

# Norwegian Disaster Management



# TTVIC



## Thai Tsunami Victims Identification Centre

From jungle to Forensic  
Medicine Centre in 10 days



## Norwegian Mobile Forensic Medicine Centre in Phuket



Donated by the Norwegian Government



### Normeca<sup>A</sup>

# Norwegian Mobile Forensic Medicine Centre

## MOBILE FORENSIC MEDICINE CENTER



DONATED BY THE  
NORWEGIAN GOVERNMENT



IN RESPECT OF THE THAI TSUNAMI  
VICTIMS AND THEIR FAMILIES FROM MANY NATIONS,  
THE NORWEGIAN GOVERNMENT DONATED  
THE EQUIPMENT ON THIS SITE, IN ORDER  
TO MAKE THE IDENTIFICATION OF THE VICTIMS AS  
QUICK AND PROFESSIONAL AS POSSIBLE

ROYAL MINISTRY OF FOREIGN AFFAIRS

ศูนย์กลางหน่วยแพทย์เคลื่อนที่



โดย รัฐบาลนอร์เวย์



รัฐบาลไทยขอแสดงความเสียใจแก่ผู้เคราะห์ร้ายหลาย ๆ ประเทศ  
ที่ประสบภัยกับเหตุการณ์คลื่นสึนามิ ทางรัฐบาลนอร์เวย์ได้บริจาค  
เครื่องมือทางการแพทย์ให้กับผู้เคราะห์ร้ายที่ประสบกับเหตุการณ์  
คลื่นสึนามิ เพื่อทำการพิสูจน์ศพว่าเป็นสัญชาติใดและบุคคลใด

จาก กระทรวงการต่างประเทศ

IN MEMORY OF  
THE THAI  
TSUNAMI  
VICTIMS AND  
THEIR  
FAMILIES



**Normeca**

# Norwegian Disaster Management

## The Tsunami of 26th December 2004



The tsunami was triggered by an undersea earthquake that occurred at 26th December 2004 07:58:53 local time 160 km west of Sumatra in Indonesia. The tsunami generated by the earthquake killed approximately 275 000 people, making it one of the deadliest disasters in modern history.

Various values were given about the magnitude of the earthquake, ranging from 9.0 to 9.3 which would make it the second largest earthquake ever recorded on a seismograph.

The earthquake was at a depth of 30 km below mean sea level. The earthquake itself (apart from the tsunami) was felt as far away as Bangladesh, India, Malaysia, Myanmar, Thailand, Singapore and the Maldives. From the centre of the earthquake it was 1 500 km to Phuket and Khao Lak in Thailand. The tsunami that was created from the earthquake reached Phuket and Khao Lak around 09.45 AM Sunday 26 December 2004.



The waves were some places 14 -15 m high when it reached shore. As a result of this big buildings and whole blocks in Patong, Khao Lak, Phi Phi Islands and other places were totally destroyed. You could find cars on house roofs and big ships you could find on shore.

After the tsunami the Thai Government reported 5 395 confirmed deaths, 8 457 injuries and 3 120 missing in Thailand from 44 countries. The Thai authorities estimated that 8 000 are likely to have died.



# Norwegian Mobile Forensic Medicine Centre



A fantastic job was done by the local rescue workers and police with rescuing as many as possible, and also to get all the dead transported to the different temple areas.

It was established DVI (Disaster Victims Identification) centres in Khao Lak, outside Phuket Town and in Krabi. The first couple of weeks the DVI personnel were forced to work outside under the open sky in extremely trying conditions.

At the most there more then 500 - 600 DVI specialists from 36 different countries around the world in Phuket. Most of the people working in Khao Lak had on top of long working days more than 350 km to drive every day in busses.

The many DVI specialists from all over the world did a fantastic job these days.



