

Global Safety of Nuclear Energy

Lessons from Fukushima & Chernobyl

By Rabinder MALIK

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Author Rabinder Malik

Japan's Triple Tragedy

On March 11, 2011 Japan was struck by what is referred to as the Great East Japan Earthquake of a magnitude 9.0 that triggered massive tsunami waves as high as 30 meters, wiping out whole villages and towns along the coastline in northeastern Japan, killing tens of thousands of people and forcing hundreds of thousands more to live in shelters. The earthquake and tsunami also caused severe damage to the reactors at Fukushima No.1 nuclear power plant operated by Tokyo Electric Company (TEPCO), which led to the leaking of radiation in the air, sea and land that forced immediate evacuation of people living within the radius of 20 kilometers from the plant. An apparent failure at the initial stage on the part of the government and TEPCO to realize the serious nature of the crisis and to act accordingly was a source of serious concern and anxiety among the residents of Japan and neighboring countries. The emergency crew is working round the clock to contain the damage at the Fukushima plant but the reports are that it will take several more months to bring the situation under control, although some experts consider this to be rather optimistic.

In April the Japanese Nuclear Industrial Safety Agency upgraded the Fukushima emergency to a level 7 – the maximum on an international scale of atomic crisis and at par with the nuclear disaster at Chernobyl in 1986. The two disasters are different in many ways: nevertheless, Japan being the only country in the world to have suffered a nuclear attack, the comparison with Chernobyl revived public fears about the dangers of nuclear radiation and reminded the Japanese people of the deserted landscapes, contaminated for decades, and thousands of people exposed to dangerous levels of radiation.

Japanese Prime Minister Naoto Kan has pledged that “the Japanese government will promptly and thoroughly verify the cause of this accident as well as share information and the lessons learnt with the rest of the world to help prevent such accidents in future... and contribute to the global debate to enhance the safety of nuclear power generation.” He also pledged to revisit the long-term energy supply plan for Japan in order to shift emphasis towards energy saving and promotion of renewable energy resources.

There has been an outpouring of sympathy and support from all around the world for Japan to help cope with what Prime Minister Kan calls “the worst natural disasters Japan has faced since the end of World War II.” The foreign media praised the Japanese victims for their calmness, orderliness and perseverance in the midst of

unprecedented suffering. Recovery will take a lot of time and money. Reconstruction plans and actions, however, are already under way in the affected areas and there is no doubt that Japan will overcome this crisis and emerge stronger than ever.

