

Violating Letter and Spirit: Environmental Clearances for Koodankulam Reactors

DIVYA BADAMI RAO, M V RAMANA

The environmental clearance offered to the Koodankulam reactors in Tamil Nadu is not based upon a careful examination of all the potential impacts on the environment and livelihoods nor does it incorporate public concerns.

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Divya Badami Rao (divya@isec.ac.in) and M V Ramana (m_v_ramana@yahoo.com) are at the Centre for Interdisciplinary Studies in Environment and Development, Bangalore.

It seemed almost as though it was timed to cap the nuclear deal. On 23 September 2008, the Ministry of Environment and Forests (MOEF) issued the environmental clearance required to start construction of Koodankulam units 3 & 4. However, the process through which environmental clearance was issued has neglected important environmental and livelihood considerations and ignored inputs from the public about their concerns.

Clearance Process

The Environment Impact Assessment (EIA) process was introduced as part of the 1994 EIA Notification with the purpose of identifying/evaluating the potential benefit and adverse impacts of developmental projects on the environment (MOEF 1994; Kohli and Menon 2005). Over the

following decade, a series of amendments progressively weakened the scope and stringency of the clearance process (Dubey 2004). The last straw seems to have been the Govindarajan Committee Report on Investment Reforms that identified various “legislative and administrative systems considered unhealthy for promotion of a strong investment climate”, one of which was the mechanism to obtain environment clearance (Saldanha et al 2007). The result of these was the EIA Notification 2006 (MOEF 2006).¹

The process for clearance outlined in the EIA Notification 2006 starts with the MOEF receiving a detailed application on the basis of which the project is classified into central or state levels. The application also helps set the Terms of Reference (TOR) for the EIA study. The project proponent then commissions an EIA study that is submitted to the MOEF, which, after being vetted by the ministry, is released to the public. This is followed by a public hearing at a location (or locations) near the proposed project site during which members of the public can offer comments on the EIA and more generally the project, either by speaking at the hearing or through written submissions. Taking concerns of the public into

account, an Expert Appraisal Committee (EAC) examines the EIA and either rejects, or more typically grants environmental clearance, often stipulating some conditions to be followed by the proponent.²

Nuclear power projects fall under the purview of the central MOEF. Even though the present clearance process was formally introduced only in 1994, the Koodankulam 1 & 2 units had received an environmental clearance from the MOEF on 9 May 1989 (MOEF 1989). Environmental clearance at this early stage was mandated by Finance Ministry circular (circa 1980-81) making it imperative for anti-pollution and other measures taken to safeguard the environment to be included in the project costs. This requirement was soon followed by making environmental clearance from the MOEF mandatory for all public sector projects requiring approval from the Public Investment Board. The forerunner for all of these stipulations is the Planning Commission's insistence on an environmental appraisal for river valley projects in 1977-78. In time, all projects that were to be cleared by the Central Electricity Authority also had to receive an environmental clearance (MOEF 2000). The Koodankulam 3 & 4 projects were approved under the EIA Notification of 2006.

Brief History

The Koodankulam project was formalised on 20 November 1988 when an Inter-governmental Agreement was signed by prime minister Rajiv Gandhi and Michael Gorbachev, president of the Soviet Union, for building two 1,000 MW VVER-1000 nuclear reactors. However, with the disintegration of the Soviet Union that followed, the project did not get pursued immediately. The project was revived only in 1997 (Special Correspondent 1997). Koodankulam 1 & 2 are presently under construction, and, according to the Nuclear Power Corporation of India Limited (NPCIL), are expected to begin commercial operations in August 2009 and May 2010 respectively (NPCIL 2008).

NPCIL acquired more land than necessary for constructing the first two units, and soon was talking about establishing four more reactors at the same site (Staff Reporter 2000). However, there is some confusion about whether the expansion

will involve two or four units. In October 2005, NPCIL received an in-principle approval for only two 1,000 Mwe Light Water Reactors by the Department of Atomic Energy (DAE). But just two months later, on 27 December, NPCIL filed an application for constructing four reactors to the Tamil Nadu Pollution Control Board (DC and DEE 2007). In June 2007, NPCIL applied to the MOEF for environmental clearance for Koodankulam units 3 to 6. Citing the absence of prior approval from the DAE, the EAC considered only units 3 & 4 of the proposal (MOEF 2007). It is not clear whether NPCIL is going to go through a clearance process for two more reactors.

Neglected Impacts

Between the environmental clearance process as it stood in 1989 and subsequent to 1994, one of the significant differences is that the latter requires an EIA study. Therefore an EIA for Koodankulam 1 & 2 does not even exist. For units 3 to 6, the NPCIL commissioned the National Environmental Engineering Research Institute (NEERI) to conduct an EIA study.

