

Policy Measures for Environmental Protection in India- Issues and Challenges

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Abstract

Human being has, in his venture for so called development exploited the natural resources indiscriminately and depleted them in a few years that were generated over a span of millions of years ignoring its adverse effects on human civilisation. As a result, now human being is encompassed in a storm of environmental problem like global warming, forest depletion and soil degradation even the efforts are taken by the government. Over exploitation of resources, increasing trend of urbanisation and rapid industrialisation for economic transformation have resulted the ecological disturbances leading to international conflict. During past few decades particularly after 1974 a series of legislation and enactments has been made by the government of India and state governments. But unfortunately, the situation is worsening day by day may be due to inadequate and inappropriate policy measures. Now-a-days these issues become major concerns by the planners and policy makers. Today, we lay great emphasis on sustainable development which aims at a development that is socially acceptable, economically viable and environmentally sound, but unless steps are taken for encouraging environment friendly technology product and service the concept of development sustenance become vague. In this context the present paper attempts to study the evolution of laws, institutions and policy relating to protection of environment and suggests some appropriate and effective measures for the better environmental governance in India.

KEYWORDS: Environment, Legislation, Sustainable development

Introduction:

Human being has, in his venture for so called development exploited the natural resources indiscriminately and depleted them in a few years that were generated over a span of millions of years ignoring its adverse effects on human civilisation. As a result, now human being is encompassed in a storm of environmental problem like global warming, forest depletion and soil degradation even the efforts are taken by the government. Over exploitation of resources, increasing trend of urbanisation and rapid industrialisation for economic transformation have resulted the ecological disturbances leading to international conflict. During past few decades particularly after 1974 a series of legislation and enactments has been made by the government of India and state governments. But unfortunately, the situation is worsening day by day may be due to inadequate and inappropriate policy measures. Now-a-days these issues become major concerns by the planners and policy makers. Today, we lay great emphasis on sustainable development which aims at a development that is socially acceptable, economically viable and environmentally sound, but unless steps are taken for encouraging

environment friendly technology product and service the concept of development sustenance become vague. In this context the present paper attempts to study the evolution of laws, institutions and policy relating to protection of environment and suggests some appropriate and effective measures for the better environmental governance and achieving environmental sustainability in India.

India adopted the socialist pattern of society in 1954 which articulates that public policy decisions must enable the society to maximize social advantage. The Indian Constitution provides a number of Directive Principles of State Policy. Indian Five year Plans have also stressed goals such as economic growth, employment, poverty alleviation and balanced regional development. Since June 1991 there has been a tilt in economic policy towards economic liberalisation and globalisation. The importance of sustainable development is also being stressed as an objective of public policy.

Two international conferences on Environment and development – one at Stockholm in 1972 and another at Rio de Janeiro in 1992 – have influenced environmental policies in most countries, including India and accepted the polluter pays principle, the precautionary principle and the concept of intergenerational equity as guidelines for designing environmental policies. However, the goals and objectives are far away from the satisfactory level due to various constraints in the part of its implementation at International, National and State level.

Origin of Legal Framework for Environmental Protection in India:

Pre-Independence legal framework:

The Indian Penal Code 1860, enacted during the British rule, contains one chapter XIV on offences affecting public health, safety, convenience, decency and morals. The Shore Nuisance (Bombay-Kalova) Act, 1893 was enacted to check wastes and marine water pollution. The Oriental Gas Company Act, 1857 and the Bengal Smoke Nuisance Act, 1905 were enacted to prevent or reduce atmospheric pollution in and around Calcutta. The Bombay Smoke Nuisance Act, 1912, the Cattle Trespass Act 1871 and Indian Forest Act 1927 were subsequently passed. The Indian Easement Act of 1882 guaranteed property rights of riparian owners against “unreasonable” pollution by upstream users. Municipal and Public Health Acts of United Kingdom conferred powers on the local bodies for controlling water pollution and prohibit the discharge of any pollutant or trade effluent from factories into municipal drains, except in accordance with the relevant byelaws. Until 1947, the environmental problem was not serious because of the low rate of population growth and lack of industrialization, except in and around a few big cities.

The ancient literature Vedas, Upanishads, Smritis and Dharmas preached a worshipful attitude towards earth, sky, air, water, plants, trees, and animals and enshrined a respect for nature and environmental harmony and conservation.

