

# OCEAN'S FURY

*Are we ready?*

Lessons from the 2004 Indian Ocean tsunami make  
Asia better prepared but the danger is not over



THE STRAITS TIMES





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December 2014





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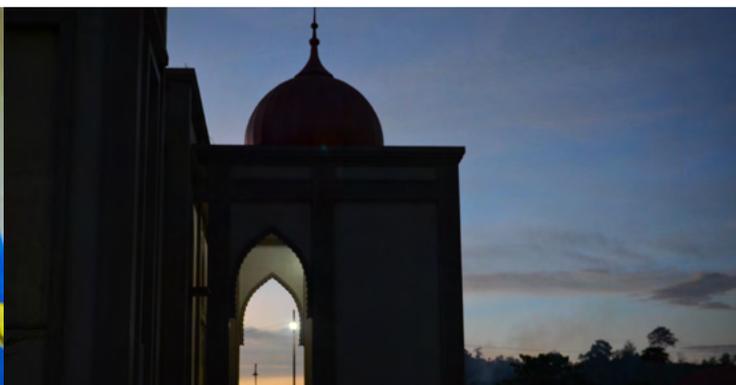
**THE STRAITS TIMES**

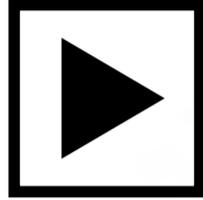
**The Jakarta Post**

**Star**  
the people's paper

*The Nation*

**The Island**





**VIDEO**

(Available only on desktop  
and Apple devices)



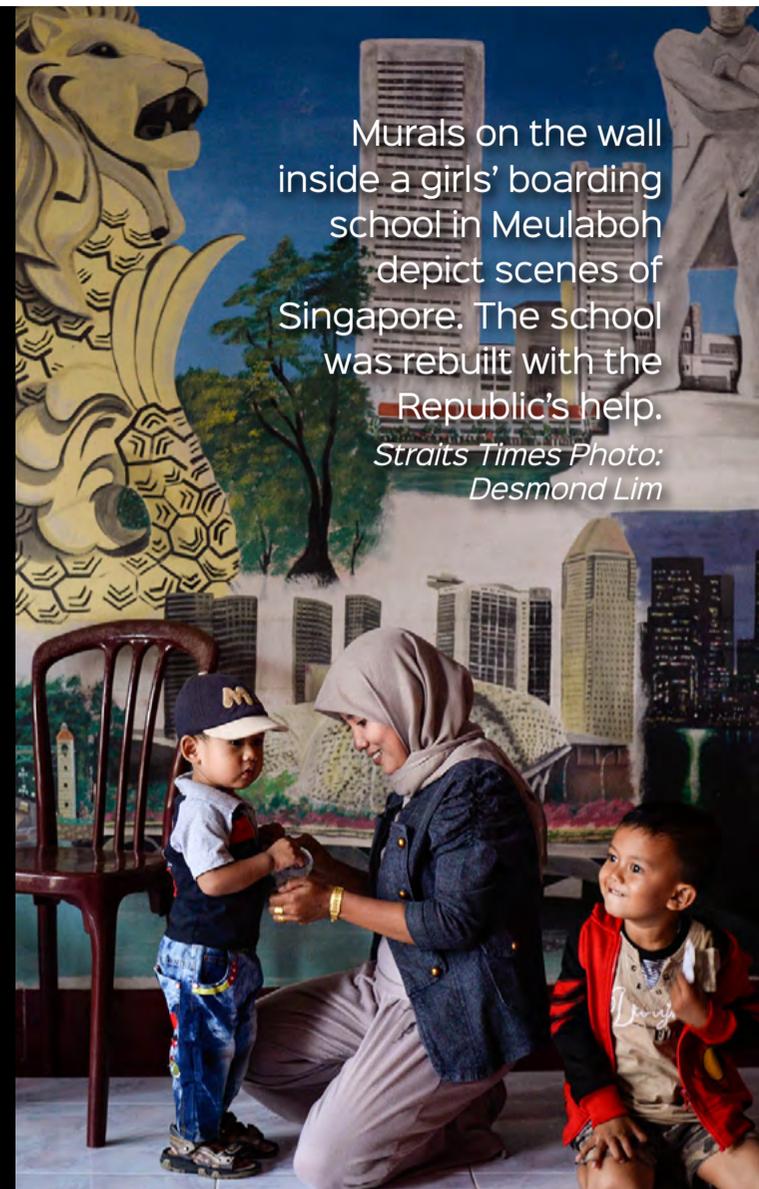
# Foreword

**Warren Fernandez**

Editor  
The Straits Times  
Singapore



# Building back better a decade after



Murals on the wall inside a girls' boarding school in Meulaboh depict scenes of Singapore. The school was rebuilt with the Republic's help.

*Straits Times Photo: Desmond Lim*

Call it the day large parts of the world got to know the meaning of **force majeure as a phrase and not a contract clause**. As dawn broke on Dec 26, 2004, along the ocean floor below Indonesia's Sumatra island, deep, powerful impulses that had built up over centuries were convulsing the ground with a magnitude of 9.1 on the Richter scale.

Shaken by the tremors, the dark, unfathomed caves of ocean released energy more than 25,000 times the bomb that flattened Hiroshima.

Waves are meant to ripple; the swells from this undersea quake radiated. And they did so at jet speed, unseen to human eyes as they snaked treacherously below the waterline. Only close to land, as the waters got shallow and its belly

## Ravi Velloor

Foreign Editor  
The Straits Times  
Singapore



began rubbing up on rocks and sand did this many-headed sub-marine force rear its terrifying mane, crashing into the coastline with waves taller than palm trees, sweeping ships ashore, dragging tenements inland. Then, the tide fell upon its back and returned to its ocean home, leaving death and devastation in its wake.

In Indonesia, the first settlements received the tsunami within minutes. Thailand felt it soon after. So too the Andaman and Nicobar chain of islands, India's toehold in South-east Asia.

Mainland India and Sri Lanka got the waves a couple of hours later as fishermen returned after a night's work and tourists sniffed the salty air on beaches yet to be warmed by the sun. Even distant African coastal states like Yemen and Kenya would feel the tsunami's impact hours later.

Protruding land masses protected countries like Singapore and Australia, but those in its direct line suffered greatly, none more than Indonesia itself, where more than 166,000 died. Sri Lanka, also directly in line, was next with more than 35,000 deaths while mainland India's east coast reported more than 16,000.

The final death count would top 226,000 across the 13 nations in Asia and Africa where the tsunami – so sweet-sounding that several children have since been named Tsunami – slammed ashore.

More than 1.7 million people were displaced, among them a pair of Acehese kids found drifting on a piece of wood 400km from their home in Meulaboh.

# Giant waves kill thousands in Asia

Bodies line beaches and homes are obliterated following strongest earthquake in 40 years

MORE than 10,000 people are feared dead or missing and millions displaced in the strongest earthquake in the world in 40 years unleashed from beneath giant waves on South and Southeast Asia.

Towering walls of water, or tsunamis, some as high as four stories, crashed at breakneck speed into coastal areas in Indonesia, Thailand, Malaysia, Sri Lanka, India, Bangladesh, Myanmar and the Maldives on Sunday morning.

Tourists, fishermen, hotels, homes and cars were swept away in an arc of massive destruction stretching more than 2,000km, from Aceh to the Andaman sea, from Malaysia to the Maldives, from Indonesia to India.

The worst is not over as fears grow of more aftershocks. These often follow such a massive quake, which happened underwater off Indonesia on Sunday morning.

"We expect the big waves to hit Chennai and parts of Tamil Nadu for the next two days," said Mr A. K. Shukla, head of the Indian Meteorological Department.

The greatest devastation is in Sri Lanka, the Indian states of Tamil Nadu and Andhra Pradesh, and Indonesia, where the coastlines of the province of Aceh is worst hit.

An air search is keeping climbing, at least 3,500 people are dead in Sri Lanka and about 2,400 in India, from the 8.9-magnitude quake, the fifth-strongest since 1900. The strongest recorded was 7.5 on May 22, 1960, in Chile.

In Indonesia, more than 4,500 are reportedly dead, most in northern Sumatra. The island nearest the quake's epicentre, with villages being swept away, is Aceh, where the coastlines of the island are the worst hit.

Three countries have declared a state of emergency for India, Indonesia and the Maldives.

In Thailand, more than 300 people, including foreigners, have been killed, most of them at the tourist hotspots of the Phi Island and Phuket, which are crisscrossed with holidaymakers during this, the peak tourist season.

No Singaporeans have been reported among them, and more than 100 Singaporeans in Phuket and its surrounding islands have contacted the Ministry of Foreign Affairs.

Reports have also been made by Singaporeans in the Maldives, Sri Lanka and India, it added.

Singaporean Wilson Khoo, 29, an online bank executive, said in an SMS interview with The Straits Times from the Seaview hotel at Patong beach in Phuket. "We were same in at 9:20am, carrying cars, ferry, and crashing into the beach



WASHOUT: Houses and cars get washed away after giant waves hit Marina beach in Chennai. The Indian states of Tamil Nadu and Andhra Pradesh were the worst hit.



the second floor. Furniture, TV, laptops and people were swept out. Screams and cries. Many hurt. Without escape. Nothing is destroyed. All buildings. No water, electricity. Blackout."

As the foodhandlers recede, hearing reports of people caught in the devastation and dramatic tales of escape are emerging from around the region, which coincidentally is being struck a year to the day after an earthquake in the Iranian city of Bam killed more

than 30,000 people. Bodies lined beaches and were caught in tree trunks in Sri Lanka, where the military is leading rescue work and where relief supplies will arrive from Japan today, following President Chandra Prasad Kumaratunga's call for international aid.

Mr Ganesan Anarasingh, a photographer who was in south Colombo, contacted 74 bodies to a stretch of beach. "I'll see the bodies of children entangled in wire mesh and to barricade roadside homes."

"There were rows and rows of women and men standing on the road and asking if anyone had seen their family members," he added.

In India, authorities struggled to control the mayhem, especially in Tamil Nadu, where about 1,700 are reportedly dead and scores of villages swallowed by tsunamis.

Hospital queues are overflowing with bodies, among them a group of schoolchildren who were playing cricket on the beach when a giant wave swept them out to sea.

Prime Minister Manmohan Singh has ordered "all possible central government support and assistance in the relief and rehabilitation efforts" in Andaman and Nicobar Islands, Tamil Nadu, Andhra Pradesh, Orissa, Kerala and Pondicherry.

In Indonesia, a large relief operation is underway for Aceh, a region closed to foreign media and aid agencies owing to a separatist group's call for international aid.

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In Malaysia, Deputy Prime Minister Najib Tun Razak wants an evacuation of coastal areas in Penang and Kuala Lumpur, including Langkawi island, and fears that further waves may hit.

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In Singapore, tsunamis were felt in Beach Road, Siglap Road, Pong Cline, Meyer Road and Tanjong Pagar. Prime Minister Manmohan Singh has ordered "all possible central government support and assistance in the relief and rehabilitation efforts" in Andaman and Nicobar Islands, Tamil Nadu, Andhra Pradesh, Orissa, Kerala and Pondicherry.

However, Singapore, sheltered by the region's land masses, so safe, said university dean Wong Poh Poh. "When an earthquake occurs, it causes a ripple effect. In this case, the waves hit the western side of the peninsula like Phuket and Penang and inland areas like Sri Lanka and Sri Lanka. Eventually, the effects may be felt further, in Myanmar, the Seychelles and places in East Africa."

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» UPFRONT

Tourists rescued from trees in Langkawi



BY REMY AHMAD  
Malaysia Business Chief  
in Kuala Lumpur

ONE moment the holidaymakers were relaxing by a beautiful Langkawi beach. The next, they found themselves stuck on trees 30m away, carried there by giant waves.

Some two dozen tourists got the shock of their lives at the Berjaya Langkawi Beach & Spa Resort yesterday in an incident that quickly became a centerpiece of the television coverage late arising from the massive earthquake that shook South-east Asia.

The waves pushed the guests into the jungle. Six had to receive them, including those who were stuck on trees off the back of the beach. Mr Remy Ahmad, operations manager at the resort, told The Straits Times.

Of the 25 injured guests, four who suffered severe cuts were sent to hospital, he said. Several people were also reported to have gone missing in Langkawi.

A 70-year-old man confined to a wheelchair drowned in his home when it flooded and he could not escape, AFP reported.

At least 42 people died after Malaysia was hit by one of the biggest tremors it had ever experienced in its history.

About 200 others were injured.

That the earthquake happened on a Sunday, a day after Christmas, was something of a blessing, a larger pause was avoided as most Malaysian offices were closed and roads empty.

But it also meant that many were holidaying by the beach. Worried that other waves might hit Malaysia shores in the coming days, Deputy Prime Minister Najib Tun Razak called for the evacuation of coastal areas in Penang and Kuala Lumpur, which also includes Langkawi island.

"This is a disaster that our country has never faced before in history," he said in a hastily-issued news conference at his residence.

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NEWS ARCHIVES, BRITISH BROADCASTING CORPORATION

## The economic damage?

Who knows.

To the credit of the world, the humanitarian response was unprecedented, and impressive.

Some US\$14 billion in aid flowed to the affected nations, chiefly Indonesia. As always, the United States was the most generous – and capable – flying 817 relief missions to deliver 5,500 tonnes of relief supplies and deploying 25 naval vessels to the region, including the Mercy, a 1,000-bed hospital ship. At the peak of the relief effort, 16,000 US personnel were involved.

Tiny Singapore flew in 1,500 military personnel, its largest ever deployment overseas for a humanitarian cause. The aptly named RSS Endurance, one of three Singapore landing ship tanks deployed to Aceh, was home to 500 soldiers, sailors and airmen.

## **Mankind has suffered stupendous natural calamities throughout its existence.**

The ancient Aryans, for instance, aware of the power of nature, prayed to the gods of wind, fire – and to Varuna, god of the waters.

Such propitiation was meant to stave off misfortune. But, in the last quarter of the 20th century, as the world realised that natural disasters were inevitable, it began to think of linking disaster relief to the development process.

Not surprisingly, it needed a superb communicator and policy buff like former US President Bill Clinton to crystallise our thoughts around what we



A fishing boat stranded on the main road of Unawatuna Beach in the south coast of Sri Lanka on Dec 28, 2004.

*Photo: Straits Times File*

needed to do.

“We need to make sure that this recovery process accomplishes more than just restoring what was there before,” Clinton said in his capacity as UN special envoy for tsunami recovery.

Those words have now been adapted as the slogan – Build Back Better.

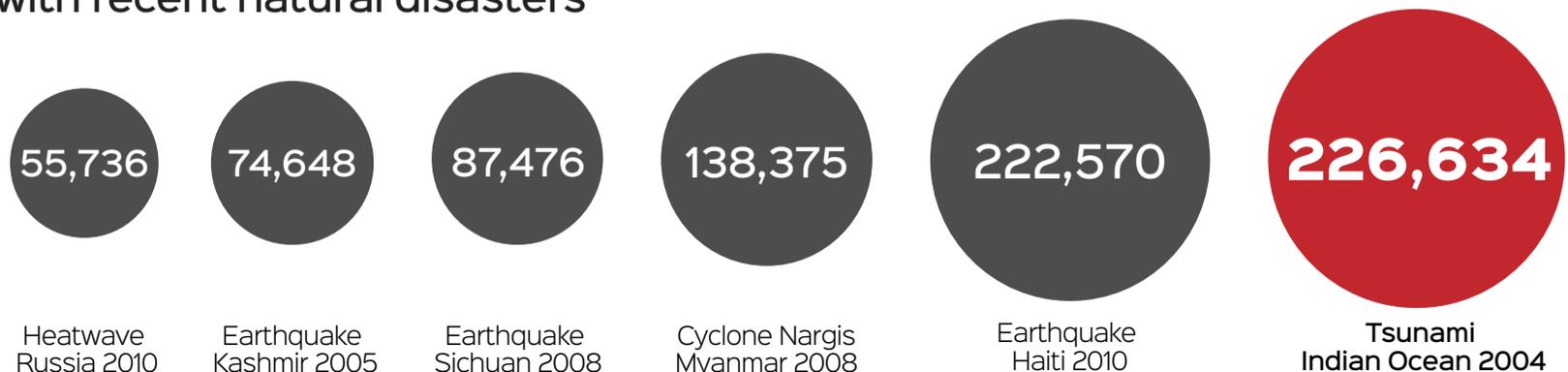
At its simplest, Build Back Better is like putting in fibre optic cable in places where copper wires used to form the backbone of a telephone network before the disruption. But it means more. For instance, building resilience against future disasters and, in some cases, even bringing an end to enduring civil conflicts such as ethnic strife and insurgencies.

**A decade later, therefore,** even as the memories do not fade, many scars are healing. And nothing underscores this more in Aceh, which suffered the maximum damage in the tsunami.

Among the poorest of Indonesia’s provinces, Aceh had been further weakened by separatist violence that may have taken as many as 25,000 lives over three decades of conflict.

Jakarta, mindful of its experience in East Timor, had imposed martial law in the area in 2003 and, despite Aceh’s desperation, had banned most international aid agencies from operating in the area. The tsunami would claim 120,000 lives – five times the number that was claimed by the insurgency – and wreck the local economy.

#### Total death toll in comparison with recent natural disasters



Then-President Susilo Bambang Yudhoyono's farsighted response to the disaster was to throw Aceh open to the international community's relief effort. And the world responded. More than 200 relief organisations, including foreign military forces, arrived to help, and fully a third of the US\$14 billion committed to the global tsunami response went to Aceh.

The shock of the disaster had a salutary effect. By August 2005, the Indonesian government and the Free Aceh Movement had signed a deal to end the conflict.

"The parties are deeply convinced that only the peaceful settlement of the conflict will enable the rebuilding of Aceh after the tsunami disaster to progress and succeed," said a joint statement signed by the Indonesian government and Gerakan Aceh Merdeka, the local name for the movement.

In Sri Lanka, where the tsunami hit the Sinhala-dominated southern part of the island, the biggest private donor was Raj Rajaratnam, a billionaire hedge fund manager on Wall Street who is of Tamil ethnicity. Rajaratnam had earlier been accused of covertly funding the separatist Tamil Tigers in their war against the Sinhala-dominated state.

At the Thai watering hole of Phuket, one of the most popular destinations in South-east Asia, the bounce back took less than two years. Indeed, Phi Phi islands off Phuket, where the Leonardo DiCaprio-starrer *The Beach* was partially shot, enjoyed one of its most successful tourist seasons the very next year. Only the Japanese, whose language gave the world the word tsunami, have dropped off a bit, tourism officials say.

Some, like India, also saw opportunity in the challenge.

Even as it mounted a massive relief effort along the coastline in southern Tamil Nadu state, and in the Andaman and Nicobar islands, New Delhi subtly projected its rising power. First, it declined all external aid. Then it sent its own military to assist the civilian administrations tackling

the relief effort in neighbouring nations like Sri Lanka and the Maldives.

In Car Nicobar, road connectivity across the island has improved. India's military, which lost the Car Nicobar air base to the tsunami, has used the build back momentum to set up new military facilities and listening posts along the Andaman chain.

Not that it was all about projecting power.

On the Indian mainland, thanks to improved facilities after the rebuilding, girls who routinely dropped out of school on reaching puberty, stay in school longer. Older, illiterate women have learned to sign their own names.

**Ten years after the disaster,** Asia can look back and say the response brought out the best in terms of fellow feeling and a collective determination to fight back.

The true test of human intelligence of course is how we use experience to limit future setbacks. If so, we will know soon. The next challenge may not be too long coming.

Scientists at the Earth Observatory in Singapore say Sumatra's western coast is sitting smack over a ticking geological time bomb that could trigger a quake as powerful as 8.8 on the Richter.

To an extent, we are prepared – for what we have endured. Asia has mechanisms now to warn of tsunamis. The Changi Regional Humanitarian and Disaster Relief Coordination Centre set up earlier this year can activate a response team to reach Ground Zero within 48 hours.

Still, for those close to the epicentre of a quake, these warning systems may not be of much use. At the end of the day, especially for those who live by the sea, strong legs and higher ground are often the only reliable means of survival against an angry tide. There is only so much science can do.



Tourists have returned to the once tsunami-ravaged Phi Phi islands in Thailand. *Photo: Phuket Gazette*

# chapter1



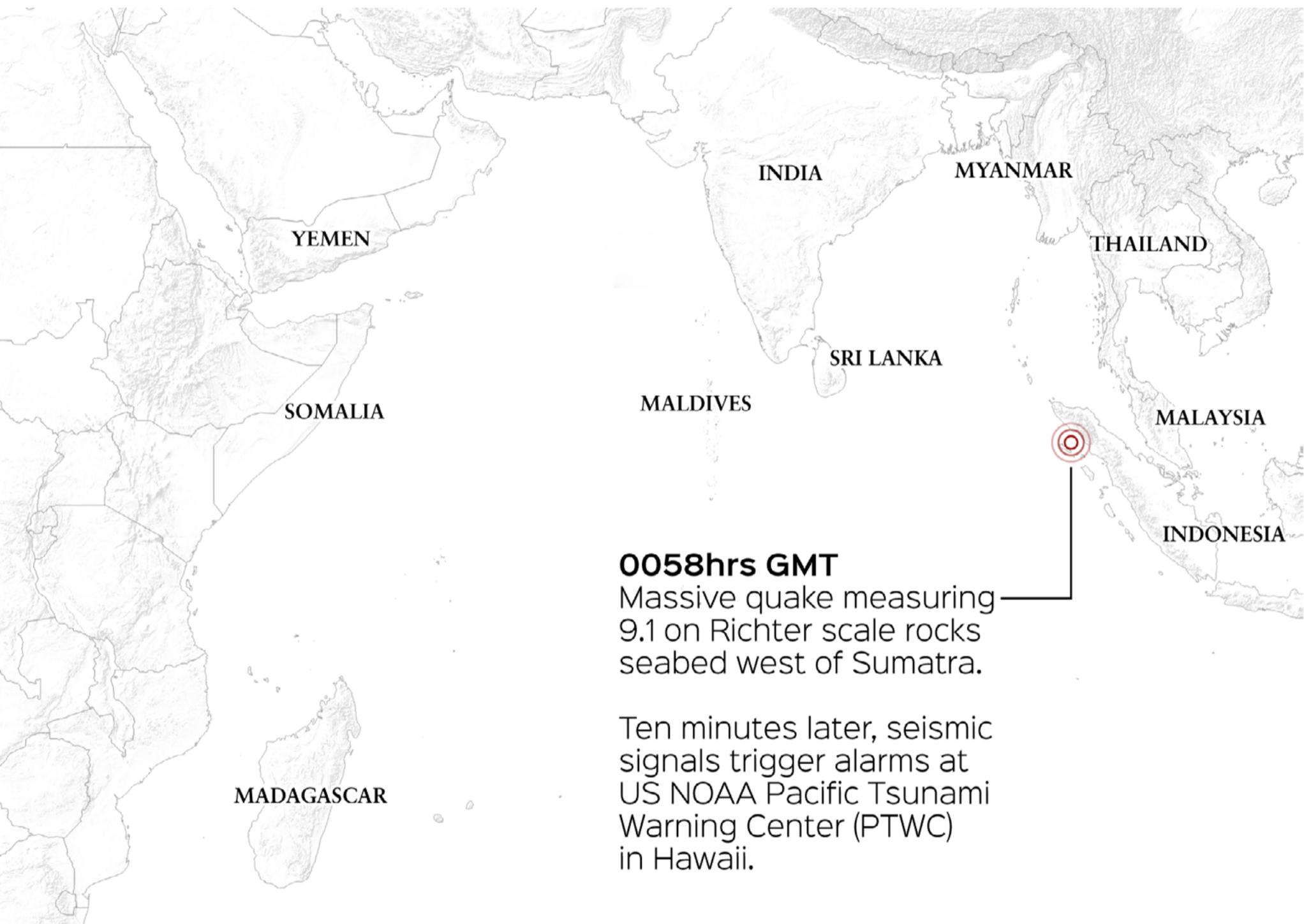
**crushed.**

The weather was fine with no clouds,  
there was no warning and suddenly the  
sea water just hit the city.

**BUSTAMI, INDONESIA**

# Killer waves

How the tsunami swept across the Indian Ocean and washed over Asia and Africa on Dec 26, 2004, leaving hundreds of thousands dead.



