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Environmental Laws in India and Parameters for Industrial Planning

Industrial planning is inconceivable without assessing potential impacts on the environment. Injudicious siting of industry can have far-reaching and sometimes irreversible impacts on the environment, land, flora, fauna, and human health. As India's Central Pollution Control Board put it:

> *It is the site that ultimately determines which water bodies might be affected by effluent discharged by an industry, which air-shed might be affected by air pollutants or which ecosystems might be harmed. Site selection based on environmental criteria with the objective of minimizing adverse environmental impacts is, therefore, a vital prerequisite.*[1]

Siting industry closer to environmentally sensitive areas or human settlements has often been responsible for rising environmental degradation, deforestation, soil depletion, and health hazards in India. India, being a victim of perhaps the world's worst industrial catastrophe and a myriad of subsequent disasters, has often been juxtaposed with questions of effective industrial planning and its interface with the environment. Yet there is no comprehensive law on industrial siting in India that provides for the establishment of industrial zones compatible with the surrounding land uses and environmental considerations. Most states have town-planning laws, which provide for land use planning and building regulations, among others. However, such laws lack a holistic approach toward industrial planning, and environmental considerations are often not included. The industrial zones are generally identified by way of regional or master plans, based on such factors as the availability of raw material, access to the market, transport facilities, and so on.

Nonetheless, the environmental laws in India contain inbuilt parameters for industrial planning aimed at ensuring that the industrial activities in an area are consistent with the land use patterns of such an area and that any adverse impacts from industrial activities on the environment and human health are timely assessed and regulated. Typically, two approaches toward industrial planning are seen in Indian environmental laws. The first approach identifies environmentally fragile or other sensitive areas and then regulates the development of industry, particularly highly polluting or hazardous industry, in and around such areas. The other approach to industrial siting is to assess the impacts of the proposed industry at a particular site through impact assessment studies and then to obtain environmental clearances and land use conversion, if necessary. Normally, the land may be diverted for establishment of the industry based on environmental clearances and other considerations, such as availability of water supply, electricity, etc., even when such land is not earmarked or notified for the industrial zone.[2] It is noteworthy that both these approaches flow from the Environment Protection Act (EPA), 1986, and are equally important for sound, efficient, and effective industrial siting.

Ecologically Sensitive Areas and Restrictions on Development

The EPA empowers the government to frame rules prohibiting or restricting location of industries and operations in various areas. The Environment Protection Rules (EPR), 1986, further stipulate the factors that the government may take into consideration when prohibiting and restricting the location of industries. These include standards for quality of environment, maximum allowable limits of concentration of various environmental pollutants, likely emission or discharge of environmental pollutants, topographic and climatic features of an area, environmentally compatible land uses, and proximity to human settlements, proximity to certain

Continued on page 3

1 Central Pollution Control Board, Zoning Atlas, http://www.cpcb.nic.in/oldwebsite/Zoning%20Atlas/default_Zoning_Atlas.html (last visited Apr. 13, 2010).

2 Zoning Atlas; Central Pollution Control Board.

ELR India Update

ELR India Update is a quarterly newsletter analyzing the most relevant developments in Indian environmental law for international environmental lawyers, managers, policymakers, and thought leaders.

The goal of this service from the Environmental Law Institute (ELI) is to report on these developments and analyze their implications. The *Update* will also identify and analyze potential future developments for readers, so that they have advanced warning of risks and opportunities. The service will cover environmental legal and policy developments at the national and state level regarding climate and energy policy, manufacturing, importation and exportation, natural resources, product safety, worker safety, and other major environmental issues, such as water quality and supply.

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ELI has a long history of working with partners in India to advance environmental law and policy. We hope this new partnership provides a service that meets your needs and expectations. We encourage any and all constructive feedback by contacting *ELR*'s Editor-in-Chief Scott Schang at schang@eli.org or 202-939-3865.

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Industrial Planning and Environmental Considerations: The Policy Framework

The Statement on Industrial Policy, 1980, recognized the need for preserving the environment and ensuring efficient use of available resources. Despite its noble intentions, the policy failed to provide any guidance on achieving the balance between environmental concerns and the ever-increasing developmental needs. Nevertheless, the fact that environmental concerns were underlined in industrial policy was indeed a step in the right direction.

In 1985, the Ministry of Environment and Forests (MoEF) took a big leap and issued detailed Environmental Guidelines for Siting of Industry to ensure the optimum and sustainable use of natural and man-made resources and to prevent the degradation and destruction of the environment. The Guidelines laid down the precautionary measures to be taken at the time of site selection and other aspects of environmental protection to be incorporated during the implementation of the industrial development projects. The Guidelines provide that certain ecologically or otherwise sensitive areas, transport and communication systems, and areas having a population of 300,000 or more be avoided for industrial development. The Guidelines stipulated the distance to be maintained between the industry and such sensitive areas. The Guidelines further stressed that economic and social factors be assessed while siting an industry and advised that forest lands and agricultural lands not be converted into industrial sites. Environmental impact assessments are required for a variety of industries, including manufacturing, industries that handle and use hazardous materials, and those that significantly alter the landscape, land use patterns, and lead to a concentration of working and service population.