We consider four policy periods that is pre-independence period to 1947, from independence to the Stockholm Conference, 1947 – 1972, from the Stockholm Conference to Bhopal disaster, 1972-1984, and Bhopal Tragedy to 1998. In the first two periods, there were no major legislations relating to environmental protection. The Stockholm Conference on Environment and Development exerted great influence on environmental policymaking leading to an amendment of the Constitution, passage of important legislations such as the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 and creation of

institutions such as Central and State Pollution Control Boards for implementing the provisions of the Acts. The Bhopal gas tragedy in 1984 triggered the passage of comprehensive environment legislation in 1986 and Public Liability Insurance Act in 1991. The new economic policy initiated in 1991 favors decentralization, debureaucratization and globalization. Constitutional amendments were made in 1994 to facilitate devolution of powers and resources to local bodies. The Policy Statement on Pollution Abatement issued in 1992 advocates the need for combining regulatory instruments with market-based instruments and various supportive measures to deal with environmental protection.

Independence onwards to the Stockholm Conference, 1947 – 1972: The Indian Constitution

India is the first country in the world which has provided for constitutional safeguards for the protection and preservation of the environment. In the constitution of India, specific provisions for the protection of environment have been incorporated by the Constitution (42 amendment) Act, 1976. Now, it is an obligatory duty of the State and every citizen to protect and improve the environment. The Directive Principles of State Policy contain specific provisions enunciating the State commitment for protecting the environment. "The State shall endeavour to protect and improve the environment and to safeguard forests and wildlife of the country". Furthermore, duties of the citizens towards environment are contained in Article 51 –A (g), This Article says "It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures"

Being a federal structure within the framework of parliamentary form of government, Part XI of the Constitution governs the division of legislative and administrative authority between the centre and states. Article 246 divides the subject areas for legislation into three lists, viz, Union List, State List and Concurrent List. Under the Concurrent List, both Parliament and state legislatures can enact laws. Article 248 gives the centre the residual power to legislate on any subject not covered in the three lists. Articles 251, 254 state that a central law on any subject in the Concurrent List generally prevails over a state law on the same subject. Article 249 states that the centre can legislate in the national interest on any subject in the State List provided it can obtain a two-thirds majority in the Rajya Sabha, the upper house of Parliament. Article 252 states that the centre can also pass laws on state subjects if two or more state legislatures consent to such legislation. Article 253 empowers the Parliament 'to make any law for the whole or any part of the territory of India for implementing any treaty, agreement or convention with any other country or countries or any decision made at any international conference, association or other body'. These provisions of the Constitution of India give a dominant role for the central government on matters relating to environmental protection. These are only guidelines for policy formulation. Until the 73rd and 74th amendments to the Constitution in 1992, the Constitution did not assign powers to the local bodies; local government was simply treated as a subject in the State List.

Legislations:

Some important legislations relating to environmental protection enacted by the Parliament during this period were: The Factories Act, 1948, The Prevention of Food Adulteration Act, 1954, The River Boards Act, 1956, The Mines and Minerals

(Regulation and Development) Act, 1957, The Ancient Monuments and Archaeological Sites and Remains Act, 1958, The Atomic Energy Act, 1962 and The Insecticides Act, 1968 etc.

The Water (Prevention and Control of Pollution) Act, 1974

The first important environmental law enacted by Parliament is the Water (Prevention and Control of Pollution) Act, 1974. That paved the way for the creation of Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) with various functions. The main function of the CPCB 'shall be to promote cleanliness of streams and wells in different areas of the states' The SPCBs have similar functions within their areas. The Act gives powers to the SPCBs to take samples of effluents from any source and lays down the procedure to be followed in connection therewith. It prohibits any poisonous, noxious or polluting matter to enter into any stream, or well or sewer or land. Consent of the Board is required to 'establish or take any steps to establish any industry, operation or process or any treatment and disposal system or any extension or addition thereto, which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land; or bring into use any new or altered outlet for the discharge of sewage; or begin to make any new discharge of sewage'.

Forest (Conservation) Act, 1980

This Act was passed to prevent deforestation, which results in ecological imbalance and environmental deterioration. It prohibits forestland to be used for non-forest purposes, except with the prior approval of the central government.