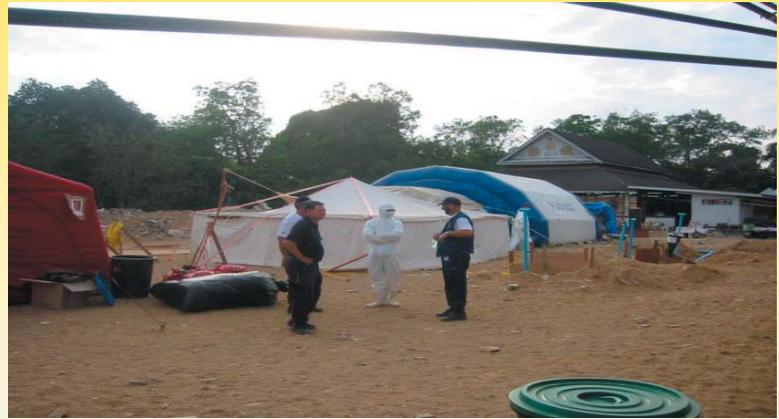
It became soon clear that if they should be able to identify as many victims as possible, the working conditions had to change dramatically. Normeca AS suggested at an early stage to build up an Identification Centre based on flatpack containers with air conditioning, water supply and other necessary equipment.

# Norwegian Disaster Management

NORMECA AS received the contract to build the Forensic Medicine Centre in Phuket, Thailand from the Royal Norwegian Ministry of Foreign Affairs late Wednesday January 12th 2005. In the following, NORMECA AS presents a short picture-diary from the process of establishing the Forensic Medicine Centre.

## Monday 10 January 2005

Inspecting the site at Wat Yan Yao in Khao Lak where the Forensic Medicine Centre based in containers was to be established.



## Tuesday 11 January 2005

On the way to inspect the site at Krabi. Initially there were discussions to establish a container camp in Krabi as well.



## Wednesday 12 January 2005

Late in the evening Normeca AS received the confirmation from the Ministry of Foreign Affairs in Norway to build a Forensic Medicine Centre in Khao Lak.

## Saturday 15 January 2005

It was decided **not** to establish the site at Wat Yan Yao in Khao Lak.



## Sunday 16 January 2005

The first of 6 flights arrived with the flatpack containers and other equipment. Approx. 160 tons of containers and other equipment were flown to Phuket from Europe.

# Norwegian Mobile Forensic Medicine Centre

**Tuesday 18 January 2005**

The DVI committee decided to establish the Forensic Medicine Centre in Mai Khao, Phuket and to hand over the total responsibility for constructing the Centre to Normeca. The job also included: erecting 64 pcs 20' containers, establishing of water, sewage and power systems.

Tuesday evening Normeca signed the first contract with a local contractor for clearing the 15.000 m<sup>2</sup> site at Mai Khao.

Picture 1.



Approx. 1500m with concrete pillars had to be placed by crane.

This picture was taken 24 hours after picture 1!

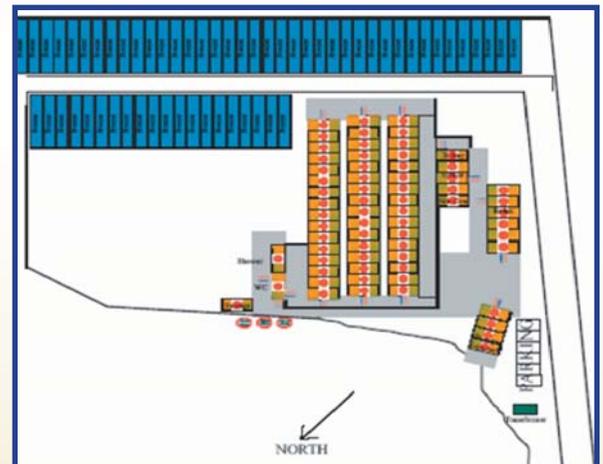


Meeting with US Army, Site Commander and Thai Police

**Wednesday 19 January 2005**

The work to clear the site started the night between Tuesday and Wednesday.

The first job was to establish a new road approx. 300 meters long for heavy trucks and to clear the ground.



**The new site lay out**

Since the site had to be moved from Wat Yan Yao a complete new site layout had to be worked out and more containers for offices were added.

**Thursday 20 January 2005**

The first flatpacked containers arrive at the site and immediately the work to erect them started. A total of 64 containers were erected during the next few days.

# Norwegian Disaster Management

## Friday 21 January 2005

The first 4 containers for the Offices are finished.

## Saturday 22 January 2005

Line 1 with 16 containers are assembled.



## Sunday 23 January 2005

The DVI administration has started its work in the office.