  
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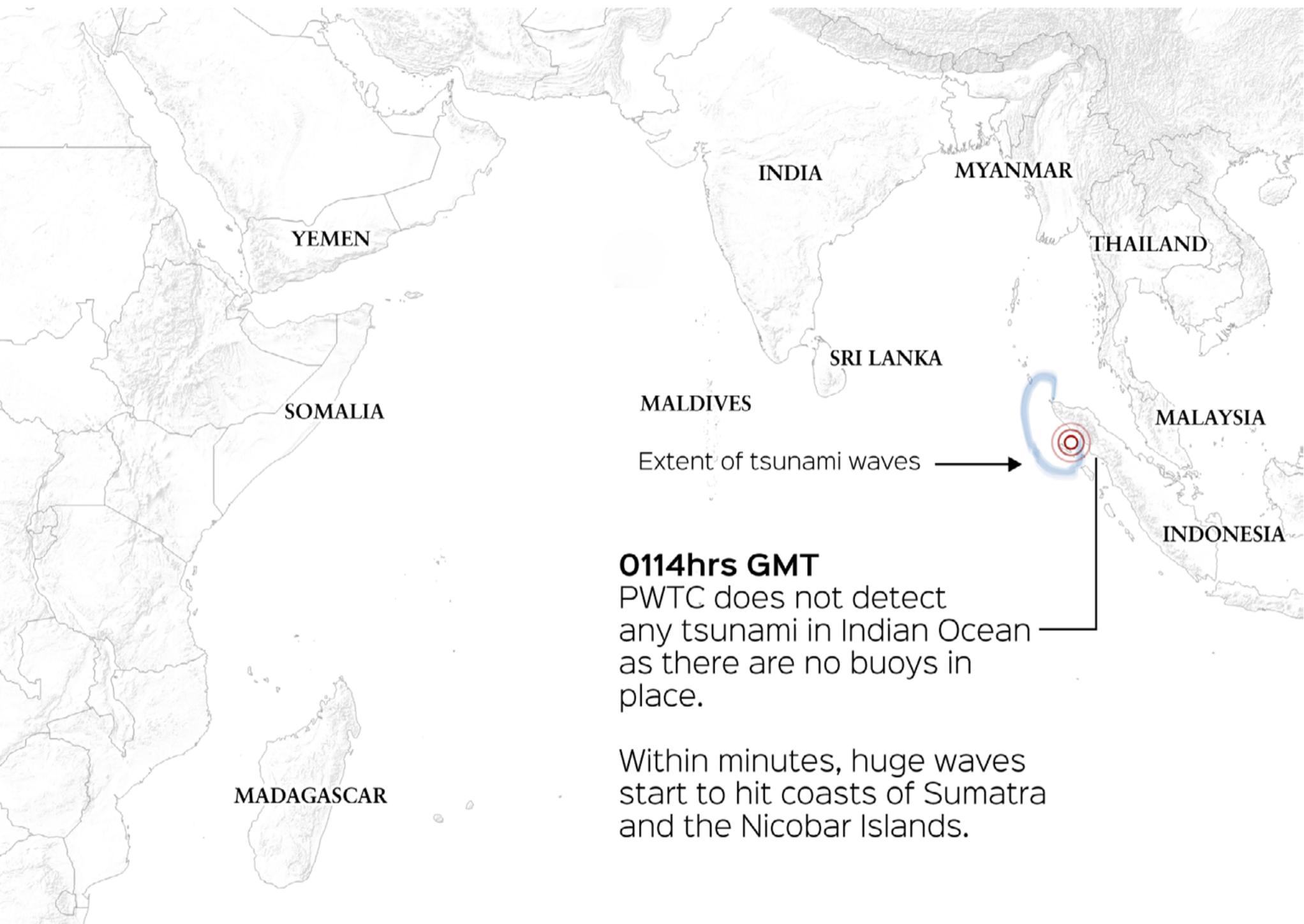
  
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 Total death toll



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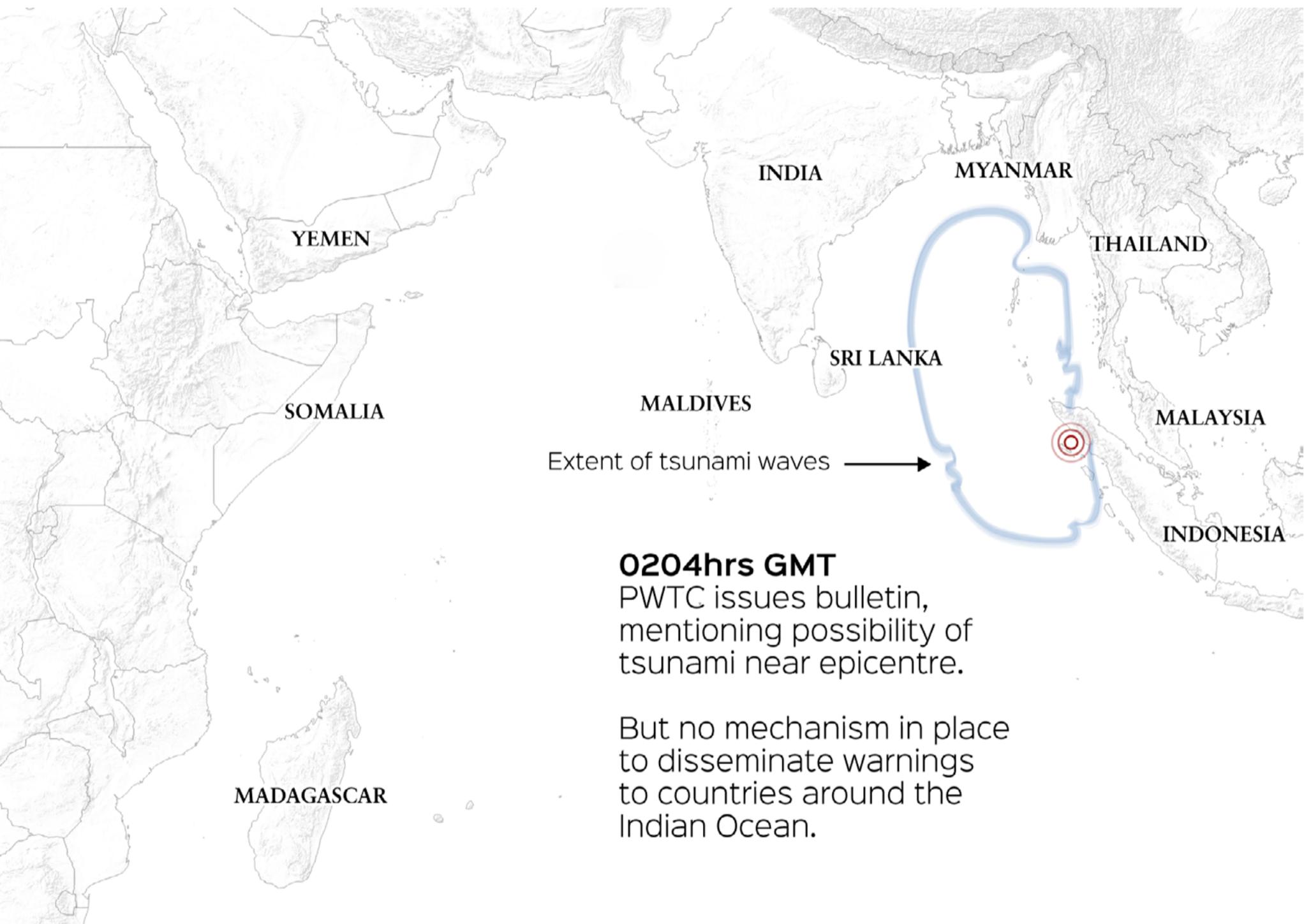
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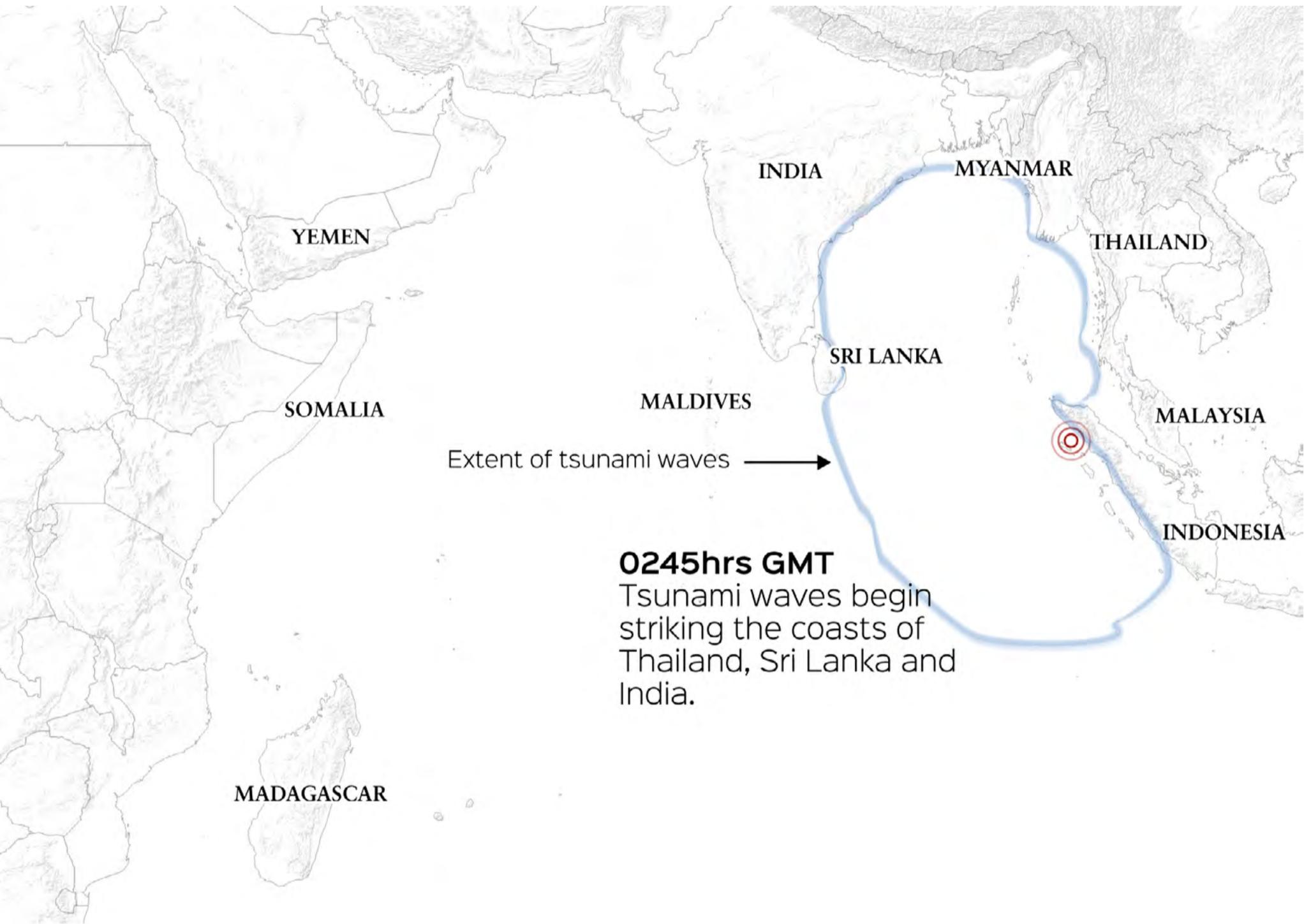
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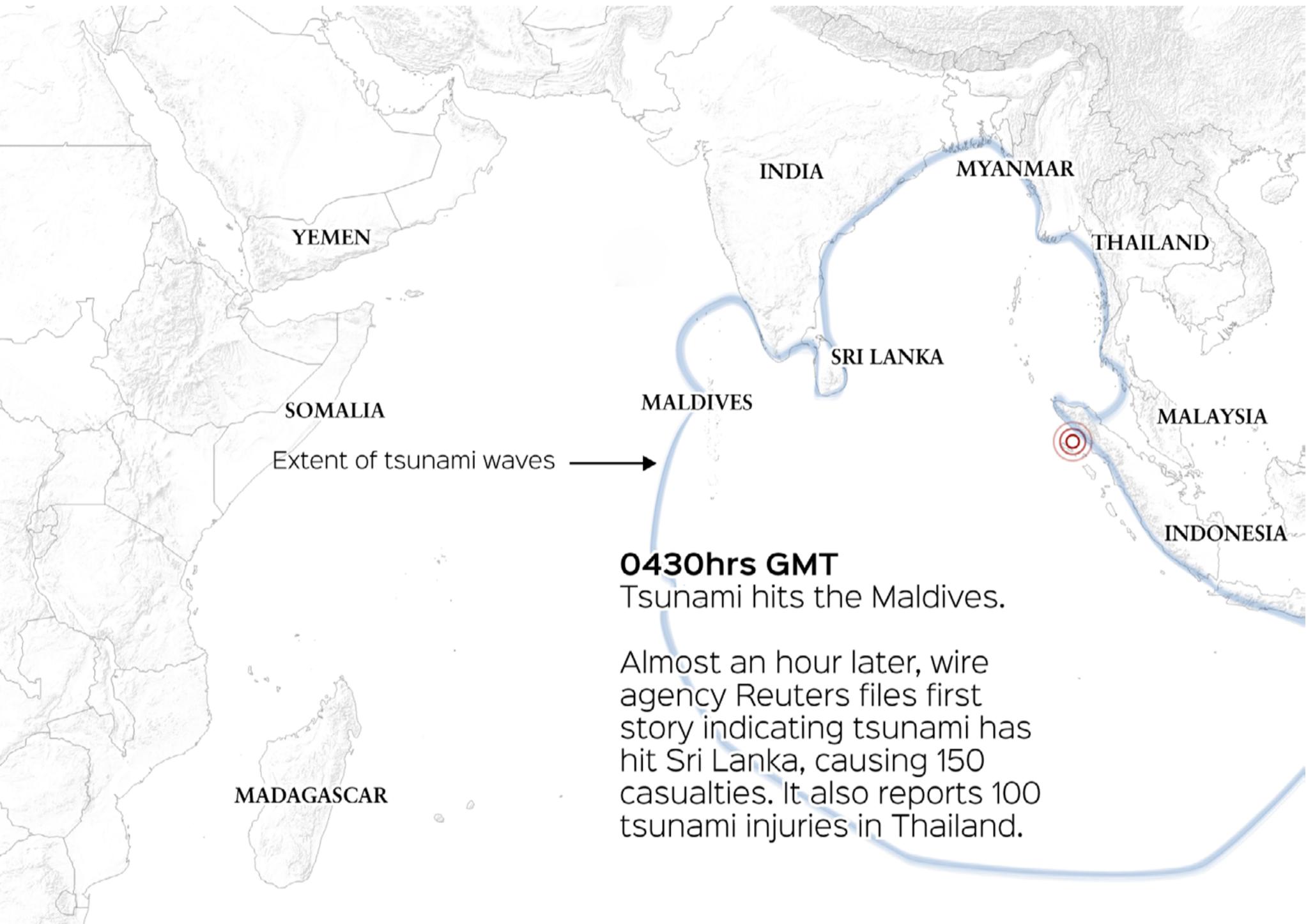
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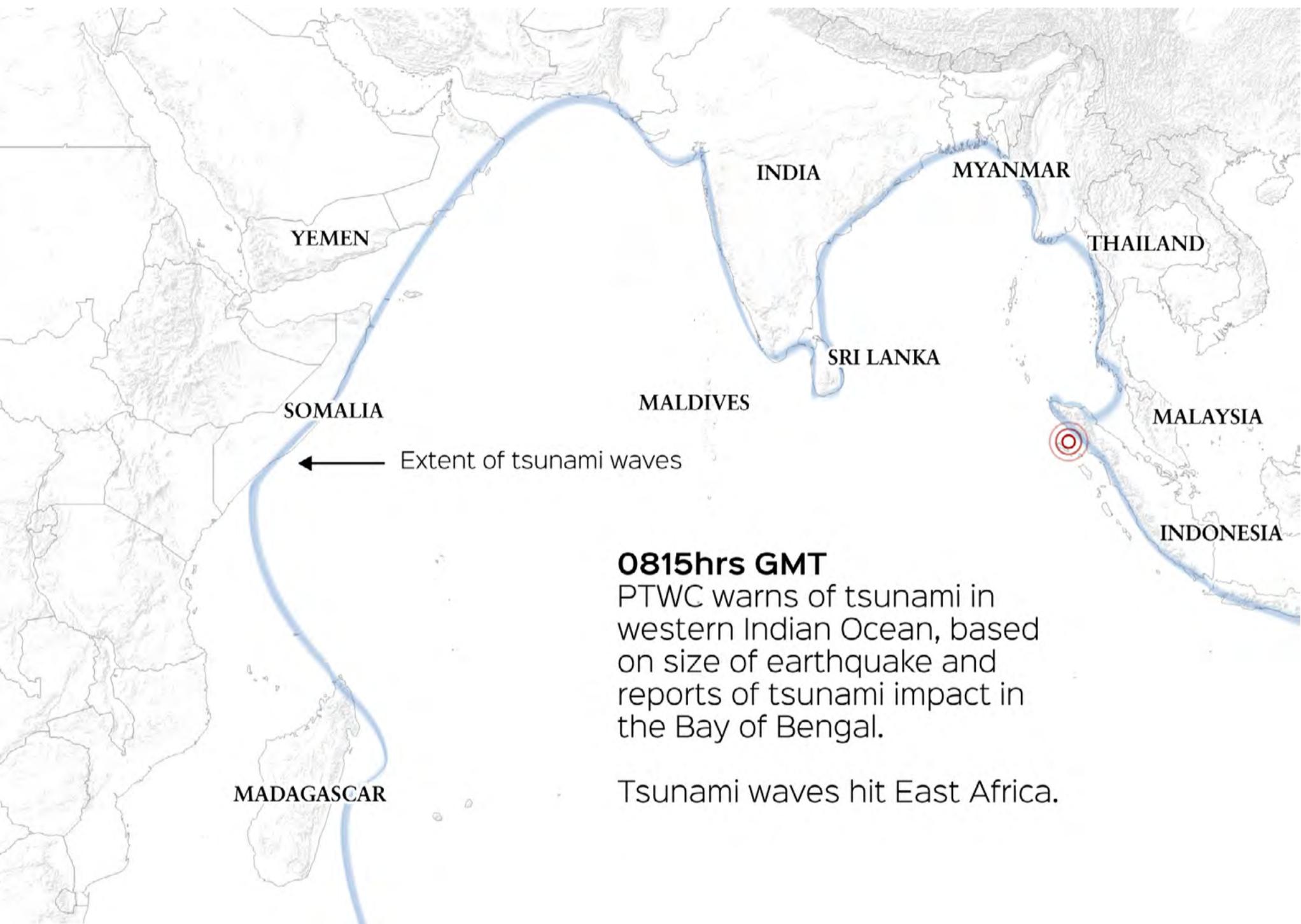
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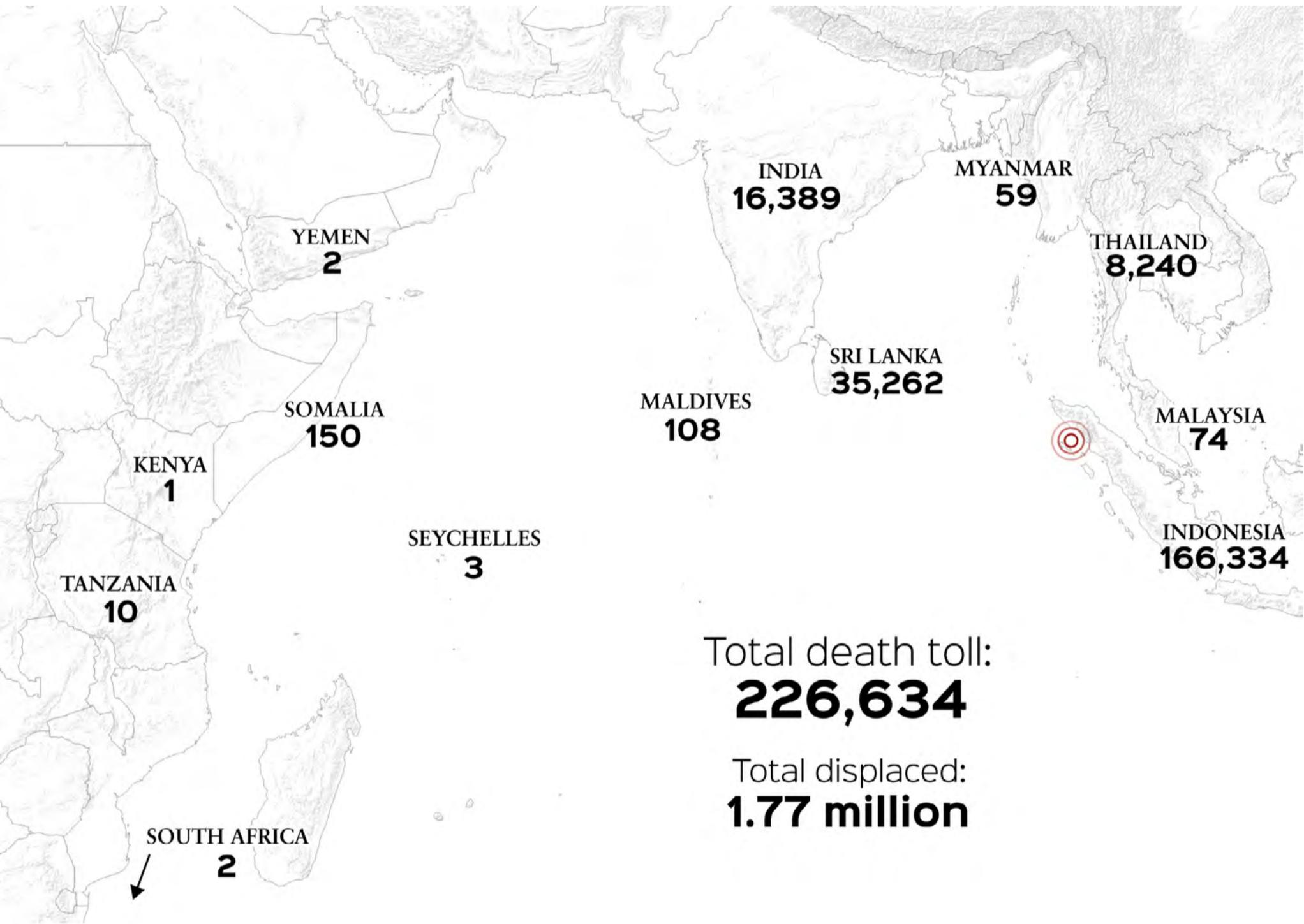
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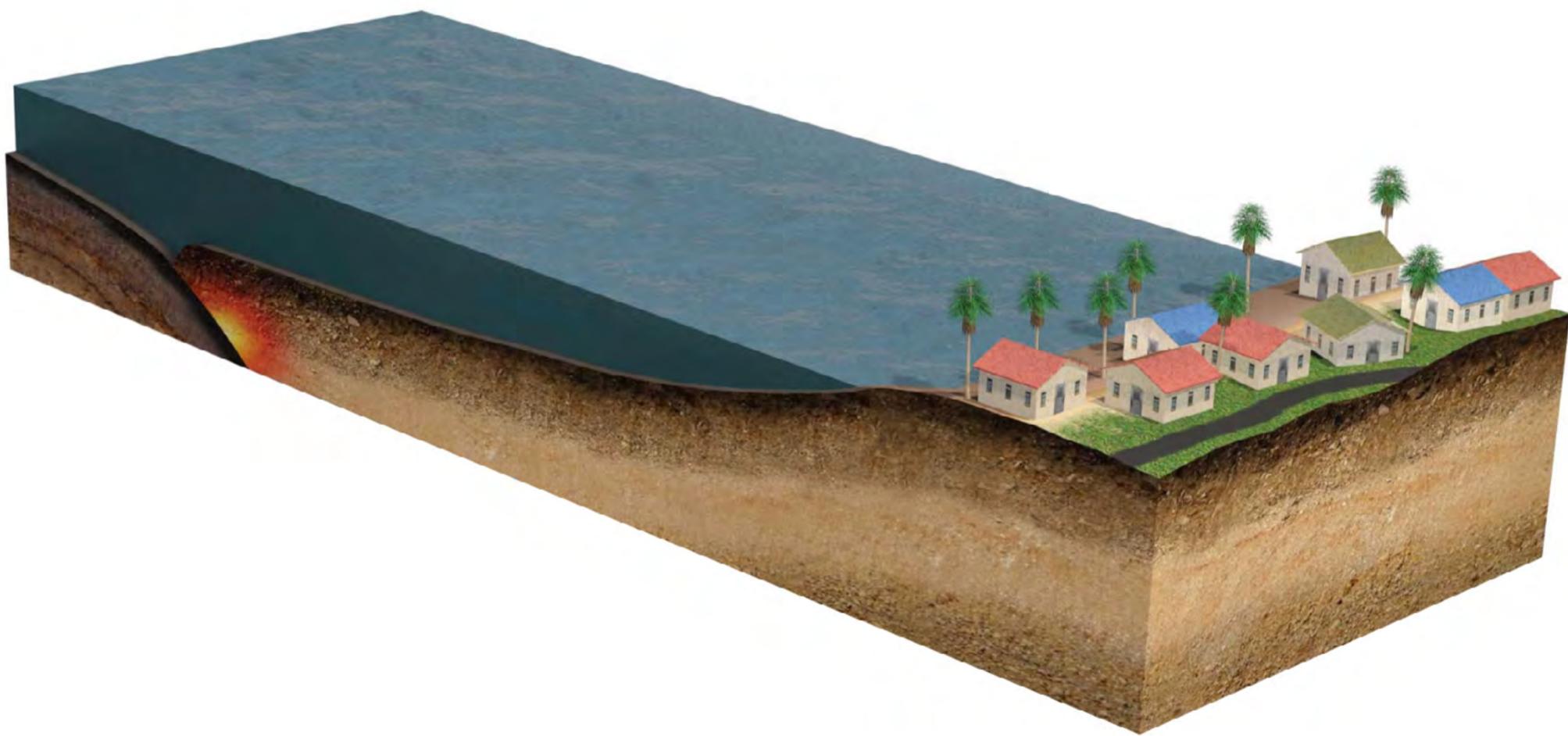
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**Total death toll**

# How the tsunami happened

Here is a look at the science behind the tsunami, how it unfolded and the immense loss of life and destruction it caused across 13 countries in two continents.



## The earthquake

The subducting Indo-Australian Plate descends below the overriding Sunda Plate beneath Sumatra.



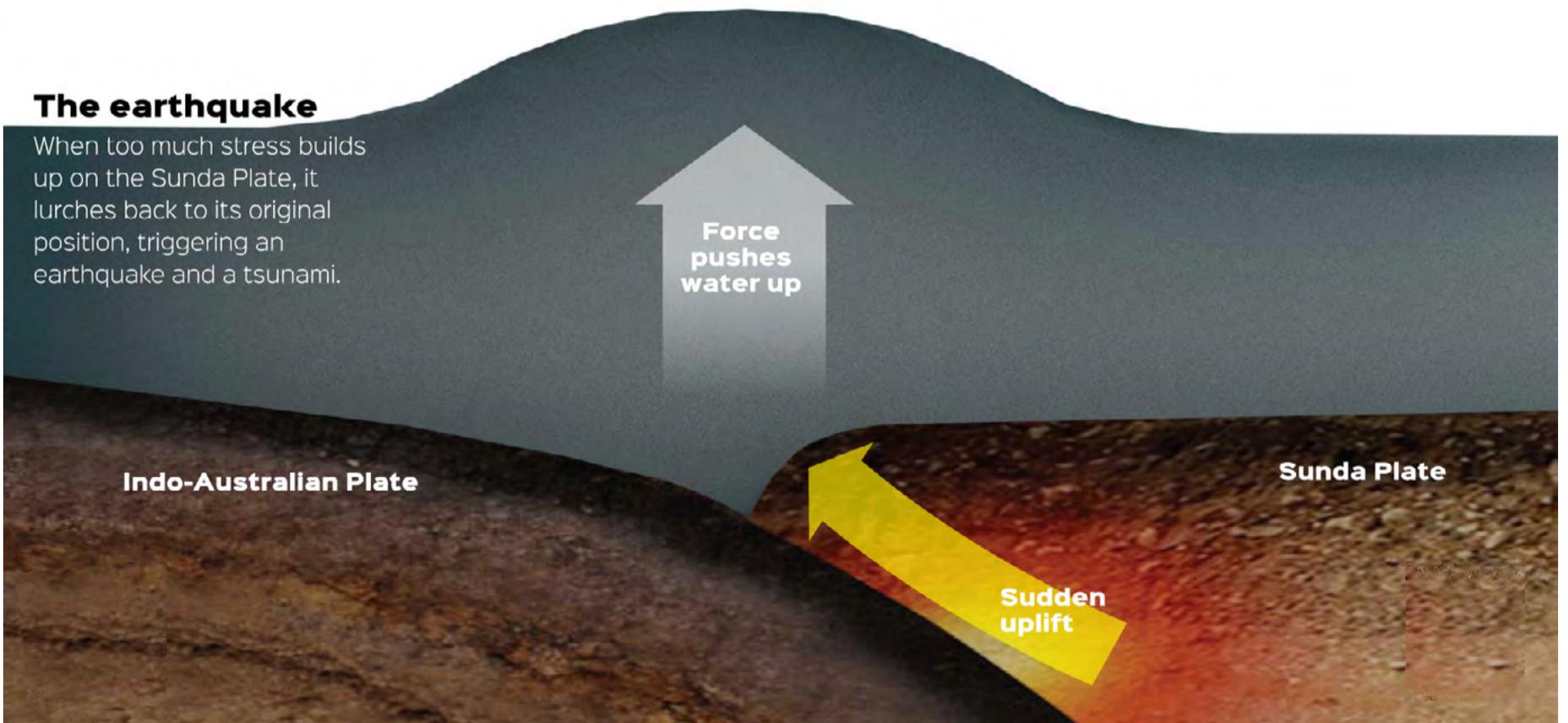
## The earthquake

As the plates slide past each other, the overriding plate undergoes a slow distortion. Stress and pressure build up over many years.