The Air (Prevention and Control of Pollution) Act, 1981

The preamble to the Act states that 'whereas decisions were taken at the United Nations Conference on the Human Environment held in Stockholm in June 1972, in which India participated, to take appropriate steps for the preservation of the natural resources of the earth which, among other things, include the preservation of the quality of air and control of air pollution; And, whereas it is considered necessary to implement the decisions aforesaid in so far as they relate to the preservation of the quality of air and control of air pollution'. The central government used Article 253 to enact this law and made it applicable throughout India. This Act defines air pollutant as 'any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment'.

The Tiwari Committee, 1980

The Government of India set up a Committee in January 1980, under the Chairmanship of N.D. Tiwari, then Deputy Chairman of the Planning Commission, to review the existing environmental legislation and to recommend legislative measures and administrative machinery for environmental protection. This Committee stressed the need for the proper management of the country's natural resources of land, forest and water in order to conserve the nation's ecological base. Its major recommendations are:

- Creation of a comprehensive environmental code to cover all types of pollution and environmental degradation;

- Constitution of environment courts in all District Head Quarters, and the appointment of experts to assist the Court;
- Creation of a Department of Environment;
- Setting up of a Central Land Commission;
- Provision of economic incentives to industries to encourage environment friendly products, income tax and sales tax benefits for adopting clean technology, investment tax credits for purchases of purification devices, inclusion of replacement cost of purification equipment in annual operating costs, and minimal tax or no tax on the manufacture of pollution control devices; and environmental impact assessment (EIA) not only be a prerequisite for industry to start, but also must be repeated periodically.

The government had constituted the Department of Environment in 1980, which was transferred to the newly created Ministry of Environment & Forests (MoEF) in 1985. It had also set up the Land Commission. Fiscal incentives such as rebates on excise/customs duties for pollution control equipments, accelerated depreciation allowance on selected pollution control equipments, financial and technical assistance to small scale units in industrial clusters to set up common effluent treatment plants are now available. EIA has become mandatory for highly polluting industries since 1994.

The Environment (Protection) Act 1986:

This Act was enacted in the aftermath of the Bhopal gas tragedy in 1984 and expresses concern about the decline in environmental quality, increasing pollution, loss of vegetal cover and biological diversity, excessive concentrations of harmful chemicals in the ambient atmosphere, growing risks of environmental accidents and threats of life system. The Environment (Protection) Act is a comprehensive piece of legislation. Under this Act, Environment Protection Rules were announced in 1986. This Act gives the following powers to the central government:

- coordination of actions of the state governments, officers and other authorities under the Act or any other law which is relatable to the objects of the Act;
- planning and execution of a nation-wide programme for the prevention, control and abatement of environmental pollution;
- laying down standards for the quality of environment in its various aspects;
- laying down standards for emission or discharge of environmental pollutants from various sources;
- restriction of areas in which any industry, operations or processes or class of industries, operations or processes shall not be carried out subject to certain safeguards;
- laying down procedures and safeguards for the prevention of accidents which may cause environmental pollution and remedial measures for such accidents;
- examination of such manufacturing processes, materials and substances as are likely to cause environmental pollution;
- carrying out and sponsoring investigations and research relating to problems of environmental pollution;

- inspection of any premises, plant, equipment, machinery, manufacturing or other processes, materials or substances and giving, by order, of such directions to such authorities, officers or persons as it may consider to take steps for the prevention, control and abatement of environmental pollution;
- establishment or recognition of environmental laboratories and institutions;
- collection and dissemination of information in respect of matters relating to environmental pollution; and
- Preparation of manuals, codes or guides relating to the prevention, control and abatement of environmental pollution.

The central government may constitute an authority or authorities for the purpose of exercising such of the powers and functions under this Act.

The Public Liability Insurance Act, 1991

The Statement of Objects and Reasons mentions the need 'to provide for mandatory public liability insurance for installations handling hazardous substances to provide minimum relief to the victims. Such insurance apart from safeguarding the interests of the victims would also provide cover and enable the industry to discharge its liability to settle large claims arising out of major accidents. As per this Act the owner shall be liable to pay relief as specified in the Schedule:

This Act stipulates that every owner shall take out before he starts handling any hazardous substance, one or more insurance policies and renew it or them from time to time before the expiry of validity. The Public Liability Insurance (Amendment) Act, 1992 states that the 1991 Act could not be implemented on account of the insurance companies not agreeing to give insurance policies for unlimited liability of the owners. This Amendment limits the liability of insurance companies to the amount of insurance policy but the owner's liability shall continue to be unlimited under the Act. It provides for creation of an Environment Relief Fund with the additional money collected from the owners having control over handling of hazardous substances.

