok on 30.12. at 19.59 and arrived there on 31 December at 08.01. The aircraft continued on to Phuket at 10.31 and landed there at 11.41. The aircraft took off on the return leg to Finland at 14.31 and landed at Helsinki-VVantaa airport on 1.1.2005 at 03.41. The time elapsed, including stopovers, was just

Vantaa airport on 1.1.2005 at 03.41. The time elapsed, including stopovers, was just under 32 hours.

During the stopover in Bangkok the Finnish Red Cross and EMA teams put six patients on the aircraft from various Bangkok hospitals and from Phuket eight injured were taken aboard. Of the 14 patients aboard, 13 were adults. Prior to the return leg, every patient was examined and an enroute treatment plan was made for him or her. The patients' personal information as well as estimates of post-flight treatment requirements once back in Finland was reported to the operational management at the Hospital District of Helsinki and Uusimaa.

Of the patients, four were either in critical or serious condition and required intensive care. Ten patients were in satisfactory condition. They had deep infected wounds and soft tissue damage requiring surgery, fractured bones and thoracic injuries causing breathing problems. Four operations were performed enroute: fixing a fractured tibia with an external fixator, fasciotomy for compartment syndrome of the lower leg and two operations to manage wounds. The wounds of eight patients were examined and rebandaged. In addition, all patients' soft tissue injuries were examined and dressed again. Approximately 20 laboratory analyses were performed during the flight.

## **2.4 Medical treatment in Finland**

### **2.4.1 Measures taken at the Helsinki-Vantaa airport**

The Coordination Board of Government Chiefs of Preparedness decided on 27.12. to establish medical treatment for the evacuees as well as psychosocial assistance at the Helsinki-Vantaa airport. This task was assigned to the Ministry of Social Affairs and Health. The Ministry of Social Affairs and Health contacted the Hospital District of Helsinki and Uusimaa deputy Medical Director as well as the Chief of Preparedness and Information Security at around 10.30. Töölö Hospital began to take action and the Hospital District's Preparedness and Information Security Chief requested Helsinki-Vantaa to organize a meeting to initiate preparations for reception arrangements and he also alerted the Vantaa Crisis Centre. There was only a little time to complete the arrangements because the first flight bringing back Finns was scheduled to arrive at 20.20 the very same day.

The Hospital District of Helsinki and Uusimaa medical organization initiated activities in a meeting held at 13.15, in which it was decided to raise its hospitals' readiness to the level of major accidents, to establish the Medical Director's operational centre in Töölö Hospital and to set up an emergency station at Helsinki-Vantaa, to employ Finland's Public Authority Network *VIRVE* and to centralize public information to the Medical Director. Sufficient staff was available on short notice.

The first meeting was held at the airport at 14.00 attended by representatives of the airport, the Traffic Police airport unit, Finnair, the Finnish Red Cross and the Hospital District of Helsinki and Uusimaa. In addition to the above, the second and bigger meeting at 16.00 was attended by the Vantaa Crisis Centre, the capital region parishes' Psychosocial Assistance of the Church and the rescue department of the State Provincial Office of Southern Finland. The meeting decided to employ the SAR (Search And Rescue) organization, originally developed for aviation accidents, in this operation. The airport ar-

ranges annual exercises for the SAR organization, in which authorities and companies participate. During 2004, the SAR working group had planned the inclusion of so-called support functions. Support functions consist of services other than the actual rescue, such as medical service at the airport, follow-on transports of slightly injured patients as well as supporting family members. The support functions, however, had never been tested in a real situation because the first exercise was planned for February 2005. It was decided that the support functions would be implemented in applied form. It was also decided in the meeting that the National Traffic Police airport detachment would have general command of the activities at the airport, led by the chief of the detachment.

All in all 68 police officers and office personnel participated in the work of the airport situation control organization. The support functions' command element convened more than 20 times around the clock. The meetings were normally held 45–90 minutes prior to the flight's estimated arrival, this way every organization could prepare its tasks before the plane landed. Every organization was independently responsible for its own functional field, aided by its expert staff.

Function	Actor
Space, logistics, public information	Airport
Operational police activity	Traffic Police, Vantaa and Helsinki police departments
Medical services, ambulance service	The Hospital District of Helsinki and Uusimaa
Passenger lists, profiles	Airlines (Finnair and Air Finland)
Immigration control	Helsinki Border Control Unit (Frontier Guard)
Crisis support	Vantaa Crisis Centre, capital region parishes' psychological assistance of the church, Finnish Red Cross voluntary rescue service, Finnish Red Cross psychologists' readiness group

The first evacuation flight arrived on 27.12. at 20.20 from Phuket, Thailand. All passengers were medically assessed at the gate whereafter they were taken to the Congress Centre. At the Congress Centre, the Helsinki Border Control Unit conducted the passengers' immigration control. Required emergency medical care and crisis support were provided within the same confines. It was soon noticed that the spaces were too small and unpractical. Furthermore, it was unnecessary to direct all passengers through all available services because some passengers either did not want or did not require assistance.

The following three flights on 28.12. were received in the same spaces. After this, the reception area was transferred to the non-Schengen terminal. A plywood-wall-confined medical station was erected next to gate 30a on the second floor of the passenger terminal, later on expanded by hanging tarpaulins. The command point of the organization was established one floor down, in the terminal space still under construction. The new spaces were completed in the early hours of 29.12. when the fourth evacuation flight arrived.

From the very beginning, the method of operation was that planes were met by two ER doctors, one of whom went inside the cabin to assess the condition of the passengers, if required. The cabin crew were asked to provide information on the passengers' condi-



tions and, if necessary, the most seriously injured or ill were taken off the plane first. Otherwise, the patients which were able to walk left the plane first followed by the immobilized patients who were unable to walk. The Civil Aviation Administration rescue personnel transported the patients unable to walk from the aircraft to the medical station in wheelchairs or on stretchers. The Hospital District of Helsinki and Uusimaa medical team comprised of orthopaedic surgeons, a plastic surgeon and a doctor specialized in infectious diseases. All of the special competence in these fields was needed. Most nurses came from Töölö Hospital. Nurses and doctors came from Jorvi, Lohja and Peijas hospitals as well. Cooperation among staff from different hospitals worked well.

At the airport the key medical service personnel used Finland's Public Authority Network *VIRVE* phones throughout the entire situation. Communication was hampered by the fact that various hospitals' medical directors did not have access to *VIRVE*, and this had to be circumvented by calling the various actors' private mobile phones. There were problems in relaying patient information from the aircraft to the airport. Reports from the EMA went to Töölö Hospital and the information did not always reach the airport.



Figure 29. The Hospital District of Helsinki and Uusimaa medical station at Helsinki-Vantaa airport.

The first evacuated patients mostly suffered from various contusions. Later on, the most prevalent injuries and ailments were infected soft tissue damage and intestinal infections. Some of the passengers were in an anxious state of mind and required psychological treatment. Patients requiring urgent hospitalisation were mainly taken to the Hospital District of Helsinki and Uusimaa hospitals and non-urgent patients were transported to hospitals in their home communities all the way to Central Finland and Savo districts. Hospital transports were conducted by ambulances reserved for non-urgent transports so as to maintain the capital region's emergency readiness. The ambulances and invalid

taxis used for transports did not have Finland's Public Authority Network *VIRVE* phones, which caused major problems and extra work in arranging the transports. Each ambulance had to be contacted by mobile phone and no list of the ambulances' phone numbers existed.

By the evening of 2.1.2005, 235 persons had been processed at the airport reception point. In addition, three patients had directly been taken to hospitals from an aeromedical transport. Of the patients, 89 were taken to the Hospital District of Helsinki and Uusimaa hospitals (Töölö, Meilahti, Hospital for Children and Adolescents, Jorvi and Peijas), 47 to other hospitals and 103 patients were discharged after having received follow-on treatment instructions.

## 2.4.2 Treatment in various Finnish medical care establishments

A questionnaire was sent to hospital districts and health centres to establish the number of patients treated in hospitals and health centres. According to the questionnaire by the end of January 2005, 154 patients had been treated in Finland's hospitals. In addition, 86 patients who had not entered hospitals were treated in health centres. The public health care organization reported to the Commission that altogether 240 patients were treated by them (table 10). Most of the patients were in Hospital District of Helsinki and Uusimaa hospitals (98), Tampere University Hospital (18), Päijät-Häme Central Hospital in Lahti (8) and Turku University Hospital (5). Around the country, patients were hospitalised in 15 hospital districts. In addition, private hospitals and private doctors treated patients.

Table 10. Patients treated by the public health care divided by university hospital districts.

District	Specialized care			Basic care			District total
	adults	children	total	adults	children	total	
Helsinki	78	20	98	54	5	59	157
Turku	7	0	7	7	2	9	16
Tampere	25	5	30	8	0	8	38
Kuopio	9	1	10	7	1	8	18
Oulu	9	0	9	2	0	2	11
<b>Total</b>	<b>128</b>	<b>26</b>	<b>154</b>	<b>78</b>	<b>8</b>	<b>86</b>	<b>240</b>

Most of the seriously injured patients were treated in Hospital District of Helsinki and Uusimaa hospitals. This care could be administered without delay and bad logjams were not encountered since 40 other patients were transferred from Töölö Hospital to the other hospitals in Helsinki. An agreement was also made to operate on patients from Helsinki in Jorvi and Peijas hospitals at the busiest period of the night of New Year's Eve, when the seriously injured patients were brought back to Finland.

The patients' injuries were mostly serious tissue damage caused by infected wounds, bruises and fractures (table 11). Several types of bacteria, for instance, earth bacteria and fungi, caused inflammations of wounds and ten of the patients were diagnosed with

typical hospital bacteria. In addition, contaminated water had entered some patients' lungs resulting in pneumonias that were difficult to treat. Several venous thromboses were diagnosed as well as five life-threatening pulmonary emboli. Five patients' blood cultures revealed bacteria as a sign of sepsis. Many of the inflammation-causing bacteria were resistant to commonly used antibiotics. Several patients required care in intensive care units as well as surgery on wounds and fractures. Tissue and skin grafts were performed by plastic surgeons weeks after the disaster. Altogether 60 operations were performed at Töölö Hospital and several operations were performed on patients treated in other hospitals as well. Tissue transplants were successful and even serious injuries were so well treated that no limbs had to be amputated. Rehabilitation of the most seriously injured will take years. One patient died of brain damage. The patient in question had received proper care in Thailand and he had already been operated on twice. Even before he was evacuated to Finland, his prognosis was bleak.

In Finland, a coronary inquest (investigation of the cause of death) has been performed on 142 deceased. Most of the victims had drowned and a small number of the deaths were mainly caused by massive trauma to the head and thorax. Death was probably instantaneous. Examinations have shown no evidence of any of the victims having had suffered a prolonged death.

Patients treated by physical injuries also had an opportunity to seek crisis assistance or psychiatric consultation. The disaster also caused mental problems requiring psychiatric care. The treatment of mental problems will continue for a long time.

Table 11. Types of injuries treated at public health care establishments.

Injury type		Special care (154 patients)	Basic care (86) patients
<b>Fractures</b>			
	torso	15	0
	upper extremity	5	1
	lower extremity	12	0
<b>Total</b>		<b>32</b>	<b>1</b>
<b>Soft tissue injuries</b>			
	head	16	0
	torso	22	2
	upper extremity	35	9
	lower extremity	89	2
<b>Total</b>		<b>162</b>	<b>13</b>
<b>Infections</b>			
	wound	75	8
	pneumonia	16	1
	intestine	17	5
	other	18	6
<b>Total</b>		<b>126</b>	<b>20</b>
<b>Pulmonary embolism</b>		<b>5</b>	<b>0</b>
<b>Sepsis</b>		<b>5</b>	<b>0</b>
<b>Mental problems</b>		<b>16</b>	<b>60</b>

When patients went to health centres, they sought treatment for various bruises and cuts. The main reason for visiting health centres has been mental health problems. In addition to therapeutic discussions with doctors, patients were prescribed sedatives. The typical diagnosis was traumatic stress reaction. Many patients have been on sick leave because of mental health problems.

## **2.5 Psychosocial assistance and services**

According to the Ministry of Social Affairs and Health publication (Psychosocial assistance and services in traumatic situations, Ministry of Social Affairs and Health publication 1998:1) there are four phases in disaster relief, which are: 1) preparation phase, 2) rescue and recovery phase, 3) repair phase and 4) rebuilding phase. The preparation phase includes plans of action and coordinating them as well as required training. The rescue and recovery phase includes support during the shock phase, i.e. immediate mental help. The repair phase comprises of information and guidance, crisis interventions and rituals. The rebuilding phase includes follow-up and, if required, longer-term care.

The psychosocial assistance and services concept describes the entity formed by the mental, social and spiritual services that are intended to help people. The objective is to prevent and ease the effects of a traumatic crisis. The victims of the Asian catastrophe consist of the orphaned children and adolescents, those injured and disabled in the disaster area, family members of the dead, missing, injured and disabled and other people close to them as well as persons having been in the disaster area. Support is also offered to those having participated in the actual rescue and crisis work as well as to volunteer helpers.

Psychosocial assistance and services to the victims of the Asian disaster have been arranged during the rescue and relief operation in Thailand, during evacuation flights, at the Helsinki-Vantaa airport as well as in hospitals and in the home communities.

### **2.5.1 Psychosocial assistance in Thailand and on evacuation flights**

The natural disaster in Asia was an extremely traumatic event to many who witnessed it. Those washed away by the wave and who eventually survived were exposed to fear of death or fear of serious injury. Many of them lost several family members and acquaintances, some were seriously injured. Being exposed to a traumatic event was prolonged when uncertainty over the fate of family members prevailed, when one had to wait for help or when the fear of recurring tsunami waves persisted.

#### **Thailand**

The initial phase assistance and support was provided by tourists in the area, guides, divers, local inhabitants and authorities. Help was spontaneously organized without leadership or centralized coordination. People began to bring messages to each other of other people needing help. The immediate support was expressed as compassion, care and help in concrete issues. Finnish organizations having arrived at the scene were the Finnish Red Cross, The Finnish Lutheran Mission and Fida. Help came from other sources as well, such as through Finpro from representatives of companies involved in the export business in the area.

The workers of the Finnish Lutheran Mission in Bangkok contacted the local embassy and offered their help. Two ministers travelled from Bangkok to Phuket on 28.12. Their task was to provide mental support and to act as interpreters. They worked at Phuket airport and in the disaster area's hospitals and participated, among other things, in hotel briefings. They were able to stop and spend some time with solitary adult patients in hospitals. Children were well looked after and an adult was always with them. The work could be characterized as being present, being close, listening and helping with some small practical matters. The minister's clerical dress represented a symbol for many. In practice, the Finnish Evangelic Lutheran Mission mostly cooperated with Finnmatkat, the embassy, and with the Finnish Red Cross. The presence of the bishop of Helsinki and his entourage was also well appreciated. Three Finnish Evangelic Lutheran Mission workers went on call in Bangkok hospitals on 28.12. They also supported children without parents and obtained clothes and blankets for the home journey. Questions from family members were also relayed via Finnish Evangelic Lutheran Mission workers.

Fida International is a Pentecostal Mission and development cooperation organization, whose offer to help was at first turned down by Finland's mission. When a Thai TV broadcast mentioned the Finnish language in the context of foreign interpreters being requested to travel to Thailand, Fida decided to deploy to Phuket to assist. Thereafter, Finland's Embassy requested them to help in searching for Finnish patients in the hospitals of Bangkok. Fida had two four-member teams in Phuket from 29.12. to 1.1. going around hospitals and looking for Finns. They supported Finns mentally and spiritually, provided practical assistance, operated as interpreters and obtained information. The five-member assistance team in Bangkok called hospitals and requested information as well as went around the hospitals on 29.–31.12. On the basis of a request from a representative of Finland's Embassy another five-member team visited the hospitals again looking for Finnish and other foreign patients on 4.–5.1.

The relief team of the Finnish Red Cross from 28.12 to 2.1. comprised of two workers from the psychologists' readiness team. They were tasked to support and help people at the airport, in hospitals and at hotels, too. Many were in a state of shock and required support. The work continued around the clock. The travel agencies' staff faced a difficult situation and it was important to provide support for them as well. At the end of the week, an additional psychologist arrived working for two weeks in Phuket and in Bangkok. This psychologist was also tasked to arrange debriefing sessions for those that had participated in rescue and evacuation.

### **Assistance on evacuation flights**

One to two Finnish Red Cross readiness team psychologists flew on four of the evacuation flights. The psychologists cooperated with the medical personnel and cabin crew. For the travellers, boarding the Finnair plane signified a step closer to home and safety. Some of the patients could already sense that kind of security on the long flight back, which enabled them to face reality and to process thoughts and feelings. The psychologists had the opportunity to pass around the Finnish Red Cross information leaflet, discuss its contents and to stop and listen if someone wanted to talk more. At the same time, they were able to ask whether the passengers would like to provide their contact information for being contacted by their municipality's crisis personnel later on. On one flight, for instance, one third of the passengers requested to be contacted. On some

flights, the passengers were briefed over the intercom on what to expect at arrival at the airport. They also prepared the passengers to face the media. It was beneficial for them to consider the option of consenting to interviews, should they be requested.

### **2.5.2 Psychosocial assistance at the Helsinki-Vantaa airport**

As soon as the Vantaa Crisis Centre was alerted on 27.12. at 11.30, it prepared for a major accident situation, in accordance with the preparedness plan, alerted the social services' superior, the Finnish Red Cross voluntary civil protection service, the capital region parishes' Psychosocial Assistance of the Church and gave preliminary notice to the Peijas hospital outpatient clinic of adult psychiatry. The chief of the Centre participated in the support functions' command element meeting at the airport at 16.00, whereafter, the team rounded up by the Centre went to the airport.

Activities commenced at the airport on 27.12. prior to the arrival of the first evacuation flight and the spaces were cleared on Monday 3.1.2005. Vantaa Crisis Centre was the authority responsible for activities. The normal manning of the Centre is 19 and six additional workers were hired for a week. At the airport at any given time there were 6–8 representatives of the Centre and 16–20 Psychosocial Assistance of the Church personnel, totalling ca. 80 workers as well as 25–30 persons from the voluntary civil protection service, totalling 170 workers. There were always 2–3 psychologists present representing the Finnish Red Cross psychologists' readiness team. The workers were spread around to different spots. It was later estimated that some 1 500 persons that returned from the disaster area received support of some kind.

It became the practice to have the leading crisis worker receive the flight to check the situation and to provide advice, in addition to the ER doctors. Those passengers who did not require medical care were taken to the Frontier Guard check point and passport control. Sixteen volunteer assistants recorded their information at that point. At the medical point, too, there were 3–5 volunteers in data recording tasks. Six to nine volunteers assisted in other tasks. The passengers received a Finnish Red Cross leaflet, in which the normal reactions to a traumatizing event were described and which provided instructions on obtaining help and support.

If required, passengers would be taken to the Crisis Centre's psychosocial assistance point, where there was a play corner for children and also an opportunity for discussion. Volunteers took care of distributing Finnish Red Cross clothing and blankets. Some 500 evacuees from the disaster area were given clothing. Food was also provided. The travellers also received help in practical affairs, such as if their money, passports, car keys or home keys had disappeared. The National Bureau of Investigation assistance point, where travellers would report their missing family members, also provided support. The family member point remained in constant contact with the medical and the other points so as to ensure that information would travel in every direction.

The Psychosocial Assistance of the Church personnel worked at the family member point, at the recording point and at the first aid area. Their task was to talk to people, escort them from the arrival gate to the crisis centre and to escort people to the baggage claim area. In addition, they kept company with waiting family members and relayed in-

formation so that the passengers and their family members waiting for them would find each other.

The Finnish Red Cross psychologists performed tasks requested by the other workers at the airport, such as the police, Frontier Guard personnel, medical staff or Psychosocial Assistance of the Church personnel. In addition, special tasks were assigned from the plane enroute and from Thailand.

The Crisis Centre received all the 21 Finnish children travelling alone and the crisis centre social workers and psychiatric nurses took care of them at the airport. Social workers recorded the personal information of each child and of the family members waiting. The leading social worker (of the Crisis Centre) then notified the leading social worker of the child's municipality of the situation and provided the contact information of the family members with whom the child was placed upon departing the airport. The crisis centre also took care of four Swedish children travelling alone. The passengers were also told about the members of the media waiting in the lobby in an area cordoned off by the police. An attempt was made to exclude the media from the actual reunions between family members and travellers returning from the disaster area. However, due to incomplete space arrangements, in the beginning there were problems with this.

Cooperation with the medical rescue personnel was successful. Communication between the medical team and the leading crisis worker was conducted by Finland's Public Authority Network *VIRVE* phones. Both sides prepared for the arrival of passengers and any information on them was mutually exchanged.

The Crisis Centre office at Vantaa had a team working in three shifts, which, in addition to its normal tasks, took the calls related to the Asian crisis. Seven new customer service phone lines were installed at the Centre. During one week, approximately 400 phone calls were either made or answered. The office notified the municipalities of the number of persons returning from the disaster area. As of 5.1.2005, Vantaa Crisis Centre resumed its normal manning and normal phone service.

### **2.5.3 Instructions and preparation for crisis work**

On 30.12.2004, the Ministry of Social Affairs and Health sent an information bulletin to municipalities, regional authorities and hospital districts appealing to them to provide sufficiently long-termed psychosocial assistance to the victims of the disaster and to their family members. The Ministry of Social Affairs and Health extensively prepared the issue in three cooperation meetings with the representatives of ministries, the Finnish Red Cross, Finnish Association for Mental Health, Social Insurance Institute of Finland, Vantaa Crisis Centre, the Hospital District of Helsinki and Uusimaa, Association of Voluntary Health, Social and Welfare Organisations, the Church, Association of Finnish Local and Regional Authorities as well as the Federation of Finnish Insurance Companies. The objective was to provide the same overall picture of the situation to everyone. On the second week of January thirty social welfare and health care organizations, mainly representing the fields of mental health and child care, were also invited to a meeting.

The Ministry of Social Affairs and Health emphasized the fact that it was imperative to see to it that psychosocial assistance reached all those requiring it. Likewise, it was important to provide social security services to the victims and to their family members and

to help with questions related to livelihood. The Ministry of Social Affairs and Health recommended that each municipality would assign a support person to survivors or persons having lost family members in the disaster so as to take care of practical details on their behalf. In addition, it was recommended that municipalities would establish information points for contacts.

The Ministry of Social Affairs and Health issued several bulletins to municipalities regarding the Asian catastrophe (5.1.2005, 17.1.2005 and 18.2.2005). The Ministry's message to municipalities was for them to see to the after-care of the victims of the disaster in Asia. Help and assistance had to be provided to all asking for it, the availability of assistance had to be communicated and the assistance had to be conducted in cooperation with various actors, including volunteer work and neighbour assistance, i.e. the third sector. In the municipal bulletin on 17 January, it was said that the Ministry of Social Affairs and Health had collected the personal information of all those evacuated from the disaster area or had disappeared and perished in the area. The bulletin provided detailed instructions on how to contact the evacuees and family members. The general guideline was to allow at least two weeks for the evacuees to contact the authorities themselves. In the initial phase, making personal contact by letter or by phone was not deemed appropriate. If the person himself had not contacted the municipality, then the municipality should attempt to contact the appropriate persons. Contact should be made in the way agreed to by the authorities, i.e. by personal meeting or by phone. In addition, the bulletin pointed out that the persons in question can always notify that they do not require the services of social welfare and health care. Pertinent personal information was sent to the municipalities' directors of the social welfare service on 2.–3.2.2005.

The social service authorities were urged to actively offer their support to all orphaned children and to the people taking care of them. Day care centres were urged to ensure that the children were receiving all the support they needed. Material to help with the handling of this issue could be found at [www.stakes.fi/varttua](http://www.stakes.fi/varttua). The Ministry of Social Affairs and Health also appealed to inhabitants of municipalities urging ones suffering symptoms to independently and in time seek the services of their municipalities for assessment and care. It is not always possible to assess the need for help for one's own part and, therefore, professional help is needed.

The Social Insurance Institute of Finland prepared to organize various forms of psychotherapy for the victims and their family members as rehabilitation services as of 3.1.2005. The therapies can be short-term or longer term (1–3 years) during the years 2005–2008.

The Ministry of Social Affairs and Health will monitor the implementation of after-care. Due to the natural disaster in Asia, the ministry appointed an expert group on post-disaster psychological assistance on 11.1.2005. The objective of the expert group's work is to ensure that the Finnish victims and their family members receive all the required psychosocial assistance, both in quality and in quantity. The working group monitors the development of service requirements and the service organization's ability to respond to the requirements. The working group is also tasked to record experiences and data and, based on it, make recommendations on the means for improving the facilities of psychosocial assistance in conjunction with a disaster. In addition, an attempt



will be made to gather information on the effectiveness of various interventions. The expert group will continue its work until the end of 2006.

On its web page, [www.oph.fi](http://www.oph.fi), the National Board of Education published several information bulletins (31.12.2004, 3.1.2005, 10.1.2005) on how to handle the Asian catastrophe in schools and educational establishments. The instructions did not only discuss the immediate activities at the beginning of the spring term but also long-term measures. Teachers and other school staff were instructed to monitor the students' reactions and to arrange any required assistance. It was requested that the event would be extensively discussed in conjunction with various subjects and entities. On grounds of new curricula (2004), schools and educational establishments must have crisis plans.

In addition to ministries, many other sources produced abundant informational material discussing, inter alia, reactions to crises, coping with them and information on sources of help: The National Public Health Institute, [www.ktl.fi](http://www.ktl.fi), the Finnish Red Cross, [www.redcross.fi](http://www.redcross.fi), Finnish Association for Mental Health, [www.mielenterveysseura.fi](http://www.mielenterveysseura.fi), Church Council's education and youth work, [www.evl.fi](http://www.evl.fi), Save the Children, [www.pela.fi](http://www.pela.fi), Mannerheim League for Child Welfare, [www.mll.fi](http://www.mll.fi) and the National Research and Development Centre for Welfare and Health, [www.stakes.fi](http://www.stakes.fi).

#### **2.5.4 National crisis phone lines**

The Finnish Red Cross help line was opened on 27.12.2004, whereafter it was manned 24/7 until 5.1.2005 when it was discontinued. Three to four volunteers and one to two psychologists manned each shift. There were altogether 60 volunteers and they took approximately 800 phone calls. At first, worried family members made calls asking for information but from 28.12. onwards the nature of the calls changed and the calls were mostly made by victims.

The national crisis help line of the Finnish Association for Mental Health is normally open Tuesday to Saturday from 15.00 to 06.00 as well as from 15.00 to 22.00 on Sundays and Mondays. Fifteen local mental health associations in different parts of the country participate in the emergency service of the national phone line and the activity is coordinated by the SOS centre in Helsinki. The number of people manning the line was increased during the first week following the disaster.

#### **2.5.5 Psychosocial assistance in the home communities**

In the beginning of 2005, there were 432 municipalities in Finland. The ones evacuated from the disaster area came from 191 municipalities. In addition to this, family members and close relatives live in many other municipalities and, therefore, it can be said that the disaster touched Finland extensively.

Municipalities prepared to provide crisis support, even though in the very beginning they could not know how extensively the inhabitants of their own communities would be involved in the disaster. Potential recipients of crisis support were all those directly involved in the event as well as their family members and close relatives and all people and communities close to the ones that perished or disappeared in the disaster. Vantaa Crisis Centre had Frontier Guard-provided name lists of passengers that had arrived from the disaster at its disposal. On the basis of this list the Crisis Centre called municipi-

palities and informed them how many of their inhabitants had returned from the disaster area. This model of operation was created at need when municipalities began to call the Centre. The Crisis Centre also had contact information of its own but no comprehensive updated information on crisis management groups and their contact information existed. When it came to children travelling unaccompanied, the Centre was in touch with the appropriate municipality's social services. These contacts also activated the preparation of the municipalities' crisis management groups and other actors. For instance, a phone call from Vantaa Crisis Centre to the Northern Karelia Central Hospital emergency room on 31.12. at 01.00 initiated an emergency service for all flights arriving from Helsinki at Joensuu airport from 31 December to 4 January. The information on passengers from the disaster area reached Oulu via Oulu Crisis Centre and the Finnish Red Cross, resulting in a crisis meeting organized by the director of social welfare and health affairs in Oulu. Oulu, likewise, set up an emergency service at the airport from 31 December to 4 January to receive the ones returning from the disaster area. The problem at municipalities, however, was the inaccuracy of the preliminary data received.

### **The municipalities' crisis management groups**

There are crisis management groups in municipalities for the purpose of psychosocial assistance. The municipal crisis management group is usually established at the health centre and its personnel represent many relevant fields, such as social welfare and health care, other administrative areas and often also volunteers and workers of the church. Some of the municipalities have an agreement with the Finnish Association for Mental Health on organizing crisis services. The list of crisis management groups in municipalities that were in readiness was updated on the first week of January on the web page of the Ministry of Social Affairs and Health. The network of local crisis management groups encompasses approximately 90% of all municipalities.

Psychosocial assistance and services are statutory activities in Finland. The Act on Rescue Services (787/2003, 6 §) states that the municipal and regional authorities' bureaux responsible for different branches shall, in cooperation with other experts, provide psychosocial assistance and services to those involved in an accident either as victims, family members of victims or as rescue personnel. The recommendations of the Ministry of Social Affairs and Health have been published in the working group memorandum "Psychological assistance and services in a traumatic situation", in which instructions on arranging the services were given (Ministry of Social Affairs and Health hand-out 1998:1). The State Provincial Office is responsible for guiding and monitoring the organizing of psychosocial assistance and services.

According to the current health care preparedness planning guide (Ministry of Social Affairs and Health 2002:5) psychosocial support must be included in the preparedness plans of hospital districts, hospitals and health centres. The guide also emphasizes the importance of regional cooperation and utilization of regional resources and competence.

The Accident Investigation Commission contacted the hospital districts with a request for a report on the activity of municipalities' crisis management groups during the month of January. This information was supplemented by direct contacts to crisis management groups and health centres. A report on the activities of the Finnish Association for Men-

tal Health crisis centres was requested through the Association itself. Crisis centres run by local mental health associations exist in 17 localities.

The work of crisis management groups is versatile and extensively networked and, therefore, not easy to describe in simple terms. All crisis management groups do not record their activities systematically enough to be able to provide exact information on the number of assistance recipients.

According to the information gathered as mentioned above, some 1 400 persons received psychosocial assistance from crisis management groups and crisis centres. They were people who had been in the disaster area, family members, close relatives, adults and children. Support included individual and group meetings, debriefing sessions and therapeutic discussions organized at day-care centres, schools and workplaces. In addition, the crisis therapy discussions organized for groups was also mentioned but the number of people having participated in these is not known. Furthermore, psychosocial assistance and mental health services were provided in hospitals and health centres, family counselling establishments, occupational health services, school and student health services, and organizations within the activities of the church and in the private sector.

It is not known how many of the victims in the Asian catastrophe received psychosocial assistance in their home communities.

Crisis management groups were asked to describe how they prepared and what kind of assistance they provided. The magnitude of the disaster, extensive media coverage, publicity received by crisis support as well as estimates that the disaster would involve one's own community, prompted the municipalities to review their own readiness levels. Crisis management groups reviewed preparedness, contact information, division of duties and instructions. The health and social services organizations instructed their own personnel. The manning of some emergency phone lines were extended from office hours to 24/7 and appointments were booked. Contact information was promulgated in local newspapers, on local radio and on web pages. Instructions and informational material was collected from, among other places, the Internet. Information was provided through newspaper interviews and in briefings open to the public, or, by drawing up written bulletins. An attempt to paint an overall picture of the situation was made by being in contact with, among others, travel agencies and various actors.

The crisis management groups described a plethora of ways of operating: contact over the phone, group meetings, debriefing sessions, personal therapeutic discussions, house calls, hospital calls, monitoring, directions for follow-on care. Activities also included consultations and on-the-job guidance for authorities, such as in day-care centres or in schools. Debriefing sessions were organized at workplaces and, when requested, in clubs and extracurricular circles. The crisis centres of the Finnish Association for Mental Health significantly supplement the activities of the municipalities' crisis centres. In addition to other crisis support, they also arrange peer meetings, open groups, grief work groups or rehabilitation courses and crisis therapy. One of these services is the web crisis centre *Tukinet*, which provides services over the Internet to help people and to share experiences. Within a few days from the disaster, Tukinet pages received twice as many hits as compared to normal.

Crisis management groups received their clients through the various services of the health care system, because family members and close relatives had so requested, through other crisis support services and also through parishes. People sought help from crisis management groups themselves and crisis management groups also contacted people. In the letters sent to the Commission, citizens described their experiences in receiving crisis support.

"The crisis centre called us already on Monday 3 January. They asked us when we could go to their office or, if it was more convenient, they could visit us at home. They arrived on Tuesday and five of us were there to talk the event through. They spent three hours with us and all of us thought that the visit was extremely useful. It was beneficial to notice how different our experiences were. Some of us had feared for their lives and others had feared that some people had died. The crisis service did its job extremely well and, later on, they called us and asked us whether or not we still wanted to talk about the current situation and if the event continues to bother us. We felt that no more assistance was required and, therefore, we did not meet with them any more. However, the knowledge that assistance is still available means and helps a lot."

For some it was not easy to obtain crisis support and they hoped for the active organizing of assistance. Therefore, one family member notes that one should not think that a person in the state of shock knows how to ask for help.

"The public image of crisis assistance is way too positive. Nobody contacted us and we had to make all crisis assistance contacts ourselves. In my opinion, it also took too long, after the beginning of January, to start subsequent crisis assistance activities."

Authorities and crisis workers have had internal discussions on how active they should be in offering crisis support. This is a central theme and has also been pointed out in citizens' letters to the Commission. The feedback on psychosocial assistance received in various phases has been positive and the possibility of receiving the service as soon as it is required was deemed important.

Helpers should be aware of the fact that their customers differ from each other and that they have different needs. Discretion is also needed when help is offered. Not everyone requires outside assistance because their own personal network and support from persons close to them provide the needed opportunity for going through the experiences and for recovery.

"During the first weeks following the disaster I was able to talk about our experiences several times at work and elsewhere and people listened to me attentively and compassionately. Crisis assistance was being offered all over the place. However, we did not feel that we needed it. Returning to work and being able to talk about various issues has been the best therapy, at least in my case."

In addition to mental support, many disaster victims require help in many practical issues. Family members whose loved ones have disappeared have to deal with many authorities. The Ministry of Social Affairs and Health instructed the municipalities to organize only one information point, which would see to the affairs of the person undergoing a crisis. This kind of service would undoubtedly provide relief for many.

One family member noted how difficult it is for a deeply depressed and unaccustomed person to actively seek information and help. "We have a culture in which you receive assistance if you have the perseverance to ask for it: call this number, go find the information on the Internet, stay online when all operators are busy and hope that you are calling the right person, be it the tax office or the hospital – and now I know from experience that too often I stayed online to the wrong number. I propose the establishment of a helpdesk, i.e. a place to contact when you no longer know what you should do next."

Citizens are very thankful for well-performed services by the authorities and the helpfulness and friendliness of staff is appreciated. The people interviewed described how important compassionate discussions with authorities could be.

### **Children and adolescents**

There were many families with children in the disaster area, children perished in the disaster and a number of children lost family members. All the losses also extensively touched day-care centres, schools and circles of friends and hobby groups. Children and adolescents are vulnerable and it is extremely important to provide the required support for them. The health care and social services as well as school pupil and student services, among other things, offer psychosocial assistance to children and adolescents. The Commission sent a query to family counselling offices. There are 136 family counselling offices in Finland. Replies were given by 78 offices, one third of which had clients connected to the Asian catastrophe. All in all 45 children and 68 adults were the clients of family counselling offices. Most of the clients had been in the disaster area. Many family counselling offices were prepared to provide immediate help and they had agreed on the division of duties with other entities providing psychosocial assistance. Family counselling offices had provided assistance and advice to schools and day-care centres, especially in the situation when a pupil in a school had disappeared or when he or she had lost family members. The current client relationships still deal with the Asian disaster. Family counselling office staff members also participated in arranging the debriefing sessions as members of crisis management groups.

## **2.5.6 Coordination of crisis work**

### **Coordination at local level**

An appropriate coordination of psychosocial assistance at the local level is the precondition for successful crisis work. Therefore, the following two examples represent two well-functioning ways of operating.

In Lahti the chief of psychosocial services organized the entity of crisis work whereas the officers and cooperation partners of the social and health sector implemented the actual assistance. The actors comprised the central hospital, psychologists and psychiatric nurses of health centres, the municipal occupational health sector, the hospital theologian, the social service sector, workers of the parish group, school ministers, crisis workers, ministers and deacons, *Tukipiste* mental health support and the SOS Crisis Centre. The working group that organized the activities not only cooperated with also informed and provided reports to the municipal leaders but they also kept the inhabitants of the city well informed.

The Åland Islands are a good example of centrally led crisis work. As per the preparedness plan (1991) of the *Ålands Hälso- och Sjukvård* health care sector a multi-branch executive team was responsible for organizing the psychosocial assistance related to the Asian catastrophe. The executive team agreed – inter alia – on leadership, division of duties, communication and informing the mass media. At the same time, it was decided to establish a crisis centre and an emergency phone line. The executive team decided to dispatch three medical staff members to Helsinki to receive travellers returning from Thailand. An insurance company paid for a separate flight on which the travellers

were transported to Åland's capital Mariehamn. The crisis centre contacted all travellers and when needed, debriefing sessions and other assistance was organized. Crisis work was conducted in cooperation with Finnair, travel agencies, the police, the Finnish Red Cross, shipping lines, the media, the church, schools, youth workers and insurance companies.

### **Coordination at hospital districts**

Activities related to the Asian catastrophe crisis work were centrally coordinated in some hospital districts. The Seinäjoki Central Hospital crisis and trauma psychotherapy mental health support ring established an emergency backup service from 31.12. to 7.1. to assist the municipalities' crisis management groups in the Etelä-Pohjanmaa Hospital District.

The main responsibility for organizing psychosocial assistance in the area of the Pohjois-Karjala Hospital District was borne by the Pohjois-Karjala Central Hospital general psychiatric unit. Every municipality maintains a crisis management group connected to health centre. At the central hospital, the psychiatric outpatient clinic implements the psychosocial crisis assistance and the occupational health service is responsible for supporting the staff. In special situations and in major accidents a catastrophe-psychiatric working group, led by a consultant of general psychiatry, coordinates psychosocial assistance. In the case of the Asian catastrophe, the situation was centrally charted and informed.

In the Satakunta Hospital District, contacts within the emergency mental health service were coordinated. An emergency phone number was established in the region from 30 December to 9 January to which persons shocked by the disaster could call. The phone number was advertised in newspapers. The emergency line recorded the persons' contact information and relayed it to crisis management groups and professionals operating in the area in question. The crisis management groups contacted the ones in need of assistance.

### **2.5.7 Follow-on activities of psychosocial assistance and services**

On 2–3 February 2005, the Ministry of Social Affairs and Health provided lists to municipal social and welfare directors / persons in charge of the said branch, containing the contact information and known domiciles of the dead and missing persons related to the Asian catastrophe as well as of those municipal inhabitants evacuated to Finland from the disaster area. This information was sent to municipalities so as to implement the social and health care follow-on activities required by the catastrophe's rescue and assistance operation. This was an attempt to ensure that all persons requiring assistance would receive it if they so desired.

The Ministry of Social Affairs and Health will also later on determine how the municipalities operated. Some of the municipalities contacted the evacuees and family members by phone or by letter. There are also municipalities, which estimated that their immediate post-catastrophe activities and informing of services available was sufficient. The Vantaa Crisis Centre was an active participant from the very beginning in the aftercare of the Asian disaster. At Vantaa, it was understood that the situation required long-term assessment, care and follow-up. An aftercare group was established at Vantaa, repre-

senting the social and health sector, the Finnish Red Cross, the local parish, the Social Insurance Institute of Finland *Kela*, family counselling services, the Peijas Hospital psychiatric unit and the Vantaa Crisis Centre. The group planned the care to be provided for victims from Vantaa. A psychiatric consultant, a psychiatric nurse and a social worker were released from their everyday duties and seconded to perform this task. The group sent letters to relevant persons and kept on contacting them whenever there was no reply.

At this stage, only a few interviews and citizens' letters provide information on how the persons affected viewed the letters sent as per the Ministry for Social Affairs and Health's guidelines. The contacts as such were generally positively viewed but they were perceived to have occurred too late.

