



**EARTHQUAKE**

NST 3/3/2011 MS 2

# Race to prevent reactor meltdowns

**KORIYAMA:** Japan's nuclear crisis intensified yesterday as authorities raced to combat the threat of multiple reactor meltdowns. More than 210,000 people were evacuated from the quake- and tsunami-savaged northeastern coast where fears spread over possible radioactive contamination.

Nuclear plant operators were frantically trying to keep temperatures down in a series of nuclear reactors, including one where officials feared a partial meltdown could be happening yesterday, to prevent the disaster from growing worse.

Chief Cabinet Secretary Yukio Edano also said a hydrogen explosion could occur at Unit 3 of the Fukushima Dai-ichi nuclear complex, the latest reactor to face a possible meltdown. That follows a blast the day before in the power plant's Unit 1, as operators attempted to prevent a meltdown there by injecting sea water into it.

"At the risk of raising further public

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## Another nuke plant in trouble

**VIENNA:** A state of emergency has been declared at a second nuclear facility due to excessive radiation levels there, the UN atomic watchdog said yesterday.

"Japanese authorities have informed the IAEA that the first or lowest state of emergency at the Onagawa nuclear power plant has been reported by Tohoku Electric Power Company," the International Atomic Energy Agency said in a statement.

The alert was declared "as a consequence of radioactivity readings exceeding allowed levels in the area surrounding the plant," the watchdog said. —AFP



concern, the risk of raising further public concern, we cannot rule out the possibility of an explosion," Edano said. "If there is an explosion, however, there will be no significant impact on human health."

More than 210,000 people had been evacuated as a precaution, though Edano said the radioactivity released into the environment so far was so small it did not pose any health threats.

Edano said neither Fukushima Dai-ichi reactor was near the point of complete meltdown, and he was confident of escaping the worst scenarios.

A complete meltdown — the collapse of a power plant's systems and its ability to keep temperatures under control — could release uranium and dangerous contaminants into the environment and pose major widespread health risks.

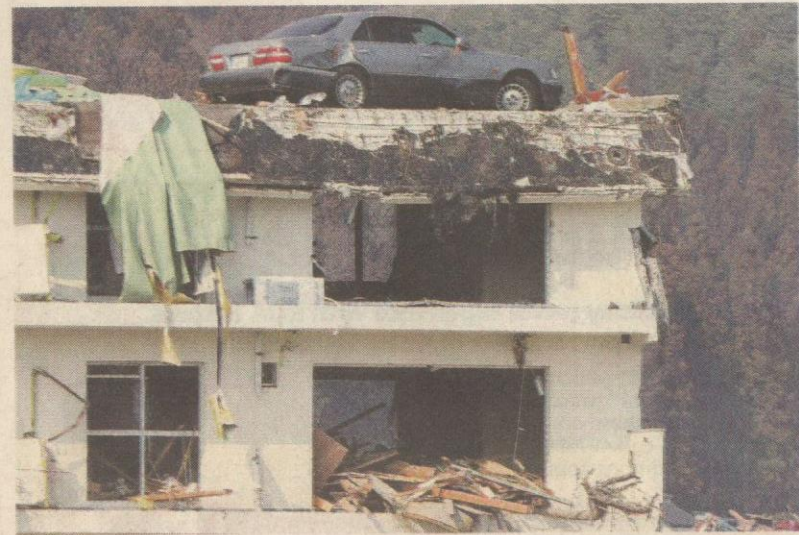
Up to 160 people, including 60 el-

derly patients and medical staff who had been waiting for evacuation in the nearby town of Futaba, and 100 others evacuating by bus, might have been exposed to radiation, said Ryo Miyake, a spokesman from Japan's nuclear agency. The severity of their exposure, or if it had reached dangerous levels, was not clear. They were being taken to hospitals.

Edano said operators were trying to cool and decrease the pressure in the Unit 3 reactor, just as they had the day before at Unit 1.

"We're taking measures on Unit 3 based on a similar possibility of a partial meltdown," Edano said.

Meanwhile, Japan Atomic Power said that the cooling process was working at its Tokai No. 2 nuclear power plant's reactor although two of the three diesel power generators used for cooling were out of order.



A vehicle sitting on top of a building at Minamisanriku town in Miyagi prefecture after tsunami ravaged the area on Friday. — AFP picture

The reactor at the plant, about 120km north of Tokyo in Ibaraki prefecture, was automatically shut after the massive earthquake and tsunami.

The scale of the multiple disasters appeared to be outpacing the efforts of the authorities to bring the situation under control.

Unit 3 at the Fukushima plant is one of the three reactors that had automatically shut down and lost cooling functions necessary to keep fuel rods working properly due to power outage from the quake. The facility's Unit 1 is also in trouble, but Unit 2 had been less affected.

On Saturday, an explosion destroyed the walls of Unit 1 as operators desperately tried to prevent it from overheating and melting down.

