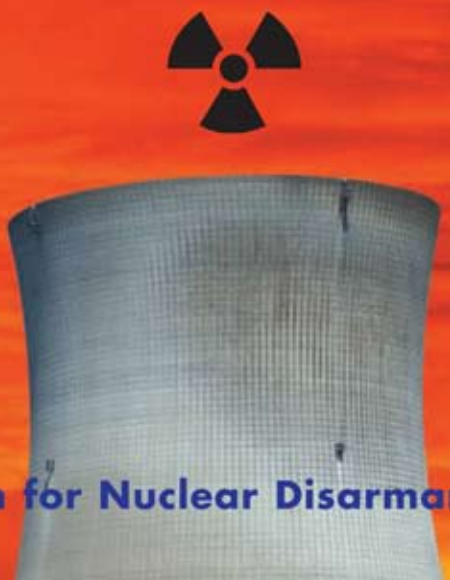
COURTING NUCLEAR DISASTER IN MAHARASHTRA

Why the Jaitapur Project Must Be Scrapped



Coalition for Nuclear Disarmament and Peace

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Coalition for Nuclear Disarmament and Peace

January 2011

The Indian government's plans to promote nuclear power generation have received a great boost with the completion of the United States-India nuclear cooperation deal and the subsequent signing of reactor import contracts with countries such as France and Russia. The government is now vigorously pushing through large-scale, multiple-reactor "nuclear power parks" in coastal areas in utter disregard of the high environmental, radiation-related safety and health, and economic costs of atomic power, as well as the requirements of transparency and accountability.

The biggest of such projects—and the largest nuclear power station in the world—is under construction in Jaitapur, in Maharashtra's Ratnagiri district on the scenic Konkan coast, to be executed by Nuclear Power Corporation of India Ltd (NPCIL), a subsidiary of the Department of Atomic Energy (DAE), with six giant reactors of 1,650 MW megawatts each, designed by the French nuclear company, Areva.

The people of the Jaitapur-Madban area, comprising 10 villages, resolutely oppose the project and have protested peacefully against it right since NPCIL and the Maharashtra government conducted a land survey in the region five years ago. The authorities had already decided on the Jaitapur site and conducted a feasibility study in 2003, seven years before an agreement on the reactors was signed, an Environmental Impact Assessment report was commissioned and prepared, and the project granted an environmental clearance. The clearance was hastily given only six days before French President Nicolas Sarkozy's visit to India last December.

The Coalition of Nuclear Disarmament and Peace was established in 2000 by more than 250 civil society groups in opposition to the Indian and Pakistani nuclear weapons tests of 1998. Its objective is to fight for global and regional nuclear disarmament and to promote the cause of peace. At its 10th Anniversary Convention on December 10 to 12, 2010 in Delhi, CNDP emphasised the inseparable links between nuclear weapons and nuclear power through the so-called "nuclear fuel cycle". It resolved to actively engage itself on the issue of nuclear power, and join, broaden and strengthen popular struggles against nuclear energy all over India.

The Jaitapur nuclear power station has become a great contest of wills between a conscious public and an arrogant officialdom, which has unleashed savage repression against peaceful protesters. It is a test case for the success of popular movements against projects that forcibly acquire people's lands, wreck their livelihoods, and inflict irreparable damage on the environment. Jaitapur has special public significance because of the project's nuclear hazards and its location in a unique biodiversity-rich ecosystem.

A team of concerned citizens visited the Jaitapur area between January 6 and 8 to investigate the depth of popular concerns about the environmental, nuclear safety, livelihood and governance issues raised by the project, to assess the extent of violations of civil liberties and social, economic and cultural rights of the people by the state, and to express solidarity with the popular movement against the project.

The team comprised former Planning Commission member and Union finance

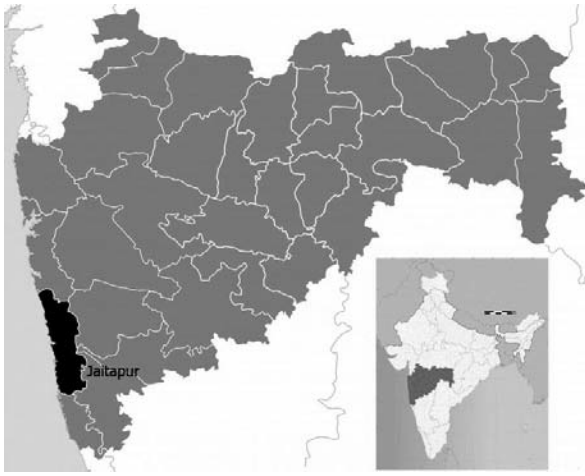
secretary SP Shukla, based in Pune, Coalition of Nuclear Disarmament and Peace (CNDP) national executive committee member Praful Bidwai and journalist Bhasha Singh, both from Delhi, and Mumbai-based filmmaker and social commentator Rafeeq Ellias. They were guided and assisted by Vaishali Patil of the Konkan Vinashkari Prakalp Virodhi Samiti. This report was prepared by CNDP through the joint effort of and consultation with the visiting team.

The impressions of the visit as well as an overview of the issues and challenges posed by the Jaitapur movement are summarised in the pages below, under the following sections.

- **The Jaitapur Project**
- **Displacement and Livelihood Destruction**
- **Threat to a Unique Ecosystem**
- **EPRs: Untested Reactors**
- **Nuclear is Unsafe**
- **Adverse Economics of the Project**
- **People's Resistance and the Political Context**
- **The Bleak Future of Nuclear Power**
- **False Promise of Energy Security**

The Jaitapur Project

The plan by Nuclear Power Corporation of India Ltd (NPCIL) to establish two nuclear reactors in Jaitapur in Maharashtra was first publicly announced in September 2005, just two months after the United States-India civilian nuclear cooperation deal was inked.[1] In 2003, two years before the deal was conceived, NPCIL had commissioned a feasibility study in the Jaitapur region.[2]



The project, originally for two 1,000 MW reactors, was modified in February 2006, when India and France signed an agreement on nuclear cooperation and declared their intention to establish a "nuclear power park" in Jaitapur, consisting of six units of European Pressurised Reactors (EPRs) of 1,650 MW each.[3]

Jaitapur is planned to be the biggest nuclear power station in the world, even larger than Japan's Kashiwkazi-Kariwa plant. The reactors are to be designed and built by the largely state-owned French nuclear energy company, Areva. Ever since 2006, Areva has figured in connection with the proposed nuclear "park" in Jaitapur.

Even before the 45-member Nuclear Suppliers' Group agreed in September 2008 to make a special exception for India in the global nuclear trade regime in keeping with the US-India deal, New Delhi had started dangling the carrot of lucrative nuclear reactor business worth $270 billion before the international nuclear industry in the form of "nuclear power parks" in coastal areas.[4] This was done without any clearance from the Reserve Bank of India, without an engineering or technical assessment of the reactors, and without a transparent, broad-based study of or planning for nuclear expansion on such a massive scale.