"Today on 24.2. I received a letter providing a phone number to call in case one requires psychosocial assistance. I appreciate the fact that the matter has required some bureaucracy and that this is why it has taken so long for this letter to be sent. Still, it has arrived approximately 1,5 months too late; I could have used this assistance immediately in the beginning of January, when the events occupied my mind every waking minute. Fortunately, help was available when I sought it myself."

The Asian catastrophe spawned a large and unexpected requirement for assistance, help and care. In the long run the municipalities face a challenge in responding to this.

#### **2.5.8 Psychosocial assistance provided to those who participated in relief activities**

Professionals as well as volunteers that participated in the immediate relief work in the Asian disaster were subjected to great mental and physical strain. Many of them are professionals in the field of rescue, crisis work or mental health and organizations represented by them have established models of operation for seeing to the psychosocial assistance requirements of their own workers. The Finnish Red Cross organizational structure provides debriefing sessions for its workers. The organization of the psychosocial assistance of the church also takes care of its workers. For instance, the Finnish Lutheran Mission specifically dispatched a crisis therapist to Thailand to care for the workers. At the Helsinki-Vantaa airport the capital region, parishes' psychosocial assistance of the church did a good job in organizing duty rosters and debriefing sessions. Occupational health is in charge of organizing the Hospital District of Helsinki and Uusimaa employees' debriefing sessions. Two ministers joined the victim identification unit of the police. Finnair health services provided psychosocial assistance. Debriefing sessions were organized for flight crews immediately following each flight and later on several debriefing sessions were set up to which all participating crews were invited.

Advance information was also provided to prepare the workers for the task at hand. Finnair, for instance, organized pre-flight briefings for crews participating on these exceptional flights from Monday evening onwards.

During the Asian catastrophe, the workers of travel agencies were in an exceptionally demanding situation since they were simultaneously victims of the disaster and at the same time, services were expected of them. Travel agencies organized support for their workers both on location and in Finland. The occupational health care branch in Finland has organized debriefing sessions as well as individual psychological assistance when needed.

Volunteer workers faced situations that were extremely demanding even to professionals. The volunteers played a very significant role in organizing psychosocial assistance to the victims of the disaster. At the same time, they themselves became persons requiring psychosocial assistance. All those working in the disaster area executing various tasks become part of the crisis and this affects their performance. One citizens' letter pays attention to the work of a reporter.

"Many times I got the strong impression that the reporter processes his own traumatic experiences by reporting it to thousands of people through the media. This is probably inevitable to some extent but media organizations should be more sensitive to understanding the fact that the disaster also affects the reporter's work."

The workers of the Ministry for Foreign Affairs both in Finland and at missions had to work until exhaustion. They, too, received assistance.

## **2.6 Victim identification**

The National Bureau of Investigation has a DVI (disaster victim identification) unit. The Ministry of the Interior Police Department established it in 1991. In reality, its activities began in 1989. The unit operates according to the instructions of the international police organization Interpol and it is used, when needed, in conjunction with disasters and major accidents but also in individual instances.

The National Bureau of Investigation received no official notice of the events in Asia on 26.12.2004. At first, maintenance of the situation picture depended on information provided by the mass media. Victim identification was already prepared for on Sunday 26.12.2004 by detailing resources and by contacting the other Nordic countries' DVI units as well as by informing the Ministry for Foreign Affairs of its readiness to assist. A representative of the National Bureau of Investigation participated in the Coordination Board of Government Chiefs of Preparedness initial stage meetings.

On Monday 27.12. the National Bureau of Investigation established a situation organization and officials from the Helsinki, Espoo and Vantaa police districts were already connected to it during the first week mainly to compile and process AM (ante mortem, i.e. the victim's pre-death information) information.

Based on a request made by the Thai Government as well as by Interpol on 28.12.2004 two members of the DVI group were dispatched to Thailand on 29.12. who subsequently joined the Nordic identification group.

The Ministry of the Interior dispatched a total of 18 persons on 30.12.2004 to Thailand tasked to assist with identification and to organize repatriation of the dead. The group consisted of experts in the fields of police, pastoral care, Foreign Service, forensic medicine and mortuary services. Later on the group was been reinforced several times and a part of it returned to Finland. The three representatives of the Estonian police were part of Finland's group. At the end of January National Bureau of Investigation's investigation and identification centre comprised ca. 25 persons in Vantaa, Finland and ca. 40 persons in Phuket, Thailand.

At first reports of missing Finns were received by the Ministry for Foreign Affairs. On 28.12.2004, this responsibility was transferred to the National Bureau of Investigation. The official missing persons list was established at the Helsinki-Vantaa airport by com-



piling information from missing persons reports filed at its arrival processing point as well as from missing persons reported to National Bureau of Investigation's Asia emergency phone line or to local police departments around Finland. In addition, name lists sent to the National Bureau of Investigation collected by the Ministry for Foreign Affairs and travel agencies as well as evacuation flights' passenger lists were reviewed. The Frontier Guard provided lists of names of all those who returned to Finland on the evacuation flights.

On 30.12.2004 based on rescue legislation the Ministry of the Interior decided to publish a missing persons list on the police Internet pages. The National Bureau of Investigation was responsible for maintaining and updating the list. On the first day, there were 263 names on the list and in the evening of the same day, the number was 233. The number of persons reported missing on different days was:

- 31.12.2004	198	- 4.1.2005	183
- 1.1.2005	193	- 5.1.2005	177
- 2.1.2005	186	- 7.1.2005	176
- 3.1.2005	184	- 10.1.2005	174

The difference to the final death toll is based on identifying the missing persons. The list was removed on 14.1.2004.

The final number of dead or missing Finns in the Asian natural disaster is 179. One person perished in Sri Lanka and one person that was transported on the hospital flight from Thailand subsequently died in a Finnish hospital. As of 31.5.2005, 142 deceased persons have been repatriated. A total of 36 persons are still missing.

The Finnish Disaster Victim Identification group worked as part of the International DVI Executive Committee led by the Thai police. The DVI process was participated in by approximately 1 000 experts representing over 30 nations. Of these, ca. 100 persons came from the Nordic countries.

Finland participated in international cooperation in Thailand with one DVI unit and by participating in DVI coordination meetings as well as in the activity of the TTVI-IMC (Thai Tsunami Victim Identification Information Management Center). The Finnish DVI group comprises 12 persons; a pathologist, a forensic odontologist, an assistant and police officers. From the very beginning of the operation, victim identification has been performed as per Interpol DVI Guidelines. In addition to post-mortem autopsy activities, Finland also participates in property and IMC investigation groups.

From the family members of the missing persons the National Bureau of Investigation collected Interpol's international standard form Ante Mortem information and DNA control samples, which were subsequently sent to the Disaster Victim Identification group in Thailand. Apart from some small children, dental records of all missing Finns were available. The information was later translated into English and entered in the computer programme used in the operation.

Until recently, the identification of western victims has been largely based on dental records. From now on identification based on fingerprints and other additional distinguishing features will increase. The significance of DNA identification has been low due to problems related to its usage as well as to its high price and slowness.

Once a deceased person has initially been identified in Thailand, he or she will be repatriated to Finland on a normal scheduled flight. The Finnish group performs necessary mortuary services and lays the body in the coffin. The initial identification will be verified by a Finnish pathologist and a Finnish forensic odontologist. A short and uniform so-called sending-off ceremony is performed at the airport in Thailand in remembrance of each deceased person about to be repatriated.

A special and uniform arrival ceremony is arranged at the Helsinki-Vantaa airport and this ceremony is not open to the public or to the media. At the airport representatives of the police and the Ministry for Foreign Affairs receive the deceased. A separate service, an ecumenical moment of silence in which family members participate, is arranged at the airport. After this, the deceased are taken to the Helsinki University department of forensic medicine for final identification. The autopsies of all Finns and final identifications in Finland are centralized in Helsinki. After this, the deceased is released to the family. On 3.1.2005, the National Bureau of Investigation established a separate family group, which handles contacts to the family members of the missing and the dead. This activity has proved to be useful and it has received a lot of positive feedback.

Repatriation arrangements were agreed upon in a Ministry of the Interior working group, which was established as per decisions made by the Government Chiefs of Preparedness on 29.12.2004. The representatives of the Ministry for Foreign Affairs and the Church Council belonged to the working group.

By the end of April approximately 1 200 foreign deceased persons were identified. Some 2 600 were still unidentified. Initially the various countries' different systems and own methodologies hampered the identification process. It is still unclear how long the identification will eventually take. The process has also had some funding problems. Participating countries have shared expenses by direct and indirect contributions. There have also been discussions and preparations for establishing an international fund for paying for the identification but Thailand is unwilling to request international aid in funding the process. The aim of the fund would be to ensure the continuation of the identification work supported by those countries whose citizens fell victim to the tsunami.

For the part of the Finnish DVI group the lack of trained permanent personnel has been a problem. The organization, equipment and gear of the DVI group have not been sufficient for the requirements of a long-term mission such as this one. It has been impossible to prepare sufficient funding for such a large-scale operation in the annual budget of the police. The lack of money as well as experienced and trained personnel has impeded the recruitment of replacement personnel from Finland to Thailand.

## **2.7 Costs**

The Finnish Government made a resolution on 30.12.2004, according to which such additional costs incurred by the crisis in Asia that would not be paid by anyone else, would be funded by the government. The State Treasury in a memorandum, dated 9.2.2005, has explained compensation responsibility questions to the Commission. Neither the State nor other entities have any legal or statutory obligations to cover the costs incurred by the natural disaster in Asia. Travel insurance companies are obliged to reimburse

those travellers' damages who have valid travel insurances and according to the terms of the insurance.

Based on the resolution made by the Finnish Government, it was determined that the government would cover the costs incurred by the evacuation and ambulance flights during the airlift operation (28.12.2004–2.1.2005), search, rescue and relief work in the disaster area, medical care in the disaster area as well as medical care and transport costs generated at Helsinki-Vantaa airport.

As of 10.2.2005, the State Treasury has compensated some €2,5 million of the costs generated by the natural disaster in Asia. Airlines have received approximately €2,3 million as compensation for evacuation flights and entities that participated in rescue activities have been reimbursed for their rescue and relief activities. These costs have been disbursed from the Ministry of the Interior's rescue appropriations item 26.80.22. The State Treasury has requested the Ministry of the Interior to grant a further disbursement right of €327 000 to be used to compensate, inter alia, travel organizers' rescue and relief activities, extra lodging and transportation costs as well as communications expenses incurred by the crisis. These costs will be reimbursed during the summer of 2005 once the supplementary budget is approved.

In addition, the State Treasury is going to reimburse the Helsinki and Uusimaa Hospital District for its medical care costs on the ambulance flight (30.12.2004–1.1.2005), transportation costs for repatriating the deceased, costs generated by organizing ambulance transportations as well as hospital bills from Thailand, totalling ca. €320 500. For the part of insured travellers' evacuation flight and medical care costs, the State Treasury will recover an estimated €500 000 from insurance companies.

### 3 THE MANAGEMENT SYSTEM IN FINLAND

#### 3.1 Legislation and modes of operation

To assist a citizen in distress abroad due to a natural disaster or other cause, two acts have been enacted, the Package Travel Act (1079/1994) and the Consular Services Act (498/1999).

**The Package Travel Act** is part of our consumer protection legislation. The act issues provisions on the package tour organizer's duties and responsibilities vis-à-vis its customers. The reason why the act was originally enacted was specifically because travelers were left abroad in a vulnerable position in the case of the travel organizer's bankruptcy or other reason for its insolvency. If at the travel destination during a package tour, a natural disaster, war or other comparable situations that can be determined as *force majeure*, the travel organizer is entitled to cancel the rest of the trip or to make any necessary alterations to the travel itinerary. The customer, however, is entitled to full monetary compensation for any services undelivered or, alternatively, a compensatory trip.

If the traveller has an accident during a package tour, pursuant to section 16 of the Package Travel Act, the travel organizer shall assist him or her in organizing medical care and premature return transportation as well as in settling the damage and in any other necessary measures.

The Travel Information Decree (1085/1994) issues detailed instructions on what kind of information the travel organizer must provide to the customer. The customer must be informed, among other, of the option to take out voluntary travel insurance. The customer must also be told whom to contact in an emergency. Should the travel organizer have no staff at the travel destination, the organizer's local representative may be contacted or, if no such representative exists, the travel organizer in Finland can be contacted.

**The Consular Services Act** (489/1999) lays down the responsibilities of the Foreign Service to assist Finns in distress abroad. Pursuant to the Act, the Finnish mission abroad will provide consular services to Finns, who have fell into distress caused by, for instance, an accident or mishap. The mission must guide and assist the person in distress so as to contact a family member or some other person, to receive medical care, to organize repatriation and to receive any other aid necessitated by the situation.

In the case of a serious accident, a natural disaster, an environmental disaster and any other comparable crisis situation the mission shall assist Finns in order to safeguard them. If the safeguarding calls for an evacuation, the mission may assist in organizing the evacuation from the disaster area to the nearest safe area or back to Finland. Evacuation and repatriation, however, will only be organized with the concerned person's consent.

The general rule is that consular services are provided for Finns at cost. Unless otherwise provided, the Foreign Service will not cover the costs generated by, for example, medical care, evacuation or repatriation. The mission may only provide monetary assis-

tance to a Finn in exchange for a prepaid deposit on the Foreign Service's bank account or a promissory note.

**The Emergency Powers Act** (1080/1991) provides for authorities' activities in emergency conditions. This act was not applied in the case of the natural disaster in Asia and the authorities acted according to provisions for normal conditions.

Section 40 of the Emergency Powers Act lays down:

"The Government, the state administrative authorities, state businesses and other state authorities as well as municipalities shall ensure, by means of emergency plans, prior preparation of emergency operations and other measures, that their duties will be performed with the least amount of disruption also in emergency conditions.

Preparedness for emergency conditions shall be managed, supervised and coordinated by the Government and by each Ministry in its field of operations."

It is noted in the Government's Resolution "Strategy for Securing the Functions Vital to Society" on 27.11.2003 that functions of these kinds must be secured under all conditions. The basic premises for this are existing legislation and division of tasks among authorities. Threats of various natures can be focused on the society's vital functions, among other things a major accident or disaster. The Government takes the lead in securing the functions vital to society, with the competent ministry being responsible for its own administrative branch. In co-operation with other ministries, the Prime Minister's Office deals with matters pertaining to, inter alia, disruptive situations in normal conditions. Permanent secretaries are for ensuring that their administrative branches have the capability to operate without disruption, even under exceptional conditions. The meeting of the ministries' chiefs of preparedness is a permanent co-operative body designed to deal with precautionary measures in various security situations. The State Secretary, Prime Minister's Office, chairs the chiefs' of preparedness meeting. The function of the chief of preparedness involves leading readiness planning within his administrative branch, making necessary advance preparations, and maintaining co-operation with other administrative branches.

Desired end states have been determined for the development of securing the functions vital to society. According to the end state, a situation picture enabling decision-making has priority in the development of the state leadership's decision-making capabilities. Along with it, protected and secure electronic information and communication systems are required. In external capability, the capability, among other things, to assist Finnish citizens abroad must be guaranteed. The Ministry for Foreign Affairs is responsible for this task. Pursuant to section 13, paragraph 5 (mandate of the Foreign Ministry) of the Government's Rules of Procedure, the responsibilities include, inter alia, "protection of the interests and rights of Finnish citizens and provision of consular services and corresponding other official services abroad".

When it comes to internal security, the objective is, among other things, to have the capability to protect and rescue the population in accidents and disasters. The Ministry of the Interior is responsible for this. The Government Rules of Procedure, section 15, paragraph 8, assigns rescue services, among other things, as the Interior Ministry's field

of activity. Tasks and responsibilities have not been regulated in view of a situation in which Finns fall victims of a disaster abroad.

Section 10 of the Government Rules of Procedure lays down:

“Matters shall be divided up according to the ministries’ mandates as laid down in this Chapter. Each matter shall be considered by the ministry within whose mandate the matter for the most part belongs (*the competent ministry*).

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The ministries shall cooperate with each other as necessary under the competent ministry. The permanent secretaries’ meeting and the meeting of the chiefs of preparedness are permanent forums for cooperation.”

In section 10 of a memorandum connected to the aforementioned rules of procedure it is stated that:

“In the preparation of matters and entities, cooperation among ministries is of exceptional significance. Therefore, the competent ministry should see to it that issues are comprehensively prepared in cooperation with other ministries. The regularly schedules meetings of the permanent secretaries and the chiefs of preparedness have been the ministries’ permanent forums of cooperation. In the future, the meetings could create more exact rules of procedure for themselves as well as be organized as deemed appropriate.”

The rules of procedure for the meeting of Coordination Board of Government Chiefs of Preparedness were adopted in their meeting on 1.10.2003. The rules note that the *raison d’être* of the Board is to act as a permanent forum of cooperation among administrative branches, to maintain and develop the precautionary arrangements and the activities of the administrative branches in view of security situations and to coordinate the branches’ preparatory measures. The rules have neither assigned an operational leading task for the meeting, nor budgetary power. Instead, the meeting’s decisions are implemented by the competent ministry. There are no deputies for the chiefs of preparedness and they do not have any on-call obligations. The chiefs of preparedness normally meet on a monthly basis.

Either permanent secretaries (Ministries of Justice, Defence, Education, Agriculture and Forestry, Transport and Communications) or specially assigned ministry officials act as chiefs of preparedness. The permanent experts attending the Coordination Board of Government Chiefs of Preparedness are the permanent secretary of the Ministry of the Interior, Chief of Operations of the Defence Forces, Director of Government Communication, the Director General of the National Emergency Supply Agency and the Head of Security of the Government Preparedness Unit. Permanent secretaries who are not chiefs of preparedness are entitled to attend the meetings. In addition, separately invited experts may attend the meetings.

Provisions and rules contain all needed criteria to lead disruptive situations in normal conditions. In this case, either the Government or the competent ministry is in charge of operational management. An integral element in the command and control structure, i.e. the compilation and maintenance of a centralized situation picture for grounds of decision-making, is yet to be implemented.

### 3.2 Authorities' readiness and on-call duty systems

Ministries have their own 24/7 on-call duty systems. The Interior Ministry's police, rescue services and frontier guard departments each have their own on-call duty systems. The rescue services' on-call system cooperates with the Helsinki Emergency Response Centre. In addition to the continuously operating Communications Centre, the Ministry for Foreign Affairs has three officials on duty (political department, department for communication and culture as well as the unit for consular services). The Ministry of Defence is supported by the Defence Staff's on-call duty system. The Government Security Control is responsible for alerting ministers and top officials. In addition, ministerial advisers are on call according to their functional fields.

The purpose of on-call duty systems is to receive alerts and other information related to a ministry's field of activities outside office hours. As per its regulations, the duty position notifies the minister and relevant officials of information received and if necessary, alerts the ministry's crisis or readiness groups. The duty officials should also compare and exchange information among other branches' duty officials but so far this inter-authority cooperation has not properly functioned.

Every ministry has its own readiness control system, the extent of which depends on the given ministry's field of activities. Normally, the officials that belong to the system have no obligation to be on-call outside office hours and only some ministries employ a "reachable by telephone" on-call duty system. Ministers and officials are normally easily reached except during national holidays, when they may be travelling or otherwise hard to contact. Contact methods during official travel are prearranged, although contacting an aircraft enroute can be difficult.

The most prevalent means of communications is the mobile phone and SMS messaging. Already for a number of years a dedicated encrypted communications system, not unlike Finland's Public Authority Network *VIRVE*, has been in the works for the public administration. At the moment only the defence establishment is capable of compiling a centralized situation picture. However, the development of the system is still being considered among the other government branches, too.

### 3.3 Management arrangements implemented during the event

The random information received of the event on Boxing Day, 26.12. generated the following measures in the public administration: informing ministers and the most important officials as well as opening the Ministry for Foreign Affairs' crisis centre.

Pursuant to current regulations, either the Government or the competent ministry assumes operational management of exceptional situations. Since the event occurred abroad, the competent ministry was the Ministry for Foreign Affairs. The Prime Minister wanted a shallow expert organization in charge, which would be given appropriate political powers. The decisions would be implemented by each ministry's own powers.

On the morning of Monday, 27.12. the State Secretary, Prime Minister's Office, decided to summon the Coordination Board of Government Chiefs of Preparedness. With the Prime Minister's consent and with the political authority granted by him it was decided that the Coordination Board of Government Chiefs of Preparedness, reinforced by experts, was to be the public administration's operational management element. The

meeting's functional organization eventually comprised the Prime Minister's Office, Ministry for Foreign Affairs, Ministry of the Interior, Ministry of Transport and Communications and Ministry for Social Affairs and Health reinforced by representatives of the Finnish Red Cross, travel agencies and Finnair. Later on also representatives of the Ministry of Justice, Ministry of Education, National Bureau of Investigation, Church Council, State Treasury and the Federation of Finnish Insurance Companies participated in the meetings.

The Coordination Board of Government Chiefs of Preparedness convened a total of 12 times during 27.12.2004–12.1.2005. The meetings were held at the Government Palace led by the State Secretary, Prime Minister's Office. The general secretary of the Security and Defence Committee acted as the secretary to the meetings. Minutes of the decisions were taken during the meetings.



## **4 COMMUNICATION**

### **4.1 The authorities' external communication**

The authorities' first press conference was held on Monday, 27.12. organized by the Ministry for Foreign Affairs at its premises at 15.00 hours. Representatives of the Finnish Red Cross, Finnair and travel agencies also participated in the press conference.

At 06.00 hours on Monday morning, 27.12. the Ministry for Foreign Affairs received the Bangkok mission's situation report and at 09.00 the New Delhi mission's report. They were released to the media as such. The same occurred on 28.12. and on 29.12. On Monday 27 December at 13.00 hours, the Prime Minister and the Foreign Minister held a press conference at the Government Palace press room. At 15.30 hours the Ministry for Foreign Affairs posted information on its web page on how family members would receive information on those arriving on the evacuation flights and at 21.30 a bulletin regarding the opening of an e-mail address was published.

In the initial stage, the Ministry for Foreign Affairs did not have information at its disposal that it considered reliable. This resulted in a conflict between the information issued by the Ministry for Foreign Affairs and, on the other hand, information regarded as absolutely reliable by the general public and by the media. The information received from the general public was left unanalysed and internal Ministry for Foreign Affairs communication sputtered. As early as 26.12. information was posted on the Ministry for Foreign Affairs web pages. Web page hits continuously increased and a peak of 64 956 hits occurred on Thursday, 30.12.

On Wednesday, 29.12. at 15.00 hours the Prime Minister and the Foreign Minister held a press conference at the Ministry for Foreign Affairs. The following press conference was held on Thursday, 30.12. at 15.00 hours at the Prime Minister's Office, attended by the Prime Minister, the Foreign Minister and the Minister of Foreign Trade and Development. On Friday, 31.12. the Ministry for Foreign Affairs held a press conference at 15.00 hours.

On Sunday, 2.1.2005, after the final evacuation flight landed at around 17.00 hours at Helsinki-Vantaa, the Prime Minister led a Government press conference at the airport at 18.00 hours. Representatives of all actors that had participated in the activities also participated in the event.

Official sources were central to the media, especially to the TV broadcasters, during the entire period and immediately after the natural disaster occurred they were almost primary sources. During the communication analysis period (26.12.–5.1.) the activity of official sources can be depicted as reactive rather than proactive. On Monday the sources consisted of the foreign service, travel agencies and the Finnish Red Cross, albeit the printed media most often attributed its information to other mass media. During the following days the spectrum of official sources initially extended to the Prime Minister's Office and to the Embassy in Thailand and then to the police as well as to such interested parties as the church and divers. During the middle of the following week, the use of official sources strongly diminished and especially the Foreign Ministry's information be-

gan to draw widespread criticism. At the end of the week, official sources were again quoted on an increasing scale.

In the beginning of the week, the key official source was the Foreign Ministry, which was quoted as the source in most of the stories on rescue services and Finnish victims. The Prime Minister's Office entered the picture slightly afterwards and it was an especially central source in stories related to rescue efforts, the economic implications of the tsunami disaster as well as Finnish victims. The Interior Ministry was under the press radar only during the first few days. It provided information to stories related to assessing the rescue work.

During the first week and a half, authorities wrote almost 100 press releases. Only the channel *TV Nelonen* broadcast the Government's press conference on 28.12. in its entirety but also other TV networks broadcast large portions of the press conferences in extra programmes or during normal newscasts.

On the TV as well as in newspapers the public administration was personified by the Prime Minister and the Foreign Minister. From the middle of the first week onwards, the representatives of the police and the medical profession also made daily appearances in the media. For the most part the same persons were repeatedly interviewed. Also various interest groups – the Finnish Red Cross, travel agencies and the church – were represented in the media by a fairly small and regular group of people. On the contrary, the chief of preparedness organization, which planned and monitored the entire crisis operation on the part of the state was entirely invisible in the media. Neither the televised nor the printed media attributed even one story to it during 26.12.–5.1.

Since the official sources could not offer much information relating to the fate of Finns, some editorial staffs decided to follow the development of the situation and to wait for information that is more reliable. Others, however, began to actively compile a full picture from various sources (eyewitnesses, the Internet, information gathered from family members).

When it comes to attitudes towards official information individual journalists followed two basic lines: some considered the authorities too passive and that they neglected their duties whereas others opined that, considering the circumstances, the authorities performed in a satisfactory manner. The journalists representing the more sympathetic view often stressed the fact that nobody could have had a comprehensive picture of the extent of damages during the first days after the disaster. Some profusely praised the co-operative attitude of the Finnish authorities, especially that of the National Bureau of Investigation disaster victim identification unit. Journalists involved in the same situation could describe the events in very different manners:

The plane landed. Family members receiving the travellers were directed to the café on the bottom floor. The door was heavily guarded by the police. The police had some sort of name list. According to our estimates, it was a list of persons arriving on the plane. The police were extremely rude to reporters and did not respond to inquiries even though one reporter presented himself and said that he thought that a close relative may be among the arriving travellers (newspaper reporter, Asia)

I also got the impression that in practice all travellers were supposed to walk through the horde of reporters even though the authorities had told us that reporters could only meet such travellers that wanted to comment on their experiences and that the others would be ushered out through some other way. By the look of the travellers faces most of them had not prepared for or even

grasped the media attention waiting for them. In other words, arrangements at the airport were not a total success on Monday, which is only understandable. (...) From Tuesday onwards everything at Helsinki-Vantaa worked better and in a professional manner. (newspaper reporter, Asia)

The same split attitude was clearly evident in the stories of journalists that worked in Asia in the disaster areas.

From the reporter's point of view the Foreign Ministry's arrogant attitude really irked people but did not hamper the work itself because I realized that if they are not there themselves, there's no way for them to know either. Only hundreds of old news reports went through one's mind according to which all Finns in the disaster area were all right. Do they always operate so that they are somewhere a couple of thousand of kilometres away and only make phone calls? (newspaper reporter, Asia)

From the point of view of my work, I was not terribly interested in the squabble over how well or how badly the Foreign Ministry reacted to the disaster. The question is, of course, very important but as I arrived on the scene, the most acute phase was already at its end and, therefore, on location in Phuket the accusations of the Ministry for Foreign Affairs' slow going felt like hindsight. I naturally concentrated on good stories, not on whether the embassy and the Ministry for Foreign Affairs should have done something in a different manner several days ago. (reporter, electronic media, Asia)

In addition to criticizing the information the media found much fault in the rescue efforts. Here, too, criticism focused on what either happened or did not happen during the first day and a half after the tidal wave.

After the evacuation and relief operations really got going, one could not find much fault in the activities. In all honesty, however, it has to be said that in the beginning things got screwed up big time. (editor in chief of a newspaper on 4 January)

## 4.2 Action of the Finnish mass media

The media began to report on the natural disaster in Asia in a rapid manner. The Finnish News Agency relayed its first news on what had occurred only 1,5 hours after the event and in the national radio networks – both in the Finnish public broadcasting company (YLE) *Radio Suomi* and the national commercial *Radio Nova* programmes – the first news of the event was broadcast at 05.00 in the morning. However, typical for the media operation for this particular disaster was the trend that key events from the Finnish viewpoint only gradually emerged and that it took a long time to compile a comprehensive picture of what had happened. During the analysis period 26.12.–5.1. approximately 15 000 stories involving the Asian disaster were published in the Finnish mass media. The different media covered the event in very similar ways, most often as news quoting the same sources and emphasizing similar themes. For the week following Christmas and the for the next week as well, the disaster was the absolute top story, pushing aside, among other things, the political changes in the Ukraine.

During the analysis period, the individual stories were published as follows:

- 2 000–3 000 stories on the radio, a little over 1 100 of these on YLE's channels;
- some 700 stories in TV newscasts and current affairs programmes;
- ca. 6 000 newspaper articles;
- fewer than 100 features in periodicals.

In practice, all Finnish media also publish their own web versions, in which the tsunami topic got continually updated. A story per se is not a very reliable indicator of the extent of the reporting because the volume of stories strongly diverged. The Finnish News

Agency daily relayed almost 100 stories. In general terms it can be said that the backbone of Finnish newscasts in the early days of the disaster was the very material offered by the Finnish News Agency. This news agency's status is exceptional because as per a 1984 agreement, it is required to publish Government press releases and other material on official decision-making as such, but on the other hand it also can publish its own stories based on the aforementioned material. The Finnish News Agency is also obligated to alert the Director of Government Communications and his deputy during night time (23–06), should something unexpected occur.

During the early stage of the tsunami disaster, the information relayed by the Finnish News Agency was largely based on material received from international news agencies, especially to that of *Reuters*. Reuters carries a very strong position in the Finnish media. It is regarded as a reliable source. As the event progressed, the status of the Finnish News Agency as a source gradually diminished, as all major media dispatched their own reporters to the area or used their reporters that had been vacationing there. From Wednesday 29.12. onwards all major media had their own people in Thailand, some even in Sri Lanka. However, the Finnish News Agency maintained its significance especially in the storytelling of regional newspapers and radio broadcasts. New technology also played a part in the active search for news. Personal contacts to Finns working or vacationing in the area, nevertheless, proved to be more important than the technology.

The established news channels provided the journalists with a framework on which they could build their own comprehensive picture of the event. From the Finnish News Agency's daily menu of 90–95 stories, they would check that everything of essence was told. As alternate sources, journalists mentioned the Finnish News Agency, BBC World as well as the domestic media, especially TV networks and text-TV. The large international channels such as the BBC would be used to gain an overall picture of the extent of the disaster. Journalists only rarely attributed their sources to the Internet.

There were several seminal events in the reporting of the tidal wave. The first one can be timed to the evening of 26.12. when the Finnish News Agency relayed information - subsequently interpreted as the Foreign Ministry's notification – according to which Finnish tourists were not in distress in the tidal wave area. A similar interpretation was given in the Finnish-Swedish television *FST* news. The source was the same, the Foreign Ministry's chief information officer, Head of the Department for the Department for Communication and Culture, who stated that the Foreign Ministry had no information of the missing Finns and that the ones earlier thought to have been missing had been located. Prior to this the extent of the disaster and the death toll had risen on an hourly basis but, according to reports, the number of Finnish victims was low. The editorial staffs made their interpretation of the statement within this frame of reference. Most of the media decided to wait for a while but some media made their editorial decisions already on 26.12. and dispatched their reporters to the area.

On Boxing Day, the reporting focused on the event itself and already the first stories mentioned that the disaster had given Indonesia the largest blows. The regional focus was fairly even and with the viewpoint, that of an outside observer, albeit in the afternoon of 26.12., the focus on Finns began to grow.

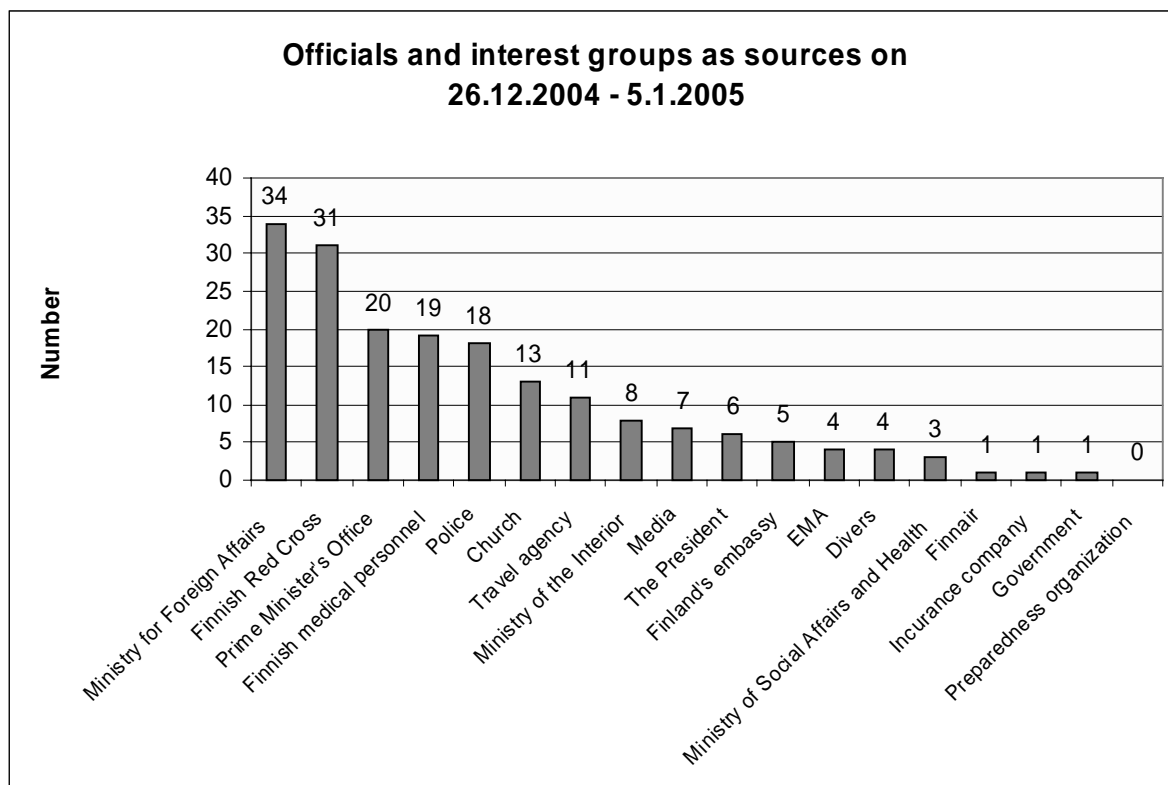


Figure 30. Television's key official and interest group sources.

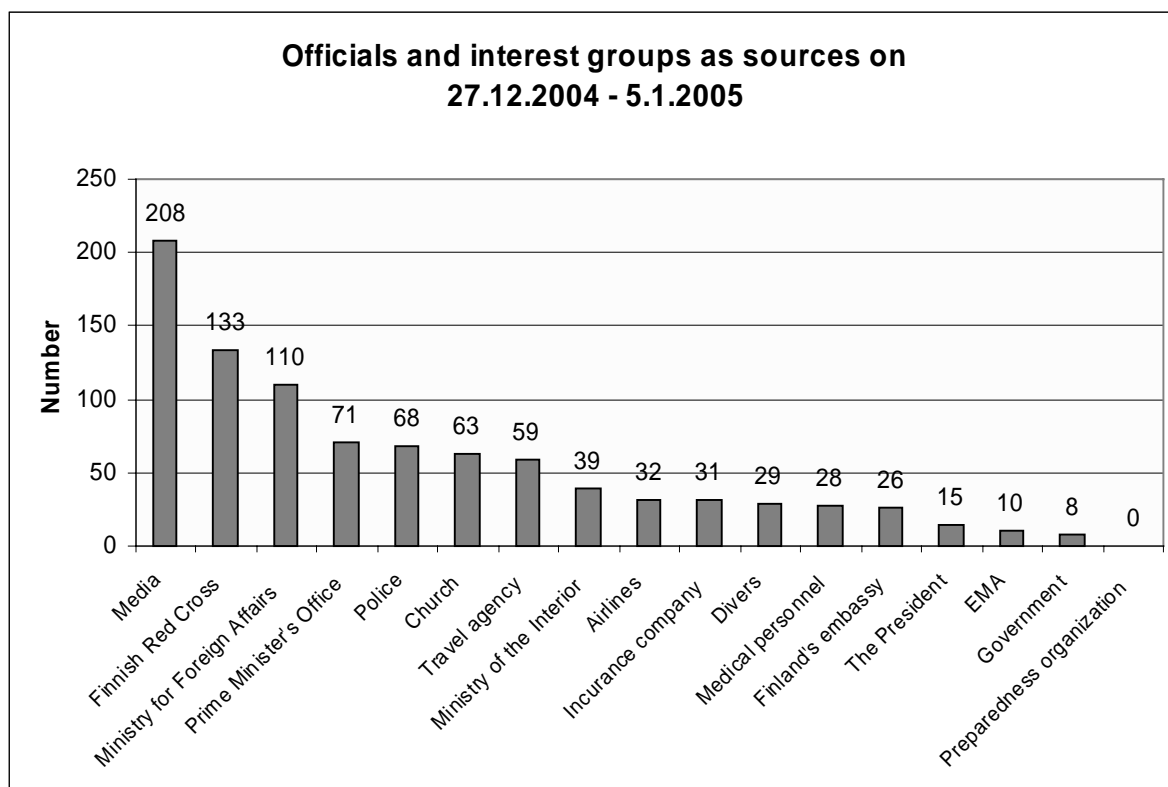


Figure 31. Official entities, cooperation bodies and interest group organizations as sources for the printed media.

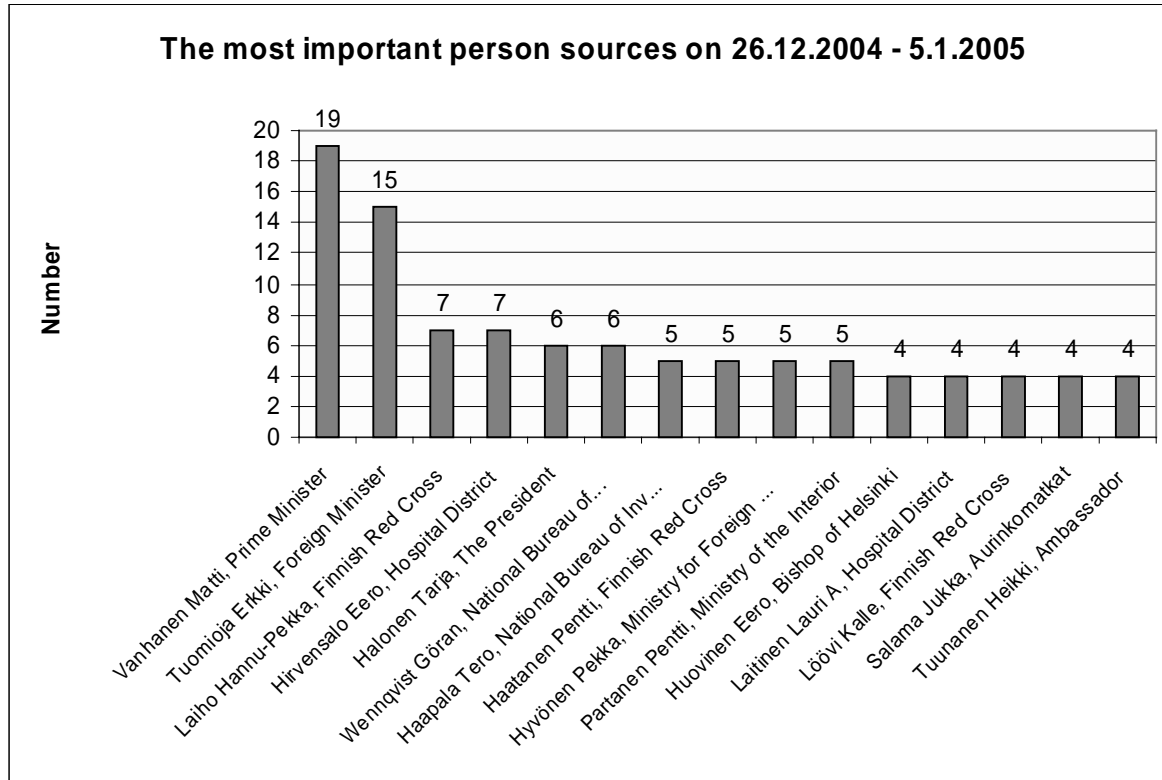


Figure 32. The most important person sources in the televised media.