The EIA that NEERI produced has numerous problems; its assessments of damage are not reliable, and it does not consider the full range of potential impacts.³ Examples of the first kind are the values given for atmospheric radioactive discharges. These are much smaller than the corresponding figures for VVER-1000 reactors elsewhere. One of the radioactive gases released to the atmosphere by many nuclear reactors is Iodine-131, which tends to accumulate in the thyroid, causing cancer. Indeed the most prominent health impact of the Chernobyl accident so far has been a dramatic increase noticed in cases of thyroid cancer among the exposed population (UNSCEAR 2000). For Koodankulam 3 to 6, the Iodine-131 discharge for each reactor is given as 2,48,000 becquerels per day, which is 6 times smaller than the discharge rate for Khmel'nitsky 1 reactor and 7.4 times smaller than the discharge rate for the Rovno 3 reactor, both of which are located in Ukraine. The release rates for what is called noble gas are even smaller: 12 and 23 times respectively. These discrepancies between roughly identical reactors suggest that the data used in the Koodankulam EIA are not dependable. No

justification has been given for the use of these lower values.

Based on these unreliable figures, the EIA concludes that the "annual dose of inert radioactive noble gases, iodine and long-lived nuclides in the form of particulates will be well below the stipulated standards". Even if the guesses about atmospheric release rates are correct, this latter assertion is baseless as NEERI has not collected any data to assess the radioactive dose that would result from each unit of radioisotope released. The EIA should have started with collecting data on people's milk (since that is a major vehicle for iodine doses) and food consumption levels. These levels should be fed into a standard transport pathway analysis in order to predict radiation doses to people consuming local food products. The EIA presents no evidence of having done such an analysis. Local grassroots organisations confirm that people in the vicinity of the plant have never been surveyed.

An example of the second kind of problem pertains to the potential environmental contamination that may come from the spent fuel that will necessarily have to be stored on site for several years in order that it may cool. The spent fuel contains the bulk of the radioactivity that leaves the reactor and yet the EIA does not mention what is to happen to this spent fuel, nor does it evaluate the potential environmental impacts of storing this spent fuel while it is cooling, much less what might happen in the event of an accident.

Yet another significant omission of the EIA is that it does not consider at all the possibility of a severe ("beyond design basis") accident of the reactor leading to a massive release of radioactivity to the environment. There are specific concerns about the safety of VVER-1000 reactors, in particular the reliability of the control rod mechanism (Kastchiev et al 2007). The EIA shows no evidence of being aware of these concerns. In the event of an accident, the EIA does not mention the likely ranges of radioactive contamination or the emergency preparedness plans that have to be circulated so that people may know how to mitigate the impacts of such a contingency. Instead of focusing on such critical issues, the EIA elaborates on trivia like noise levels in greater detail.

There are structural reasons to expect such unreliable assessments and omissions. One that is common to EIAs in general is that they are commissioned by project proponents, who therefore can choose consultants known to produce EIA documents that are favourable. A further reason unique to nuclear projects is that even though the EIA is prepared by an external consultant, most crucial details, such as data on baseline levels of radioactive substances and levels of radioactive discharges following commencement of operations, are provided by the nuclear establishment, of which the project proponent is part of.⁴

Under the Atomic Energy Act, the nuclear establishment can refuse, and has on occasion refused, to divulge certain kinds of data (Ramana forthcoming). This is true even under the Right to Information Act (Suchitra and Ramana 2007). Some of this data could be pertinent to the environmental impact of a nuclear project. For example, an RTI petition by one of the authors (DBR) asking for copies of the

environmental clearance letters for the Kaiga reactors was refused (MOEF 2008).

Deaf to Opposition

Another significant difference between the clearance procedure in 1989 and post-1994 is the provision of a legitimised avenue for public participation. So while the public was never formally consulted in offering environmental clearance to Koodankulam 1 & 2, the provision for public participation has been reduced to a formality in the case of Koodankulam 3 & 4 reactors.

To start with, the EIA Notification 2006 mandates that "The public hearing shall be arranged in a systematic, time bound and transparent manner ensuring the widest possible public participation at the project site(s) or in its close proximity District-wise [...]". Rather than conducting hearings in each of the three districts that are proximate to the reactors (Kanyakumari, Tirunelveli and Tuticorin), the public hearing was held jointly for three districts on 2 June 2007 just outside the town of Tirunelveli. This meant that many people who could not

afford the time or the money to travel to Tirunelveli could not participate.

Even at this single hearing the public were not really allowed to have their full say. The approximately 800 participants who came into the room had numerous questions ("how will be the spent fuel from the reactors be disposed of?"), complaints ("EIA report in Tamil should have been made available to the public"), or simply wanted to register their opposition to the project. The overwhelming majority of those inside, and the several thousands who waited outside the room because of lack of space, declared that they did not want the project. Two hours into the hearing, when people were still waiting to express their opinion, the collector closed the meet. He did not even read out the recorded minutes of the meeting or validate the record by the public present, a requirement of the EIA Notification 2006. This is hardly surprising for the minutes of the meeting, which were later obtained through a RTI petition, did not adequately reflect the opposition expressed at the meeting. To all those present at the hearing, the collusion between



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the administrative authorities and NPCIL was obvious (Bidwai and Ramana 2007).

There were also a number of written submissions presented to the administrative authorities at the public hearing, including by one of us (MVR), as well as by others such as Vishnu Kamath of Bangalore University. While these were received (and signed for) by members of the Tamil Nadu Pollution Control Board, there were no responses to the objections raised. Neither was there any response to a letter to the secretary of MOEF in October 2007.

