

# JAPAN'S UNFOLDING DISASTER



Japan tries to avert a meltdown at a stricken nuclear reactor, after an 8.9 earthquake spawned one of the most powerful tsunamis on record. Tens of thousands are missing and feared killed. The economic damage will be colossal. But in the longer term the crisis could create opportunity in the Land of the Rising Sun.

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**REUTERS**



52-year-old local resident Emiko Ohta stands in front of the debris of her destroyed home in Kuji, Iwate prefecture, Japan March 14, 2011, after a massive earthquake and tsunami. REUTERS/Aly Song

## CAN JAPAN FIND 'NEW DEAL' AFTER TRIPLE WHAMMY?

BY LINDA SIEG, NATHAN LAYNE  
TOKYO, MARCH 14

**T**HE DAIICHI NUCLEAR POWER PLANT in Fukushima is built right on the shoreline in northeast Japan. So when an 8.9 magnitude earth quake struck on Friday, the giant tsunami waves it spawned crashed over the reactors and put them at risk of a meltdown.

A hydrogen explosion rocked the plant on Monday, sending a huge cloud of smoke over the area while engineers flooded the three reactors in the complex with sea water in a desperate attempt to prevent what was shaping up as the worst nuclear emergency since the Chernobyl disaster 25 years ago.

Nuclear fuel rods at one of the reactors may have become fully exposed raising the risk they could melt down and cause a radioactive leak, Japanese news agency Jiji said.

The nuclear crisis was a triple whammy for Japan, coming on top of the earthquake—

the fifth strongest ever recorded—and one of the most powerful tsunami in history, which caused scenes of unimaginable destruction in northeast Japan.

Japan's Prime Minister Naoto Kan said the country was facing its biggest crisis since the end of the Second World War, which was when the United States dropped atomic bombs on Hiroshima and Nagasaki.

"We're under scrutiny on whether we, the Japanese people, can overcome this crisis," Kan told a Sunday night news conference, his voice rising with emotion.

The quake caused Japan's main island to shift 2.5 meters (8 feet) and moved the earth's axis 10 cm (2.5 inches), geologists say. The question now is whether the catastrophe will spur other seismic changes in Japan, which has yet to emerge from its "lost decades" of stagnant growth, ageing population, and loss of international prestige following the

collapse of the Japanese asset bubble in the early 1990s.

At the very least, the drama at Fukushima is bound to shake the faith of many Japanese in the safety of their nuclear plants. The catastrophe will also sorely test Kan's deeply unpopular government. And the immense reconstruction effort that is coming may bring changes to rural Japan, where many of its older citizens live.

Kan flew over the stricken nuclear plant and quake-hit areas on Saturday morning after ordering an evacuation in the area. He borrowed a military camouflage jacket with the name tag "Miyamoto" for a brief visit to the stricken nuclear plants.

"I came to realise the huge magnitude of damage the tsunami has wrought," he told reporters on his return to Tokyo, this time wearing the blue uniform of the disaster response teams.

Just before the quake hit on Friday, he was sitting slumped in his seat parliament listening to opposition demands for his resignation over yet another Japanese political funding scandal.

But on Sunday night he was urging the public not to be pessimistic because Japan will enjoy "a New Deal-like" economic recovery on the back of the massive reconstruction task ahead.

That must have sounded like cold comfort to millions left homeless and bereft in Japan's late winter countryside.

## SHIP IN NEIGHBOURHOOD

If any country is prepared to cope with an earthquake, it is Japan.

Earthquakes are a way of life in Japan, occurring on average every five minutes. By law, buildings are erected to withstand violent tremors. As office towers shook violently in Tokyo on Friday, people grabbed helmets and dove under their desks, hoping their quake-resistant buildings could withstand the damage. School children are drilled on what to do when a quake hits. Many households have survival kits.

This quake, however, was on a completely different scale, and left the country of 127 million people dazed and bewildered.

The tsunami, a Japanese word meaning "harbour wave", surged through towns and cities, bulldozing everything in its path. A large freight ship was sitting incongruously in the streets of Kesenuma in hard-hit Miyagi prefecture. A wrecked airplane lay nose-deep in the rubble of homes in the port of Sendai.

"Is it a dream? I just feel like I'm in a movie or something," said Ichiro Sakamoto, 50, in Hitachi city, around 129 km (80 miles) north of Tokyo, where fishing boats were tossed far inland by the series of three tsunami waves.

A multi-storey building stood alone in a vast wasteland after the tsunami waves roared through the small coastal town of Rikuzentakata. Cars were piled atop one another, train carriages tossed carelessly aside.