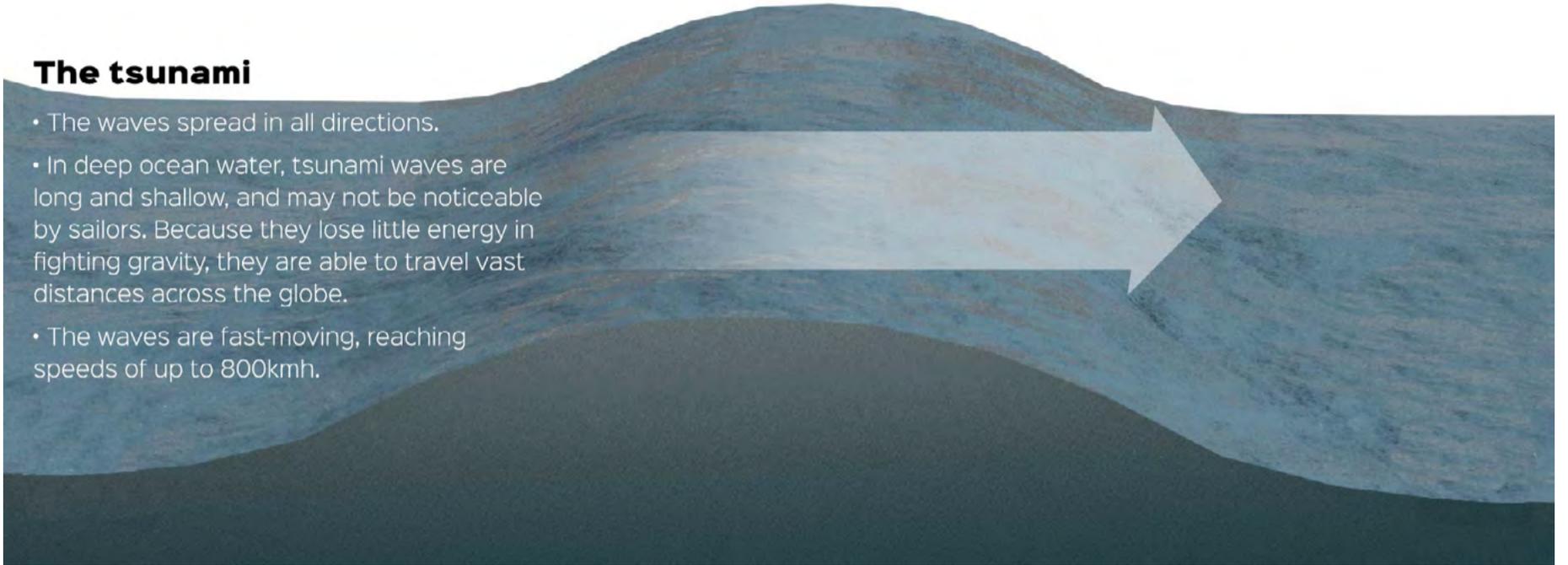
## The earthquake

When too much stress builds up on the Sunda Plate, it lurches back to its original position, triggering an earthquake and a tsunami.



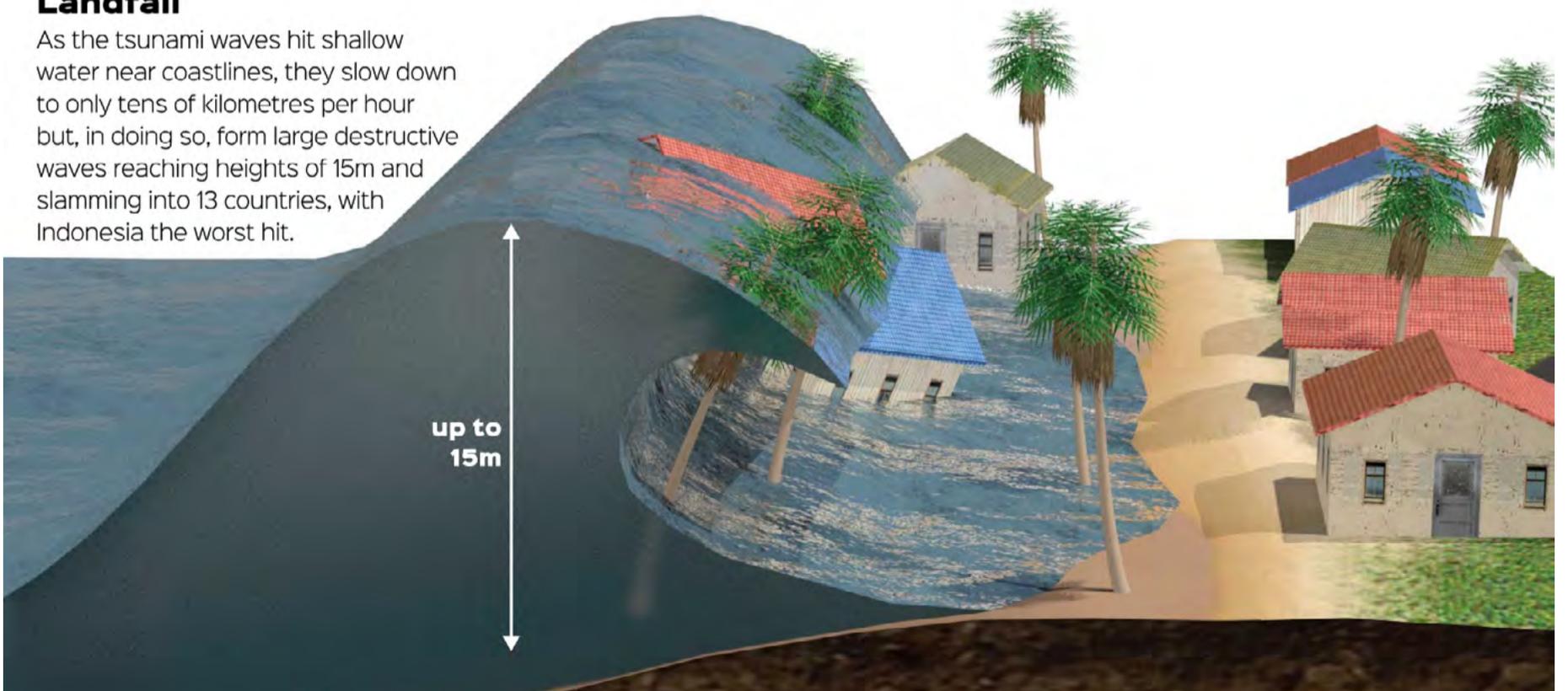
## The tsunami

- The waves spread in all directions.
- In deep ocean water, tsunami waves are long and shallow, and may not be noticeable by sailors. Because they lose little energy in fighting gravity, they are able to travel vast distances across the globe.
- The waves are fast-moving, reaching speeds of up to 800kmh.



## Landfall

As the tsunami waves hit shallow water near coastlines, they slow down to only tens of kilometres per hour but, in doing so, form large destructive waves reaching heights of 15m and slamming into 13 countries, with Indonesia the worst hit.



# The aftermath



**Dec 26**

Massive quake measuring 9.1 on the Richter scale rocks seabed 300km west of Medan, Sumatra, at 7.58am Indonesia time (8.58am Singapore time). Waves as high as several storeys hit coasts of Indonesia, Thailand, Sri Lanka and India. Initial counts say more than 10,000 dead. *Photo: AFP*



**Dec 27**

Estimated death toll more than doubles to over 22,000. Experts warn of more giant tidal waves caused by fresh tremors. In Indonesia's conflict-torn Aceh province, the military calls for a temporary ceasefire with separatist rebels. *Photo: Reuters*



**Dec 28**

Death toll hits 55,000, with many thousands still unaccounted for. Singapore's Ministry of Foreign Affairs confirms that two Singaporeans are dead. The Singapore Armed Forces (SAF) sends its first batch of supplies to Indonesia which include tents, blankets and food. *Photo: Straits Times File*



**Dec 29**

More than 80,000 are confirmed dead, with more than half from Indonesia. Singapore commits additional military equipment and up to 700 personnel to be deployed to Indonesia and Thailand. India announces plans to install an early-warning system to predict tsunamis. *Photo: Reuters*



**Dec 30**

Prime Minister Lee Hsien Loong calls for an urgent meeting of Asean leaders to coordinate responses to the tsunami tragedy in the region, a move that is supported by leaders of Indonesia, Malaysia and Thailand. *Photo: Straits Times File*



**Dec 31**

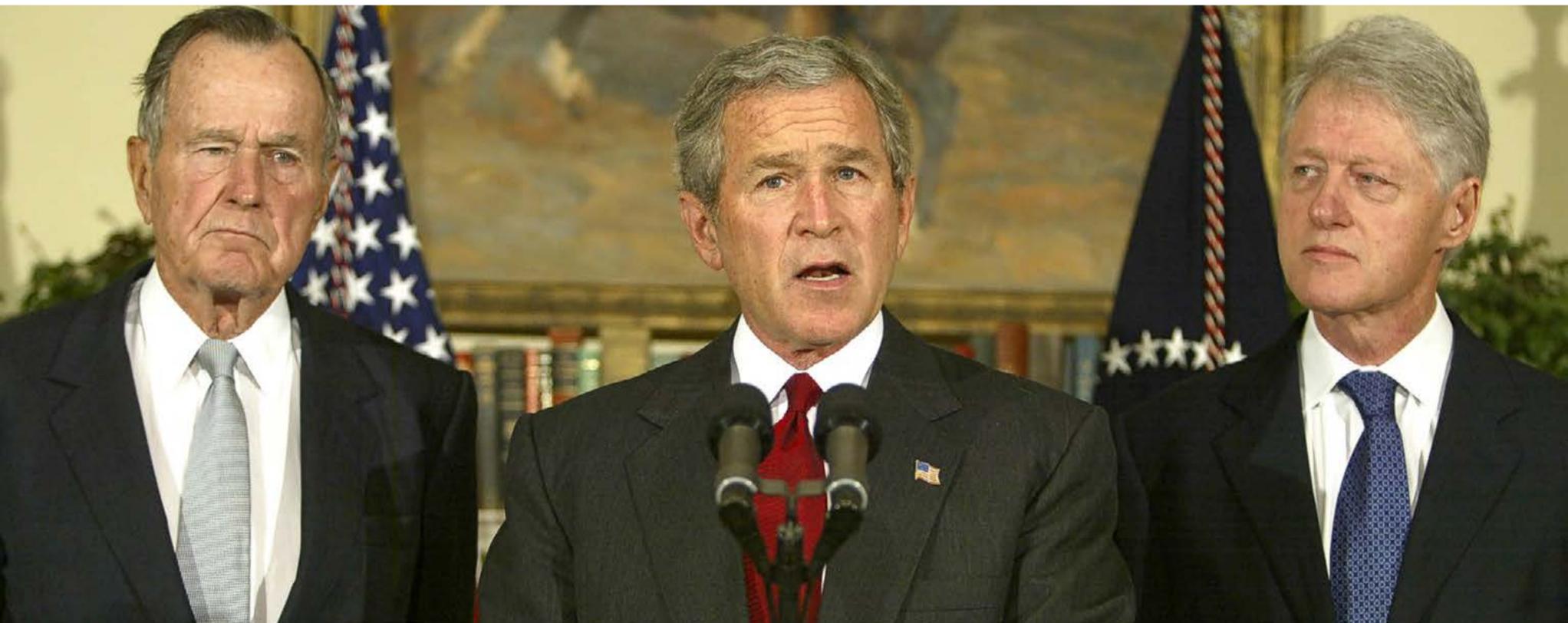
More than 100,000 are confirmed dead in Indonesia, bringing the total death toll to over 144,000. The US deploys a five-ship battle group, with Nimitz-class aircraft carrier USS Abraham Lincoln in the lead, to Indonesia to join in relief efforts. *Photo: Reuters*



**Jan 1**

The United Nations says more than US\$2 billion in aid have been pledged. SAF contingent, which includes 470 personnel, heavy equipment and relief supplies, leaves for Meulaboh, a town on Sumatra's west coast devastated by the tsunami.

*Photo: Straits Times File*



**Jan 3**

US President George W. Bush ropes in two former presidents – his father George H.W. Bush, and his predecessor, Bill Clinton – to lead US fund-raising campaign to help tsunami victims. SAF establishes two landing points at Meulaboh, which has been cut off since the tsunami. *Photo: AFP*



**Jan 6**

Leaders from 20 countries and six international organisations, including Asean members, the US, China, Japan and the United Nations, meet at a summit in Jakarta and draw up an action plan to help affected countries. They also call for the setting up of a regional early warning system in the Indian Ocean. *Photo: Reuters*



**Jan 9**

Singapore flies national flag at half mast and holds an hour-long public memorial service for tsunami victims. The memorial is followed by a nationwide minute of silence as a mark of respect. *Photo: Straits Times File*



**Jan 21**

SAF completes relief mission in Meulaboh. UN commends Singapore for setting up landing points at the wrecked shoreline, allowing heavy equipment to be brought in to clear a path inland for relief supplies.

*Photo: Straits Times File*



**Feb 1**

UN Secretary-General Kofi Annan names former US President Clinton as special envoy to head UN recovery operations. Death toll estimates rise to more than 200,000. *Photo: AFP*

# Scale of destruction

Satellite images taken after the tsunami show extensive damage to some coastal areas. Compare the following images taken before and after the tsunami by dragging the sliders.



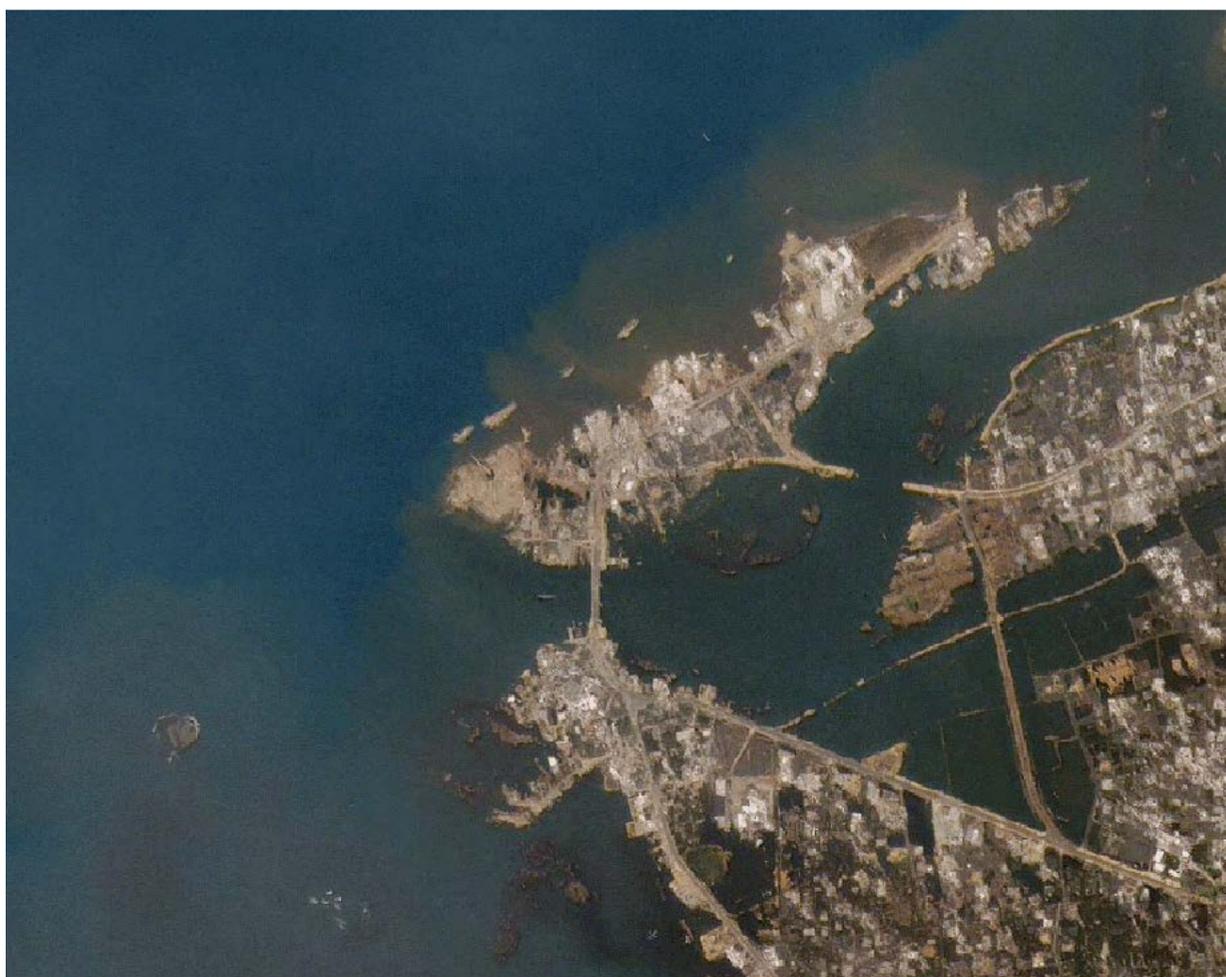
## **BANDA ACEH, INDONESIA**

Image on left taken on  
Jan 13, 2003.

Image on below taken on  
Dec 29, 2004.

*Photos: Ikonos Satellite Image*

*© Centre for Remote Imaging,  
Sensing and Processing,  
National University of Singapore*





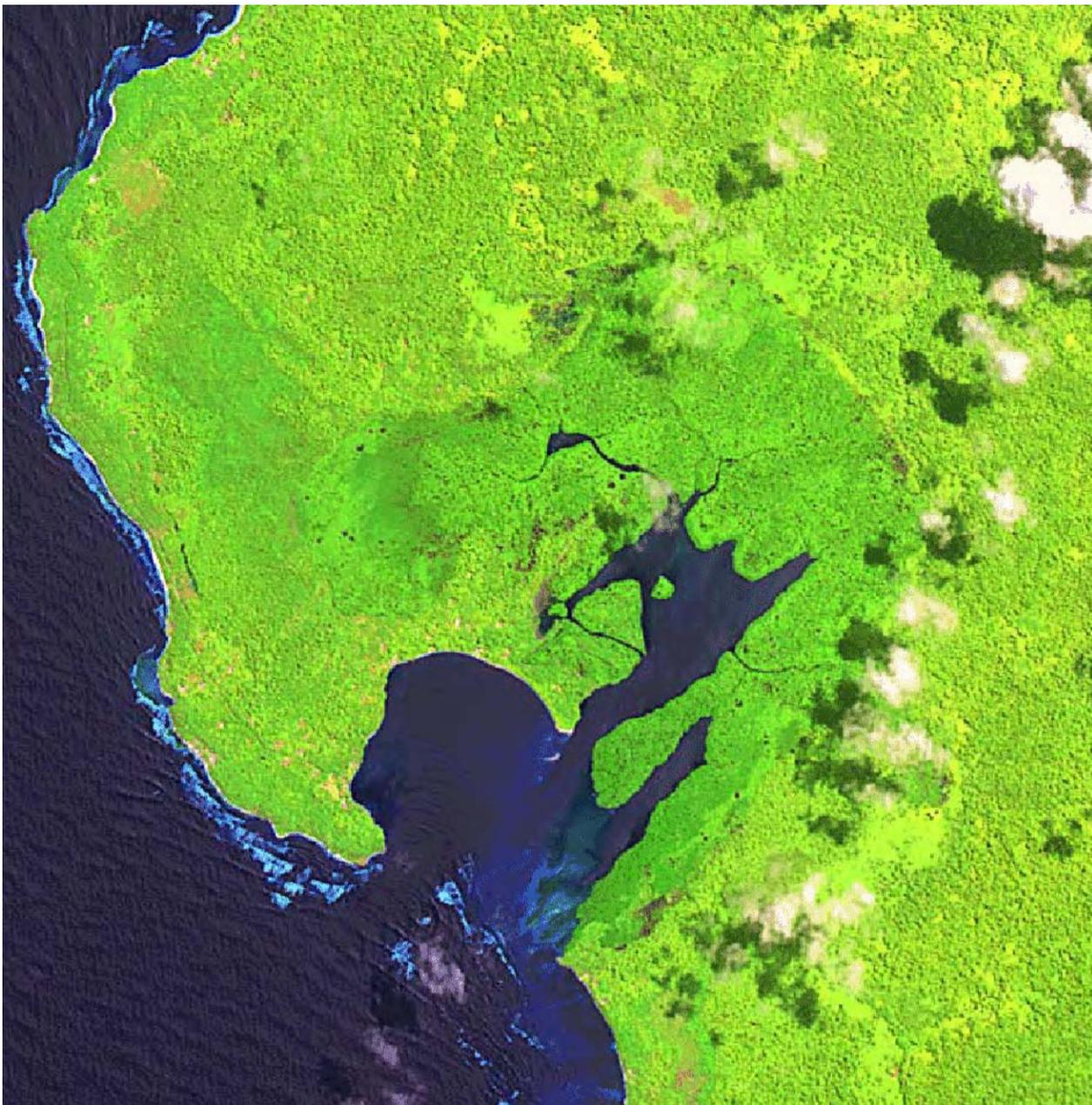
## **KHAO LAK, THAILAND**

Image on left taken on  
Jan 13, 2003.

Image on below taken on  
Dec 29, 2004.

*Photos: Ikonos Satellite Image  
© CRISP, NUS*





## **KATCHAL ISLAND, INDIA**

Image on left taken on  
July 10, 2004.

Image on below taken on  
Dec 28, 2004.

*Photos: SPOT satellite image ©  
CNES, acquired by CRISP, NUS*



# chapter2



survive



I don't remember how I got on the beach or to the house. All I remember is waking up to see my brother, I don't remember anything else.

**RAUDHATUL JANNAH, 14, INDONESIA**

Instant fame for M. Indira when a picture of her after the tragedy was published around the world.

*Straits Times Photo:  
Nirmal Ghosh*

# Sorrow seen around the world

**Ragged with exhaustion and grief**, M. Indira was unaware that someone was taking a picture of her sprawled helplessly on the beach next to the body of her sister-in-law Maheswari 10 years ago.

For three days she had stumbled through the rubble left by the tsunami that hit the Tamil Nadu coast on the clear blue sky morning after Christmas in December 2004.

Offshore, bodies occasionally floated by, many of them children. Her own three had survived but she had been away at the market well inland and endured a day and night of agony until she found them.

With them safe, she had set out to find other family members. Maheswari's body was already decomposing by the time Indira located it. She collapsed on the beach, wailing with grief, banging her forehead on the hard wet sand near the young woman's outstretched hand.

Arko Datta, then a Reuters photographer, captured that



## **Nirmal Ghosh**

Indochina Bureau Chief  
The Straits Times  
In Cuddalore, Tamil Nadu

moment. The picture was published all over the world, and won that year's World Press Photo of the Year award.

Today, Indira owns a cement house in her own name, compliments of the government's massive effort to provide proper housing for hundreds of thousands who had been living in clay and thatch houses on that awful day on the disaster-prone coast which had also been battered in 2011 by Cyclone Thane. It is a big improvement over the flimsy dwelling that was partially damaged in the tsunami that destroyed most of her few possessions.

But apart from that, the fame brought on by the photograph has not made her better off. She had been



poor to begin with, and now she is in debt and more or less alone; her husband had abandoned her and their family years before the tsunami.

In Cuddalore, Indira speaks volubly for two hours about her memories, her life and her own travails.

She shows me receipts for the few bits of jewellery she has pawned. Her two daughters are married, and her brother is

The picture of grief-stricken M. Indira on the beach, captured by then Reuters photographer Arko Datta, won the year's World Press Photo of the Year award.

*Photo: Reuters*

able to help her only occasionally.

Her son, now 18, goes out fishing all night and does little to help her, she says. A tall wiry lad with an earring, he walks in only briefly while we are speaking and then disappears.

Fainting spells led her to give up cooking food for a pavement stall she used to run. She is just 42, she estimates, but already in failing health; her left foot hurts, and she has to hobble. During the interview she coughs, then goes outside and retches.

The accidental fame attracted lots of visitors. Drove of media people, government officials and non-governmental organisation (NGO) workers have been to see her, thanks to the picture.

But they left only empty promises, she says.

From the bare, stained and pitted concrete walls, the cardboard that serves as a blind in the window and the absence of a fridge, it is obvious she lives virtually hand to mouth. Yet she senses the jealousy of muttering neighbours who assume she is being showered with money.

“Just wait, after you have gone, they will come round and ask how much you have given me,” she tells me.

Under a government programme for female heads of households who do not have support – usually that is a man – she was granted a monthly pension of 1,000 rupees last year, but claims the payouts stopped after six months and she is trying to find out why.

Before I leave, she produces a pouch and shows me her government ration card which has the names of her children on it. With it are clippings of the fateful picture, one of



Just wait, after you have gone, they will come round and ask how much you have given me.



them from the cover of the prominent news magazine India Today in January 2006.

And standing at the entrance of her house to see me off, she finally laughs, as she says: “Why do you want to take another picture of me again? There are thousands all over the place.”