With time, however, the government felt that the Guidelines and the siting restrictions needed to be revisited, given the technological and scientific developments that have taken place in industrial planning and processes. Accordingly, the MoEF formulated draft Environment (Siting for Industrial Projects) Rules in 1999. These rules have not been published in the official gazette and are still in draft form. Interestingly, the draft rules, similar to the Guidelines, not only seek to protect ecologically sensitive areas, such as national parks, sanctuaries, coastal areas, and mangroves, but also certain identified archeological and heritage sites.

protected and sensitive areas, among others. Notably, this provision under the EPA is in addition to the other laws and rules regulating and restricting developmental and commercial activities in designated sensitive areas, including reserved forests, protected areas such as national parks and sanctuaries, and areas falling within the purview of coastal regulation zone.[3] The legislators were wary of the fact that such restrictions set forth in the EPA and the EPR could be met with resistance. As a result, a public notice of the government's intention to impose prohibitions or restrictions on commercial activities in a particular area must be published in the official gazette. The notice must provide a brief description of the area; the industries, operations, and processes in that area; and the reasons for the imposition of prohibition or restrictions on the location of the industries in such an area. Any objection against the proposed regulation of developmental activities in the area in question may be filed with the government within the time period stipulated under the EPR. After considering all the objections and suggestions, the government issues the final notification imposing the restrictions or prohibitions on industrial development in the area concerned. However, the government may also dispense with the notice requirement and impose restrictions without inviting objections, if it is in the public's interest.

Using the enabling provisions under the EPA and the EPR, the MoEF has identified several areas surrounding national parks, sanctuaries, coastal areas, forests, and sites of cultural or archeological significance as "ecologically fragile areas" or "eco-sensitive zones" and has regulated developmental activities in those areas. In 1989, the MoEF prohibited industries to be located in Murud-Janjira, Raigadh District, a coastal area in Maharashtra. Similarly, Doon Valley was declared an "ecologically fragile area" by way of notification. Various industrial and commercial activities in this area, including mining, establishment of industries, grazing, and tourism, were either restricted or prohibited. For instance, the notification placed various kinds of industrial operations and activities into "red," "green," and "orange" categories based on their potential impact on the environment. Industries falling under the green category are permitted by the state government without referring to the central government, but category orange industries are permitted only after assessment by the State Pollution Control Board and subsequent consideration by the central government. The red category of industries are not permitted in Doon Valley at all. Development was also prohibited within

3 The activities that may be permitted within forest areas (including reserved forests, protected forests, and village forests) are regulated under the Indian Forests Act, 1927, and the Forest Conservation Act, 1980. Similarly, developmental activities in a protected area, including national parks, sanctuaries, etc., are regulated under the Wildlife Protection Act, 1972.

Environmental Clearance Process

After a proposed site is identified, the project proponent must make an application with the concerned assessment authority, the Expert Appraisal Committee (EAC) or State Expert Appraisal Committee (SEAC), depending on the facts at hand. Category A projects receive clearance from the central government, while Category B projects receive clearance from state-level authorities. For new projects, the environmental clearance process comprises of a maximum of four stages: screening; scoping; public consultation; and appraisal. However, all of these stages may not apply to every project or activity. For example, screening is applicable only to Category B projects.

During project screening, the EAC or the SEAC reviews the application to determine whether the project or activity requires further environmental study and the preparation of a detailed EIA report prior to the grant of environmental clearance. Projects requiring an EIA report are Category B1 projects, and the remaining projects, those not requiring an EIA report, fall under Category B2.

The next stage, scoping, refers to the process by which the EAC or the SEAC determines the detailed and comprehensive terms of reference (ToR) for the project, addressing all relevant environmental concerns for the preparation of the EIA report. The ToR is then given to the project proponent. For hydroelectric projects, clearance for preconstruction activities is provided at the same time the ToR is conveyed to the project proponent. At the scoping stage, applications for environmental clearance may be rejected by the regulatory authority, i.e., the MoEF or the State Environment Impact Assessment Authority (SEIAA), based on the recommendation of the EAC or the SEAC, as the case may be.

During the public consultation stage, the concerns of local affected persons and other interested stakeholders are ascertained. All Category A and Category B1 projects are required to undertake public consultation, except certain specified projects. Exempt projects include irrigation modernization; projects or activities located within approved industrial estates or parks; road and highway expansions not involving any further acquisition of land; and all building/construction/development projects not containing any Category A projects or activities. The public consultation ordinarily has two components: a public hearing and written comments. The public hearing is held at or near the site to find out the concerns of local affected persons. Other concerned persons having a plausible stake in the environmental aspects of the project or activity may submit their views and objections in writing. The EIA notification sets forth a detailed procedure for conducting public hearings. Upon the completion of this stage, the applicant is required to address all the material environmental concerns expressed during the public consultation process and make appropriate changes in the draft EIA and the environment management plan.