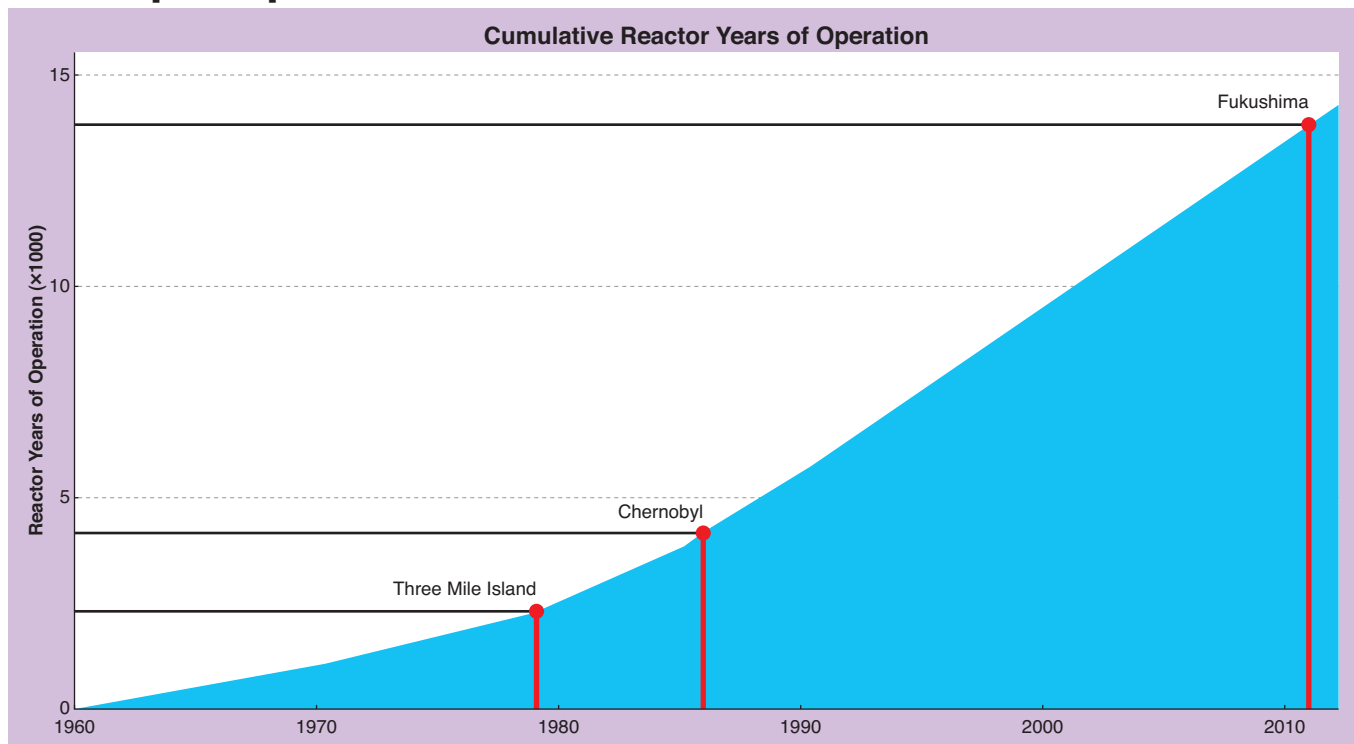
Nuclear Safety & Disarmament

Because of the extreme dangers posed by nuclear weapons for humankind's very existence, many global leaders have envisioned a world free of nuclear weapons. On April 30, foreign ministers from ten non-nuclear weapon states gathered in Berlin and issued a statement reaffirming their joint intention to “work toward achieving nuclear disarmament and a stronger international nonproliferation regime.” Unfortunately, the number of countries possessing nuclear weapons has only increased, and most alarmingly, the likelihood that non-state terrorists will get their hands on nuclear weaponry is increasing, and in their hands, nuclear weapons are the ultimate means of mass devastation.

The foreign ministers applied the concept of reducing nuclear risks both to nuclear weapons and to problems arising from the peaceful use of nuclear energy. Many countries use nuclear energy as a cleaner alternative to fossil fuels although there still is no solution for the permanent disposal of the radioactive waste from such use. The governments that wish to use nuclear power will have to make a choice between the benefit of low-cost electricity and the risk of a nuclear catastrophe such as Chernobyl, or Fukushima, or worse. It should also be noted that the nuclear industry has grown primarily because of the massive public subsidy to cover the risks arising from the use of nuclear energy. If the true cost of the risk premium was to be borne by the nuclear industry, it would most likely collapse in all countries.

According to the UN Secretary-General, both the explosion at the Chernobyl nuclear power plant and the accident at Japan's Fukushima No.1 plant raise popular fears and disturbing questions, while offering lessons for the global community. Nuclear accidents respect no borders and they pose direct threats to human health and the environment and cause economic disruption, affecting everything from agricultural production to trade and global services. Because the consequences are catastrophic, safety must be paramount and, because the consequences are transnational, they must be debated globally. On the eve of the G-8 leaders' summit in Paris in May, German Chancellor Angela Merkel pointed out that “the safe use of nuclear energy cannot be guaranteed through national decision-

Nuclear power plant accidents



Note: 1. There have been three major reactor accidents in the history of civil nuclear power - Three Mile Island, Chernobyl and Fukushima. One was contained without harm to anyone, the next involved an intense fire without provision for containment, and the third severely tested the containment, allowing a minor release of radioactivity.
 2. Currently there are more than 400 nuclear power plants (NPP) throughout the world, which produce about 17% of the world's electricity. The share can range from just a few percent in some countries up to 75% as in France.