The task of evaluating the project and recommending whether to issue environmental clearance rests with the EAC. The EAC has to scrutinise the finalised EIA, EMP, outcomes of the public consultation, public hearing proceedings and other relevant documents. On 31 August 2007, the EAC met for the first time to evaluate the application for the Koodankulam expansion proposal. Besides the members of the EAC, there were representatives of NPCIL.

According to the minutes of the meeting, the EAC was only presented with the response of NPCIL to two written representations, those from the Kalpavriksh Environmental Action Group and the National Alliance of People's Movements (NAPM) (MOEF 2007). They were evidently not shown any other submissions. Neither did the EAC invite members of Kalpavriksh or NAPM to provide a counter response to NPCIL.

One reason for why the EAC might have been more interested in the NPCIL's view is its composition. Many of its members were drawn from organisations that have links with the DAE, including those affiliated with the Defence Research and Development Organisation, Indira Gandhi Centre for Atomic Research, Indian Rare Earths, Indian Institute of Chemical Technology, and Indian Institute of Technology, Bombay.

Compromised Standards

The environmental clearances for Koodankulam 1 & 2 and 3 & 4 suggest that ecological environment and social well-being have been compromised for the "benefit" of nuclear power. Various potential environmental problems have been swept under the proverbial rug.

An example of this has to do with Koodankulam being located on the shore, very close to the Gulf of Mannar Biosphere

Reserve. The fragile nature of this coastal belt and the importance of restricting construction in this area has been highlighted through several acts and official communications, starting with a letter to the chief ministers of various Indian states from prime minister Indira Gandhi in 1981 (Goenka 2000). The letter directed that the entire coastline be protected from environmental degradation and that a strip of width 500 metres from the coast be kept free of construction. This rule had to be relaxed and a "special exemption" granted in order for the Koodankulam 1 & 2 reactors to be constructed.

In the case of Koodankulam 1 & 2, the MOEF at least insisted that "adequate measures and environmental safeguards... be taken for ensuring preservation of the ecology of the beach" and "since this area has been declared as a bio-sphere reserve" directed project authorities to "take special precautions to avoid any damage to the coral reefs or changes in the water quality near the shore" (MOEF 1989). The clearance letter for Koodankulam 3 & 4 upholds the exemption granted in 1989 but without any such directives.

The most likely damage to the marine ecosystem is likely to come from the vast quantities of hot water, over 9,00,000 cubic metres/hour according to the EIA that the reactors will discharge into the ocean during operations. Fish workers of the region are particularly concerned with the potential decrease in fish and other catch and expected loss in revenues, and they made this amply clear during the public hearing.⁵

The clearance letters for Koodankulam 1 & 2 and 3 & 4 shed light on aspects of the MOEF's decision-making. The 1989 clearance, for example, includes a clause that calls for the offshore berth/jetty to be "selected in such a way that no damage is caused to the coral reefs". The same letter also includes the clause: "the route of the pipeline from Pechiparai reservoir to the Power Station should preferably be so selected that it does not affect forest areas". And finally it orders NPCIL to prepare a detailed rehabilitation plan. All of these indicate that important parameters that would determine the extent of environmental damage and the compensation available to those displaced by the project had not even been decided upon before the project was cleared.

Conclusions

The clearances offered to the Koodankulam reactors are a reflection of the state of environmental governance in the country, especially as it applies to nuclear power plants. Both the clearances show that the authorities were not duly diligent in ensuring that the environment is safeguarded. Apart from not respecting the spirit, there were also violations of the EIA Notification 2006 in letter, viz, the minutes of the meeting not being read out. Various norms, such as not locating projects in the sensitive coastal zone, have been overruled.

Another failure of the process of clearing the Koodankulam reactors has been that it has not respected democratic norms. The EIA and the public consultation is the only formal way for local communities to voice their opinion. Given how poorly this exercise has been carried out, local groups have had no choice but to resort to fasts and other means of peaceful protest, demanding closure of the Koodankulam project (ENS 2008).

NOTES

- 1 The emphasis on economic growth based development was also a feature of the National Environmental Policy that was being finalised around the same period (Lélé and Menon 2005).
- 2 The Expert Appraisal Committee (EAC) is a group of people with expertise in a variety of fields appointed by the central government to evaluate the project application and other material and offer a recommendation about clearing the project.
- 3 These have been detailed in (Ramana 2007).
- 4 Even the foreword to the Koodankulam EIA acknowledges the staff of the NPCIL and thanks them for their cooperation, specifically listing three officials of the NPCIL Koodankulam Directorate, Mumbai, and three officials from the NPCIL Koodankulam Project site as project personnel involved with carrying out the EIA study for Koodankulam units 3-6.
- 5 A change in the coastal environmental regulations between 1989 and 2008 has been the relaxation of the allowed temperature difference. Earlier, the hot water that is discharged by power plants and industries had to be within 5 degrees centigrade of the ambient water. Now they are allowed up to 7 degrees centigrade. This increases the thermal stress on the organisms that inhabit the region around the discharge point.

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