During the final stage—appraisal—the EAC or the SEIAA conducts a detailed scrutiny of the application for environmental clearance and other documents, such as the final EIA report and the outcome of the public consultations. The final decision on environmental clearance is made by the regulatory authorities, i.e., the MoEF or the SEIAA, after taking into consideration the recommendations of the relevant appraisal committees.

The applications seeking environmental clearance for expansion of a project or activity are also made with the EAC or the SEIAA, as the case may be. The relevant appraisal committee decides on the steps to be taken, including the preparation of an EIA and public consultations, and the application is appraised accordingly for grant of environmental clearance.

The environmental clearance is valid for a specified period only, and the project proponent must commence production operations within such a period. In the case of construction projects, however, all construction operations must be *completed* within the period of validity.

the 15 km radius around the Numaligarh refinery east of Kaziranga in Assam. This area was declared a "no-development zone" to limit the further growth and resultant pollution from the refinery. Similarly, coastal areas and developmental activities therein are regulated under the Coastal Regulation Zone Notification, 1991, issued under the EPA.

Environmental Impact Assessment

The other approach to industrial planning is to identify a site and then conduct relevant impact assessment studies to evaluate and assess the social and environmental impact of the proposed developmental or industrial activity in and around the area. Though the environmental impact assessment (EIA) requirement for industries has been in force since the 1980s, it was only in 1991 that a formal notification mandating EIAs for new industrial activities, as well as for the expansion of the existing ones, was issued by the government. In 2006, the MoEF issued a fresh notification on EIAs. The notification lists certain projects or processes, such as mining of minerals, river valley projects, thermal power plants, cement plants, airports, building and construction projects, and special economic zones, that require prior environmental clearance, both for setting up a new project and for expanding or modernizing an existing one. An illustrative list of projects and processes for which an EIA is mandatory is provided

in Box 1. Environmental clearance is required before any construction work or preparation of land by the project management, except for securing the land, is performed.

Under the EIA notification of 2006, all projects and activities are broadly categorized into two categories—Category A and Category B—based on the spatial extent of potential impacts and potential impacts on human health and natural and man-made resources. All projects included under Category A, including expansion and modernization of existing projects or activities and changes in product mix, require prior environmental clearance from the central Ministry, i.e., the MoEF. The MoEF grants such clearance on the recommendations of an Expert Appraisal Committee (EAC). Projects or activities covered under Category B require prior environmental clearance from the State level (or Union territory's) Environment Impact Assessment Authority (SEIAA). The SEIAA bases its decision on the recommendations of a territory-level State Expert Appraisal Committee (SEAC).

Box 1: Illustrative List of Industries Under the Purview of EIA

1. Pharmaceutical;
2. River Valley Projects;
3. Thermal Power Plants;
4. Cement Plants;
5. Petroleum Refining Industry;
6. Chemical Fertilizers;
7. Pesticides Industry;
8. Mining;
9. Airports;
10. Industrial Estates/Parks/Complexes/Areas, Export Processing Zones, Special Economic Zones, Biotech Parks, Leather Complexes;
11. Ports;
12. Highways; and
13. Construction.

Conclusion

Indian environmental laws are based on a balanced and sound approach toward industrial planning. Apart from areas of ecological significance for which separate laws exist for regulating development, the government has been empowered to identify sensitive areas that do not fall within those laws and to regulate developmental activities therein. In addition, there are industry-specific requirements whereby assessment of potential ecological, environmental, and sociological impact of a proposed industry is mandatory under the EIA notification. Perilous industry types, such as cement plants, mining, nuclear plants, and others, cannot be established or even expanded without obtaining prior environmental clearance.

Bt. Brinjal and Questions on Policy and Practice

Amidst various speculations on the fate of the first genetically modified (GM) food crop in India, the Ministry of Environment & Forests (MoEF) declared in February 2010 a moratorium on the release of bt. brinjal—an eggplant—until "*such time independent scientific studies establish, to the satisfaction of both the public and professionals, the safety of the product from long-term view on impact on human health and environment . . . .*"[1] This decision, based on extreme caution and the precautionary principle, annulled the Genetically Engineering Approval Committee's (GEAC's) recommendation for the release of bt. brinjal.[2] The government's decision followed a detailed national consultation process comprising public meetings and deliberations in seven major cities across the country by the Minister. Between January 13, 2010, and February 6, 2010, public meetings were organized in Ahmadabad, Bangalore, Bhubaneswar, Chandigarh, Hyderabad, Kolkata, and Nagpur. A number of research institutes, scientists, agricultural experts, nongovernmental organizations (NGOs), farmers' organizations, consumer groups, and other interested stakeholders were engaged in these consultations. The Minister also sought written opinions of various state governments and renowned scientists.[3]

GM food technology is of significant importance for a country like India, where agriculture is the mainstay for the majority of its population. In the last few decades, the government has been consistently working on building research and development capacities, especially in the sector of biotechnology, to supplement agriculture and to keep up with scientific and technological advancement across the globe. Bt. brinjal, for various reasons, aroused interest and caught the attention of various stakeholders.