## Sunday 23 January 2005

The tents for the DVI teams are set up and some of the teams have moved in with their equipment.

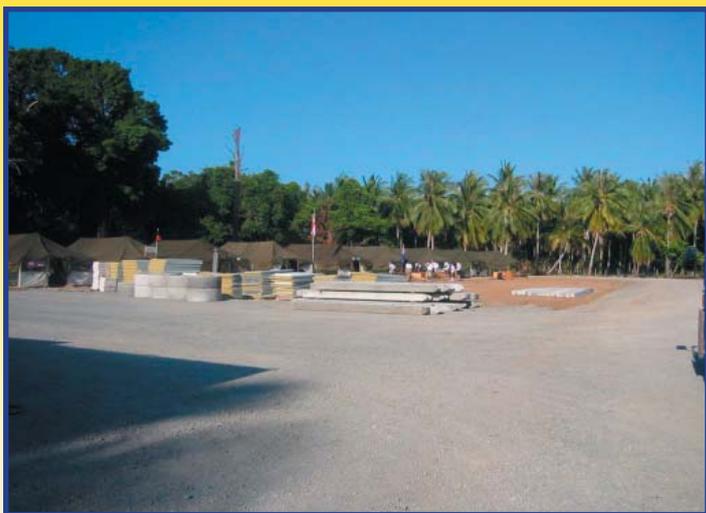


## Monday 24 January 2005

Line 2 is erected.

During the construction period Normeca had more than 200 local construction workers at the Site. On top of that more than 50 DVI officers from many countries supported us in many different ways.

# Norwegian Mobile Forensic Medicine Centre



**Monday 24 January 2005**

More DVI teams have moved to the site with their equipment.

**Monday 24 January 2005**

Approx. 1500 m water pipeline and more than 800 m of sewage pipeline were set.



**Tuesday 25 January 2005**

Cleaning Line 1, here by volunteers from the DVI teams. The same day the DVI teams took the Centre in use to perform identification of victims.



**Tuesday 25 January 2005**

Pouring of concrete for the foundation of the 1200 KVA transformer station.

In addition more than 1000 m<sup>2</sup> concrete were rolled out for walk-ways and other areas.



**Normeca**

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**Wednesday 26 January 2005**

A temporary power connection had to be established until the two 1250 KVA each transformer stations were finished.



**Thursday 27 January 2005**



- Office DVI team
- Canteen
- Office/Storage
- Line 3
- Line 2
- Line 1
- Toilet and Shower

DVI teams starting up the identification work with the first bodies arriving to the site. The site has space to store more than 100 cooling/freezing containers.



**Thursday 27 January 2005**

Visit by the Thai Prime Minister, Mr. Thaksin Shinawatra. Many dignitaries from several different countries have visited the site so far.



# Norwegian Mobile Forensic Medicine Centre



**Friday 28 January 2005**

New urgent task.

By request from the DVI team we had to make new shelves for the freezing containers to store the bodies.

The work lines are finished and ready for use. Each work line has space for at least two teams working in parallel. All lines are equipped with A/C, water/sewage system and a good ventilation system.



The canteen is completed and ready for use with space for 60 to 70 people inside and 50 people outside.



The canteen can easily be changed to a meeting room.

Normeca has served lunch for up to 200 people and dinner for up to 120 people every day plus drinking water, etc.



# Norwegian Disaster Management

**Friday 28 January 2005**

The offices are completed and ready for use. It is one office for the Site Commander, one office for the DVI administration and a reception.