Policy Statement for Abatement of Pollution, 1992

The Policy Statement for Abatement of Pollution issued by the Ministry of Environment and Forests (MOEF) in February 1992 identifies the environment problems and admits that 'the state of the environment continues to deteriorate'. It favours a mix of instruments in the form of legislation and regulation, fiscal incentives, voluntary agreements, educational programmes and information campaigns. It recommends the polluter pays principle, involvement of the public in decision making and new approaches for considering market choices 'to give industries and consumers clear signals about the cost of using environmental and natural resources'.

The National Environment Tribunal Act 1995

The aim of the Act is to provide for strict liability for damages arising out of any accident occurring while handling any hazardous substance and for the establishment of a National Environment Tribunal for effective and expeditious disposal of cases arising from such accident, with a view to giving relief and compensation or damages to persons, property and the environment and for matters connected therewith or incidental thereto. It cites the decision reached at the U.N.

Conference on Environment and Development held at Rio de Janeiro in June 1992 which called upon the countries to develop national laws regarding liability and compensation for the victims of pollution and other environmental damages.

Rio Conference:

The U.N. Conference on Environment and Development held at Rio in 1992 specifies the following objectives of environment policy: (i) to incorporate environmental costs in the decisions of producers and consumers.....and to pass these costs on to the other parts of society, other countries or to future generations; (ii) to move more fully towards the integration of social and environmental costs into economic activities, so that prices will appropriately reflect the relative scarcity and total value of resources and contribute towards the prevention of environmental degradation; and (iii) to include, wherever appropriate, the use of market principles in the framing of economic instruments and policies to pursue sustainable development.

Bhopal Tragedy to the 1998, 1984 to 1998:

Constitutional amendments, legislations and policies relating to environmental protection during this period were influenced by domestic events, shift in economic policy and international events. The Bhopal gas tragedy and the difficulties faced in claiming compensation from the company and disbursing compensations to the victims necessitated the need for a comprehensive environmental legislation, rules relating to storing, handling and use of hazardous wastes and a law to provide immediate compensations to the victims of industrial accidents.

Since June 1991, the Government of India announced a series of reform measures to liberalise and globalise the Indian economy. An urgent need was felt for decentralisation and debureaucratization. The amendments to the Constitution in 1994 recognized the three-tier structure of the government and facilitated the transfer of powers and resources to the local governments. The Supreme Court and High Courts have been very active in the enforcement of legislations relating to environmental protection. The decisions reached at the UN Conference on Environment and Development held at Rio de Janeiro in 1992 as well as the shift in economic policy led the Government of India to re-examine the command and control (CAC) type of regulatory regime for environmental protection and to explore the feasibility of combining regulatory instruments along with economic instruments for controlling environmental pollution.

Constitutional Amendments and Public Interest Litigation:

The 73rd and 74th Constitutional amendments of 1992 recognized the three-tier structure of the government by devolution of power to the local bodies' viz. panchayats in rural areas and municipalities in urban areas. With the passage of bills by the state legislatures and devolving powers and allocating revenue sources, these local bodies can become institutions of self-government. The eleventh schedule contains environmental activities such as soil conservation, water management, social forestry and non-conventional energy that panchayats can undertake. The twelfth schedule lists activities such as water supply, public health and sanitation, solid waste management and environmental protection which the municipalities can undertake. These grass root level institutions can facilitate greater participation by the people in

local affairs, promote better planning and implementation of developmental and environmental programmes and be more responsive to the needs of the people.

The Supreme Court and the High Courts have played an active role in the enforcement of constitutional provisions and legislations relating to environmental protection. The fundamental right to life and personal liberty enshrined in Article 21 has been held to include the right to enjoy pollution free air and water.

Implementation of Laws Relating to Environmental Protection:

The nodal agency for implementing various legislations relating to environmental protection at the centre is the Ministry of Environment and Forest (MoEF). Besides giving directions to the CPCB on matters relating to prevention and control of pollution, the MoEF is responsible for designing and implementing a wide range of programmes relating to environmental protection. The Annual Report of the MoEF for 1996-97 states that 'the focus of various programmes of the Ministry and its associated organisations, aimed at prevention and control of pollution is on issues such as promotion of clean and low waste technologies, waste minimization, reuse or recycling, improvement of water quality, environmental audit, natural resource accounting, development of mass based standards, institutional and human resource development etc. The whole issue of pollution prevention and control is dealt with a combination of command and control methods as well voluntary regulations, fiscal measures, promotion of awareness, involvement of public etc'. Based on the environmental laws and directions given by the Supreme Court, the central government has created a number of authorities for designing, implementing and monitoring its environmental programmes. At the state level, most states have set up Departments of Environments and the SPCBs.