However, a closer look at the events leading to the

1 Jairam Ramesh, Ministry of Environment and Forests, Decision on Commercialization of Bt. brinjal (Feb. 9, 2010), *available at* http://moef.nic.in/downloads/public-information/minister_REPORT.pdf [hereinafter Minister's Report].

2 *Id.*

3 The Centre for Environment Education, an autonomous organization engaged in environmental and sustainability education, was entrusted with the task of organizing consultations and compiling the feedback received from various stakeholders.

national debate suggests that the government was keen to use this opportunity to gauge the level of resistance against GM food crops and understand the arguments against their use touted by the media, NGOs, and the public in general. The controversy and the debate around bt. brinjal can be said to have been actively instigated, engineered, guided, and steered by the government, bringing the issue of GM food crops from the realm of politics to that of a robust regulatory framework, which the government has indicated its will to set up soon. The government should be commended for having very skillfully guided the debate over GM food crops in general, and bt. brinjal in particular, from one of general opposition, suspicion, and fear to a level where the focus is now on adequate scientific studies on health, bio-safety, and environmental impact, as well as on the establishment of a robust and credible regulatory framework for the approval of GM food crops. In the process, however, the GEAC was made the sacrificial lamb.

The Controversy

The controversy arose when the GEAC recommended the environmental release of bt. brinjal in India based on the recommendations of the Review Committee on Genetic Manipulation (RCGM), a government committee, and two Expert Committees (EC-I and EC-II) established by the GEAC between 2006 and 2009. The GEAC's recommendation was met with severe criticism and outrage, not only from civil society, but also from various state (provincial) governments. Concerns were raised on the adverse impact of bt. brinjal on human health and bio-safety, livelihoods, the environment, and biodiversity. Those favoring the release of bt. brinjal argued that it is insect-resistant, increases yields, is cost-effective, and will have minimal environmental impact. The final decision, however, was subject to the approval of the central government. Responding to strong views raised both for and against the introduction of bt. brinjal, the Minister held public consultations across the country before making his final decision. Opinions of the chief ministers of various states[4] and a number of scientists, from India and abroad, were also sought.

Are Enforcement Authorities Equipped to Deal With Issues of Significant Importance?

The matter raised serious questions on the efficacy and integrity of the GEAC, and the manner in which the GEAC approved the commercialization of bt. brinjal came under public scrutiny. Although Minister Jairam Ramesh chose not to venture into how the GEAC had functioned in the matter, he noted that the limitations of the GEAC cannot be ignored. The Minister's report indicates that certain tests with respect to bt. brinjal were recommended by EC- I, which EC-II chose to discard. Mr. Ramesh also pointed out that a detailed critique of the EC-II report was conducted by India's most eminent biotechnologist, Mr. P.M. Bhargava. Apart from scientific criticisms, qualified statisticians also raised doubts about the EC-II report and the bio-safety dossier from a statistical point of view.[5] It was alleged that, despite vital questions on the scientific tests and studies conducted on bt. brinjal, the GEAC decided in favor of its commercialization. It was also argued that the GEAC process violated the Cartagena Protocol on Bio Safety, specifically the provisions pertaining to public consultations prior to the release of GM food crops. In addition, the current standards by which the GEAC formulated its recommendation allegedly failed to comply with the global regulatory norms to which India is a party. This, coupled with the harsh criticism from the public, raised concerns about the operations of the country's gene-technology regulator.

The GEAC cannot be seen to be independent from the Ministry, as it is not an autonomous body constituted by an Act of parliament. It is wholly dependent upon the Ministry for all its needs, including resources, appointments, approvals, and infrastructure. And despite having found in favor of bt. brinjal, the GEAC left the final decision with the government. Thus, the GEAC's recommendation for the release of bt. brinjal in the environment was no more than a governmental strategy to use one of its regulatory arms to assess the level of opposition to the release of bt. brinjal, while keeping the option of putting a lid over the controversy should the situation so demand.

The entire episode also brought to the fore the inadequacy of the current regulatory regime for dealing with the introduction of GM food crops. The Rules for the Manufacture, Use, Import, Export, and Storage of

Bt. Brinjal

Bt. brinjal is a transgenic brinjal (eggplant or aubergine) created by inserting a gene *cry1Ac* from the soil bacterium *Bacillus thuringiensis* into brinjal through an *Agrobacterium*-mediated gene transfer. It was developed by the Maharashtra Hybrid Seed Company Ltd. (Mahyco), an Indian seed company. It is the first genetically modified food crop in India that reached the approval stage for commercialization.