At least 10,000 people are feared killed by the earthquake. But the number of missing is still in the tens of thousands and the death toll could soar.

A humanitarian relief operation of epic proportions was under way. The government was preparing to double to 100,000 the number of Self Defense Forces being mobilized along with police,

the Coast Guard, and disaster response teams.

The United States has sent nine warships with humanitarian aid, led by the aircraft carrier USS Ronald Reagan, underlining the close military ties with its Pacific ally.

Millions are spending the cold nights without water, electricity, homes or heat.

Survivors huddled under blankets in Rikuzentakata. Others stood in front of posters with a list of the dead and missing, some weeping. Many of them were middle aged or elderly, reflecting Japan's rapidly ageing population.

Kazuaki Sakai, 70, said he watched from a hill as the tsunami waves roared into the town.

"First the sea pulled back so much that I could almost see the bottom. About 10 minutes after the quake the first (wave) hit and pulled back, and then the next wave hit about 10 metres high, completely black, making a whirlpool. Then that one pulled back and I could see the (sea) bottom again. That repeated for about 10 times in about a half-hour."

Michiko Yamada, 75, said she ran to the rooftop of a hospital and stayed there for 12 hours with her husband in complete darkness. "I ran away with what I'm wearing, barefoot. It was truly cold," she said at a middle school shelter in Rikuzentakata. "I don't have anything now. No money, no house. "I'm on way now to borrow socks from my relatives."

Many of the survivors appeared middle aged or elderly, reflecting Japan's aging demographic, particularly in rural areas where the average age of farmers is about 66.

The tsunami swept over a vast area of rural Japan, destroying an untold amount of rice paddy farmland.

This could accelerate changes affecting Japan's politically powerful farmers, whose average age is 66. They are protected by import tariffs in excess of 700 percent for polished rice. The government has been pushing to reform a sector that makes up just 1 percent of the economy by giving them greater scope to lease land to companies.



A girl who has been isolated at a makeshift facility to screen, cleanse and isolate people with high radiation levels, looks at her dog through a window in Nihonmatsu, northern Japan, March 14, 2011. REUTERS/Yuriko Nakao

## ECONOMIC IMPACT

Any dividend from reconstruction and reform looked distant on Monday. Japanese stocks fell 7.6 percent, on track for the biggest daily loss since October 2008, and bond yields rose as investors expected the disaster to take a huge economic toll and require heavy government borrowing.

At least six Japanese seaports handling international trade have sustained major damage, with most likely to be out of operations for months, said an industry official on Monday. That could pose challenges for global supply chains.

The Bank of Japan pumped record funds into the banking system to shore up confidence on Monday. But the central bank said it was sticking to its view that the world's third largest economy would resume its moderate recovery, though output would fall at least for the short term.

"Output is likely to fall for some time. We are also worried that corporate and household sentiment will worsen," the BOJ said in a statement after its board voted to double the 5 trillion fund pool put in place last October to support Japan's recovery after the global economic crisis.

The central bank said it was ready to throw 15 trillion yen (\$183 billion) into the banking system to ensure markets function properly.

Most analysts agreed with Kan that Japan will eventually enjoy a boost from reconstruction, after suffering a temporary economic hit, with household consumption rising to replace damaged homes and goods.

"It is sufficiently possible to expect demand that should be called a restoration New Deal," Kan told his economic ministers.

But the cost of rebuilding will also worsen Japan's already worryingly high public

debt burden, the largest among advanced economies and double the size of its \$5 trillion gross domestic product.

Some economists said the scale of the disaster and its consequences remained far from clear, especially with the nuclear plants at risk.

"Not since the Cold War have I been asked to think about the economic consequences of a nuclear explosion in a densely populated area in a modern industrial economy," said Carl Weinberg, chief economist at High Frequency Economics in New York. "I don't relish that task."

As for the world economy, Japan is not a major engine of global growth so the disaster poses less of a risk to other countries than soaring oil prices caused by turmoil in the Middle East and North Africa.

"The global economy will be fine," said Stephen Stanley, chief economist at Pierpont Securities in Stamford, Connecticut.

Hopes surfaced the disaster could end the debilitating political warfare that has prevented the government from crafting policies to cope with a bulging debt and fast-ageing society.