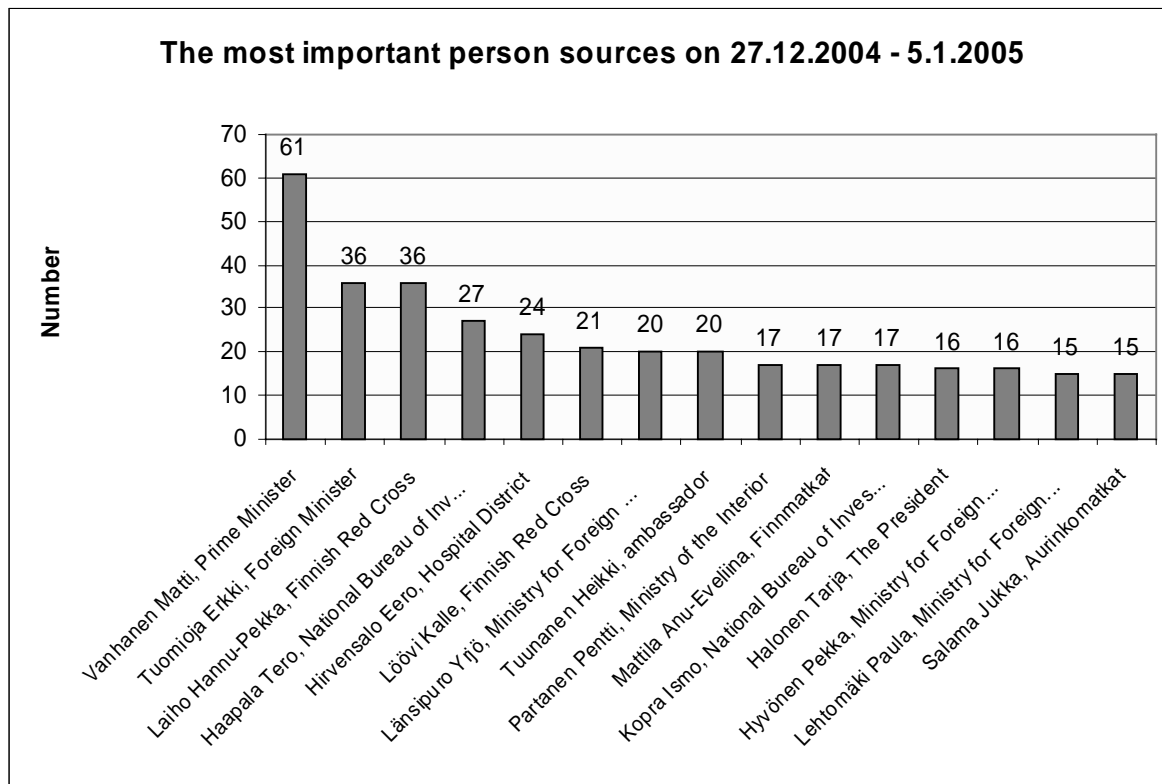


Figure 33. The most important person sources in newspapers.

The following seminal event was provided by MTV3's main newscast in the evening of 27.12. Its key element was an emotional report of Finns in Phuket. This finally started the phase when the media attention turned to Finns in the disaster area. Catastrophe reporting was thrust aside replaced by rescue efforts and depictions of experiences. New details of the event itself surfaced repeatedly but the major attention was focused on Finns, and regionally on Thailand, where most of the Finnish tourists had vacationed.

Around the turn of the year there was a lull in reporting. This was mostly due to the fact that newspapers were not published then but partially also because evacuations had been completed and now the attention turned to themes that had already received increasing coverage during the second phase, i.e. criticism of the public administration, especially that of the activities of the Foreign Ministry, sense of responsibility for the consequences of the tsunami in the disaster area as well as measures to be taken so as to overcome similar tsunami destruction in the future. During the second week magazines also entered the picture, whose storytelling focused on Finns' experiences and on overcoming grief as well as consolation, but which also partially included pointed criticism of the activities of Finnish authorities.

All in all the main themes of the reporting first covered the overall event, then the rescue efforts and citizens' experiences, followed by criticism of the authorities. The grieving process and the sense of community and togetherness were emphasized in the final stage of the analysis period. Typical to this is the similarity of the basic lines, even though the timing of emphases varied. The tabloids featured citizens' experiences more than the others did. On the one hand, the economic themes involved the disaster's damage estimates and, on the other hand, and especially in the beginning of 2005, the publicizing of the results of the relief aid fundraising campaign.

The critical voices were, altogether, fairly rare and they were heard at the end of the analysis period, much like depictions of grief. The criticism of the authorities dampened after the first week of January in all of the media. Later on, at the end of January, it re-surfaced when the Foreign Ministry's account of its own activities was published. Even then the main focus was on quoting the Foreign Ministry's own self-critical estimates. The overriding arc is thus formed by the transfer from the event itself to rescue efforts and the details of the event, followed by themes that cultivate a sense of community and, on the other hand, to the criticism of the system.

Two thirds of the stories were focused on Finns and on matters central to Finland. The local dimension was weak in all other media except in the newspapers published on the Åland Islands. During the first couple of days general images of the disaster dominated on TV and in newspapers alike and midweek, personal interest stories became the mainstream. Reporting had strong news-type characteristics. Even editorials mostly had the nature of background material, even though the activity of the Ministry for Foreign Affairs was criticized.

The Accident Investigation Commission has commissioned several reports on the activity of the media, based on which the more extensive depiction in Appendix 8 has been drafted.

### 4.3 Use of new means of communication and functions

From journalists' interviews, Internet usage data and from reports sent by citizens it is evident that new means of communication played a key role in the situation of the constantly growing requirement for information, in which the Asian tidal wave catastrophe put the professionals and their audience.

Without mobile telephones it would have been significantly slower and more difficult to receive information and to organize work on all levels. Many eyewitness interviews were conducted over mobile phones, many journalists on location used various ways of acquiring information and transmitting it, made possible by new technology. The new technology enabled greater mobility in journalism, even though the object was far away in the middle of a chaotic situation.

SMS messages managed to convey information even when phone calls did not go through. On 29.12. the Ministry for Foreign Affairs experimented for the first time with a mass SMS message to 6 000 recipients. At times e-mail services were also significant because even in the middle of bedlam the Internet cafés in the Thai tourist areas functioned. Citizens could exchange basic information, i.e. that the family member was alive, that the return trip began and that family members were waiting at the airport back home. Neither SMS messages nor e-mail messages provided for more versatile ways of information gathering.

The media's web versions are an established part of normal journalism in Finland. All media publish a web version. The versions' good sides – the opportunity for continual updating, the ability to construct large entities, archiving – became visible in the reporting of the Asian tidal wave catastrophe. Large media rapidly constructed special features concentrating on the issue on their web pages.

Internet pages became sources of information alongside the established mass media. Based on usage data, most of the channels of the new means of communication were established one-way information providers, such as the home pages of the public administration (for instance, there were 1,4 million hits on the Interior Ministry's pages during the first week). Web media pages (*MTV3*, *Yleisradio*, *Helsingin Sanomat* and *Ilta-lehti*) had a record number of hits during the first week. Surfing the web has become a routine activity for Finns and, therefore, citizens also turned to the Internet when they needed updated crisis-related information.

A part of the public's interest was directed to web pages specifically concentrating on this event (e.g. recreational divers' [www.sukellus.fi](http://www.sukellus.fi), the Friends of Thailand [www.thaiy.net](http://www.thaiy.net)), which were based more on two-way communications. Some conventional web media also offered chat pages (e.g. the tabloids, [apareena.arvopaperi.fi](http://apareena.arvopaperi.fi), [jippii.fi](http://jippii.fi)), which enable interactivity.

The way the media collects visitor information varies and, therefore, the numbers are impossible to compare but hundreds of thousands of Finns used these pages on a daily basis. The popularity of the Interior Ministry's pages can be explained by the fact that from 30.12. onwards they carried the missing Finns' list, compiled by the National Bureau of Investigation and, even before the Interior Ministry, [www.sukellus.fi](http://www.sukellus.fi) had already posted missing persons lists as well as discussion forums and distress messages. Most



of the usage was one-way use. Only a fraction of all web page visitors actually participated in the discussions. During the most fervent information requirement days, some of the discussion pages provided a hodgepodge of material. For instance, embedded in their discussion pages [www.thairy.net](http://www.thairy.net) also posted hospital links, contact information of persons concerned as well as fragments of news based on various media sources and commentary. During the first days following the disaster, it often beat the actual mass media in breaking the news.

The operation of many web pages was based on the work of a couple of enthusiastic individuals. When official Finland was still pondering whether privacy protection grounds allowed the missing persons list to be published, the divers' web pages had already posted their own lists. Knowledge of this information also rapidly spread among those citizens who longed for information on persons close to them.

In Finland, however, the mainstay was the established media. Claims have been made in England that the new media controlled the field for a moment as the reporting on the tsunami began. Most of the western media only realized the extent of the destruction a couple of days after the event and this provided the niche for the mobile, new media. The British newspaper *The Guardian* stated as early as on 29.12. that once old news reporting methods failed, people turned to the Internet in search of news. According to the newspaper they did not search for information from the web pages of established media but, instead, from private and enthusiasts' weblogs, in other words from pages similar to the divers and the Friends of Thailand posted in Finland. Already on the first day, *The Guardian* and the BBC began to use the web as a source by searching for information on the weblogs posted in the area of the Indian Ocean. Thanks to the tsunami, the large British media also managed to raise the use of their mobile phone news services to astronomical levels.

In Finland, mobile phone news services were offered by the traditional media and by various interest groups alike. Based on citizens' letters and interviews it seems that among the general public mobile phone news services did not play an important role.

According to *The Guardian*, even the web blogs provided scant information. People in the disaster area had better things to do than to post material on the Internet. However, already within a week of the tidal wave the Internet search engine *Google's* third most popular tsunami page was a blog – [tsunamihelp.blog-spot.com](http://tsunamihelp.blog-spot.com). A regular search for information from international web pages seems to have been mostly the work of small groups.

The shady side of web reporting was introduced to Finland as well. Much more of it was going on around the world. For weeks on end, an image of a fair haired small boy circulated on e-mail lists who, according to the message, had been located in a Thai hospital and could not remember the names of his family members. First of all the Finn who had been mentioned as the contact had no information on the matter nor was she aware that she had been mentioned as a concerned person. As long as the downloader masters the medium, the web provides an opportunity to anonymously spread erroneous information and to spread rumours and gossip. Web reporting around the Asian catastrophe did spread incorrect information but a large proportion of it was caused by the chaotic situation. The same cannot be said of the image supply feasting on dead bodies pro-

vided by some international pages. The Internet spread images that, due to media-ethics reasons would never have been published on the channels of conventional journalism.

#### 4.4 Monitoring international communication

Typical for the monitoring of the Asian tsunami wave disaster seems to have been that in Finland it clearly was an event monitored on the domestic channels. This feature was even more pronounced due to the Christmas holidays. At vacation homes and holiday destinations the use of, for instance, satellite channels is still fairly rare.

The influence of international reporting was indirect in Finland. The Finnish News Agency used the same large news agencies it normally uses. Media journalists partially even used international news and image providers directly but they also paid close attention to BBC World. The Finns on travel as well as travel organizers did the same and, therefore, the general picture provided particularly by the BBC managed to filter through in Finland, too, to those that followed the event. The BBC was probably the most important international stimulus provider, clearly more important than CNN.

The only more extensive direct foreign newscast was the Euronews programme, which is broadcast at the end of scheduled programming in the evening on Yleisradio TV channels. During the first week the number of its viewers doubled from less than 50 000 to almost 100 000. The number of Euronews viewers, however, returned to normal by around New Year.

Some Finns, especially on the Åland Islands and in Pohjanmaa (Bothnia) on the western coast, followed the Swedish mass media and especially the TV. The Åland Islands newspapers and their discussion forums (particularly fast moving SMS discussions) often referred to Swedish media. In addition, eyewitness accounts and expert interviews collected by the Swedish radio were broadcast on the YLE Finnish-Swedish *Radio Vega* (FSR).

Sweden was the only country whose media reporting Finland regularly monitored. Finnish media daily reported on how any given issue had been reported in Sweden. In the middle of the first week, Finnish media used comparable Swedish examples as they criticized the Finnish authorities and the Swedish media followed suit. The Finnish media scrutinized its own sources by using the Swedish media as an instrument and in Sweden they did the same.

The Swedish media machinery got going faster than ours because they programmed extra newscasts on the radio and on TV already on the morning of Boxing Day. The Swedish tabloids also managed to print special editions on the first day. At around 14.00 hours, *Aftonbladet* could report that a press officer working at the Swedish Foreign Ministry was extremely worried about the destiny of Swedes vacationing in the disaster area. On the other hand, also the Swedish Foreign Ministry provided conflicting information. The news agency TT interpreted this to mean that there were no Swedish victims in Thailand, the Foreign Ministry then corrected them and emphasized that they are not on top of the situation. According to the media, in Sweden, too, the Foreign Ministry's phone lines were jammed. The anchor of the evening news wore dark clothes and the Swedes' concern was strongly brought out.

Based on an eyewitness account, the Monday evening news story from Khao Lak reported that hundreds of Swedes had been washed out to sea. As travel agencies demanded brisk action from the government, the Foreign Minister opined that travel organizers were responsible for arranging the return flights. After this the arc of reporting in the Swedish main media was fairly clear.

In the first phase (27.–30.12.), the prime minister was the hero and the foreign minister was the culprit, who went to see a theatre play even though she was aware of the event. The media concentrated on describing the situation and criticizing the Foreign Ministry. The death toll reported by the media rose incessantly, reaching the enormous total of 5 000. The sheer numbers calmed the political criticism because the situation was turning into a national grieving event.

In the second phase (30.12.–9.1.), the foreign minister was still criticized but questions on the prime minister's whereabouts at different times also began to surface. In the third phase (from 10.1. onwards), the King granted an interview during which he complained that, contrary to the Constitution, the government never informed him of the disaster. The King made a speech to the victims, which elevated him to the father-figure position of the land. The media became extremely critical of the government. In the fourth phase the division of government and rescue service responsibilities were being carefully analysed and changes are being considered.

Also the Swedish tabloids interviewed a large number of eyewitnesses but, to an extent, they also conducted investigative journalism. Often they were the first to reveal what any given public official had done and why. As for TV, the situation in Sweden differs from that of Finland. Commercial television is still very young and its news practices hark back to the public service period. There were no great differences between *Sveriges Television* (Swedish Television) and its commercial rival. For instance, both companies used imagery very carefully but when images are shown during interviews this is the practice in Sweden anyway.

Compared to Finland, one media sector in Sweden operated differently. From Monday 27.12. onwards the Swedish radio's foreign news service *Radio Sweden* increased its South-Asia directed daily programming from one hour to six hours. This continued for a couple of weeks but even though the volume was eventually scaled back, the programming continued to be more extensive than normal well into the spring because Radio Sweden served the rescue and relief workers in the area. Feedback has been excellent.

In Finland (YLE Radio Finland), a comparable increase in programming did not happen because the transmitter capacity did not provide the flexibility of the Swedish one. Both of these represent the so-called world radio, the advantage of which is independence from the target area's conditions and communications infrastructure. Mobile phone base stations can get out of order and Internet connections can become unavailable but radio transmission always gets through. The drawback is dependence on radio propagation conditions if programmes are transmitted from the country of origin, such as the case with Finland. *Sveriges Radio* has partly dispersed its transmission activities around the world.

#### 4.5 Citizens as targets of communication as well as communicators

It has been known for a long time that when a disaster happens, citizens' thirst for information grows. The media structure must be able to rise to the occasion even if the information in the early phases of an event is often quite inadequate. According to this formula, citizens have at first normally and clearly been recipients of information but if the issue concerns them, they will spread the information further. In Finland the mobile phone rose for the first time into a key position in peer-to-peer communications. i.e. personal discussions when the news of the WTC towers' collapse in New York broke.

The radio is traditionally the fastest medium to break the news on dramatic events. It proved to be true this time as well. Initial information on the Asian tidal wave disaster was broadcast to the public already in the early hours of Boxing Day. Between 26.12.2004–5.1.2005, YLE alone transmitted some 700 radio newscasts and current events programmes, which contained information on the tsunami. When the national commercial Radio Nova and some 60 local commercial radio stations, whose news material is limited but often repeated, are added to this one can safely say that at least a couple of thousand radio newscasts dealt with the event.

Based on reported citizens' experiences most Finns first heard about the event on the radio, after which they either began to use the Internet or the text-TV or received supplementary information over the phone from people close to them. Many even mention the radio as the main supplementary source during the first day. Later on radio fails to be mentioned even though it had been listened to. References to television and newspapers abound.

In a country where its citizens strongly follow the media by subscribing to the various media, as is the case with Finland, it is impossible to compile a fully documented picture of the way the tsunami wave disaster's reporting was received. Finns follow the mass media for an average of 7 hours each day. During the Asian tsunami disaster, Finns followed the same media that they were used to following on a normal basis anyway. Undoubtedly, monitoring the media increased, especially in the beginning, but the growth of its intensity can only be documented from a couple of media. The Christmas holidays somewhat influenced the way people followed the news, for instance, by forcing the people who were away from their homes to read different newspapers than they normally would.

On Sunday afternoon, most people began to watch the national TV networks, YLE TV1 or MTV3. YLE broadcast its first extra news on Boxing Day 26.12. at 15.07 (TV1) and at 15.12 (FST) and MTV3 at 16.30. On both channels some 300 000 viewers watched the news. Along with TV, other electronic media were undoubtedly followed, especially in those households that had connections to the tsunami area.

Media monitoring immediately rose somewhat but the record numbers were attained on Wednesday 29.12. and Thursday 30.12. Then the number of people watching the TV news on both days rose to ca. 9 million, whereas the comparable figure on the same days a year earlier had been about 6,5 million. The reason the figure rose was the fact that all channels broadcast extra news and also because people felt the need to follow more newscasts than they normally do.

The MTV3 seven o'clock news on 29.12. was the sixth most popular newscast of the year with 1,406 million viewers. Almost one out of every three Finns watched this newscast. During these two days the YLE and MTV3 main news were regularly viewed by over one million people. Even the TV4 viewer ratings rose, albeit less than those of YLE and MTV3.

During the first days of 2005, TV viewing came back to the normal event level though some single events could momentarily raise the numbers. All in all during the first week the TV newscasts were viewed by a larger segment of the population than the normal daily coverage of 74%.

For the entire week following the disaster media consumption was clearly higher than normal. Tabloids sold 25–40% more and all TV channels' viewer ratings were 20–60% higher compared to the same time a year earlier. Of the TV channels, during the first days of the tsunami process MTV3 clearly beat Yleisradio's TV individual newscasts' ratings. The gap gradually evened out as days went by.

Compared to previous disasters the tsunami monitoring differed in two respects. Usage of the Internet as a source was noticeably widespread and the mobile phone became the key communication tool.

Depending on counting methods, web hit indicators vary but it seems clear that visits to the web versions of MTV3, YLE, the newspaper *Helsingin Sanomat* and both tabloids rose by 35–40% during the first week from ca. 80 000 to 1,2 million daily hits. At times, the number of visitors on Finland's most popular web version, MTV3, even doubled. Also *Ilta-lehti* Online broke its record on 30.12. with ca. 232 000 visitors, to be broken again within a month when *Ilta-lehti* renewed its web version. A similar, albeit more gradual, growth could be seen in conjunction with the March 2004 *Konginkangas* bus accident and the Autumn 2004 municipal elections.

Citizens also visited several public administration web pages. The most popular of these were the Interior Ministry's pages, recording 1,4 million hits during the first week. The only official discussion forum designed for everyone was the Justice Ministry's *Otakan-taa.fi*, which did not garner a lot of interest on the subject. Instead, lively conversation was conducted on the pages concentrating on the Asian disaster ([www.sukellus.fi](http://www.sukellus.fi), [www.thairy.net](http://www.thairy.net)) as well as on the magazine *Arvopaperi*'s forum [apareena.arvopaperi.fi](http://apareena.arvopaperi.fi). The pages of the divers and of the association of the friends of Thailand already collaborated before the disaster. There are some 930 members in the friends of Thailand association and the web pages record some 10 000 weekly hits. During the week following Boxing Day its discussion forum recorded 100 000 hits per day.

### **Targeted communication devices**

During the tsunami wave catastrophe, the citizens' media behaviour can roughly be categorized in two segments. The actual thirst for general information applied to everyone and the traditional mass media was used to quench this thirst. People wanted to know what had happened and the fact that a large number of Finns was affected raised the event's news value. The second segment, perhaps some 100 000 people, was considerably smaller. These were citizens who either had or suspected that they had rela-

tives or close friends in the disaster area. They had a need to contact the travellers. For this purpose, targeted communication devices were primarily used.

Making phone calls and sending SMS messages differs from mass media operations. During the tsunami process, the mobile phone was transformed into a device resembling the mass media, even though the contents of communication remained private. Based on the number of phone calls, during 26.12.–5.1. mobile phone usage to the areas of Sri Lanka and Thailand grew the most.

Phone calls did not always get through and a number of them, for instance dialled to India, were directed to areas untouched by the tidal wave. SMS messages did go through almost all of the time. According to the Finnish Communications Regulatory Authority, it is difficult to compile comprehensive data on SMS traffic. The number of SMS messages is probably significantly higher compared to the following table (26.12.–5.1.), which, however, indicates the changes in the order of magnitude.

Table 12. Changes in mobile phone calls 26.12.–5.1.

Country	Growth of calls from destination to Finland	Growth of calls from Finland to destination
Indonesia	+28 %	+25 %
India	+26 %	+54 %
Sri Lanka	+289 %	+158 %
Thailand	+97 %	+ 212 %

Table 13. Changes in SMS messages 26.12.–5.1.

Country	Growth of messages from destination to Finland	Growth of messages from Finland to destination
Indonesia	+212 %	+95 %
India	+139 %	+112 %
Sri Lanka	+627 %	+850 %
Thailand	+261 %	+385 %

The total number of phone calls (Sri Lanka 1 384, Thailand 53 339) and SMS messages (Sri Lanka 10 809, Thailand 262 192) differ a great deal by country. Even during normal times message traffic is much busier to Thailand compared to Sri Lanka.

The only messages resembling those of the conventional mass media and which were transmitted over a mobile phone were the Foreign Ministry's mass SMS to 6 000 mobile phones in Thailand concerning evacuation locations as well as the one sent to India and Sri Lanka concerning a warning of a new tsunami (which did not occur).

### Citizens' assessments of the communication

The citizens' letters to the Commission give an impression of the expectations and experiences of people touched by the disaster regarding the communication related to the catastrophe. The letters are on the whole critical, and only the intensity of criticism varies. The 194 letters cannot be regarded as a representative sample of how the entire population felt about the communication of the authorities or of the media. The group in question was exceptionally, intensely touched by the disaster and the dissatisfied were

more motivated to write. The letters concerned the situation of 48 close relatives in Sri Lanka and the rest in Thailand. Altogether, the letters dealt with events of the around 114 dead or missing persons as well as the 425 survivors.

In the media analysis, the attempt was to make an account of what kind of information citizens regarded as necessary, what they thought they received and what communication media they had used.

Information requirements were of three different kinds. On the one hand citizens desired specific information from the authorities and from travel agencies in order to find out about the situation of their relatives. Many had heard of the tidal wave on Boxing Day morning at 05.00 on the radio and then were unsuccessful in contacting their relatives in the affected area, still many had received panic-stricken and fragmentary SMS messages and phone calls from their relatives – the phone system seemed to be out of order after about an hour after the tsunami and to work again on the evening of Boxing Day. Anxious relatives desired precise information in order to forward it to their relatives because, based on the messages received from the disaster area, they seemed to be in the fog about what to do next.

Especially on 26.12. and 27.12. the writers felt that the information presented in the media and the eyewitness accounts were contradictory. They felt that the media belittled the disaster. Many estimated that the foreign media – especially BBC World – provided more exact information. Once established, YLE's and MTV3's special web versions were praised because they provided for eyewitness accounts. A part of the writers thought that the Finnish mass media relied on Ministry for Foreign Affairs-provided information too much for the entire time. On the other hand, the media were criticized for being too invasive at the disaster area, at Helsinki-Vantaa airport as well as at people's domiciles. The reporters seemed to get too close to a person in distress unable to protect himself from the intrusion. The media made money on people's distress. Travel agents had specifically instructed children to avoid journalists in the disaster area. The media's indifference, for instance in correcting their names, bothered people, who were often for the first time in their life in close contact with journalists.

The typical story was that people said they first tried text-TV and media web versions but that they then received word about [www.sukellus.fi](http://www.sukellus.fi), which linked them to [www.thairy.fi](http://www.thairy.fi). These pages received uniform applause due to the practical information and the opportunity for discussion. The Thai-based divers' information and activity were also praised – where the authorities seemed to fail, motivated and efficient divers provided practical help.

After 26.12. the need for precise information grew because the mass media had already broadcast a lot of general information. Many said that they had sent their relatives SMS messages containing information that they had seen in the Finnish media and on the Internet. In this way, many a traveller also viewed the disaster through Finnish eyes. On location and where television sets worked, BBC World was also followed.

Here and there, the writers' information could be inaccurate. One person, while blaming the Finnish media, said that Reuters on 26.12. already relayed a Khao Lak hotel owner's interview in which he said that some 60 Finnish patrons of his over 200 Finnish hotel

guests had survived the tsunami wave. This news, however, is not registered by Reuters until on 29.12.

The greatest frustration of the citizens was directed the strongest at authorities, of whom only the police were praised for their activities, though a few complaints over the Finnish local police's inability to receive missing person information were also recorded. The actual torrent of complaints rained on the Ministry for Foreign Affairs, whose emergency number got jammed and, if one managed to get through, the promised return call either never came or the caller got tossed around between officials. The Ministry for Foreign Affairs-provided media information was incorrect. The mass SMS message on 29.12. was sent too late and resulted in more confusion than support. Citizens felt that the authorities did not believe the evidence they actively had gathered themselves. The Ministry for Foreign Affairs either did not bother or was incapable of seeing to it that their contacts were properly processed.

Tired people who had experienced a lot also became oversensitive in interpreting the communication, which emerged in a chaotic situation. On every evacuation flight, there were plenty of passengers whose ID documents had disappeared. Many writers mention the black cross penned by Finnish Red Cross officials on these passengers' hands in Thailand. The subject felt this to be the symbol of death.



## 5 ANALYSIS

### 5.1 Dangers related to natural disasters and how to warn of them

Natural disasters known to Finns are floods, torrential rains and thunderstorms. They can be forecasted and warned of. As travelling and communication has increased, Finnish tourists have also become acquainted with avalanches, hurricanes and earthquakes. Some of these can be warned of, even though protecting oneself against these can be difficult.

Annually a few typhoons occur in the Indian Ocean. As weather phenomena, they can be forecasted, their progress can be followed, and warnings can be issued. To the indigenous population as well as to the majority of tourists the tsunami was a strange phenomenon. On Boxing Day the majority of the damage was caused by the tsunami's unexpectedness and its massive force. Many of the victims were curiously studying the suddenly exposed sea bed and never managed to get out of the way of the tsunami.

#### Probability estimate of a tsunami risk

Researchers of seismology at the University of Colorado have estimated that an earthquake of a similar magnitude of the Car Nicobar Island quake in 1881, i.e. approximately magnitude 8, could occur once every 150 years in the region. The researchers' exact recurrence period estimate is  $157 \pm 43$  years. Two years after the Car Nicobar quake the Krakatau Volcano in Indonesia erupted, spawning a destructive tsunami. Assuming that the occurrence probability of a tsunami of the size of the Krakatau or the Boxing Day ones in the region is once every 150 years as well, then one can calculate the risk for a Finnish tourist to die in a tsunami in the Indian Ocean region. On Boxing Day 179 Finns perished and at the time there were 3 000 Finnish tourists in the Indian Ocean region. Therefore, the risk for a Finn having travelled to the region was in the order of magnitude:

$$179/(3\,000 \times 365 \times 150) = 10^{-6}$$

This can be compared to the risk of dying in a traffic accident in Finland, being in the order of magnitude:

$$400/(365 \times 5\,000\,000) = 2 \times 10^{-7}$$

This contains the hypothesis that 400 Finns annually die in traffic accidents and that all 5 000 000 Finns are daily at risk of dying in traffic.

In the Baltic Sea ferry traffic the only serious disaster during the past 40 years has been the Estonia disaster, in which some 800 people perished. Assuming that during these 40 years, when passenger ferry traffic has existed in the Baltic Sea, there are some 5 000 000 ferry passengers annually, the probability for a ferry passenger to perish in a ferry shipwreck in the Baltic Sea is:

$$800/(5\,000\,000 \times 40) = 4 \times 10^{-6}$$

By comparing the previously mentioned probabilities, it can be observed that the probability of dying in a tsunami is in the same order of magnitude as to become the victim of a traffic accident in Finland or of a passenger ferry shipwreck in the Baltic Sea. The difference between these risks is that the reduction of the tsunami risk in the Indian Ocean is still in its infancy whereas many safety-increasing efforts have already been made to reduce the other aforementioned risks.

The region of the Indian Ocean was unprepared for a tsunami but, for instance, in Hawaii, these precautions have been taken. Escape route signs have been posted in areas vulnerable to tsunamis and in addition to fire emergency instructions, hotels also post tsunami emergency instructions. Together the precautions and the warning system in those conditions are so effective that even one hundred victims in a large tsunami could be considered as the disaster of the century.

There are really no chances of protecting oneself against the material damage of a tsunami or any other natural disaster, for that matter. Light structures are generally destroyed. Massive structures may hold, especially if they contain light walls and windows, which can collapse under the pressure of water without destroying the load bearing structures. In order to minimize danger to humans, the most important thing would be an early warning, based on which people could move to safer ground from the vulnerable area. In the Pacific Ocean, where tsunamis are most prevalent, a warning system exists, which alerts the Pacific Rim nations of a tsunami danger. No such system yet exists in other sea. Neither was there a designated authority in the area of the Indian Ocean that would have reacted to the system's warning of a subsurface earthquake west of Sumatra.

An international tsunami warning system is in the works for the Indian Ocean, estimated for completion in 2006. The nations around the ocean are acquiring their own warning systems. At present, there are 15 measuring stations on the region's islands. Fast communication of information of the tsunami danger to the region's population and tourists in connection with the 28.3.2005 earthquake showed that even small warnings can rapidly be reacted to and that local warning systems have been developed. On the other hand, it could be seen during the 28.3.2005 quake that people can become numb to the warnings if false warnings are issued often. The same phenomenon has been observed with regard to the Pacific Ocean tsunami warnings, in fact, in that region a warning is nowadays only issued if a tsunami has actually been detected.

When warning systems do not exist, people have to use their common sense. This requires sufficient information on tsunamis and their warning signs. These are, e.g., a personally sensed earthquake, water receding from the shoreline and animal behaviour. People should independently seek this kind of information but still the authorities, travel organizers, organizations and various educational establishments could provide it. Armed with this information the travellers would be in a better position to observe their environment and to function in such a manner that they would not remain in the danger zone due to ignorance or that because of curiosity they would not choose to go there. On the other hand, so much information has been published on the 26.12. disaster that one can safely assume that tsunami information has reached almost all citizens. Communication must continue, lest the issue be forgotten.

## **5.2 Other crisis situations and measures to mitigate their consequences**

Due to the high wave speed and its long range, the tsunami danger can be estimated to be real on the coastlines of almost all oceans and also in the Mediterranean. Tropical hurricanes occur on all sea areas between the Tropics of Cancer and Capricorn when temperature conditions favour the birth of a storm. Strong tornadoes sweep the southern parts of the Great Plains of North America. Earthquakes and volcanic eruptions also occur in the regions favoured by Finnish tourists, such as in the Mediterranean region, Canary Islands, the Middle East, south-east Asia, Japan and the U.S. west coast. Major aviation accidents and shipwrecks can happen anywhere.

Because of this, the local preparedness in areas frequented by Finns should be accounted for and, if necessary, its development should be supported. For example, the

Thai Red Cross has requested assistance from the Finnish Red Cross to strengthen its own readiness activity.

Local strong storms, thunderstorms and floods can occur in Finland, and in these cases, one can talk about a natural disaster. Serious accidents can happen in the various means of transportation. The consequences of accidents in fuel or chemical transportation can be serious. The probability of a collision between a tanker and a fast moving passenger vessel in bad weather on intersecting routes in the Gulf of Finland is regarded as a major accident risk.

It is difficult to prevent disasters of the abovementioned kind. In order to reduce the number of victims preventive measures are of key importance. It is important that one is aware of the dangers and that accidents are prepared for by the authorities' measures as well as by the citizens' own individual preparedness. In view of disasters abroad in which Finns are involved, the authorities must prepare for similar search and rescue, evacuation, medical care, management and information activities as were implemented in the south-east Asia natural disaster. Authorities should have contingency plans for disasters of various kinds. One should also see to it that when natural disasters and other crises occur, the authorities would have access to the relevant natural science information as well as any other required expertise to assist in the compilation of a situation picture.

### **5.3 The activities of the travel industry and the needs for developing risk management**

The role of hotels, travel organizers and other travel enterprises was emphasized during the initial stages of the Asian catastrophe rescue activities, especially in Thailand. The normal division of tasks between the actors is such that hotels see to evacuations and, together with the travel organizers, they compile customer lists. The main problem was that the customers were neither aware of the travel agencies' representatives' obligations nor of the options available to them in exceptional situations. Travel organizers operate according to the local authorities' instructions and cooperate with Foreign Service missions. During this disaster, the travel organizers' representatives were stretched to their limits of endurance while working on the location.

From the viewpoint of Finns in the worst affected areas, the diving schools' input in rescue activities as well as in seeing to the safety of their customers was significant. The diving enterprises are well equipped to safeguard their customers in various conditions. The representatives of these actors generally had a better overall picture of the development of the situation because during their everyday activities they have to follow the development of the weather and the movement of water during diving trips. The diving enterprises' strength in the area of Thailand was good local knowledge as well as long-term experience in operating in the area. The frequent turnover of personnel, especially that of travel guides, as well as their relatively short experience in local conditions makes the travel organizers' task more difficult in exceptional situations.

Good preparedness and readiness for action in exceptional situations are based on the diligent performance of one's duties in normal conditions. An important factor for the travel industry is a functioning cooperation with various contact groups both at home as

well as on location. Good cooperation between the local authorities and the local travel industry actors in analysing the risks of destinations and destination areas as well as developing risk management is essential from the point of view of the safety of travel destinations.

During the Asian catastrophe, communication at travel destinations between travel organizers' representatives and the representatives of the Foreign Service did not proceed smoothly. In order to improve the situation it would be important to increase the everyday interaction between travel organizers and the Foreign Service. The fact that the representatives of both of the aforementioned at destinations and in these countries often change, makes the it more difficult. The representatives of travel organizers usually only spend a part of the year at any given destination. During the entire travel industry's risk analysis the cooperation between the Foreign Service and the travel organizers should be improved from what it is at present.

Businesses providing accommodation at travel destinations should post comparable instructions to their patrons for natural disaster as they do now for hotel fires. Information on the risks at travel destinations should also be included in travel brochures. To prepare for emergencies as well as to increase safety in general the travel organizers and the local lodging business must provide their customers the relevant information on hospitals, safe gathering points as well as other necessary information at each destination. Compared to the present, the significance of these matters should also be more carefully taken into account when travel organizers pick their service providers at travel destinations.

The travel organizers' and authorities' instructions should also provide clear instructions on everyone's individual responsibility for safety, on the need for life insurance and travel insurance as well as on the fact that the Finnish government has neither the possibility nor the primary responsibility for taking care of the safety of travellers.

## **5.4 Finnish losses caused by the tsunami**

### **1. Thailand**

Of the Finns in Thailand, 178 died or disappeared. Most of them, 170 persons, were in Khao Lak and of them 106 were guests at the Blue Village Pakarang hotel. The large number of casualties in this hotel can be explained by the fact that it was the hotel most often patronized by Finns.

During the day of the disaster, all in all 174 Finns stayed at the hotel. Some of them were on trips at the time of the disaster. Of the Finns at Blue Village Pakarang at the time, some 25 persons survived the tsunami. The large number of children that perished at Blue Village Pakarang can partially be explained by the fact that the hotel was specifically designed as a family hotel and that there were many families with children there around Christmas time. The hotel also provided many activities for children. Before the tsunami arrived, many families with their children had already gathered around the hotel pool area.

In the Khao Lak area, the tsunami's effects can be compared by many ways to its effects in the north-western part of Indonesia. The biggest run-up-height was the second-highest in the entire tsunami. The area destroyed by the tsunami at Khao Lak covered

the entire low-lying coastal area. The differences were the fundamentally lower number of local inhabitants as well as the fact that many travellers also became victims of the tsunami. At Khao Lak, the large force of the tsunami was mainly caused by the increasing effect of the shape of the sea floor instead of proximity to the epicentre. This can be assumed to have resulted in greater local variation in the destruction left by the tsunami. Elsewhere in Thailand the highest run-up height of the tsunami was about five metres. Apart from river valleys nor did the run-up-distances exceed some hundreds of metres. If people only had been aware of a tsunami's characteristics, chances for their survival would have been good.

According to accounts, the first wave was generally not the most destructive one. As per many depictions, the second or the third wave was the largest. At most places no bore appeared; the water just simply rose. Even where the bore occurred, measured flow velocities varied between 5–13 m/s. The impact of such flow velocity corresponds to falling into water from the height of 1–9 metres, in other words from a lower height than from the highest diving platforms. Flow speed was on the whole irresistibly strong but the first impact of water per se was probably not lethal. Caught in the violent torrents people did not make it to the surface in time in order to breathe. The water turbulence was so strong that it stripped clothes off people and flung them on rocks, buildings and individual objects. The swirls also picked up such amounts of sand and mud from the bottom that instead of water, one should talk about a muddy sludge, which penetrated lungs and sinus cavities. In many cases, the conditions can be compared to falling into rapids with the exception that some people spent the better part of two hours in the torrents. There are depictions of how some people hanging onto trees eventually lost their grip. Some initially survived on mattresses, which, however later often lost their buoyancy. It is probable that people perished during all phases of the flooding.

In the worst affected areas in Khao Lak, the tsunami and the turbulent mass of water caused by it were so strong that people's whereabouts on the beach as the wave struck had little effect on death or survival. People also perished inside hotels and vehicles. Neither swimming skills nor general physical condition seems to have had much effect on survival. Survival was affected more so by whether a person was caught in something while submerged or if they were hit by floating objects. Little children's chances of survival in those conditions were nonexistent. Most of the survivors in Khao Lak explained that they managed to hold onto some floating object or that they grasped tree branches. All victims that survived the wave said that they were extremely exhausted after having spent time in the water and waiting for rescuers. Heat, physical struggle and dehydration depleted their strength.

### **False alarms**

Many false wave alarms on Sunday 26.12. and Monday 27.12. hampered the search and rescue efforts, victim evacuations and especially the attempt to bring the situation under control. Due to these alarms people had to remain evacuated on mountain sides and, for instance, on hotel roofs in Phuket until late in the evening of Boxing Day. False wave alarms also delayed the start of the rescue efforts in Khao Lak. After approximately 14.00 hours, no waves of significant size arrived in any part of Phuket, Khao Lak or Krabi.

One traveller says that he received "reliable information" at 15.58 on 26.12. from Finland that a new, large wave was on its way.

False wave alarms influenced the authorities' activities. One chain of events connected to a false alarm that probably caused the most harm took place in the intersection of the Tap Lamu and Phuket-Bangkok highways on 26.12. at around 20.00 hours. A group of people returning from a diving trip, in all 100 people of whom some 80 were Finns, were about to be transported to an evacuation point just after they had been rounded up in the dark of the evening at the harbour area destroyed by the wave. Just then military vehicles arrived on the scene blasting the warning "Very big wave coming" on their bull-horns. The cars only slowed down instead of stopping and people jumped onto moving cars and in this process many got injured. The situation was chaotic and as a result the group dispersed. It took several hours to gather them together again. The wave alarm proved to be false.

Also because of a wave alarm, the entire Takuapa Hospital was evacuated to the upper floors and to the roof for several hours on Sunday afternoon. The situation caused panic and uncertainty among the patients as well as interruptions in medical treatment.

Nobody who was present had the capability to assess the veracity of the alarms. The only option was to take all alarms at face value.