Source: MoEF website at http:// www.moef.nic.in

4 Andhra Pradesh, Bihar, Karnataka, Maharashtra, Orissa, and West Bengal.

5 Minister's Report, *supra* note 1.

Hazardous Micro-organisms/Genetically Engineered Organisms or Cells, 1989, are inadequate to deal with serious issues such as GM food crops. Moreover, the regulatory bodies thereunder, such as the GEAC, lack the necessary autonomy, powers, capabilities, experience, and resources to assess and take action on significant GM issues having potential impacts on the environment, health, agriculture, bio-safety, research and development, the economy, and trade. Notably, Mr. Ramesh expressed his intent to change the name of the GEAC from the Genetic Engineering *Approval* Committee to the Genetic Engineering *Appraisal* Committee, clearly hinting at stripping the GEAC of its decisionmaking powers. Regardless, the GEAC only acted as an appraisal body in the bt. brinjal case, having only recommended its release and leaving the ultimate decisionmaking to Mr. Ramesh.

Are We Ready for GM Food?

Though Mr. Ramesh clearly stated that his concern is bt. brinjal alone and not the larger issue of genetic engineering and biotechnology in agriculture, India's approach toward GM technology is taking a definitive direction and cannot be ignored. The government supports public investment in biotechnology for agriculture. The private investment in this area is steadily rising, and Mahyco, the Indian company marketing bt. brinjal, is one example. Certain GM crops were approved for field trials by the GEAC, including insect-resistant cotton and rice. The Bt. brinjal case suggests that the central government is eager for the acceptance of GM technology in food crops. The controversy also shows that the introduction of GM food crops is possible, as long as India has an autonomous regulatory body vested with the powers to decide on such issues in a transparent and credible manner.

India has yet to announce its policy on GM foods, but the central government has clarified that the moratorium on bt. brinjal is not indefinite. Almost all state governments disfavored the release of bt. brinjal into the environment, but the most vociferous opponent was the hill state of Uttarakhand, which completely banned bt. brinjal in the state.

Do We Have a Comprehensive Regulatory Regime on GM Technology?

The government enacted the Rules for Manufacture, Use, Import, Export, and Storage of Hazardous Micro-organisms, Genetically Engineered Organisms or Cells, 1989, under the Environment Protection Act, 1986, with the goal to protect the environment, nature, and health in connection with application of gene technology and micro-organisms. These rules more or less stipulate a permit regime. In addition, the GEAC has been empowered to grant approval for various activities involving the application of gene technology and micro-organisms, including approval for the import, export, manufacture, or sale of genetically engineered organisms; the production of genetically engineered organisms; and the release of genetically engineered organisms and hazardous micro-organisms.

A writ petition was filed with the Supreme Court of India in 2004 challenging the constitutionality of the rules and is pending with the Supreme Court. [6] Several interim petitions were also filed in the court dealing with various aspects of GM technology. Although the Supreme Court has yet to rule, the gaps in the rules cannot be ignored. The GEAC was conceived as a body to grant approvals for the use and application of hazardous micro-organism and gene technology. The rules, however, fail to: (1) put in place a methodical and comprehensive review and approval process; (2) lay down guidelines to help the GEAC decide on applications; (3) envisage involvement of independent research institutes/bodies or scientists for technical advice; and (4) equip the GEAC with the ability to conduct field trials and other scientific tests and evaluations. Given these failures, the GEAC is merely a governmental body that can only draw sustenance from the Ministry and not from the law. Nor do the rules adequately address liability or penalties should the genetically modified product have an adverse impact on human health and environment. Concerns have also been raised on the lack of labeling and marking requirements

The GEAC and Its Powers

The GEAC was established under the Rules for the Manufacture, Use, Import, Export, and Storage of Hazardous Micro-organisms/Genetically Engineered Organisms or Cells, 1989, as a body under the Department of Environment, MoEF. The rules empower the GEAC to grant approval of activities involving large-scale use of hazardous micro-organisms and recombinants in research and industrial production from an environmental angle. Prior approval of the GEAC is mandatory for the import, export, transport, manufacture, use, or sale of any hazardous micro-organism or genetically engineered organism/substance or cell. Food stuffs, ingredients in food stuffs, and additives, including processing and containing or consisting of genetically engineered organisms or cells, cannot be produced, sold, imported, or used, except with the approval of the GEAC.

6 Gene Campaign vs. Union of India, Writ Petition (Civil) No. 115 of 2004.

to identify GM products, especially for food stuffs.

The rules are also poorly drafted and ill-written. Words such as "micro-organisms," "cells," and "hazardous," to name a few, are loosely used without regard to their meaning or application. The rules fail to specify any review or approval process—considerations that go into approval of any micro-organism or genetically engineered cell—and simply leave it to the government's discretion. Outside of the rules, one can only rely upon the GEAC's Ground Rules for Consideration of Proposals, as per the MoEF's Good Practice in Environmental Regulations, and the technical guidelines issued by the Department of Biotechnology.

One of the outcomes of this exercise was the government's announcement of its intent to overhaul the regulatory regime through the expedited introduction of a National Biotechnology Regulatory Bill in the Parliament and the establishment of the National Biotechnology Regulatory Authority. One can hope that the concerns outlined above are adequately addressed in the proposed legislation and that an independent autonomous regulatory body is set up, so that the issue of GM food crops can be addressed independently of political machinations and pressures.