There was no evaluation of the relevance of large-scale nuclear power generation for India's energy security. NPCIL did not invite global tenders for any reactors. Yet, it short-listed Areva's EPRs, along with Westinghouse Electric Company's AP1000 reactors, General Electric-Hitachi's ABWR reactor series, and Russian atomic energy agency Rosatom's VVER 1,000 reactors.[5] On its part,

France has been more than eager to exploit the lucrative nuclear market emerging in India. Not only it had not condemned India for its nuclear tests of 1998[6], it promised India access to sensitive enrichment and reprocessing technologies and offered assured fuel supplies.[7]

In anticipation of the NSG clearance, pre-project activities started by mid-2006 and a Memorandum of Understanding was signed between NPCIL and the Government of Maharashtra in September 2006.[8] NPCIL's camp office appeared near Madban village in early 2007.[9] Within a month of the NSG clearance in September 2008, India and France entered into a framework nuclear agreement.[10] Prime Minister Manmohan Singh was invited as the chief guest at the French National Day in 2009.[11]

The agreement for the first two of the six EPRs between Areva and NPCIL was signed in December 2010 during French President Nicolas Sarkozy's India visit.[12] This event was also marked by a hastily granted clearance to the project by the Ministry of Environment and Forests.[13]

Current status:

- The Atomic Energy Regulatory Board is yet to give clearance to the reactor design
- Environmental clearance is conditional
- In the first phase, two reactors are to be built by 2017-18.
- The Union cabinet has to approve financial issues
- Liability remains a concern for Areva[14]
- A powerful grassroots movement against the project has emerged.
- Seventy local self-government representatives of 10 villages have resigned en masse

Displacement and Livelihood Destruction

The Jaitapur nuclear project is to be spread over 968 hectares of land and will wipe out five villages—Madban, Niveli, Karel, Mithgavane and Varliwada—which together have a population of 4,000. Madban and Varliwada have been identified for the site of the project proper, while Karel, Niveli and Mithgavane would become the township for the project staff.[15] The Department of Atomic Energy (DAE) maintains that the Jaitapur nuclear power "park" will not lead to any displacement of people, and that much of the acquired land is unproductive. This strains credulity. As we see below, the land in the area supports a thriving agricultural and horticultural economy—and thousands of livelihoods.

People in the Jaitapur area received land acquisition orders in 2007, and by January 2010, the government of Maharashtra had completed the acquisition of 938.026 hectares. Villagers were offered Rs 2.86 per square foot for barren land and Rs 3.70 per square foot for cultivable land, equivalent to Rs 1.25 lakhs to Rs 1.6 lakhs an acre. This was subsequently raised to Rs 4 lakhs an acre, and most recently, to Rs 10 lakhs, with the guarantee of one job for every affected family

However, despite forcible acquisition of land, only 114 out of the 2,375 affected families have claimed the compensation offered; all others have refused to take the cheques. The land acquisition process has been utterly undemocratic, and at times, violent.[16]

NPCIL has labelled 65 percent of the land as "barren". The local population finds this outrageous because the land is highly fertile and produces rice, other cereals, the world's most famous mango (the Alphonso), cashew, coconut, kokum, betel nut, pineapple and other fruits in abundance. Some of the land is also used for cattle-grazing and rain-fed agriculture and is hence productive.

Ratnagiri was declared a "horticulture district" by the Maharashtra government in 2003. Farmers have invested big amounts in horticulture (mainly mangoes and cashewnuts) under government schemes, often with loans. Besides complaints about the government not recording their plantation crops correctly, the people also claim

that the compensation for these trees is substantially less than what they earn from them annually. The offered rate is Rs. 9,386 per tree in the case of mangoes, whereas people earn Rs 10,000-15,000 from a single tree annually; and it is Rs 1,989 for a plant of cashew whereas the annual earning per plant is usually Rs 4,000-5,000.[17]

As mentioned in a recent report by the Tata Institute of Social Sciences, Mumbai, the government, which now claims that the land is "barren", paid a compensation of nearly Rs 14 lakhs in 2007 in the same area for the loss of mango production due to floods.

Ratnagiri has 15,233 hectares under mango cultivation, with an estimated annual business turnover of Rs. 2,200 crores. The mango crop is extremely sensitive to the minutest changes in temperature and soil chemistry. The local people apprehend that a good deal of the mango harvest would be lost if the project comes up.

Besides farming and horticulture, the Jaitapur-Madban area has a sizeable fishing economy. The fishing population will also be affected, since the plant will daily release a huge 52,000 million litres of hot water into the Arabian Sea. Besides the rise in seawater temperature, tighter security in the coastal region would also severely restrict fishing.

Jaitapur's community leaders fear that once the project becomes operational, its elaborate security arrangements would imperil fishermen's unhindered use of the two creeks of Jaitapur and Vijaydurg, where they get a depth of 20 fathoms, which is usually found at a distance of 2 to 3 nautical miles on other coasts. Altogether, the nuclear "park" would jeopardise the livelihoods of 40,000 people, including 15,000 dependent on fishing. [18]

According to the Maharashtra Macchimar Kruti Samiti, seven fishing villages—Sakhari Nate, Tulsunde, Ambolgad, Sagwa, Kathadi, Jambhali and Nana Ingalwadi—will be threatened by the nuclear power project. The annual fish catch in Ratnagiri district is 1,25,000 tonnes. About 40,000 tonnes of this comes from Sakhari Nate/Nate.

Around 15,000 fisherfolk face a threat to their livelihood

The annual turnover from fishing

in these villages is about Rs 15 crore.[19] In Nate alone, there are 200 big trawlers and 250 small boats. Nearly 6,000 people directly depend on fishing in the area and more than 10,000 are dependent on related or ancillary activities.[20]

A sizeable amount of this fish catch is exported to Europe, Japan and other countries. Fish exports are also likely to be affected because produce from the area might fail the stringent requirements of European "catch certificates" which demand a declaration of the location, depth, temperature, and time of fishing.

Not many consumers in the developed countries would relish eating fish or mangoes grown in the neighbourhood of nuclear reactors. Mango consignments from Ratnagiri have been rejected in Japan because traces of pesticides were found in the packaging material.

Besides the population directly dependent on farming, horticulture and fishing, thousands of people in Jaitapur-Madban make their living out of secondary occupations such as mango and cashew processing, trade, transportation, mending of fishing nets, maintenance of various kinds of equipment and machinery, which needs both skilled and unskilled labour services. In 2006, the area was designated as an Agro-Economic Zone and Tourist Zone by the concerned departments of the state government.

Threat to a Unique Ecosystem

Konkan has been called the "Kashmir of Maharashta" because of its stunning beauty. The Konkan scenario offers a magical combination of mountains and undulating hills, verdant plateaus, creeks, lagoons, the open sea and infinite greenery. There is hardly a square foot of land that is not lush with vegetation. The Konkan ecology contains virgin rainforests and an immense diversity of plant, animal and marine life. Botanists say it is India's richest area for endemic plant species.

Konkan's fragile ecosystem

Konkan is one of the world's 10 "Hottest Biodiversity Hotspots". The Sahyadri mountains in the Western Ghats are home to over 5,000 species of flowering plants, 139 mammal species and 508 bird and 179 amphibian species, including 325 globally threatened ones.[31] Two great peninsular rivers (the Krishna and the Godavari) originate there. The region's ecology is so precious and unique that one would need a diabolically destructive mind to want to wreck it by building a nuclear power plant in it.

Jaitapur is located in a seismically sensitive region. It comes under Zone IV in the earthquake hazard zoning map of India, ranging from I to V in growing seismic intensity.[21] This zone is called the High Damage Risk Zone.[22] .According to Greenpeace, "Over the past 20 years alone, there have been three earthquakes in Jaitapur exceeding 5 points on the Richter scale. In 1993, the region experienced one reaching 6.3 leaving 9,000 people dead. In 2009, an earthquake caused the bridge to Jaitapur to collapse. None of this was taken into account when the site was chosen."[23]

It is far from clear if the project authorities have evolved the necessary construction parameters such as special reinforcements needed for "earthquake-proofing" the structure to a reasonable degree, and if they have the technical competence to do so. It is not apparent that they have considered high-magnitude earthquake scenarios and based their structural design on them.

The Konkan region's rich natural resources are already under severe threat on account of several "development" projects along the Western Ghats—from Panvel in Raigad district, across Madban in Ratnagiri, to Sawantwadi in Sindhudurg. These include 15 coal-based power projects totalling nearly 25,000 MW, 40 medium and small ports, nearly 40 medium and mega Special Economic Zones, major mining projects, and "chemical hubs"[24] The environment minister

himself has admitted that the total power generating capacity proposed on a narrow strip of coastal land 50 to 90 km wide and 200 km long is around 33,000 MW. [25]

The gigantic Jaitapur nuclear project will damage this ecosystem irreparably. As the Bombay Natural History Society notes, "the true impact of a project of this scale will never be known" without a comprehensive biodiversity assessment.