Source: World Nuclear Association: <http://www.world-nuclear.org>

making alone" and that there is a "need for safety standard checks also at the international level." The outcome of the discussions at the G-8 summit on how to put in place new nuclear safety standards is likely to serve as a prelude to a series of discussions on the subject by the International Atomic Energy Agency (IAEA) and other international institutions.

World Worried, Split over Nuclear Energy Safety

Following the Chernobyl disaster 25 years ago, the nuclear industry insisted that it was an old, Soviet technology and the country was not known for its safety culture. But when it happened in Japan, a country which follows rules and regulations, adheres to safety norms, and sticks to standards, it became clear that this can happen anywhere, and the Fukushima crisis has reopened the debate about the safety of nuclear power plants not only in Japan but also all around the world.

In the US, where no new nuclear reactors have been completed since the 1979 Three Mile Island accident, the government has started a 90-day review of domestic nuclear safety. In Europe, public support for nuclear energy has decreased after the Fukushima crisis but despite growing public concerns the European states still diverge on the future of nuclear power. For nuclear-free countries such as Denmark, Austria and Portugal, the future is without atomic energy. Italy extended a moratorium in April for its nuclear projects indefinitely. In Germany, the opposition Green Party has long been opposed to nuclear power and the disaster in Japan reignited the debate, which reached a level of intensity not seen in any other

European country. In response, Chancellor Angela Merkel ordered seven of the 17 nuclear plants closed for three months while the remainder will be decommissioned by 2022. Germans seem determined to move towards a post-nuclear economy – even though they concede the switch will be expensive. Even companies like RWE and Siemens that are heavily invested in nuclear energy say they are increasingly active in the renewable energy sector, particularly looking at ways to store sun and wind energy.

In Britain, a recent survey showed that only 35% of people either strongly or slightly support a program to upgrade UK's existing nuclear reactors, as against 47% in November 2010. Even in France, which produces 75% of its electricity in nuclear plants, recent polls show more than 80% of French people want to replace atomic energy with renewable sources of energy. Despite public concerns, however, France continues to support nuclear expansion because of the "need to reduce carbon gas emissions."

During ceremonies in Chernobyl commemorating the 25th anniversary of the disaster, Russian President Dmitry Medvedev, while defending nuclear energy, insisted that tough new guidelines could help prevent accidents such as the massive Chernobyl meltdown, adding that he has invited world leaders to work on rules for safer nuclear energy. President Medvedev said it was a major mistake on the part of Soviet leaders to delay informing the people about the Chernobyl accident, evacuating them from contaminated areas and warning them how to reduce health risks.

Most people in Eastern Europe, even if they were closer to Chernobyl at that time, lacked information on the scale of the catastrophe because of the secrecy under communism. Following

the Fukushima disaster, the East European states are now resolved to revisit safety at their 143 nuclear reactors. However, they are more preoccupied with securing energy independence after living for years under Soviet influence and thus support atomic power in their respective countries. The Czech Prime Minister said after March 11 that in his country, halting nuclear power would result in economic problems. The situation is similar in neighboring Slovakia.