M. Indira in her cement house built after the tsunami through the government's rebuilding efforts.

*Straits Times Video:  
Nirmal Ghosh*



Together again:  
 (from far left) Zahri,  
 Septi Rangkuti,  
 Jumadil, Arif  
 Pratama, Raudhatul  
 Jannah and  
 Jamaliah.

*Straits Times Photo:  
 Desmond Lim*

# Reunited, 10 years later

**Fourteen-year-old Raudhatul Jannah smiles and looks away bashfully when spoken to.** A teen believed to be her 17-year-old brother, Arif Pratama, interrupts with sudden boisterous outbursts.

The teens are recounting the Boxing Day tsunami that separated them from their parents 10 years ago – and the events that brought them together this year with a couple who believe them to be the daughter and son they lost that horrific day.

Though DNA tests have not been done to confirm it, Septi Rangkuti, now 52, is convinced that he has been reunited with his children.

“It is my Arif... he still has that scar on his nose from a fall when he was young,” he says.

“Ever since that day I watched them drifting away from me, I prayed very hard they would be found. God has been so kind to us... this is a miracle.”

## Zubaidah Nazeer

Indonesia Correspondent  
 The Straits Times  
 In Meulaboh, Aceh

He recalls the day of the tsunami vividly.

“When we heard people screaming to run from huge waves, we jumped on our motorcycle,” he tells *The Straits Times* at the house they have been renting in Meulaboh town since July.

He remembers putting Raudhatul and Arif in front of him while his eldest son, Zahri, rode pillion in front of his wife, Jamaliah. They all sped off just as a big wave hit, throwing his entire family off the bike and into the path of fast-moving floating debris from a house.

His wife managed to grab hold of Zahri, then eight, and clung on to a piece of driftwood.

Septi was able to cling to Raudhatul and Arif and manoeuvre them onto a large piece of floating wood. He tried to swim and hold on but the current from another strong wave sucked the plank from his grasp.

“I just could not hang on... I watched as Raudhatul and Arif floated away into the sea,” he says, choking on his words. “I cried because I could not save them.”

The loss of two of his three children plunged him into a depression so deep that he was unable to work for three years.

The girl he believes to be Raudhatul was only four at the time and recalls none of the chaos but some of aftermath.

“I remember sitting on the beach and Arif was next to me,” she says. “I don’t remember how I got on the beach or to the house. All I remember is waking up to see my



Jamaliah showing a picture of her missing children taken before the tsunami.

*Photo: AFP*



brother, I don't remember anything else.”

The pair were found by fishermen in Pulau Banyak, the islands off the southern Aceh coast, which meant that they would have drifted some 400km south of Meulaboh.

A fisherman named Bustamil spotted Raudhatul and Arif, then seven, still clinging to the plank at the beach. He took the girl to his home in Aceh Singkil as he and his wife had always wanted a daughter. According to local reports, he said he left the boy with other fishermen.

Bustamil and his wife renamed the girl Weniati – she says she does not remember the name Raudhatul – and she lived with Bustamil's family till he and his wife relocated to Batam. Raudhatul was then left in the care of his mother-in-law, Sarwani.

In July this year, Jamaliah's older brother spotted the girl he believed to be Raudhatul returning home from school in Blangpidie sub-district in south-west Aceh where he lives. A few days earlier, he had an odd dream in which he spotted a female student whom he was convinced was his now teenaged niece. He asked around for where the girl lived and eventually found Sarwani.

“When my brother rang me, I thought he was crazy,” says Jamaliah, 42, as she was sceptical about the possibility of her daughter being discovered as a result of a dream.

“But he was so persistent and certain, so I messaged him a photo of Raudhatul when she was four,” says Jamaliah, whose husband had moved the family inland to North Sumatra province because they were so traumatised by the tsunami.

The foster family gave their blessings for the teen to meet the couple who believed her to be their long-lost Raudhatul in Aceh.

“When I saw her, I instantly felt she was my daughter,” says Jamaliah.

The girl remembered details of her late grandmother's

house in Meulaboh, which further convinced Septi and Jamaliah that she was Raudhatul. The foster family allowed her to go with the couple, without any formal adoption papers.

Her return fuelled hopes that they could find Arif too.

The family pleaded with the media to do stories on Raudhatul so as to spread the word of their search for their still-missing son.

A month later, an Internet cafe operator in Medan city in North Sumatra alerted a local journalist after watching the

report on Raudhatul, saying that he had occasionally given food to a boy he believed to be the missing brother. The boy was begging and sleeping in the streets near the cafe.

What convinced the cafe operator was that Arif responded immediately to a picture he showed him of Jamaliah taken off TV. The boy cried out

“mum” and said her name was “Liah”, short for Jamaliah.

The local journalist helped arrange for the homeless Arif to be driven back to Meulaboh, to a tearful reunion with his parents.

Zahri, now 18, says that he is also certain that the two are his missing siblings.

“They sit in the same position and their laughter is the same,” he says.

The family has made a police report to state that their missing children had been found.



Parents Jamaliah and Septi Rangkuti with their long-lost daughter Raudhatul Jannah.  
*Straits Times Photo: Desmond Lim*

“I want to stake my claim over them... I don’t want to ever lose them again,” says Jamaliah, revealing that prank callers have accused her of stealing someone else’s children.

“I am ready to take DNA tests if anyone is willing to sponsor us,” she says in response to sceptics, adding that they cannot afford such tests and that no one has formally contested their claims.

Now the teens have become village celebrities, with media interest in their sensational story spreading to countries as far away as France, Italy and Holland.

On the day a team from The Straits Times arrives, the family have just returned from a two-day visit to Jakarta sponsored by a local TV station who had recorded their story in its studio for a primetime slot.

“We rushed back to Aceh because we were told a Malaysian television crew is coming to interview us,” says an excited Jamaliah.

During the interview, curious neighbours gather outside, peering into the spartan house where we sit on mats in the living room that has only a small TV set and thin mattresses on which the family sleeps.

The crowd of mostly women hold umbrellas to shield themselves from a heavy drizzle as they try to listen in on the interview. At the end of the meeting, the village chief even tries to ask for money for taking us to the Rangkuti family.

The fame has also brought offers of help and donations, although no one would give an estimate of the amount.

District chief Alaidinsyah tells The Straits Times he believes the story is legitimate and is touched by such a rare reunion. His office has committed to funding the family. He

I want to stake my claim  
over them... I don’t want to  
ever lose them again.



Mother Jamaliah with her long-lost son Arif Pratama.

*Photo: AFP*

will be providing educational aid for the family's four children, including Jumadil, seven, who was born after the tsunami.

While both reunited children will also get psychological counselling as part of their rehabilitation, Arif needs more care.

“Our checks show that he has slight mental retardation, probably since birth but worsened over time because he did not receive proper care,” says Dr Akbar Siregar, chief of Meulaboh's Cut Nyak Dhien hospital.

Reunions such as this are rare, and mostly unconfirmed.

In 2011, teenager Meri Yuranda showed up at a cafe in Meulaboh in December, looking for her parents, claiming she had been trying to escape from a woman who had taken her in and forced her to work as a beggar since the tsunami.

Helped by good-natured Aceh residents, she was reunited with her family in Meulaboh.

Now, attempts to track her prove futile. Those who had earlier monitored her case, such as local journalists and aid workers, say the last they heard was that she had moved back to Banda Aceh after a DNA test, sponsored by a non-governmental organisation, of her and the woman believed to be her mother had turned out negative. But no one knows for sure.

Jopi Deansa, public affairs officer in the West Aceh district office, says: “A lot of villagers who found children in the



Jamaliah recounts how she was reunited with her two children who had been missing since the tsunami.

*Straits Times Video: Desmond Lim*

tsunami assumed they are orphans and take them in to care for them.

“So, there could be reunions we do not know about. Certainly, a public reunion such as the case of Raudhatul and Arif being found alive after 10 years is rare.”



The injured and the dead filled the Meulaboh General Hospital in the days after the tsunami.

*Straits Times Photo:  
Hoe Pei Shan*

# Chaos as bodies pile up

**First came those with crushed limbs**, victims who had been pinned under fallen walls, many of them children.

Then came people bloodied in traffic accidents that occurred as droves of residents tried to speed away from the incoming waves.

Finally victims impaled by debris in the rushing waters or severed body parts turned up.

Yuliandi Arani was the head of the accident and emergency unit and head nurse at the Meulaboh General Hospital 10 years ago, when the Indian Ocean earthquake and tsunami struck.

It was a Sunday, Boxing Day, and only three other members of the hospital staff were on duty in the emergency room.

He lived just minutes from the ocean, but once the first tremors ceased, he rushed to the hospital to tend to others, never imagining that the greater danger would later come crashing down near his own home.

## Hoe Pei Shan

The Straits Times  
In Meulaboh, Aceh



Yuliandi, then 35, huddled in the emergency room set further inland and on higher ground just beyond the reach of the waves, unaware of the tsunami until it had torn through most of his coastal hometown.

Upon hearing the news, he left the hospital with a colleague, Dr Amil Jihan, to try to swim through the black waters that had risen as high as some coconut trees. But they could not get past the wreckage to their homes to check on their families.

When Yuliandi saw the body of one of his neighbours who had been decapitated by the zinc roof of her house, he decided he would be of more use back at the hospital.

Dr Amil never made it back to work – he drowned and his body was not recovered until after the water receded.

Back at the hospital, Yuliandi helped saved countless lives in the next three sleepless days. The entire compound was in chaos and bodies began to pile up outside. People did not know where to place the bloated, battered corpses, many of them headless.

When he finally managed to leave on the fourth day, he found little trace of his home. Thankfully his wife and four-month-old daughter had been led to safety atop a three-storey shophouse.

But both of his parents and five other members of his family – three uncles and two cousins –

failed to get away from his parents' home in the same village. Their bodies were retrieved not far from where the house had stood.

Yuliandi still has vivid memories of that December a decade ago, recounting his village's losses in a sombre, gruff voice, his eyes glistening.

I was beyond afraid,  
I was leaving it to fate  
and just waiting for my  
turn to come.



Yuliandi Arani, who had rushed to Meulaboh General Hospital to help after the earthquake, lost his parents and five other family members when the tsunami crushed his village.

*Straits Times Photo: Hoe Pei Shan*

Singapore, for which Yuliandi says he and his people would always be grateful.

Ten years ago, all people could scream was “ombak! ombak!” (“wave! wave!” in Bahasa Indonesia) as the word “tsunami” was not yet part of the Acehnese vocabulary, says the 45-year-old.

Now Yuliandi has made sure his daughter grows up knowing how to recognise the signs of an earthquake, and to get to higher ground if big tremors hit.

He says: “Don’t wait for any alarms – just run.”





# We watch for signs to run



Usman Hasan with his wife in his Habitat For Humanity home, where he tends to sickly villagers as the community's doctor.

*Straits Times Photo: Hoe Pei Shan*

**Usman Hasan lived most of his life just 20m from the ocean in a quiet Samatiga village**, and was drying out some salted fish for sale when he felt the earth tremble like never before.

His people were used to earthquakes, but what followed was beyond their understanding then: The Indian Ocean began to recede, water falling away from the shores to reveal fish gasping and flopping on the now-emptied ocean beds.

Many thought it was a divine act and ran forward to gather the fish, only to become victims of the walls of water that came crashing down on them, moving inland with such force that houses in their path were flattened.

Usman and his wife tried to run, but were swept up by the gushing waters.

“I thought, ‘let fate take over’, I was sure I would drown,” recalls the 64-year-old, who is considered a village doctor.

But as luck would have it, he managed to grab a wooden

## Hoe Pei Shan

The Straits Times  
In Meulaboh, Aceh

plank, and then clambered up a tree trunk. The blackened water nearly covered the tops of the surrounding coconut trees, with boats and debris floating by. A sulphuric stench filled the air, and all he could do was watch as his village disappeared before him.

It was a miracle that he and his immediate family survived – nearly 40,000 of Meulaboh’s 120,000 residents perished, among them the families of two children named Zakiatur and Asrizal.

Zakiatur, then aged nine, was picked up by a neighbour and driven to safety after the quake. She lost both her parents to the tsunami. Asrizal, 14, was briefly reunited with his father – the other lone member of his immediate family not to have drowned – after the waters receded. The teenager spotted his father across a road, but as Asrizal walked towards him, a tree fell on his dad and killed him.

Feeling as if he had cheated fate, Usman adopted both children as his own.

As he reaches this point of his story, the elderly man, so stoic till then, breaks down, hunching over in quiet sobs. “Their parents had died and no one was looking after them,” he says eventually.

He is speaking to The Straits Times from the benches of his new home further inland – one of 1,700 houses built by Habitat For Humanity with some \$12 million in aid from Singapore – where he and his wife now live with Zakiatur and Asrizal.



The wooden extensions he built for his house allow Usman Hasan to run a small convenience store to earn additional income.

*Straits Times Photo: Hoe Pei Shan*



The stretch of sand where his old home had stood was once populated with residences, but now remains barren; gone are the houses, and the sand is strewn with debris, animal skeletons and lingering fear.

He says: “When it storms, we are very vigilant, we would sit outside the house and watch for any signs that we should run.”

Usman Hasan showing his adopted children Asrizal (left) and Zakiatur, who were orphaned by the tsunami, where his house once stood.

*Straits Times Photo:  
Hoe Pei Shan*



A. Suppiah remembers the day in 2004 when his daughter S. Thulasi, then just 22 days old, floated back to shore after a wave swept her out to sea. *Photo: The Star*

# The miracle baby

**In early September this year**, tsunami miracle baby S. Thulasi dreamt that a giant meteorite plunged into the sea off Batu Ferringhi near her home in Penang.

“It hit the sea just in front of my father’s café. There was a big explosion, and the sea was filled with boiling lava,” the 10-year-old recalls in a recent interview. Her dream shifted to another location where she saw shattered roads and burning cars as a result of the meteorite’s impact.

In 2004 when she was just 22 days old, Thulasi was swept out to sea in the tsunami and then floated back to shore – still asleep on her mattress – with the second wave.

When she told her father, A. Suppiah, about the dream, he could not help but feel a sense of foreboding.

“I will never forget the terror I felt when the tsunami took her, so when she dreamt of the meteorite, it felt like prophecy even though I know it was only a dream,” says the 65-year-old Suppiah.

**Arnold Loh**

The Star  
In Penang

Recalling the heart-stopping moment, Suppiah says he first saw two waves frothing like soap water in the distance.

“The two waves were about 3m apart and 1m tall. They made two white lines on the sea that stretched all along the shoreline.

“About 10 minutes later, I saw a large wave in the distance. In seconds, it got closer and looked like a towering wall of water. I shouted for everyone to run but the tsunami hit before many tourists could even get up,” he recalls.

That wave took the lives of 52 people on Penang island instantly and injured 141 others.

It also fractured Suppiah’s hip, tore off the front wall of his shack, filled his bedroom to the ceiling with seawater and swept Thulasi and her mattress out to sea.

“The wave pushed my older daughter, Kanchana (nine at the time), up to the hillslope. I couldn’t find Thulasi anywhere. Many tourists were screaming and shouting because they lost someone, and I was getting frantic.”

Less than 15 minutes later, another large wave surged towards land and there was panic on the beach again.

As the second wave reached shore, someone on the slope above Suppiah shouted to him: “Your baby! Your baby is coming back!”

“The second wave returned Thulasi almost to the front of my shack. She was still sleeping on her mattress. I held her close and cried in relief.



Baby Thulasi at 12 months old with her parents A. Suppiah and L. Annalmary playing in the sea in front of her family’s cafe on Dec 14, 2005. Photo: The Star



“I believe in miracles. I believe in God and divine intervention,” Suppiah says emotionally.

The Star visits lucky Thulasi every year to see how she is doing. She is now a cadet in a Tamil vernacular school in George Town.

Although her favourite subject is English, she wants to be a scientist when she grows up.

S. Thulasi, now 10, reading about her amazing story in a newspaper report from 2004 headlined “Baby floats back home”.

*Photo: The Star*





# Fight for land goes on

Boats near the village in Phang Nga's Takua Pa district where a lot of homes were destroyed in the tsunami.

*Photo: The Nation*

**When the tsunami swept through a sea gypsy community in Phang Nga's Takua Pa district,** the locals lost not only their houses but also the land where their ancestors have lived for generations, as investors came hunting.

“My grandparents and my parents lived and died here on this plot of land. It's mine. I can't understand why after the tsunami, someone else has tried to take it away from me,” Larp Harnthalay says with a glitter of desperation in her eyes.

The 55-year-old sea gypsy, who is from a Moken tribe, is the last resident to continue a decade-long battle against an investor who has produced the title deeds to claim the 24 rai (3.84ha) of land in Tap Tawan Community.

Larp was confident that she would win when the investor first showed up in early 2005. By law, people can claim ownership of property that they have openly occupied for

**Chularat Saengpassa**

News Reporter  
The Nation

at least 10 years without being challenged.

“Why would the court listen to a city resident with her single document? We have lived here for generations. Locals here know each other,” she says. The graveyard of their ancestors and coconut trees grown by them should be solid proof that they have the right to the land in Tap Tawan.

But with the 10th anniversary of the tsunami approaching, Larp bitterly reckons that she might have engaged in a battle she cannot win.

Other locals have already given up hope, agreeing to accept whatever the title-deed holder offers. They have accepted smaller plots of land than they used to have in exchange for the right to a proper title deed that the investor



Larp Harnthalay, a 55-year-old sea gypsy from a Moken tribe who lost her home during the disaster.  
*Photo: The Nation*

has agreed to provide.

Tian Harntalay, 47, says he agreed to a compromise only because he did not think his family could win the legal battle.

“We don’t have money to fight the case,” he says. “When we contacted our district office to check the land map, we were told to contact the land office instead. It’s

complicated.”

Tian accepted the investor’s offer in 2009, and got the land title deed the following year.

Larp, however, is determined to fight on as she says she has to protect the land that belongs to her ancestors and pass it on to her descendants.

“I won’t bow down. I will fight till the day I die. My family has lived here for hundreds of years,” she says.

But things today are far different from what they used to be before the tsunami.

All her neighbours have about half the area of land they used to own, and Larp fears, deep down, that her child and grandchild will not have a place to call their own in the end.

Larp is the only resident without a title deed in Tap Tawan.

“I started learning the Thai standard language after the tsunami. It’s because I need to contact various authorities in a bid to protect my ancestral land,” says Larp, who completed only Prathom 4 (Grade 4) education and previously spoke only the local dialect.

Her voice shakes with emotion as she talks about the “injustice”.

“Before the tsunami, we never faced such a problem,” she says.

Tian says he also feels deeply frustrated, sad and enraged to see how investors even encroach on the cemetery of the Moken.

He says Pakveep Graveyard has long been the final resting place for Moken from three local communities including Tap Tawan. It used to span well over 60 rai (9.6ha) of land.

“But you know, the graveyard has just 6 rai (0.96ha),” Tian

I won’t bow down. I will fight till the day I die. My family has lived here for hundreds of years.

says, “There’s now a hotel going up on the graveyard of our ancestors.”

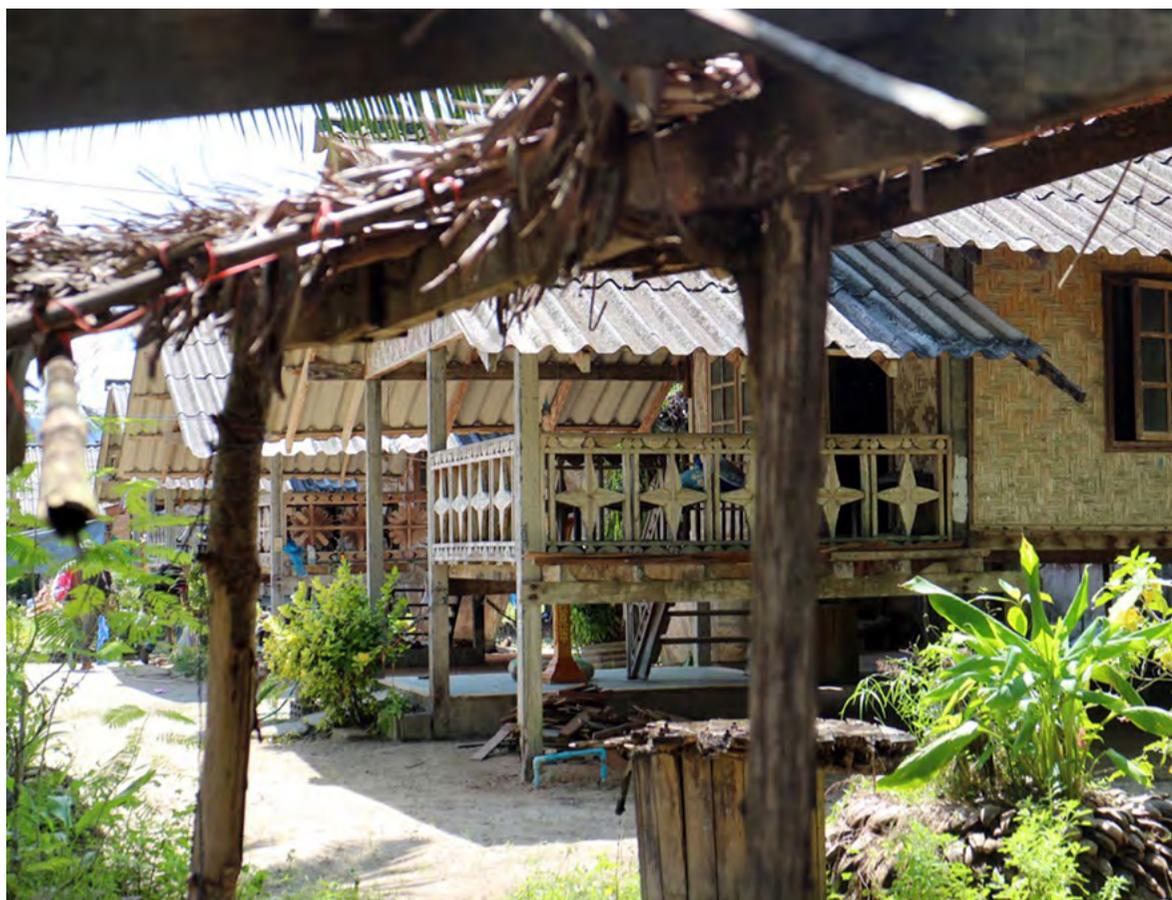
It is estimated that there are more than 10,000 sea gypsies living in 41 communities across Thailand’s Andaman provinces. Of them, 15 communities have reported problems related to their properties. There have been problems at seven sea gypsy cemeteries too.

Larp says that with the land issues, she also finds it harder to earn a living.

“I used to pan for tin. But this is not possible anymore. Hotels have mushroomed and there are no mines in my neighbourhood. Hotels have beautiful landscapes. They won’t allow me to pile anything in their localities,” she says.

She adds that an old woman like her faces a tougher situation when compared to the young.

“Young people can find jobs at hotels. My last resort is to catch squid from the sea,” says the sea gypsy.



The village where Larp Harnthalay lives. She is fighting for the right to the land in Tap Tawan. *Photo: The Nation*

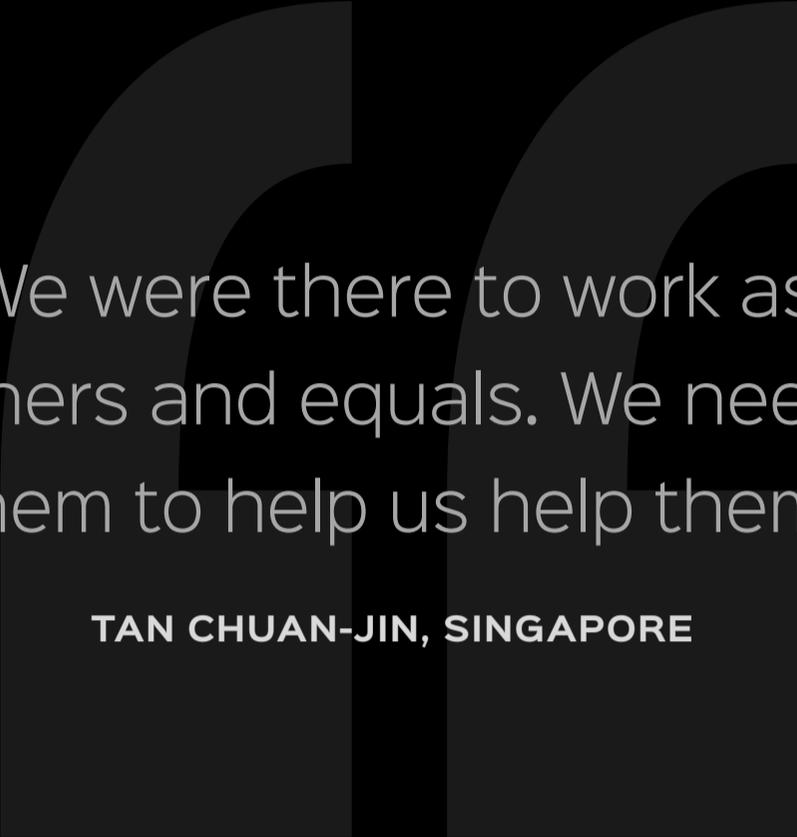


# chapter 3



respond



A large, dark gray, stylized graphic of two quotation marks, one on the left and one on the right, framing the text. The marks are thick and have a slightly rounded, modern feel.

We were there to work as partners and equals. We needed them to help us help them.

**TAN CHUAN-JIN, SINGAPORE**



# Singapore was like our hero

The girls' boarding school in Meulaboh which was rebuilt with Singapore's help.  
Straits Times Photo: Desmond Lim



**Lola Alfira remembers the first time she saw a warship at Meulaboh.**

“It was large and when it docked, smaller vehicles emerged. People of Meulaboh had never seen anything like it,” the nurse recalls of that day, a Sunday, 10 years ago. She also remembers Singapore Armed Forces Chinooks flying in. They had come to deliver aid to this town shaken by earthquake and ravaged by the subsequent deadly waves.

“Singapore was like our hero – it was the first country to respond in our time of distress,” she adds.

Singapore has left a permanent mark on Meulaboh, both emotional and physical. Plaques bearing the Singapore flag or references to Singapore-related contributions to the rescue effort are found every few hundred metres, including a sign saying “Simpang Temasek” at the corner of a small road.

This port town some 250km or a five-hour drive from

## Zubaidah Nazeer

Indonesia Correspondent  
The Straits Times  
In Meulaboh, Aceh



Banda Aceh was one of the worst hit by the 2004 Boxing Day tsunami, losing a third or 40,000 of its residents. It was cut off from the world when seven tsunami waves pounded it, ploughing through an arterial coastal road serving the provincial capital of Banda Aceh, shattering its pier and swallowing whole villages.