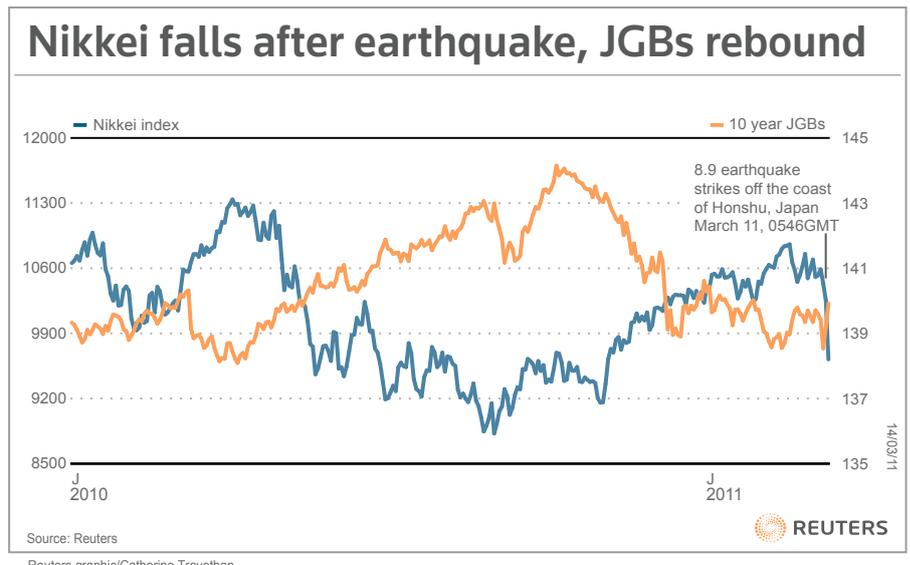
But pessimists said chances were slim that rivals to the unpopular prime minister inside and outside his own party would keep off the gloves for long. Opposition parties are pressing the premier to call a snap election they think they could win, while critics in the ruling party want him to resign to improve their own chances.

Kan is already Japan's fifth leader since 2006.

"Kan's government avoided a crisis due to this huge disaster," said independent political analyst Minoru Morita. "As long as media are reporting only about the disaster, Kan's government will be stable," he said. "Once the news returns to normal, criticism will emerge again."



Japan's Prime Minister Naoto Kan reacts as he feels an earthquake as he attends a committee meeting in the upper house of parliament in Tokyo. REUTERS/Toru Hanai



### THE TEPCO SYNDROME

Kan has his hands full dealing with the nuclear emergency.

A hydrogen explosion on Monday at the number 3 reactor raised concern the crisis is escalating, but experts insist a Chernobyl-style nuclear disaster can be averted.

Three units at the Fukushima Daiichi plant suffered loss of coolant to their reactors after the quake triggered automatic shutdown systems, and then the tsunami knocked out the backup generators.

So long as the thick containment walls shielding the reactor cores remain intact, even a meltdown of the nuclear fuel would not lead to a major escape of potentially dangerous radioactive clouds into the air.

"Everything I've seen says that the containment structure is operating as it's designed to operate. It's keeping the radiation in and it's holding everything in, which is the good news," said Murray Jennex, of San Diego State University.

"This is nothing like a Chernobyl... At Chernobyl (in the Ukraine in 1986) you had no containment structure—when it blew, it blew everything straight out into the atmosphere."

The incident is the latest mishap in Japan's nuclear industry.

The 40-year-old reactor facing a possible meltdown in Fukushima was originally scheduled to go out of commission in February but had its operating license extended another 10 years.

But the Japanese government's Nuclear and Industrial Safety Agency approved Tokyo Electric's application to keep it hot after inspecting the facility, according to a statement on the Ministry of Trade

Economy Industry's website ([www.meti.go.jp/english/index](http://www.meti.go.jp/english/index)).

The company has had a rocky past in an industry plagued by scandal. In 2002, the president of the country's largest power utility was forced to resign along with four other senior executives, taking responsibility for suspected falsification of nuclear plant safety records.

A few years later, it ran into trouble again over accusations of falsifying data.

The fallout from the Fukushima nuclear plant accident could well give fresh momentum to opponents of nuclear energy. The industry in the United States, for instance, has never really recovered from the Three Mile Island mishap in 1979.

Japan is one of the giants of the world nuclear industry, producing almost 30 percent of its electricity from the source. Ambitions to boost this to 50 percent by 2030 may now be called into question.

"The public demands nothing less than perfection from the nuclear industry in terms of safety," Reuters columnist Christopher Swann wrote. "That's particularly true in Japan, the only nation to have endured a nuclear attack. Fear of radiation is deep-seated in the country—just look at its great cinematic export, Godzilla movies. So a minor lapse could prove a big setback—one that makes meeting the world's voracious demand for energy look still more intimidating."