A travel guide who, by the skin of his teeth, had managed to escape the tsunami described the situation: "When all others ran, the only option was to run as well".

In Khao Lak it took an average of 2–3 hours from the actual tsunami wave for the victims to either save themselves or to be rescued and transported to hospital or some other first aid location. Of this time, even one hour could have been spent on waiting for more large waves and seeing whether it was safe to come down from safe spots such as roofs, trees or electric poles. The two Finns who had to spend the night in the jungle waiting for rescue personnel are the exception.

Almost all victims were helped by local inhabitants in getting from the disaster area to the Phuket-Bangkok highway. Also, the mildly injured victims helped in saving the more seriously injured. Some Finns were rescued by helicopter directly from the disaster site.

If the hotel personnel had been informed of a tsunami and had the hotels had comparable tsunami emergency plans as they had for hotel fires, many casualties could have been avoided. A random spot check in Khao Lak revealed that for every case analysed there were locations close by suitable for escape and which could have been reached by many in fewer than 10 minutes. Such was the case even in the cove of the cape of Pakarang, which is basically a tsunami trap as it is surrounded by long and winding roads, low buildings as well as the jungle and rivers behind the hotel area. However, there were some higher buildings, of which the top (third) floor remained intact and even one half of the lower buildings survived. Furthermore, within approximately 800 metres there is a small hill to which a large number of people could have run. But since no instructions for a tsunami existed, not even those who anticipated the danger with the water's noticeable receding, could take advantage of these options.

## **2. Sri Lanka**

In Sri Lanka, the destruction particularly touched the local population. Entire villages were washed away on the southern and eastern coasts. The majority of victims in Sri

Lanka evidently perished immediately, in which case the health care system was not overloaded in the same way as it was in Thailand.

The experiences of the Finns in Sri Lanka indicate that even the ones washed away did not necessarily get seriously injured. The only Finnish death occurred on the beach of Hikkaduwa, where a 66 year old woman died while swimming.

The difference to the Thai wave experiences is that people spent a considerably shorter time in the water (30 minutes at most) and that they were swept along for a shorter distance. Neither was the water as turbulent compared to what the victims in Thailand described. The only Finns swept away by water were mostly those who were already swimming in the water. At that time in the morning, there were not many such ones. Most people were either having breakfast or still in their hotel rooms. Of the ones at breakfast, many had to run away from the water flooding in through windows. These people generally escaped to the upper floors in the hotel. Most beach hotels in Sri Lanka were higher than two stories and, therefore, the situation from the point of view of escape, differs from that of, for instance, Khao Lak.

The first waves broke gas lines in Sri Lanka and there was a strong odour of gas in the air. Neither was there any certainty about the strength of the taller hotels. Therefore, immediately after the first wave, most people evacuated themselves from the centres of villages to the slopes of hills.

In Hikkaduwa after the first wave, the water receded for about 10 minutes. During this time, most of the locals went to the shore to help the ones left there whereas tourists evacuated to higher hotel floors or to the slopes. Most of the local casualties evidently perished specifically in the second wave. The second wave also caused significant damage in the lower floors of the hotels.

## **5.5 Experiences of those caught in the disaster and the experiences of their relatives**

Based on the accounts of those caught in the disaster as well as of their relatives a multi-faceted and extremely varied picture of people's experiences in the disaster area as well as back home has been formed. Even though some risks and adaptation to different cultural conditions are a part of travelling abroad, the Boxing Day experience was so incomprehensible for all parties that it understandably generated panic, pain and anguish among those who lived through it. Therefore, also the expectation on how the victims could or should have been helped were partially unrealistic. In the demands, for instance, the matter that each country's authorities are primarily responsible for the rescue activities and for the safety of people in their area, was forgotten.

The tsunami and the catastrophe generated by it came as a total surprise to local authorities, local inhabitants and travellers alike at all of the destinations. The receding water, the harbinger of the tsunami, was an unfamiliar phenomenon to almost everyone. Among the people interviewed, only a handful knew the receding water was a warning sign. On the contrary, most of the people seem to have instead come to the shore in order to witness the special natural phenomenon. Even after the first wave, several tourists tried to make their way to the beach, for instance, at Phuket's Karon Beach, to videotape the rising water.

In the most damaged areas, especially in Khao Lak when it comes to Finnish travel destinations, there were dead and seriously injured people left by the tsunami everywhere, houses and other buildings had collapsed and injured people were looking for missing family members. The uncertainty about new waves arriving slowed the people from saving themselves and, therefore, just to be sure they remained at high places such as rooftops. In light of this experience, it is perfectly understandable that further wave alarms, which were later proved false, caused panic for hours following the actual tsunami wave, even far away from the shores. Small waves continued to arrive on the shore during the entire afternoon of Boxing Day but there were no grounds for worrying about another, large wave. Travellers and the authorities, however, did not have this information at their disposal.

Having been swept away by water and waiting for rescue personnel in high heat depleted the victims' strength even if their physical injuries were not serious. Fortunately, the people participating in rescue activities understood the danger of dehydration and the first measure was to offer something to drink to the victims. The activities of the local population both in Thailand as well as in Sri Lanka has been praised. In Sri Lanka the locals took tsunami survivors to their homes and offered them food, drink and clothes. In Thailand, the locals took care of the survivors at various gathering points and loaned their vehicles for ambulance transports.

In the hospitals of the destroyed areas of Thailand, the situation, especially for the first two days, was chaotic. For instance, the situation in Takuapa Hospital could be compared to that of a mid-size Finnish health centre suddenly receiving hundreds of patients. Especially those patients not well versed in foreign languages were anxious. Many felt abandoned and without help. Even though hospital personnel certainly did their best in triaging the patients, many of the injured felt discriminated against. On the other hand, several seriously injured people expressed their amazement on how soon they received emergency care, had X-rays taken and on how fast they received other treatment as well.

The victims in hospitals longed for the presence of Finnish medical staff. Many have described the arrangement of Swedish doctors and hospital coordinators of some kind as a great success. The coordinators consulted local doctors regarding the medical care of Swedish patients. The people in question, present among other places in Takuapa and Bangkok Phuket hospitals, were volunteers who for one reason or another happened to be there. Finnish doctors that happened to be in Thailand also performed comparable volunteer tasks in some hospitals. In any case the Finnish victims described their great relief upon seeing the first EMA-Group and Finnish Red Cross doctors there.

Finnish travellers helped each other. People who were injured themselves, although ambulatory, other survivors and volunteers from outside the hospital system such as diving school staff members and other Finns living and working in the country helped the injured in many ways. Language skills helped a great deal in this. The activities of all these people had a great positive impact on the victims' morale.

The general lack of information caused consternation. The victims were unaware of what actually had happened and how extensive the disaster was. During the first day, few contacts could be made to Finland and the victims did not have information on the



fate of their relatives. Even the survivors of a single family from the same spot could end up in three different hospitals. The desire to look for missing family members caused, among other things, some people to refuse, for instance, transportation that had been offered from Phuket to Bangkok or even an evacuation flight back to Finland.

The activity of the Foreign Ministry's crisis centre has been criticized. The situation was chaotic when their phone lines had no queuing possibility. Both the victims and their family members considered it problematic that the Foreign Service stuck to its normal office routines for a long time without acknowledging the exceptional characteristic of the situation. Both the travel agencies and the Foreign Ministry were criticized over the fact that although they promised to get back to those who called them, this was not always done.

A Finnish relative had received precise information from Thailand on the fate of some 15 persons. Even though five members of the family continuously tried to place a call to the Ministry for Foreign Affairs emergency line on Monday 27.12., nobody answered. The relative called the switchboard and requested that someone would write down the information he could provide over the phone. The operator refused and only urged them to continue to try to contact the emergency number.

A Finn living in Thailand and who had volunteered for rescue tasks called the Finland Bangkok Embassy on 26.12. at around 21.00 local time in order to report a number of names of Finns that had survived. The Embassy said that it would be good if they could fax the names. Someone in the volunteer group remembers to have said that there are neither fax machines nor any intact buildings over here. Later on the said volunteer managed to transmit the list by SMS message to his friends and relatives in Finland, who then relayed the information further.

Travel agencies also had problems with data protection issues. They were not allowed to disclose to anyone whether any given individual was on a trip organized by them. However, the strictest practice was abandoned on Monday 27.12. When a person would call them and ask them whether his family member on travel at a given destination had been reached, he would receive an answer. The issue was subsequently discussed during a meeting of the chiefs of preparedness and the acceptance of the Data Protection Ombudsman was obtained for this practice. Relatives regarded this service positively and it, among other things, reduced the number of calls placed to the Ministry for Foreign Affairs' crisis centre. Relatives were also frustrated about the fact that the same information of missing persons had to be provided repeatedly to the police, the Ministry for Foreign Affairs, a travel agency or even repeatedly to the same authority. More than one relative may have reported the same person as missing.

Misunderstandings about travellers' fates added to the relatives' worries. There were mistakes in the name lists compiled by different persons, foreigners could not spell Finnish names correctly, people that were missing in reality ended up on the survivor lists and vice versa. The Internet proved to be a significant medium for communicating information, the so-called divers' list has received lavish praise. Thai hospital web pages were logged onto from Finland as well and people were sought on those pages. Thai-speaking employees of one Finnish export company read the Thai web pages and thanks to their language skills they could convey information back to Finland on the fates of Finns.

Victims and their family members alike have criticized the journalists' actions on planes, at airports and at their home communities. Many experienced the contacts and interview requests as traumatic. In some cases, despite promises to the contrary, their anonymity

was compromised. Also, the content of some stories has been criticized. Apart from a couple of exceptions to the contrary, feedback on the arrival and reception arrangements at the Helsinki-Vantaa airport as well as on ceremonies performed there in remembrance of the repatriated dead have been positive.

The experiences of the travellers in the disaster area regarding the situation diverge greatly from one another. Those travellers in no danger only comprehended the situation from newspapers after returning to Finland. The ones who had not personally seen the tsunami wave have great difficulties in sympathizing with others' horror experiences. This was also reflected in the way travellers acted vis-à-vis each other as well as towards travel agency workers at destinations, airports and back home.

## **5.6 Travel insurance and deficiencies in compensation coverage**

In the context of the Asian disaster, it became apparent that tourists' travel insurance coverage widely varied. Along with EU membership product cooperation on voluntary insurances ended in Finland and uniform travel insurance terms no longer exist. The products of companies that sell travel insurance more and more differ from each other and also many travel insurance products – mainly connected to credit cards and guaranteed by some international insurer – have entered the Finnish market.

The criterion for acquiring travel insurance primarily is the ease of purchasing it and its low price. Hence, not enough attention is paid to the content of the insurance. In Finland the level of awareness of the value of the personal property that people travel with is low and Finns have hardly grasped the risk levels or probabilities connected to travelling.

According to typical travel insurance a natural disaster per se is not an insurance trigger, i.e. it cannot be solely used as grounds for compensation. Of the most significant insurers, one company has included the mention of orders of the authorities as grounds for compensation in its product. During the tsunami disaster, it interpreted the Finnish government's evacuation operation as an order of the authorities and thus, this insurance company's customers received more compensation for financial losses compared to the others. In this situation the evacuation was not based on the order of the Finnish government but, instead, on voluntariness.

If the Finnish government had not decided to evacuate Finns at the state's cost, all those who managed to escape on their own would have had to cover the costs of alternative accommodation and of premature return themselves.

This is because pursuant to the Package Travel Act the travel organizer is released of almost all responsibility upon encountering a *force majeure* situation (such as a natural disaster). The travel organizer is only responsible for providing reasonable assistance in finding lodging and in arranging the return trip but not for compensating these. The only financial responsibility lies in reimbursing the cost of the trip in proportion to the lost travel days. Compensation in this case as well, therefore, greatly and randomly varied based on in which phase of the person's trip the tsunami hit. It is thus essential to realize that consumers cannot rely on being able to transfer the financial risks of a potential natural disaster to the insurance company.

## **5.7 Functioning of the rescue and evacuation arrangements**

### **5.7.1 Rescue efforts**

#### **1. Thailand**

From the point of view of the extent of the disaster's consequences, it was of central importance that Thailand had not prepared for a tsunami disaster. No warning system existed.

Neither the Thai training system nor the travel industry's risk management contained any training for an accident such as this. Rapid movement of a tsunami's large water masses was not felt as a threat, neither the suddenness nor the extent of the destruction were anticipated. As a result, the organizations participating in the rescue efforts did not have the required readiness at the time of the event. The tsunami also caused human casualties and material damage within rescue and medical care units and bases. Neither rescue and medical organizations' staff members nor individual citizens were trained how to act under tsunami conditions. The situation was exacerbated by the fact that, apart from Bangkok, there are extremely few ambulances in Thailand and most of them are poorly equipped. However, all Thai hospitals, private and public, had contingency plans for major accidents.

When it comes to saving travellers, the problem was the same everywhere. There was no advance warning and even though random observations heralding the tsunami were made, travellers were generally not instructed how to act and the situation was not perceived as a threat. Some diving enterprises were an exception and their staffs were soon on top of the situation. Finns, along with others, that participated on these diving trips were taken to safety in time. Once the rescue efforts began, the local inhabitants everywhere provided really commendable assistance to Finns, as to all other foreign travellers. It seems that due to the large number of victims and the chaotic situation the disaster's first rescue activities in Thailand could really not have been executed any faster. The strength of the rescue effort during the first day was that Thailand's disaster organization is based on independent preparedness at the village level and that local inhabitants have a clear responsibility to participate in the rescue efforts, of which they are also aware. This is apparent in many victim accounts, in which the locals' helpfulness, independence in the rescue efforts, first aid and transport organizing capabilities are emphasized.

No rescue unit dispatched from Finland could have saved any of the Finns that perished or disappeared in the course of the disaster. This is the case even if a decision to dispatch a unit would have been made on 26.12. and even if the help would have been on the way that day.

The search process was hampered by the fact that the missions did not have information on independent travellers or of those residing in the area for an extended period. Travel agencies only have information on their own customers. The Ministry for Foreign Affairs employs a mobile service intended to assist Finns in a crisis situation as well as to provide information on different countries' travel safety. If one e-mails one's travel itinerary to the Finnish mission, it can then warn travellers or inform of crisis arrangements.

## **2. Sri Lanka**

As in Thailand, no warning system or tsunami emergency instructions existed in Sri Lanka. The activities of the authorities or relief organizations played no role in the Finnish travellers' rescue. Based on Finnish eyewitness accounts there were no observations on organized official rescue efforts in the area anyway. Key players in the Finns' evacuations were the locals, Finns residing in the area as well as travel agency workers. Evacuation was also based on one's own independent action. There was much confusion as people listened to rumours and moved from one hotel to another. The local inhabitants' rescue activities were not as organized as in Thailand but they provided invaluable assistance to travellers by accommodating them and by providing food, drink and clothes.

### **5.7.2 Evacuation arrangements**

#### **1. Thailand**

In Thailand victims were transported by various means: private cars, scooters, hotel vans and buses, ambulances and military trucks. In addition, the injured were transported by police helicopters, military helicopters and aircraft as well as by the airlines.

Helicopters were already used a couple of hours after the disaster to transport victims from the Blue Village Pakarang bungalow area to Takuapa Hospital. Likewise in Krabi Finns were airlifted to medical care by helicopter. Scores of patients were transferred from Takuapa Hospital by military helicopters to follow-on treatment in Phuket and Bangkok. Patients were also airlifted to hospitals farther away such as to Surat Than and Hat Yai by Thai Airways and by Thai military aircraft. On these flights, both injured and uninjured tourists were transported and the flights were provided gratis.

In Khao Lak, victims were taken to hospitals by pick-up trucks. Private people as well as the authorities used them. In Khao Lak the ambulances were mostly only in use for hospital transfers, some of which were also made in vans that had been transferred to minibuses. In Phuket, the distances were shorter and along with private cars people were transported by, for instance, scooters. In Phuket victims were also transported by ambulance from the scenes of the disaster and from hotels to local clinics and to Phuket Town hospitals. Military trucks were used in Khao Lak to transport large numbers of the uninjured or only mildly injured tourists to gathering points (to temples and temple schools). From the gathering points, tourists were taken to the airport or to Phuket hotels by tourist coach. Travel agencies and hotels were responsible for arranging these.

#### **2. Sri Lanka**

The evacuation of those on package tours in Sri Lanka seems to have happened rapidly and efficiently. No later than on Monday 27.12. Hikkaduwa hotels and travel agencies together arranged bus transportation to the airport or to Colombo hotels for the travellers to wait for a return flight. Two evacuation flights were flown from Colombo on which a total of 439 passengers were transported. The rest of the Finns travelling in Sri Lanka were evacuated on other airlines' flights. A significant portion of independent travellers in Sri Lanka flew on the Czech airline (CSA) and, on the other hand, for instance Tjareborg customers were still returning to Finland on SAS flights via Stockholm at the end of the week.

The evacuation of independent travellers was not as clear-cut. Its smooth functioning was influenced by, among other things, how active a role the hotel played in evacuating its customers. At the airport, the independent travellers' experience was such that on the evacuation flights they only received the seats left over from those of travel organizers. This is why some of them had to wait longer for their flight. On the way from their accommodation to Colombo, some of the independent travellers were lodged at an indoor sports arena just outside Colombo, from which transportation to the airport was arranged. Travel agencies' customers were put in Colombo hotels.

Experiences of the smooth flow of the evacuation and of the authorities being in control of the situation vary according to the observer. In general, it seemed that evacuation buses carried passengers regardless of whether they were the customers of any given travel agency. However, confusion and failures in communication regarding evacuation bus schedules as well as the ground rules of the evacuation seemed to have prevailed among the travellers quite often. The evacuation from Hikkaduwa was hampered and slowed down by the fact that roads were partially broken. Even for other reasons it took a long time for the evacuation buses that came to pick up the travellers to make their way from Colombo to Hikkaduwa and back. Repeated false wave alarms also mixed up the situation, causing some of the tourists to arrange their own transportation inland from Hikkaduwa.

### **5.7.3 Transports by air**

The main responsibility for evacuating Finns from the Asian natural disaster was assigned to Finnair and to the Finnish Red Cross. In the reports sent to the Commission, it was mentioned that additional capacity was unnecessary. Among other things the overloading of the airport in Phuket as well as problems in transporting the evacuees to the airport were factors that limited the number of flights. The feedback from the general public to the Commission indicates that the evacuation schedule caused more mental and physical suffering to the evacuees and, in some cases, even aggravated their injuries. In a comparable situation, more attention should be paid to the speed of evacuation and to using the capacity available more efficiently.

There are four small charter flight companies in Finland that are specialized in aero-medical evacuations that have specially equipped aircraft and cooperation contracts with a company providing the medical care services. Their fleet consist of small jet or turbo-prop aircraft with 1–3 intensive care stretcher positions and with endurance capabilities permitting evacuations from 2 000–3 000 km away without stopovers. Cooperation and operational methods between the charter flight companies specialized in travel emergency services and the medical companies are well developed in Finland and they have successfully been employed in airlifting ill or injured patients.

Seated patients can be evacuated on normal scheduled flights without any special arrangements. When necessary, the bigger and almost horizontally adjustable business class seats can be used in transporting patients. For stretcher cases, separate areas in airliners' aft cabin compartments can be screened off in which one or two stretchers can be rigged on top of the seats. When it comes to transforming the entire cabin compartment into a hospital ward, this requires special arrangements. Now, the set-up used in connection with the ambulance flight was extremely exceptional. Stretchers should fulfil

the aviation authorities' requirements and they should be air-certified. Due to the preparedness obligation, only Finnair had two air-certified stretchers and the other airlines had none. The reason for this is that these kinds of stretchers are very expensive.

If there is a desire in Finland to increase the preparedness to transform an airliner into an ambulance plane, in which also intensive care measures could be performed, a system suitable for the majority of airliners used in Finland should be developed. An ambulance aircraft might also be needed in Finland if, for instance, a major accident in Lapland would generate a large number of victims requiring rapid transport to medical care in southern Finland.

In equipping the ambulance aircraft, the following should be taken into consideration:

- The required care capacity, i.e. how many ICU positions there should be;
- The ICU/stretcher units' medical, air technical and flight safety requirements;
- Who will pay for the stretcher units, who will store and maintain them and how fast they have to be at disposal;
- The medical equipment's compatibility with the aircraft's systems;
- The possibilities for implementing additional medical requirements in an aircraft, e.g. additional lighting required by the procedures, sufficient supply of medical oxygen, etc.

The equipment should be such that it could be installed as soon as possible in, for instance, an airliner taken off scheduled routes. One should not decide to dedicate an aircraft for custom fitting because its availability can never be guaranteed. No airline can sustain aircraft on the ground waiting for a potential mission. The same also applies to the Defence Forces' aircraft, which have the additional drawback of special military aviation requirements set to the fleet as well as the crews' inexperience in flying evacuation missions to unfamiliar airports far away.

## **5.8 Functioning of the medical care arrangements**

### **5.8.1 Thailand**

The tsunami disaster focused mostly on the Phang Nga province, which is an area that survives on tourism and agriculture and due to its natural beauty is a popular tourist destination. There are 234 000 inhabitants in the Phang Nga province and two small central hospitals and seven local hospitals are responsible for providing specialized medical care. The worst affected disaster area, Khao Lak, is far away from large cities and hospitals.

The impact of the tsunami on the Phang Nga coast caused a toll of 4 000 dead and over 9 000 injured. Hundreds of people came to the hospitals during the first couple of hours. No health care system anywhere in the world is prepared for the abovementioned numbers of patients. The limited number of doctors as well as long distances slowed the people from getting help. Hospitals implemented their major accident contingency plans and began to treat patients in order of urgency, when life-saving measures took precedence. According to information received, the activities started functioning well and the medical staff in the area soon arrived at work. Based on interviews with doctors, during the first day there was a lack of everything imaginable; doctors, nurses, ward spaces,

operating rooms and, in the evening, also of operating and dressing supplies. Some of the patients made it to the hospital with a delay of approximately one day, others had to wait for even an urgently needed operation for several days. Also the hygienic conditions during the first days were inadequate in the disaster area's hospitals.

All medical procedures were justified. People that had been close to drowning were hooked to ventilators on ICU units, fractured bones were set and dirty wounds were cleaned under operating room conditions. Wound excisions were done at outpatient clinics, which for some people, later on resulted in deep infections requiring operations. Antibiotic treatment was properly initiated at the hospitals.

Even though the local ambulance capacity in Thailand is limited and, in proportion to the number of victims, totally inadequate, patient transportation was efficiently implemented. Already on the day of the disaster police, navy, army and air force helicopters and aircraft started to transport patients from the disaster area to the well equipped hospitals in Bangkok and in other large cities. In the hospitals, the western patients took priority over others and the majority of these patients were transferred to other care facilities during the first two days.

Most of the serious, life-threatening complications were caused by dirty wound infections or were due to pneumonia caused by inhaling dirty water. Earth bacteria and fungi as well as water contaminated by fecal matter ending up in wounds caused deep soft tissue infections. According to Thai authorities and the media, blunt injuries and infections resulted in numerous leg and thigh amputations. Finnish patients did not require these procedures. However, serious infections threatened the patients even in Bangkok hospitals because the number of patients requiring urgent surgical procedures was great and all of them could not be operated on as soon as was necessary. This formed the basis of the EMA and Finnish Red Cross doctors' situation assessment according to which the seriously injured Finnish patients had to be rapidly be airlifted to Finland. Even in hindsight, this conclusion can be regarded as the correct one.

The doctors of two private hospitals in Thailand wondered about the fast evacuation of Finnish patients back to Finland. The hospitals in question suffered no lack of resources and the patients could be treated according to the methods of modern medicine. The standard of medical care in Thailand is high and if a lack of resources does not limit treatment, evacuation from Thailand from the viewpoint of patient safety is unnecessary.

### **5.8.2 The Finnish activity in Thailand**

Finnair's action on dispatching an EMA medical group to Phuket was commendably rapid. Even after the Finnish Red Cross groups arrived the number of Finnish patients, nurses and psychologists was insufficient. The people sent to the area worked around the clock almost without sleep. The activity consisted of continuous visits to the same hospitals repeatedly and of searching for new patients in the medical care facilities still unvisited. Distances between hospitals were long and travelling took a lot of time. Without opportunities for rest, the people became exhausted. It would have been more efficient if a part of the medical staff could have remained at hospitals, in which case maintaining contact with Finnish patients would also have been easier. Due to the limited number of personnel, this was impossible. The patients regarded it as a problem that

after the Finnish medical team's quick visit they had to wait for the next visit for more than a day.

The workers were competent professionals who knew their task and who, in the manner of expert organizations, could independently operate without any centralized management. The EMA and the Finnish Red Cross teams worked well together. There were problems in message traffic because mobile phones only sporadically worked and communication was mainly limited to SMS messages. The Thai authorities experienced similar problems and now they plan to return to using VHF equipment.

### **5.8.3 Medical care during flights**

When the evacuation of Finns injured abroad is planned, all organizations with functional readiness, aircraft, medical equipment and competent personnel in international operations should be used in forming a team. Cooperation with other European countries should be increased. During the Asian disaster it would have been possible for Finns to fly evacuation flights and ambulance flights with a larger fleet as well as on a faster schedule compared to what happened in this case.

From the point of view of flight planning it would be of utmost importance to get exact enough preliminary information on the patients about to be evacuated so as to equip the aircraft in the best possible way corresponding to the patients' medical care requirements. A pre-existing operation plan, i.e. division of responsibilities between the actors in subcategories, should be in place for equipping the plane. This would eliminate duplication and problems with powers of operation. Similarly, it should be predetermined which organization has the overall responsibility for and coordinates patient selection on location so as to optimally use the available aircraft capacity.

Due to limited availability of space, electric supply and pressurized gases in the B757 aircraft a maximum of six intensive care unit (ICU) patients can be treated at any given time in said plane. Based on experiences the necessary laboratory tests can be performed well and there are no problems with the functioning of the equipment.

When it comes to selecting medical staff, in addition to professional skills and experience, one should continue to pay attention to previous experiences in catastrophe or military medicine as well as to a cooperative, flexible and positive personality. Of the important professionals are the anaesthesiologists specialized in intensive care, one of whom is needed for every ICU patient and one for every four ward patients. Of surgical skills the most important specialities are plastic surgery, orthopaedics and traumatology as well as general surgery. The medical staff must also be experienced in on-call duty and ambulance tasks in addition to working in the ICU and the operating room. It is important to plan and double-check the communication system prior to flight. The medical staff must have its own communication equipment, which does not cause interference with the aircraft and medical equipment systems.

With an aircraft that has been correctly equipped and professionally manned in accordance with lessons learned from prior experiences it is possible to airlift even patients that are in bad health for long distances without jeopardizing patient safety. Even though stopovers were necessary during long legs, no harm was ensued to patients.



#### 5.8.4 Activities in Finland

Over 3 000 travellers returned from the disaster area through Helsinki-Vantaa airport. When many of the travellers arrived scantily clothed, without money or personal documents and when many required medical care, exceptional reception arrangements were necessary. The mode of operation, which was implemented had not yet been practiced but after the initial glitches were ironed out it proved effective. The police were in general command and the Frontier Guard's border control unit flexibly executed immigration control. The Hospital District of Helsinki and Uusimaa set up a medical station next to the gate in the arrival terminal in which the injured persons' medical care assessments could be made. Crisis workers received the passengers both at the gate and, if required, at the medical station. Since not all passengers required medical services or the support of crisis services, it was important for them to be able to exit the terminal directly.

The main reason for the success of the Hospital District of Helsinki and Uusimaa medical station was that seriously injured patients could be taken to medical care immediately following arrival and simultaneously the patient could be taken to the correct care facility. In order to determine the correct care that was required it was useful that several fields were represented: emergency care doctors, orthopaedists, plastic surgeons and infectious diseases specialists. After a check-up and first aid, patients could also be referred to follow-on treatment at their domiciles' medical care establishments or to be discharged. Using this method an overload of patients at the hospital district's hospitals was successfully avoided. The medical public information was assigned to the Hospital District of Helsinki and Uusimaa Medical Director, which was the reason that people assigned to actual medical tasks could perform their duties undisturbed. The police was successful in cordoning off the airport facilities from outsiders. Disturbances or excessive media pressure towards patients did generally not occur.

At the medical station, the main problems were related to communication. Information relayed by the EMA regarding patients arriving on the flights arrived by e-mail but the medical station did not have an e-mail connection to the Hospital District of Helsinki and Uusimaa server. On the other hand, the information received at Töölö Hospital did not always make it to the airport in time. As a communication device Finland's Public Authority Network *VIRVE* worked well but the fact that hospital managements and private ambulances did not have access to *VIRVE* complicated the action.

There were no problems in inter-hospital cooperation. Patients were transferred to various parts of Finland according to normal routine. A positive exception from normal routines was the fact that within the Hospital District of Helsinki and Uusimaa, the hospital capacity was employed flexibly and patients from Helsinki were operated on in the neighbouring municipalities' hospitals. This was a method that avoided an overload at Töölö Hospital and it also guaranteed rapid treatment for seriously injured patients.

The patients' treatment did not essentially deviate from normal routine. The treatment of many infections was difficult because the agents were bacteria rare in Finland and resistant to the normally used antibiotics. Tissue losses caused by serious wounds or infections were difficult to treat. The fact that mud and sand had penetrated lungs, sinus cavities and ears was not only exceptional, it also complicated the infection healing process. It was prudent to centralize the care of serious infections in Helsinki because ex-

periences from treating many patients helped in finding the correct treatment and, on the other hand, it also prevented the spread of pathogens that were resistant to antibiotics to many hospitals. A surprisingly large number of deep venous thromboses were diagnosed, which had also resulted in threatening pulmonary embolisms. The probable cause for the embolisms was dehydration following the injury, long confinement to bed as well as a delayed start of blood-viscosity reducing treatment. Treatment in Finland was successful because of all patients brought back home only one, whose prognosis was already bleak in Thailand, was lost.

Patients received care around Finland all the way up to Rovaniemi. The majority of them were treated in the capital region and in southern Finland. Apart from Helsinki and Tampere, the number of patients transferred to central hospitals did not exceed five and the tsunami patients caused no overload in the hospitals.

Once they were back home, the need for mildly injured patients to be treated at health centres was alleviated by the fact that they had received first aid at the Helsinki-Vantaa airport's medical station. Many patients were capable of nursing their cuts and bruises themselves according to care instructions. It is also obvious that some patients consulted private practitioners when their travel insurances were in order. The significance of health centres was emphasized in treating mental health problems. The great majority of the mental health issues were mild in nature and, therefore, the health centres' help sufficed. Health centres did not compile separate statistics on the tsunami patients' visits. The numbers now used have been received from health centres based on calculations and estimates made afterwards. Therefore, the numbers of visits may contain inaccuracies. However, statistics show that the patients injured in Thailand did not use outpatient services very much.

## **5.9 Psychosocial assistance and services**

In the context of the Asian disaster, one had to prepare for an increased requirement of psychosocial assistance and services. Approximately 3 000 Finns, directly touched by the event, were in the disaster area. In addition to them and their close relatives, the event indirectly touched a large portion of Finns. From the viewpoint of a person's mental healing it is crucial that he receives the required help without delay, that the help is professional and that it includes any required follow-up as well as referral to follow-on care. Disaster victims are normal people. It is normal to react in a crisis situation. Some develop stronger reactions in the same situation, others' reactions are milder. People's need for help varies and individual requirements can be very different. Well organized crisis support promotes the healing process.

According to studies, almost all (95%) victims of traumatic events develop acute post-traumatic stress disorders, which however, are alleviated for the most of them as time goes by and most victims have recovered within three months of the traumatic experience even without treatment. If the symptoms have not improved and become less frequent within a month, a post-traumatic stress disorder can be recognized and diagnosed. The prevalence of the disorder among the general population is estimated at 5–11%. According to research, 30% of children that experienced a traumatic event are at risk of developing a post-traumatic stress disorder ([www.nice.org.uk](http://www.nice.org.uk)). If the symptoms persist for more than three months, a chronic post-traumatic stress disorder is in question. It is important to try to prevent the post-traumatic stress disorder and its comorbidities such as depression and anxiety. The disorder's probability depends on the duration and intensity of the exposure as well as survival factors connected to healing.

When people have experienced a traumatic event, one can not assume that they could immediately and independently assess their own need for help or that they would know how to seek crisis support. In this case, the authorities must offer support and help them in arranging the assistance.

#### **5.9.1 Psychosocial assistance in Thailand and on the evacuation flights**

During the disaster traumatic experiences were caused by the suddenness of the event, its destructive force, injuries, separation from relatives, seeing seriously injured people and mangled bodies, fear of new tidal waves, uncertainty of survival and the feeling of being left alone.

Psychosocial assistance was not available immediately following one's escape. Help received from local inhabitants relieved but could not dispel the feeling of helplessness and solitude. Only the Finnish helpers' arrival created a sense of security and a feeling of being cared for.

It is important that the medical and relief team arriving on the scene also includes professionals specialized in psychosocial assistance who have the time and the opportunity to sit down and talk with the victims in their own language. All helpers that went to the disaster area, i.e. medical staff, ministers, psychologists as well as representatives of various organizations and companies, said how important it was for those who had witnessed a traumatic event to be able to talk about their experiences. Many people wanted to talk so as to be able to express their experiences and to understand the event. Discussion support, a calming presence and assistance was needed at hospitals, hotels and at the airport. In some cases, these encounters also formed the beginning of the assistance process, which continued in Finland.

If professionals specialized in crisis support had been present sooner and if there had been more of them, immediate assistance could have been provided and mental care evaluations could have been performed in a more organized manner. Now, due to the small number of relief staff specialized in crisis work, volunteers/laymen ended up in extremely demanding situations while helping the victims of the disaster. From the point of view of the victims, all aid and support was invaluable. Some of the relief staff were aided by local knowledge and language skills, which helped them, for instance, in creating contacts to hospital personnel.

The mood on the flights was quiet and sombre. People were tired and shocked. On every flight, there were passengers that were ill or injured in one way or another. According to cabin crews, some passengers had the need to talk about their experiences. However, due to the small number of staff, sufficient opportunities for this were not available. At any rate, passengers regarded the compassion expressed by crew members and by relief personnel as important. A psychologist flew on four flights. According to lessons learned experienced crisis support personnel should have been on all flights. It is necessary to agree on the division of tasks between the cabin crew and the medical staff prior to each flight.

It would be easier to arrange crisis support if the need for it was assessed and people's personal information was recorded as early as possible to facilitate the crisis support group's subsequent contact.

### **5.9.2 Psychosocial assistance at Helsinki-Vantaa airport**

The reception of those evacuated to Finland was implemented according to plan. Psychosocial assistance professionals were at Helsinki–Vantaa airport waiting for the evacuees as well as to provide support for the family members waiting for them. Vantaa Crisis Centre performed social and mental situation picture charting, provided assistance in the form of discussion as well as help in practical details. Voluntary rescue services, the Psychological Assistance of the Church and Finnish Red Cross psychologists were cooperation partners. The Crisis Centre acted under public responsibilities and its child protection task was to receive the children that returned to Finland without their parents from the disaster area. All children had family members waiting for them.

Regular support functions' command element meetings made it possible that observed deficiencies were brought up and immediately corrected. The incomplete information on passengers returning from the disaster area was problematic and, therefore, charting the situation in cooperation with the medical branch immediately following touchdown was of paramount importance. After some teething troubles in the beginning and once space issues were settled, cooperation worked beautifully. People soon learned for which issues the various actors and their special skills were needed. Resources were correctly allocated. All arriving passengers were given a Finnish Red Cross leaflet containing basic information of the reactions caused by a traumatic event, how to regard the reactions and the phone numbers of services providing crisis support.

Working at the family member station was demanding and it was constantly developing. Family members were extremely anxious and uncertain about the situation. Even more attention should be paid to protecting the privacy of the ones returning from a disaster area as well as the privacy of their family members. Arrangements at the airport were regarded as appropriate and people had a positive attitude towards them. In the upcoming readiness exercises, attention will be paid to the affairs of the uninjured and family members as well as to media cooperation. Furthermore, it is necessary to develop and exercise different modes of operation in which the authorities and volunteers' division of tasks and responsibilities are deconflicted.

### **5.9.3 Psychosocial assistance at domiciles**

No preparations were in place for a crisis like that of the Asian disaster. The catastrophe, however, spawned an extensive desire to help and to support. In this exceptional situation the domiciles prepared to receive people returning from the disaster area as well as to provide support for those, whose family members and close relatives had disappeared. In Vantaa, the workers of the Crisis Centre called the relevant municipalities and gave them the numbers of travellers returning. In order to organize crisis support, knowing the preliminary number provided a good ballpark figure of how extensive the crisis support requirement would be. Because of protection of privacy issues, people's names could not be provided and, therefore, the potential requirement for crisis support could not be earmarked to any person.

Municipalities' social service, health and education sectors reviewed their approaches. The municipal crisis support groups updated contact information and agreed on cooperation with other actors such as parishes and organizations. The crisis support groups'

contact information was also updated on the Ministry for Social Affairs and Health web pages. Crisis support services were widely publicized on, among others, web pages, local radio, in local papers and by arranging town hall meetings. The municipalities' own social and health care organizations and cooperation partners gave guidelines on how to instruct people regarding crisis support services. When these service systems encountered people touched by the Asian disaster, they were told of available crisis support services and referred to crisis support professionals. The basic premise in offering assistance was to respect everyone's individual needs. Some did not want outside services. In all cases information on whom to contact later on if needed, was provided.

The work load and activity of crisis support groups varied. At best the work of crisis support groups went according to plan, consisting of coordinated active functioning in cooperation with local actors. Activities were versatile and various approaches were used to respond to individual and collective needs. The support aimed to strengthen the social network and coping skills and for these objectives to be reached, among other things, debriefing sessions and discussion events were organized in schools and day-care centres. Healing occurs faster when one is informed of normal reactions and when one knows what can be done on one's own and when support networks exist. Some crisis support groups decided to wait for potential calls and then to react as required. The groups' resources were on the whole sufficient. Some support groups only provide immediate assistance while others implement long-term follow-up, even for a year.

The losses of the Asian disaster extensively touched children and adolescents as well as their immediate environments, day-care centres, schools and extracurricular circles. A total of 46 children under the age of 12 were among the dead and the missing. It has been beneficial that the communities of children and adolescents have had the possibility of being supported and helped by, among other things, crisis support groups and parishes in processing various crises. Parishes and organizations in significant ways supplement the municipal services. Many municipalities felt this cooperation to have been of primary importance.

Patients that were treated in hospitals were able to request psychiatric consultation or crisis support. As the patient is transferred to his domicile for follow-on care, it is important to make sure that also crisis support is continued. The continuity is secured if specialized medical care and basic health care share the same view of crisis support.

The number of people that participated in the Asian disaster's acute rescue and assistance activities was large. It is positive that many organizations have good facilities in organizing required psychosocial assistance for their workers. Many have received psychosocial assistance of various sorts. When it is known that after a traumatic event it may be difficult to seek support on one's own, some of the ones requiring assistance may not have received it. Not everyone requires outside help.

The help line number provides a key service during serious accidents. Its tasks are to compile and relay information as well as to support people in panic. From among the help lines one must distinguish the information numbers related to inquiries concerning an event and numbers dedicated to providing help in the form of discussion and mental support. The basic principle is that enough help lines are in operation and that their staffs are trained.

From the viewpoint of arranging psychosocial assistance and services, the Asian disaster was an exceptional event. People's experiences in the disaster area and the intensity of their exposure to the traumatic event varied, as did their needs and arrangements of assistance on location, during the return flight as well as at home. Back in Finland, the family members and close relatives had their own needs for assistance. Some family members had to wait for a long time for information on their loved ones' destinies. Even now, as five months have gone by, not all missing persons have been found and the family members' uncertainty and waiting continues. Children without parents and their close relatives require special support. This support continues to be required for a long time.

Assistance and services vary in the different phases of processing a traumatic event. In the initial phase it is important to provide support and practical assistance as well as information that supports one's coping. There must also be ways to work with communities and to see to follow-up. The degree of the victims' mental symptoms as well as the need for follow-on care must be correctly diagnosed so as to provide long-term professional help for those that require it. Crisis support activities must be coordinated with the municipality's mental health services, in which case people can flexibly be referred to follow-on care at, for instance, mental health offices or family counselling clinics. The readiness to set up peer support groups must also be there, where people who have shared the same experience can participate should they so desire. Crisis support work is demanding and the various forms of assistance and services require special skills. Therefore, one must see to the education and on-the-job training of all that participate in crisis support work. In order to develop and standardize the activities of crisis support groups their role and tasks should be reviewed and determined and recommendations on operating approaches should be made.