Water discharged from the plant will be 5 °C hotter than the ambient sea temperature. But "even a 0.5 °C of continual thermal stress will lead to mortality of marine species." The BNHS has also mapped 407 hectares of mangrove vegetation around a 10 km-radius of the nuclear plant.[26]

A recent environmental study of Ratnagiri and Sindhudurg districts by the chair of the Western Ghats Ecology Expert Panel, the renowned environmentalist Madhav Gadgil, sharply criticises the government for violations of environmental laws and norms in Konkan.[27] Gadgil's interim report questions the very logic of setting up so many power projects in an ecologically invaluable yet fragile region. Instead, the report argues for micro- and mini-hydel projects.

- The current energy requirement of these districts is 180 megawatts, while their current production is 4,543 megawatts, so the area is producing vastly more than its own needs.
- The report also holds that the Environmental Impact Assessments (EIAs) conducted in the region by the government are flawed "almost without exception."
- Comparing solar energy with nuclear and coal-based electricity, the report says it is important "not to rush into environmentally damaging options if there is evidence that much less damaging options are likely to become available in the near future". One of these is tapping the area's mini- and micro-hydroelectricity potential, estimated by former Maharashtra irrigation secretary D R Pendse to be as high as 2000 MW using only 30 percent of he total water available in Konkan for hydel development
- Gadgil also laments the utter disrespect shown by the state agencies for civil rights in pushing for these "development" projects. In fact, his own field trip and consultations with the people in the area had to be cut short because the District Collector had imposed Sec 37(1)(3) of the Bombay Police Act, 1951 prohibiting gatherings of more than five people.

However, none of these environmental concerns figures in the 1,600-page Environmental Impact Assessment (EIA) report prepared by the National Environmental Engineering Institute (NEERI). The EIA report wholly ignores the serious environmental problems posed by nuclear power, including

potentially catastrophic accidents and routine radioactivity exposure through effluents and emissions. Nor does it take into account the cumulative environmental impact of numerous projects under way, or the local ecosystem's carrying capacity.

NEERI has acquired a notorious reputation because of is sloppy work which favours many promoters of dubious industrial projects. By its own admission, NEERI lacks the technical competence to assess the specific radiation-related hazards of nuclear reactors. Its EIA report does not even mention the issue of radioactive waste and ways of storing it for long periods of time. It is also to be noted that the EIA was conducted for just two rectors; the NPCIL wants to build six EPRs in Jaitapur.

Yet, the Union Minister of State for Environment and Forests, Jairam Ramesh accepted the EIA report and granted environmental clearance to the Jaitapur project with 35 conditions and safeguards on November 28, 2010.[28] Some of these conditions pertain to studies that should have been conducted much earlier, and to safeguards that should have been designed well in advance.[29]

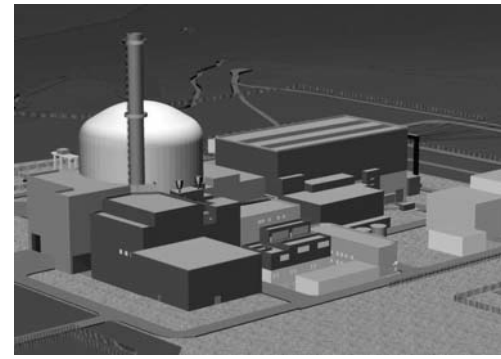
Many of Ramesh's conditions are vague. Together, they fail to address the real flaws and deficiencies in the project. Some of them convert valid objections to the project—which therefore constitute strong grounds for rejecting it—into "conditions". In any case, given the MoEF's past record, it is extremely unlikely that compliance with the conditions will be monitored.

The environmental clearance was granted to NPCIL just 80 days after it submitted its EIA report, a process that normally takes six months or longer.[30] It wasn't a coincidence that this was formally notified less than a week before French President Nicolas Sarkozy's visit to India beginning December 4 last.

The minister tried to avoid questions regarding the clearance by claiming that that he is not competent to pass a judgment on matters related to the need for, and the economics and safety of, nuclear power plants. He reportedly also told activists: "I can't stop the project. It is going to come up because it is not just about energy but also about strategic and foreign policy." Ramesh called it "paradoxical" that environmentalists should oppose nuclear power although it is "green" and "clean", but he dodged questions on the environmental and radiation effects of the project.[31]

EPRs: Untested Reactors

There are serious and genuine concerns about the safety and viability of the European Pressurised Reactor that are to be imported for the Jaitapur nuclear power "park". Areva's 1,650 MWe EPRs are based on the French N4 and German Konvoi-type reactors.[32] However, nowhere in the world has an EPR been fully built or commissioned so far. There are four EPRs in different stages of construction in the world. Two of them are already beset by serious safety and financial problems and delays.



Unsafe Reactor Design?

Areva itself has been going thorough a devastating financial crisis. In 2009, it sought $4 billion in a short-term bailout from French taxpayers. Its shares plunged by over 60 percent.[33]

Areva sold its first EPR to Finland. This is Western Europe's first nuclear reactor contract since Chernobyl (1986). The reactor has been under construction in Olkiluoto (OL-3) since 2005 and was to be completed by 2009. Several safety, design and construction problems have pushed its start-up to the second half of 2013—a delay of 42 months[34], with a cost escalation of 90 percent.[35] The OL-3 fiasco has led to the walkout of the German engineering company Siemens from the project and entangled Areva and the Finnish operator in bitter litigation.

- France decided to set up the second EPR at home, in Flamanville, and the construction started in December 2007.[36]Issues similar to those at OL-3 have led to a 50 percent cost increase and a delay in commissioning to 2014. Several problems in the reactor design were noted by the French nuclear safety agency.[37] France has also witnessed fierce protests against the EPR in the cities of Rennes, Lyon, Toulouse, Lille and Strasbourg, as well as in Flamanville.[38, 39]
- China has contracted to buy two EPRs, but it is moving cautiously towards completion dates (2013 and 2014).[40]
- Over 3,000 safety and quality problems were recorded with the construction of Olkiluoto-3 by the Finnish safety agency STUK, the French nuclear safety agency Autorité de Sûreté Nucléaire, and the UK's Nuclear Installations Inspectorate.[41, 42]
- In 2009, the United Arab Emirates (UAE) declined Franco-American bids for EPRs which were in an advanced stage of negotiation and awarded a contract

for the construction of four non-EPR plants (APR-1400) to a South Korean group.[43]

- Citing deficiencies in EPR's sump design, the US Nuclear Regulatory Commission (NRC) has delayed its design certification to the EPR from June 2012 to February 2013. The sump is part of the reactor's vital emergency core-cooling system. The NRC has also pointed to problems with the EPR's digital instrumentation and control design, as well as with Areva's seismic and structural modelling analysis. [44]
- If the issue of assigning responsibility for the loss caused by the 90 percent cost escalation at Olkiluoto in Finland is not resolved soon, the project could well be abandoned, probably sounding the death-knell for nuclear power in the West.

The EPR is the largest-ever nuclear reactor designed in the world and has a much higher density of fission-causing neutrons and fuel burn-up than do normal reactors (of 500-1000 MW capacity). The EPR's high fuel-combustion rate will lead to greater production of harmful radionuclides, including seven times higher production than normal of iodine-129, with dangerous implications for radioactivity releases, damage to the fuel cladding, and waste generation.[45]

India's Department of Atomic Energy has a long history of poor or non-existent regulation, persistent below-par performance, and accidents. Moreover, it has no experience of running huge reactors like EPRs. Most existing Indian reactors are up to eight times smaller (220 MW), the biggest ones being one-third (540 MW) the size of an EPR (1,650 MW).

Nuclear is Unsafe

India's super-ambitious nuclear expansion plans are based on the rosy assumption that a global "nuclear renaissance" is under way and that nuclear power is the best solution both to the climate change crisis and to the national energy security question. But as we see in the last section, there is no nuclear renaissance. Nuclear power is in decline worldwide. A major reason for this is that nuclear power is unpopular and nuclear reactors are seen as bad neighbours.