#### ADDITIONAL REPORTING

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Japanese rescue workers search through rubble in a residential area of tsunami-hit Otsuchi March 14, 2011  
REUTERS/Damir Sagolj

## "IT DOESN'T GET WORSE THAN THIS"

By DAMIR SAGOLJ

OTSUCHI, JAPAN, MARCH 14

**F**OUR DAYS AGO, Otsuchi was just another Japanese coastal town, a destination for surfers and lovers of remote beaches. Now, only a supermarket and a Buddhist temple remain standing amid a sea of devastation.

Like most of Japan's northeast, Otsuchi was rattled by Friday's massive earthquake and then flattened by the ensuing tsunami. Officials fear more than half the town's population of about 19,000 is buried under the rubble.

"Otsuchi reminds me of Osaka and Tokyo after World War Two," Tadateru Kono, president of Japan's Red Cross, told Reuters, as rescue workers swarmed over rubble, twisted metal and debris, some of it ablaze.

"Everything is destroyed and flattened. This is a complete disaster. In my long career in the Red Cross, this is the worst I have ever seen," he said.

Fires burned in the hills overlooking Otsuchi, complicating rescue efforts. Near-freezing temperatures, and the extent of the devastation, made chances for surviving this disaster slim.

"It really doesn't get any worse than this—I've never seen anything so bad," said Patrick Fuller of the International Red Cross Federation. "I don't think you will find anywhere worse on the coastline."

"There are just kilometres of wasteland, twisted metal and people picking through it all for bodies."

All along the ravaged northeastern Pacific coast, there were similar scenes of destruction. The wall of water transported homes inland, swept ships into fields, upended cars and, in one instance, lifted a sailing boat onto the roof of a house.

As many as 10,000 people are thought to have been killed. Kyodo news agency said 2,000 bodies had been found on the shores

of Miyagi prefecture, which suffered the brunt of the damage.

In Minami Sanriku, Pulitzer Prize-winning Reuters photographer Adrees Latif said the whole town had been wiped out by the waves. More than 10,000 people were unaccounted for, but some families who lived in the surrounding hillside survived and could be seen scrambling across the rubble to get to what once was the centre of town.

"I have seen similar disasters—I covered the (2004 Indian Ocean) tsunami from Thailand—but I have never seen anything like this in my life," Latif said. "I stopped shooting for a while to look out on to the town, and I just stood there in disbelief."

The enormity of the disaster has shaken Japan to the core.

Survivors walked through the rubble, many in tears after losing loved ones, others unsure of the fate of family and friends.

They lined up in front of notice boards at emergency centres looking for news.

"I am looking for my parents and my older brother," a weeping Yuko Abe, 54, said at an emergency centre in Rikuzentakata, an all-but-flattened town of 24,500 people in far-northern Iwate prefecture.

"Seeing the way the area is, I think perhaps they did not make it. I also cannot tell my siblings who live away that I am safe, as mobile phones and telephones are not working."

Many spent another freezing night huddled in blankets around heaters in shelters along the coast. Almost two million households were without power, the government said. There were about 1.4 million without running water.

Prime Minister Naoto Kan said food, water and other necessities such as blankets were being delivered by vehicles but because of damage to roads, authorities were considering air and sea transport.

The Red Cross's Fuller said the priority must be on providing relief for the living.

"It's tragic to say because thousands have died, but the focus has to be on the survivors," he said. "This requires a massive, massive mobilisation of resources because the affected area stretches hundreds of kilometres."

**After the Quake: A Nation Devastated**

REUTERS INSIDER



In the town of Kuji, the Kita Nihon Zosen ship-parts factory was reduced to matchwood and a skeletal frame by the tsunami, but some staff turned up for work anyway on Monday and waited at the front gate, smoking cigarettes.

Many were in shock. One young worker at the ship parts factory explained why he was there. "Because it's a work day," he said.

When the earthquake hit, factory boss Teruo Nakano sent a few workers to look at the sea level. The tide often recedes

abnormally in a tsunami before the huge volume of water gathers in height on the shallowing shore and strikes.

"Just after the quake, the water level was already a metre lower, so we thought 'this is bad' and escaped immediately to higher ground," he said.

All the workers survived. Nakano said he planned to send them all home.

**ADDITIONAL REPORTING**

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Japanese rescue workers search through rubble in front of a Shinto shrine in residential area of tsunami hit Otsuchi March 14, 2011. REUTERS/Damir Sagolj



People are given first aid at a Japanese Red Cross hospital after being evacuated from the area hit by tsunami in Ishinomaki March 13, 2011. REUTERS/Damir Sagolj

## ADVANCED ECONOMIES AT ADVANTAGE IN DISASTER RECOVERY

By ALAN WHEATLEY, GLOBAL ECONOMICS CORRESPONDENT  
BEIJING, MARCH 13

**T**HE EARTHQUAKE that devastated northeast Japan displaced the country's main island by 2.4 metres and even tilted the axis of the Earth by nearly 10 centimetres. The shock sounds awesome but it was imperceptible. History suggests the same will be true of the economic impact.