Mehta, Mundle and Sankar (1993, 1997) find that despite the legislative and administrative efforts and fiscal incentives for pollution control, 'ambient standards of air and water pollution continue to be routinely exceeded and in some places quality has distinctly deteriorated'. They attribute this 'among other things to a certain hiatus between the macro goals of our environmental policy and the micro nature of operational provisions for enforcement of the policy. Hence, though standards have been laid down for ambient air and water quality, actual enforcement relates mostly to source standards lay down for individual polluters, factories, and transport vehicles and so on.

Determination of Standards:

Under Rule 3A of Environment Protection Rules 1986, the Government of India notified on May 19, 1993 that emission or discharge of environmental pollutants from industries, operations or processes shall not exceed the relevant parameters and standards specified in Schedule VI. There are three types of emission standards. The concentration based standards, Load mass-based standards and Noise standards are prescribed in the above act. In India, the standards are determined mainly on the basis of comprehensive industry studies undertaken by technical institutions at the initiative of the CPCB. These studies provide estimates of pollution generation industry-wise, assess available abatement technologies and give tentative estimates of costs of abatement for different levels of abatement.

Critics of nation-wide uniform standards point out that the carrying capacities of different regions differ and the trade-off between environmental quality and other goals such as growth and employment also differ in different regions. At present, the

Air (Prevention and Control of Pollution) Act, 1981 and the Environment Protection Act, (1986) give powers to the central and state governments to restrict or prohibit certain activities in certain areas on the basis of considerations mentioned earlier. But the rules do not permit any state government or SPCB to lower the standards fixed by the central government in any region.

The standards prescribed for most industries are concentration-based standards. In case of effluents, a polluting unit can meet the standards by dilution of effluents by adding water. With growth of the industry aggregate amount of pollution can increase even when there is compliance at the plant level.

Standards for effluent and emissions from industries have been notified and the industries have been directed to adopt action programs leading to compliance with these standards on a time bound basis. The Central and the state government are playing a more active role in enforcing these environmental standards. Many polluting units in the country face shifting, closure orders from the courts. It is to be noted that with increasing awareness on environment related issues in the country, the public is becoming more active in highlighting polluting industries and there is an increasing number of Public Interest Litigations in the court.

Enforcement of Standards:

When the standards are the same for many industries or even when industry-specific standards are applied to all firms in the same industry, the aggregate costs of compliance with the standards will not be minimized. The reason is that the marginal abatement costs even for firms within an industry vary from firm to firm because of variations in factors such as vintage of the firm, technology used, quality of input used, product mix, size of the firm etc. When a regulatory agency puts restrictions on the process used or prescribes input-output norms or imposes other physical standards, the firms' choices in the minimization of abatement costs are constrained.

Poor enforcement of the laws/rules occurs due to the following reasons. First, the pollution control authorities do not have reliable information regarding the quantities of effluents/emissions/solid wastes and their characteristics. There is information asymmetry: the polluters know more about the sources, magnitudes and concentrations of pollutants as well as the costs of controlling pollution than the regulators. It is very difficult and perhaps there is no motivation on the part of the regulated agencies to acquire and process the information from thousands of units dispersed in their regions. Second, the regulators face budget constraints, lack of adequate technical facilities and skilled manpower for monitoring the polluting units and filing charges against the units violating the standards. Third, the fines are fixed in nominal terms and are independent of the extent of violations. Penalties such as imprisonment of officials, stoppage of water and electricity and closure of units can impose hardships on the affected firms, but in a weak enforcement regime with principal agent problem collusion between regulators and regulated units are possible. Dispute settlement by going to the courts is a cumbersome process and involves considerable delays. This situation creates an opportunity to indulge in rent-seeking activities. Until recently, the CPCB and the SPCBs concentrated their efforts on enforcing compliance with the standards by large and medium size units.