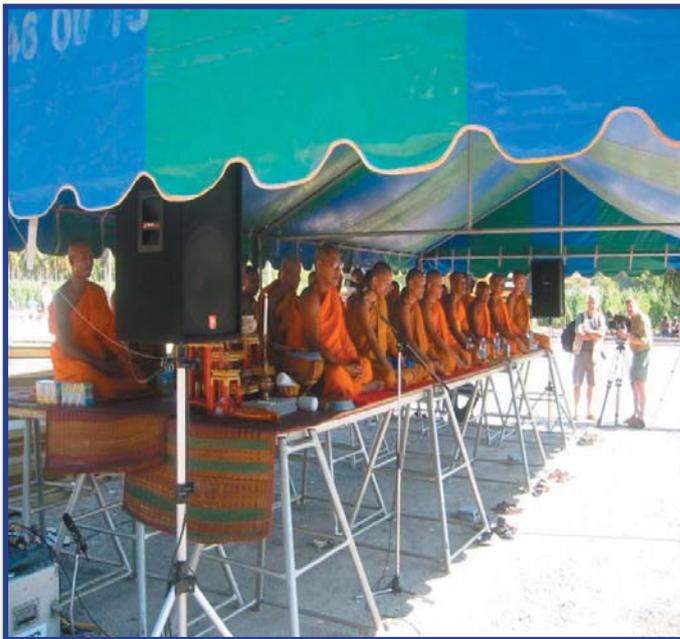
**Saturday 29 January 2005**

The Norwegian Minister of Fisheries and Coastal Affairs, Mr. Svein Ludvigsen arrived at the site before the opening ceremony.

**Saturday 29 January 2005**

The official opening of the Forensic Medicine Centre donated by the Norwegian Government.

The monks blessed the Centre and afterwards, it was opened by the Minister for Fisheries and Coastal Affairs of Norway Mr. Svein Ludvigsen and handed over to the Site Commander.



**Saturday 29 January 2005**

Participating in the opening, first row from right:

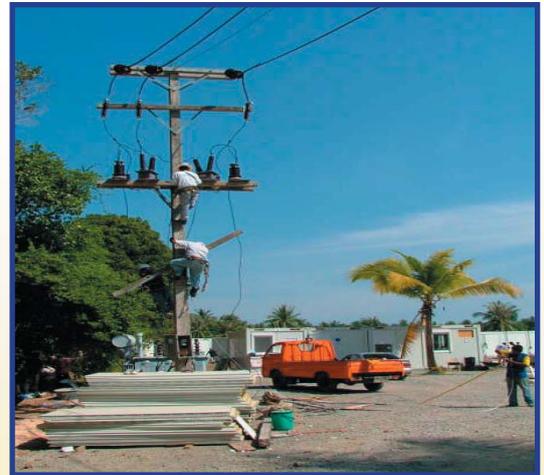
- Mr. Leif Anderson, Site Commander, Sweden
- Mr. Reidar Nilsen, Deputy Chief of Police, Norway
- Mr. Svein Ludvigsen, Norwegian Minister of Fisheries and Coastal Affairs.
- Deputy Director, Thai Ministry of Foreign Affairs
- Mr. Jan Karlsen, President of Normeca AS



# Norwegian Mobile Forensic Medicine Centre

## Some facts about the construction work.

- A total of 1560 m<sup>2</sup> facilities were built in a few days, this included 900 m<sup>2</sup> prefabricated shelters and 660 m<sup>2</sup> in tents.
- Three working lines each approx. 240 m<sup>2</sup>
- Three offices, approx. 65 m<sup>2</sup>
- Canteen/meeting room approx. 84 m<sup>2</sup>
- Storage/logistic office approx. 52 m<sup>2</sup>
- Shower and toilets approx. 24 m<sup>2</sup>
- 11 tents at 60 m<sup>2</sup>
- 350 meters of new road, 8 meters wide for heavy trucks
- Close to 20.000 m<sup>2</sup> ground were prepared
- Approx. 2.500 meters water pipeline were set.
- Four 8.000 litres special tanks for waste water from the working lines and washing places were put into the ground.
- 1.500 meters with concrete pillars were placed by crane to form the foundation for all the containers.
- 1000 m<sup>2</sup> concrete poured out for walk ways and the outside area.
- 820 meter fence was built for protection of the site
- 100 meter fence was built to divide clean and non clean side.
- Two security checkpoints were constructed
- More than 300 truck-loads of gravel were used for the foundation.
- Two transformer substations on 1.250 KVA each were constructed.
- Approx. 35 concrete pillars for power supply were erected and lightening of the area was installed.
- NORMECA AS has the operational responsibility for the maintenance and service of the Centre.  
Thus, NORMECA AS will have a minimum of two Norwegian employees present on the Site all the time.
- NORMECA AS has furthermore employed more than 30 people locally to take care of daily cleaning, canteen for up to 200 people for lunch and 120 people for dinner, service and maintenance of the air conditioning and gradually more than 100 cooling containers in addition to 24 hour security for the Centre.
- NORMECA AS has established a subsidiary in Thailand, **Normeca Asia Pacific Co. Ltd.** to take care of the operation.