The instinctive reaction when viewing the extensive damage and frantic efforts to secure damaged nuclear reactors is to assume economic havoc will follow.

But researchers who have studied similar disasters in rich countries reach a reassuring conclusion: human resilience and resourcefulness, allied to an ability to draw down accumulated wealth, enable economies to rebound quickly from what seem at first to be unbearable inflictions—be it the Sept. 11, 2001, attacks on New York or Friday's 8.9-magnitude earthquake, the worst in Japan's history.

Japan itself provides Exhibit No. 1 in foretelling the arc of recovery. A 6.8-magnitude temblor struck the western city of Kobe on Jan. 17, 1995, killing 6,400 people and causing damage estimated at 10 trillion yen, or 2 percent of Japan's gross domestic product.

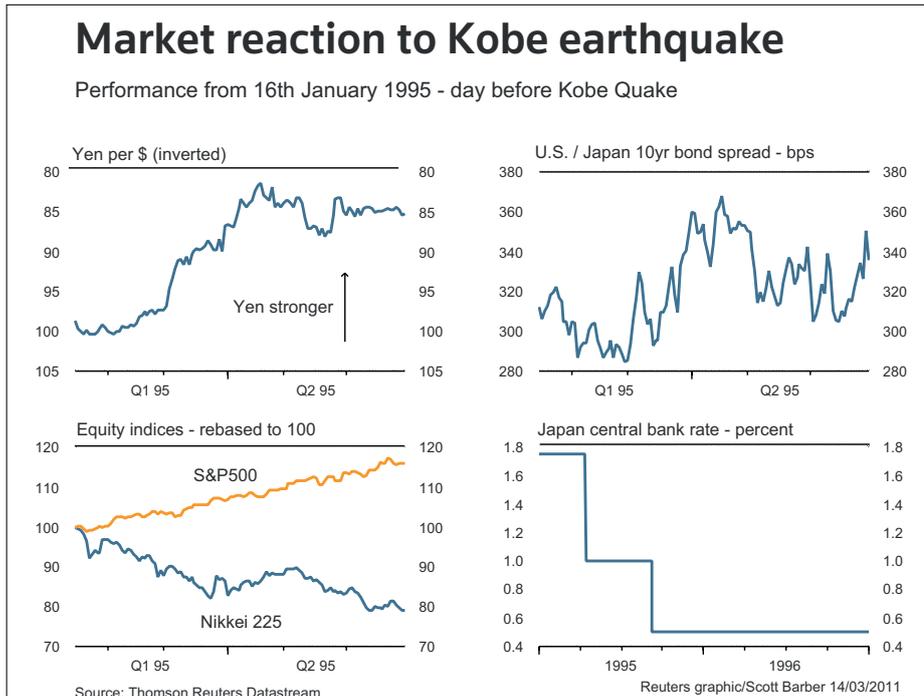
The importance of Kobe's container port, then the world's sixth-largest, and the city's location between Osaka and western Japan made it more significant for the economy than the more sparsely populated region where the latest quake and tsunami struck. Extensive disruption ensued, yet Japan's industrial production, after falling 2.6 percent in January 1995, rose 2.2 percent that February and another 1.0 percent in March. GDP for the whole of the first quarter of 1995 rose at an annualised rate of 3.4 percent.

"Despite the scale of the disaster, it is hard to find much evidence in the

macroeconomic data of the effects of the Kobe earthquake," said Richard Jerram, chief Asian economist at Macquarie in Singapore and a veteran Japan-watcher.

Indeed, Takuji Okubo, chief Japan economist at Societe Generale in Tokyo, noted that Japan's economy grew by 1.9 percent in 1995 and 2.6 percent in 1996, above the country's trend growth rate at the time of 1.5 percent. Private consumption, government spending and, especially, public fixed investment all grew above average in 1995 and 1996, Okubo said in a report. By analogy, the medium-term impact on growth from the latest quake was also likely to be positive, he said.

Today's circumstances are, of course, different. Japan's economy has floundered in the intervening 16 years and its public finances have deteriorated. On paper, the country, is perhaps less well prepared at this stage of the economic cycle to pick itself up off its feet.



Another U.S. academic who has studied the lessons from Kobe, the late George Horwich of Purdue University, noted that media reports said it could take the city as long as a decade to recover. In the event, within 15 months manufacturing in Kobe was at 98 percent of its pre-disaster trend; imports had fully recovered within a year and exports were back at 85 percent capacity; and 79 percent of shops had reopened by July 1996.