“Everyone in this town lost someone,” says West Aceh district chief Alaidinsyah whose mother died in the tragedy.

Everyone in  
this town  
lost someone.

Meulaboh is the main town of this district. A decade later, its population is booming again. Its economy is picking up.

However, bent and fading evacuation signs, rusting fences or poles and potholed streets belie just how much help it needed not long ago.

One of the most prominent legacies of Singapore’s

A memorial, with the flags of Singapore and Indonesia and a quote from Singapore Prime Minister Lee Hsien Loong, marks the spot of a mass grave at the Ujung Karang beach in Meulaboh.

*Straits Times Video:  
Desmond Lim*

generosity during the rescue and relief efforts is the Cut Nyak Dhien hospital, which was almost totally demolished by the tsunami. Singapore pumped in S\$12 million, resulting in 17 rebuilt buildings with 146 beds, a radiology department and two operating theatres when the official handover took place in July 2010.

Little more than four years later, the clean exterior is already a stark contrast to what's happened inside. Patients sprawl on soiled mattresses that fill the general wards; some sit on the floor together with visitors.

Hospital chief Dr Akbar Siregar says maintenance has been lax and the hospital is now operating at overcapacity, even though patients treated for tsunami-related injuries or trauma have long since left.

Construction of a two-storey ward building began early this year to keep up with the rising number of patients streaming in from surrounding districts, but it is not scheduled to be completed until the middle of 2015.

This hospital is the second best in Aceh, after the one in Banda Aceh. But it is still in dire need of new equipment such as MRI and CT scans, says Dr Akbar.

“For anything that requires further checks, we have to send patients on a five-hour drive to Banda Aceh,” he says.

At the Muhammadiyah orphanages and boarding school – rebuilt in different parts by Singapore’s Mercy Relief, Red Cross, Commerzbank AG and Lien Foundation – caretaker Nurazwi proudly shows how beds and wardrobes donated



The broken-down pier at Meulaboh which Singapore helped construct. It has fallen into disrepair because of a dispute between the central and local governments over its ownership and maintenance. *Straits Times Photo: Ashleigh Sim*



Pupils of the Fajar Hidayah Integrated Boarding School, which is a Singapore-funded school built to house mostly orphans from the tsunami.

*Straits Times Video: Ashleigh Sim*

in 2005 remains in good shape.

Mercy Relief estimates that the boys and girls' orphanages had two wings refurbished and two rebuilt at a cost of S\$480,000, with a capacity for 60 orphans aged between 13 and 18 years old. Another S\$300,000 went into furnishings, landscaping, recreational facilities, books, stationery and uniforms.

Taking out a pile of Singapore textbooks and pots and pans, Nurazwi beams as she holds up what she says are some of the durable remains of the help they got.

But she says living conditions have become a squeeze as more girls seek admission.

A similar story has played out at the Babussalam Orphanages and boarding schools rebuilt by Mercy Relief and opened in 2008.

School principal Walissalikin Has digs out old cards he has saved, including one from Mercy Relief who helped rebuild his school and dormitories. He says more funds are needed other than the ones they raised over the years for smaller renovations.

For instance, its mosque tower, which once saw people clambering up to flee the waves, is now considered too dangerous and has been locked.

Indeed, there are ample signs that Meulaboh has better facilities than its surrounding districts thanks to tsunami relief efforts. But a growing population, now at 110,000 or almost at the same level just before the tsunami hit in 2004, has put a strain on present infrastructure which has, in turn, not been well maintained.

With the non-governmental organisations (NGOs) gone, district chief Alaidinsyah laments that his people have become reliant on external help, even though Meulaboh has always been a sleepy port.

“People have gotten too used to the NGOs’ help,” says the businessman, adding: “We need to change this.”

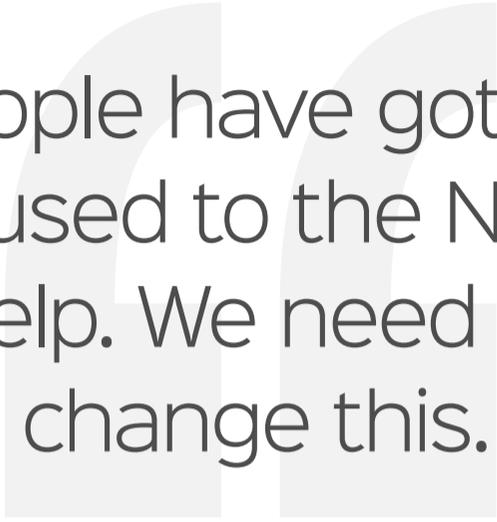
While plenty has changed, more needs to be done. Sanitation and access to clean water are still a problem: There is no drinkable water and at least 10 per cent of residents have no sanitation facilities.

But there are bright spots. Meulaboh-based University Teuku Umar has been promoted to a state-standard varsity, attracting students from as far as Medan. A recreational park in the town centre is also being planned.

Hardy infrastructure built after the tsunami – such as the S\$7-million Meulaboh port and pier built from donations that poured into the Singapore-based Tidal Waves Asia fund – has spurred economic activity, with coal exports flowing through it to China and India. That means more work for port workers, says chief of maritime operations in Aceh Barat, Dahlan BA.

Once port operations shut at sundown, the pier turns into a hangout for courting couples and youths. Anglers set up camp for night-fishing.

Mobile vendors roll in, selling everything from local



People have gotten too used to the NGOs’ help. We need to change this.

favourites like mie aceh and martabak to grilled corn and roasted peanuts and drinks.

One street in town also livens up after evening prayers, as residents gather at coffee shops and retailers reopen till 10pm.

Those who received post-tsunami aid, like Dr Akbar, are keen to collaborate with Singapore again, especially to train manpower and explore ideas to improve facilities.

Mercy Relief's corporate affairs manager Ann Moey tells The Straits Times that it is planning to return to disaster-prone communities in West Aceh. It wants to improve access to clean water and increase preparedness for natural disasters.

"The project also seeks to provide emergency equipment to local response agencies to increase their ability to provide immediate assistance in the wake of a disaster," she says, adding that the project remained in the planning stages pending confirmation of funding.

Syed Husin, a grandfather of four, says: "Since aid workers have gone, some Indonesians might be complacent about what happened before."

For visitors, various mass graves around the town are reminders of the tragedy of 10 years ago. "For us residents of Meulaboh, we will never forget the tsunami, and when the next one hits, we will be prepared, hopefully," says the 86-year-old who lost nine family members.



Ahmad Dadek (left), head of the West Aceh Development Planning Board, showing Manpower Minister Tan Chuan-Jin reinforcement works along Meulaboh beach during the latter's visit to Aceh last month. *Straits Times Photo: Ashleigh Sim*



# Not saviours, but partners

**The reality of a massive earthquake and a tsunami decimating Indonesia,** Thailand and Sri Lanka and displacing hundreds of thousands did not quite hit Manpower Minister Tan Chuan-Jin when he first heard the news on Dec 26, 2004.

Tan, then a 35-year-old army colonel, was with his daughter during her swimming lesson in the morning when the news first broke.

“I was not familiar with the term tsunami... people were talking about big waves but it was not until later in the evening when I saw the images of the destruction in the news that I realised things were serious and we had to do something,” says Tan, who retired from the Singapore Armed Forces as a Brigadier-General in 2011 to enter politics.

The next day, he got the call. “We were told to get ready to move anytime.”

He was appointed the commander of the Humanitarian

## Jermyn Chow

Defence Correspondent  
The Straits Times  
In Meulaboh, Aceh

Assistance Support Group in Meluaboh, one of the worst hit Indonesian coastal town.

Leading a team of 20 men, he flew down to Medan on Dec 31 to lay the groundwork for Singapore's largest humanitarian and disaster relief operation. Codenamed Operation Flying Eagle, it was the biggest-ever deployment of men, women and

machines to Indonesia and Thailand.

But he did not know what to expect, as he had never led an operation in which troops had to deliver aid and help disaster victims.

Prior to the Boxing Day tsunami, Tan and most of his men were involved only in mock



Singapore servicemen catching their last glimpse of the coastline on Jan 21, 2005, after a ceremony held onboard the RSS Endurance to commemorate the SAF's departure from Meulaboh.

*Photo: Straits Times File*

scenarios in which they had to prepare and deliver aid.

But those drills kicked in, as everyone sprung into action.

“We had no time to think of what-ifs or be weighed down by fears or uncertainties. It would've paralysed our planning.

“None of us felt that we were biting off more than we could chew... There was a sense that we have done it before. It's just applying our capabilities that we have honed over the years to a different context and problem,” says the 25-year army veteran reflecting on his experience 10 years after the killer waves hit coastal Asia.

To Tan, this mission was not merely about Singapore lending a helping hand.

“I was quite particular that it wasn't just about disbursing assistance and help but really how we do it.

“I didn't want us to look, feel and act as if we were

saviours. We were there to work as partners and equals. We needed them to help us help them.”

The mission to do good was also fraught with risks, especially with Free Aceh Movement insurgents, who sought independence from Indonesia, still on the loose, leaving Meulaboh in the throes of civil unrest. A peace deal forged the next year ended the 30-year separatist conflict.

When you wear sunglasses,  
you come across as insensitive and  
arrogant... These may be small things  
but they matter as people want  
to be treated with dignity.

There was also the worry of quake aftershocks or a second tsunami.

The additional burden on Tan was that he was also putting the country's citizen soldiers, national servicemen, in harm's way to sort out someone else's problem.

“Mission success is determined not just by how much aid was delivered or how many people but also if I got all my men back to Singapore safe and sound.”

Operation Flying Eagle involved some 1,500 personnel, three supply ships, 12 helicopters and eight transport aircraft.

This was dwarfed by the Americans who sent 16,000 military personnel, 26 large ships, 58 helicopters and 43 fixed-wing aircraft.

But Singapore still punched above its weight, becoming the primary foreign military contingent present in Meulaboh.



Minister for Manpower Tan Chuan-Jin posing with tourists from Jakarta last month on the elevated platform of the Kapal Apung Lampulo memorial site in Banda Aceh, where a fishing vessel was tossed onto the top of a house during the 2004 tsunami. It was left where it landed as a memorial and has become a popular tourist destination.

*Straits Times Photo: Ashleigh Sim*

Singaporean troops worked tirelessly over three weeks to clear debris, remove bodies and deliver aid.

What made the difference was perhaps the SAF personnel's understanding of local and cultural sensitivities, ensuring that they did not make any gaffes and create tensions among the locals.

It even came down to the nitty-gritty like establishing eye contact with people or handing out aid properly.

“When you wear sunglasses, you come across as insensitive and arrogant. We were also mindful not to throw food or water at the locals. These may be small things but they matter, as people want to be treated with dignity.”

It also helped that Singapore's servicemen were conversant in the Indonesian language and culture, allowing them to easily gain the trust of their military counterparts and winning the hearts and minds of the locals.

The good contacts and communications also led to the better matching of needs of the locals, ensuring that “we

only delivered what was needed - not any more or less”, says Mr Tan.

“We can’t be everywhere but we didn’t have to be. There was no big song and dance. Our presence, though small, was good enough to give the locals a psychological boost.”

When dealing with a crisis,  
you just got to be steady and  
not be swept by emotions or  
else you can’t command and  
lead properly.

After seeing the swathe of destruction and coming face to face with death in the post-apocalyptic town, he could only describe his stint in Meulaboh as “surreal”.

“We were just so focussed on the mission and ensuring that we try to get everything right. When dealing with a crisis, you just got to be steady and not be swept by emotions or else you can’t command and lead properly.”

The emotional outpouring happened only weeks later when he was back in Singapore and saw a video chronicling the SAF’s work in the disaster zone.

“It was cathartic to let your emotions run... [thinking of] those who died and those who lost proof of their lives and existence on earth... their passports, their qualifications and their loved ones.”

Ten years on, Tan set foot again in Aceh last month to see how the city has picked itself up from that disaster.

Standing on a landing point, now a scenic embankment, where Singapore troops began their mission, he recalls the “eerie tranquility” of the battered Meulaboh coastline.

“Everything was flattened. There was no sign of life. Just waves crashing on the shore... It was unreal.”



Tan Chuan-Jin revisits Aceh  
in November 2014.

*Straits Times Video: Ashleigh Sim*

When asked what was one defining emotion or memory of his stint, he hesitates for a while before saying “pride”.

“I’m proud of who we are as Singaporeans, not just being capable enough to do what was right but also how to treat people right. These are lessons that stay with you for a long time.”





# Groups rally to render aid

Tzu Chi Foundation volunteers raised US\$81.9 million by collecting donations in 30 countries.  
*Photo: Tzu Chi Foundation*

**As humanitarian relief forms the core of World Vision's work**, the global organisation was among the many non-governmental organisations (NGOs) to launch fund-raising campaigns immediately in the wake of the 2004 Indian Ocean tsunami.

World Vision was able to launch immediate assistance within 24 hours through its Global Rapid Response team, as it conducts year-round disaster preparedness training and has three major warehouses in strategic locations stocked for urgent and immediate relief response.

The funds collected globally added up to US\$346 million, which went into the organisation's largest relief effort programme extending beyond initial emergency relief to community rehabilitation, livelihood recovery and infrastructure rehabilitation that stretched beyond a period of three years.

"All donations are given towards specific projects or

**Chin Mui Yoon and Michelle Tam**

The Star  
 In Kuala Lumpur

countries and every cent is channelled accordingly,” explains Liew Tong Ngan, chief executive officer of World Vision Malaysia.

World Vision is well-known for its high level of transparency and accountability for its relief work dating back to the mid-1950s after the Korean War, when it provided shelter for thousands of orphans.

Process and finance audits are conducted regularly with established external organisations like Ernst & Young and Price Waterhouse (now PricewaterhouseCoopers), with peer audits also being held. Distribution of donations adheres to UN regulations and standards, Liew adds.

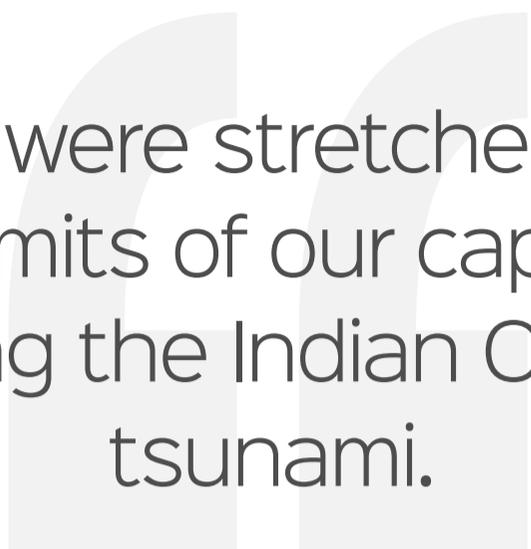
“We were stretched to the limits of our capacity during the Indian Ocean tsunami. One of the things we piloted was to introduce child-friendly spaces to safeguard the young who are made vulnerable by the loss of their guardians, families and homes.

“We cooperate very closely with the government and local communities, and we never go through back channels even if it hastens the process,” says Liew.

Following the tsunami, Liew says, disaster mitigation efforts were increased, with more training conducted among villages, as mitigation was more cost effective than relief work.

“Training of staff and volunteers is crucial to any operation as a disaster is no place for ‘relief tourists’. While it is always encouraging to have volunteers, if they are not trained to help effectively, they take up precious resources that should go to those in need.”

Another organisation to step up to the plate was the Taiwan Buddhist Tzu Chi Foundation, known as the largest



We were stretched to the limits of our capacity during the Indian Ocean tsunami.

NGO in the “Chinese world”, with a record of aid relief efforts in over 80 countries.

In their post-tsunami efforts, Tzu Chi volunteers collected donations in 30 countries from Jan 1 to March 31, 2005, raising US\$81.9 million in the process.

Volunteers from Taiwan, Malaysia, Singapore, Canada, the United States, Hong Kong and Australia – all led by Danny Lee Mun Keat for 17 months after the disaster – concentrated on Hambantota, the hardest hit area in southern Sri Lanka.

“To get to the area, we had to travel through the mountains for eight hours as the coastal road for the usual six-hour journey was destroyed,” says the 53-year-old Lee, who spent two Chinese New Years on the ground there for what he initially thought would be a two-week assignment.

Immediate relief for Sri Lanka, Indonesia, Thailand and Malaysia came in the form of food and necessities such as blankets, sugar, cooking oil, milk powder and basic supplies, with water filtering systems making their way to affected areas in Indonesia.

In the first two months, Lee coordinated the challenge of distributing over 2,000 tonnes of rice from Pakistan to the affected populace in Sri Lanka, with each 50kg pack painstakingly divided into 10kg rations for easier transportation by weak and malnourished tsunami victims.

Medical teams were also sent to Sri Lanka, Indonesia



In addition to building houses, the volunteers also completed schools for the many young victims of the tsunami.

*Photo: Tzu Chi Foundation*



For 17 months after the disaster, Danny Lee Mun Keat led the volunteers in relief efforts in Hambantota, the hardest hit area in Sri Lanka.

*Photo: Tzu Chi Foundation*

and Malaysia.

Apart from monetary contributions, other donations include thousands of pairs of sports shoes from a factory in Malacca, while temporary tents sent to Sri Lanka and Indonesia were donated by a Taiwanese businessman.

Unfortunately, not all donations were usable.

“A lot of Western countries sent thick clothes and blankets that were unsuitable for the hot and humid weather in Sri Lanka. A Singaporean donor sent soya bean packet drinks, but Sri Lankans do not favour nor drink that flavour,” says Lee.

Instead, he preferred to use monetary donations to buy food supplies from local vendors and get the economy in motion again.

In the few years that followed, the volunteers rebuilt the Da Ai (Great Love) village with the help of local contractors, along with the major infrastructure the area required, such as roads, electricity poles, infrastructure and piping.

In Sri Lanka, a total of 649 houses were completed in 2006 along with a school and community centre. In Indonesia, 2,566 houses were constructed for three villages, with nine schools, and a mosque, clinic, market and community centre.

Whenever he visits the village, Lee is heartened to see the efforts of some to beautify their homes. He recalls how Tzu Chi first built temporary housing in the form of 300 huts, with the assistance of the Sri Lankan army, using the 101ha of land allotted by the local government,

“We flattened the area and made a smooth and level sand

A lot of Western countries sent thick clothes and blankets that were unsuitable for the hot and humid weather in Sri Lanka.



Much-needed medical help was provided by Tzu Chi Foundation volunteers in the aftermath of the disaster.

*Photo:  
Tzu Chi Foundation*

base for each hut, so the victims could rest comfortably. We also tried many ways to help them live inside without feeling too hot, like using netting for the top.

“Even though the first form of housing was only temporary, I remember Dharma Master Cheng Yen saying that we must let (the tsunami survivors) live in good conditions throughout,” he explains with a smile.

Medical services, food and home care visits were provided for the first year, but currently there is only a minimal number of personnel there to assist in about 50 home visit cases in Hambantota.

“People there have rebuilt normal lives. I’m happy to say some have even gone overseas to better their fortunes,” Lee adds.



About an hour's drive from the centre of Meulaboh, a battered fishing boat sits stranded on a remote beach, one of 10 vessels given by Singapore aid agencies to the Acehnese to support their livelihood as fishermen.

*Straits Times Photo: Hoe Pei Shan*

# Mismatch of aid and needs

**Along a remote beach about an hour's drive from Meulaboh's city centre,** a battered fishing boat sits anchored.

It is one of 10 such vessels each costing about S\$250,000 funded by aid from Singapore and given to the Acheneese to support their fishing livelihoods after the tsunami. But the boat has fallen into disrepair in the past few years.

On one side, its name "Harapan" – meaning "Hope" in Bahasa Indonesia – indicates the message its donors may have had: to lend hope to a coastal community by providing bigger, better boats capable of bringing in more fish.

But on the other side, the reality is stark: A large chunk of the hull appears to be missing, worn or battered through. Broken wooden planks are exposed under peeling paint.

The receivers of Harapan appear to have abandoned their gift, one that they had not necessarily sought or were obliged to use.

## Hoe Pei Shan

The Straits Times  
In Meulaboh, Aceh

Aid agencies had advised the fishermen to form co-operatives, working in groups to run the boats and bring in larger hauls to feed their community and fuel the economy after the disaster.

But as one of the Harapan's former supervisors shared, the Acehese fishermen were not used to this sort of set-up, and after trying it for a year, the group splintered and went back to their ways of getting their catches mostly as individuals on smaller boats.

The Harapan's fate is an example of how the initial outpouring of aid in tsunami-wrecked Aceh appeared in some areas to be incongruous with local needs and culture, as well as management capabilities.

People are very conservative and generally gravitate back towards their pre-disaster life.

A total of US\$14 billion was donated by governments and international organisations in the aftermath of the tsunami.

“Our study of over 67 tsunami-affected villages in Aceh found that aid projects that focused on re-establishing aspects of life... that existed before the tsunami were more successful and sustainable than projects that sought to introduce new concepts and ways of life, such as the boats for collective fishing,” says Dr Patrick Daly, principal investigator at the Earth Observatory of Singapore.

“People are very conservative and generally gravitate back towards their pre-disaster life.”

Dr Daly is co-director, along with International Centre for Aceh and Indian Ocean Studies' director Dr Saiful Mahdi, of an ongoing project studying the sustainability of post-tsunami aid in Aceh by international agencies.

“It is much easier conceptually to provide emergency

supplies, medical services and temporary shelter than it is to re-design a brand new society that is better than the pre-disaster state,” he adds.

Citing the example of NGOs giving Acehese women sewing machines in a bid to introduce a new source of income for them, he says: “We haven’t seen a single home that still keeps and uses its machine.”

Benjamin William, secretary-general of Singapore Red Cross (SRC), the agency behind Harapan, says most of his organisation’s projects have been assessed as successful, but acknowledges that “it is not uncommon for aid projects without support mechanisms to face sustainability issues in the long run”.

“One common reason is that the aid agencies decide the type and scope of aid by what they perceive is needed and useful by the local community instead of what is really needed,” he says.

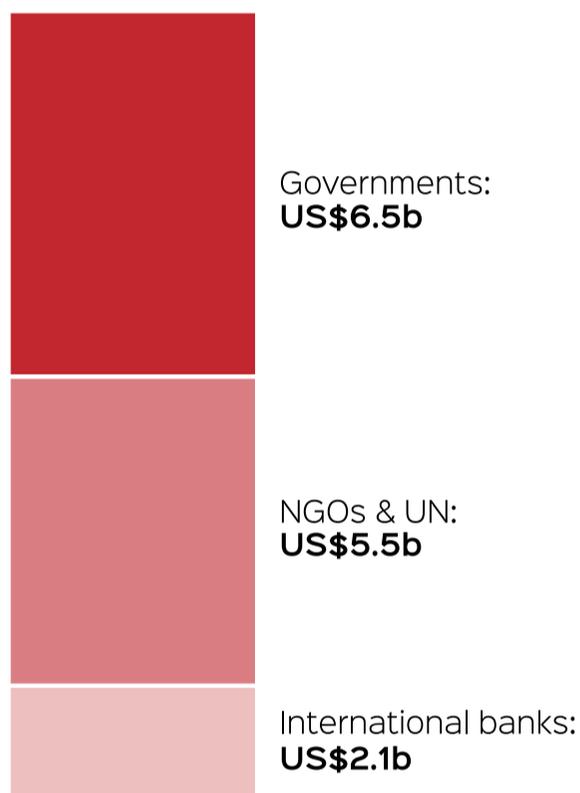
William adds that his organisation tries to reduce such risks through careful planning, execution and continued monitoring of projects.

These include houses and a community centre in Sri Lanka, as well as the installation of water tanks and the building of a school in Maldives – two other places that were severely hit by the tsunami.

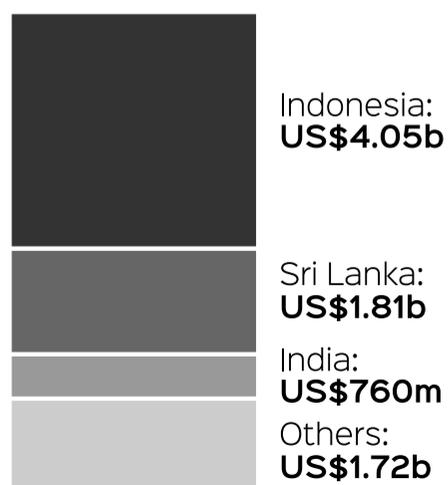
The mismatches of aid and local needs, however, have fortunately made up the minority of post-tsunami projects that Dr Daly and his team have studied.

“The overall reconstruction of Aceh has been a staggering effort, and the people of Aceh benefited greatly from the outpouring of

### Where pledges came from



### Where donations went



Source: ADB Institute

international support and aid, including vital aid from the government and private citizens in Singapore,” he says.

Some S\$89 million was given through SRC alone – the record amount raised for a single disaster. Much of it went to



Two-storey shophouses along a main street in Meulaboh which were built by NGOs after the tsunami. The buildings have open rooftops and serve as areas of refuge should another tsunami strike the coastal town.

*Straits Times Photo: Desmond Lim*

developments that have been key in Aceh’s recovery effort such as the modernisation and expansion of the Cut Nyak Dhien Hospital, and the rebuilding of the Meulaboh port and pier, reopening a crucial entry point to the coastal city.

But all the aid has also made locals complacent and over-reliant on NGOs, some say.

Dadek Hermansyah, who runs the government planning agency for the Aceh Barat region and has helped guide the rebuilding of Meulaboh, says people welcome help. But he is now determined to reduce reliance on international aid.

“We are a poor country, we must work for ourselves.”

Hasanuddin Abdul Raniadami, who was elected as head of Kampong Tengoh two years after the tsunami struck and oversaw his village’s recovery, agrees.

In the immediate recovery period, he recalls how NGOs



People welcome help but the reliance on aid needs to be reduced, says Dadek Hermansyah, who oversaw the rebuilding of Meulaboh.  
*Straits Times Photo: Desmond Lim*

would offer meagre salaries to villagers to do mundane chores, just to help them get back on their feet.

“People used to do such chores out of friendship and kindness for one another, but after they were paid by these organisations, they now always look for monetary incentives,” says Hasanuddin.

Dadek says he has observed the same, and that people today reminisce about a “lost culture”.

“Now people ask, ‘Where is the money?’” he laments.