Public Consultation

A highlight of the bt. brinjal controversy was the so-called public consultation process, which was turned into a platform for public hearings by the Minister. In one such meeting, the Minister lost his temper at the participants opposing bt. brinjal. The Ministry is touting the public hearings as a major achievement, but again, the Ministry failed to apply any credible or acceptable methodology for the consultation. The Ministry claims that in seven such meetings, 8,000 participants were consulted. In the absence of any specific agenda, criteria for participation, speakers, topics, and issues, the outcome of any one-day meeting having over 1,000 participants is not surprising. The government claims that the participants included farmers, farmer organizations, scientists, state agricultural departments, NGOs, consumer groups, allopathic and *ayurvedic* doctors, students, and even housewives. But even assuming the hearings were merely an exercise by the Minister to understand the public mood, there is no evidence that the sampling was random from the representative population, particularly the ordinary consumer and farmer. At best, these meetings were a gathering of those opposed to GM food.

Conclusion

GM food crops will remain a politically sensitive issue for some time to come, and no matter what studies are undertaken, opponents will always question the adequacy of such studies and the wisdom of permitting any GM food crop. Even after the temporary resolution of the bt. brinjal controversy, larger questions and concerns on government policy, practice, and enforcement remain. The government should follow its words with action and put into place a methodical and comprehensive review and approval process, set forth guidelines and parameters for the regulatory authority's decisionmaking power, and equip the regulatory authority with autonomy, authority, and resources through an Act of Parliament that enables it to act in a judicious and accountable manner in the best interest of the country. Further, the government should clarify its policy on the use of GM technology in food crops.

Jawaharlal Nehru National Solar Mission

The National Action Plan on Climate Change, released in June 2008, identified the development of solar energy technologies in India as one of its national missions. Pursuant to that plan, the government recently approved the Jawaharlal Nehru National Solar Mission (JNNSM), which aims to develop and deploy solar energy technologies in the country to achieve parity with the grid power tariff by 2022. The resolution was issued by the Ministry of New and Renewable Energy on January 11, 2010.

The JNNSM is a major initiative of the national and state governments to promote ecologically sustainable growth while addressing India's energy security challenge. It will also be a major contributor to the global effort in dealing with climate change. The primary objective of the JNNSM is to establish India as a global leader in solar energy and to create policy conditions for its diffusion across the country as quickly as possible.

The JNNSM proposed a three-phase approach. Phase 1 spans the remaining period of the government's current 11th Five-Year Plan (2007-2012) and the first year of the 12th Five-Year Plan (up to 2013); Phase 2 covers the remaining 4 years of the 12th Five-Year Plan (through 2017); and Phase 3 spans the period covered by the 13th Five-Year Plan (through 2022). At the end of each Five-Year Plan, and mid-term during the 12th and 13th Plans, progress will be evaluated, capacity will be reviewed, and targets for subsequent phases, based on emerging domestic

and global cost and technology trends, will be set. The phased approach is aimed to protect the government from subsidy exposure in case expected cost reductions do not materialize or are more rapid than expected.

The immediate aim of the JNNSM is to focus on setting up an enabling environment for solar technology penetration in the country, both at a centralized and decentralized level. Phase 1 will focus on capturing the low-hanging options in solar thermal, promoting off-grid systems to serve populations without access to commercial energy, and adding modest capacity in grid-based systems. In Phase 2, after taking into account the experience of the initial years, capacity will be aggressively ramped up to create conditions for increased and competitive solar energy penetration in the country. Phase 3 sets the highest targets. The JNNSM aims to deply 20,000 megawatts (MW) of solar power by the end of 2022. Off-grid solar applications are proposed to be increased from 200 MW in Phase 1 to 2,000 MW in Phase 3.

Source: Ministry of New and Renewable Energy, Jawaharlal Nehru National Solar Mission: Towards Building Solar India (Nov. 2009), *available at* http://mnre.gov.in/pdf/mission-document-JNNSM.pdf.

Radiation Leakage in Delhi Leaves Five Severely Affected

On April 8, 2010, five people took ill after being exposed to radioactive material present in metal scrap at a scrap dealer's shop at Mayapuri, New Delhi. Mayapuri is a highly dense commercial area housing a number of small-scale industries. Experts confirmed that the radioactive material present in the scrap was cobalt-60, a radioactive isotope used for a number of purposes, including medical applications. It is feared that many others may also have been affected by the radiation leakage, but this will only come to light in the future.

Notably, a number of such cases have occurred in the past. For example, in 2004, missile scrap materials imported by an Indian steel company, Bhushan Steel Limited, resulted in explosions in the factory, which was located very close to a dense residential area. Thus, the April 8 incident has raised, yet again, critical concerns about India's enforcement capabilities and the regulatory authorities responsible for managing hazardous and radioactive waste, scrap collection, hazard preparedness, and waste disposal, which is primarily concentrated in the unregulated sector.

