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**COVER  
STORY**



Coastal town in Japan destroyed by the tsunami

## EARTHQUAKE AFTERMATH IN JAPAN

On 16th March a video message from Emperor Akihito of Japan was broadcast on Japanese television. This was an unusual event, as the Japanese emperor rarely speaks in public. The broadcast was shown five days after a huge tsunami, triggered by a violent undersea earthquake, destroyed hundreds of towns and villages along the north east coast of the country.

The tsunami, or giant wave, also damaged several nuclear reactors used for generating electricity. The Emperor urged his people to help and to be kind to each other during this difficult time for the country. He also said he hopes those directly affected will **strive** to survive and not give up hope.

Earthquakes are frequent in Japan. Yet the one that struck in the early afternoon on Friday 11th March was the largest ever recorded in the country. It had

a magnitude of 9.0 on the Richter scale, making it one of the world's biggest.

Japan is made up of four main islands: Kyushu, Shikoku, Honshu and Hokkaido. It has a population of around 127 million. Roughly 75% of the country is very mountainous and nearly all of its people live in the non-mountainous areas. Parts of the country are some of the most densely populated places in the world.

The epicentre of the earthquake was about 130 kilometres (81 miles) off the north east coast of Honshu. The nearest city to the epicentre was Sendai, but the earthquake was so strong it was felt in most parts of the country.

Most buildings in Japan are designed to withstand strong earthquakes. In Tokyo, the capital city, tall skyscrapers swayed, but none collapsed.

Many people who work in Tokyo travel by train. After the earthquake,

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Measuring earthquakes

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Tibetan leader retires

Messenger and Mercury

Changing banknotes

Civil war in Yemen?

Reinforcements to Bahrain

Clever elephants

Super Moon

Red Nose Day breaks a record

Kangaroos motion-captured

No-fly zone over Libya

150th birthday in Italy

Hygienic sharks

Book review

Glossary and Sudoku prize competitions

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hundreds of thousands of them either had to walk home or stay overnight in the buildings where they work because the trains had stopped. When there is a strong earthquake in Japan every train in the surrounding area is immediately halted. This is so all the tracks can be checked to make sure they have not been damaged.



Close to the epicentre many roads, bridges and one large dam were badly damaged or destroyed. Yet it was the huge tsunami that followed the earthquake that caused most of the destruction.

The earthquake forced a large part of the seabed to suddenly move upwards. This movement pushed up the sea in the ocean above. An enormous volume of seawater was **displaced**. This displaced water created the tsunami.

A tsunami is not like a large wave you might see at the beach. It can be many kilometres long and is more like a huge surge or series of surges of water. The front of the surge increases in height as it gets closer to the coast. So ships far out to sea may not even notice a tsunami. Damage is caused both when the tsunami rushes inland and when all the water suddenly starts flowing back to the sea again.

Tsunami is a Japanese word that means 'harbour wave'. Japanese fishermen used this name hundreds of years ago. When one happened, they would return from being far out

at sea to find their harbour damaged or destroyed, even though they had not seen any giant waves.

Many towns and villages by the sea in Japan have seawalls built to protect them against tsunamis. They also have loudspeakers to broadcast tsunami warnings. Soon after the earthquake happened tsunami alerts were broadcast all along the north east coast of Honshu. Many people living by the sea rushed to leave their houses to move to higher areas. Yet the huge ten-metre (30 feet) high tsunami arrived very quickly. The seawater surged over the seawalls and destroyed almost everything in its path.

In some areas the seawater reached places ten kilometres (six miles) from the coast. Thousands of houses and buildings were totally destroyed. Large ships were carried far inland. Many people did not have time to escape.

In coastal parts of Japan, as protection against tsunamis, schools are built on high ground. At the time of the tsunami most children in these areas were at school, so they were safe. But many of their parents did not survive.

Rescue workers found it difficult to reach the worst affected areas. Roads and bridges were badly damaged. All the telephone and power lines were cut. Close to the coast, roads were completely blocked by the remains of buildings destroyed by the tsunami. Now around 350,000 people who lost their homes are living in public buildings, such as schools, halls, and hospitals. Officials in Japan say they do not know how many lives have been lost, but think it could be as many as 20,000. Thousands of people are still missing.

The tsunami also damaged the Fukushima nuclear power plant. It

stopped the pumps that keep the radioactive fuel rods covered in water to keep them cool. Several explosions followed. Officials were not sure how much radioactivity might escape from the plant. Everyone who lives within 20 kilometres (12 miles) of the nuclear reactors was ordered to leave. Those living up to ten kilometres (6.2 miles) beyond this area were told to stay indoors and keep their windows closed. Fire fighters and staff at the plant worked in very dangerous conditions to reconnect electricity to the reactors and keep the fuel rods cool.

In some areas there is now a lack of food, water and fuel. Naoto Kan, the prime minister of Japan, has made frequent appearances on television. He has told everyone to stay calm. Many foreign news reporters in the country say they have been amazed at the **stoicism** shown by the Japanese people in the worst affected areas. Nothing has been stolen, or looted. People are prepared to wait in long queues for food and water and there are few complaints.

Experts estimate it will take many years, and may cost as much as £184 billion (US\$300 billion), to rebuild everything that was destroyed. ■

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