The heated debate around the world shows how the politics of nuclear energy may be changing, including also in the developing countries whose economies desperately need affordable power to continue rapid growth. In India, a group of 50 Indian scientists, academics and activists has called for a moratorium on new nuclear projects saying that “the Japanese nuclear crisis is a wake-up call for India.” India gets about 3% of its electricity from 20 relatively small nuclear reactors in the country. It is building five reactors and has proposed 39 more to help meet the energy needs of India’s fast-growing economy. Indian Prime Minister Manmohan Singh has been so committed to atomic power that he staked his government’s survival in 2008 on a civil nuclear deal with the US. As one step to calm public anxiety, Prime Minister Singh is planning to establish a new organization to supervise nuclear safety in India. At the same time, however, India has also launched, as part of its National Action Plan on Climate Change, a very ambitious program to promote solar energy in the country by the year 2022.

China, the other giant emerging economy with a huge need for energy, is also planning a more rapid expansion of nuclear power, but it has indicated that it plans to proceed cautiously with its nuclear expansion. China plans to undertake a nationwide safety inspection with a view to improving the emergency procedures and construction standards at its nuclear power plants and will issue a safety plan by August 2011. An official at the National Development and Reform Commission of China said that the country will cut its 2020 target for nuclear power capacity and build more solar farms.

Need for a Sustainable Global Energy policy

While acknowledging that each state has the right to define its national energy policy, the UN Secretary-General reiterated the need for a global rethink on nuclear safety with the common objective to deepen understanding of the entire range of issues relating to the development of nuclear energy and its safety transcending national borders. He has launched a “system-wide” study on the implications of the Fukushima accident, and plans to organize a high-level meeting on nuclear safety and security on September 22 during the next General Assembly session, for which a report will be prepared that addresses a variety of areas, including environment, health, food security, sustainable development and the nexus between nuclear safety and security, and will present views on how to improve disaster risk preparedness. He also intends to “highlight the need to strengthen the capacity of the relevant international organizations, especially the International Atomic Energy Agency (IAEA), by recognizing its central role.”

The International Energy Agency (IEA) has predicted an

unprecedented growth in demand for energy resources in the coming decades while the usual sources of energy are severely threatened by political turmoil and wild fluctuations in global oil prices. The convincing evidence on the pace of global warming and climate change makes it clear that the future global economic growth cannot follow the same fossil-fuel-based path as in the past. The world needs to focus on investing in renewable energy resources, eco-friendly infrastructure and energy efficiency. The international community must also help the developing world by providing it with access to energy options and enhancing its adaptive capacities through financing and technological resources in coping with the challenge of global climate change.

A recent report of the Inter-Governmental Panel on Climate Change (IPCC) shows that renewable resources such as solar power, wind, biomass and hydropower could meet nearly 80% of the world’s energy supplies by 2050. Bearing in mind the rising oil prices, and in the wake of the Fukushima nuclear disaster, some countries have already decided to bring about a major shift in their energy supply mix by reducing and/or phasing out their dependence on nuclear power generation, and stepping up their research and development efforts and financial allocations for the development of viable and sustainable energy technologies essentially based on renewable sources. Despite concerns about nuclear power safety, however, some countries will continue to use nuclear energy in order to sustain the momentum of their economic development, at least until other renewable resources become viable. In the case of all such countries which continue to operate nuclear power plants, it is extremely crucial that certain practical measures as outlined by IAEA be quickly implemented in order to improve nuclear safety on a global basis. The first measure would be to strengthen the IAEA safety standards and to ensure that they are universally applied. It is also strongly recommended that a systematic review of the safety of all nuclear power plants be undertaken, and that the national regulatory bodies in each country must be genuinely independent, adequately funded, and staffed by well-trained people.

In conclusion, the establishment of a reliable and comprehensive system of global energy security should be one of the strategic goals of the world community. The existing mechanisms for global energy governance appear to be inadequate to provide energy security, address energy-related environmental issues and ensure that energy services are sufficiently available to the poor to meet the Millennium Development Goals (MDGs) and other development goals. The need of the hour is for the international community to show the vision and leadership to create or expand the mandate of an existing international organization and put in place a global organizational structure, preferably with teeth, that can ensure the provision of appropriate, reliable and affordable energy services on a sustainable basis for all countries on this planet.

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