“Natural disasters in large advanced economies tend not to significantly reduce current aggregate output or induce an associated rise in the general price level. In geographically dispersed economies, disasters are almost always localised events. But in any economy, it is the capital stock, not output, that is directly reduced by the disaster,” he wrote in a paper published in 2000.

Horwich concluded that physical capital is the most visible contributor to economic recovery but human capital is the dominant economic resource. And Japan has that in spades.

“Destroy any amount of physical capital, but leave behind a critical number of knowledgeable human beings whose brains still house the culture and technology of a dynamic economy, and the physical capital will tend to reemerge almost spontaneously,” he said.

The 2008 earthquake in the western Chinese province of Sichuan, which killed nearly 90,000 people, is in line with the academic finding that strong institutions and human capital are central to the process of recovery.

But Mark Skidmore, an economics professor at Michigan State University, attaches greater importance to a rich society's capacity to constantly adapt to the risks it faces. In the case of Japan, prone to regular earthquakes, this means improving its disaster response systems and adopting the latest techniques to help buildings withstand shocks.

Most of the damage wrought in Japan was by the ensuing tsunami, for which there was no time to prepare, and not by collapsing buildings—even though the quake was 1,000 times more powerful than the Kobe one.

“We don't know yet how devastating this is going to be economically, or even in terms of human casualties, but Kobe was able to rebound very quickly and I think there is the same potential here,” Skidmore said in a telephone interview.

Skidmore and Hideki Toya from Nagoya City University in Japan have examined data for 151 countries over the period 1960-2003 and found that countries with higher levels of income, education and financial development suffer fewer losses from a natural disaster. Other researchers have reached similar conclusions.

“As incomes rise in a society, you can devote more resources to safety. So economies that have relatively high exposure to earthquakes or hurricanes start taking the precautions they need. Japan is among the best prepared in the world because they have high exposure and high income,” Skidmore said.

### OPENNESS TO TRADE

Countries with an openness to trade are also better able to cope with disasters because they create supply chains as well as commercial and diplomatic relationships that prove to be important. A well-oiled, well-financed government that can spring into action and limit the spillovers of the disaster is also crucial. This bodes well for Japan.

“They have the resources. They have the social and economic and government infrastructure to effectively utilise the resources that may come in from outside as well as internally. They can focus not just insurance but also government assistance to respond effectively,” Skidmore said.



As a developing country, China had not made enough buildings earthquake-resistant. Many schools crumbled. Yet the ruling Communist Party mobilised vast resources for rescue, relief and reconstruction. As a result, according to a government think tank, the disaster actually added an estimated 0.3 percentage point to China's GDP growth in 2008. Less than three years on, the office charged with reconstruction has been disbanded, its work complete, an official said on Sunday.

Compare and contrast with Haiti, the most impoverished country in the Western Hemisphere. The 7.0 magnitude quake that struck on January 12, 2010, was much less powerful than that in Japan, but it killed at least 250,000 people, injured 300,000, left 1.5 million homeless and wrecked large parts of the capital, Port-au-Prince.

With weak finances and no emergency fund to tap, Haiti's economy slumped at least 5 percent last year, and the release of billions of dollars in international aid has been too slow to settle the homeless and get basic services running again, let alone spur an economic recovery. A cholera epidemic and political instability over contested elections reflect the failures of reconstruction efforts and in turn have made recovery even more difficult.

Haiti's woes confirm the findings of numerous researchers that poverty, high unemployment, limited access for the poor to basic services and a lack of strong national and local institutions amplify the economic blow of natural disasters.

"The impacts of natural disasters on society and the environment are substantially greater in less developed countries," according to a paper by Reinhard Mechler, who heads the research group on disasters and development at the International Institute for Applied Systems Analysis near Vienna.

## INDIAN OCEAN TSUNAMI

Another case in point is Aceh, at the northern tip of the Indonesian island of Sumatra, which bore the brunt of the Indian Ocean tsunami of Dec. 26, 2004.

Of the 230,000 people killed by the speeding, towering waves, 167,000 were from Aceh, which suffered total damage of about \$4.5 billion. A big relief effort was launched, but more than two years later a report from the Asian Development Bank Institute said key reconstruction targets had not been met and coordination among

### PICKING UP THE PIECES



Participants hold a Chinese national flag and shout slogans to cheer for Sichuan after three minutes of mourning for Sichuan earthquake victims at Tiananmen Square in Beijing May 12, 2009. REUTERS/Christina Hu



Haitians made homeless in the 2010 earthquake stand outside their tents on the outskirts of Port-au-Prince January 13, 2011. As Haitians marked the anniversary of the earthquake that flattened much of the capital Port-au-Prince, hopes that a better nation could rise from the rubble have given way to a crushing sense of bitterness and despair. REUTERS/Jorge Silva



A worker welds a steel rod at a construction site near Baiturrahman mosque in Banda Aceh December 25, 2009. Five years after the Indian Ocean tsunami, the region has its own early warning system but experts say the new technology will not save lives unless local communities are more involved in planning how to respond. REUTERS/Beawiharta

the many government agencies and international donors was poor.