How and when cobalt-60 made its way to the metal scrap has yet to be discovered. The authorities are probing whether the scrap originated abroad or locally, perhaps from a hospital. But whatever the source, it is beyond any doubt that if the enforcement machinery were a little more vigilant and efficient, this incident might have been avoided.

While various categories of metal scrap and metal-bearing waste come under the purview of the Hazardous Waste (Management, Handling, and Transboundary Movement) Rules, 2008, the rules do not apply to radioactive wastes, which are covered under the Atomic Energy Act, 1960. Under the Hazardous Waste Rules, the import of metal and metal-bearing wastes require prior informed consent of the importing country in certain cases. Moreover, a preshipment certification/test report is required for import of such metal wastes into India. Thus, if the metal scrap was imported into India and the radioactive waste was present at the time of such import, the failure on the part of the preshipment certification agencies, pollution control boards, customs, as well as port authorities to ensure compliance with the rules cannot be ruled out.

On the other hand, the radioactive material may have originated from a city hospital, which could have disposed of it in the unregulated sector. Notably, under the Atomic Energy (Safe Disposal of Radioactive Wastes) Rules, 1987, the disposal of radioactive waste requires prior authorization, and the disposal must be carried out strictly in accordance with that authorization and at a location designated for such disposal.

The April 8 incident is clearly a case of poor enforcement. Despite specific laws on handling waste and various guidance documents on waste management, the majority of scrap or waste still finds its way in the unregulated sector on account of inadequate infrastructure, poor enforcement, and a lack of bureaucratic and political will. There is no efficient mechanism for classifying municipal or industrial waste after collection or for ensuring its safe and environmentally friendly disposal. Thus, it is high time India revisit its existing regulatory regime and industrial safety standards, overhaul enforcement agencies responsible for management of wastes, put in place stringent conditions prior to permitting import of waste or scrap in India, and introduce a system for scrap monitoring and classification.

Note: A police investigation revealed that the radioactive material was from the Chemistry Department of Delhi University, which was auctioned to the scrap dealer for approximately $3,500 (USD).

Judgments

T.N. Godavarman v. Union of India: (2010) 1 Supreme Court Cases 500

In this ongoing dispute dealing with various aspects of forest policy, among other issues, the Supreme Court issued an order relating to mining in the Aravalli Hill range. In a May 8, 2009, order, the Supreme Court had suspended all mining operations in the area.[1] But the state government of Haryana pleaded that a complete ban on the mining of minor minerals in the area would cause a scarcity of building materials and greatly reduce construction activities, including roads. Thus, the state government proposed that about 600 hectares of land be set apart for extraction of minor minerals in the district of Faridabad. The state government was also facing problems caused by earlier mining operations that had been carried on in a 1,500-hectare area in Gurgaon and Mewat. The mine operators failed to perform any reclamation or rehabilitation work, despite a specific obligation to do so under the Mineral Concession Rules, 1960. The Court ruled that reclamation and extensive afforestation work was required for these areas.

In a meeting of Central Empowered Committee of the Supreme Court and the state government of Haryana on January 7, 2009, it was decided that the state government would take immediate steps for the preparation and implementation of a reclamation and rehabilitation plan for the area. The state would also be at liberty to hold the respective mining operators liable for the rehabilitation.

The Supreme Court refused to completely lift the ban on mining. However, the Court permitted the mining operations on the proposed 600 hectares of land in Faridabad, subject to certain conditions. The court also held that it would rule on the grant of permission for mining in 1,500 hectares of land in Gurgaon and Mewat separately, considering the progress made in the rehabilitation work to be carried out by the state government in Faridabad.

Rules and Notifications

Noise Pollution Rules Amended

In early 2010, the Noise Pollution (Regulation and Control) Rules, 2000, were amended by the Noise Pollution (Regulation and Control) Amendment Rules, 2010.[2] The amendment focuses on regulating noise levels during the night. The amendment rules define "night time" as the time period from 10 pm to 6 am. The rules restrict the use of horns, sound-emitting construction equipment, fire crackers, public address systems, etc., during this time. Home dwellars are also required to restrict the volume of sound-producing systems to ensure compliance with the ambient noise standards. In addition, state governments must specify in advance which days, not exceeding 15 per year, a 2-hour exemption (10 pm to 12 midnight) will apply.

Executive Orders, Reports, and Papers

Committee to Study the Implementation of the Forest Rights Act, 2006, Established

The Ministry of Environment and Forestry (MoEF), in consultation with the Ministry of Tribal Affairs, established a high-level committee of experts to study the implementation of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, through a notification dated February 11, 2010.[3] The committee will study in detail the implementation of the Forest Rights Act, 2006, and its impact on forest management. It will recommend policy changes in the future management of the forestry sector that may be necessary in response to the Forest Rights Act.