Nuclear power generation is inevitably fraught with radiation, an invisible, intangible and insidious poison, which is unsafe in all doses, however small. Radiation causes cancers and genetic damage, for which there is no cure, antidote or remedy. Nuclear plants expose not just occupational workers, but also the general public, to radioactive hazards in numerous ways.

Radioactive wastes of different intensity or level are produced in all stages of the so-called nuclear fuel cycle. Wastes are produced in a nuclear reactor's core. They are created in uranium mining, refining and enrichment, and in fuel fabrication. Handling and transporting nuclear materials also generates wastes. As does the reprocessing of spent-fuel rods which contain vast amounts of dangerous radionuclides. An average reactor generates 20 to 30 tonnes of high-level nuclear waste every year.

Even after decades of claims to the contrary by the nuclear industry, humankind has found no way of safely storing or disposing of nuclear waste. It remains dangerously radioactive and hazardous literally for thousands of years.

For instance, the half-life of plutonium-239, a particularly lethal component of nuclear reactor waste, is 24,000 years. The half-life of uranium 235, the fissile isotope of uranium, is 710 million years! High-level wastes containing isotopes such as uranium-234, neptunium-237, plutonium-238 and americium-241, and also tritium, strontium-90 and caesium-137 etc. are extremely dangerous to humans, other life forms, and generally, to nature.

There is no safe or acceptable dose of these radioactive poisons.[46] Even uranium tailings at mining sites are radioactive and cause serious health problems among the surrounding population. This is callously ignored in India by the DAE despite weighty evidence of grievous health damage suffered by the people in and around the Jadugoda mines in Jharkhand.

Eminent scientists have warned us on the alarming quantities of nuclear waste being generated, and inadequate mechanisms and practices to handle it in India.[47] But it doesn't seem to be a problem for our environment minister.[48]

Nuclear power generation is the only form of energy production which can produce a catastrophic accident like Chernobyl, where an estimated 65,000 to 105,000 people were killed. All existing reactor types in the world are vulnerable to a core meltdown like Chernobyl, leading to the release of large quantities of radioactivity into the environment. There have been at least 22 major[49] and thousands of minor accidents before and after Chernobyl.[50]

Even during the normal operation of nuclear plants, large quantities of radioactive materials are routinely discharged into water and air. Transportation of nuclear material and wastes is also vulnerable to accidents or sabotage.

The safety record of India's nuclear installations is appalling.[51] Fast-Breeder Reactors (FBRs), the poster boy of the Indian nuclear elite, are particularly vulnerable to severe accident risks.[52] The recent radiation leak incident in Mayapuri in Delhi exposed institutional inadequacy to deal with such incidents.[53]

Nuclear proliferation risks are inextricably attached to "peaceful" nuclear energy projects. Since Eisenhower's "Atoms for Peace" programme, launched in 1953, many countries have received international assistance in nuclear technology under the civilian garb. Some later used it for their nuclear weapons programmes. In the recent past, the International Atomic Energy Agency (IAEA) warned of the emergence of up to 20 "virtual nuclear weapons states"—countries that have advanced nuclear capabilities, but have stopped short of assembling nuclear weapons.[54]

The "inalienable" right to "peaceful" nuclear technology, accepted and legalised under the Nuclear Non-Proliferation Treaty, has been held sacrosanct by both political and industry groups. This marks a pivotal self-contradiction in the global non-proliferation regime. "Proliferation-resistant" reactor technology is an oxymoron. [55] The "closed" nuclear fuel cycle that India is following will allow it to amass a large stockpile of weapons-grade plutonium.

India has been reluctant to join global negotiations on the Fissile Material Cut-off Treaty (FMCT) on shallow grounds. It recently even blocked a meeting of the International Panel on Fissile Materials (IPFM)—a body of independent scientists. [56] In 2010, the global stock of weapons-grade plutonium was 485±10 tonnes. But just 3 to 8 kilogrammes of this material is enough for a Nagasaki-type bomb.[57]

Nuclear power tends to weaken, and even undermine, democracy. Because nuclear technology is strategically "sensitive" in nature, large-scale and centralised energy generation through nuclear power demands and encourages secrecy, and generates vested interests in the form of an unaccountable, undemocratic technocratic elite. It can effectively turn a constitutional state into a totalitarian one.[58]

The mystique that surrounds high technology, and the nationalism and developmental urgency attached to nuclear energy, are used to silence, discredit and sideline any opposition. In India's case, the undermining of democratic institutions—from panchayats in the case of Jaitapur, to Parliament itself in the case of the Indo-US nuclear deal and the Nuclear Liability Bill—has been rife and open.[59]

Adverse Economics of the Project

Serious questions have been raised about the economic costs of the Jaitapur project based on the extremely expensive European Pressurised Reactors.[60] Each of the six 1,650 MW reactors would cost around $7 billion assuming the capital cost of the EPR being built at Olkiluoto does not escalate beyond the latest estimate of 5.7 billion Euros. This works out to Rs 21 crores per megawatt (MW) of capacity.[61]

This cost estimate, however, does not include fuel costs or maintenance costs. The nuclear industry has devised ways to hide several other cost components too—storage of hundreds of tonnes of the nuclear waste generated annually; the cost of reactor decommissioning which could amount to one-third to one-half of the total construction cost; the extensive additional physical security costs, including anti-aircraft batteries and the extra coast guard deployment.

Of course, environmental costs, and health costs imposed on miners, plant workers, and the public living close to nuclear installations, and the associated medical expenses, are ignored altogether.

Comparing the likely cost of electricity generation in Jaitapur, based only on the capital cost, with other available options leads to alarming conclusions. According to the current Finnish estimate, itself conservative, the EPR's capital costs (Rs 21 crores per MW) are far more expensive than those of the indigenous CANDU reactors installed at the Rajasthan, Madras, Narora and Kaiga power stations, which are about Rs 8-9 crores per MW. They are even higher than the capital costs of supercritical coal-fired thermal power stations (Re 5 crores per MW).[62]

Put another way, the six EPRs at Jaitapur will together cost the Indian public about Rs 200,000 crores, even more than the upper limit of the loss caused to the exchequer by the 2G telecom scam, estimated by the Comptroller and Auditor General of India at Rs 1,76,000 crores.

The latest EPR cost estimate based on the Olkiluoto reactor may not be the last word on the issue. Several figures have been quoted in different countries for the EPR's capital costs per MW, ranging from Rs 21 crores in Finland and the UAE, to Rs 27 crores in the US and South Africa, to an astronomical Rs 59 crores in Canada.[63]

Depending on the capital cost, quoted from this range, the unit cost of electricity to be generated at Jaitapur would come to Rs 5 to Rs 8 per kilowatt-

hour. This is more than double, even triple, the cost of electricity from coal- or gas-fired plants (about Rs 2 to 2.50 a unit). Indeed, nuclear power is far costlier than electricity from renewable sources like wind power, biomass and solar-thermal.

In all likelihood, the Olkiluoto EPR's capital cost will escalate significantly if modifications are made to its design, safety systems and construction in keeping with the 3,000 issues raised by the Finish, French, British and US nuclear regulatory agencies, and by the French government-appointed expert, Francois Roussely.

Yet, Areva's CEO, Anne Lauvregeon, told *The Hindu* in an interview that Jaitapur's electricity would cost less than Rs 4 a unit—with the caveat that "giving out the price depends on NPCIL." This is utterly ludicrous.

People's Resistance and the Political Context

The people of the Jaitapur region have put up brave resistance to the nuclear project right from the beginning. Initially, the opposition came mainly from Madban (literally, a forest of palm) and other directly affected villages. But soon, fishing communities, mango traders, transporters and civil society activists from the Ratnagiri district headquarters, and activists and environmentalists from Mumbai and other parts of India joined in. The state government and NPCIL have maligned the protests by attributing them to "outside elements".


Vigorous protests, like this march, have become regular

However, all the five gram panchayats (democratically elected local governing bodies) in the affected area have unanimously passed resolutions opposing the project. During our visit, we could see great indignation over the government's undemocratic imposition of the project on the villagers, taking them for granted, or treating them as fools and ignoramuses.