The public debate of crisis support methods and of their effectiveness has also spawned debate among professionals. Differing views may cause uncertainty and lack of confidence among the ones that potentially need the assistance. When a serious accident occurs, one must have the readiness for rapid reaction and for issuing instructions immediately after the event. The primary need is for preplanned guidelines and a shared view on how crisis support ought to be provided. The essential thing is to organize psychosocial assistance into meaningful entities not only at the local level but also regionally and in hospital districts. The health care and social services' management coordinates psychosocial assistance and services in municipalities and hospital districts. The coordination requires updated contingency plans. The psychosocial assistance and services' plan should be a part of the contingency plan or its subplan. It is required so as to implement the activity with extramunicipal authorities, organizations and private service providers as well as to coordinate it beyond municipal and hospital district lines.

Crisis support groups connected to municipal health centres comprise a key part of the crisis support organization. It is important that their updated contact information is centrally published, for instance, by hospital district, and that the crisis support groups' tasks are known. During the Asian catastrophe coordination in municipalities varied. Only a few hospital districts regarded it as necessary to coordinate the activity at the hospital district level. The preparedness for this, however, must exist. When an accident touches people extensively, flow of information is a special challenge.

#### **5.9.4 Guaranteeing the psychosocial assistance and services**

The Ministry of Social Affairs and Health appealed to the municipalities, municipality groups and hospital districts to arrange adequate and sufficiently long-term psychosocial assistance. The ministry issued guidelines as well as the personal information on the ones that either perished or were listed as missing in the Asian disaster to the municipalities' social and welfare directors or to the ones responsible for the social and welfare branch. This was the first time when victims' personal information was sent to local authorities in order for them to arrange follow-on care. The situation was new and it required interpretation of the data protection legislation. The method was regarded as positive. To the authorities it was a signal of the importance of offering these services. Simultaneously, the authorities became aware of the people whom they should assist. From the viewpoint of proactive crisis support the information, however, arrived too late. The personal information was sent from the Ministry for Social Affairs and Health to the municipalities' social and welfare directors instead of the health care directors, who were actually in overall charge of the municipal crisis support groups and mental health services. The Ministry for Social Affairs and Health guidelines could also cause minor confusion about the desired approaches. On the one hand the crisis support was emphasized but on the other hand there were no clear instructions on practical approaches.

The municipalities' social and welfare sectors are responsible for arranging follow-on care. The state promised to reimburse the municipalities for the additional costs incurred by the aftercare of the disaster. The Social Insurance Institution of Finland *Kela* has also earmarked one million euros in 2005 for rehabilitation of the disaster's victims.

The Ministry of Social Affairs and Health is going to monitor the implementation of the aftercare. The National Research and Development Centre for Welfare and Health (Stakes) have already published one report on the municipalities' crisis support services after the Asian disaster. One of the objectives of the report was to find out how crisis support has been implemented in the municipalities, whose inhabitants include persons that have returned from the disaster area. According to the report evacuees live in municipalities in which the resources were regarded as inadequate even in a normal situation (Tuomi-Nikula, Sohlman, Hynninen: *Kriisipalvelujen nykytila kunnissa Kaakkois-Aasian luonnonkatastrofin jälkeen*. Stakes Aiheita 14/2005). Stakes is presently conducting a questionnaire on municipalities regarding the mental aftercare of the victims and their family members. The objective of the questionnaire is to chart the need of aftercare, the arrangement of services as well as any possible problems. The Ministry will also perform a detailed evaluation of the needs of those municipalities, which reported problems in arranging the services.

The Ministry has emphasized that in addition to mental support it is equally important to see to the victims' and their family members' social security matters as well as to questions related to livelihood. The municipalities have been instructed that if the victims encounter extra costs that are necessary in order for them to bring their lives back to normal, this must receive special attention and the ones that need extra financial support should receive it. After the disaster, it is paramount to safeguard the continuity of one's normal life. The aftercare of the Asian disaster is going to take a long time and more research is needed in order to assess the implementation of the aftercare.

## **5.10 Data protection**

During the Asian disaster, many data protection problems emerged. The data protection legislation is not flexible in a disaster situation, even though such flexibility would be advantageous to different actors and useful in the conduct of affairs. Package tour organizers are not entitled to collect or record their customers' social security numbers. Neither are they entitled to divulge upon request whether or not any given person is on a tour organized by them and if so, where. After the family members' panicked inquiries, they had to compromise on this principle already on 27.12. The procedure was informed of to the Coordination Board of Government Chiefs of Preparedness and the Data Protection Ombudsman blessed it.

The right to publish the list of missing persons was open to interpretation. Diving entrepreneurs and IT-professionals that voluntarily published the so-called divers' list were afraid that they were acting illegally until they contacted the Data Protection Ombudsman and received approval for it. The official list of missing persons was published under the auspices of the Act on Rescue Services. Already on the first day, it was possible to delete 30 names from it.

Privacy protection problems also affected social security and insurance coverage issues. In order to perform their statutory tasks, the Ministry of Social Affairs and Health and the State Treasury were forced to separately present requests to the Ministry of the Interior and the Frontier Guard in order to receive the personal information as well as the domiciles of the persons listed as missing. Also the Social Insurance Institution of Finland as well as retirement and life insurance companies encountered privacy protection problems. Despite requests, insurance companies did not receive any relevant personal information. Privacy protection problems, therefore, influenced the disbursement of many persons' benefits as well as potential recouping of the benefits. Data protection has also caused problems in the arrangement and timing of psychosocial assistance.

The Government decided that the state would cover the extra costs incurred by the disaster if no other entity is responsible for paying for the costs. Acting on behalf of the state the State Treasury was tasked to take care of the compensation matters, including collection from insurance companies. Pursuant to the Data Protection Act it, however, could not send a list of the injured to the insurance companies so that each company's share as well as the state's share of the reimbursements could be calculated.

## **5.11 The action of the management system, inadequacies and development requirements**

### **5.11.1 The structure and action of the management system**

The basic management principle within the government is that even in an exceptional situation the normal organization stays in command as long as possible. No crisis organization is established. In this case, the persons that even normally are responsible and trained for such tasks see to them. The Emergency Powers Act requires that by contingency planning and by prior preparation for emergency conditions, the state and municipal administrative authorities must ensure that their duties will be performed with the least amount of disruption also in emergency conditions.



At ministries, the permanent secretary is in charge of preparation. In such a case as when the permanent secretary does not discharge the duties of the chief of preparedness, then he or she is assisted by one. In order to maintain readiness many ministries have on-call duty or situation centres, following the events that the said branch of administration is responsible for. The operational body in issues related to preparedness is the preparedness committee (preparedness group) and its secretary (preparedness secretary). Ministries should issue rules for the tasks of the preparedness committee. In the preparation of matters and entities, cooperation among ministries is of exceptional significance. The permanent secretaries' meeting and the Coordination Board of the Government Chiefs of Preparedness are permanent forums for cooperation.

The ministries' readiness in exceptional situations is based on the preparedness of the members of the Coordination Board of Government Chiefs of Preparedness to discharge the duties of one's branch of administration in disturbed situations and in exceptional conditions. Readiness is maintained by scheduling monthly meetings as well as by organizing common and branch-specific readiness exercises at regular intervals. The Coordination Board normally convenes at the Defence Staff and during crises, primarily at the Government Palace. The Director of Government Communications is responsible for arranging public information. Normally the competent ministry is responsible for communicating the matters agreed on in the Coordination Board of Government Chiefs of Preparedness.

The Prime Minister's Office has a Government Preparedness, which compiles a general situational awareness picture, maintains the Government Security Control as well as the readiness of the Government emergency shelters and provides required services to the Government as a whole. The Government Security Control is manned around the clock. Based on the information it receives from other branches of the administration it is responsible for alerting ministers and support staff as well as to inform personnel of special situations. It has all required office space and communication equipment at its disposal. In this situation, the operational command of the activities was assigned to a command element, which was assembled from the Coordination Board of Government Chiefs of Preparedness and reinforced by experts. The arrangement aimed for a shallow expert organization, which would have the best possible readiness to be in command of the situation that was initially extremely chaotic. This proved to be a good solution. The Prime Minister granted the required powers and the Government granted the required disbursement authorisations.

#### **5.11.2 Action at ministries**

In this case, the Foreign Ministry was determined as the competent ministry, to be supported by other ministries. An official from the Ministry for Foreign Affairs was nominated as the person responsible for evacuation activities. When the operational command activities had only started during the morning of 27.12., he was in a hurry to locate the responsible actors, which could immediately begin to organize the medical measures and air transports. The Finnish Red Cross and Finnair were chosen. The offers for help from other companies were disregarded.

The readiness of the Ministry for Foreign Affairs was inadequate. The Ministry was unprepared to evacuate the almost 3 000 Finns in the disaster area on short notice, while

simultaneously responding to the significant pressure for communications and service. The Ministry for Foreign Affairs' internal inspection stated the following inadequacies:

- The Ministry for Foreign Affairs' crisis centre was inadequate: there were too few phone lines (3), a queuing capacity did not exist, ordinary desk telephones were used, which tied up at least one hand, as headsets did not exist it was difficult for officials to hear the caller because of distractions caused by other officials speaking on the phone at the same time, recording of information/questions was based on a spreadsheet program, which people did not know how to use. It was slow to obtain duty officials for the relatively hard telephone on-call service and the crisis centre was closed for the night between 24.00-08.00;
- No potential operational command tasks were taken into account upon selecting the chief of preparedness;
- The preparedness group was not designated;
- Guidance for various crises had not been prepared;
- Communication was based too much on so-called official information and when it did not exist, citizens got an overly optimistic impression of the situation. When it proved false, official communication lost its credibility.

These inadequacies had already been detected earlier on but no measures had been taken to correct them.

Action triggered by the earthquake that occurred on 28.3.2005 at 19.09 (Finnish daylight savings time, 18.09 standard time) indicated that the Foreign Ministry had now implemented measures to eradicate the inadequacies. Information of the earthquake and of a possible tsunami reached the travel agencies in Finland as well as the Finnish Institute of Marine Research at 19.30, followed by the Prime Minister, the Ministry of the Interior and the Ministry for Foreign Affairs at 20.00. At 20.45 the meeting of Chiefs of Preparedness was summoned to begin at 22.00. The Ministry for Foreign Affairs' crisis centre was opened at 21.50 and its seven on-call officials had seven phone lines that were equipped with the queuing possibility. The crisis centre was on call throughout the night. They received some 300 phone calls. The preparedness group had been designated and it functioned. Missions were immediately requested to provide reports on the situation and communications worked. On the other hand, also official information was immediately at the Ministry's disposal.

#### **5.11.3 The management system's shortcomings and development needs**

The Coordination Board of Government Chiefs of Preparedness proved to be an effective organization capable of making decisions that were correct and which fairly well anticipated future events based on an extremely inadequate situation picture. The Chiefs of Preparedness met for the first time approximately 24 hours after the catastrophe began. However, no disastrous consequences followed due to commencing the operational command in the morning of 27.12. because travel agencies and airlines had already reacted to the situation. The chairperson of the Coordination Board of Government Chiefs of Preparedness discussed the situation several times with the Prime Min-

ister on 26.12. but due to sporadic and contradictory information it was impossible to form a situation picture and sufficient reasons did not seem to exist to warrant the summoning of the Coordination Board of Government Chiefs of Preparedness. Lessons were learned from the situation because in conjunction with the 28.3.2005 earthquake, the Coordination Board of Government Chiefs of Preparedness already convened that same evening two hours after information of the event was received.

The greatest impediment to the functioning of the Coordination Board of Government Chiefs of Preparedness was the lack of a centralized and continuously updated situation status. Had the Government control centre been established immediately following the alarming information on 26.12., it might have been able to provide a sufficiently accurate situation status in support of government leadership's decision-making. The lack of a compiled situation picture seems to have caused, among other things, misunderstandings of the situation at the disaster area as well as of the state and survival chances of the victims as they waited for evacuation. Neither was the possible need of centralized command in the disaster area considered.

During the inquiry it has been noticed that another shortcoming of the management system was that leadership, and especially coordination of activities, concentrated on the meetings of the Chiefs of Preparedness. In the interval between meetings, activities were branch-specifically led from ministries and organizations. This resulted in functioning units receiving requests and instructions from several sides and the units were not always certain about who was in charge. Had the Government control centre been in operation, it would have been natural to concentrate continuous command and coordination there. Successful leadership requires that information on functional units, resources, tasks and schedules be centralized to the responsible command echelon. The problem was now explained to the investigators with the sentence: "there was no person who positively knew who was going where, when, what for and with what equipment".

The basic problems of leadership were

- The inadequate cooperation between ministries' on-call and readiness organizations, deficiencies in exchange of information and networking;
- Caused by the previous, an inadequate situation picture in support of decision-making;
- Insufficient or missing instructions both in branch's internal information and alerting as well as in alerting the Government Security Control;
- Missing or inadequate on-call arrangements of readiness personnel.

The decisions in the Coordination Board of Government Chiefs of Preparedness had to be made on the basis of information presented in the various parties' situation briefings, which resulted in an overall picture that was lacking. The problem, however, was not that the situation picture could not be compiled at home. Rather, the problem stemmed from the inadequate and sporadic nature of the information arriving from the disaster area as well as incorrect and contradictory information coming through various channels, especially in the beginning. The lack of official information caused a delay in the start-up of the authorities' operational management. However, one must dare to start leading activities even with insufficient information at hand. Measures that prove to be

unnecessary can always be cancelled. When operational command finally began, it was implemented rapidly and with an open mind. The chairperson of the meeting of chiefs of preparedness made proactive decisions and drew up lines of action with the powers received from the Prime Minister.

It seems reasonable to use the Coordination Board of Government Chiefs of Preparedness as an operational management element in the future as well. Since its current rules only permit a preparatory and planning function, the Coordination Board of Government Chiefs of Preparedness should also be tasked to prepare for operational management. In this case the selection, attitude, training and exercises of the chiefs of preparedness would facilitate their control of direct command. On the basis of lessons learned from this situation, the powers and tasks of the Coordination Board of Government Chiefs of Preparedness should be laid down by Government decree. The implementation of measures by the powers of the competent ministry in the given situation supports the principle that even in disturbed situations the administration works according to normal procedure and within the normal organization.

The lack of a centralized situation picture was perceived as a problem in command. The government level management system calls for a situation picture containing all elements requiring decisions. The defence establishment, based on its own experiences, has created a well functioning situation picture and which could be an example for the government situation picture. The defence establishment situation picture, however, cannot be used per se as the government situation picture because it only contains a part of the elements needed by the Government. The government situation picture must be based on information obtainable from several domestic and foreign sources, which are continuously available. If the present system, comprising several administrative branches' on-call or situation centres, was properly networked, it could well function as the Government Control Centre's source, constantly feeding it real-time information. This arrangement would always be ready and it would not require a large staff. The idea from the Prime Minister's Office, according to which each chief of preparedness would be on call for 24 hours at the situation centre assisted by ADB duty official, might be a good one. Considering the number of chiefs of preparedness the duty would not become overly burdensome, the chiefs of preparedness would learn the system and could easily develop it. Based on their experiences and knowledge they would have the capability to immediately make decisions or to alert the management organization.

One of the most important tools of management is a functioning, reliable and redundant communication system. Telephone and data connections that work in normal conditions may be vulnerable in various crises. On the other hand, the ease of use of mobile phones and the reliability of SMS messages proved their significance as mass media devices. On the basis of information received by the Commission, the development of communication devices intended for official use and which are suitable for crisis conditions, is already well under way. The usefulness of the Internet as a medium of communication for the general public was noticed early on. Authorities have stated that they intend to develop the use of the Internet and the digital transmissions of YLE in public communication.

#### **5.11.4 Management on the crisis area**

The Finnish missions in various countries act as government management instruments, in addition to their other duties. The missions and their staff have an official diplomatic status in the host country. Therefore, it is natural to assume that they would operate as the management organization of Finnish relief teams dispatched to the area. The state administration assumed a very hands-on command approach in Finland. Evidently, for this reason, management in the disaster area was largely ignored. No single leader or coordinator was designated for the dispatched relief workers representing several organizations. As regulations did not exist, the Finnish mission did not embrace management as a task for itself. In spite of their injuries, many persons in the disaster area assumed command and organized activities towards sensible objectives. The airline had to dispatch its officials to Phuket airport to guide the evacuees to the aircraft. Due to the fact that during the first 24 hours only the mission and its staff are present to aid Finns in comparable situations, the questions related to centralized command and coordination responsibilities have to be specified and taken into account when missions' staff receive training.

The number of staff in Finnish missions is often low, because missions have been tailored for, inter alia, the average consular service requirement. The number of travellers, however, varies by year and by local destination in which case this should be taken into account in the manning of a mission. The Ministry for Foreign Affairs has already established a unit comprising experienced consular staff, which can rapidly be deployed to a disaster area in order to reinforce the local Finnish mission. One must strive for the same goal of improving the missions' service capacities through Nordic cooperation and through eventually expanding it to EU Member States' cooperation. It should also be studied whether or not it would be possible to procure consular services from travel agencies in travel destinations.

The Ministry for Foreign Affairs has tasked the missions to prepare contingency plans for the Finns permanently residing in the country in question. However, since an ever growing number of Finns stay in these countries only during the winter season, it is reasonable to extend the contingency plan to apply to them as well. For this purpose, it is necessary that the Finns residing in the country for the winter season notify the Finnish mission of their contact information. In view of crisis situations this increases their safety. The missions and travel agencies have reported that independent travellers pose a problem because they move around the country of destination at will and that only their family members, if even them, possibly have their contact information. The Foreign Ministry's mobile service is a good solution for eliminating this problem.

#### **5.12 Communication**

Along with a catastrophe, there is always a need for increased information. Finns received an abundance of information on the Asian natural disaster. Communication began in the early hours of Boxing Day and over the following one and a half weeks approximately 15 000 stories were presented in the media. In addition, the public administration's web pages and citizens' chat forums offered the informed the possibility of obtaining specific information as well as exchanging opinions. Nevertheless, obtaining correctly timed and sufficient information required initiative from the citizens, for which

the ones surrounded by the chaos in the disaster area as well as their concerned family members in Finland did not have the energy.

From the citizen's point of view in Finland, the Asian natural disaster had three communication forums: official communication, journalism and the web. Official communication partly targeted the citizens directly and partly it served journalism. All in all the highest grades for performance were awarded to those communication means having emerged around the catastrophe, which could flexibly adapt their activities to the changes required by the disaster.

From the communication point of view the Asian natural disaster was very clearly a domestic event to Finland's decision-makers and to the citizens. When it comes to the tsunami, Finns mainly relied on the Finnish mass media. International channels played a minor role. The Finnish media, for its part, unambiguously presented the event from the Finnish angle. The large yield of the fund raising campaign seems to support the fact that a strong sense of solidarity emerged towards the victims of the disaster. The natural disaster in Asia was a cause easy to embrace.

However, Finns in the disaster area barely received enough information of what was going on back home and how the tidal wave disaster was depicted in Finland. Telephone connections worked only sporadically and the content in SMS messages was limited. Authorities and rescue personnel, on the other hand, did not think of the communication aspect in their plans. When there was no time to lose it seemed more important to act rather than to inform, but a basic sense of security of the panicked tourists could have been reinforced had professional communicators, only concentrating on providing information, been dispatched to the area. In Sweden, the solution was to multiply the Radio Sweden programming. Could Yleisradio have done the same with Radio Finland? Radio waves are reliable even in crises. It is evidently so that in order to develop Radio Finland into a world radio that really serves travellers, transmission needs to be dispersed.

The Internet has emerged as another means of communication along the established media. During this crisis the web was more often used as a one-way notification board and less as a discussion forum. The popularity of two-way, relevant web pages indicates that, especially during a crisis, citizens had the need also to express their opinions.

Of the communication means used in connection with the natural disaster in Asia – the media, official communication, web services - the highest grades for performance were awarded to those which could flexibly adapt their activities to the changes required by the disaster. The official communication failed in this towards the media and towards the citizens. The public administration attempted to conduct a fairly old-fashioned press conference-style communication towards the media. Credibility was raised to the highest pedestal. The highest authority figures were brought to vouch for the information. Such communication that would have been rapid, admitting its errors and inadequacies but also obliging, would undoubtedly have been more respected by journalists in this situation. During the early phases of the disaster, the media's dubiousness towards official communication was understandable. There were thousands of Finns vacationing in the disaster area all of whom could not necessarily have survived.

The Foreign Ministry's press chief's statement, which was open to interpretation, was understood by the editorial staffs in such a way that all Finns were safe. Part of the reason for this was that the first interpretation was made at the central intermediary, the Finnish News Agency, which is an authorized source especially in relation to public administration. The public administration, however, continued to be the most important single source for the media the entire time. At midweek following Boxing Day, its share sunk as criticism towards the Foreign Ministry grew. The problem of the week following Boxing Day was created because the usually credible source failed to deliver.

The problem for the citizens that were anxious about their family members was that while familiar and credible sources relayed eyewitness accounts, the media and the public administration, especially in the beginning of the chain of events presented completely contradictory information. Citizens rather believed their own eyes or those of their family members and grew bitter when their message produced no response. Their anxious expectations of the public administrations' communication skills, in the midst of a totally new type of crisis, were probably disproportionate.

The overall picture of journalism as a reporter of the disaster was contradictory. In question was a colossal news event relying on official sources, but soon individual eyewitnesses rose to the centre of the story. The far-away event was not brought close by analysis, instead it was presented through situation images, experiences and details. Contrary to many other countries, in Finland the entity was not overwhelmed by the media feasting on individual tourists' experiences.

As they described their own approaches on covering the tsunami, journalists often took a stand on how a good journalist, in their opinion, should act upon encountering a disaster victim – the situation is always delicate. One of the key questions related to victim journalism was whether it was permissible to interview and photograph the victims. In the background lay concern for good etiquette and the concern of maybe causing new traumas to the victims by interviewing them. The victims may have had a need to talk about the event, but as time went by, they could change their minds. People regretted having been in the media and this could prolong the after-effects of the event and the healing process. Citizens' accounts brought these kinds of experiences up. The victims and their relatives felt that the journalists should have drawn a line even if the victim himself would have been cooperative. The main question was that the victim was distressed and that this may have been the first time when he was targeted by the media.

The fundamental indicator of media story quality in a large crisis, like that of the natural disaster in Asia, must be the experience of the recipient of information, i.e. the citizen, not journalistic rules and traditions. From the citizens' viewpoint, the media publicity was ambivalent, depending on whether or not the disaster personally touched the individual. During the public debate, it has been brought forward that those who lost family members or who vicariously experienced losses through family members have been much more demanding. They would have wanted the media to concentrate on the weaknesses in the authorities' activities. They were hurt when the media did not follow their wishes. On the other hand, other citizens were primarily touched by the unexpectedness of the chain of events: "this could have happened to me as well". At its most simple, to whom the tsunami process was personified in the minds of media viewers, exemplifies the difference in their opinions. Those who experienced the disaster on a personal level,

one way or another, most often remember the Foreign Minister or the Ministry for Foreign Affairs' press chief in a negative way.

A popular entertainer emerged as the symbol of the tsunami victims. As the media told his and his fellow sufferers' life stories, the big news received touching human interest. Detailed accounts on individual citizens' experiences as well as of the rescue effort seemed to lose their attraction fairly rapidly.



## 6 CONCLUSIONS

1. An undersea earthquake west of Sumatra on 26.12.2004 at 03.00 hours Finnish time spawned a tsunami, which caused extensive human toll and material damage in Indonesia, Thailand, Myanmar, Sri Lanka, India and the Maldives as well as some destruction on the East coast of Africa. It is estimated that about 300 000 people were killed or lost. At the time there were ca. 3 000 Finnish travellers in Thailand and some 700 in Sri Lanka. Of them 179 died or disappeared and ca. 250 were injured.
2. Of the Finnish travellers, 170 died or disappeared in Khao Lak, Thailand. Of them 106 stayed at the same hotel.
3. Once the tsunami rolled ashore, no measures activated from Finland could have saved any of the Finns that perished or disappeared in the course of the catastrophe.
4. There was no tsunami warning system in the Indian Ocean similar to that of the Pacific Ocean. The Pacific Tsunami Warning Center in Hawaii transmitted a warning of an earthquake west of Sumatra already at 03.15 Finnish time. The message stated that a tsunami warning for the Pacific will not be issued. The nations around the Indian Ocean did not issue a tsunami warning.
5. The nations affected by the disaster were not prepared for a tsunami in their disaster scenarios, even though according to probabilities it should have been taken into account as a regional risk. Most of the local population were unfamiliar with a tsunami as well as with its warning signs. The people travelling or working in the region were uninformed of the probability of this kind of natural disaster. The chances of survival would have been good, had they been familiar with the tsunami's characteristics and if they would have known how to act accordingly.
6. The extent of the event, its exceptional nature and the large number of victims overwhelmed the region's normal readiness organization. In order to significantly reduce the human toll prior preparation as well as a warning system would have been necessary. Since no early warning system existed, the activities were focused on alleviating the consequences of the destruction that had occurred.
7. From the point of view of the victims that had escaped with their lives, the significance of independent survival was emphasized during the first day, in which the key actors were the victims themselves, local inhabitants, travel guides and hotel workers. Transporting the several thousand victims to medical care became the most important task for the local rescue service. Repeated new wave warnings hampered the start of the authorities' organized activities and increased the chaos in the situation.
8. The well organized rescue organization and the rapid inclusion of the armed forces in the rescue effort, especially in Thailand, enabled the speedy transport of the injured to medical treatment, the rounding up of the survivors to safe evacuation centres and caring for their basic needs. No Finnish rescue units were dispatched to the area.
9. The medical responsibility in the disaster area was assigned to the Finnish Red Cross. Public health care was connected to this by the Ministry for Social Affairs and Health in accordance with the decision made at the Coordination Board of Government Chiefs of

Preparedness. Emergency response centres were not used in alerting the Finnish public health system.

10. Medical teams that are normally in constant readiness and which are capable of rapid deployment were not immediately dispatched to the disaster area. These groups consist of commercial travel emergency companies and the Finnish Red Cross. When activities were planned, rotation crews and support personnel were not considered. If necessary, the Finnrescueforce (FRF) could act as the support functions' coordination group and as an assistant to relief work organizations under the Finnish mission.
11. An important instrument in travel risk management is conducting risk analyses for new travel destinations as well as monitoring the risk situation of the destinations that have been used for a longer time. At present the travel industry and the foreign service do not sufficiently cooperate in the risk analysis work.
12. General awareness of the travel destinations' possible natural disasters and of ways to act in such danger situations remains at a low level. Neither is information of travel destinations' risks included in travel brochures that are distributed to tourists. A clear depiction of an individual's own security responsibility, a mention of the need of life and travel insurance and also of the fact that the Finnish government has neither the possibility nor the primary obligation to be responsible for travellers' safety abroad, are absent from travel organizers' and the authorities' instructions.
13. Various threat scenarios must be prepared for and they have to be exercised in cooperation with the Prime Minister's Office, Foreign Ministry, rescue branch, public health care system, Finnish Red Cross and medical companies, airlines, insurance companies and travel agencies. International cooperation in medical treatment, especially within the EU, must be intensified.
14. The assessment of evacuated patients was done at Helsinki-Vantaa airport as a cooperative effort between the Hospital District of Helsinki and Uusimaa and crisis work organizations. The Hospital District's hospitals must be available as an entity for cooperation, if required. When the medical care of patients with infections are centralized in the Hospital District of Helsinki and Uusimaa, the spread of bacteria resistant to antibiotics to other parts of Finland can be prevented.
15. The Asian disaster caused much human suffering and an unanticipated need for psychosocial assistance and services. The arrangement of the assistance and services requires rapid reaction. For this, clear and nationwide Social Affairs and Health Ministry instructions for arranging the assistance and approaches are needed. Common guidelines are required in view of arranging high quality and quantitatively sufficient psychosocial assistance and services in municipalities and hospital districts.
16. Assistance and services must be available to all. Protection of privacy questions must not prevent the assistance from being offered. The personal information of the ones that perished or were listed as missing in the Asian disaster as well as the contact information of the evacuated was delayed in coming to the municipalities, almost a month after the event. The authorities, however, have to proactively offer assistance so that the ones that require and desire it can rapidly receive the relevant assistance and services. The services must include immediate help, information that promotes coping, crisis interventions,

monitoring, assessment of the need for follow-on care as well as trauma therapy. Offering the services requires updated instructions, information and expertise, common guidelines on the tasks of crisis support groups as well as coordination between crisis support and mental health services. One must prepare to provide long-term assistance to some of the disaster victims.

17. The Asian disaster touched children and adolescents as well as their communities, day-care centres, schools, educational establishments and extracurricular circles. In order to support the development of children and adolescents, operating approaches are needed to support individuals and communities alike.
18. In conjunction with serious accidents, coordination of psychosocial assistance and services is required across municipal borders and hospital district lines. In this context cooperation agreements with the third sector also need to be made.
19. It is essential that psychosocial assistance and crisis support professionals are included in the group dispatched abroad to aid Finns involved in serious accidents. Fundamentally, one must include those Finns in relief activities that already operate in various organizations in the destination as well as individuals so that their local knowledge could be tapped.
20. The evacuation by air of the Finnish travellers in the disaster area was immediately started according to a joint decision of the travel agencies and airlines. Travel agencies have a legal responsibility to take care of their customers up to a point. Airlines are bound by their agreement with the travel organizer. These commitments were fulfilled. Once the authorities made a decision to evacuate all Finns from the disaster area, Finnair continued the evacuation flights. The evacuation was completed in six days and 3 293 persons were brought to Finland on a total of 17 flights. The flights ended on 2.1.2005.
21. In addition to Finnair, also Air Finland participated in the evacuation flights, commissioned by travel organizers, and Jetflite flew one aeromedical transportation, commissioned by a private enterprise and an insurance company. The government only commissioned Finnair for transportations, due to its preparedness obligation pursuant to the Civil Aviation Act.
22. The rapid reaction of travel agencies and airlines enabled the fast start of the evacuation in practice. The arrival of sufficient relief staff was delayed. In the early phase of the action, enterprising citizens helped in starting the activities. Due to the inadequate situation picture, the evacuation and relief resources were not used to their full potential. This slowed the evacuation down, caused suffering to victims and increased the family members' anxiety.
23. In management arrangements the Coordination Board of Government Chiefs of Preparedness was used as the operational leader, which was a successful solution. The chiefs of preparedness met for the first time approximately one day after the onset of the disaster. Command was hampered by the lack of a centralized situation picture and by the sporadic nature of leadership between the meetings of the Coordination Board of Government Chiefs of Preparedness. The authorities had no established channels for rapidly obtaining expert information regarding this kind of natural disaster in order to compile a

situation picture. No enough attention was paid to leading the Finnish relief groups in the disaster area. The resources of the Finnish mission were insufficient for the task.

24. The Foreign Ministry crisis centre overloaded as its technical capacity was insufficient and it was unable to reply to citizens' contacts. Initially the Foreign Ministry's public information only relied on official information and when it proved inaccurate, official public information lost its credibility.
25. During the Asian disaster official communication failed to create direct contact with citizens. The Ministry for Foreign Affairs was criticized the most but also the other public administration institutions hardly provided opportunities for citizens' questions or discussions, even though two-way interactivity is specifically a web feature. Communications occurred one-way and it was almost entirely reactive. The discussion forums of the official web pages need to be developed.
26. The most flexible response to detailed thirst for information came from individual web pages, which offered timely information and also an opportunity for discussions and questions. Especially during the chaotic atmosphere of the first days they were extremely significant and they, undoubtedly, prevented the emergence of large numbers of rumours. On the other hand, the untrustworthiness of the web, to some extent, was realized even in Finland.
27. Sending a mass SMS message was experimented in the situation, which was partially successful. This function should be further developed. In addition, developing Radio Finland into a traveller radio is a project worthy of Yleisradio's consideration, which also would extremely well fit the corporation's public service function.
28. Should radio and TV archives exist, this would aid the accident investigation process.
29. A greater flexibility of the data protection legislation is necessary in disaster situations.
30. The Finnish Disaster Victim Identification unit's funding has not been sufficient for preparedness in sizable operations.

## 7 RECOMMENDATIONS

1. The Government's crisis management system should take into account the various situations in which Finnish citizens could become victims of disasters abroad. This should be taken into account in the updating of emergency powers legislation, in the orders and regulations based on the legislation as well as in the ministries' internal directives.
2. If the Coordination Board of Government Chiefs of Preparedness is intended to be used in operational management tasks, the Government should issue a decree for the powers and tasks of the chiefs of preparedness, including the requirement for operational management and its observance in personnel selection, in standby and readiness as well as in cooperation, training and exercises.
3. The Government should examine the need and methods for developing personal data legislation in such a way that in exceptional situations the victims' relevant personal data would be available for processing in rescue, evacuation and aid activities while observing the principles and obligations for protection of privacy.
4. A basic contingency plan should be prepared for the Government enabling the rapid start of rescue and assistance for Finnish citizens in a disaster occurring abroad. The ministries and their subordinate branches of administration participating in this activity, as determined by the basic plan, should draw up readiness plans which are required in order to start their own activities and which enable the authorities' activities without delay in situations like the one in question.
5. In order to maintain readiness, ministries should see to it that every chief of preparedness has an assigned deputy, standby requirements are in effect, and that the ministry's preparedness group has been established and has relevant instructions as well as a check list for the first 24 hours of an exceptional situation.
6. The Government control centre should be activated as a command instrument capable of continuous operations and it should be seen to it that inter-authority networking, facilitating the relaying of situational awareness information to the Government control centre, is implemented. Along with this, a plan for establishing an operational command and coordination unit should be prepared.
7. The basic principle within the government that even in exceptional situations the normal organization stays in command as long as possible, should not be changed. Therefore, ministries in concert should update their crisis contingency plans, check the required resources and personnel, train and exercise the relevant personnel as well as take the required steps to eliminate shortcomings.
8. The Ministry for Foreign Affairs should see to it that
  - 1) the ministry's crisis planning takes into account the requirements of operational capabilities and skills posed by a catastrophe comparable to the one experienced

- 2) Finland's missions abroad are trained to act in exceptional situations and a sufficient personnel reserve, consisting of experienced civil servants, is established for them
- 3) Nordic cooperation and EU cooperation is intensified with exceptional situations in mind
- 4) the operational capabilities of the ministry's crisis centre as well as public information and communication are raised to a level enabling good service to citizens
- 5) risk analysis is also developed to take into account natural disaster risks more extensively than at present.

Some of these measures have already been initiated.

9. The Ministry of the Interior should see to it that
  - 1) in exceptional situations there are no gaps in communication between the ministry's key departments
  - 2) the training of rescue branch crisis leaders and personnel also takes into account the activities abroad in various logistics and coordination tasks, necessary for the Finnish assistance personnel's effective operation
  - 3) the activity of the Disaster Victim Identification (DVI) unit is intensified by establishing permanent funding for it
  - 4) the operational role of the FinnRescueForce is clarified and its rapid deployment capability is improved.
10. The Ministry of Social Affairs and Health should see to it that
  - 1) together with other actors, public health care is integrated in the aftercare of serious accidents and disasters occurring abroad or in Finland. As the key expert in medical treatment, the Hospital District of Helsinki and Uusimaa must be included in the planning of treatment and must be given adequate resources for this activity
  - 2) medical teams that are in high readiness and capable of rapid action even in normal conditions are sent to the disaster area in the initial phase
  - 3) various threat scenarios are prepared for and exercised together with the Prime Minister's Office, the Ministry for Foreign Affairs, the rescue branch, public health care and welfare, the Finnish Red Cross, other organizations and pharmaceutical companies, airlines, insurance companies as well as with travel agencies
  - 4) in order to fully utilize the nation's health care and evacuation capacities, relevant principles are determined and the necessary arrangements are implemented
  - 5) the need for airborne evacuation as well as evacuation equipment in domestic and foreign accidents is assessed in cooperation with the Ministry of Transport and Communications
  - 6) the preconditions for psychosocial assistance needed by the victims and their families as well as the essential means of livelihood and services are safeguarded at qualitatively and quantitatively sufficient levels. For this purpose, national directives need to be renewed and regularly updated and compliance to them must be monitored.



As regulations are reviewed, it must especially be seen to that

- a) structures and methods for providing services ranging from immediate mental and material support to management of demanding crisis situations and traumas are developed in order to guarantee proper support and care as well as essential financial support
- b) long term service and care guidelines are established to support children and adolescents
- c) issues related to protection of privacy and information transfer are reviewed so as to safeguard the continuation of services, livelihood and medical care
- d) current legislation is revised taking into account the responsibilities and tasks of ministries, provinces, hospital districts and municipalities as well as other actors in order to guarantee psychosocial assistance and services to the population in a serious accident or disaster
- e) the tasks and roles of crisis support groups in the organizations of municipalities are reviewed and the prerequisites of their activities and their professional skills are safeguarded.

11. The Ministry of Trade and Industry, in cooperation with the Ministry for Foreign Affairs, should take steps to

- 1) develop the tourist industry's security and risk analysis together with travel organizers
- 2) obligate the tourist industry to inform their customers of risks, including natural disaster risks. This information must clearly point out the individual's own responsibility for security, the need for insurance and the very principle of international law that while travelling abroad, the primary responsibility for people's safety lies on the authorities of the country in question.

12. The Ministry of Transport and Communications should see to it that

- 1) Yleisradio initiates measures to develop Radio Finland in such a way that it can also satisfy the information requirements of those Finns temporarily residing abroad and especially in crisis situations
- 2) mobile phone networks could effectively be used for official public information in crisis situations
- 3) a continuously operating natural disaster warning system, which monitors their genesis and effects, be established in Finland.

Some of these measures have already been initiated.

Helsinki 31.5.2005

Martti Ahtisaari  
Chairman

Harri Holkeri  
Vice-chair



Tuomo Karpainen  
Member



Esko Kaukonen  
Member



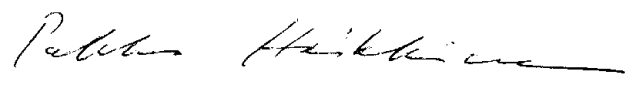
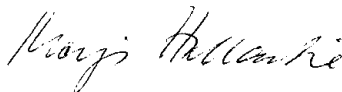
Ullamaija Kivikuru  
Member



Ilkka Kiviranta  
Member




Kari Lehtola  
Member



Merja Hallantie  
Expert

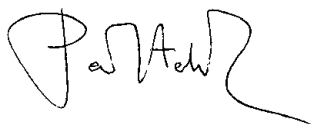
Pekka Heikkinen  
Expert



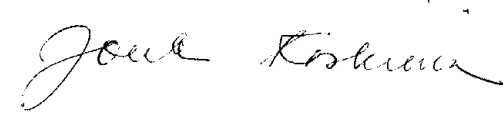
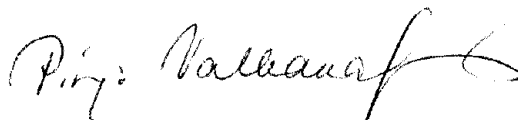
Kimmo Kahma  
Expert



Harriet Lonka  
Expert



Pär Stenbäck  
Expert



Pirjo Valkama-Joutsen  
General secretary

Jouko Koskimies  
Secretary



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#### 13. Newspaper clippings and press releases.

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## APPENDICES

## Appendix 1. Statements

## 1. STATEMENT OF THE PRIME MINISTER'S OFFICE

Translation

PRIME MINISTER'S OFFICE

STATEMENT

30.5.2005

Accident Investigation Board

Reference	Request for statement from the Accident Investigation Commission on the natural disaster in Asia, 16.5.2005
Matter	INVESTIGATION REPORT ON THE NATURAL DISASTER IN ASIA

As a competent authority, the Accident Investigation Commission on the Asian natural disaster has requested a statement from the Prime Minister's Office and has delivered the report's conclusions and recommendations to the Prime Minister's Office.

The Commission has extensively proposed conclusions and measures, which form a firm foundation for the comprehensive furtherance and development of security.

The recommendations are extensive. The basic principle according to which all ministries operate as per normal methods even in disturbed situations and emergency conditions must be continued. The state's strategic tasks' review, as mandated in the Strategy for Securing the Functions Vital to Society, reviewing the emergency preparedness legislation as well as further developing the Government Control Centre and the situation picture, are all in process.