With Aceh accounting for just 2 percent of Indonesia's economy, the catastrophe was not enough to move the needle of the country's GDP. But, as with Haiti, the shortcomings of the region's recovery stood in stark contrast to the experience in Kobe.

After the initial loss of output, disasters in advanced economies do not invariably result in a boost to economic activity.

Gus Faucher, director of macroeconomics at Moody's Economy.com, a consultancy, has cited the aftermath of Hurricane Katrina, which devastated New Orleans in 2005: the city did not experience an economic bounce because so many residents left, government aid was slow to arrive and insurance payments were low.

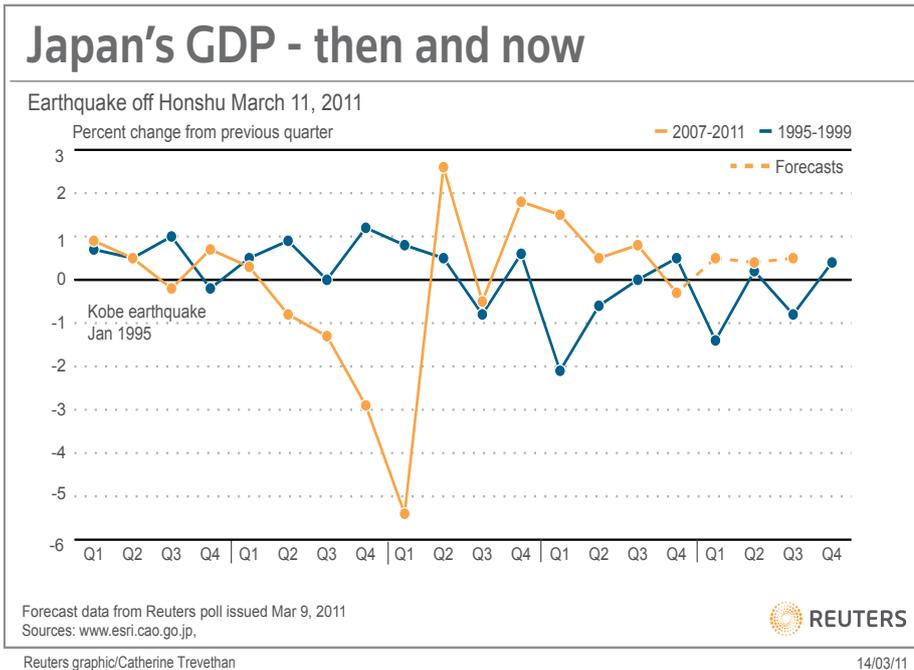
But, as a rule of thumb, reconstruction jobs and the influx of emergency assistance apply balm to an economy's wounds. Take the 6.7 magnitude Northridge quake near Los Angeles in 1994 that killed 57 people, injured 9,000 and resulted in about \$40 billion in property damage.

Daniel Blake, an economics professor at California State University Northridge, found a year later that the \$18 billion in aid and insurance payments made by the federal government actually jump-started the area's fragile economy after four years of recession.

And after the 1989 Loma Prieta earthquake, which severely damaged major roads around the San Francisco Bay, an official estimate put the Bay Area's lost economic output at between \$181 million and \$725 million, a fraction of its 1989 gross regional product of \$174 billion. Indeed, the California Trade and Commerce Agency later found that the Bay Area even managed to do better than many parts of the state in weathering the early 1990s recession.

A more recent example is that of Chile, where 500 people died in an 8.8 magnitude quake in February 2010 that caused an estimated \$30 billion hit to the economy due to damaged infrastructure and property and lost productivity.

Both the government and central bank trimmed their growth outlooks after the quake, estimating it could shave around 0.25 to 0.5 percentage point off annual growth. But the economy grew about 5.2 percent in 2010, within the original range of projections. With the state only halfway through its rebuilding programme, GDP



expected to pledge as much money as needed to prevent the repercussions of the quake from destabilising financial markets and the banking system.

Economists also expect the central bank will signal its readiness to ease monetary policy further—even though its policy rate is already near zero—if the damage from the quake threatens Japan’s fragile economic recovery.