Without power, and with its valves and pumps damaged by the tsunami, authorities resorted to drawing sea water mixed with boron in an attempt to cool the unit's overheated uranium fuel rods. Boron disrupts nuclear chain reactions.

The move likely renders the 40-year-old reactor unusable, said a Foreign Ministry official briefing reporters. Officials said the sea water would remain inside the unit, possibly for several months.

Robert Alvarez, senior scholar at the Institute for Policy Studies and former senior policy adviser to the United States secretary of energy, told reporters that the sea water was a desperate measure.

"It's a Hail Mary pass," he said.

He said the success of using sea water and boron to cool the reactor would depend on the volume and rate of their distribution. He said the dousing would need to continue non-stop for days.

Another key, he said, was the



Smoke billowing in the badly damaged town of Yamada in Iwate prefecture on Saturday. — AFP picture

restoration of electrical power, so that normal cooling systems could operate.

Edano said the cooling operation at Unit 1 was going smoothly after seawater was pumped in.

Operators released slightly radioactive air from Unit 3 yesterday while injecting water into it hoping to reduce pressure and temperature to prevent a possible meltdown, Edano said.

He said radiation levels just outside the plant briefly rose above legal limits, but since had declined significantly. Also, fuel rods were exposed briefly, he said, indicating that coolant water did not cover the rods for some time. That would have contributed further to raising the temperature in the reactor vessel.

At an evacuation centre here, about 60km from the troubled reactors and 190km north of Tokyo, medical experts had checked about 1,500 people for radiation exposure in an emergency testing centre, an official said.

A few dozen people waited yesterday to be checked in a collection of blue tents set up in a parking lot outside a local gymnasium. Fire engines surrounded the scene, with their lights flashing.

A steady flow of people — the elderly, schoolchildren and families with babies — arrived at the centre, where they were checked by officials wearing helmets, surgical masks and goggles.

Officials placed reactors — Units 1 and 3 — at Dai-ichi under states of emergency on Friday after operators lost the ability to cool the reactors using usual procedures.

An additional reactor was added to the list early yesterday. Local evacuations have been ordered at each location. Japan has a total of 55 reactors spread across 17 complexes nationwide.

If a full-scale meltdown were to occur, experts said melted fuel would eat through the bottom of the reactor vessel, then through the floor of the containment building. At that point, the uranium and dangerous byproducts would start escaping into the environment.

Eventually, the walls of the reactor vessel — 15cm of stainless steel — would melt into a lava-like pile, slump into any remaining water on the floor, and potentially cause an explosion that would enhance the spread of radioactive contaminants. — AP

# E and TSUNAMI in Japan

NST 3/3/2011 MS 3.



An earthquake and tsunami survivor crying at a shelter in Rikuzentakata, Iwate prefecture, yesterday. — Reuters picture

## Nation's biggest crisis since World War 2



Self-defence force members and others evacuating a resident who is suspected to be exposed to radiation in Nihonmatsu, Fukushima, yesterday. — AP picture

**FUKUSHIMA:** The world's third-largest economy is struggling to respond to a disaster of epic proportions, with more than one million without water or power and whole towns wiped off the map.

"The earthquake, tsunami and the nuclear incident have been the biggest crisis Japan has encountered in the 65 years since the end of World War 2," a grim-faced Prime Minister Naoto Kan told a news conference. "We're under scrutiny on whether we, the Japanese people, can overcome this crisis."

Broadcaster NHK, quoting a police official, said more than 10,000 people might have been killed as the wall of water triggered by Friday's 8.9-magnitude quake surged across the coastline, reducing whole towns to rubble.

Almost two million households were without power in the freezing north, the government said. There were about 1.4 million without running water.

Kyodo news agency said about 300,000 people were evacuated nationwide, many seeking refuge in shelters, wrapped in blankets, some clutching each other sobbing.

Kan said food, water and other necessities such as blankets were being delivered by land transport but because of the damage to roads, they were considering air and sea transport. He also said the government was preparing to double the number

of troops mobilised to 100,000.

Thousands spent another freezing night huddled in blankets over heaters in emergency shelters along the northeastern coast, a scene of devastation after the quake sent a 10m wave surging through towns and cities in the Miyagi region, including its main coastal city of Sendai.

In one of the heavily hit areas, Rikuzentakata, a city close to the coast, more than 1,000 people took refuge in a school high on a hill. Some were talking with friends and family around a stove.

The radio was giving updates. On the walls were posters where names of survivors at the shelter were listed. Some were standing in front of the lists, weeping.

Kyodo news agency reported there had been no contact with around 10,000 people in one town, more than half its population.

The government, in power less than two years and which had been struggling to push policy through a deeply divided Parliament, came under criticism for its handling of the disaster.

"Crisis management is incoherent," blared a headline in the *Asahi* newspaper, saying information and instructions to expand the evacuation area around the troubled plant were too slow. There has been a proposal of an extra budget to help pay for the huge cost of recovery. — Reuters