The Central government and NPCIL are hell-bent on pushing the Jaitapur project through at any cost. NPCIL and the Department of Atomic Energy had decided and zeroed in on the Jaitapur site as early as 2003—even before Areva had designed the European Pressurised Reactor and an Indo-French framework agreement on reactor imports was signed.

The Maharashtra government is equally zealous about implementing the project in blatant disregard of its ecological, livelihood and economic consequences. Its Chief Minister, Prithviraj Chavan, was the Union minister of state for atomic energy until November and is a dogmatic proponent of nuclear power. He regards its critics as uninformed, destructive, anti-development Luddites. The government has repeatedly stooped low in maligning the project's critics.

The state government has unleashed savage repression on the local people for opposing the project. It routinely arrests and serves externment notices upon peaceful protesters, and promulgates prohibitory orders under Sec 144 of the Criminal Procedure Code and the tough Section 37 of the colonial Bombay Police Act.

An instance of such repression is a frail 70-year-old diabetic, Shriram Dhondo Paranjape, who was falsely charged with pelting stones at the police—when he couldn't have lifted a pebble. He was detained for 15 days. Others have had false charges framed against them, including attempt to murder. The higher judiciary, apparently afraid to question the Holy Cow of nuclear technology, has refused them anticipatory bail.

Suvarna Paranjape(65), talking to the local police while her husband is detained

Eminent citizens who wanted to visit Jaitapur in solidarity with the protesters were banned. They include Communist Party of India general secretary AB Bardhan, former Chief of the Naval Staff Admiral L Ramdas, former Supreme Court judge and Press Council of India chairman PB Sawant, well-known Pune-based social scientist Sulabha Brahme, and outstanding ecologist Madhav Gadgil, chairman of the Western Ghats Ecology Experts' Panel established by the Ministry of Environment and Forests (MoEF).

In December, former Bombay High Court judge BG Kolse-Patil was detained for five days and not even produced before a magistrate within 24 hours, as mandated by law. This unprecedented repression resembles the police raj in Maharashtra's Naxalite-affected areas.

An enraged woman speaking in Madban

Grass-roots wisdom, especially of women, about their livelihoods and their democratic entitlements is touching. Children and women shout *Anu Urja Nako* (No to Nuclear Energy) to every passing vehicle. The entire area has learnt methods of peaceful non-cooperation and non-violent struggle against the administration.

People told us that when the Commissioner of Ratnagiri recently visited the Jaitapur area with 20 police vans and an ambulance to hold a "peace meeting" with the villagers, nobody turned up. An old woman went to the

venue and asked the Commissioner what he was afraid of, and why he had brought so many armed men and vehicles for a "peace meeting".

The people oppose the project because it will destroy their livelihoods, just as the Tarapur reactors nearby have done. The Jaitapur population is highly literate, and knows of the hazards of radiation and the DAE's poor safety performance, including the exposure of hundreds of workers in Tarapur to radiation doses exceeding the permissible limits, genetic deformities from uranium mining in Jaduguda, and high incidence of cancers near reactors in different locations.

The people's resolve to oppose the project is impressive, to put it mildly. More than 95 percent of those whose land was confiscated have refused to take the Rs 10 lakhs-an-acre compensation offered; most of those who accepted it, we were told, are absentee landowners living in Mumbai.

CNDP team in Nate village

The villagers, faced with repression, practise non-cooperation by refusing to sell food and other goods to state functionaries. When the government recently ordered teachers to brainwash pupils into believing that nuclear power is clean and green, people withdrew their children from school for a few days. Seventy elected councillors (panchayat representatives) from 10 villages have resigned from their positions. These villages didn't hoist the Tricolour on Republic Day.

The government is leaving no stone unturned in its efforts to smash Jaitapur's anti-nuclear power movement and break the will and spirit of its cadres and leaders. To do this, it will have to, and will probably be tempted to, use diabolical divide-and-rule tactics, including fomenting tensions between Muslims (30 percent of the population) and Hindus; violence by agents provocateurs; and branding of all dissidents as Maoists/Naxalites, the latest lie being used to suppress popular movements. These methods must be exposed and resisted.

In the evening of January 7, at the central market place of Nate, a village of mainly Muslim fisherfolk, about 1,000 people—children, men, and an almost equal number of women—had gathered to talk to us although it was getting dark and the evening prayers were about to start in the nearby mosque.

People from Tarapur—uprooted by India's first two nuclear reactors and still fighting for proper compensation and rehabilitation—visited Nate that day just when the Prime Minister Manmohan Singh was in Tarapur celebrating the opening of a reprocessing unit.[64] They narrated their experience of total ecological destruction and the ruin of a once-prosperous fisheries economy—leading to destitution in several villages near the plant site. An immensely engaging discussion followed, which further strengthened the resolve of Nate's villagers to resist the Jaitapur project.

An encouraging aspect of the struggle in Jaitapur is that its leadership is firmly in the hands of the local people, who have formed organisations like Madban Janahit Seva Smiti, Konkan Vinashkari Prakalp Virodhi Smiti and Konkan Bachao Samiti. The movement has also seen participation by civil society leaders of national stature like Medha Patkar. Leaders of political parties have also visited the area and expressed their solidarity with the people's movement. Organisations like Anumukti and Lokayat have played an important role in raising awareness in the area on the hazards of nuclear power.

The Jaitapur struggle could prove pivotal in halting the massive, wasteful and dangerous turn towards nuclear power that India's energy policy is taking. It can provide a useful setting for a wider and democratic discussion on issues like the need for decentralised renewable energy generation; the imperative of taking communities and their livelihoods into account while planning and executing development projects; and democratisation of decision-making through the participation of local communities and grassroots organisations.

Political leaders of the Jaitapur area, although currently supportive of the movement, could prove unreliable. The local MLAs and MPs mostly belong to the right-wing chauvinist Shiv Sena. They have promised their parties' support to the people's struggle. However, the Shiv Sena reportedly approved the Jaitapur site when it was in power in Maharashtra.[65] Other mainstream parties such as the Congress, Bharatiya Janata Party and Nationalist Congress Party have also expressed their support, but the local people are wary of them.

Activists like Vaishali Patil underline the need to be alert on the possible infusion of communal tension and conflict into the situation by the Shiv Sena-BJP combine. The police have deliberately not acted against movement activists in the Muslim-dominated fishing villages while arresting people from all other villages. This too could communalise the climate, if the latter cite differential treatment.

A brief timeline and description of the intense struggle over the past four years is given below:

January 2006 – A court case was filed by Janahit Seva Samiti, Madban in the Bombay High Court, which granted a stay on the project, but later lifted it.

23 November 2009 – A huge meeting of people from nearby villages was held.

29 December 2009, 12 January 2010 and 22 January 2010 – When government officials visited Madban for distribution of compensation for compulsory land acquisition, the villagers refused to accept the cheques. Officials were shown black flags and denied cooperation in carrying out their activities.

22 January 2010 – Seventytwo people were arrested amidst protests against compulsory land acquisition.

16 May 2010 – A public hearing on the Environmental Impact Assessment (EIA) Report was held at the plant site. The hearing became controversial as the EIA report had not been delivered to three of the four gram panchayats (local village bodies) a month in advance, as required by law.

4 December, 2010 – Close to 6,000 protesters defied Section 144 of the Criminal Procedure Code on the day Sarkozy began his India visit. They formed a human chain, waved black flags and raised slogans such as "Sarkozy, Go Back" and "Areva, Go Back". Around 1,500 people were detained, including environmentalists and local villagers.

Former Mumbai High Court Judge BG Kolse-Patil of the Janahit Seva Samiti and Madhu Mohite of the Konkan Bachao Samiti were detained. Admiral Ramdas was prevented from entering the area by the district administration.

18 December 2010 – Irfan Yusuf Qazi, 40, of Nate village in Rajapur taluka was going to pick up his children from school when a police jeep hit his scooter. He died as a consequence.