Development in Certain Industrial Areas Restricted

The Central Pollution Control Board (CPCB) and the Indian Institute of Technology carried out an environmental assessment of industrial clusters across the country under the Comprehensive Enviromental Pollution Index to indentify polluted industrial clusters and prioritize planning needs for intervention to improve the quality of the environment in these industrial clusters. In all, 88 industrial clusters were assessed. Of these, approximately 43 clusters were classified as "critically polluted" and 31 clusters were classified as "severely polluted" areas. The MoEF, by way of memorandum, will regulate developmental activities and projects in these areas.[4] The restrictions will apply for eight months, during which time the CPCB and the respective State Pollution Control Boards will finalize a time-bound action plan for improving the environmental quality of these areas.

1 (2009) 6 S.C.C. 142.

2 Gazette of India, Extraordinary, S.O. 50 E (Jan. 11, 2010), *available at* http://210.212.99.115/rpcb/Circulars/noise_pollution_2010.pdf.

3 MoEF, Establishment of Committee to Study the Implementation of the Forest Rights Act 2006 (Feb. 11, 2010), http://moef.nic.in/downloads/public-information/Notification_FRA_Committee.pdf.

4 MoEF Office Memorandum No. J-11013/5/2010 IA II (I) (Jan. 13, 2010).

Task Force on Project Elephant

In 1992, the MoEF conceived and launched a milestone initiative called Project Elephant to protect and conserve the population of wild Asian elephants in India. In addition to protecting wild elephants, preserving elephants' corridors, and regulating man-animal conflict, the project was also charged with looking after the welfare of domesticated elephants. However, the project faced a number of financial, as well as institutional challenges, thereby limiting the scope of its impact. To give a fresh impetus to the project, and in pursuance of a decision taken in the meeting of the Project Elephant Steering Committee, the MoEF, in February 2010, constituted a task force on Project Elephant. The task force will provide detailed recommendations to upgrade the project and to bring about a more effective conservation and management regime for the species in India. The task force will submit its report by the end of May 2010.

India's Domestic Mitigation Actions on Climate Change

India sent a communication to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) on January 30, 2010, conveying information on India's domestic mitigation actions. This communication reflects India's commitments under the Copenhagen Accord, which was agreed to by world leaders at the UNFCCC Copenhagen conference in January.

This communication stresses India's endeavor to reduce, through domestic mitigation actions, the emissions intensity of its gross domestic product by 20-25% from 2005 levels by 2020. These actions will contribute to the global efforts to address climate change and will be entirely voluntary and not legally binding. In addition, the mitigation actions will not apply to the agriculture sector, and the emissions from the agriculture sector will be excluded from the assessment of emissions intensity.

India's mitigation actions will be taken in accordance with the principles and provisions of the UNFCCC and the Kyoto Protocol. A MoEF Press Report states that "India intends to implement its mitigation actions in accordance with the provisions of the relevant national legislations and policies and will elaborate in due course the actions required in various sectors to achieve the overall objective of the emissions intensity reduction."

Source: MoEF Press Note (Jan. 30, 2010), *available at* http://moef.nic.in/downloads/public-information/UNFCCC%20Submission_press_note.pdf.

Proposed Amendments to the National Green Tribunal Bill

The MoEF's Department Related Parliamentary Standing Committee on Science and Technology considered the National Green Tribunal Bill, 2009, and proposed several recommendations in a November 24, 2009, report. The MoEF proposed to accept only a few such recommendations, including provisions relating to the Bill's coming into force, the number of members in the Green Tribunal, the place of sitting, and appeals to the Supreme Court. The committee proposed a minimum of 10, and a maximum of 20, judicial and technical members each to sit on the tribunal. The committee also proposed to expand the central government's rulemaking power to include matters relating to circuit procedure, hearings at a place other than the ordinary place of sitting, and the transfer of cases.

Reports

Road Map for Management of Wastes in India

In September 2008, the MoEF established a committee to create a road map for waste management in India under the Chairmanship of Mr. R. H. Khwaja, Additional Secretary, MoEF. The committee recently released its final report, "Report of the Committee to Evolve Road Map on Management of Wastes in India." The committee examined the existing administrative and regulatory mechanisms in the country for the management of various types of waste, including e-waste, biomedical waste, hazardous waste, plastic waste, packaging waste, municipal solid waste, and construction and demolition waste, and arrived at strategies for achieving sustainable waste management in India. The report identifies the minimization of waste generation as the first and the most important step toward sustainable waste management, followed by reuse, recycling, recovery, treatment, and disposal of whatever waste is produced.

The committee proposed the creation of an escrow fund for treatment, storage, and disposal facilities to address post-closure monitoring and to deal with liability issues arising from mishaps, calamities, etc. The committee also proposed the establishment of waste exchange banks and centers to provide information on wastes and to promote reuse, recovery, and recycling technologies that improve the quality of resource recovery. Public-private partnership in waste management was also recommended. The report highlighted the inadequacy of the regulatory framework in addressing the management of waste categories, such as construction and demolition waste, packaging waste, mining waste, agricultural waste, and e-waste, and it proposed the enactment of laws and rules to improve the management of such waste categories.