That prospect would normally weaken the yen, but economists are keenly aware that the Japanese currency gained sharply in the weeks after the Kobe catastrophe. It rose from 96 per dollar in late February and briefly punched through 80 to an all-time high on April 19, 1995, before reversing course after the BOJ cut interest rates.

Trade tensions with the United States were a driving force in 1995 and are absent today. A rush to bring capital back to Japan, especially by insurers anticipating large claims, was also a factor post-Kobe and could be again. But Jerram, the Macquarie economist, doubted that history would repeat itself.

“Significant yen repatriation that could push the currency higher and, at an extreme, disrupt global markets, looks unlikely,” he said.

Another “known unknown” is whether serious damage to the Fukushima Daiichi nuclear plant will cause countries including Britain, China and Italy to reappraise plans to boost investment in nuclear power. If they do, it would be logical to expect higher oil, natural gas and coal prices.

“A serious accident like that will have repercussions in all countries with nuclear,”

growth this quarter is likely to accelerate to around 8 percent.

“The impact of reconstruction on growth is becoming stronger as time goes on,” said Finance Minister Felipe Larraín, who financed an \$8.4 billion recovery package with a mix of bond issues, higher royalties levied on mining companies and savings from a boom in copper, Chile’s principal export.

So what does all this mean for Japan?

Pete Wilson, California’s governor at the time of the Northridge quake in 1994, says it was important to cut through red tape. By waiving the requirement for environmental impact hearings and setting incentives for building contractors, Wilson told Reuters he managed to reopen Interstate 10, then the world’s busiest road, in just over two months. Some had feared it would take two years.

Chile’s experience shows that a government is perfectly justified in resorting to deficit spending to cushion a natural disaster because of the shot in the arm it delivers to the economy, said Alfredo Coutino, Latin America director for Moody’s Analytics.

“If one lesson can be learned from Chile’s case, it is that Japan’s government has to make a quick move in terms of implementing the reconstruction with a variety of funding sources: issue debt, reallocation of public resources, and international aid,” he said.

Japan’s problem is that its gross public debt, equal to about twice GDP, is already the heaviest in the world. With an ageing

population posing an ever-growing burden on Japan’s public finances, rating agencies have sounded the alarm and warned of possible downgrades unless politicians bury the hatchet and come up with a plan to reduce the debt over the medium term.

“The earthquakes should lead to somewhat expansionary fiscal policy. However, due to its already large deficit, it is unlikely that the Japanese government would plan a large scale fiscal stimulus,” said Okubo, the Societe Generale economist.

### YEN WILD CARD

The reaction of the yen in coming weeks is another wild card in assessing the impact on Japan’s economy. The Bank of Japan, which meets on Monday, is widely





An overturned ship is seen at a port in an area hit by a tsunami in Hachinohe, Aomori prefecture March 13, 2011. REUTERS/Aly Song

Bertrand Barre, scientific adviser to French nuclear reactor maker Areva, told Reuters.

If there are clear lessons, we will apply them. We need to take time to work out the consequences and act." France depends on nuclear power for nearly 80 percent of its electricity

Japan's earthquake is just the latest in a series of unwanted shocks for the world economy, which is still far from having shaken off the fallout of the 2008 global financial crisis. Political turmoil in North Africa has reduced oil supplies from Libya and raised the spectre of wider disruptions to deliveries from the Middle East.

Food prices have climbed to record highs. The euro zone debt crisis is far from over, with bond yields for Greece, Ireland and Portugal at seemingly

unsustainable levels. Policy makers in the main economies who have slashed interest rates close to zero and run up huge budget deficits would appear to have little ammunition left to fire if consumer, business and investor confidence takes a dive because of Japanese quake.

But economists at J.P. Morgan said it was important to bear in mind that most, if not all of these shocks will prove to be temporary and are unfolding against a backdrop of very strong fundamental supports for growth, including booming industrial production, improving labour markets and a 17 percent rise in global share prices since September.

The bank has recently trimmed its forecasts for the United States and the euro zone but its projection for global

growth in the first half of 2011 remains at a rate of 3.7 percent, which is 1 percentage point above trend.

"Put differently, the shocks to date would have to magnify considerably to push global growth below this trendline." the J.P. Morgan economists said in their latest Global Data Watch publication. 🌐

**ADDITIONAL REPORTING**

- Braden Reddall (San Francisco)
- Simon Gardner (Santiago)
- Kieron Murray (Mexico City)

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**COVER PHOTO:** A survivor pushes his bicycle through remainvs of devastated town of Otsuchi March 14, 2011. REUTERS/Damir Sagolj

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