The Prime Minister's Office points out the need of how the responsibilities of arranging the safety of citizens abroad should be reassigned among authorities, administrative branches and the Government and, on the other hand, between the public administration and the actors that participate in organizing travel and in its practical implementation.

Heikki Aaltonen  
Under-Secretary of State

## 2. STATEMENT OF THE MINISTRY FOR FOREIGN AFFAIRS

Translation

MINISTRY FOR FOREIGN AFFAIRS  
 Department for Administrative Affairs  
 HAL-90

STATEMENT  
 30.5.2005

HEL 1293-57

## Accident Investigation Board

Reference	Request for statement from the Accident Investigation Commission on the natural disaster in Asia, 16.5.2005
Matter	Statement of the Ministry for Foreign Affairs on recommendations of the Accident Investigation Commission

In reference to the request for statement, the Ministry for Foreign Affairs respectfully states the following:

**The preparedness organization of the Ministry for Foreign Affairs and the crisis situations' management system**

The basic principle of the activities of the Ministry for Foreign Affairs in crisis situations is the normal conditions' organization, the preparedness of which can rapidly be raised, when necessary. Pursuant to section 13 of the ministry's Rules of Procedure (286/2003, as amended by Government decree 118/2005), the ministry has a preparedness group, which handles the plans and measures in its field of administration related to preparedness for crisis situations and emergency conditions. The Secretary of State or another official nominated to take care of the functions acts as both the chair of the preparedness group and the Chief of Preparedness of the Ministry for Foreign Affairs. The head of security is the preparedness group's secretary. The preparedness group's detailed tasks, composition and the vice-chair, acting as the Deputy for the Chief of Preparedness are detailed in the decision regarding the appointing of the preparedness group.

The previous time the chairperson of the preparedness group of the Ministry for Foreign Affairs and the Foreign Service's chief of preparedness were designated was on 18.1.2005. In the decision on 4.3.2005 to appoint the Ministry for Foreign Affairs' preparedness group, the following is noted regarding the tasks of the chief of preparedness:

The task of the Chief of Preparedness is, in support of the ministers and the ministry's leadership, to

- Coordinate the activities of the foreign service crisis and preparedness organization in acute crisis situations and provide regulations to it;
- Lead the practical activities in acute crisis situations and to make decisions on required practical measures, including deploying consular teams to crisis areas;
- Lead and monitor the ministry's and its field of administration's preparedness planning and the prior preparations required by the planning;
- Create, develop and maintain cooperation with other authorities, especially to coordinate planning and preparations; and
- Discharge any other duties of the field of administration, which are related to crises and emergency conditions.

## Appendix 1

The Chief of Preparedness or his deputy, representing the Ministry for Foreign Affairs, participates in the ministries' joint Coordination Board of Government Chiefs of Preparedness.

According to the 4.3.2005 decision to appoint a preparedness group for the Ministry for Foreign Affairs, the task of the preparedness group is to assist the Chief of Preparedness or his deputy. The members in the preparedness group are responsible for their departments' participation in developing and maintaining the ministry's preparedness for crises and emergency conditions as well as for informing their respective departments' directors general of preparedness-related matters. The chair or the vice-chair summons the meeting of the preparedness group. The Chief of Preparedness chairs the preparedness group and the Deputy Chief of Preparedness is the vice-chair. The preparedness group comprises of 12 other members, each of whom have their personal designated deputies. The ministry's situation picture official is a permanent expert to the preparedness group and the preparedness secretary is the preparedness group's secretary. The preparedness secretary, representing the Ministry for Foreign Affairs, participates in the ministries' joint Coordination Board of Preparedness Secretaries. The preparedness group is entitled to receive assistance from the entire personnel of the Ministry for Foreign Affairs.

### **Preparedness to provide humanitarian assistance**

One of the key tasks of the Ministry for Foreign Affairs is to provide humanitarian assistance in the context of, inter alia, natural disasters regardless of the fact whether or not Finns are among the victims of the disaster. As soon as the tsunami disaster occurred, the ministry started its humanitarian assistance activities. All in all €20 million in Finnish humanitarian assistance have been channeled to the disaster area.

After emergency aid, development cooperation funds can be used at discretion for reconstruction. The Ministry for Foreign Affairs has supported the reconstruction of the areas affected by the tsunami by €30 million.

### **Recommendation 7.1.**

A review of the implementation of the Consular Services Act (498/1999) and the roles of missions in various accident situations is in progress at the Ministry for Foreign Affairs. Through the Coordination Board of Government Chiefs of Preparedness, as well as on other forums, the Ministry for Foreign Affairs participates in the Government's common development. A representative of the Ministry for Foreign Affairs also participates in the working group, which is preparing to review the emergency powers legislation. The Ministry for Foreign Affairs concurs with the Commission's recommendation, according to which the various situations, in which Finnish citizens could become victims of disasters abroad, should be taken into account in the updating of emergency powers legislation and in the orders and regulations pursuant to the legislation.

Pursuant to section 2, subsection 1 of the Consular Service Act, "consular services may be provided for a Finnish legal person or a Finnish citizen or for a foreign citizen residing permanently in Finland, who is in possession of or has been granted a permit to reside or work in Finland either permanently or in a comparable manner". This definition is defined in the detailed justifications of the Government proposal (HE 283/1998) of the Consular Services Act.

Pursuant to section 13, subsection 5 of the Government Rules of Procedure, "mandate of the Ministry for Foreign Affairs shall cover the protection of the interests and rights of Finnish citizens and provision of consular services and corresponding other official services abroad". Citizenship is no longer a distinguishing factor. Thus, the public ad-

ministration's measures on Finns becoming victims of a disaster abroad do not only apply to citizens but, also to foreigners residing permanently in Finland.

The Government's crisis management system should, therefore, take into account the various situations in which persons residing in Finland become victims of a disaster abroad.

**Recommendation 7.2.**

The Ministry for Foreign Affairs concurs with the Commission's recommendation, according to which the Government should issue a decree for the powers and tasks of the chiefs of preparedness, including the requirement of operational management.

Pursuant to section 10, subsection 3 of the Government Rules of Procedure "ministries shall cooperate with each other as necessary under the competent ministry. The permanent secretaries' meeting and the meeting of the heads of preparedness are permanent forums for cooperation". These meetings are chaired by the State Secretary, Prime Minister's Office.

The Government Rules of Procedure entered into force on 7.4.2003. The tasks of the State Secretary, Prime Minister's Office are laid down in detail in section 9 of the Government decree on the Prime Minister's Office (459/2003) that entered into force as amended on 15.6.2003.

"In addition to what is laid down in the Government Rules of Procedure, the duties of the State Secretary are to:

- 1) assisting the Prime Minister, to lead the activities of the officials mentioned in section 5, subsection 2; and
- 2) to act as the chairperson of the permanent secretaries' meeting and of the meeting of the heads of preparedness."

The ministries' decrees on ministries rules of procedure have variously laid down provisions on the ministries' Chiefs of Preparedness and the ministries' own preparedness groups. Therefore, it would be justifiable to develop the Government's common regulations.

**Recommendation 7.3.**

The development of the Foreign Ministry's contingency plans is in progress. All missions have already been required to prepare their preparedness and evacuation plans for a long time. Now the missions are required to review and update these plans. Nordic and EU cooperation will be taken into account in full in this development and the work will be closely linked to the Government's common preparedness planning.

The Government's basic contingency plan must, on the basis of what previously was mentioned regarding item 7.1, be so prepared that it enables the rapid start of rescue and assistance to all Finns' (not only Finnish citizens) in disasters occurring abroad.

**Recommendation 7.4.**

The Ministry for Foreign Affairs has updated its preparedness organization in the way described in the beginning of this statement by, inter alia, designating a deputy for the chief of preparedness and by establishing a preparedness group. The group is not only tasked to prepare for emergency conditions but also to operate in crisis situations during normal times. The Foreign Service's preparedness plans are being reviewed, under the leadership of the preparedness group and in this context the necessary check lists for immediate measures to be implemented are being drawn up for the entire organization, i.e. for the ministry itself and for Finland's missions abroad.

## **Appendix 1**

### **Recommendation 7.5.**

The Ministry for Foreign Affairs, together with the Ministry of Defence and the Ministry of the Interior, actively participates in developing the situation picture, led by the Prime Minister's Office. The Ministry for Foreign Affairs has established a position for a situation picture official, whose duty has thus far been discharged by temporary arrangement. However, effective 1.9.2005, a counsellor in the Ministry for Foreign Affairs will be assigned to this duty. The Ministry for Foreign Affairs prepares to furnish more functional spaces than at present, as the ministry's own situation or control centre. This endeavour proceeds parallel to the Prime Minister's Office situation picture project. This inter-branch situation picture networking is assured by information technology and functional solutions. In this context, what is later stated in item 7.7.4 is also referred to here.

### **Recommendation 7.6.**

Referring to items 7.1.–7.3. the Ministry for Foreign Affairs participates in the inter-ministry development to improve crisis preparedness and training. The Ministry for Foreign Affairs especially pays attention to the need of developing uniform practices for standby, and on-call as well as compensation. When it comes to on-call, standby and overtime pay, the central government must be able to come up with common guidelines that guarantee the maintenance of preparedness in all situations.

### **Recommendations 7.7.**

When the acute phase of the south-east Asia crisis was over, the Ministry for Foreign Affairs made a decision on 10.1.2005 to prepare an internal report on the measures taken by the ministry in the various phases of the crisis. The report, compiled by the ministry's Unit for Internal Inspection, was completed on 28.1.2005. Along with it, also the ministry's memorandum (so-called interim balance sheet) on the measures that the ministry had taken to correct the shortcomings in its activities was published. According to this, by 28.1.2005 the ministry had taken the following steps:

- The capacity of the emergency phone system had been improved and the development of a comprehensive system, integrated into information systems, had begun;
- The project for improving the crisis centre's physical facilities, equipment and communications, had been started;
- Together with other Member States, increasing EU cooperation had been started;
- Correcting the shortcomings in crisis public communication had been started and its link to the preparedness system was strengthened;
- The establishing of consular rapid deployment teams had been started;
- The preparation for internal decisions regarding the development of the preparedness system had begun;
- Inter-authority cooperation had been intensified and its further development had been started;
- The ministry had actively participated in the development of early-warning systems;
- Cooperation with travel organizers and with other actors in monitoring the traveller flow had been intensified;
- The work to intensify the use of the Internet and other modern technology in acute crisis situations had been started.

#### **Recommendation 7.7.1**

The preparedness group is a central forum for developing crisis plans. The missions' regulations will be brought up to date and training will be developed on all levels.



Crisis regulations of the Ministry for Foreign Affairs will be developed in such a way that, more than now, it takes natural disasters and other consular crises into account in preparedness and in implementing measures in crises. Missions will continue to be responsible for drawing up their postings' contingency plans. Nordic and EU-cooperation will be increased in preparedness planning.

**Recommendation 7.7.2.**

The work of drawing up clearer instructions for Finland's missions is in progress and their staff training, in view of crisis situations, has been intensified. A system of consular rapid deployment teams has been established at the Ministry for Foreign Affairs. The consular rapid deployment teams are groups comprising 3–4 experienced consular officials which can be reinforced with skilled rescue and medical personnel. The consular rapid deployment teams operate in direct contact with other authorities. The consular deployment system strives for a rapid response capability. The preparedness of consular rapid deployment teams is seen to be by continuous training, in which national search and rescue expertise is utilized. When preparedness is raised, the ministry also takes into account its obligations on maintaining the physical and mental health of its personnel, as laid down in the Occupational Safety and Health Act (738/2002). The staff's endurance is a necessary precondition for successfully discharging demanding tasks in crisis situations.

The strategic development of Finland's network of missions began at the Ministry for Foreign Affairs during the spring of 2005. The impact of the flow of travellers is a factor to be reckoned with in the strategic planning.

**Recommendation 7.7.3.**

The lessons learned from the tsunami are continually present in Nordic and EU-cooperation. The Nordic and EU-cooperation in view of exceptional situations is further intensified. Consular branch cooperation is also being developed with the Baltic countries.

The Foreign Ministers of the Nordic countries have discussed the matter during the spring and a proposal on common development areas in order to improve preparedness through mission-to-mission cooperation is in the works. The proposals are scheduled to be presented to the Bornholm foreign ministers' meeting in August, 2005. Nordic cooperation is based on the Agreement on Co-operation between Denmark, Finland, Iceland, Norway and Sweden and on its ancillary consular instructions, the significance and implementation of which are still emphasized on the basis of the decisions of the Nordic Council of Ministers. Nordic cooperation is flexible, practical and based on local requirements. Finland and the other Nordic countries share some preparedness plans and cooperation is further intensified as per local needs.

The Council of the European Union has adopted a post-tsunami action plan, which also contains a section on assisting EU citizens in crisis situations. Finland has actively participated in the preparation of the action plan and also influenced its content. Guidelines on cooperation between EU nations in third countries continue to form the basis for co-operation. The intensity and closeness of this cooperation is increased according to the requirements of each post's conditions.

**Recommendation 7.7.4.**

The crisis room that was established in connection with the Jolo hostage crisis in the year 2000 does not offer sufficient capacities for developing improved crisis preparedness. The decision on a new, larger and more functional space is presently being pre-

## Appendix 1

pared on the basis of three options. The new space will comprise the situation picture with its required capacities, the telephone on-call service as well as required extra rooms. The decision will depend on the space's functionality, on the possibility to install the required technical equipment (situation picture and communications technology) as well as on the price of establishing it. The costs of the control centre are included in the ministry's proposal in the second supplementary budget proposal of 2005. The development of the control centre (crisis response centre) is being prepared by an internal group led by the Head of the Unit for Consular Services.

Simultaneously, crisis communication is being systematically developed. The control centre's situation picture capacity and modes of operation will be improved in such a way that the functioning of internal and external communication is secured. The one responsible for communication will participate in the work of the control centre.

The functional preconditions of the control centre and crisis communication are intertwined. The control centre as a compiler, coordinator and analyst of various types of information forms the necessary basis for communication. The press official, belonging to the centre's personnel roster, monitors situation updates and informs of them to the rest of the public communication organization.

The press officials at the Department of Communication and Culture as well as those in missions have received more crisis communication training and their capacity to act has been improved. The weekend on-call system of the Department of Communication and Culture has been renewed and all on-call officials have been given general training on crisis communication. Furthermore, they have been trained to master the press release process to the Finnish News Agency's online service and to other media as well as how to update the ministry's web pages. The on-call instructions have also been rewritten. In a crisis situation the on-call official alerts the department's leadership and the Information Unit. In addition, persons from the on-call ring are summoned to assist in web updates and in media monitoring.

Outside office hours during weekdays the department's leadership and the Information Unit are responsible for on-call duties, assisted by the rest of the Department of Communication and Culture staff, if required.

Crisis communication training is an integral part of the new consular rapid deployment teams' training. The leader of the consular rapid deployment team is responsible for communication and he or she also relays information from the scene to the Department of Communication and Culture.

A form has been constructed on the web pages of the Ministry for Foreign Affairs, [formin.finland.fi](http://formin.finland.fi), through which one can send information to the Foreign Ministry's control centre of persons to be searched for. This portion is activated in a crisis. The Ministry for Foreign Affairs participates in the activity of the working group, set up by the Prime Minister's Office, planning the use of the Internet in a crisis, and for its part, implements its recommendations.

### **Recommendation 7.7.5.**

On the one hand, the risk analysis work is linked to the development of the situation picture and on the other hand to, among other things, to a critical review of the foreign mission network. It has already been agreed with travel organizers that they provide advance information on travellers' numbers, destinations and dates to the Ministry for Foreign Affairs as well as to Finnish missions operating in the travel destinations' region. Natural disaster risks will be taken into account both in missions' contingency planning

as well as in precautionary travel safety communication and cooperation. Missions are required to monitor their regions' authorities' communication on natural disaster risks.

Natural disasters and other normal time security risks must be taken into account when the Strategy for Securing Functions Vital to Society is further developed.

**Recommendation 8:**

The Ministry for Foreign Affairs and the Ministry of the Interior (especially search and rescue authorities) have discussed the possibility to intensify cooperation and mutual contacts when preparing for crises, during crisis exercises and in actual exceptional situations.

**Recommendation 11:**

The Ministry for Foreign Affairs supports the development of the travel industry's safety and risk analysis work in cooperation with travel organizers. The travel industry should be obligated to inform their customers on matters pertaining to risks as well as of the responsibilities of the individual, of insurance companies and of the host country's authorities in safety issues.

An unofficial cooperation forum for the authorities and the travel industry is the Travel Safety Advisory Committee, which aims to promote general awareness on safe travel and to create the cooperation between various actors. The committee regularly convenes to discuss issues regarding travel destinations' safety and current travel safety questions. The committee members comprise representatives from the Ministry for Foreign Affairs, Ministry of Trade and Industry, Ministry of the Interior, Ministry for Transport and Communications, Consumer Agency, Finnish Maritime Administration, Civil Aviation Administration, National Public Health Institute, Finnish Tourist Board, Association of Finnish Travel Agents, Finnish Business Travel Association, The Federation of Finnish Insurance Companies, Finnish Travel Industry Association and Finnair.

Because of the natural disaster in south-east Asia, the ministry has discussed with travel organizers the possibility of exchanging information on traveller flows and the intensification of risk analysis cooperation.

The Ministry for Foreign Affairs is further developing its travel safety bulletins and their publication on web pages and over the mobile service.

There is a form on the Foreign Ministry's web pages, particularly intended for independent travellers, by which the traveller can report his travel route, itinerary, as well as his/her and his/her family members' contact information to the Finnish mission in the particular region. Travel organizers have been requested to inform their customers of this service.

**Recommendation 12:**

The Ministry for Foreign Affairs has participated in the development of a natural disaster warning system and hopes that it will proceed briskly. The Ministry for Foreign Affairs supports the development of Radio Finland into an information channel for Finns residing abroad.

Minister for Foreign Affairs      Erkki Tuomioja

Under-Secretary of State      Hannu Himanen

### 3. STATEMENT OF THE MINISTRY OF JUSTICE

Translation

MINISTRY OF JUSTICE

31.5.2005

To the Accident Investigation Commission on the natural disaster in Asia

The Accident Investigation Commission on the natural disaster in Asia has requested a statement from the Ministry of Justice regarding the recommendations in the Investigation Report. As its statement, the Ministry of Justice respectfully presents the following.

#### 1. The Commission's recommendations and conclusions

In the Commission's recommendations data protection legislation issues have been assigned to the Ministry of Justice. The Commission proposes that the Ministry of Justice should take steps to review the data protection legislation in such a way that its inherent restrictions intended for the protection of citizen's privacy would not cause unwarranted problems for victims' rescue, evacuation and assistance in exceptional situations (recommendation no. 10).

The Commissions conclusions note that assistance and services must be available for everyone and that data protection questions must not become an obstacle to arranging the assistance. The personal information of the Finns who disappeared or died in or were evacuated from the Asian catastrophe arrived at municipalities with a delay of more than a month from when the event took place. The authorities, however, have to proactively offer the assistance so that the ones that require and desire it, can rapidly receive the relevant assistance and services (conclusion no. 16).

Because of the context it is reasonable to note that Recommendation no. 8, intended for the Ministry of Social Affairs and Health, advises seeing to it that issues related to data protection and information transfer should be reviewed so as to guarantee the continuation of services and medical care.

#### 2. Data protection legislation and the division of responsibility regarding preparation for its review

In the narrow sense data protection legislation is generally understood to be regulations related to how personal data is processed. The Personal Data Act is the general law on how personal data is handled and the Ministry of Justice is responsible for preparing it. Data protection legislation also comprises provisions on personal data non-disclosure. The general provisions applying to non-disclosure of authorities' documents are included in the Act on the Openness of Government Activities (621/1999, later called Openness Act) and the preparation responsibility of it also falls under the Justice Ministry's purview.

In addition to the previously mentioned general law – the Personal Data Act and the Openness Act – ample such special legislation exists that has an effect on personal data processing, including what personal data can be disclosed. For instance, the disclosing of the authorities' secret personal data is almost exclusively determined pursuant to special legislation.

#### On the general features of legislation

##### General law

The Personal Data Act enforces the Directive 95/46/EY on the protection of individuals with regard to the processing of personal data and on the free movement of such data.

## Appendix 1

The Act also implements obligations laid down in the Convention of the Council of the European Union regarding the protection of individuals in the automatic data processing of personal data.

The Personal Data Act contains the general principles of personal data processing, which are based on the nowadays already established international principles. The Act focuses on the processing of such personal data that is to be recorded or has been recorded in personal data files, covering the collection, recording, as well as disclosing of data.

The general principle is that personal data processing must be planned and the use of personal data must be predefined. The principle of exclusivity of purpose is also a moderately strong principle, meaning that data compiled for an exclusive reason may not be used for purposes that are in contradiction with the original purpose of use.

The Openness Act lays down how the openness of the authorities' documents is determined. The Act also provides for the grounds on which a document must be kept secret. The secrecy obligation is a prohibition to disclose secret information to a third person, unless otherwise provided.

The right to privacy is also included in secrecy provisions. The right to privacy and personal data protection are based on section 10, subsection 1 of the constitution: the right to privacy and personal data protection are basic rights. The basic rights can only be limited by law and by taking into account the general doctrine of limiting basic rights that have been formed in the practice of the Constitutional Committee.

Both the Personal Data Act and the Openness Act contain provisions that allow the disclosure and other processing of personal data even when no special legislation has been enacted on the matter. Pursuant to both Acts, for instance, the data subject's consent authorizes the processing of personal data (Personal Data Act section 8 subsection 1 paragraph 1, sections 26 and 29 of the Openness Act). Pursuant to section 8 subsection 1 of the Personal Data Act, processing of personal data is legal when, in an individual case, processing is necessary in order to protect the vital interests of the data subject. Personal data processed in accident situations is often sensitive data, referred to in section 11 of the Personal Data Act. This information may only be processed by virtue of statutory justification principles. One such principle is, *inter alia*, the processing of data in a situation in which it is necessary for the safeguarding of a vital interest of the data subject or someone else, if the data subject is incapable of giving his consent. The special measures required by an accident can, at least in a limited fashion, thus be implemented, as long as the various participating authorities take the different phases of the process and the options provided by legislation into account.

### 3.2. On special legislation

Abundant special legislation pertaining to personal data processing exists. Provisions on public registers have been issued especially when sensitive information is recorded in them and when the register deviates from the principles of general law. All significant inter-authority exchange of secret personal data also takes place pursuant to special provisions.

An example of legislation affecting disclosure of personal data and other processing is the Act on the Processing of Personal Data by the Police (761/2003), which, among other things, regulates the temporary establishment of police personal data files and disclosure of information recorded in them, as well as the Act on the Status and Rights of Patients (785/1992), laying down that information contained by patient documents shall be confidential and that information necessary for the arranging of examination and

treatment of the patient may be given to another health care unit. Pursuant to section 40 of the Child Welfare Act (683/1983) if, in the course of his activities, an employee or elected official in health care, social welfare, education, the police or the church of Finland gets to know about a child in evident need of family-oriented or individual child welfare, he shall notify the social welfare board without delay.

#### **4. Assessment of the need for legislation and the provision options**

During the course of managing the natural disaster in Asia, detailed reports on when data protection legislation was deemed to have impeded or hampered the exchange of information and various authorities' access to information, or to which extent these situations could have been handled on the basis and within the boundaries of current legislation, are not available. Therefore, the Ministry of Justice regards that in order to assess the need for new legislation, it would be appropriate to collect information on the situations when data protection was deemed to have caused problems as well as on the methods that were implemented in order to solve these issues. The authorities that participated in the practical activities regarding the Asian natural disaster, are the ones best suited to conduct this kind of investigation. If required, the Ministry of Justice can coordinate this kind of reporting and assessment. It may also be possible to link up the abovementioned assessment to the writing of the basic contingency plan, as mentioned in the recommendations (Recommendation no. 3), during the course of which it may even otherwise be necessary to appraise the legislation required by the basic contingency plan (e.g. the registration of those that had resided in the disaster area). In any case, on the basis of lessons learned, it is probably necessary to log the entities that have a need to access information as well as the sources that either are or should be available.

Due to the basic rights characteristics of personal data protection the provisions on derogating the protection need to be in harmony with the general doctrine regarding the limitations of basic rights. This means, among other things, that the relativity principle and the requirement of the provisions' exactness are taken into account. International obligations that are binding to Finland also set out margins of discretion to the national legislator, the observance of which often leads to laying down very exact provisions. Because of the abovementioned reasons, it can be assumed that, at least for the most part, the required legislative measures could be more expediently taken by developing special legislation and that the Ministry of Justice does not have the overall responsibility of preparation in this matter, instead, many ministries share the responsibility. Therefore, the Ministry of Justice proposes that the recommendation of developing data protection legislation be assigned to the entire Government. The Ministry of Justice can, if required, coordinate this preparation. In this case the recommendation regarding data protection legislation could be, for instance, as follows:

"The Government should examine the need and methods for developing personal data legislation in such a way that in exceptional situations the relaying and other processing of the victims' relevant personal data could be flexibly implemented in search and rescue, evacuation and aid activities, while observing the principles and obligations for the protection of privacy."

Director General

Pekka Nurmi

Counsellor of Legislation

Leena Vettenranta

## 4. STATEMENT OF THE MINISTRY OF THE INTERIOR

Translation

## MINISTRY OF THE INTERIOR

## STATEMENT

30.5.2005

SM-2005-01829/Tu-0

Accident Investigation Board

**STATEMENT ON THE RECOMMENDATIONS OF THE ACCIDENT INVESTIGATION REPORT REGARDING THE NATURAL DISASTER IN ASIA**

As its opinion on the recommendations of the Accident Investigation Commission of the natural disaster in Asia, the Ministry of the Interior respectfully states the following.

When it comes to the safety of travellers in need of assistance abroad, the Ministry of the Interior concurs with the Commission's opinion regarding the responsibility of the individual, the travel industry as well as the host country's authorities, which forms the foundation for the recommendations. The Ministry of the Interior supports the ideas presented in Recommendation no. 11, i.e. information of the possible risks abroad must be provided and that people also need to be aware of their responsibility for their own safety.

The ministry also concurs with the underlying principle for the recommendations that the Finnish government must not only prepare for international humanitarian aid but also to assist Finns in distress abroad. The ministry regards that in order to clarify the lines of responsibility and to form a foundation for further planning, the distinction between the government's legal responsibility and its actual responsibility in assisting its citizens in a situation such as this one should be more clearly defined. So as to guarantee maximum consistency, in that context it should be considered what impact the nature of the emergency, the number of people in distress or the host country's conditions would have on the assistance obligation. This would form the basis for updating the emergency preparedness legislation as well as, most probably, other (substance) legislation and regulations, as required by Recommendation no.1. It would be appropriate that any amendments would primarily be made in the legislation for normal conditions, since activities in these kinds of situations normally are conducted pursuant to normal conditions' legislation.

Many of the recommendations handle Government level management arrangements as well as associated statute and other development needs. The Ministry of the Interior considers it important that the Government and ministries as well as their subordinate security authorities maintain proper readiness, comprising necessary alert and standby arrangements, a functional information system supporting the compilation of a command and situation picture as well as appropriate spaces for management. During the natural disaster in Asia, the ministries' chiefs of preparedness established a good cooperation network. However, it has to be remembered that the different authorities' powers and responsibilities (e.g. the police and the search and rescue authorities) are statutory. This must be taken into account, among other things, when the role of the ministries' chiefs of preparedness is being determined for various situations requiring inter-authority cooperation.

## Appendix 1

The Coordination Board of Government Chiefs of Preparedness is an organ, which plays a natural role in developing and furthering cooperation among ministries. The Ministry of the Interior, however, considers that an operational management role should not be assigned to the Coordination Board of Government Chiefs of Preparedness, neither does the ministry second the recommendation regarding “the requirement for operational management” for the chiefs of preparedness (Recommendation no.2). Depending on what the objective is, it might be impossible to lay down the powers and tasks of the chiefs of readiness by decree. In addition to this, the Ministry of the Interior points out that Recommendations no.2 and no.6 are partly contradictory and that the basic principle as per Recommendation no. 6 should be followed.

Recommendation no.2 discusses the management readiness of the Coordination Board of Government Chiefs of Preparedness. In correlation to the above, the Ministry of the Interior emphasizes the significance of the authorities responsible for safety and related measures as well as the importance of preparedness.

Recommendation no.5 probably intends to read that a method for establishing a command and coordination unit capable of continuous operation, *if required*, should be planned. The Ministry of the Interior hopes that the significance of preparedness for communication as part the command activities is emphasized. In addition to this, each competent branch of administration must have the capability to compile a situation picture appropriate for its functional field.

The Ministry of the Interior is prepared to participate in the work when the Foreign Service prepares its plans (e.g. foreign missions’ contingency plans). In addition to this, the Ministry of the Interior notes that in situations comparable to the natural disaster in Asia, the command responsibility over actual search and rescue activities on location should logically be assigned to the Ministry of the Interior.

The Ministry of the Interior concurs with the proposals regarding the Ministry of the Interior in Recommendation no.8 and notes that even before the natural disaster in Asia the Ministry of the Interior had already initiated measures to intensify the flow of communication, as per the guideline of the Internal Security Management Group. The Ministry of the Interior emphasizes that arrangements to assist Finns abroad must be harmonized with other arrangements regarding international assistance. The FinnRescueForce is well suited for operations in various rescue tasks abroad and, when required, capable of participating in medical care, searching for missing persons, collecting and transporting victims as well as for leading the rescue activities in the area of operation.

The Ministry of the Interior regards that a variable annual appropriation should be added to the government budget submission for the purpose of police-led investigation of the cause of death in connection with major accidents and for the associated disaster victim identification (DVI) process. Statutes permitting, this would make it possible that in the future the participants of police-led operations could be nominated to temporary office. This would also facilitate placing the operational and administrative authority and responsibility under the same command.

The Ministry of the Interior notes that most of the proposals in Recommendation no.9 also require the participation of the Ministry of the Interior. The ministry considers the proposals as justified and is prepared to further their implementation.



## Appendix 1

The Ministry of the Interior considers the principle in Recommendation no. 10 important when it comes to utilizing the information necessary for action and when it is published with deliberation.

The Ministry of the Interior considers the proposals in Recommendation no. 12 as important and emphasizes that the proposals in items 2) and 3) must be implemented in such a way that they also serve domestic search and rescue readiness. Special attention must be paid to the development of web communication and securing the function of emergency web servers.

Finland must actively participate in developing the EU's cooperation arrangements as well as NATO's Partnership for Peace, and see to it that we can utilize cooperative arrangements as flexibly as possible in the development of our rescue preparedness.

One key factor impeding our international rescue readiness capability is the lack of heavy transport aircraft. This, hopefully, can partially be rectified by cooperating with our neighbours as well as by the cooperative arrangements under way in the EU and by cooperating under the auspices of NATO's Partnership for Peace. However, it is quite possible that when a major disaster occurs, other countries' transport resources are earmarked for their own needs. This is why it would be important to also develop our own heavy airlift capability.

Permanent Secretary

Ritva Viljanen

Chief of Preparedness  
Director-General,  
Department for Rescue Services

Pentti Partanen

**5. STATEMENT OF THE MINISTRY OF DEFENCE**

Translation

MINISTRY OF DEFENCE

STATEMENT

30.5.2005

Accident Investigation Commission on the natural disaster in Asia

The Ministry of Defence has no objections to the draft recommendations, of which a statement was requested. Items 1-6 cover the general principles, according to which one should prepare to lead the government either centrally or by administrative branch.

When it comes to the last sentence in Recommendation no. 5, it might be appropriate to clarify the desired end state. Even at present, various ministries have statutory 24/7 operating command and alarm centres. Should a comparable organ be established in the Prime Minister's Office, numerous new appointments to public office would be required for its efficient manning. The danger in basic readiness would be that such a separate command centre in various situations would assume command over activities under the ministries' mandate, in which case boundaries between powers would also easily be blurred.

Therefore, the best result could be achieved by equipping the Prime Minister's Office command centre into full readiness, as already planned. If the situation requires, personnel would be summoned to the centre. Some of the staff could comprise personnel from key ministry on-call centres the rest could be chiefs of preparedness or their deputies on the standby alert roster. This method would guarantee the rapid onset of activities and an updated real-time situation picture by the time Government members arrive at the centre.

On-call duty just for the sake of on-call duty without powers (and without sufficient branch-specific expertise) will rapidly result in the paralysis of the system. The alternative would be to increase its powers, which would be a very difficult way to proceed and which also would result in the requirement to designate experts from various fields to the centre staff. The end result, functionally and financially, would always be inferior to the present arrangement.

Permanent Secretary

Matti Ahola

## 6. STATEMENT OF THE MINISTRY OF TRANSPORT AND COMMUNICATIONS

Translation

MINISTRY OF TRANSPORT AND COMMUNICATIONS

26.5.2005

Onnettomuustutkintakeskus  
 Accident Investigation Board  
 Sörnäisten rantatie 33 C  
 00580 Helsinki

Reference            Your request for statement 11.5.2005/tlk dn:o 157/2

Matter                The statement of safety recommendations

In reference to your request for statement on the safety recommendations, which are associated with the field of activities of the Ministry of Transport and Communications and included in the draft investigation report of the Accident Investigation Commission on the natural disaster in Asia, the Ministry of Transport and Communications states the following.

The recommendations (3) for the Ministry of Transport and Communications are

“The Ministry of Transport and Communications should see to it that

- 1) Yleisradio initiates measures to develop Radio Finland in such a way that it can also satisfy the information requirements of those Finns temporarily residing abroad and especially in crisis situations
- 2) mobile phone networks could effectively be used for official public information in crisis situations
- 3) a continuously operating natural disaster warning system, which monitors their genesis and effects, be established in Finland”.

In addition, one of the recommendations made to the Ministry of Social Affairs and Health touches the Ministry of Transport and Communications “...5) the need for airborne evacuation as well as evacuation equipment in domestic and foreign accidents is assessed in cooperation with the Ministry of Transport and Communications”.

As for item 1) the ministry notes that at present the service of Finns abroad is already a task of Yleisradio. The ministry has no powers to intervene with the programming of a company under the supervision of the Parliament and, therefore, the recommendation should be made directly to Yleisradio.

The ministry and the ministry's administrative domain have already initiated the preparations pursuant to item 2).

The ministry and its domain have already initiated the preparations pursuant to item 3).

As for the safety recommendation made to the social welfare and health branch, the ministry concurs with the view about the significance of the measures. Regula-

## Appendix 1

tions for certificate of compliance with a standard as well as international reports on evacuation gear already exist. Issues of the type mentioned here are being transferred to be regulated by the European Aviation Safety Agency. At present, the Civil Aviation Administration's flight safety authority is responsible for the matter in Finland, which would eventually cooperate with the Ministry of Social Affairs and Health.

Regarding the other parts the ministry notes that Finnair's preparedness obligation is not pursuant to the Emergency Powers Act but, instead, to the Civil Aviation Act (281/1995, section 80). The reference in question is not only present in the actual inquiry report but also in the Commission's recommendations (no. 21).

Permanent Secretary

Juhani Korpela

Director of Unit for Office  
and Security Services

Rauli Parmes

### INFORMATION

Minister Leena Luhtanen  
State Secretary Perttu Puro  
Director-General Harri Cavén  
Director-General Harri Pursiainen

**7. STATEMENT OF THE MINISTRY OF TRADE AND INDUSTRY**

Translation

MINISTRY OF TRADE  
AND INDUSTRY

STATEMENT  
26.5.2005

42/030/2005

**STATEMENT REGARDING THE RECOMMENDATIONS OF THE ACCIDENT INVESTIGATION REPORT ON THE NATURAL DISASTER IN ASIA**

As a requested opinion on the recommendations included in the accident investigation report regarding the natural disaster in Asia, the Ministry of Trade and Industry states the following.

The Accident Investigation Commission has handled the matter in a multi-faceted way in its recommendations.

Recommendations to the Ministry of Trade and Industry, proposed to be implemented in cooperation with the Ministry for Foreign Affairs, item 11:

1) Cooperation with travel organizers in developing the travel industry's safety and risk analysis has already taken its first steps in the form of negotiations, called by the Ministry for Foreign Affairs on 25.5.2005, in which also the Ministry of Trade and Industry participated. Regular cooperation with travel organizers is planned to be continue. The matter is being brought forward also in the Travel Safety Advisory Committee, in which the Ministry of Trade and Industry is represented, led by the Ministry for Foreign Affairs.

2) The Consumer Agency will implement necessary measures in relaying sufficient communications to travellers. It shall also be seen to that the Package Travel legislation, under review, will sufficiently take into account safety related issues.

Bo Göran Eriksson  
Director General

Nina Vesterinen  
Senior Specialist (tourism)

**8. STATEMENT OF THE MINISTRY OF SOCIAL AFFAIRS AND HEALTH**

Translation

MINISTRY OF SOCIAL  
AFFAIRS AND HEALTHSTATEMENT  
26.5.2005

STM/1363/2005

Accident Investigation Commission on the natural disaster in Asia

Reference Your letter, dated 16.5.2005

**Matter RECOMMENDATIONS OF THE ACCIDENT INVESTIGATION COMMISSION  
OF THE NATURAL DISASTER IN ASIA**

In reference to the request for statement, the Ministry of Social Affairs and Health states the following.

The Ministry of Social Affairs and Health considers the recommendations as justified and correct. Some of them are already being implemented in the ministry's administrative domain and in cooperation with other branches of administration. The recommendations belong to the development of domestic capacities in international civilian crisis management, the coordination responsibility being the statutory mandate of the Ministry of the Interior.

It is the understanding of the Ministry of Social Affairs and Health that the recommendations should contain guidelines for the readiness and development requirements of central government alert and on-call systems.

The recommendations to the Ministry of Social Affairs and Health comprise six separate entities. In addition, there is a list detailing the tasks and functions that require directives within the administrative domain.

The viewpoint of the victim in the spotlight of activities, of his family member or of a citizen or group of citizens distressed by an accident, is hardly visible in the recommendations. From the customer's viewpoint, however, in addition to someone taking care of his life, health and psychosocial assistance, it is also important that after a traumatic experience his everyday life returns to normal as soon as possible. This also requires paying attention to the possible requirement of financial aid and to securing one's livelihood. During the course of assisting children and adolescents, and often in assisting adults, one must prepare to offer long-term assistance by making a service and care plan.

Concrete proposals for addition to and correction of the portion regarding the Ministry of Social Affairs and Health have been entered directly in the text.

Permanent Secretary

Markku Lehto

Ministerial Councillor, Health Affairs  
Chief of the Preparedness Unit

Jouko Söder

## Appendix 2. Events and measures taken in south-east Asia and in Finland

This appendix contains the most important events and measures taken in Finland, Thailand and Sri Lanka listed in chronological order after the earthquake. Times are local times and they are designated as follows: Sa=Finland time, Ta=Thailand time, Sla=Sri Lanka time. Time differences from Finnish standard time are Sri Lanka +4 h, Thailand +5 h. Finnish standard time is Coordinated Universal Time (Z, UTC) +2 h.

The terms used for the flights are as follows:

- A charter flight was an airline flight commissioned by a travel organizer for transporting its customers and paid for by the travel organizer; on the outgoing legs of some flights also relief personnel and material were transported
- An evacuation flight was an airline flight commissioned by the state and by which travellers, irrespective of whose customers they were, were brought back to Finland from the disaster area. The government paid for the flights.
- A relief flight was the ongoing leg of the evacuation flight, by which relief personnel and equipment were transported. The government covered the costs.
- An air ambulance flight was a flight by which seriously injured patients were evacuated on a temporarily and specially equipped aircraft. The government paid for the flight.
- An aeromedical evacuation was a customer-commissioned evacuation of seriously injured patients, flown on a specially equipped JetFlite ambulance aircraft. An insurance company and the customer shared the costs of the flight.

Unless otherwise mentioned, all Finnair and Air Finland flights were flown on B757 aircraft.