# chapter 4



**BANDA ACEH  
JANUARY 2005**



**BANDA ACEH  
DECEMBER 2014**





ACEH JAYA  
JANUARY 2005



ACEH JAYA  
DECEMBER 2014



**MEULABOH, ACEH  
JANUARY 2005**



**MEULABOH, ACEH  
DECEMBER 2014**



**ACEH BESAR  
JANUARY 2005**



**ACEH BESAR  
NOVEMBER 2014**

*All photos: AFP*

**rebuild.**

We just want to continue with our lives, doing what we have always been doing and taking care of what is left of our families.

**BANLUE CHOOSIN, THAILAND**



A motorcyclist on the Meulaboh jetty, which was built with Singapore aid after the tsunami completely destroyed the old one in 2004.

*Straits Times Photo: Desmond Lim*

# Aceh's long road to peace

**In the foothills of Pidie regency**, a few hours' drive from Banda Aceh, government soldiers fired a rocket at a Free Aceh Movement (GAM) encampment on Sunday morning, Dec 26, 2004.

The ground suddenly shook – more violently than expected from the rocket fired by the soldiers. Silence followed. Everyone soon understood what had happened.

The massive earthquake and tsunami hit the coastal villages and towns hardest, including the capital of Banda Aceh. GAM soldiers were allowed to check on their families.

Former GAM defence minister T. Zakaria Saman received a call from Sweden. It was Malik Mahmud, GAM's foreign minister. "We were told to stop fighting," Zakaria said.

After 24 years in Sweden, he had asked GAM leader Hasan Tiro for permission to return home given his position as defence minister and his responsibility for the Acehese

**Ati Nurbaiti**

The Jakarta Post  
In Jakarta

following intensified military operations against GAM.

The people were suffering and the villages that had supported GAM soldiers with food and money to purchase weapons had been wiped out by the natural disaster. Military camps, such as those in Lamlo, had also been swept out to sea, along with the civilian populations.

Zakaria's illegal entry into Indonesia did not go unnoticed by the National Police, however, then under the command of General Dai Bachtiar, and a bounty of billions of rupiah was offered for Zakaria's head.

As chief security minister under former president Megawati Soekarnoputri, her successor, Susilo Bambang Yudhoyono, had been involved in earlier negotiations with GAM. These ceasefire attempts had not resulted in peace.

Negotiations started in 2002 with the initiative of then chief minister for people's welfare Jusuf Kalla. The businessman, who later became Yudhoyono's vice-president, had managed to limit the violence in both Poso, Central Sulawesi and, at an earlier date, in Maluku.

Kalla's top negotiator, Hamid Awaluddin, later law minister under Yudhoyono, wrote of several meetings with GAM leaders in Jakarta, Makassar, the Netherlands, Malaysia, Denmark and Sweden. Sometimes they failed to show up at scheduled meetings, apparently "testing our resolve".

One ceasefire brokered by the Geneva-based Henri Dunant Centre along with a few other organisations ended in the 2003 attack and burning of the ceasefire committee office in East Aceh. This followed the traumatic arrest of six GAM negotiators in July 2001 after



What would happen if outsiders helping Acehnese were suddenly kidnapped or murdered?



attending talks with Indonesian authorities in Banda Aceh. This was “just like the Dutch kidnapping of Diponegoro” on the pretence of inviting him for negotiations, Zakaria said, citing the fate of a leading prince fighting Dutch rulers in the late 1800s.

A few days after the 2004 disaster, Hamid was summoned by Kalla to his residence. Kalla said the war must stop.

“What would happen if outsiders helping Acehnese were suddenly kidnapped or murdered?” said Kalla, according to Hamid’s memoir, *Damai Di Aceh* (Peace In Aceh).

Hamid and Sofyan Djalil, an Acehnese who was the information minister and now the coordinating economic minister, were told by Kalla to step up efforts for a final negotiation. The main intermediates on Kalla’s staff were Farid Hussein and Juha Christensen, a parliament member in Helsinki who was interested in helping Aceh’s peace process.

Ahead of the meetings with GAM leaders, Kalla first invited ambassadors from countries including those where GAM leaders had permanent residence and citizenship – Sweden, Denmark, the Netherlands, Malaysia and Singapore – and Libya, where they had trained. Japan and representatives of the EU, which was involved in ceasefire attempts, were also invited.

Fishermen bringing in their catch at the fishing port in Meulaboh. In the background stands a shophouse partially damaged in the tsunami.

*Straits Times Photo: Desmond Lim*

The main tools of negotiation Kalla gave Hamid and Sofyan were two sheets of paper filled with diagrams that Hamid had come to recognise during negotiations in Maluku and Poso. Hamid said these guided the basis of negotiation, which outlined demands for both sides and the “solution”.

Kalla had even determined that a peace agreement would be signed on Aug 15, 2005. The “Helsinki MOU”, as it is known, was signed on the 15th of that month. The initial concept from Kalla “is proof that we were not dictated to by GAM” as nationalists had accused them of being, Hamid said.

In early meetings some GAM delegates were “highly cynical”, Hamid said, given the long gone trust of the central government. The government settled on the Helsinki-based Crisis Management Initiative (CMI) led by former Finnish president Martti Ahtisaari as the mediator, who turned out to be deftly assertive with both parties.

Yudhoyono and Kalla forged ahead, despite perceptions that GAM was “a domestic matter” and the Helsinki talks were “informal” and thus the product would not be legally binding. This was the pervasive “myth”, said Hamid, as Aceh was already an international issue, more so with the natural calamity. The international community fully realised it had to channel aid and help with Aceh’s rehabilitation under the Jakarta government, Hamid noted.

Angry politicians questioned why the government was negotiating with separatists who were largely referred to as lowly, criminal and obscure security disturbance groups.

People always think the TNI doesn't want peace. That's illogical. Many of our soldiers have died and have become disabled there.

Why were negotiations not held in Jakarta and why were ministers sent to Helsinki instead of much lower-level civil servants?

Kalla and Yudhoyono kept encouraging their harassed negotiators, telling them to focus on the many victims of the war and the disaster in Aceh, including victims from the security forces and their families.

“Thank goodness Yudhoyono did not take Ryacudu,” said one of the GAM negotiators, Nur Djuli, as then army chief of staff Ryamizard Ryacudu was among the chief hawks opposing the peace talks.

Clashes still broke out between government troops and GAM. Survivors said some soldiers still harassed residents, taking their aid items. Tents and radios were among the items soldiers took with virtually no resistance.

“Strangers from all countries came to help us but the Indonesian Military (TNI) still searched us, suspecting we were GAM,” one survivor said bitterly.

Hamid cited words of encouragement from General Endriartono Sutarto, the TNI commander: “Anything you need, the TNI is ready to support you... People always think the TNI doesn’t want peace. That’s illogical. Many of our soldiers have died and have become disabled there. How could any commander have the heart to allow a situation to continue where his soldiers could die and suffer?”

To EU delegates who questioned “arrogantly” what would make the negotiations succeed this time, Nur Djuli cited Indonesia’s extraordinary changes with democracy and decentralisation, increasingly costly wars during economic recovery and the international attention on Aceh following the disaster.

“When both sides see it cannot achieve a military victory, only then is peace possible,” Nur Djuli said. Besides, hungry soldiers do not win wars, he added. TNI and police members were suspected of selling or renting out weapons to GAM,



saying their families were in need despite the billions spent on the military operations.

Public opinion was fanned by politicians and media. People wondered why after two months of talks GAM had not announced it was willing to drop its demand for independence. Protests were raised over the Indonesian leaders' offer for Acehnese to have their own syariah-based bylaws and their own local political parties – both were unthinkable privileges only for Aceh, although other provinces also had autonomy.

Hamid wrote that top GAM negotiator Malik Mahmud asked him to convey to Indonesia's leaders that an announcement proclaiming GAM's acknowledgement of the unitary republic was impossible, "as the boys on the ground might become uncontrollable".

The TNI would react and the war would start all over again, he said, during their stroll outside the negotiating venue in Helsinki, an old mansion Hamid described as "soothing".

"It goes without saying," said Malik, that GAM leaders agreed to come to Helsinki reflected their acknowledgment of the terms of each invitation from Ahtisaari, that the talks were in the framework of the unitary state of the Republic of Indonesia (NKRI).

Former rebels of the Free Aceh Movement (GAM) handing over the last of their weapons to the Aceh Monitoring Mission (AMM) in Banda Aceh on Dec 21, 2005.

*Photo: Reuters*

Amid threats that the talks would collapse, during each round “people across Aceh prayed for us in meunasah (small mosques)”, clearly signalling that the people wanted the talks to succeed, Nur Djuli said.

Zakaria said: “During all the rounds of the Helsinki talks I was in touch twice a day with the leaders in Sweden through satellite phone. Following the threat of a deadlock we finally agreed to self government, special autonomy within NKRI, under an agreement that the authority of the central government and that of Aceh would be clear.

“We rejected mere autonomy as we had been duped since the 1960s,” which eventually led to the birth of GAM in 1976. “So with self government we would have more than the other provinces. This would be after 30 years of war – a fight for justice, not just for the Acehnese but for others, even the Javanese living in Aceh who supported us because they had also experienced injustice” mainly at the hands of Indonesian soldiers. Aceh became a world model for peace settlement, he said.

The final MOU, Nur Djuli said, “was not a victory for GAM, it was a victory for the republic”. For the first time, the Acehnese acknowledged the unitary republic in an international setting, he said. The CMI went on to win the 2008 Nobel Peace Prize.

In his acceptance speech, Ahtissari said that as the MOU was only a start, “social and economic reforms can only progress if both negotiating parties and the population... are committed to them in the long term. Work remains to be done in developing a national system that protects, sustains and improves the quality of life in Aceh”.

Given the obvious painfully slow process, a young resident muttered: “War seems to have a cycle of every few decades in Aceh.”



A syariah policeman taking down the particulars of a young couple found sitting too close to each other in a dark area of the Meulaboh jetty.  
*Straits Times Photo: Desmond Lim*

# Aceh's special type of tourism

**Meulaboh's recovery from the 2004 tsunami has seen its economy improve.** Young people flock to its university and now, resort-owners come a-knocking.

After all, the drive from Banda Aceh to Meulaboh, with long stretches of undisturbed white sandy beaches, is scenic. Investors are lured by its tourism potential but residents have resisted.

“We do not want this town to be transformed into the next Bali, with tourists in skimpy clothing, because we still want to uphold our syariah law,” says Ridhwan Syah, a hotel manager whose hotel reports any unmarried couples to the syariah police.

District chief Alaidinsyah says he has been in serious talks with at least two investors keen on building beach resorts.

“Opening resorts is an attractive option to raise Meulaboh's economy and we are open to it,” he says. “But how do we socialise tourists to respect the dress codes and



## Zubaidah Nazeer

Indonesia Correspondent  
The Straits Times  
In Meulaboh, Aceh

norms?”

That is the challenge the port town now faces as its recovery heightens the desire to open up to tourism, while at the same time, to preserve its cultural and religious traditions.

Parts of syariah law are strictly practised here as part of a special autonomy granted Aceh in a 2005 peace deal that ended a three-decade-long bloody conflict that killed 30,000.

It allows a special unit of the syariah police known as the Wilayatul Hisbah to conduct frequent raids on acts deemed criminal under syariah law, such as unmarried couples seen in close proximity and women wearing tight pants or without a headscarf.

Muslims who drink alcohol or businesses which operate during Friday prayers can be summoned. Syariah law violations carry sentences ranging from fines to whipping for severe offences like adultery.

A pair of Dutch tourists spotted in Meulaboh say they were caught off-guard when they arrived in the port town after journeying down from Banda Aceh.

“I was stared at and one man blinked at us when we asked him for directions,” says Anja Russ, who is in capri trousers and short-sleeved loose-fitting T-shirt.

Similar scenarios play out in other districts in the province too.

In Pulau Weh, an island off Aceh’s mainland regarded as a top dive-spot because of its clear waters and colourful



We do not want this town to be transformed into the next Bali, with tourists in skimpy clothing, because we still want to uphold our syariah law.



marine life, tensions have flared between local communities and tourists. At its popular Iboih beach, there have been tourists in beachwear being jeered and having small stones tossed at them.

Two months ago, a banner with the words “To tourists, please dress properly” was hung outside the entrance of tourist bungalows in the island’s Sumur Tiga district by residents in the area, although hotel operator Freddie Rousseau says the resort has been there for nearly 10 years without incident.

And since July, his neighbouring residents have taken to blaring religious recitals at 5am as part of a religious training for children, though no one apart from the teacher is in the training shack next door.

“We have always told guests we don’t serve alcohol and we urge them to dress in loose-fitting clothes or in long trousers and long-sleeves. We think this is an intimidation to flush out foreigners,” says Rousseau, a former tsunami aid worker with the International Labour Organisation (ILO) who married an Acehnese and stayed on after the relief efforts ended.

Murthalamuddin, head of communications at the Aceh

A shopkeeper is asked by the syariah policemen to remove a mannequin with tight pants in Meulaboh.

*Straits Times Photo:  
Desmond Lim*



Governor's office, says his provincial government is aware of these issues.

“We have an image problem. People only know two things about Aceh – the conflict and syaria law,” he says.

He contends that syaria law is not an obstacle to progress and is being used to bad-mouth Aceh. His provincial government is concerned enough about Aceh's image and has hired consultants to rebrand its tourism potential and market it by next year.

The plan is to develop syaria tourism as well as disaster tourism, tapping on the rising number of visitors to the province's preserved tsunami-wrecked sites and the Aceh Tsunami Museum.

Urging beach resort operators simply to respect the local laws, he says: “Our tourism is a special type – we don't see ourselves as a main beach resort, it cannot happen.”

Syaria policemen out in their patrol car doing their rounds in Meulaboh, on the lookout for offenders of syaria law.

*Straits Times Photo: Desmond Lim*



Banlue Choosin, who lost all his worldly possessions in the tsunami, still makes a living from fishing. *Photo: The Nation*

# Where a village once stood

**Baan Nam Khem was among the worst hit townships in Thailand,** with more than 2,000 people killed during the tsunami.

“Things changed after the tsunami – the community changed. Besides it being smaller, people are more selfish. They don’t care for each other like they used to,” says 49-year-old Banlue Choosin.

The small fishing village located in Phang Nga province had about 6,000 residents before the tsunami. Now, nearly a decade later, only about 2,000 people remain part of the fragmented community.

Before the tsunami struck, a white line of waves appeared on the horizon and many villagers came down to the beach to look at it. It was not until they saw a boat being tossed about by the waves that they started to run.

“The houses were close to the beach, as we were mostly fishermen or worked at shrimp farms in the village,” says

**Chutharat Plerin**

The Phuket Gazette  
In Phuket

Banlue.

He lost his mother-in-law and nephew, but other families were completely wiped out.

Weerachai Nakyim, 34, lost his wife and one-year-old daughter.

“My wife, daughter and I were at our shop on the beach,” he says.

“I had my daughter in my arms when the wave struck – she was pulled from my hands.

“My wife was calling my name when she was washed away – there was nothing I could do. Those are my last memories of my family – they haunt me.”

Despite the devastation, some people, such as Weerachai, stayed on but nearly 2,000 others fled.

Even those who did not lose their entire families lost everything else.

“I lost my home, my fish farm and my boat. They were all the worldly possessions I had. However, I am grateful that my family is safe,” Banlue says.

Relief efforts began just one day after the calamity, with temporary houses being built and donations rolling into the village.

The help came from both the government and the private sector.

“There were psychiatrists, hospital workers and volunteers,” says Banlue.

The Chaipattana Foundation, founded by HM King Bhumibol Adulyadej, provided new boats for fishermen, while private organisations paid villagers 175 baht a day to start making their own fishing equipment.

It was not until about two-and-half years later that the



I lost my home, my fish  
farm and my boat...  
However, I am grateful that  
my family is safe



A Thai girl from Baan Nam Khem village in one of the tents provided in the relief effort on Jan 6, 2005. She lost her house in Takua Pa district, about 130km north of Phuket.

*Photo: Reuters*

army started helping villagers build permanent houses. The army required land ownership documents from the villagers before building the homes. However, most villagers had lost their documents in the waves and were forced to wade through the bureaucracy of the Land Department to prove ownership of their land

A decade later, many organisations have moved on. However, the New Light Foundation continues to work closely with the Baan Nam Khem community.

“I was a missionary in Bangkok at the time of the tsunami, and as soon as I heard about what had happened, three of my friends and I came down to Baan Nam Khem to help the victims,” says Singaporean Jason Goh, the foundation’s director.

“Since then, we have been taking part in re-building the community... We also started a school and are constantly providing leadership training for young people.”

A decade after the disaster, he is finally seeing positive changes.



Although he has decided to stay in the village, Banlue Choosin says he knows where to run if another tsunami comes.

*Photo: The Nation*

“The younger generations are trying to not be trapped in their current life situations and by the memories of the tsunami,” he says.

Though the community has changed in both positive and negative ways, those who remained after the tsunami have accepted their fate, Banlue says.

“We just want to continue with our lives, doing what we have always been doing and taking care of what is left of our families. If another tsunami comes, we know where to run. And if the wave is determined to wash us all away, we will face it.”





# Saved by orphanage

Susanne Jansson at Barnhem Muang Mai orphanage in Phuket.  
*Photo by Jeremie Schatz / Phuket Gazette*

**The tsunami that swept across Sri Lanka, Indonesia,** Thailand and many other South-east Asian countries in 2004 ended the lives of more than 200,000 people and changed the lives of millions.

However, in the attempts to recover, seeds were sown that are now starting to bear fruit.

“My girls died in Thailand, but actually it was sort of Thailand that saved us,” says Susanne Jansson, who manages the Barnhem Muang Mai orphanage in Phuket with her partner, Hans Forssell.

Jansson lost her two daughters and ex-husband in Khao Lak – one of the worst hit areas in Thailand – on Dec 26, 2004. And with them, she lost her purpose in life.

Up to that point Jansson, who was working in advertising in Stockholm, Sweden, was focused on raising her daughters – Eleonor, 14, and Josefin, 12.

“They were happy people. They were nice, they loved

**Isaac Stone  
Simonelli**

The Phuket Gazette  
In Phuket

life, and they loved everything around them. With them losing their lives, I realised that to honour them, I had to do something great with the rest of my life and I had to live for them as well,” Jansson says.

The girls had been on holiday with their father and his new family when the tsunami hit.

“It took me a long time to accept the fact that something bad had happened. Even when we decided to jump on a plane to go look for them, I still thought, ‘This is a stupid idea, because when we land in Thailand we will have a phone call saying that the girls and the family are back in Sweden’,” says Jansson.

However, the phone call or message saying everything was OK never arrived.

From the loss, however, came an opportunity for Jansson and Forssell to grow and provide for dozens of children in need of food, shelter, education, guidance and love.

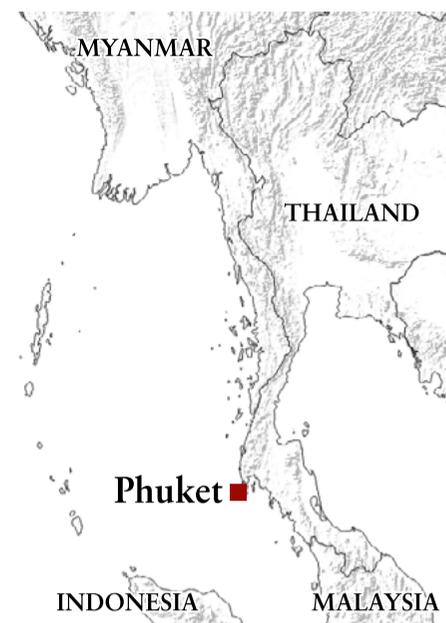
They set up the Barnhem post-tsunami orphanage.

“What better way to honour my daughters than to help other children who don’t have such a good life and to give them the opportunity to make their lives better?” Jansson says.

The first child to get the support provided by Jansson, Forssell and the long-term staff at Barnhem is Neng, who goes by a single name.

Neng is now in his second year of university in Chiang Rai studying multimedia and communications.

“With Neng now in university, he has proven to them



What better way to honour my daughters than to help other children who don't have such a good life and to give them the opportunity to make their lives better?

(other Barnhem children) that this is possible. For Barnhem, this is really important because he is proof that if you work really, really hard, you can make the change for yourself,” Jansson says.

“He came home to us after his first year of university and shared his experiences with the other children. He had changed so much, especially from how he used to be quite ashamed of himself and his background – of having lived with us and being an orphan – to being proud,” Jansson says.

“He is actually proud of his background now, because he is starting to understand that he is a self-made person – he has accomplished this himself.

“With a home for children, it takes time to see if you produce anything. Neng is like our first child, hopefully the first in a very long line. We don’t know what the future holds. We can’t force the children, but we can encourage them.”



Susanne Jansson with children under the care of the orphanage, which she set up in honour of her two daughters who perished in the tsunami.

*Photo: Jeremie Schatz /  
Phuket Gazette*





A woman balancing water jugs on her head in Cuddalore district, which was ravaged by the tsunami in 2004 then rebuilt with aid from around the world.

*Photo: Reuters*

# Schools for fishing communities

**Down Tamil Nadu state's fabled Coromandel Coast from Cuddalore to Nagapattinam**, fishing villages on the shore were struck by the tsunami and wiped out. Over 18,000 people died on the coast; the fishing communities were the worst hit.

Tens of thousands of houses have been built for those who lost their homes, mostly in places further from the shore. Up to 80,00 boats were damaged and destroyed, and new ones given to all of their owners.

But in some of these communities there remains a sense of dislocation. The tsunami altered not just this region's physical contours, but its social and psychological landscape too.

Money poured in – from aid organisations, the government, the United Nations, the World Bank, the Asian Development Bank, and an array of NGOs – and it brought relief and hope.

## **Nirmal Ghosh**

Indochina Bureau Chief  
The Straits Times  
In Cuddalore, Tamil Nadu

Today the spinoffs continue. One remote rural school in Nambikkai in Cuddalore district, for example, was set up for tsunami orphans with Italian aid. It now provides schooling for orphans in general, as well as children from dysfunctional families. Italian university students take turns to come and teach there.

The Irula tribe, once semi-nomadic and who until the 1970s made a living from catching snakes and supplying the snakeskin market, also benefited. The tribe lost homes, possessions and livestock in the tsunami, but being largely situated well back from the beach, no lives were lost.

The community of 65 families in Thottithopu in Cuddalore district has been able to rebuild homes and lives with assistance from the state and from NGOs which, among other things, have also paid for new school facilities.

Before the tsunami, few of the children in the affected districts went to school and fewer still completed their education; today all of them go to school. Even some of the older, illiterate women have learned to sign their own names.

Girls, who once routinely dropped out of school on reaching puberty, stay on longer today. Some are training to become nurses.

Vijayalakshmi, 29, who is now a qualified teacher, describes herself as a “creation of the tsunami” because of the opportunities the disaster provided in its wake as aid and attention poured in. “Education was given priority only after the tsunami.”

But there are exceptions. In many communities, the aid and rebuilding have not addressed fundamental problems.

For example, houses have toilets, but it is a struggle to teach some communities how to use them, as people have



Education was given priority only after the tsunami.



for generations used the surrounding countryside. In some places ground water became saline; in one resettled village, residents have to pay 2 rupees for a 5-litre container of fresh water from a private water truck.

The state government is trying to eliminate the factors that contribute to making disasters worse, says Suresh Kumar, the district collector, the top official of Cuddalore.

In an interview, he says: “We are converting more and more temporary houses into full-fledged houses. We are in the process of constructing 80,000 such houses.”

Under another scheme, 100,000 houses had been built, he says. “The government played an excellent role,” says Arul Selvam, an independent environmental and social activist who helped coordinate rescue and relief efforts after the tsunami.

But the trauma still runs deep, he says. “Can you imagine the impact on the fishing communities? Usually when you lose a family member it is a big loss. In some families, several

A villager standing amidst the devastation in Cuddalore on Dec 27, 2004, after the tsunami struck the Indian coast.

*Photo: Reuters*

were killed. How do you fill the void?”

C. Malarvannan, another Cuddalore-based activist who trains village teams in disaster response, tells *The Straits Times*: “The tsunami left many mentally disabled. Children saw their parents die. Old people saw their children die.”

The avalanche of money has also changed people, say activists, some of whom view aid organisations with scepticism, working closely with communities. At the famed shrine to the Sufi saint Hazrat Shahul Hamid at Nagore in Nagapattinam district, resident Abdul Hamid Sahib shows me the mass grave of some 400 tsunami victims of all faiths.

“Money poured in,” he says. “It was eaten up by people who were helping the tsunami victims. The survivors paid the price for their prosperity. They got houses and 100,000 rupees from the government. But who prospered and who did not, is up to that person’s capabilities.”

P. Vanaja, who arrived in Nagapattinam district on the day of the tsunami and has run part of the operation of the Indian NGO *Sneha* there ever since, says the 10 years that followed the disaster have been a mixed experience.

“A consortium of NGOs and the government was able to use the money to construct houses, but many don’t have basic facilities like water connections, and some don’t have weatherproof roofs. And up to 3,000 families still don’t have houses,” she says.

And she echoes many of the other activists *The Straits Times* spoke to, who say the nature of communities has also been disrupted.

While communities once were together, some have been split up by relocation and re-housing projects.



With rebuilding comes more opportunities. Divya, 20, is training to be a nurse as the post-tsunami efforts bring greater recognition and aid to her marginalised Irula tribe.

*Straits Times Photo: Nirmal Ghosh*



More changes loom. The coast between Pondicherry and Nagapattinam is now pocked with the soaring towers of heavy industries under construction – power plants, an oil refinery, ports and chemical plants. The districts of Cuddalore and Nagapattinam are considered “backward” and the state government wants to industrialise and create jobs.

“The fishing community has been told it shouldn’t be within 500 metres of the high tide line,” says Vanaja. “But the state government is giving the land to power plants and hotels, so it seems like a hidden agenda.”



Nirmal Ghosh talks to local villagers and officials to find out how their lives have changed, and how they are preparing for future tsunamis.

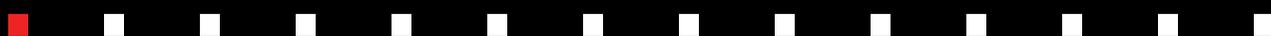
*Straits Times Video:  
Nirmal Ghosh*

# Gallery: Life goes on in Aceh

Straits Times photojournalist Desmond Lim visited Meulaboh and Banda Aceh in September and captured the lives of people and their surroundings, 10 years after the tsunami devastated their cities.

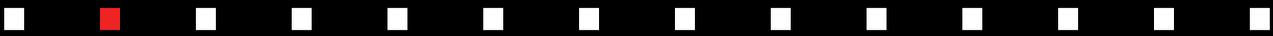


Swan-shaped paddle boats floating in the tranquil waters off a beach in Banda Aceh.