Small-Scale Industries:

Pollution problems in small scale industries such as leather tanning, textile bleaching and dyeing, aquaculture, dairy, foundries, coke-coal based activities; chemicals etc. have received public attention in recent years. Most of the units are organised under single proprietor or partnership form of organisation. They are dispersed and labour intensive but their pollution intensities are generally higher than those of the corresponding medium and large units partly because of the use of obsolete technologies and poor management practices and partly because they do not come under the orbit of regulatory authorities. Certain industries such as leather and garment making received boost from the Government of India since 1970 because of their significant contributions to export earning. The state governments and the SPCBs did not pay much attention to the pollution generated by these activities because of the difficulties in monitoring the units, the high costs of pollution abatement for small units compared with large units, and the possible adverse impact of enforcement of the standards on outputs and employment of these industries.

Judicial Activism:

Since about the late 1980s, the Supreme Court of India has been pro-actively engaged in India's environmental issues. In most countries, it is the executive and the legislative branches of the government that plan, implement and address environmental issues; the Indian experience is different. The Supreme Court of India has been engaged in interpreting and introducing new changes in the environmental jurisprudence directly. The Court has laid down new principles to protect the environment, re-interpreted environmental laws, created new institutions and structures, and conferred additional powers on the existing ones through a series of directions and judgments.

The interpretation of Article 21 of the Constitution to include the right to clean air and water by the Supreme Court and the High Courts, the remedy available to any citizen to go to the court under the banner of public interest litigation for the enforcement of the right to clean air and water, and the growing public awareness evident in the formation of NGOs and welfare organisations for the promotion of environmental quality, radically altered the situation in the nineties.

The Court has played a very active role in the enforcement of legislations and rules relating to environmental protection. In compliance with the various Supreme Court Orders, the MOEF has constituted several authorities under the Environment (Protection) Act, 1986.

But the achievement is not up to the mark because the existing information base and the capacity of the regulatory agencies for monitoring and enforcing the regulations are weak. Second, the judicial process is time-consuming and there is lack of sufficient legal expertise to deal with environmental cases particularly those involving valuation of the damages. Hence, there is a need to develop the expertise.

Environmental Issues:

There are many environmental issues in India. Air pollution, water pollution, garbage, and pollution of the natural environment are all challenges for India. The situation was worse between 1947 through 1995. According to data collection and environment assessment studies of World Bank experts, between 1995 through 2010, India has made one of the fastest progresses in the world, in addressing its

environmental issues and improving its environmental quality. Still, India has a long way to go to reach environmental quality similar to those enjoyed in developed economies. Pollution remains a major challenge and opportunity for India. Environmental issues are one of the primary causes of disease, health issues and long term livelihood impact for India.

Major environmental issues are forest and agricultural degradation of land, resource depletion, environmental degradation, public health, loss of biodiversity, loss of resilience in ecosystems, livelihood security for the poor. The major sources of pollution in India include the rampant burning of fuel wood and biomass such as dried waste from livestock as the primary source of energy, lack of organized garbage and waste removal services, lack of sewage treatment operations, lack of flood control and monsoon water drainage system, diversion of consumer waste into rivers, cremation practices near major rivers, government mandated protection of highly polluting old public transport, and continued operation by Indian government of government owned, high emission plants built between 1950 to 1980. Air pollution, poor management of waste, growing water scarcity, falling groundwater tables, water pollution, preservation and quality of forests, biodiversity loss, and land/soil degradation are some of the major environmental issues India faces today. India's population growth adds pressure to environmental issues and its resources.

Issues in Transition to Market-Oriented Policy Regime:

We noted earlier that since June 1991 the Government of India initiated economic reforms to liberalise and globalise the Indian economy in stages. Substantial progress has been made in reforms pertaining to the external sector, industrial sector, fiscal sector and monetary sector. But there has been little progress in public sector reforms, administrative reforms and environmental policy reforms because there are many conceptual, information and econometric problems in getting reliable estimations of the marginal abatement costs. For this we need better data base, more empirical studies in this regard.

A non-market non-government institutional arrangement is needed for solving environmental problems which require collective action on the part of the affected people. In such cases, the government's role may be confined to providing the legal framework for establishing and operating the institutions, provision of technical expertise and perhaps initial lump sum subsidies for sustainable management of these resources. Rawlsian principles of fairness, efficiency and stability can be applied in the design and management of each such institution.

Social justice has been one of the cherished goals in India's socio-economic policies. The dependence of the poor on environmental resources such as clean air, clean water and forest products is greater than that of the rich. Also, the poor do not have the resources to undertake pollution averting measures.