### Sunday 26.12.2004

03 Sa / 08 Ta / 07 Sla	An earthquake occurred on the western side of Sumatra. The quake was detected at seismological stations on various parts of the globe. Many travellers in Thailand and Sri Lanka noticed the quake.
04.35 Sa	Finnish News Agency news of the earthquake.
n. 05 Sa / n. 10 Ta /	The tsunami hit the coasts of Thailand and Sri Lanka. News of the earthquake in Yleisradio's Radio Suomi.
05.15 Sa / 10.15 Ta	Air Finland's change crew phoned Finland and reported that a tidal wave had hit Phuket.
05.40 Sa / 10.40 Ta	Aurinkomatkat emergency number received word of a tidal wave in Phuket.
06.15 Sa / 11.15 Ta	Telephone notice from Thailand to the Ministry for Foreign Affairs Communications Centre on-call duty official regarding the tidal wave. The Communications Centre connected the call to the official on duty in the Unit for Consular Services. He then notified the consular on-call official at Finland's Embassy in Thailand of this, who had also received word of the event from a private person in Finland. The Ministry for Foreign Affairs requested a report of the situation from the Embassy.
06.46 Sa	Finnish News Agency news of a tidal wave in Phuket.
06.47 Sa / 11.47 Ta	Message to Finnair from Thailand regarding the closing of Phuket airport because of the tsunami.
06.55 Sa / 11.55 Ta	The consular on-call official at Finland's Embassy in Bangkok arrived at the Embassy.
n. 07 Sa / n. 12 Ta	A family member of the State Secretary, Prime Minister's Office, called him and told him of the tidal wave and reported that everything was fine. Yleisradio's Radio Suomi interviewed a Finn at the disaster area regarding the destruction caused by the tidal wave.
07.30 Sa / 11.30 SLa	Telephone message to the Ministry for Foreign Affairs and to the Aurinkomatkat emergency number regarding a tidal wave in Sri Lanka. The

## Appendix 2

	consular official at the New Delhi Embassy heard of the earthquake on the news. An hour later, upon arriving at the Embassy, she heard that a tidal wave had hit the coasts of India and Sri Lanka. During the day the seriousness of the situation began to emerge.
n. 08 Sa / n. 13 Ta	The deputy chief of mission in Thailand notified the ambassador of the tidal wave.
08.05 Sa	YLE interviewed the Ministry for Foreign Affairs' on-call official of the event for the Radio Suomi morning news.
08.25 Sa	The on-call official of the Ministry of the Interior Rescue Department received a message of a tidal wave in Thailand. FinnChurchAid got word of the event through the CNN SMS message alert service.
08.30 Sa	The United Nations humanitarian aid office OCHA and the EU's monitoring and information centre MIC reported that they had activated themselves. They were going to dispatch observers to the disaster area. The Finnish Red Cross got word of the earthquake and the tidal wave on text-TV. Finnair's crisis leaders were alerted, the seriousness of the event began to take form.
08.50 Sa	Emergency meeting at Aurinkomatkat, the decision to establish a crisis centre and to initiate crisis measures.
09.00 Sa	The Ministry of the Interior's on-call official contacted the Ministry for Foreign Affairs' on-call official and received the contact information of the consular on-call official.
09.15 Sa	The Finnish Red Cross began to alert its officials and relief workers.
ca.10 Sa / 15 Ta	The Finnair plane enroute to Phuket was diverted to Bangkok. Passengers were informed of the tidal wave in Phuket.
10.45 Sa	The Ministry for Foreign Affairs' crisis centre was opened and its phone numbers were published. Three lines available, no queuing possibility. Phone calls were disconnected after a taped message. The Prime Minister and the Foreign Minister were informed of the natural disaster by SMS message from their assistants, confirmed by phone calls in the afternoon. During the course of the day other ministers were also informed of the event.
11.00 Sa	Air Finland's crisis group was established.
11.10 Sa / 16.10 Ta	The Embassy in Bangkok sent a report of the situation to the Ministry for Foreign Affairs. A decision to dispatch the consul to Phuket was made. The Finnish Red Cross published information of the event and of its assistance preparedness on its web page.
11.20 Sa	The Ministry of the Interior Rescue Department deliberated the use of deploying the FinnRescueForce to the disaster area.
12.55 Sa / 17.55 Ta	Finland's ambassador to Thailand arrived at the Embassy in Bangkok.
During the day	The secretary of the Finnish Evangelical Lutheran Mission in Thailand sent an SMS message to the Finnish Evangelic Lutheran Mission regarding the disaster and of the fact that all their workers were safe.
14 Sa	Finnair and travel organizers decided that no new travellers were to be taken to the area.
14.10 Sa	The Ministry of the Interior's on-call centre was informed that the phone numbers published by the Ministry for Foreign Affairs did not work. This information was relayed to the consular on-call official but nothing could be done about the situation.
15.35 Sa	OCHA reported that no Finns were selected as members of UNDAC groups. Italy was to dispatch a group to Thailand and groups from France and Sweden were to travel to Sri Lanka.



n. 17 Sa / 21 Ta	<p>The State Secretary, Prime Minister's Office reported of the event to the Prime Minister. Information available was inadequate and nobody was aware of the total picture.</p> <p>The deputy chief of mission in Thailand and the ambassador's secretary (Thai) travelled on a Thai Foreign Ministry-organized flight to Phuket and established a consular office at the crisis centre at city hall. The local authorities organized a situation briefing at the crisis centre. During the night the deputy chief of mission visits Phuket Hospital and also receives lists of patients' names in other hospitals.</p>
22.57 Sa	Departure of Air Finland charter flight FIF 911 to Phuket.
ca. 23 Sa	The Ministry for Foreign Affairs' crisis centre was closed for the night.
23.55 Sa	Departure of Finnair charter flight AY 1961 to Phuket.
<b>Monday 27.12.2004</b>	
00.45 Sa	CNN confirmed 11 000 as the death toll
03.13 Sa	Departure of Air Finland charter flight FIF 001 to Colombo.
n. 05 Sa / 09 Sla	Finland Embassy morning meeting in New Delhi. It was decided to dispatch the consular official to Sri Lanka the same evening. She commenced activities on the morning of 28.12.
06.00 Sa / 11.00 Ta	<p>The State Secretary, Prime Minister's Office followed the news and decided to summon the Coordination Board of Government Chiefs of Preparedness. The Prime Minister was informed of this.</p> <p>The Embassy reported that they couldn't confirm any number of Finnish casualties but that it should be assumed that they, too, exist. The Embassy made an agreement with a Finnish bishop and his colleague that they would travel to Phuket.</p>
06.48 Sa / 11.48 Ta	Departure of Finnair charter flight AY 1966 from Phuket with 222 evacuees onboard.
08.00 Sa	<p>The Prime Minister assigned operational command to the Coordination Board of Government Chiefs of Preparedness and delegated political powers to implement measures and the evacuation.</p> <p>The Ministry for Foreign Affairs' crisis centre was opened.</p>
08.00 Sa / 13.00 Ta	The Thai foreign ministry organized an informational meeting for foreign missions. The Finnish ambassador proposed that an Embassy-issued document would suffice as a travel document for those that had lost their passport. The proposal was accepted.
08.30 Sa	Meeting of the Coordination Board of Government Chiefs of Preparedness, during which it was decided to evacuate all Finns, at government expense if necessary, and to expand the Coordination Board with interest group representatives.
n. 10 Sa	Preparations to deploy a Finnish Red Cross field hospital were started
11.15 Sa	CNN reports that the death toll is 20 000 and warns of epidemics
11.30 Sa	The Hospital District of Helsinki and Uusimaa chief of preparedness alerted the Vantaa Crisis Centre.
14.00 Sa	Helsinki-Vantaa airport readiness meeting regarding the situation and the measures required. A decision to activate the support functions' command element
n. 14 Sa	Message to the Church Council of the crisis. Vantaa Crisis Centre and the Psychosocial Assistance of the Church were alerted to readiness.
14.30 Sa	UNDAC reports that a Finnish doctor was selected to a group. The Ministry of the Interior began to take care of the matter.
14.35 Sa	Helsinki-Vantaa airport police notified the border control duty officer of the beginning of evacuation flights.

## Appendix 2

15.00 Sa	The first Ministry for Foreign Affairs' press conference, also participated by representatives of the Finnish Red Cross, Finnair and travel agencies.
15.03 Sa / 20.03 Ta	Departure of Air Finland charter flight FIF 912 from Phuket with 218 evacuees.
16.00 Sa	The support functions' command element convened at Helsinki-Vantaa airport.
16.15 Sa / 21.15 Ta	Departure of Finnair evacuation flight AY 1962 from Phuket with 228 evacuees, of whom 30 were injured.
17.00 Sa	Meeting of the Coordination Board of Government Chiefs of Preparedness, also attended by representatives of Finnair, the Finnish Red Cross and travel agencies. It was decided that evacuation flights would be implemented as per Finnair plan, the Finnish Red Cross would see to the coordination of medical care and the Ministry for Foreign Affairs would be responsible for instructing Finns in the area.
17.30 Sa	Frontier Guard issued instructions on border control arrangements at the airport.
20.20 Sa	Arrival of Finnair charter flight AY 1966 from Phuket to Helsinki.
20.45 Sa	Two additional phone lines, supposed to facilitate 20 calls queuing were installed at the Ministry for Foreign Affairs' crisis centre. Later on (1.3.) it became apparent that the queuing function did not work.
20.24 Sa /	Departure of Air Finland charter flight FIF 002 from Colombo, 212 evacuees onboard.
21.58 Sa	Departure of Finnair relief flight AY 1957 to Phuket.
23.00 Sa	Delivery of the Finnish Red Cross field hospital to Helsinki-Vantaa.
24 Sa	The Ministry for Foreign Affairs' crisis centre was closed for the night.

### Tuesday 28.12.2004

03.33 Sa	Departure of Finnair relief flight AY 1995 to Colombo carrying, among other things, the Finnish Red Cross field hospital.
03.41 Sa	Departure of Air Finland charter flight FIF 931 to Bangkok.
03.55 Sa	Arrival of Air Finland charter flight FIF 912 from Phuket to Helsinki.
06 Sa / 11 Ta	Finland's Thailand Embassy report to the Ministry for Foreign Affairs. It was forwarded to the media.
06.05 Sa	Arrival of Finnair evacuation flight AY 1962 from Phuket to Helsinki.
08 Sa	The Ministry for Foreign Affairs' crisis centre was opened, now with five phone lines available.
09 Sa / 13 Sla	The Ministry for Foreign Affairs received a situation report from Finland's Embassy in India and forwarded it to the media.
09.35 Sa	Arrival of Air Finland charter flight FIF 002 from Colombo to Helsinki.
10 Sa	Volunteers began to report to the Ministry for Foreign Affairs' crisis centre as on-call duty officials, all in all some 150 persons, worked in shifts. During the day, of the Finns living in Thailand 70–80 persons in Bangkok and 20–30 persons in Phuket also reported to the Embassy in order to help.
13 Sa	Prime Minister's and Foreign Minister's press conference in the Government Palace.
14.30 Sa / 19.39 Ta	Departure of Finnair evacuation flight AY 1958 from Phuket, 221 passengers, 70 of whom injured.
15.30 Sa	Bulletin on Ministry for Foreign Affairs web pages on how family members receive information of those arriving on the evacuation flights.
16.32 Sa / 20.32 Sla	Departure of Finnair evacuation flight AY 1996 from Colombo, 227 passengers, 20 of whom injured.

17.08 Sa	Meeting of the Coordination Board of Government Chiefs of Preparedness, during which it was decided that the Finnish Red Cross would dispatch a 15 member relief team and that the National Bureau of Investigation would dispatch a victim identification team. Relief materiel was always carried on ongoing legs. Maintenance of the list of missing persons was tasked to the National Bureau of Investigation.
21.30 Sa	Bulletin on Ministry for Foreign Affairs web pages regarding a new e-mail address.
22.05 Sa /	Departure of Air Finland charter flight FIF 932 from Bangkok, 227 passengers, 27 of whom injured.
22.55 Sa	Departure of Finnair relief flight AY 1963 to Phuket.
24 Sa	The Ministry for Foreign Affairs' crisis centre was closed for the night.

**Wednesday 29.12.2004**

04.08 Sa	Arrival of Finnair evacuation flight AY 1958 in Helsinki
04.39 Sa	Arrival of Finnair evacuation flight AY 1996 from Colombo to Helsinki
07.58 Sa	Departure of Finnair relief flight AY 1955 to Phuket.
08.00 Sa	The Ministry for Foreign Affairs' crisis centre was opened.
10.50 Sa	Departure of Finnair relief flight AY 1957 (MD 11) to Phuket.
12.05 Sa	Departure of Air Finland charter flight FIF 003 to Phuket.
13.08 Sa / 18.08 Ta	Departure of Finnair evacuation flight AY 1964 from Phuket, 206 passengers, 24 of whom injured.
13.14 Sa	Arrival of Air Finland charter flight FIF 932 from Bangkok to Helsinki.
11.00 Sa	Meeting of the Coordination Board of Government Chiefs of Preparedness: main topic was the search, identification and repatriation of the deceased.
15.00 Sa	The Prime Minister's and Foreign Minister's press conference at the Ministry for Foreign Affairs.
17.05 Sa	Meeting of the Coordination Board of Government Chiefs of Preparedness, during which the evacuation situation and the commencement of victim identification was briefed.
18.00 Sa / 23.00 Ta	A mass SMS message to the mobile phones of Finns in Thailand regarding gathering points.
21.51 Sa /	Departure of Finnair evacuation flight AY 1956 from Phuket, 222 passengers.
23.20 Sa /	Departure of Finnair evacuation flight AY 1958 (MD 11) from Phuket, 253 passengers, all injured. Due to the fact that all patients could not be readied for transportation, 35 seats were empty.
24 Sa	The Ministry for Foreign Affairs' crisis centre was closed for the night.

**Thursday 30.12.2004**

00.44 Sa	Departure of Jetflite aeromedical evacuation flight JEF 429 (Falcon) to Hat Yai airport in Thailand.
02.45 Sa	Arrival of Finnair evacuation flight AY 1964 from Phuket to Helsinki.
05.33 Sa / 10.33 Ta	Departure for Air Finland charter flight FIF 004 from Phuket to Arlanda, 217 passengers.
06.34 Sa	Departure of Finnair relief flight AY 1961 to Phuket.
06.45 Sa	Arrival of Finnair scheduled flight AY 098 from Bangkok to Helsinki, three injured onboard.
08 Sa	The Ministry for Foreign Affairs' crisis centre was opened.
08 25 Sa / 12.25 Sla	A mass SMS message to India and Sri Lanka: Warning of new tidal waves in the southern parts of the countries.

## Appendix 2

08.30 Sa	Decision in the Prime Minister's Office to commission an ambulance aircraft from Finnair.
10.19 Sa	Arrival of Finnair evacuation flight AY 1958 (MD 11) from Phuket to Helsinki.
11.15 Sa	Arrival of Finnair evacuation flight AY 1956 from Phuket to Helsinki.
12.00 Sa	Finnair started to modify the ambulance aircraft (B757), the Hospital District of Helsinki and Uusimaa took care of the medical equipment. The plane was ready for takeoff at 18.00 but they had to wait for the medical unit.
15.00 Sa	Press conference at the Prime Minister's Office; attended by the Prime Minister, the Foreign Minister as well as the Minister for Foreign Trade and Development.
17.00 Sa	Meeting of the Coordination Board of Government Chiefs of Preparedness: Issues comprising the ambulance plane readiness, command problems in the disaster area, 10 persons from the church working in the area including the Bishop of Helsinki, tasking to the Finnish Red Cross to prioritise the evacuees and to assign quotas to travel agencies as well as to see to it that also independent travellers make it back home. The Ministry for Foreign Affairs reinforced the missions in Thailand. The Finance Ministry began to calculate the additional expenses incurred by the disaster.
19.59 Sa	Departure of air ambulance flight AY 1965 to Bangkok.
20.23 Sa /	Departure of Finnair evacuation flight AY 1962 from Phuket, 227 passengers, 10 of whom injured.
21.53 Sa	Departure of Air Finland charter flight FIF 005 from Arlanda to Phuket.
24 Sa	The Ministry for Foreign Affairs' crisis centre was closed for the night.

### Friday 31.12.2004

06.45 Sa	Arrival of Finnair scheduled flight AY 092 from Bangkok to Helsinki, 18 injured onboard.
08.01 Sa / 13.01 Ta	Arrival of air ambulance flight AY 1965 in Bangkok where six patients were picked up. The Ministry for Foreign Affairs' crisis centre was opened.
08.35 Sa	Arrival of Jetflite aeromedical evacuation flight JEF 429 from Hat Yai airport to Helsinki, three patients onboard.
10.31 Sa / 15.31 Ta	Departure of air ambulance flight AY 1965 from Bangkok to Phuket.
10.31 Sa	Arrival of Finnair evacuation flight AY 1962 in Helsinki.
11.03 Sa	Departure of Finnair relief flight AY 1963 (MD 11) to Phuket.
12.00 Sa	Meeting of the Coordination Board of Government Chiefs of Preparedness in which the evacuation situation was considered to be so good that the airlift could be terminated on 2.1.2005. Consul-assisted return trips would continue. A press conference on the completion of the evacuation will be arranged at Helsinki-Vantaa airport.
13.14 Sa / 18.14 Ta	Departure of Air Finland charter flight FIF 006 from Phuket to Helsinki via Arlanda, 144 passengers onboard, 30 of whom deplaned in Arlanda.
14.13 Sa / 19.13 Ta	Departure of air ambulance flight AY 1965 from Phuket, 10 patients onboard from Phuket and 6 from Bangkok, totalling 16, as well as 44 medical staff.
15.00 Sa	A Ministry for Foreign Affairs press conference.
22.54 Sa /	Departure of Finnair evacuation flight AY 1964 (MD 11) from Phuket, 280 passengers, some of whom were relief workers coming come.
24 Sa	The Ministry for Foreign Affairs' crisis centre closed for the night.

**Saturday 1.1.2005**

03.41 Sa	Arrival of air ambulance flight AY 1965 in Helsinki.
06.07 Sa	Arrival of Air Finland's last charter flight FIF 006 in Helsinki.
08 Sa	The Ministry for Foreign Affairs' crisis centre was opened.
09.24 Sa	Arrival of Finnair evacuation flight AY 1964 in Helsinki.
14.44 Sa	Departure of Finnair relief flight AY 1961 to Phuket.
24 Sa	The Ministry for Foreign Affairs' crisis centre closed for the night.
Situation	Of Finns, 193 missing.

**Sunday 2.1.2005**

04.18 Sa / 09.18 Ta	Departure of Finnair's last evacuation flight AY 1962 from Phuket, 200 passengers onboard, some of whom Finnair and travel agencies' staff coming back home.
08 Sa	The Ministry for Foreign Affairs' crisis centre was opened.
17.11 Sa	Arrival of flight AY 1962 in Helsinki. The evacuation operation ended.
18.00 Sa	Government press conference at the airport.
24 Sa	The Ministry for Foreign Affairs' crisis centre was closed for the night.
Situation	Of Finns, 186 missing.

**Monday 3.1.2005**

07.30 Sa	Meeting of the Coordination Board of Government Chiefs of Preparedness, during which it was noted that phase 1 had ended and that phase 2 was beginning. A grand total of 2 784 Finns and 137 foreigners had arrived in Finland. The identification team comprised 12 staff in Thailand and 30–40 in Finland. The Ministry of Social Affairs and Health commenced the implementation of social welfare measures.
08 Sa	The Ministry for Foreign Affairs' crisis centre was opened.
17.00 Sa	Meeting of the Coordination Board of Government Chiefs of Preparedness, during which a situation briefing was held and the future measures were assessed. The Parliament was expediting the updating of the Act on Declaring a Person Dead. The Government to appoint a Major Accident Investigation Commission.
23.00 Sa	The Ministry for Foreign Affairs' crisis centre was closed and the number of on-call staff was reduced.
Situation	Of Finns, 184 missing.

**Tuesday 4.1.2005**

08–23 Sa	The Ministry for Foreign Affairs' crisis centre open.
Situation	Of Finns, 183 missing.

**Wednesday 5.1.2005**

08.00 Sa	Meeting of the Coordination Board of Government Chiefs of Preparedness, comprising follow-on activities, repatriation arrangements as well as airport reception ceremonies of the deceased and construction of web pages for those needing advice and assistance.
08–22	The Ministry for Foreign Affairs' crisis centre remains open. On-call duty was terminated at 22.00 hours. All in all the 67 000 calls were made to the crisis centre, 6 000 of which went through.
Situation	Of Finns, 177 missing. After 10.1. the number stabilized at 174 missing. It is believed that a total of 179 Finns perished in the disaster. On the evacuation flights, 2 925 persons were brought back to Finland. Approximately 300 persons returned on various scheduled flights.

### Appendix 3. The magnitude and energy of an earthquake

The physical size of an earthquake has always interested scientists. Early on it became evident that even a small quake could cause massive damage in areas favourable to destruction. This, for instance, is the case in areas where dense population is located on top of sedimentary rocks. If an earthquake occurs in such an area, it may happen that the bedrock begins to resonate and the amplitude of the shock waves increases, resulting in great devastation. Previously, the intensity of earthquakes was primarily estimated on the basis of ensued destruction by various intensity scales, of which the 12-grade MSK<sup>2</sup> scale is still being used. A loose interdependence exists between intensity and ground acceleration.

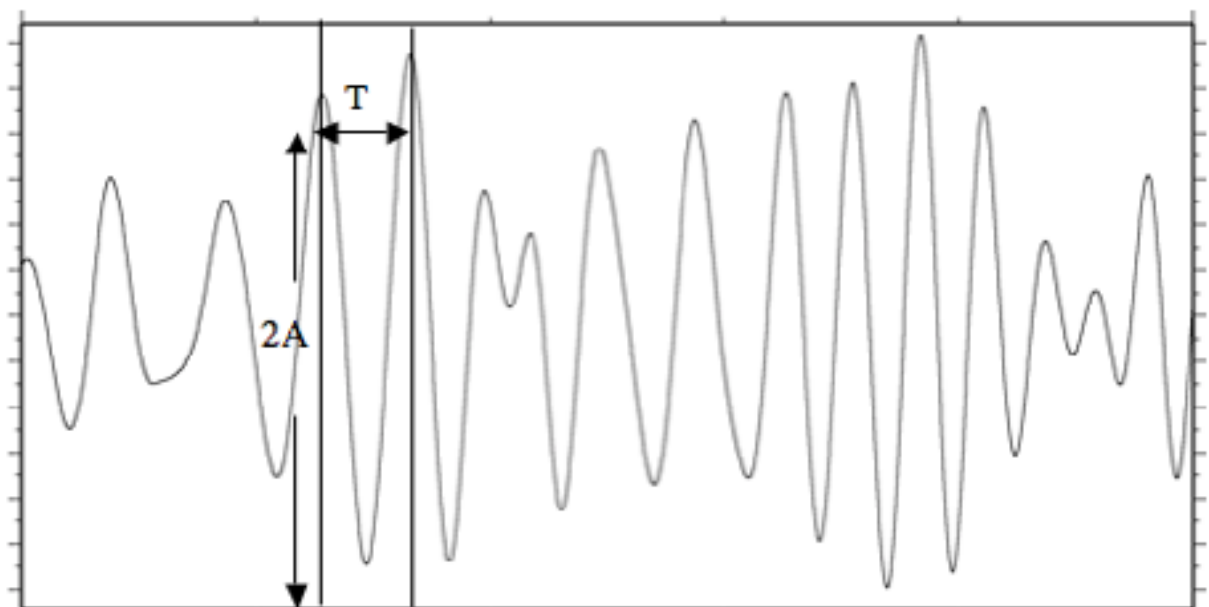
On the other hand, even the greatest earthquake may remain undetected or it may cause only limited destruction if it occurs in an unpopulated area or if the buildings are designed to withstand natural upheavals.

In southern California in the 1930s, Charles Richter developed his, nowadays, well known scale for earthquakes. Richter intended to use the amplitude of recorded seismic waves to quantify the size of the earthquake.

Richter determined a magnitude zero ( $M_L=0$ ) event in such a way that the horizontal displacement 100 km from the earthquake epicentre would be  $1\text{ }\mu\text{m}^*$ , recorded on a Wood-Anderson torsion seismometer.

Richter changed his scale into a logarithmic scale so that a 10 times greater change in horizontal displacement would increase the magnitude value by one.

Since Richter's magnitude scale was only intended for earthquakes occurring in southern California and because the method ignored various seismic waves, later on it became necessary to adjust magnitude methods to different seismic waves as well as for the different regions of the world. Furthermore, it does not contain direct physical significance, but for providing practical information on an earthquake's size, it is extremely handy.



*To determine the magnitude the signal parameters to be defined are the amplitude (A) and period (T). To avoid the difficulty of determining the zero level of a signal, a double amplitude (2A) of the signal is measured instead of A.*

<sup>2</sup> Medved, Sponheuer ja Kárník

\*  $1\text{ }\mu\text{m} = 1\text{ mikrometre} = 0,001\text{ mm} = 10^{-6}\text{ m}$

### Appendix 3

The fastest seismic waves travelling through the Earth are bodywaves, and their magnitude is determined as:

$$M_b = \log_{10}(A/T) + Q(\Delta, h)$$

Where  $A$  is the amplitude of the observed seismic wavetrain in micrometres ( $\mu\text{m}$ ),  $T$  is the period of the signal and  $Q(\Delta, h)$  is a correction factor depending on the epicentre distance in degrees and  $h$  is the hypocentre depth in kilometres.

Surface waves travel along the surface of the Earth at the velocity of around 4 km/s. Their magnitude is determined as:

$$M_s = \log_{10}(A/T) + 1.66 \log(\Delta) + 3.3.$$

As previously stated, the Richter magnitude is not a very physical parameter. If one somehow wants to quantify the physical size of an earthquake, the seismic moment  $M_0$  of an earthquake has to be defined.

From the seismic moment, the moment magnitude of an earthquake can be determined as:

$$M_w = (2/3) \log_{10} M_0 - 6.7.$$

The benefit of the moment magnitude when compared with Richter's method is that with moment magnitude the energies released by the earthquake can be estimated. In addition to these global magnitude methods, regionally adjusted magnitude methods exist.

#### An earthquake's energy

An earthquake results when elastic strain-energy, stored in bedrock, changes into other forms of energy. Most of the strain-energy is converted into heat but a substantial part of it is transformed into an elastic wavetrain propagating through medium and which is detected on the surface of the Earth as tremor. An earthquake's energy is determined with the Gutenberg and Richter magnitude-energy formula as :

$$\log E = 1.5M + 6.8 [J]$$

If the magnitude of the Boxing Day earthquake was 9.0, its energy would be an astounding  $2 \times 10^{20}$  J, which is probably twice as large as the actual value, since the previous formula is not entirely accurate in the case of large earthquakes.

## Appendix 4. Timing of activities in Thailand and Sri Lanka

## Thailand

ACTOR	su 26. 12	mo 27. 12	tu 28. 12	wed 29. 12	thu 30. 12	fri 31. 1.	sat 1. 1.	su 2. 1.	NOTE
<b>H</b>	02. 58								
<b>MFA</b>	06 15								
Finland	10 45	The Ministry for Foreign Affairs activates its Crisis Centre							ad 10.1.05
<b>MFA</b>	06 20								
Bangkok	06 54								
Phuket	17 00	First officials depart Bangkok for Phuket							
<b>EMA</b>	08 00								
2	18 00								
3	18 00	23.55							
4		12 22	First group in Phuket 1 + 2 = 3					17 11	
<b>FRC</b>	08 32								
2		09 05							
3	09 00	21.58							
4		10 28	First group in Phuket 2+3+1+2 = 8						15 continue
<b>FINN</b>	06 47								
Finnair	07 50								
3	08 30								
4	09 00	Pre-flight briefing for the flight to Bangkok							12 flights
<b>AF</b>	05 15								
Air Finl		19 15	police (first contact from the authorities)						
3	08 00								
4	22 57	Medical supplies aboard					06 07		4 flights one of which to Sweden
<b>JF</b>									
Jetflite									
3									
4					00 35	08 35			1 flight
ACTOR	su 26. 12	mo 27. 12	tu 28. 12	wed 29. 12	thu 30. 12	fri 31. 1.	sat 1. 1.	su 2. 1.	NOTE
<b>FLM</b>									
Finnish									
Evangelic									
Lutheran									
Mission									
<b>CAA</b>									
Civil		12 00							
Aviation		14 00							
Authority		14 00							activity continues

Legend

- 1 Information of the event
- 2 Tasking, color refers to the one assigning the task
- 3 Own action
- 4 Activity in the destination/operation



## Appendix 4

### Sri Lanka

ACTOR	su 26. 12	mo 27. 12	tu 28. 12	wed 29. 12	thu 30. 12	fri 31. 1.	sat 1. 1.	su 2. 1.	NOTE
	H 02. 58								
MFA 1	06 15								
Finland 2									
3	10 45	The Ministry for Foreign Affairs activates its Crisis Centre							ad 10.1.
4									
MFA 1	07 30								
New 2									
Delhi 3	08 30								
Sri Lan 4			An official commences activities in Colombo						ad 5.1.
EMA 1	08 00								
2	18 00								
3	18 00								
4			03 33	04 39					no work on location
FRC 1	08 32								
2		09 05							
3	09 00								operation ended on 26.1.
4			14 21	The team in Colombo 1+6+8 =15 + field hospital					
FINN 1	06 47								
2		07 50							
3	08 30								
4			03 33	04 39					1 flight
AF 1	05 15								
2		19 15	police (first contact from the authorities)						
3	08 00								
4		03 13	09 34						1 flight
CAA 1									
2		12 00							
3		14 00							
4		14 00							

Legend 1 Information of the event  
 2 Tasking, color refers to the one assigning the task  
 3 Own action  
 4 Activity in the destination/operation

## Appendix 5. Evacuation flights

Day	no.	flight	desti- nation	depar- ture	medical staff	org	day	no.	flight	dest	dep	arr	time	pax	patients	med. staff	org
26.12.	F1 A1 F2	AY 1965 FIF 911 AY 1961	Ba (enroute, free in Ba) Phu Phu	22.57 23.55	1 dr+2 rn	EMA											
27.12.	A2 F3	FIF 001 AY 1957	Co Phu	03.13 21.58	0 1+4 2+4+2	0 EMA FRC	27.12.	F1 A1 F2 A2	AY 1966 FIF 912 AY 1962 FIF 002	Hel Hel Hel Co-Hel	06.48 15.03 16.15 20.24	27.12. 28.12. 28.12. 28.12.	20.20 03.55 06.05 09.35	222 218 228 212	ca.30	0 0 1 rn 0	EMA
28.12.	F4 A3 F5 R1	AY 1995 FIF 931 AY 1963 AY 091	Co Ba Phu Ba	03.33 03.41 22.55 23.50	1+1 2+6+6 2+2 1 rn	EMA FRC EMA EMA	28.12.	F3 F4 A3	AY 1958 AY 1996 FIF 932	Hel Co-Hel Ba-Hel	14.30 16.32 22.05	29.12. 29.12. 29.12.	04.08 04.39 13.14	221 227 119	ca.70 20 27	2 rn 1+1 0	EMA EMA
29.12.	F6 F7 A4	AY 1955 AY 1957 FIF 003	Phu Phu Phu	07.58 10.50 12.05	2 rn 1+2 9+14+10 2+1	EMA EMA FRC MedFli	29.12.	F5 R2 F6 F7	AY 1964 AY 098 AY 1956 AY 1958	Hel Ba-Hel Hel Hel	13.08 ? 21.51 23.20	30.12. 30.12. 30.12. 30.12.	02.45 06.45 11.15 10.19	206 ? 222 253	16+8 3 4 19	1 rn 1 rn 1 rn 2+3	EMA EMA/auth. comm'd EMA EMA (5 rn/Finn)
30.12.	E1 F8 F9 A5	JEF 429 AY 1961 AY 1965 FIF 005	Ha Ya Phu Ba-Phu Ar-Phu	00.44 06.34 19.59 21.53	1 rn 1+3 37 2+1	EMA EMA HUS EMA MedFli	30.12.	A4 R1 E1 F8	FIF 004 AY 092 JEF 429 AY 1962	Phu-Ar Hel Hel Hel	05.33 ? ? 20.23	30.12. 31.12. 31.12. 31.12.	19.27 06.45 08.35 10.31	222 full? 3 227	18 3 ca.10	2+1 1+1 1+1 1+3	MedFlight EMA EMA/ auth.com m'd EMA
31.12.	F10	AY 1963	Phu	11.03	3	EMA	31.12.	F9 A5 F10	AY 1966 FIF 006 AY 1964	Hel (Ar)-Hel Hel	14.13 13.14 22.54	1.1. 1.1. 1.1.	03.41 06.07 09.24	60 30+114 285	14+ (2) several	37 (2) 2+1 (2 rn)	HUS EMA MedFlight EMA
1.1.	F11	AY 1961	Phu	14.44													
							2.1.	F11	AY 1962	Hel	04.18	2.1.	17.11	200	7	2 rn	EMA

## F= Finnair evacuation flights

normal= Finnair scheduled flight

green= Jetflite/EMA aeromedical flight

blue = Air Finland

red=air ambulance

All departure and arrival times in Finnish time

Departing from Phuket, unless otherwise mentioned

Ba=Bangkok, Phu=Phuket, Ar=Arlanda, Co=Colombo, Hel=Helsinki

Ha Ya = Hat Yai /Sonkhalan/Thailand

**Appendix 6. Patients, injuries and medical staff on evacuation flights**

Legend: AY bold = Finnair evacuation or air ambulance flight

AY = Finnair charter or scheduled flight

JEF = Jetflite/EMA aeromedical evacuation

FIF = Air Finland charter/MedFlight

All times in Finnish time

**1. Evacuation flights from Thailand**

No.	Flight	In Helsinki	Pax	Med. Staff	Organization	Patients	Note
1	AY 1966	27.12. at 20.20	222	0			Charter flight
2	FIF 912	28.12. at 03.55	218	0			
3	AY 1962	28.12. at 06.05	228	1 nurse	EMA	ca. 30	Charter flight 14 children who had lost their parents, of whom some in bad condition: fever, diarrhoea, nausea, wounds, bruises; passengers also included severely traumatized Swedish children; some of the patients had bad contusions and infected wounds. The most badly injured received intravenous infusion and IV medication, most of them had cutaneous wounds. Most of the passengers traumatized and in need of conversation. Majority of the passengers insufficiently clothed.
4	<b>AY 1958</b>	29.12. at 04.08	221	2 nurse + psych.	EMA	ca. 70	No stretchers, 10 children who had lost their parents, ca. 30 severely injured of whom 10 immobile: lower extremity injuries, suspected fractures, wounds. Pain relieving medication and sedatives, scores of severely traumatized persons, including parents who had lost their children. Conversations, sedatives. 20 persons without adequate clothing.
5	FIF 932	29.12. at 13.14	119	0			
6	<b>AY 1964</b>	30.12. at 02.45	206	1 nurse	EMA	16 + 8	No stretchers, 11 seated limb injuries, 8 mildly injured: wounds, diarrhoea, bruises, a few severely traumatized of whom some adolescents that had lost their family members.
7	AY 098	30.12. at 06.45	?	1 nurse	EMA/ auth.comm'd	3	Scheduled flight Patients had extremity fractures and infected wounds, transported in business class seats.
8	<b>AY 1958</b>	30.12. at 10.19	253	2+3 5 nurse	EMA Finnair crew	19	One stretcher patient, 4 in business seats in lying position: pulmonary injuries, contusions, fractures, infected wounds, 5 patients with fractured extremities, 9 with deeply infected wounds. Monitoring, pain relieving medication, sedatives and anti-nausea medication. A few children with missing parents, 10 wheelchair patients.
9	<b>AY 1956</b>	30.12. at 11.15	222	1 nurse	EMA	4	A couple of persons in bad condition with fractures and diarrhoea, several wounds and contusions. Intravenous infusion and medication, wound excisions.
10	FIF 004	30.12. at 19.27	222	2+1	MedFlight		To Arlanda Contusions, wounds, bruises, diarrhoea. Wound excisions and changes of dressing, pain relieving medication and anti-diarrhoea medication.

## Appendix 6

No.	Flight	In Helsinki	Pax	Med. Staff	Organization	Patients	Note
11	AY 092	31.12. at 06.45	full?	1+1	EMA	18	Scheduled flight No stretchers, the ones in the worst condition in business class seats. Deep infected wounds, fractures, fever, dehydration. 11 patients, some of whom had been operated on. Intravenous infusion and antibiotic treatment. A few children who had lost their parents. 11 wheelchair patients.
12	JEF 429	31.12. at 08.35	3	1+1	EMA/auth.comm'd	3	Patients had infected wounds, fractures, one pulmonary injury. Intravenous infusion and antibiotics. Wound excisions and changes of dressing under a general anaesthesia enroute.
13	<b>AY 1962</b>	31.12. at 10.31	227	1+3	EMA	ca. 10	Infected wounds, pulmonary infections, fractures. Intravenous infusion and –medication, pain relieving medication and sedatives.
14	<b>AY 1966</b>	1.1. at 03.41	60	37(+2)+psych	HUS (EMA 14+2)		Air ambulance Of the patients 4 in critical or serious condition. 10 patients were in satisfactory condition. Four surgical operations while enroute. Deep infected wounds, soft-tissue injuries requiring surgical treatment, extremity fractures, thoracic injuries causing breathing problems. All soft tissue injuries were re-examined and redressed.
15	FIF 006	1.1. at 06.07	144	2+1	MedFlight	30 passengers deplaned in Arlanda	Bruises, wounds contusions, diarrhoea. Wound excision and dressing, pain relieving and anti-diarrhoea medication.
16	<b>AY 1964</b>	1.1. at 09.24	285	2 nurse+psych	EMA	several	Many with diarrhoea, medication started. Some wounds examined and redressed. Several that had lost their family members.
17	<b>AY 1962</b>	2.1. at 178.11	200	2 nurse+2 psych	EMA	7	Approximately one half of the patients had diarrhoea, placed in the back of the plane, a couple of patients with infection. Intravenous infusion and antibiotic treatment as well as administering pain relieving medication. Some severely traumatized patients.

## 2. Flights from Sri Lanka

1	FIF 002	28.12. at 09.35	212	0			
2	<b>AY 1996</b>	29.12. at 04.39	227	1+1	EMA	20	All had various bruises and wounds, especially in lower extremities, infected wounds, fever. Redressing, wound excisions, pain relieving medication, intravenous infusion and medication to the most severely injured, thromboprophylactic medication.  All times in Finnish time.

## Appendix 7. The Finnrescueforce formation

The Finnrescueforce (FRF) is formed of five rescue departments' staff on a case-by-case basis. These Finnrescueforce rescue departments (pelastuslaitos) are:

- Helsingin pelastuslaitos (Helsinki)
- Keski-Uudenmaan pelastuslaitos (Vantaa + adjoining region)
- Länsi-Uudenmaan pelastuslaitos (Espoo + adjoining region)
- Tampereen aluepelastuslaitos (Tampere + adjoining region)
- Varsinais-Suomen pelastuslaitos (Turku + adjoining region).

An agreement between the Ministry of the Interior and five Finnrescueforce rescue departments concerning the use of personnel, equipment, gear and material in rescue activities abroad forms the basis for its functioning. International assistance through the Finnrescueforce is mainly provided by search and rescue activities, under the leadership of the Ministry of the Interior, especially in natural disasters and in technological accidents. In addition to deploying rescue formations, expert groups or individuals can be deployed to an international rescue mission.

The Rescue Commander of the city of Helsinki acts as the leader of Finnrescueforce, appointed by the Ministry of the Interior. Administratively the formation is subordinate to the Ministry of the Interior Department of Rescue Services but operationally it is an independent unit subordinate to the commander that has been appointed for the mission in question. A readiness plan and an operational plan exist for the Finnrescueforce. The readiness plan comprises the Finnrescueforce's nominal strength as well as the functions that each municipality must maintain in order to facilitate rapid deployment. The rescue departments have been required to draw up their own, detailed, plans as appendices of the readiness plan. The operational plan defines the Finnrescueforce's activities in alert situations, during the mission and the post-mission tasks, including reports.

The Finnrescueforce headquarters, set up by the Helsinki rescue department, begins to form the Finnrescueforce. The Finnrescueforce has been declared available to the UN office in Geneva with the following composition: advance team (2 persons) ready within two hours, command element (5 persons) or a rescue group (6 persons) in six hours and a rescue team (22 persons) in 12 hours. Pursuant to the agreement on terms of service during Finnrescueforce missions, signed by the Ministry of the Interior and the Finnrescueforce rescue departments on 1.7.1998, the rescue departments' staff will retain their municipal posts while the Ministry of the Interior will reimburse the rescue mission's costs incurred to the municipality.