# Norwegian Disaster Management

It is three working lines at the Site, each 40 m long and 6 m wide. The working line has space for registration, fingerprint, medical examination, dental examination, x-ray and quality control.

2 - 3 teams can work in parallel at the same time in each working line.



It has been more than 100 freezing containers at the Site, storing close to 4 000 bodies in the beginning.

All bodies were/are stored at  $-18^{\circ}\text{C}$  to keep the bodies in good condition for possible future DNA samples if needed.



Pr. October 2005 there are approx. 1 300 bodies that have not yet been identified. That means, since the tsunami happened 9 month ago, close to 4 000 bodies have been identified.

**More than 2 000 of them got their name back at Site 2 in Mai Khao.**



On average it has been released 7 bodies every day during this period. Today, 185 foreigners are still not identified.

The goal is to have identified all foreigners before end of 2005 and the rest before end of 2006, ref. Police General Noppadol Somboonsub in an interview with the Norwegian newspaper VG some weeks ago.



# Norwegian Mobile Forensic Medicine Centre



Former President George Bush Sr.  
and former President Bill Clinton  
from USA

Many people have visited  
the Site  
from all over the world.



Prince Andrew from UK



King Carl Gustav and Queen Silvia of Sweden

From jungle to Forensic Medicine Centre in 10 days



You can find much more pictures from Site 2 on [www.normeca.no](http://www.normeca.no)



# Norwegian Disaster Management



## To Whom it may concern

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ACCOUNT NUMBER: 1628.07.02106  
COMPANY REG. NO.: NO 934 111 931 VAT  
NATO REG. NUMBER: N-3162

7 Februar 2005

Your ref:

Date:

Our ref:

Date:

On behalf of the company and the employees, I would like to thank the Ministry of Foreign Affairs in Norway for the confidence shown us by awarding the important task of building the Thailand Tsunami Victim Identification Center and to operate it the first 12 weeks.

Furthermore, we would also like to thank the local management and personnel from Nye Kripos in Thailand and the Royal Norwegian Consulate in Phuket for the good support before, during and after the construction project. This support has been crucial to the success of the project.

We would also like to take the opportunity to thank all the DVI Teams who on several occasions used their spare time to assist in the construction of the center. Their support has also been paramount to the establishing the center at record speed.

In addition, we must not forget all the employees locally who have done a great job in record time. Many of the employees worked as many as 16 hours a day to get the center ready in time.

Also, we would like to thank Authorities of Thailand, the international DVI committee and the Site Commander and his staff for excellent support and a particularly good cooperation. Under such circumstances and with such support, our work is made both easier and more efficient.

Finally, I would like to thank the employees of NORMECA AS both at home in Norway and those who have participated on the project in Thailand and our key partners that have enabled this project to come to a conclusion in due time and under these very special working conditions. Without their effort during high temperatures after our norms, it would have taken more than double the time to complete the project.

With best regards  
NORMECA AS

**Jan Karlsen**  
*President*

OSLO - KUALA LUMPUR - TOKYO - ATHENS - ABU DHABI - MIAMI

MEMBER OF: THE NORWEGIAN ASSOCIATION OF MEDICAL SUPPLIERS (NAMS)  
OSLO CHAMBER OF COMMERCE, NORWAY



# Norwegian Mobile Forensic Medicine Centre

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**NorHosp** ®

Norwegian Mobile Hospital and Disaster Unit

**NorAid** ®

Norwegian Medical Aid Unit

**DentalMan** ®

Mobile Dental Unit

**NorCat** ®

Norwegian Floating Hospital

**MultiSpace** ®

Mobile Medical Clinic

**HeatPac** ®

Personal Heating System

**Surgical Supply Kit 100 - 10**

**NorFor**

Norwegian Mobile Forensic Medicine Unit

**NorBase** ®

Norwegian Mobile Container Hospital

**Chrifa** ®

Camp Beds and accessories

October 2005 - 2



**Normeca** <sup>A</sup><sub>S</sub>

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