11 January 2011 – Children in Jaitapur boycotted schools when the state government ordered teachers to brainwash them about the benefits of "green" and "clean" nuclear power. Over 2,500 students from 70 schools in the area did not attend classes in protest.

18 January 2011 – Seventy elected representatives (gram panchayat members) of 10 villages resigned en masse.

18 January 2011 – Project-affected people from Jaitapur boycotted a so-called public hearing organised by Chief Minister Prithviraj Chavan in Mumbai to clear "misconceptions" about the nuclear project.

26 January 2011 – People refused to hoist the National Flag on Republic Day in protest against the nuclear project and against state repression.

The Jaitapur project is only one among many giant nuclear power stations being planned in India. The massive nuclear expansion the country is embarking upon would involve building scores of foreign and indigenous reactors. This expansion would unleash displacement, ecological destruction, radiation risks and financial burden on a huge scale.

Protests in several parts of the country where nuclear reactors are planned—including Haripur (West Bengal), Kovvada and Kadapa (Andhra Pradesh),

Koodankulam (Tamil Nadu), Mithi Virdi (Gujarat), Chutka (Madhya Pradesh) and Fatehabad (Haryana)—are already under way. As are movements against new uranium mining sites proposed in Domiasiat (Meghalaya) and Nalgonda (Andhra Pradesh), which would pose grave health risks to the local population. Popular protests are one of the main reasons the government is going slow on some of these projects.

The Bleak Future of Nuclear Power

The global "nuclear renaissance", much touted a decade ago in the West, especially under George W Bush in the United States, and sought to be engineered through massive subsidies and loan guarantees, has turned out to be a non-starter. It is a giant myth created by the international nuclear lobby which has cynically tried to exploit the global public's genuine concerns about climate change.

In fact, globally, nuclear power has been steadily declining. Nuclear power generation peaked in 2006 and is now falling by 2 percent. "The World Nuclear Industry Status Report 2009" underlines a decline in the number of "operating" reactors from 444 in 2002 to 438 in 2009.[55]

To maintain the existing number of operating plants, the report concludes, an additional 42 reactors with a capacity of 16,000 MW would have to be planned, built and started up by 2015—that is to say, one reactor every one-and-a-half months. This is practically impossible, as reactor construction takes at least 10 years.[66] According to another expert group, there will be 30 percent fewer nuclear reactors globally by 2030.[67]

The nuclear power "plans", "considerations" and "intentions" of a host of countries, mainly in Asia, are cited as the sources of the coming "nuclear renaissance". However, many of these countries lack the necessary infrastructure, economic wherewithal, political climate, regulatory framework, and even favourable geological conditions, to initiate a revival of nuclear power.

"The World Nuclear Industry Status Report 2009" noted that of the 52 reactors under construction around the world that year, the most significant 26 had encountered construction delays, and 13 had been listed as "under construction" for over 20 years. In 2010, a total of 65 reactors under construction were cited as a pointer to the coming upsurge. But almost half (31) of their promoters are "not planning" nuclear power generation and a further 14 are just "considering" it. Only three countries have either ordered a reactor or have one under construction.

Globally, nuclear reactor expansion passed its peak in 1979, when 233 reactors were listed as being "under construction". The US had cancelled 138 orders for reactors by 2009. By 2002, France recorded a total of 253 cancellations in 31 countries, after which it stopped publishing statistics on cancellations.

Globally, the average age of reactors is increasing and 143 reactors are on their way to retirement by 2030. A majority of them will not be replaced. Only 60 reactors are on the drawing board as of now. Two-thirds of them are in Asia, and very few in the developed countries which have had a long—and unhappy—experience with nuclear power.

Nuclear power contributes just 12 percent to global electricity generation, 5 percent to primary energy production, and 2 percent to final energy consumption. The OECD International Energy Agency's "World Energy Outlook" in fact projects a decline in nuclear energy's contribution to total electricity generation—from 14 percent in 2007 to 10 percent in 2030.

Long gestation periods, proliferation risks, bottlenecks in the reactor and components manufacturing sectors, an aging nuclear workforce, scarcity of capital in the developing countries, nuclear waste management problems, and difficulties with gaining even minimal public acceptability are the major constraints on a revival of nuclear power. The nuclear industry has no easy answers to any of these issues.[68]

Nuclear power is prohibitively expensive. Flaunted as "too cheap to meter" in the 1950s, nuclear power's capital costs are now considered "out of control" (*Time,* December 2008).[69] Capital costs per megawatt in the US are well over $10,000, compared with $2,000 in the 1970s and $4,000 in the 1980s. A similar escalation trend can be seen in France.

In India, the completion costs of the last 10 reactors have been at least 300 percent over budget on average. The much-hyped nuclear renaissance is presumed to occur mainly in India and China, where the economic burden is shifted to the exchequer without any accountability or auditing.

The nuclear industry is able to sustain itself nowhere in the world without huge subsidies, both direct and hidden. From 1947 to 1999, the US nuclear industry received over $115 billion in direct taxpayer subsidies. Government subsidies for wind and solar energy for the same period amounted to only $5.7 billion.

Invariably, the actual cost of nuclear power is much higher than that estimated by the industry. The generation costs do not include the cost of mining, nuclear waste disposal and other fuel chain costs. Decommissioning a nuclear power plant needs money that's equivalent to 30 to 50 percent of the initial capital cost. Rapidly rising commodity prices, lack of component production facilities, nuclear liability issues, currency fluctuations and inflation also escalate costs.

The viability of nuclear plants is also overstated by ignoring huge financial costs, comparing other alternatives on an "overnight cost" basis, citing FOAK ("first of a kind") costs, lack of accounting for large public spending on nuclear R&D and human resource development, and exclusion of the environmental and social costs of nuclear energy.

Nuclear power cannot provide a solution to the climate change crisis. Concerns about global warming and climate change have been exploited by the nuclear industry to promote atomic energy by dubbing it "clean", "carbon-free" and environment-friendly. However, a number of studies have revealed that nuclear power is not a solution to climate change; rather, it becomes a dangerous quick-fix which will create more problems or aggravate them for the coming generations.

- Nuclear power has a large carbon footprint—carbon-intensive processes are involved from uranium mining to milling, enrichment, transportation, to reactor construction, heavy water production and to spent-fuel reprocessing, all the way to decommissioning reactors.
- An assessment by the Massachusetts Institute of Technology and other studies estimate that we would need to build a minimum of 1,000 reactors worldwide for nuclear power to have any effect on global warming. This is wildly unrealistic, given the current decline in nuclear energy generation.
- Even a massive, four-fold expansion of nuclear power by 2050 would provide only marginal reductions of 4 percent in global greenhouse gas emissions, when we need world emissions to peak in 2015 and to be reduced by 80 to 90 percent by 2050. Thus, nuclear power can only make an expensive, late and marginal contribution to climate change mitigation.[70]
- Uranium stocks, like those of any other mineral, are limited. Both the extraction cost of uranium and the carbon-intensity of the extraction process will rise rapidly after a few decades. This would make nuclear power's carbon footprint unacceptably large. [71]
- Electricity is only a small part of our total energy consumption and nuclear energy is a much smaller sub-portion of it. Carbon dioxide emissions are a cumulative effect of our entire energy consumption, including industrial processes, agriculture and other forms of combustion of fossil fuels. Nuclear energy just cannot replace all these processes.
- There are plenty of credible and scientific studies by pioneering institutions and experts who have developed convincing models of a comprehensive "carbon-free, nuclear- free" energy policy [72] with a mix of energy conservation, efficiency, R&D on renewable sources, and larger social-political changes ensuring greater community and public use of resources, which can help us in mitigating climate change effectively. [73]

False Promise of Energy Security

Nuclear energy is being sold as "the only"[74] or "the best"[75] option for India's energy security. The Indian government is embarking on a massive nuclear expansion programme, with plans to produce 20,000 MW of nuclear energy by 2020, 63,000 MW by 2030 and an astounding 275,000 MW by 2050. Nuclear energy is expected to contribute 35 percent of total electricity in India by 2050.[76] This will be a 50-fold increase in India's current nuclear capacity, which contributes less than 3 percent to our electricity consumption.[77]

The Department of Atomic Energy's dismal track record in this regard warrants great scepticism about such targets. The last 10 nuclear reactors the DAE built went 300 percent or more over budget. According to the DAE's plans, India should have had a nuclear power capacity of 8,000 MW by 1980. In that year, the actually installed capacity was 540 MW. Similarly, a target of 43,500 MW was set for 2000. But the installed capacity in that year was only 2,720 MW.

