

## **Japan Resuming Talks with India on Nuclear Cooperation Pact**

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On May 20, Chief Cabinet Secretary Yoshihide Suga told a press conference that the government was considering resuming Japan's negotiations with India on a bilateral nuclear cooperation agreement, which have been suspended since November 2010. The negotiations started in June 2010. Three official meetings for the negotiations took place before the talks were suspended due to the March 2011 disaster at the Fukushima Daiichi Nuclear Power Plant. When Indian Prime Minister Manmohan Singh visits Japan from May 29, he is expected to agree with his Japanese counterpart Shinzo Abe to resume the negotiations.

When transferring materials, equipment and technologies for nuclear power generation to a foreign country and implementing relevant bilateral cooperation, Japan must give considerations to their possible use for military purposes and the nuclear nonproliferation problem and conclude a pact with that country on the cooperation partner's obligation to use these materials, equipment and technologies only for peaceful purposes and restrict their transfer to third countries. This pact is a nuclear cooperation agreement. Japan has concluded such agreements with 11 countries, including the United States, Britain, France, China and South Korea, and with one international organization. While the Japanese government started nuclear cooperation pact talks with India, many Japanese people called for exercising prudence in promoting such talks with India that has not acceded to the Nuclear Nonproliferation Treaty. Given India's nuclear power generation situation as explained below and the fact that the United States and Russia have concluded nuclear cooperation agreements with India as an exception to the NPT regime, however, the Japanese government might have chosen to resume the nuclear cooperation pact talks with India.

What is the situation of India? In short, expectations on nuclear power generation are growing in India as it tries to meet expanding electricity demand and diversify its electricity portfolio. Our IEEJ Asia/World Energy Outlook 2012 projects that Indian electricity demand will increase from 711 terawatt hours (TWh) in 2010 to 3,075 TWh in 2035 in the baseline reference scenario, with annual growth averaging 6.0%. The average growth of 6% is the highest among Asian developing countries, far exceeding 3.2% for China during the same period. Meanwhile, India's power generation mix (on an electricity generation basis) in 2010 indicates that coal accounted for 69% of total electricity generation, hydro for 12% and natural gas for 12%. India's dependence on coal is remarkably heavy. As India tries to promote stable electricity supply and environmental conservation while meeting the substantial growth in electricity demand and diversifying its electricity portfolio to reduce its dependence on coal, expectations are growing on nuclear power generation.

India, which had used its domestic technologies for nuclear power development, has shifted to introducing advanced foreign technologies in response to the growing expectations on

nuclear energy. In such situation, major countries with advanced nuclear technologies are racing to enter the Indian nuclear power generation market. The above IEEJ outlook predicts that India's nuclear power generation capacity will expand from 4 gigawatts (GW) in 2010 to 38 GW in 2035 in the reference scenario or to 72 GW in the advanced technology scenario where new technology introduction will be accelerated. Following the Fukushima nuclear disaster, nuclear power plant operators around the world have been required to further enhance the safety of nuclear plants based on lessons learned from the disaster. This is the same case with India. In this sense, India's nuclear power generation expansion could be somewhat slower than expected earlier. But India is likely to move ahead with a very robust nuclear power generation program. As a matter of course, however, we see some challenges including India's nuclear liability law under which producers/providers of nuclear power plants and other relevant equipment as well as plant operators will be held liable for nuclear plant accidents.

Some other emerging countries in the same electricity and energy situation as India also indicate robust nuclear power plant construction programs. They include Saudi Arabia, the United Arab Emirates and other Middle Eastern countries, as well as Turkey and Central and East European countries, attracting attention from nuclear industry stakeholders throughout the world. In Japan among advanced nuclear industry countries, relevant companies are about to aggressively explore business opportunities in these countries planning to newly introduce nuclear power generation. In an effort to back up these companies, the government has been working to conclude nuclear cooperation agreements with other countries. Through Prime Minister Abe's recent overseas tour, Japan signed nuclear cooperation agreements with Turkey and the UAE. Japan and Saudi Arabia are considering negotiating their nuclear pact. As noted at the outset of this report, moves have emerged to resume nuclear pact negotiations with India.

What are the purposes for Japan and its industry sector to participate in nuclear power generation programs in India and countries planning to newly introduce nuclear generation? The first purpose is to contribute to ensuring the three "S"s -- Safety, Security and Safeguards. As Japan has experienced the Fukushima nuclear disaster, it has a duty to take advantage of lessons learned from the disaster for contributing to improving safety technology for the world. Japan can utilize its past efforts and achievements in the areas of Security and Safeguards as well as lessons from the disaster to play a great role in promoting nuclear power generation and ensuring the three "S"s in the countries planning to introduce nuclear generation. This point meets the needs of the countries introducing nuclear energy. These countries might have placed great expectations on Japan's contribution to the enhancement of three "S"s.

Nuclear power generation programs in these countries are also an important business or economic factor for Japan. The IEEJ estimates the world's nuclear power plant construction market at 90-160 trillion yen for the period up to 2035. The market size is estimated at 34-72 trillion yen for India, the ASEAN members, Middle Eastern countries, Turkey and other countries where Japanese companies could take part in nuclear power generation projects, excluding China, South Korea, Russia and other countries where their domestic companies' superiority makes it difficult for Japanese firms to participate in such projects. Even if a Japanese company wins a foreign nuclear power plant order, it may not necessarily receive all of the order value. Local companies may undertake civil engineering and some other operations. Nevertheless, the Japanese company may receive nearly 70% of the order value, covering key components such as nuclear reactors and turbines. A nuclear power plant order may also exert spillover effects on the entire Japanese

economy through relevant equipment production. In this sense, large-scale nuclear power generation programs in the countries planning to newly introduce nuclear energy can be expected to provide key business chances and economic effects.

As a matter of fact, Japan faces a mountain of domestic nuclear problems including whether and how offline nuclear reactors should be restarted, how nuclear energy should be positioned and what the best energy mix is. We may have to take note of the fact that aggressive efforts to undertake overseas nuclear power programs, even in the presence of such domestic problems, have come under fire or been called into question. Therefore, the government and other stakeholders must faithfully tackle domestic nuclear energy problems mainly by resolving Fukushima disaster challenges including radioactive decontamination, decommissioning of nuclear reactors and evacuees' return to their hometowns, by implementing measures to enhance nuclear safety based on lessons from the disaster, and by developing/restoring the culture of safety. The government may have to address these domestic nuclear problems while giving all people careful explanations on the contribution to the three "S"s, economic effects and other purposes of Japan's participation in nuclear power generation programs in countries planning to newly introduce nuclear energy.

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