## Appendix 8. The Finnish mass media and the natural disaster in Asia.

In order to assess the activity of the Finnish media, the Accident Investigation Commission on the natural disaster in Asia commissioned a total of seven reports<sup>3</sup>, varying in scope, on which this report primarily is based. The Commission also received advance information from the “Government Communications 2007” project, commissioned by the Prime Minister’s Office, as well as information directly from the Finnish Communications Regulatory Authority, the Finnish public broadcasting company (YLE) and Finnpanel Oy. Some academic papers have also been written on the subject. Without cooperation from the media and their staff, the Helsinki and Tampere universities’ studies would have been impossible to conduct. Observer Oy made a large collection of newspaper clippings available to the researchers.

### Almost 15 000 stories

Media reporting of the natural disaster started rapidly. The Finnish News Agency (STT/FNB) relayed the first news only 1.5 hours after the event and on the national radio the first news of the event in YLE’s Radio Suomi as well as in Radio Nova broadcasts was broadcast to the world at 05.00 in the morning. The key events from the Finnish viewpoint, however, only gradually came to light and the overall picture was formed over a long period. During the analysis period 26.12.–5.1. various media followed the event very similarly, mostly as news and primarily quoting the same sources and emphasizing the same themes. During the first week following Christmas it was the absolute top story, shadowing, among other things, the political changes in the Ukraine.

Between 26.12.–5.1. YLE’s radio channels broadcast almost 700 news programmes, and in them, a total of well over 1 100 tsunami-related stories. Radio Nova and the approximately 60 local commercial Finnish radio stations also broadcast hourly news. Thus, the grand total of tsunami stories on the radio rose to the level of some 3 000. Radio news was repetitive on all channels, because this is characteristic of the way radio operates. Local radio stations used the Finnish News Agency’s radio packets, which were repeated around the country in a fairly similar fashion, even though the media tried to include the local approach. The FSR (Finnish-Swedish Radio) Swedish language newscast also used Radio Sweden’s dateline interviews.<sup>4</sup>

Newspapers were more versatile when it came to themes and to the practice of quoting sources. The number of stories (2 750 stories in 15 papers, approximately 6 000 stories in the approx. 60 newspapers of the entire country) in the first phase was almost tenfold compared to the number of stories broadcast by the three TV companies. The number of TV stories was around 700 (271 stories in the Finnish language main evening news, 201 in the Swedish language news, the same number in other newscasts, in addition to which YLE broadcast 11 special features, MTV3 four and *Nelonen* four). Parts of the normal TV newscasts during the first week were almost entirely dedicated to the tsunami wave disaster and, therefore, the number of stories was noteworthy. In practice all facts published on TV were also told in newspapers, albeit perhaps with different emphases.

<sup>3</sup> Tuomo Mörä: Tsunami suomalaisessa mediassa (Tsunami in the Finnish media), Helsingin yliopiston viestinnän tutkimuskeskuksen julkaisu 4.5.2005; Juho Rahkonen: Journalisti hyökyaallon harjalla (Journalist on the crest of the tidal wave), Journalismien tutkimusyksikkö, Tampereen yliopisto; Turo Uskali: Tsunami ja Internet (Tsunami and the Internet), Jyväskylän yliopisto, Teijo Kuusela: Uhrijournalismi tsunamiraportoinnissa (Victim journalism in tsunami reporting), Jyväskylän yliopisto, Jenni von Frenckell: Tsunamis framfart i fem finlandssvenska dagstidningar (The tsunami’s rage in five Finnish-Swedish newspapers), Forskningsinstitutet, SSKH/Helsingin yliopisto, Heidi Orava: Tsunami i FSR och FST (The tsunami in FSR and FST), Forskningsinstitutet, SSKH/Helsingin yliopisto, Ullamaija Kivikuru: Aikakauslehdet tsunamiaiheeseen käsittelijöinä (Periodicals as handlers of the tsunami topic), Forskningsinstitutet, SSKH/Helsingin yliopisto.

<sup>4</sup> It was impossible to analyse the radio and television material for the entire period because there is no radio and TV-archive in Finland, from which the complete material would have been available.

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Of magazines only four (Apu, Me Naiset, OHO, Seitsemän päivää) made it to the analysis period since most magazines published double issues around Christmas. These other magazines dealt with the tsunami issue at the end of January. Fewer than 100 stories made it in time for the first phase (26.12.–5.1.). Due to the types of periodicals in question light, feature-type storytelling was emphasized. By the end of February, 31 magazines had written over 300 proper tsunami stories and, in addition, numerous short features. The content of magazines expanded at the turn of January–February and, simultaneously the story narration became more versatile.

There was abundant tsunami material on the web pages of newspapers, radio stations and TV companies as well as on text-TV, and, especially during the first week following the disaster, they broke records in the number of hits on the pages. Due to technical reasons it has been impossible to chronologically analyse this material, since text-TV material is not archived at all and material on the web is dated by the day and time of a hit, not by the time of writing.

According to conservative estimates, there were almost 15 000 Asian tsunami disaster stories in the Finnish media during the first phase (26.12.–5.1.). Tsunami reporting was at its highest in the electronic media during 29.12.–30.12. and in the printed media during 30.12.–31.12. Later on, (end of January, February 2005) periodically the topic was strong in media reporting and extremely strong in magazines. At this stage the news-like characteristic wore off and, in lieu of depicting events, more contemplative material came to the forefront detailing the reasons and consequences of the event and, especially in magazines, themes related to overcoming grief as well as to therapy. Even the later phase also contained breaking news. As a news story, the tsunami was legitimate and, therefore, even the smallest topics became newsworthy. From the second week of January to the end of February roughly 5 000 more stories were published.

### Sources and main themes in the first phase

In the initial phase of the event the Finnish News Agency's material provided the framework for Finnish media reporting. The Finnish News Agency's status is exceptional because as per a 1984 agreement it is required to publish Government press releases and other material on official decision-making as such, but can also publish its own stories based on the aforementioned material. The Finnish News Agency is also obligated to alert the Director of Government Information Unit and his deputy during the night (23–06), should something unexpected occur. In the initial phase of the disaster the Finnish News Agency relayed 90–95 daily stories.

During the early stage of the tsunami disaster, the information relayed by the Finnish News Agency was largely based on material received from international news agencies, especially on that of Reuters. Reuters is regarded as a reliable source in the Finnish media. As the event progressed, the source status of the Finnish News Agency gradually diminished, as all major media dispatched their own reporters to the area or used their reporters that had been vacationing there. From Wednesday 29.12. onwards all major media had their own people in Thailand, some even in Sri Lanka. However, the Finnish News Agency maintained its significance especially in the narration of regional newspapers and local radio broadcasts.

Some of the media relay Reuters material directly, without the Finnish News Agency sorting. As sources, newspaper journalists listed the Finnish News Agency, BBC World and domestic TV channels as well as text-TV. In the beginning themes would rapidly bounce from one media to another. The established media furnished the journalists with a framework on which they could build their situation picture. An overall picture of the extent of the disaster was sought from international channels. Some journalists note that they did not receive a sufficiently comprehensive picture from the domestic media:

I also followed the Finnish TV news and text-TV. They did not provide as disastrous a picture of the tidal wave damages or as diversely edited compared to the international channels. On TV1 I was annoyed by

the fact that one eyewitness interview was repeated repeatedly all day long, until the night. (Chief of a newspaper's editorial staff)

As for the active search for news the maintenance of personal contacts with Finns operating or vacationing in the disaster area probably became the most important method. Several eyewitness accounts and dramatic photos as well as videos from the disaster area were published in the media. Finnish eyewitness accounts were normally given by people who had followed the event from a safe location or, at the most, had encountered a close call: *A Finnish man almost got washed away to the sea (Iltalehti 27.12.)*. Several YLE reporters were vacationing in the area, as were those working for newspaper Helsingin Sanomat, which posted its own reporter's story on their web version as early as 26.12.

Internet journalists rarely quote their sources – except for official bulletins. They would surf the web only when other tasks allowed an opportunity for it. In the reporters' work, web sources seem to have played an insignificant role.

Sometime during the rough first week, I began to surf the Internet on sukellus.fi web pages as well as on some hospital pages, where you would search for the disappeared and where the dead were reported. (...) Shocked, I likewise read eyewitness accounts and search ads that had appeared on the Swedish tabloids' web versions. I even visited the BBC pages. (Newspaper reporter)

There were several seminal events in the reporting of the tidal wave. Roughly they can be grouped as follows (the sorting is based on analysing the reporting of 15 newspapers<sup>5</sup>, the main newscasts of YLE, MTV3 and Nelonen TV as well as the Finnish News Agency and Yleisradio radio news for the first two days):

The first one can be timed to the evening of 26.12. when the Finnish News Agency relayed information - subsequently interpreted as the Foreign Ministry's notification - according to which Finnish tourists were not in distress in the tidal wave area. A similar interpretation was given in the Finnish-Swedish television FST news. The source was the same, the Foreign Ministry's chief information officer, who stated that the Foreign Ministry had no information on the missing Finns and that the ones earlier thought to have been missing had been located. Prior to this, the extent of the disaster and the death toll had risen on an hourly basis as Boxing Day went on but, according to reports, the number of Finnish victims was low. The editorial staffs made their interpretation of the statement within this frame of reference. Most of the media decided to wait for a while but MTV3 dispatched its reporter to the area, where journalists working for other media were already vacationing.

Radio played the most significant role during the first days when the situation picture was in constant flux. Of the traditional mass media YLE's newsroom was the fastest in that it was the first to talk about a tidal wave (instead of just an earthquake). It broadcast the first Finnish eyewitness account already on Boxing Day morning (26.12. at 07.00, both on YLE and on Radio Nova). Radio was also the first media to publish information regarding the number of Finnish tourists in the area (Radio Suomi at 09.00) as well as the first to interview the Foreign Ministry's consular services' on-call official (Radio Suomi on 26.12. at 09.00, simultaneously with YLE TV news). During the first days, the facts on the radio describing the disaster area largely came from international news agencies. In addition, YLE's radio news included reports or telephone interviews from YLE reporters who were vacationing in the area (Sri Lanka, Thailand, Malaysia), Finnish eyewitness accounts as well as the interview of Finland's ambassador to Indonesia.

On Boxing Day all forms of media concentrated their reporting on the event itself. Already the first stories mentioned that Indonesia was the worst hit by the catastrophe. Regional focus was fairly

<sup>5</sup> Aamulehti, Helsingin Sanomat, Hufvudstadsbladet, Iltalehti, Ilta-Sanomat, Kaleva, Kauppalehti, Keskiuomalainen, Nya Åland, Savon Sanomat, Taloussanomat, Tidningen Åland, Turun Sanomat, Vasabladet, Åbo Underrättelser



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even and from the viewpoint of an outside observer, albeit in the afternoon of 26.12. the focus on Finns began to emerge.

The next seminal event was provided by MTV3's main newscast in the evening of 27.12. Its key element was the emotional report of Finns in Phuket. This finally started the phase when media attention turned to Finns in the disaster area. Catastrophe reporting was thrust aside replaced by rescue efforts and depictions of experiences. New details of the event itself surfaced repeatedly but the major attention was focused on Finns and regionally on Thailand, where most of the Finnish tourists had vacationed.

Around the turn of the year, there was a lull in reporting. Newspapers were not published and evacuations had been completed. Now the attention turned to themes that had already received increasing coverage during the second phase: criticism of the public administration, especially of the Foreign Ministry, consequences of the tsunami in the disaster area as well as measures to be taken so as to forestall similar tsunami damages in the future. During the second week the magazines also entered the picture, whose storytelling focused on Finns' experiences and overcoming grief as well as giving consolation, but that also partially included pointed criticism of the activities of Finnish authorities.

Table 1: **Main themes in the media 26.12.–5.1 (%)**

n= 3007

Medium	Rescue	Catastrophe	Economy	Finnish victims	Nordic victims	Rescue assessment	Information assessment	Grief
Finnish papers	22	13	15	9	5	8	6	2
Swedish papers	19	10	23	19	2	2		9
TV, Finn.	25	12	16	13	7			10
TV, Swed.	27	7	17	8	7	7	2	6
Aktuellt 1*	2	34	9	23				
Aktuellt 2*	27	8	8	22	8	5		

\* Aktuellt1 = 26.12., Aktuellt 2= 27.12.

These Swedish language radio news serve as examples on how clearly the focus in radio programming changed during the first days

Similarity between the basic lines of reporting was typical for the different media, even though timing between emphases varied. Storytelling rapidly expanded from event depiction (e.g. Aktuellt 26.12.) to rescue depiction (Aktuellt 27.12.) and to the histories and experiences of victims - especially those of Finnish victims. On the one hand, eyewitness accounts were used to gather facts "[On Boxing Day] our own eyewitness account reports already lead the way in exposing the ferocity of the event." (Reporter, electronic media, Finland) and on the other hand they could help to express emotions and to give a face to the natural disaster that was so incomprehensible. "In our stories we tried to shed light on how the locals could continue their lives in the middle of this chaos". (Reporter, electronic media, Asia). Eyewitness accounts also had a third function: "In my opinion the Finnish reporters on the spot had the specific duty of telling about the fate of those that the international news agencies surely would not have told." (Reporter, electronic media, Asia).

The share of critical voices was fairly rare and they were centred in the mainstream media. Approximately one in every ten stories had a critical tone. These stories were published at the end of the analysis period, such as depictions of grief. The criticism of the authorities dampened after

the first week of January in all of the media but at the end of January, it resurfaced when the Foreign Ministry's account of its own activities was published. Even then, the main focus was on quoting the Foreign Ministry's own self-critical estimates. Perhaps the most surprising thing was the fairly large share of stories with an economic theme in the papers and on TV. This storytelling was pretty much divided into two, on the one hand describing the catastrophe's damages and on the other hand depicting the start of the relief activities.

The overriding arc is thus formed by the transfer from the event itself to search and rescue efforts and the details of the event, followed by themes that cultivate a sense of community and, on the other hand, criticism of the system.

### **Phases in reporting**

The tone and emphases in reporting more or less follow the progress of media storytelling in conjunction with previous catastrophes, although distinctions do exist. In these kinds of cases reporting usually begins with a strong factual undertone but consequences are overestimated, for a while the drama continues to grow until the search for the guilty ones begins, and in the cause and consequence deliberation phase it is noted that the worst case predictions have shrivelled. In this case things went differently, it took one half week for all of the dimensions of the event to surface. The following phases can be distinguished in the reporting of the Asian tidal wave catastrophes:

1. First news on 26.12.: neutral general depiction of a disaster, which grew by the hour.
2. Calming phase on the evening of 26.12.: Finnish tourists seem to be safe. The Swedish language media gave a bigger proportion to following the situation of Swedes.
3. The drama unfolds on 27.12.: During the course of the day suspicions arise that the situation of Finns is, after all, not as good as previously thought.
4. Until the turn of the year a wide spectrum of depiction: an ever growing portrayal of the details of the rescue effort in the field and pending criticism of authorities. Regional papers and, especially Åland Islands' papers, strongly focused on "our own".
5. After the turn of the year causes, searching for consequences and the guilty ones: fewer personal experiences and eyewitness accounts, coexistence of the themes of a sense of community (Finnish Red Cross, police work, fund raising campaigns, compassion for Finns that had it rough) as well as criticism (public information, authorities' activities).
6. From the second week of January onwards news reporting, which, at times resurfaces around some single event (Foreign Ministry's report of its own activities, details on disaster victim identification, insurance companies' reports). Parallel discourses comprised of, on the one hand neutral tone news reporting and, on the other hand gradually diminishing criticism of various actors. These were also accompanied by the theme of sense of community (monitoring the progress of fund raising campaigns, how to overcome grief, vulgar details, also some rumours). The new theme in this phase consisted of critical voices, mainly in letters-to-the-editor columns, of why the losses of the tidal wave's victims were glorified and why it was demanded that the state pay for everything when the consequences in question involved voluntary tourism.

### **Tsunami of the news**

During the analysis timeframe (26.12.–5.1.) journalism was mainly declarative: nine stories out of ten followed the news' rule of expression, i.e. did not take a direct stand. Around the turn of the year, criticism surfaced in the news through critical sources but reporting was still mostly declarative and the volume of criticism never grew large. In the initial phase MTV3 was the most openly

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critical, from midweek on especially *Ilta-lehti* was, but also many other newspapers, which were joined by a couple of magazines in the later phases. Criticism was more often channelled through news stories compared to editorials and op-ed columns, which had the tone of sense of community, pain of shared experience and collective proposals for the future.

Images gave a face to the Asian tsunami disaster in the Finnish collective consciousness. During the first couple of days general images, both on TV and in newspapers, dominated the story, around midweek personal images came to the centre but also distantly shot images of dead bodies were published. All three TV channels shared similar principles of showing live footage. No close-ups of the dead were shown, the faces of the dead were not shown and mutilated bodies were not shown. Standards for showing images of dead Finns were stricter compared to showing images of dead foreigners. Most of the Finnish TV companies' footage came from international image agencies, such as from APTN and Reuters. Footage that TV companies receive from war zones or bomb strikes is often more brutal and bloody compared to the material shot from the Asian catastrophe. Even though the Asian disaster as a news event was exceptional, from the point of view of image-displaying ethics it hardly deviated from other news topics.

Therefore, images of people walking on the beach who either did not notice or did not fathom the tidal wave approaching from the sea, can contain more shock value than images of dead bodies. The image itself did not contain anything shocking but the viewer would understand what was about to happen. Some such footage was contained in news material.

In conjunction with the Asian catastrophe journalists had to gather the maximum possible number of touching stories from tidal wave survivors and from the family members of those that had disappeared in the waves. For most journalists this was self-evident, but it would also lead into unpleasant situations. A newspaper reporter explains how his newsroom wanted a story on his acquaintance and how the reporter would not have wanted to do the story.

I also received many requests for graphics; it should have been illustrated how the wave picked them up and how they floated away from the room and eventually clung onto a tree. At this point, my editor and I crossed swords a little. I thought that I was incapable of providing any elements to illustrations on the basis of the discussion I had had with my colleague and I did not want to call him and ask any more. I did not think of him as news material or as game but, rather, I somehow also wanted to protect him.

The use of images in the Finnish media was probably more restrained across the board compared, for instance, to a Danish magazine, whose vulgar display of bodies caused chain stores to withdraw the magazine (*Se og Hør*) from their selection. However, even in Finland several complaints have been lodged at the Council for Mass Media in Finland (*Julkisen Sanan Neuvosto*, JSN) against image display in the media but JSN has acquitted the media of all complaints.

### The Finnish News Agency

The Finnish News Agency broadcast its first news of the earthquake on 26.12. at 04.35. Reuters had published its first news regarding the earthquake at 04.00. The title of the Finnish News Agency's story was "A strong earthquake in Indonesia" and the story told that *the quake caused panic especially in the province of Aceh in the northern part of the island* and that *"thousands of people fled from their homes in the capital of the province, Banda Aceh."* This newsflash did not yet mention the tidal wave but at 06.28 the same flash was updated with information of the tidal wave.

The first news came from the area that was subsequently confirmed as the worst disaster area, even though later on Indonesia received less attention in the news compared to Thailand or Sri Lanka. At 06.46 the Finnish News Agency relayed the French news agency AFP's bulletin, according to which *"enormous tidal waves have hit the shores of Phuket, a popular vacation island"*

*in Thailand, and many people have been washed away.”* The Finnish News Agency also relayed this news to mobile phones as SMS news.

During the course of the morning the Finnish News Agency’s frequently updated newsflashes told of the tsunami wave’s consequences in the various parts of south and south-east Asia. At 08.02: *40 dead in India*, 08.20: *Hundreds feared dead in the aftermath of the earthquake in Asia*, 08.34: *The prime minister of Thailand has ordered the evacuation of three southern provinces as tidal waves caused devastation in the area*, 09.01: *Hundreds of fishermen missing following a tidal wave*. 09.18: *Tidal wave: 500 dead in Sri Lanka*, 09.33: *Great devastation in the vacation paradise of the Maldives*. 10.19: *State of emergency declared in Sri Lanka after the tidal wave*. The word “tsunami” was used for the first time at 09.45. AFP and Reuters was the source. At 10.34 The Finnish News Agency relayed the statement of the “*American research institute USGS*”, according to which the quake was one of the strongest since 1900.

The first time the Finnish News Agency mentioned Finns in the context of catastrophe news was at 11.19. The story mentioned two Finns that had vacationed on the island of Koh Lanta in Thailand and they said that all of a sudden, the sea receded and then a wave that was almost ten metres high rushed ashore. It was followed by two additional tidal waves. According to the persons interviewed, doctors were paged among the tourists and that “*at least local inhabitants*” were taken to the hospital.

At 11.21 it was told that over one hundred tourists on a diving trip in Thailand were missing. The first Finnish expert statement was relayed at 11.41. A researcher at the University of Helsinki department of seismology characterized the Indonesian earthquake as unusually strong. He believed that aftershocks could continue to occur in the area for a week, even for two weeks.

At 16.45 The Finnish News Agency relayed a short, one sentence newsflash, which later on spawned wide debate.

Finns missing in Phuket, Thailand, were located

*According to the Ministry for Foreign Affairs, all Finns missing following the tidal wave in Phuket, Thailand, have been located.*

First, the Finnish News Agency relayed this short news, which was a little later (16.53) updated:

Foreign Ministry: No Finns missing in Phuket

*No Finns are missing any more following the tidal wave in Phuket, Thailand, the Foreign Ministry said early this evening.*

*Head of department XX confirmed this information early this evening. Earlier during the day, some Finns were thought to have disappeared.*

*One assistant at Finland’s Embassy is on his way from the capital Bangkok to Phuket. He will establish a temporary consular office there. The office will assist Finns who, among other things, have lost their passports. There are 800–900 Finns in the area who flew on Aurinkomatkat.*

*According to the Embassy’s information, Finns in Malaysia are all right.*

*A Finnish party in the Maldives had rented a vessel. According to the Foreign Ministry, the party is safe.*

Later the Foreign Ministry’s press chief explained (YLE A-Talk on 12.1.2005) that in his statement he referred to the three Finns that had been reported missing earlier during the day. The Managing Director of the Finnish News Agency confirmed this during the same broadcast. According to him, the Finnish News Agency had understood that the statement referred to those Finns that earlier on were feared to be missing but that “*little by little during the evening this changed into such a form that was understood as if all Finns in Thailand had been located*”.

After the Ministry for Foreign Affairs’ Phuket-statement the Finnish News Agency did not publish newsflashes of any possible Finnish victims for a few hours. Instead, the bulletins stated, among other things, how the civil war made the relief effort more difficult in Indonesia, and that the Minister of Culture had to cancel her trip to India and that relief organizations were raising funds for the victims of the disaster. Newsrooms generally interpreted the Ministry for Foreign Affairs’ mes-

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sage to mean that Finns were in no distress. This seems to have influenced the fact that the Finnish dimension of the catastrophe remained dormant at first.

At 19.16 the Finnish News Agency sent the last story of the day, describing the catastrophe's Finnish eyewitness experiences. In the story, two Finnish independent travellers were injured in Thailand and they had been evacuated to Krabi Central Hospital by helicopter. One of them had phoned her brother in Tampere. According to the brother, "*his sister seemed to be in some kind of shock. The sister said that all hell had broken loose and that she wanted somebody to get her out of there.*" The story continued:

Even though according to the Foreign Ministry no Finnish tourists were missing any more in the evening, even the family members of individual backpack tourists did not know of their fates.

For instance, Mr. XX from Espoo had tried in vain to reach his 23 year old daughter, who was independently travelling in Vietnam with her boyfriend. XX had incessantly also tried to call the Foreign Ministry's emergency number but he did not get through.

### Newspapers

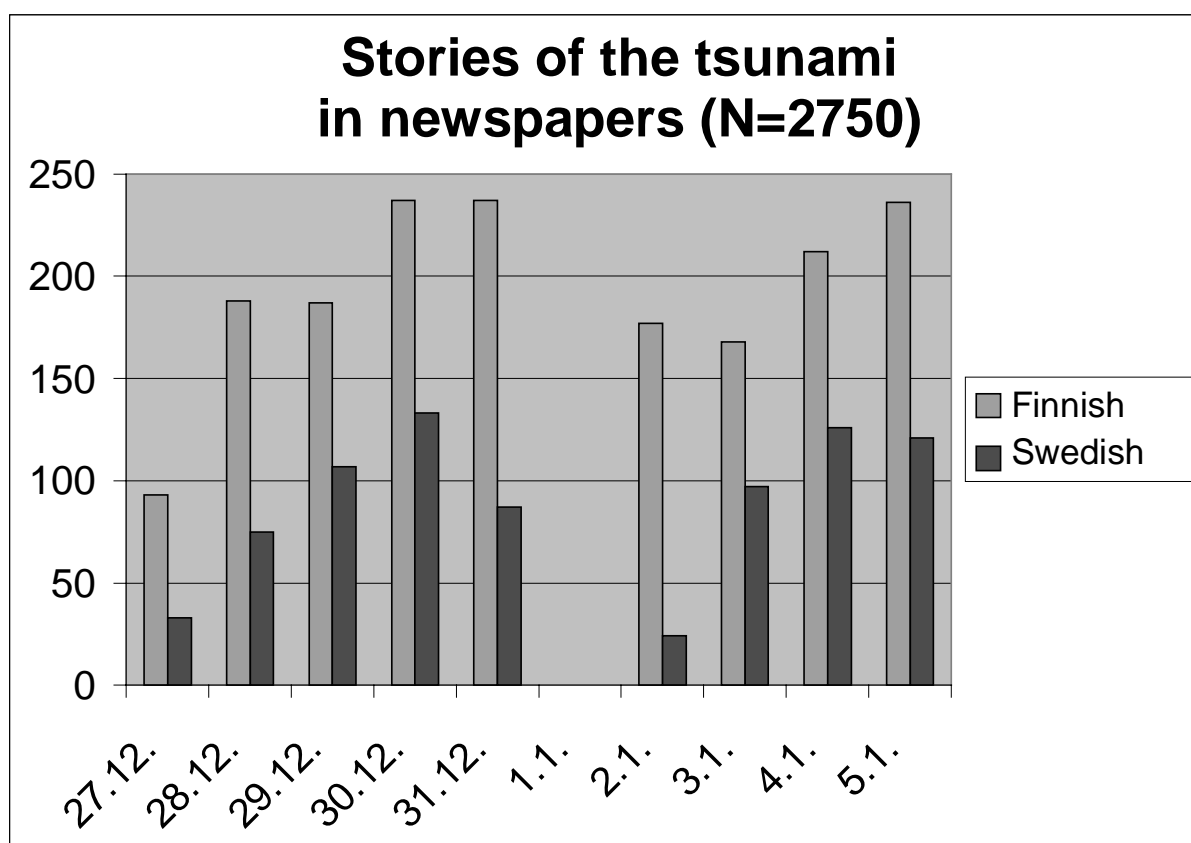
Of the newspapers in the sample, *Tidningen Åland* was outside of the Finnish source network. This, however, did not make any difference when its publishing policy was compared to the other papers. The difference in both Åland Islands' newspaper profiles compared to the ones of continental Finnish papers can be seen as spawning from their sense of local community. Storytelling was influenced by the fact that many of the tsunami's victims came from Åland Islands.

Even though the extent of the devastation and the number of Finnish victims only became clear after the first few days, the disaster was the main topic of newspapers analysed right from the start on 27.12. throughout the entire analysis period.

The central themes were reports on the rescue efforts (22%), the economic consequences of the disaster (15%; the financial papers *Kauppalhti* and *Taloussanomat* increased the proportion of this theme) and reporting on the disaster (13%). There were no big differences in emphases between newspapers. The tabloids promoted "disaster reporting" at around 20 per cent. For their part, the financial papers delved the least into this theme. The share is explained by the fact that stories depicting the disaster appeared in the newspapers throughout the analysis period.

*Aamulehti*, *Helsingin Sanomat*, *Ilta-Sanomat* and *Kaleva* had the most stories (6-9%) that critically evaluated the Finnish public information and the rest of the media regarding the disaster. *Keskisuomalainen*, *Savon Sanomat* and *Kauppalhti* had remarkably fewer of these stories (1-2%). Of altogether 3 000 analysed stories nine out of ten were neutral in tone, seven per cent were critical and a couple of per cent positive. *Ilta-Sanomat* distinguished itself as more critical than the others did. *Keskisuomalainen* and *Savon Sanomat*, on the other hand, were slightly less critical. There were more critical views in editorials and op-ed columns but even many of these were of the type of background material.

Of the Swedish language media, *Hufvudstadsbladet* and *Vasabladet* fairly closely followed the Finnish language main papers' profile, even though the economic theme received more attention in all Swedish language papers compared to the Finnish language ones. The economic theme split into two: on the one hand, the economic impacts of the disaster were reported but almost as much attention was given to the commencement and the results of fund raising campaigns.



The local theme was emphasized in the Åland Islands' newspapers. In two out of every three stories the province's own viewpoint and the destinies of its inhabitants was the central theme, whereas the other Swedish language newspapers had a national approach to the Asian tidal wave, like that of the Finnish language newspapers. The Åland Islands' newspapers were also the only ones publishing several letters to the editor - mainly questions from concerned family members - as well as SMS messages to their readers (e.g. *Nya Åland's Messa Nyan*) as early as around the turn of the year. The other newspapers published readers' messages later on.

A strong Finnish point of view pervaded in the entire newspaper field. On average, two out of every three tsunami stories was about Finns. The tabloids wrote the greatest number of personal interest stories of the ones in the disaster area as well as of their family members. Their Finnish angle was even greater than that of regular dailies, almost 80 per cent. The domestic viewpoint was at its strongest around 29.-30.12. in all papers. The Finnish angle was also indirectly reflected by the fact that almost one half of the disaster area stories were connected to Thailand, where many Finnish tourists had been.

Newspapers wrote three out of every four stories themselves, even though news agency material could be used as background material. Throughout the entire analysis period, the Finnish public administration (in the wide sense of the meaning) was the most important source (23%) of information. Along with it, non-profit public organizations (Finnish Red Cross and the church, 21%), other countries' authorities (18%), citizens that had experienced the disaster (15%), other media (12%) and travel agencies (12%) acted as other sources. The share of "normal citizens" was clearly higher compared to normal news reporting.

The share of the public administration as a source diminished as the week went by. On Wednesday 29.12. it was at its lowest. The share of individual citizens grew at this stage. In addition to eyewitnesses, the family members of the victims or of the missing became the key persons interviewed. On 29.12. over one third of all sources used could be attributed to a Finnish tourist or a

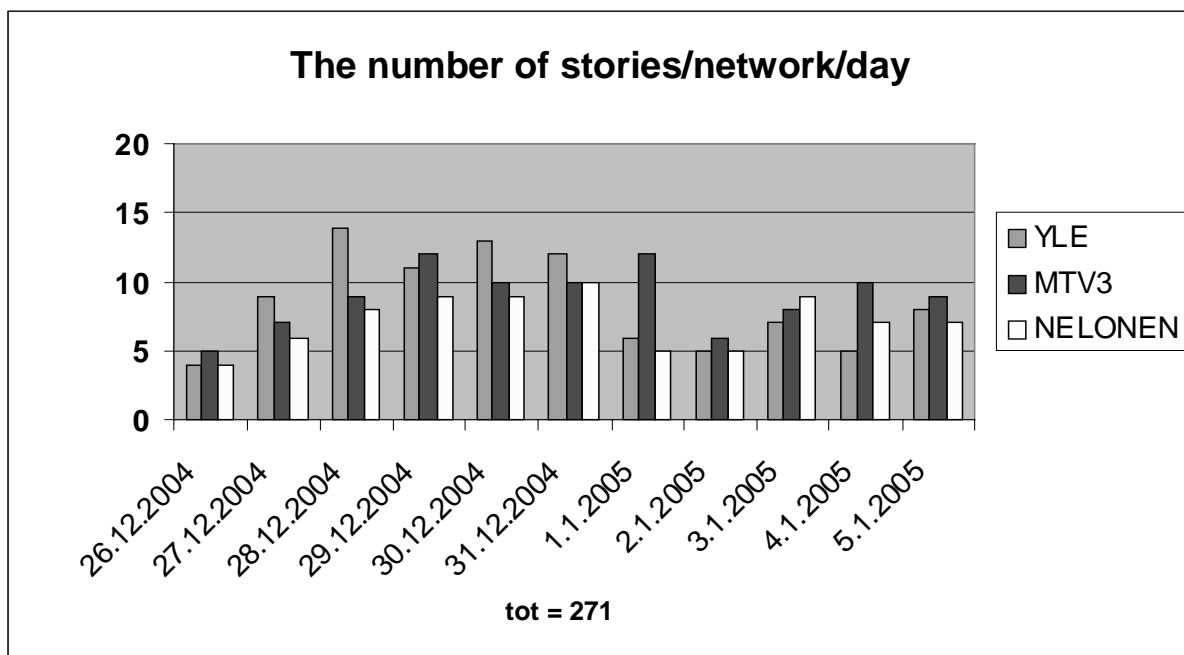
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citizen in Finland. The number of individual citizens can also be explained by the fact that at this stage large numbers of Finnish travellers from the area had returned to Finland on evacuation flights.

After midweek, the source practices of journalism returned to the normal institution-led practice. From emotionally charged accounts, one turned to expert evaluations, depictions of the relief effort and to victim identification. Authorities and organizations were again the key sources. The share of the Finnish viewpoint also diminished to be partially replaced by international actors as sources.

### Television

Television covered notably fewer topics than newspapers but the basic themes were still pretty much the same. All three networks – YLE (Finnish and Swedish language), MTV3 and Nelonen – broadcast roughly the same number of stories. By midweek several main evening newscasts only showed topics connected to the Asian tidal wave disaster and the weather forecast. Most of the news stories were 2–3 minutes in length, i.e. exceptionally long. The following image describes the numbers of tsunami stories on the Finnish language main evening news. The growth extended to the turn of the year, when newspapers were not published. Otherwise, the overriding arc was very similar to that of newspapers.



The main news mostly reported on the rescue effort (255), economic questions (16%), Finnish casualties (13%) and on the disaster itself (12%). The theme of the grieving process got more attention compared to newspapers. Stories would depict memorial services, prayer services, lighting candles to commemorate the dead or just grief in general.

Differences between networks were small. MTV3 dealt with the financial questions in proportion more than the others did. Rather, the stories would deal with questions related to personal finances (e.g. returning the purchase price to those that had booked a trip to the disaster area) than with questions concerning the national economy. On TV, the victims and eyewitnesses received more attention relatively compared to the newspapers.

The Asian catastrophe was primarily regarded as a domestic national tragedy. The Finnish viewpoint absolutely dominated the stories and there were no big differences between the networks. Of all of the stories, the domestic viewpoint was present in 60-70 per cent and the local viewpoint in 7-14 per cent. Contrary to newspapers, the local theme did not go any deeper than updating the domiciles of the missing or the injured.

Television reporting, too, geographically clearly concentrated on Thailand, at its strongest on YLE's Finnish language broadcasts (51%) and on Nelonen (48%), and at its weakest on YLE's Swedish language newscasts (27%). MTV3 was in between (41%). On YLE Finnish language newscasts and on MTV3 Sri Lanka's proportional share was big, whereas the percentage share of Indonesia on Nelonen was greater compared to the others.

In newspapers the public administration was the source in one out of every four stories, on TV this was the case in every other story. The next most popular sources on TV were the same as for newspapers: non-profit public benefit organizations and citizens. Source profiles varied daily but at the end of the week they stabilized as the media turned to the phase of assessing the disaster's repercussions. The share of the Ministry for Foreign Affairs was at its lowest on 29.12. and 30.12. The first criticism of the Foreign Ministry's public information policy could be seen in the formation of news on 27.12. MTV3 stated:

According to official information, only a few Finns are missing but fairly quickly it is becoming evident that the number is manifold. Yleisradio was a little more careful the same evening and said: The Foreign Ministry confirms the death of one Finn, the Ministry, however, has not nearly located all Finns vacationing in the disaster area.

## Radio

YLE's Finnish language channels (Radio Suomi, YLE Radio1, YLE Q and YLE X) transmitted a total of 578 newscasts during the first phase. Of these, the majority were on the Radio Suomi channel (e.g. 26 out of 32 Boxing Day newscasts). At the same time two Swedish language channels (Radio Vega, Radio Extrem) broadcast news approximately on an hourly basis (totalling almost 100).

During the first days the information concerning the disaster area mainly came from international news agencies. In addition, the newscasts comprised of the reports or telephone interviews (Sri Lanka, Thailand, Malaysia) of three YLE reporters vacationing in the area, Finnish eyewitness accounts and the interview of Finland's ambassador to Indonesia. The FSR used Sveriges Radio interview material.

Even on radio's early evening news on Boxing Day it was reported that according to the Ministry for Foreign Affairs no Finns were missing in Phuket, Thailand. At 21.00, it was reported that according to Ministry for Foreign Affairs' information no Finnish travellers at all were missing in the disaster area, *"albeit even the ministry is not aware of the fates of individual backpack tourists."*

During the entire first day the international catastrophe was breaking news, the Finnish viewpoint was the main topic for the first time on the 06.00 news on 27.12. However, also the news on 27.12. began with an update of the disaster's devastation. When journalists were later interviewed, it became evident that the priorities were intentional: one wanted to maintain the focus on the situation in the area but one also wanted to remind of the fact that there were many Finns in the area.

Radio Suomi's report on 26.12. at 22.00 could not yet provide a death toll but, considering the early time of the broadcast, it was a laudable summary of the disaster and its extent. A good portrayal of television's strength or of radio's "invisibility" is the fact that an interview with a Finnish eyewitness did at all not receive the same kind of attention compared to the interviews shown on the MTV3 news at 21.00, in which eyewitnesses spoke of their missing family members.



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At this stage, we don't know yet where all Finns are. The most difficult thing is to get hold of individual persons. Eyewitness from Khao Lak: We spent last night under the stars...All day in the jungle hiding in the mountains...This evacuation centre has six Finnish families, members of three of the families are missing...Many nationalities here, the disaster hit across the board, meaning that also Swedes, Germans and other groups' folks continue to be missing.

Even the time of the broadcast played a role here. Radio news no longer placed the interview as its breaking news after six o'clock.

### Journalistic work

As the tsunami news key reporters and editors were interviewed 1,5–3 months after the disaster, the greatest emotion had already subsided. However, the experiences of the first days still gnawed at them. Many of them estimated that the experiences could even have lasting consequences.

The basic setup between the authorities and us will never get back to what is used to be, because it was based on a kind of flawed mutual estimate, where we overestimated the importance of Finland's authorities. (Chief reporter).

Almost all of the ones interviewed criticized the authorities', i.e. mainly Foreign Ministry's, communications, but often they would also express self-criticism.

The difficulty of forming a general picture during the first days should not entirely be attributed to the Foreign Ministry. Granted, they acted as a kind of impediment, but one has to admit that there were real difficulties in getting the information from the area and then we, as well, were incapable of making the correct conclusions. (Chief reporter).

The journalists' post reflections also give light to the fact that most of them were in an exceptional hurry and that their mental and physical stamina were tested. A major disaster occurring on the other side of the globe and which touched thousands of Finns was too much even for the biggest media, especially since this took place during the holidays and a common vacation season. On Monday 27.12. most newspapers only published a couple of pages, at the most, on the topic. When the news wheels finally got going during the following days, disaster stories would be published at the rate of even five pages per day. Many journalists estimated that their own medium reacted too slowly to the disaster. The estimate of the chief of newsroom of one paper well reflects the situation journalists were faced with.

During my career this was the first time when the destiny of Finns played a bigger than side role during an international news event. For example, the management doctrine and practices according to which, for example, the WTC strikes were reported, did not work any longer. One had to come up with new models for creating pages containing the dimension of international catastrophe news as well as that of a national disaster.

The same journalist still described his feelings as the organizer of catastrophe news. "The working day was extremely hard: getting to work before nine in the morning and from then on full blast until ten in the evening, when the first press closed. Throughout the evening I also participated in instructing writers and in compiling the pages."

The vacation season had the positive side that many media already had people on the ground during the event and, therefore, they were in a position to provide fresh reports on what had taken place. This, however, was not sufficient to compensate for the lack of personnel due to the holiday season, which plagued the staff and the management alike. For instance, one journalist had to do other things in addition to journalism, to negotiate broadcasting times with the network, to discuss technical arrangements with the technical staff, to take care of live broadcasts and to plan for the following days. In addition to all this he was the acting chief of newscasting. He, however, points out that *"by no means can this be used to explain the deficiencies in the broadcasting or to emphasize its merits or heroicism."*