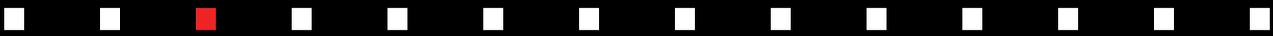


Fishermen mending their nets in the Kuala Bubon fishing village in Meulaboh.



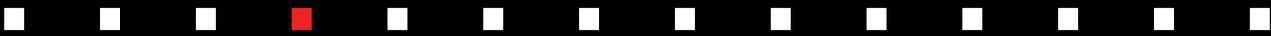


Anglers fishing on a jetty that was completely destroyed in the tsunami but rebuilt with Singapore's help.



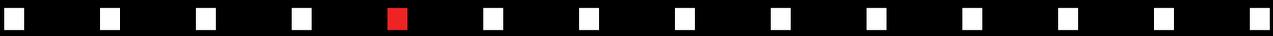


A boy cycling in the rain in a small village by the beach in Meulaboh.



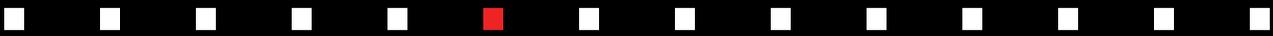


Girls discussing their lesson in a classroom at the Babussalam Islamic Boarding School in Meulaboh.



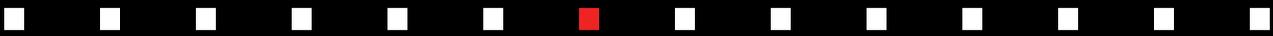


Inside a girls' boarding school in Meulaboh, wall murals depict scenes of Singapore, which helped in rebuilding the school.



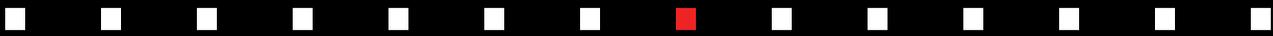


A baby crying in an incubator at a maternity ward in RSU Cut Nyak Dhién Hospital, which was built by Singapore.



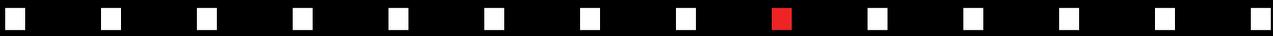


Motorbikes and delivery trucks on Jalan Nasional, one of the main arterial roads in Meulaboh.



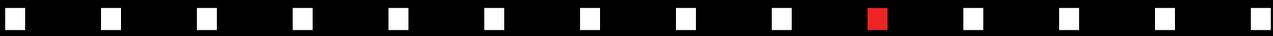


Meulaboh residents shopping for phones at a shop in Jalan Nasional, a main road in the coastal town.



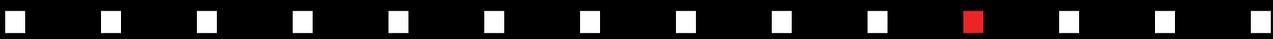


Meulaboh men getting together for a drink at a coffee shop and to watch a football game.



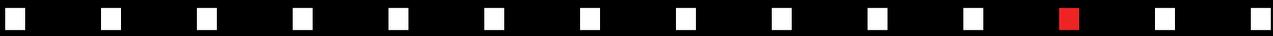


A street hawker grilling locally grown corn on a charcoal stove along a beach in Banda Aceh.



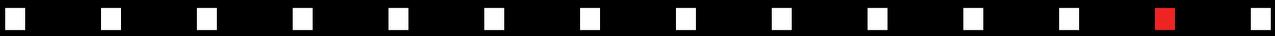


Syariah policemen listening to a briefing before setting out for a night patrol in Meulaboh.



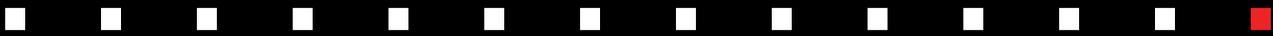


At a mosque in Meulaboh, men gather to perform their afternoon prayers.

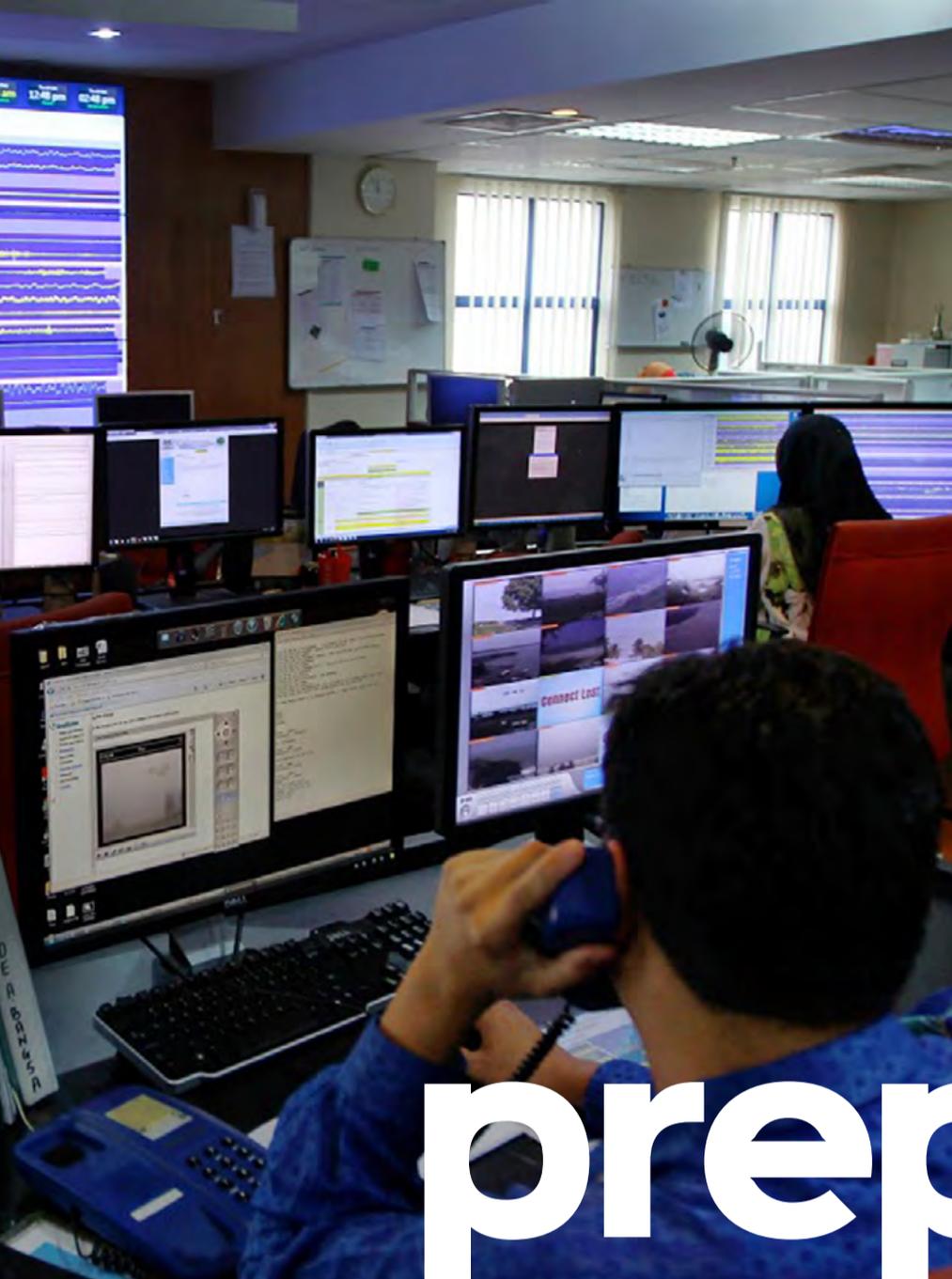




The 50m-tall minarets of Masjid Agung Baitul Makmur Meulaboh are the highest points in town. The mosque was a place of refuge during the disaster.

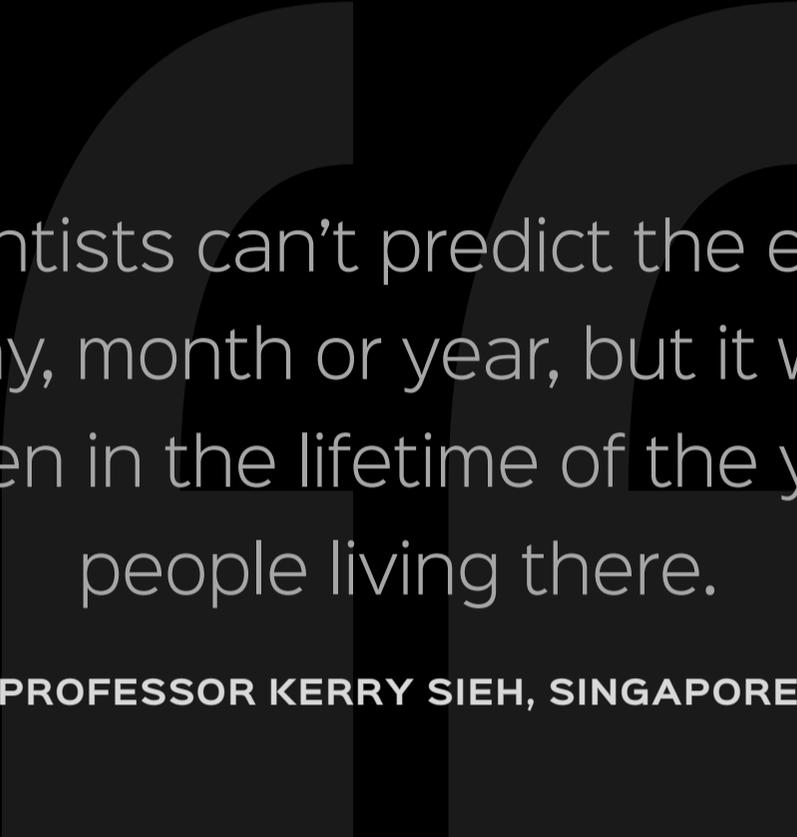


# chapter5



prepare.



A large, dark gray, stylized quotation mark graphic is centered on the page, framing the text. The quote marks are thick and have a modern, rounded design.

Scientists can't predict the exact  
day, month or year, but it will  
happen in the lifetime of the young  
people living there.

**PROFESSOR KERRY SIEH, SINGAPORE**



Andi Eka Sakya (right), head of Indonesia's Agency for Meteorological, Climatological and Geophysics, taking part in the Indian Ocean-wide tsunami exercise on Sept 9, 2014, in Jakarta.

Photo: AFP

## Always on alert

**Like electronic tentacles**, they sit anchored to the ocean floor kilometres below the surface, constantly measuring the vast volume of water around them for pressure changes that could indicate the build up of a tsunami.

The data is relayed by acoustic telemetry – coded bleeps – to buoys bobbing on the surface, which in turn relay the information to a satellite. Ten operational Deep-ocean Assessment and Reporting of Tsunamis (Dart) buoys are deployed in the Indian Ocean.

From the satellite, the data is shared across a network of listening posts on the Indian Ocean rim. Three countries are designated as Regional Tsunami Service Providers (RTSPs) – Australia, India and Indonesia.

At the RTSP nerve centres, technicians are at their terminals around the clock, listening to the Earth. Banks of computers hum and blink as they process data from a range of sources including seismometers which measure

### Nirmal Ghosh

Indochina Bureau Chief  
The Straits Times  
In Bangkok

earthquakes, and close to 100 tidal gauges which measure sea levels. Sophisticated computer models in seconds determine if a tsunami has been generated and then forecast its size and speed – and arrival times on land masses around the ocean.



Thai students taking part in tsunami evacuation training at Pak Meng beach in Trang province in southern Thailand on Sept 8, 2014.

*Photo: AFP*

While the surface buoys are regularly vandalised – mostly by fishermen anchoring their boats to them and thus dragging them out of position – the system which cost an estimated US\$400 million to US\$500 million to develop and set up has worked well, experts say. It has detected every tsunami since it was set up a few years after the 2004 disaster.

But as memories of that disaster that killed almost 250,000 people across coastal Asia fade, experts warn against complacency – among both the residents at risk and at the highest level of governments. Political will and financial commitment remain a must to keep the system running and, undoubtedly, save lives in the event of another major tsunami.

Within minutes of the data being received at the RTSPs, the conclusions are sent to other national centres at the edge of the Indian ocean. These in turn trigger a chain of

If there is a warning  
but people don't know what  
to do, then the warning  
doesn't work.

“tsunami watch” or  
“tsunami warning”  
messages, if warranted,  
to local authorities,  
agencies like the police,  
coast guard and the  
fire department, the  
media, and finally local  
non-governmental  
organisations (NGOs)

and community leaders.

Speed is of the essence to save lives. The target time, from detecting an earthquake and a tsunami and getting a warning out from the RTSPs, is 10 minutes. Then it is up to the national systems in individual countries to issue tsunami warnings.

“Forecast and warning is only one component of the warning system,” says Seattle-based Dr Vasily Titov, chief scientist at the US National Oceanic and Atmospheric Administration (NOAA) Centre for Tsunami Research.

“If there is a warning but people don't know what to do, then the warning doesn't work. If people know what to do but there is no warning, it doesn't work.”

In Thailand, technicians at the National Disaster Warning Centre (NDWC) in one room in Bangkok override and interrupt ongoing TV and radio programming, call key government departments and local town authorities through hotlines and send out thousands of text messages to mobile phones. Finally they trigger warning announcements and sirens at 328 towers along the coast that in 2004 had no such system and was devastated by the Boxing Day tsunami.

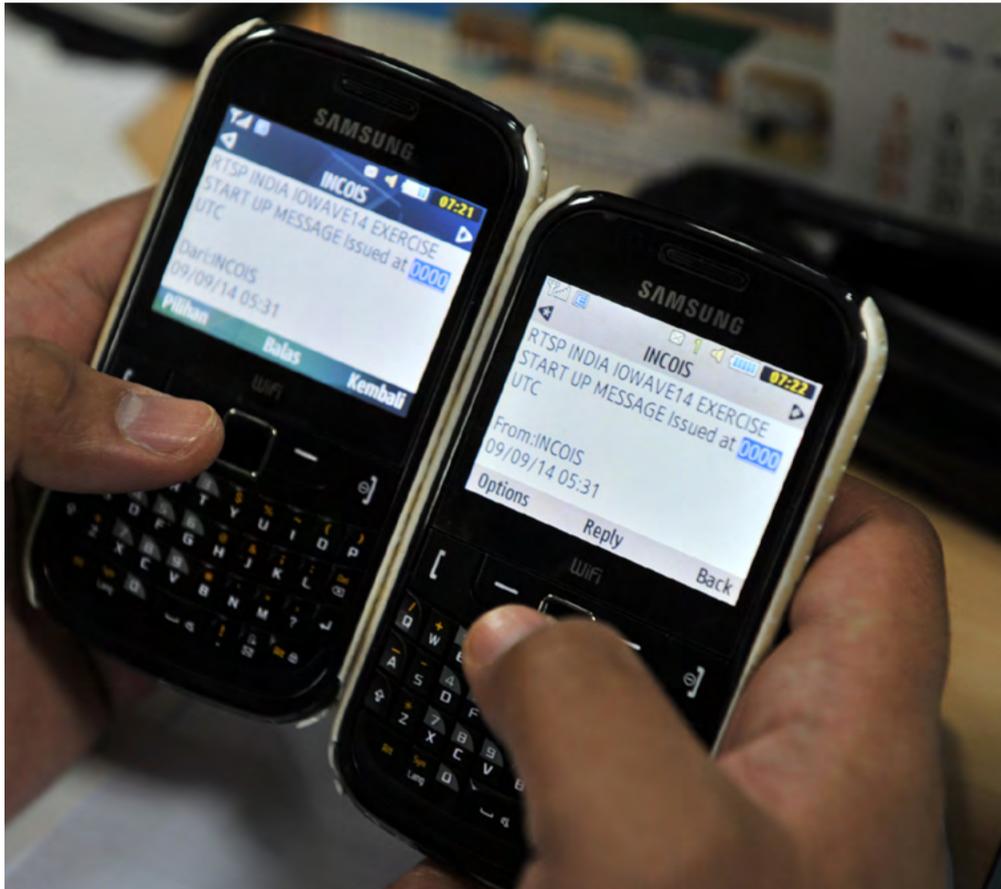
The NDWC technicians do twice daily internal drills, and occasionally full-blown tsunami warning drills. Thai beaches are highly developed tourism zones, and the industry is crucial for Thailand's economy. Beach hotels widely feature

tsunami evacuation route signs.

In India, the warning system relies more on swift communication with designated agencies, teams and individuals on the ground mostly on mobile phones. Scientist R. Elangovan, from the M.S. Swaminathan Foundation, is

one of many point individuals in the warning network. The foundation installs and runs communications equipment for fishing communities, and disaster warning and response are a part of its remit.

In an interview over a steel tumbler of strong south Indian coffee in the town of Cuddalore – one of



A message from the Regional Tsunami Service Provider (RTSP) India about an earthquake and tsunami alert, as part of an Indian Ocean-wide tsunami exercise to test readiness on Sept 9, 2014. Photo: AFP

the districts worst hit in 2004 – Elangovan says “knowledge workers” and disaster mitigation teams are in place at the village level.

The foundation could send a “voice SMS” or recorded phone message to reach about 7,000 fishermen on their mobile phones virtually simultaneously, from Cuddalore in Tamil Nadu to Kanya Kumari at India’s southernmost tip, he says.

And his own mobile phone is switched on constantly, even at night. “Within five minutes of getting the message from INCOIS (the Indian National Centre for Ocean Information Services) we get the message out to the fishing communities,” he says.

“The Indian Ocean Tsunami Warning System is actually a system of systems,” explains Perth-based Tony Elliott, head

of the secretariat of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS).

“Each country operates its own detection, monitoring and warning systems,” he says.

Since 2004, every single tsunami has been detected. Most of the time Dart was the first to detect them.

Elliott describes the data from deep sea sensors and buoys, from the network of 180 seismometers available in real time and from sea level gauges, as the “life blood of the system”.

“The technical challenge is maintaining a highly complex system with many different components,” he says. “Each part of the warning chain is essential. If any link in that chain breaks, then of course the whole system would have failed.”

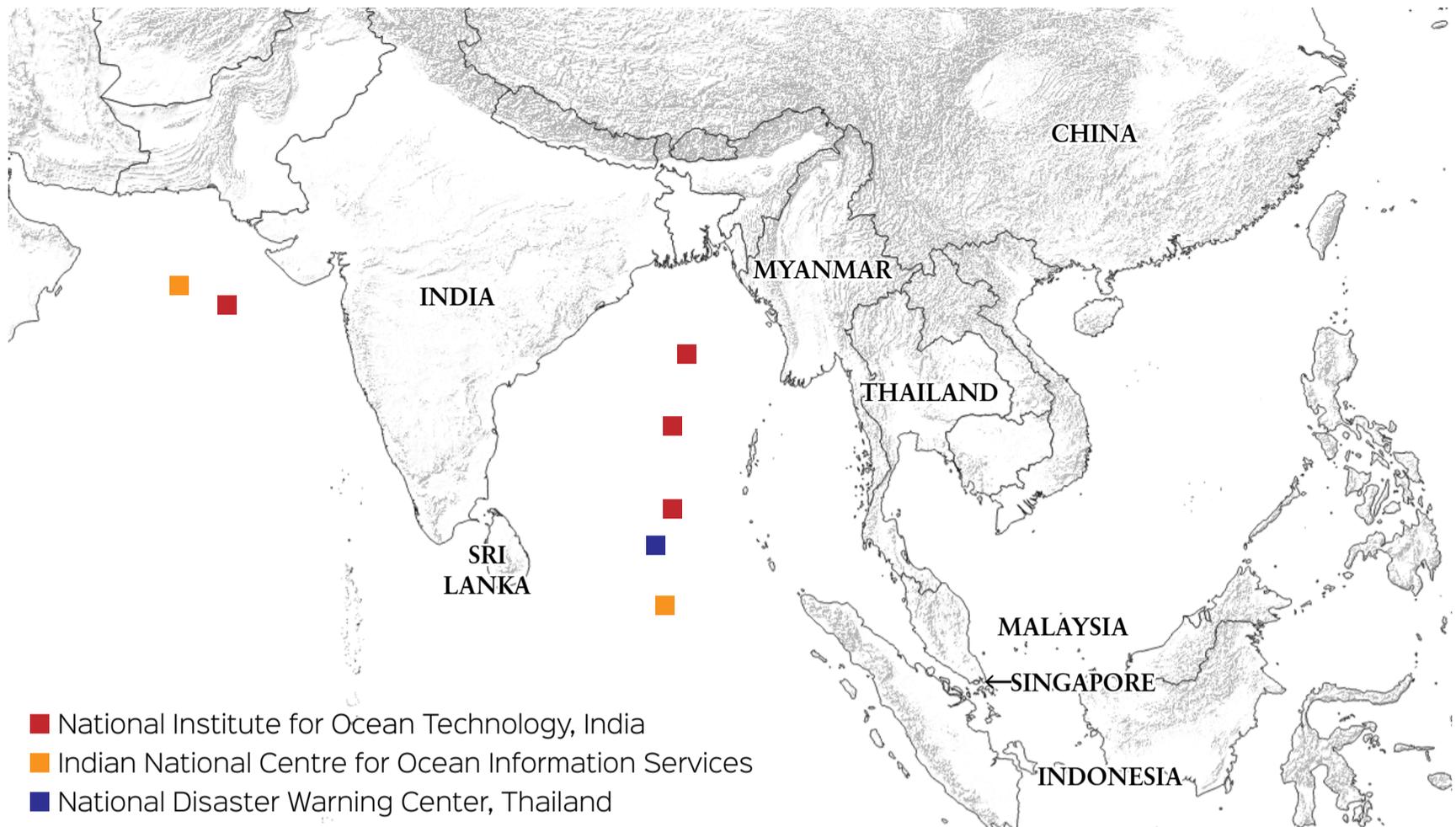
Scientists have more than 10 years of experience now and have gone through three generations of technology, and are working on a fourth, says Dr Titov in a phone interview from Seattle. “Since 2004, every single tsunami has been detected. Most of the time Dart was the first to detect them. We are confident that the system works pretty well.”

Charitha Pattiaratchi, a professor of coastal oceanography at the University of Western Australia who worked with Dr Titov, was near the beach at Payagala about an hour south of Colombo in his native Sri Lanka, on Dec 26, 2004, and witnessed the tsunami.

“The longer you go without an incident the less people are going to spend money,” he warns. “Maintaining the funding is probably the biggest challenge.”

Tsunami warnings are also a delicate business, he says.

# Active Dart buoys



SOURCE: NATIONAL DATA BUOY CENTER, NOAA

“Sri Lanka has taken a safety-first approach, it’s been more liberal with evacuation warnings. Then the question is, if you have too many of these warnings, people may not have confidence in them anymore.”

At the most recent Indian Ocean Wave 2014 tsunami warning exercise in September, based on a simulated powerful earthquake, warnings were transmitted down to the sub-district level in India but not beyond that. That means there were no warnings at the village community level.

But in at least one spot – the waterfront in the former French colonial enclave of Pondicherry – police did arrive about an hour after the alert from the INCOIS and cleared the normally busy promenade of people and traffic.

A couple of hours’ drive south though, on the beach in Nagapattinam district, families played as usual in the surf about 100m away from the imposing, centuries-old Basilica of Our Lady of Health – at the same spot where hundreds



A Thai official checking a tsunami warning buoy in Phuket on Dec 1, 2006. The buoy, which was deployed later that month, is part of the first warning system in the Indian Ocean.

*Photo: AFP*

died in 2004 as they waited for the Sunday service.

That scene, in which the 2004 disaster is far from the minds of most ordinary people, cannot but underline the critical importance of the tsunami warning system.

Without it there is a danger that the memory will fade. The neglected memorial tower nearby and the granite plaques along the long coast listing the names of the dead will be just signposts – until the next big earthquake below the sea, which is only a matter of time.



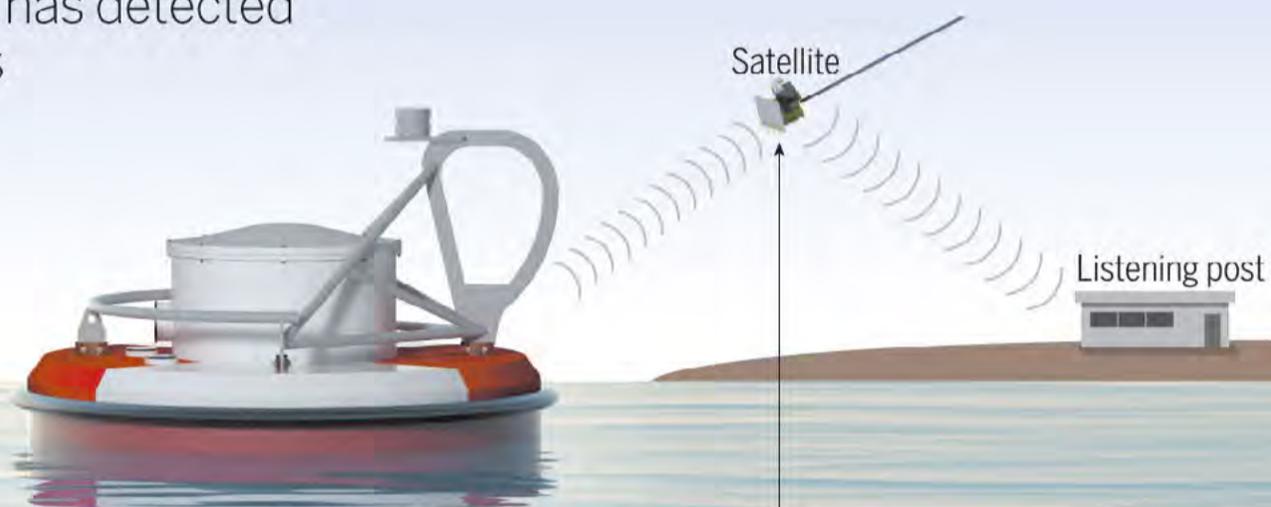
# Tsunami sentinels

The US\$500 million tsunami warning system was set up a few years after the 2004 disaster. Since then it has detected every tsunami in the oceans

## Tsunami sentinels

The US\$500 million tsunami warning system was set up a few years after the 2004 disaster. Since then it has detected every tsunami in the oceans

Ten operational Deep-ocean Assessment and Reporting of Tsunamis (Dart) buoys are deployed in the Indian Ocean.