The DAE's budget has skyrocketed from Rs.1,996 crores in 1997-98 to Rs. 6,777 crores in 2008-09. This planned expansion raises serious technological, institutional, economic, environmental and feasibility issues.

- Nuclear expansion is based on imported reactors and is likely to be slow and limited.
- The enormous costs involved would require the involvement of the private sector, which is unlikely, due to huge financial risks and liability issues.
- The DAE's long-term projections are dependent on fast-breeder reactors and therefore erroneous. India's fast-breeder programme has not been successful, with its 14 MW Fast Breeder Test Reactor operating only for 20 percent of its lifetime.
- The DAE has not accounted properly for the availability of plutonium for a large-scale breeder programme. India's breeder capacity in 2052 will drop to about 17 percent of the DAE's projections.[78]
- The new reactors will encounter popular protests on account of displacement, and their health and environmental hazards. Nuclear power expansion will pit the government into a hostile and undemocratic confrontation with its own citizens.
- Shamefully, this is already happening in Maharashtra, where the government has unleashed police raj in Jaitapur and treated citizens as enemies. The government must immediately withdraw all criminal charges against the activists of the anti-nuclear protest movement, and give their land back to them, with a public apology.

- Nuclear power is irrelevant to the imperative of a decentralised energy system in a country where 70 percent of the population lives in over 6 lakh villages. Because it is a highly centralised form of power which can only feed a large grid for its base load, nuclear energy is of marginal significance to India's peak-load requirements. It is of little consequence for poor people, at least half of whom do not have an electricity connection.
- Nuclear power is unacceptably unsafe, fraught with grave health hazards, environmentally unsustainable, and exorbitantly expensive.
- Alternative sources of energy, in particular renewable energy, have already emerged on a commercial scale, including wind, micro-hydel, solar-thermal, biomass and photovoltaics (solar cells). Wind and photovoltaics are expanding the world over at rates such as 20 percent and 70 percent a year. They are also far more appropriate to India's decentralised energy needs and to the urgent agenda of combating climate change.
- India should invest in a big way in further research and development in, and promotion of, such decentralised renewable sources, and stop chasing the mirage of nuclear power. To begin with, it must scrap the Jaitapur project and declare a moratorium on further nuclear reactor construction.

Apendix

Letter from Activists and People of Madban to the Chief Minister of Maharashtra

January 17, 2011

Mr. Prithviraj Chavan, Honourable Chief Minister

Re: Decision to Abstain from Attending the Meeting Called by you on January 18, 2011: Our Position

Dear Sir,

The newspapers have reported that you have called a meeting on 18th January 2011 to address the "misconceptions" and "apprehensions" in the minds of the local residents. We wish to clarify at the outset that ever since the land acquisition process commenced in 2006 we have deeply studied the issues relating to the nuclear power project and our opposition to the project is firmly anchored in these scientific studies.

In the past four years we have carefully read the writings of Dr. Kakodkar, S.K. Jain, Dr. Ravindra Kale and other proponents of the project. We have held discussions with NPCIL and AEC. We have discussed with nuclear scientists Dr. Surendra Gadekar and Dr. Sanghamitra Gadekar. We have studied the writings of nuclear experts Zia Mian, Elliot, Solomon, Flavin and Dr. Helen Caldicott, the discussions in "Anuviveka" by Dr. Dilip Kulkarni , and "Anuurja: Bhram, Vastav aani Paryaya", by Dr. Sulabha Brahme, and the writings of many other authors in the media before arriving at our conclusions. On the basis of all these materials we have arrived at the conclusion that Nuclear Energy is an unaffordable and unacceptable option whose costs far outweigh its benefits. Nuclear power has inherent safety, security and large scale environmental risks including extremely long term risks. It is extremely costly when all the costs are calculated. Due to the high cost and radioactive risk new nuclear plant construction has been halted in the US and most of Europe. Public opposition to nuclear power in Europe and the US has also been growing. This is why the western countries are trying to sell their reactors to India, China and S. Korea.

Despite years of research, there is no satisfactory technology even today for eliminating the high level radioactivity produced by nuclear reactors. There is no geological repository in existence anywhere in the world which can reliably and safely confine and contain these high level nuclear by-products for the enormous time period necessary to reduce the radioactivity to acceptable levels. Till today there is no scientific answer to the problem of disposal of nuclear waste and radioactive by-products of nuclear reactors.

Despite precautions numerous smaller scale accidents and incidents resulting in radioactive

release have occurred in NPPs. The recent incident at Kaiga is just one example. Due to the possibility of accidents or incidents with extremely widespread damage the western power plant suppliers are demanding exemption from civil liability for the consequences of nuclear incidents.

Nuclear power is neither cheap, nor clean, nor safe. The irreversible long term damage from radioactivity will be a real risk for thousands of years. Therefore we have come to the firm conclusion that we cannot allow a nuclear power project at Madban/Jaitapur.

All four gram panchayats in the area have used their authority under the 73rd amendment to pass unanimous resolutions against the proposed JNPP. At the public hearing on May 16th 2010 objections were forcefully articulated by scientific experts. We along with the Konkan Bachao Samiti have had detailed discussions with the Minister of Environment and Forests, and technical experts of the NPCIL, NEERI and the AEC. These discussions have only confirmed and reinforced our conclusion that nuclear power is unaffordable, unacceptable, and fails a scientific cost-benefit analysis test.

Till today there has been no disclosure in the public domain about the capital costs of the project, nor the electricity tariff, which can be the basis of study and scrutiny. Most important till today there has been no consideration, leave alone approval of the design, operational safety, security and environmental risks of the project, its likely impact on the ecology and the livelihoods of the area by the Atomic Energy Regulatory Board, and other authorities. The project is not shown on any development plan for Ratnagiri. In these circumstances we have decided not to participate in the proposed meeting on the 18th January 2011.

In addition to our fundamental opposition to nuclear power on the above grounds we have specific objections to the site selection. The Madban plateau is continuously experiencing numerous seismic tremors. Cracks have developed in several places. Water availability is the only criterion which is satisfied according to the criteria of the Vengurlekar Committee. The project will be in substantial violation of the CRZ restrictions, though technically exempted. While selecting this sensitive plateau scientific realities appear to have been ignored. The environmental consequences on the Konkan region of the network of high tension transmission towers needed to evacuate 10,000 MW of power have also not been considered.

Most importantly, the Madban plateau is an unique biodiversity ecological hot-spot, which is has to be preserved as a global natural treasure. “To describe this ecological treasure as a barren plateau is unscientific and a blatant lie, which however is digested by muddleheaded experts from Mumbai- and Delhi” in these terms Dr. Madhav Gadgil has expressed his criticisms in an article which has appeared in Sakal 12th Nov 2010.The BNHS has also in its report stated that the JNPP will have an adverse impact on the biodiversity and the marine life due to the hot water discharges. The adverse impact on the marine life has also been acknowledged by the Minister of State for Environment and Forests Mr. Jairam Ramesh.

The construction of the jetty for building the JNPP will destroy the mangrove forests in and around the creeks. This will destroy the fish breeding grounds and reduce the fish popula-

tions. The passage of large sea vessels will destroy marine ecology. The daily intake of 5200 crore litres of water by the project will adversely impact on fish resources. The discharge of the same at a higher temperature will damage the prawn, mollusc and fish resources. There will be a 500 meter no fishing zone all around the project. Security requirements against possible terrorist attacks for the project will place further restrictions on the movement of boats and fishing vessels. All this will have severe adverse impact on the fishing communities in and around the project. There are nearly 7500 persons whose livelihood and survival directly depends on fishing will thus be immediately adversely affected even destroyed. To the south, the livelihood of around 5000 persons directly dependent on fishing for living in fishing villages of Katli, Ingalwadi, Jambhari will be adversely affected. The livelihoods of thousands more who work in the local fishing industry and trade will be devastated.