But as the country's population and economy continue to grow, the need to find solutions becomes more urgent every day.

Conclusion and Suggestion:

When the economy is being liberalized and globalised the environmental policy must also change. As the resources are limited and the central, state and local

governments face severe budget constraints, cost benefit analysis of environmental laws and regulations should be made mandatory. Wherever feasible, greater reliance should be placed on the use of economic instruments for environmental protection because, if the instruments are well designed, they can signal the users of environmental resources about the social scarcity values of these resources and at the same time generate revenues to the governments. The government can also provide an enabling environment to community-based organizations to participate in the management of local commons and in the enforcement of environmental laws and rules. The government must make a transparent and conscious assessment of the trade off between efficiency and equity in the matter of environmental policy.

Equity considerations are also important in environmental policy making. When the distribution of income is highly skewed and about one-third of the population live below the poverty line intergenerational equity must be of social concern. The reason is that the poor are the victims of environmental degradation even though their contribution to environmental degradation is proportionately less than that of the rich. Further, the poor do not have the means to undertake averting expenditures to protect them from various environmental hazards. India's experience with environmental policy making during the last three decades reveals that government is not the sole agency to protect it. In spite the government effort, the role of NGOs and people's participation plays an important role in this regard.

Many critics of India's current environmental policy advocate local solutions, often arguing that strong local governances and practices will tackle justice and environmental issues simultaneously. Yet, in a globalized world such solutions, while laudatory, can only be partial. Global technology sharing, for instance, is crucial, but localities will often resist new technology. The paradox is that economic growth should provide a growing population with an improved standard of living, yet environmental stress needs to simultaneously lessen. Social expectations regarding quality of life are certainly important, yet, given India's dilemma, these must be implemented in concert with technological change.

References:

1. Cropper, M.L. and W.E. Oates (1992), 'Environmental Economics: A Survey', *Journal of Economic Literature*, XXX, 675-740.
2. Dasgupta, P (1993), 'Poverty and the Environmental Resource Base', Chapter 10 in *An Inquiry into Well-being and Destitution*, Clarendon Press.
3. Dwivedi, O.P. (1997), "*India's Environmental Policies, Programmes and Stewardship*", Macmillan, New Delhi.
4. Government of India (Ministry of Environment & Forests, 1992), *Policy Statement for Abatement of Pollution*, New Delhi.
5. Gupta, S., (1996), 'Environmental Policy and Federalism in India', National Institute of Public Finance and Policy, New Delhi.
6. Khan, A.U. (1998), 'Environmental Regulation', in B.Debroy and P.Shah(eds), *Agenda for Charge*, No.1, Centre for Civil Society and Rajiv Gandhi Institute of Contemporary Studies, New Delhi.
7. Mehta, S., S. Mundle and U.Sankar, 1993/1997. *Controlling Pollution: Incentives and Regulation*, Sage, New Delhi.
8. OECD, 1994, *Managing the Environment: The Role of Economic Instruments*, OECD, Paris.
9. Ostrom, M., 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press, Cambridge.

10. Padia, R.G., 1996. 'Global Concern for Environmental Hazards and Remedial Measures', in R.B. Singh and S.Misra(eds.) *Environmental Law in India Issues and Responses*, Concept Publishing House, New Delhi.
11. Pigou, A.C., 1920. *Economics of Welfare*, Fourth Edition (1952), Macmillan.
12. Sangal, P.A., 1996. 'Law as a Tool for Environmental Management in India', in R.B.Singh and S.Misra(eds.) *Environmental Law in India Issues and Responses*, Concept Publishing House, New Delhi.
13. Sankar, U., 1998/2000. *Economic Analysis of Environmental Problems in Tanneries and Textile Bleaching Industries: Suggestions for Policy Action*, UNDP Project - LARGE Report, 1998 Madras School of Economics, Chennai, Allied Publishers, New Delhi, 2000.
14. United Nations, 1992. *Conference on Environment and Development Agenda 21*, Rio de Janeiro.
15. Bhaskar, V., B., Iyer, R., &Cassen, R. Water. In *Twenty-First Century India: Population, Economy, Human Development, and the Environment*. Eds Tim Dyson, Robert Cassen , Leela Visaria. 2005. Oxford: Oxford University Press. pp. 312-327.
16. Kysar, D.A. Jun 2005. Sustainable Development and Private Global Governance. *Texas Law Review* 83: 7, pp. 2109-2166.