### Bottom pressure recorders

- Constantly measure the vast volume of water around them for pressure changes that could indicate the buildup of a tsunami.
- The data from these is relayed by acoustic telemetry – coded bleeps – to buoys bobbing on the surface.

### Surface buoy

- This is a 2.5m-diameter fibreglass-over-foam disk buoy, with a gross displacement of 4,000kg.
- The surface buoy relays information to a satellite.

### How data is shared

- From the satellite the data is shared across a network of listening posts on the Indian Ocean rim.
- Three countries are designated as Regional Tsunami Service Providers (RTSPs) – Australia, India and Indonesia.
- At the RTSPs, computers process data from a range of sources, including 180 seismometers which measure earthquakes, and 80 tidal gauges which measure sea levels.

### How the warning is delivered

#### Observation

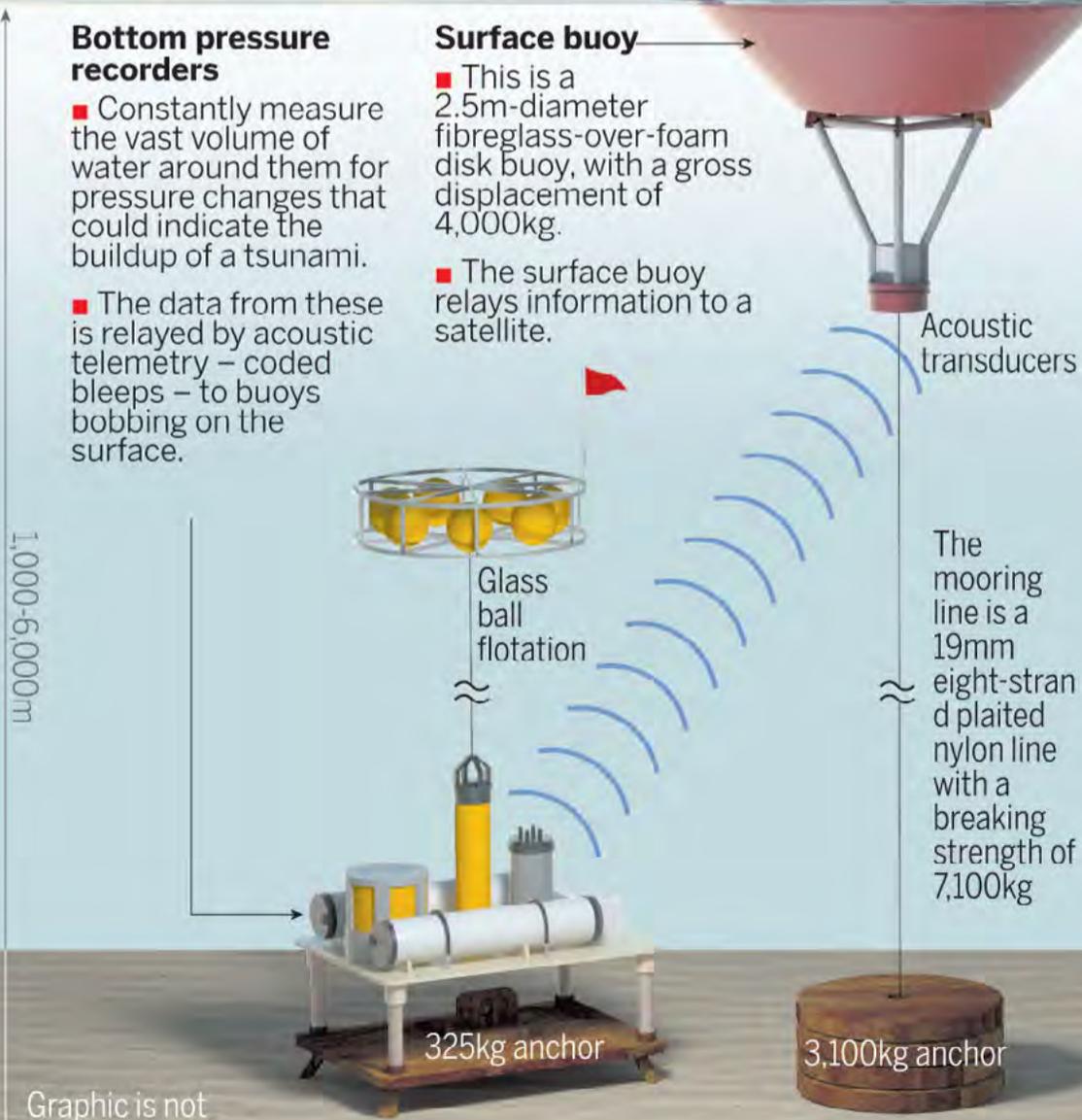
- 10 Dart buoys
- 180 seismometers
- 80 tidal gauges

#### Analysis and forecast

- Risk assessments sent from the RTSPs to other national centres at the edge of the Indian Ocean.
- Tsunami watch or tsunami warning issued. The target time, from detecting an earthquake and a tsunami and getting to this stage, is 10 minutes.

#### Parties informed

- The local authorities and agencies
- Media
- Local non-government organisations
- Community leaders



Graphic is not drawn to scale



Acehnese people reacting shortly after a powerful earthquake hit western coast of Sumatera in Banda Aceh on April 11, 2012.  
*Photo: AFP*

# Ready for the next tsunami?

**Panic gripped the people of Aceh on April 11, 2012,** when an 8.5-magnitude earthquake triggered a 1.02m tsunami in Meulaboh, West Aceh, even though the waves were nowhere near the size of the more than 10m-high waves of Dec 26, 2004.

In fact, the fear was almost as intense as that which overwhelmed residents during the 2004 earthquake and tsunami, and even greater in several areas that had been decimated by the earlier disaster.

The widespread anxiety clearly indicated that Aceh has not learnt lessons from the 2004 tsunami's destruction. People along the coast fled without any coordination, clogging almost every escape route as they desperately struggled to get away in whatever vehicles were available.

Similarly, many of the rescue workers who should have been helping residents just tried to save themselves without regard for the mass chaos on main roads.

## Hotli Simanjuntak

The Jakarta Post  
In Banda Aceh, Aceh



An earthquake and tsunami detector at Lok Kruet beach, in Aceh Besar in this picture taken on April 15, 2012. When a powerful earthquake struck a few days earlier, sirens wailed, warnings blared and police moved people away from coastlines.

*Photo: Reuters*

Indeed, the entire standard operating procedure established after the 2004 tsunami failed.

The police and transportation office did not show up at the most critical moment, but only after the end of the “golden time” - the best period to save lives, between the earthquake and the tsunami surge.

Community members and government personnel seemed to have lost the disaster-vigilance skills they have already learned and practised.

The minimum understanding and awareness of disaster handling becomes a tough challenge for all relevant parties, from policy and decision makers and disaster-warning controllers to post-disaster handling agencies.

Based on a study by the Tsunami Disaster And Mitigation Research Centre (TDMRC) in Banda Aceh, more than 30 disaster-alertness programmes have been implemented by the government as well as by local and international NGOs. It means the public has followed various disaster-risk reduction training courses since 2004.

However, the April 2012 earthquake raised questions

A tsunami doesn't  
always result from a  
major quake.

about just how effective all these programmes have been.

“Some people promptly took refuge on higher ground, others were observing the seashore first to check if waves have receded, and still others ran in panic as if they hadn't been prepared to evacuate at all,” says Rina Suryani Okta, a TDMRC researcher.

Public understanding of the early-warning system also varies. Many people think that when tremors occur, a warning system such as sirens will automatically operate.

“They don't know that sirens need to be manually activated,” she says. “Somebody will push buttons to sound the sirens.”

Indeed, few people know that the warning system comprises several instruments working together to analyse local conditions and finally issue a warning if really necessary.

“Sirens are only one part of the early-warning system,” Rina points out.

There is also a notion that a tsunami will strike after a strong earthquake lasts for a long time. It has been misunderstood that minor tremors cannot cause a tsunami.

“Disaster-risk reduction activists, take note of this misunderstanding to straighten out that misinformation,” says Rina. “A tsunami doesn't always result from a major quake.”

The TDMRC is striving hard to promote public understanding and its alert level through various means, including research and education provided for several schools to create disaster-vigilant students.

“At present, the TDMRC is undertaking several disaster mitigation and education projects in a number of schools, covering junior and senior high schools around Banda Aceh and Aceh Besar,” says Rina.

The centre is responsible for educating people from early levels of school, while seeking to make the subject of disaster handling an integrated part of school curricula, especially in Aceh.

The centre also attempts to train preachers across villages so as to develop their disaster-mitigation perspectives, and spread knowledge and awareness of disasters at rural religious meetings.

Their lectures will hopefully make village communities realise that a calamity is not something they have to resign themselves to as a divine act. It also involves an awareness that death tolls can be lowered if people know how to deal with and avoid a disaster.

Rina says a tsunami in Japan on March 11, 2011, showed that those who survived were people capable of recognising and perceiving the dangers, vulnerabilities and risks around them. They could therefore decide on the best ways to escape and reduce the number of casualties.

“We don’t evade our destiny or cheat our fate, but at least we’re trying to minimise deaths through disaster-mitigation education for communities living in disaster-prone regions like Aceh,” Rina adds.

People in Aceh still view natural disasters more from the viewpoint of religion than science, so many scientific facts crucial to the promotion of public awareness are ignored.

“Every disaster is God’s will and intervention so that we have no way of avoiding it when it comes,” says Nasrul Ifan from Deah Baro village, Banda Aceh. He survived the 2004 disaster but lost his family before remarrying and continuing to live in the same coastal village.

Nonetheless, coastal residents have begun to develop an awareness of learning from natural signs that may indicate a tsunami. Those living along Aceh’s western coastline can now distinguish strong tremors followed by receding sea water, which drives them to evacuate to higher ground.



Evacuation signs on the streets of Meulaboh.

*Straits Times Photo: Desmond Lim*

Meanwhile, the movement of undersea tectonic plates can set off huge waves that travel thousands of kilometres from the epicentre. That is why tsunami waves hitting the Maldives and the coast of India were not preceded

by tremors like the quake that shook Aceh.

“When a tsunami comes without any quake ahead, it will surely be very difficult to predict,” says Nurmala of Ule Lhuee village, another survivor. “Tsunami victims like us won’t be able to gauge when the next tsunami is going to happen.”

Nurmala says she still relies on general signs that she saw in December 2004. She did not know that an earthquake with the potential to cause a tsunami could occur far beyond the Aceh region, with its resulting waves capable of reaching the area where she lives with few warning signs.

Nurmala was never taught how to identify these signs apart from what she witnessed in 2004, nor did she realise the importance of disaster awareness for her and people on Aceh’s western coast, particularly in areas still lacking early-warning instruments found in major cities.

“As far as I know, tsunami sirens can be found only in big cities like Banda Aceh and Meulaboh, not in areas further away,” says Nurmala. “We just rely on our simple knowledge and natural warning signs like those we have previously experienced.”





An officer from the disaster management committee announcing to people living near the sea to leave their houses after a tsunami warning in Colombo, Sri Lanka, on April 11, 2012.

*Photo: Reuters*

# Reducing risk with early warnings

**After the 2004 tsunami, which claimed more than 35,000 lives in Sri Lanka and displaced 515,000 people on the island,** several areas of research into early warning systems emerged.

The first multilingual trials of the Common Alerting Protocol (CAP) – a data format for exchanging public warnings and emergencies between alerting technologies – were carried out in Sri Lanka as part of the Hazard Information Project funded by Canada’s International Development Research Centre.

“It was an unexpected success,” says Rohan Samarajiva, who heads regional think-tank LirneAsia.

LirneAsia and its partners generate and apply knowledge to disaster risk reduction, primarily in the area of early warning.

In recognition of the important role played by Sri Lankans in the development of this technical standard, a meeting of

## Zacki Jabbar

Deputy Editor  
The Island  
In Colombo

CAP experts from 20 countries took place in the coastal town of Negombo in June this year, with the discussions centring on:

- advances in multiple links in the early warning chain;
- the sophisticated science behind improved detection and monitoring of earthquakes and tsunamis; and
- community readiness to receive public warnings and act appropriately.



Rohan Samarajiva, head of the regional think-tank LirneAsia, calls the Common Alerting Protocol trials in Sri Lanka an “unexpected success”.

*Photo: The Island*

Asked to explain the importance of CAP, Samarajiva, a former telecoms regulator, compares the current media and disaster management environments to those that existed in 1978 when a devastating cyclone hit Sri Lanka killing about 900 people.

“Then, there was only one electronic media organisation, the Sri Lanka Broadcasting Corporation. It had six channels, but the news and information on all its channels originated

from one newsroom. It coordinated with the Sri Lanka Department of Meteorology, the sole entity responsible for cyclone warnings.

“On the ground, there were far fewer electronic media devices than now, but this was compensated by some efficient officials who effectively moved people out of harm’s way,” says Samarajiva, who was working with the corporation then.

In comparison, he notes, there is now a multitude of media organisations and channels spanning TV, radio, mobile phones and the Internet. The likelihood of errors and distortions in warning messages as they pass through multiple links is that much greater now. The complexity of the first responder system is also higher.

CAP, he emphasises, was intended to reduce the likelihood of distortion and also increase the speed of communicating warnings.



A survivor cycling along the flooded Karaitivu Road in Kalmunai on Jan 2, 2005, after the Sri Lankan east coast was battered by the killer waves. *Photo: Reuters*

In an ideal scenario, an authorised person would press a button, following which a formatted message would automatically and instantaneously be converted into different forms for transmission across multiple media.

The most significant contribution made by Sri Lankans to disaster management, however, is the development of the Sahana software suite.

Created by volunteers in the aftermath of the tsunami, Sahana allows for systematic management of information on displaced persons, their locations, their needs for food and medicine, and so on.

It also facilitates the easy location and mobilisation of resources such as earth-moving equipment.

Sahana, incubated by the Lanka Software Foundation, has grown beyond Sri Lanka and is now one of the leading disaster management tools worldwide. It has been deployed in places like Haiti and is also part of the disaster preparedness toolkit in Manhattan.





Five-year-old children taking shelter under their desks during an earthquake evacuation drill at the Singapore Red Cross Kindergarten in Meulaboh.

*Straits Times Photo: Hoe Pei Shan*

## The next big one

**A geological time bomb is ticking in Indonesia,** and the city of Padang on Sumatra's western coast is sitting smack on top of it.

In the last decade, five major quakes, including the catastrophic 2004 Boxing Day tsunami, have struck the city of one million, giving it the dubious distinction of being the current earthquake capital of the world. Indeed, the level of seismic activity in western Sumatra is second to none.

While they may quibble about the details, experts at the Earth Observatory of Singapore believe that the next big one, which has been building up since 2000, will come in mere decades, a blink of the eye in a field where scientists more commonly study patterns in land and rock formations spanning millions of years.

This forecast is based on the work of the earth observatory's director, geologist Kerry Sieh, and was first made nearly six years ago.

### Chang Ai-Lien

Senior Correspondent  
The Straits Times  
In Singapore



A giant earthquake will strike within a few decades, says geologist Kerry Sieh.

*Photo: Straits Times File*

“Corals on the reefs of west Sumatra record in their annual growth layers the patterns of large earthquakes,” he says.

“These patterns repeat about every two centuries, which is about the time since the last set of great earthquakes and tsunamis there.”

A giant 8.8 magnitude earthquake and tsunami similar to but perhaps a bit smaller than the one that caused the waves of destruction 10 years ago will strike within a few decades, he believes.

The quake itself will damage or destroy many existing buildings and bridges, and the resulting tsunami will reach the shores of the Mentawai Islands within five to 10 minutes.

And in 20 to 30 minutes, it will hit the mainland of the west Sumatran coast, including Padang.

“Scientists can’t predict the exact day, month or year, but it will happen in the lifetime of the young people living there,” he says.

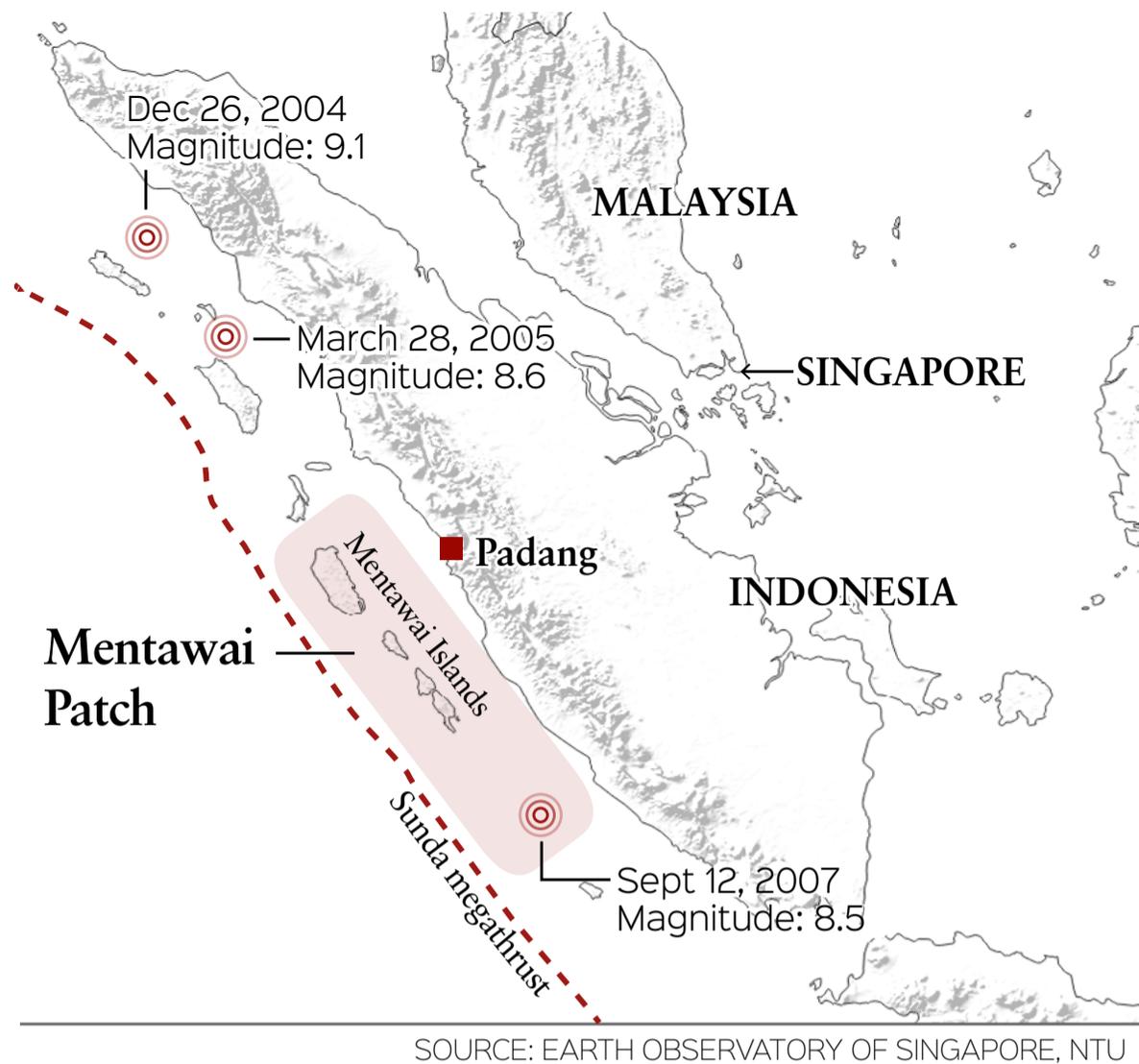
Massive earthquakes like this occur only in subduction zones where two of the tectonic plates that comprise the earth’s surface are converging, with one plate diving beneath another.

The Dec 26, 2004, earthquake happened because of the rupture of the Sunda Megathrust, which is the fault plane along which the Indian and Australian plates slide beneath the Sunda plate and Sumatra.

Singapore was spared because it is sheltered by surrounding land masses. In addition, the shallow waters in the Malacca Straits and South China Sea – unlike the deep waters in the Indian and Pacific oceans – act to dampen the fury of the waves and dissipate their energy.

Also, the Republic is at least 400km from the nearest fault line in Sumatra. While tremors can sometimes be felt here, widespread damage is unlikely.

Australia, lying south of the original fault line, was also



spared major damage.

Prof Sieh and his colleagues from Nanyang Technological University and in Indonesia are now eyeing a 400km section further south, beneath the Mentawai Islands west of Sumatra. It is part of the fault line which makes up the 5,500km Sunda megathrust.

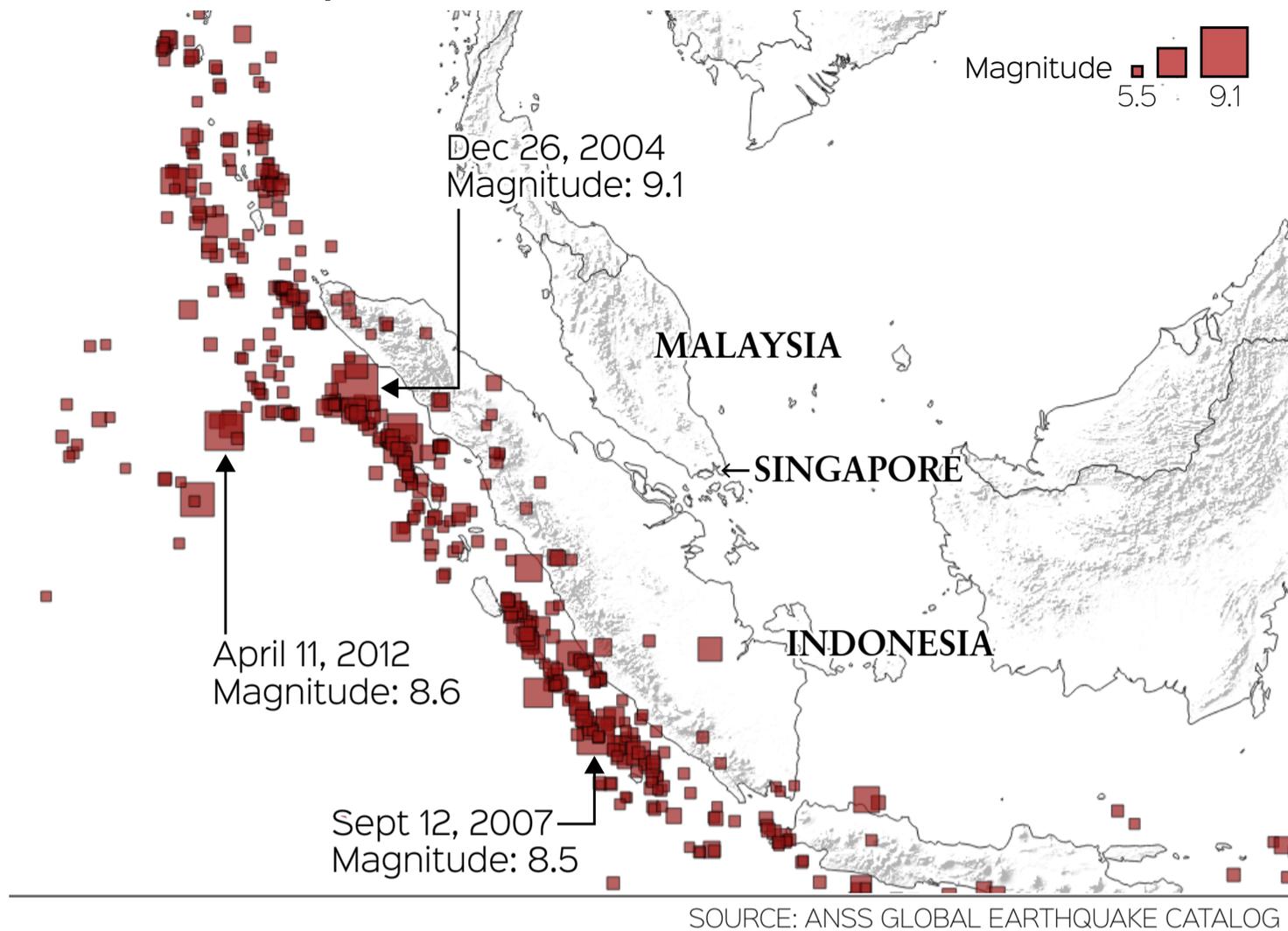
Called the Mentawai patch, it has remained intact for nearly 200 years, and is under tremendous and increasing stress.

“Large earthquakes on long, locked fault zones commonly trigger one another, and hence cluster together in time,” says Prof Sieh.

Adds Dr Sylvain Barbot, a principal investigator at the earth observatory who is working on the subject: “In the Mentawai area, we have seen great earthquakes occur to the north and to the south.

“We don’t know if the fault will generate two great or one giant earthquake, but the fault must move somehow to catch up with its neighbours.”

# Notable quakes since 2000



Another internationally respected expert on Sumatra earthquakes, Dr John McCloskey, professor of geophysics at Britain's University of Ulster, likens the current build-up to the drawing of a bow.

“Off western Sumatra the bow is drawn tight,” he said back in 2010.

“The last shock happened more than 200 years ago and the stresses are probably larger now than they were then. The earthquake must happen soon.”

Prof Sieh adds that the intensity of the quakes in the last few years has been unprecedented, and no one can tell when the current cluster will end, although the countdown to failure has begun.

To forecast earthquakes and tsunamis reliably, Prof Sieh and fellow researchers at the earth observatory use a Global Positioning System to continuously collect, process, analyse and archive data on tectonic plate movements in the region.

They also examine sand deposits and corals to work out

Professor Kerry Sieh working in a trench in a cave located south of Banda Aceh which has been found to hold a detailed record of natural disasters on the Aceh coast.

*Photo: Courtesy of Charles Rubin*



when the last big quakes occurred.

And in recent work in a cave in west Sumatra, strata of sand and other deposits swept in from tsunamis that occurred over the past 7,500 years have unveiled the longest and most detailed record yet of the natural disasters that have hit the Aceh coast.

Radiocarbon analysis of materials such as charcoal fragments, clamshells and remains of microscopic organisms, unearthed evidence of 10 tsunamis before the one in 2004, and the scientists now know that tsunamis may cluster in time.

His role, says Prof Sieh, is to provide sound science so that policy makers and people at risk can make the right decisions, and he and his team have been involved in public education and outreach efforts for years.

His advice to the residents of Padang and West Sumatra is this: “In most areas, there is not enough time to wait for official warnings or to see receding water or the tsunami itself.

“People living near the coast should evacuate to high ground immediately after feeling an earthquake that is strong or lasts longer than one minute.”

*Additional information by Grace Chua*



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