The current requirement of power of Ratnagiri and Sindhudurg districts is a mere 180 MW, against which 4663 MW of power plant capacity is currently already being exported from these two districts with a further increase of 600 MW in one or two months.

Since shortage of power is cited as the justification for this project we are enclosing a booklet on the alternatives before the country for electricity generation for your perusal. You are aware that Konkan is the Kashmir of Maharashtra. Substantial employment can be created in industries based on the rich natural resources which do not destroy but preserve and develop the natural wealth. If fish resources are protected, fishing and industries around fish reprocessing can flourish. The working people of Konkan can live with dignity. The farmers, workers and fishing community of Konkan desire a nature conserving, viable and people-oriented development in the Konkan. What kind of development is desirable and what is not is outlined in the booklet that we are enclosing with this letter.

If the government is serious about having a frank dialogue with the activists and the people, certain minimum requirements should be observed. The discussion should take place not in Mumbai but nearby the project site. The organizations opposing the project should have the prerogative to choose their spokesmen and representatives. There should be sufficient time for preparing the discussions on a mutually agreed agenda. The common people should be allowed to participate in the discussion. The issues involved require a discussion of a full day or two days- they cannot be dealt with in a short 2 hour meeting. Only if these minimum requirements are met will it be possible to have a serious and meaningful discussion which is open and unbiased.

If the only purpose of the meeting is to clear our doubts, there is no need for such a meeting. If the meeting is called for any other reason, it is still not possible for us to participate in the current environment of police and state repression. Since the commencement of land acquisition in 2006 ban orders under sections 37(3) (1), 144 have been continuously promulgated in the area, to prevent our exercise of democratic rights. False cases have been foisted on activists. The whole area has been converted into a permanent police camp. Our daily life and livelihood has been rendered difficult, in fact impossible. Mr. Praveen Gavankar, who is a leader of the agitation, has had false cases registered against him and his bail applications have been opposed by the government, to keep imminent arrest as a hanging sword over his head. Peaceful citizens of Maharashtra are being treated as criminals. It is not possible to

have a dialogue in these circumstances. We cannot think of discussions if the ban orders and false cases are not withdrawn.

However, if the government is prepared to reconsider the project with an open mind and announces so publicly, we are prepared to meet you for discussions anywhere and at any time.

Your government is trying to impose the project on us. We are determined to oppose it by a mass movement peacefully and democratically. We request you to recognize this democratic opposition, stop attempts to crush it by force, declare that the JNPP project is cancelled and allow us and the people of Maharashtra to live in peace and security.

Our demands:

1. Cancel the Jaitapur Nuclear Project
2. Return the lands which have been forcibly acquired from us.
3. Withdraw all police cases filed against the movement activists and also the ban orders and create a suitable environment for dialogue.

Your truly,

For Janahit Seva Samiti, Madban
Sd/-
Praveen Gavankar, Shyamsundar Narvekar, Surfuddin Kazi, Amjad Borkar, Dr. Milind Desai, Rajan Wadekar, Ramesh Kajve, Shrikrishna Mayekar, Mangesh Kaskar, Bala Gavankar, Malik Gadkari, Sadat Habib, Ms. Manda Wadekar, Mrs.Ranjana Manjrekar
And
Konkan Bachao Samiti, Konkan Vinashakari Prakalp Virodhi Samiti, Maharashtra Macchhimar Kruti Samit, Ratnagiri Jilha Jagruk Manch Ratanagiri Dist,
Madban-Mithgavhane-Jaitapur Sangharsh Samiti
———-

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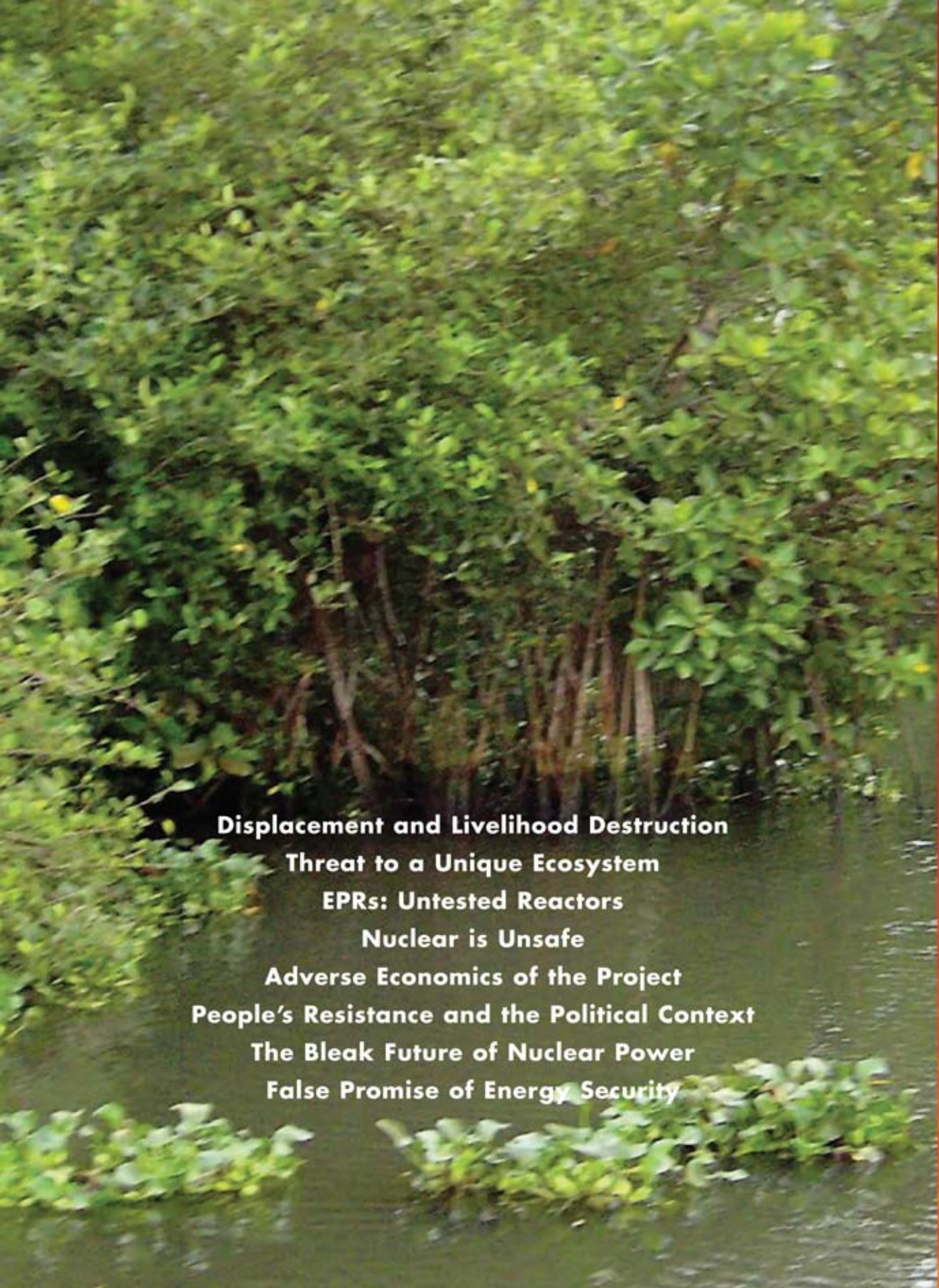
Displacement and Livelihood Destruction
Threat to a Unique Ecosystem
EPRs: Untested Reactors
Nuclear is Unsafe
Adverse Economics of the Project
People's Resistance and the Political Context
The Bleak Future of Nuclear Power
False Promise of Energy Security