Environmental Governance and State Pollution Control Boards

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ABSTRACT

In India consciousness to protect the environment and measures needed to restore it exists since the early days of civilisation. the Vedic and Post-Vedic history bear testimony to this. However, in the modern days, especially in the post independent era because of high priority to economic growth environment receded to a less important place. Till 1970s, prior to the organisation of the 'Habitat Conference' at Stockholm, no specific step was taken to protect and preserve the environmental quality in India. It is only in 1972 steps were initiated with the formation of the NCEPC that gradually evolved as a separate department of Environment and reached the full-fledged stage of Ministry of Environment and Forests in 1985. The institutional framework took shape with the CPCB and SPCBs. Initially the Constitution of India did not contain any provision towards the promotion/protection of environment. However, the 42nd amendment of the constitution in 1977 added some important clauses that entrusted the government the responsibility of providing a clean and well-protected environment. With the promulgation of the water (Prevention and Control of Pollution) Act in 1974, a Plethora of legal arrangements came as watchdog against any injury to the environment. The umbrella Act, EPA 1986 added strength to all preceding provisions. Special stipulations were made for industrial, vehicular and noise pollution control in the country.

In India, states do not pursue independent environmental policy of their own but adopt the policies formulated at the national level subject to such variations as may be necessary to suit to the local conditions. The central government has also been issuing guidelines to the states on various environmental matters. The sectoral policies and programmes pursued by the states are usually formulated within the framework of the national policies and guidelines. The policies and programmes under environment policy are usually implemented through State Pollution Control Boards (SPCBs) in the states. The functions of the Board can be categorised under three main heads namely (1) enforcement (2) advisory and (3) research and public awareness generation.

State pollution control boards (SPCBs) in India are mandated to enforce key environmental legislations for protection of the environment under the overall guidance of the CPCB. The SPCBs ensure compliance to the recently formulated complex environmental regulations, strengthen infrastructure and deploy modern tools in the fields of monitoring and information management. In the field of public-private partnerships in environmental infrastructure SPCBs also have a key role to play. They are no more confined to as the regulatory agencies rather act more as the facilitators, strategic planners at state level developing both short and long term action plans.

The Orissa State Pollution Control Board (OSPCB) came into being with effect from 6.4.1983 after the Orissa Legislative Assembly adopted the Water (Prevention and Control and Pollution) Act, 1974 amended 1978 and the Air (Prevention and Control of

Pollution) Act, 1981 and repealed the Orissa River (Pollution Prevention) Act 1953. The amendments made by the centre in 1987 have also been incorporated. At present the Board functions with its headquarters at Bhubaneswar, the capital city of Orissa, and seven regional offices at Angul, Rayagada, Rourkela, Balasore, Baripada, Berhampur and Sambalpur. Initially the Board was assigned the functions, to execute and ensure proper implementation of different provisions contained in the Water Act and Air Act. After enactment of the Environment Protection Act 1986, the State Boards assumed wide variety of functions.

The states do not have special and separate policies towards environment, rather they implement the federal policies. The state departments for forest and environment and the state pollution control boards look after the environment. In Orissa the same holds good. OSPCB with its regional offices and the state department of forest and environment work for the protection of environment. However, the state institutions lack full autonomy and do not work to the expected extent. For a pollution hot-spot ,the Angul-Talcher industrial agglomeration, a regional office of the OSPCB is exclusively provided. It works for the promotion and protection of environmental quality in the locality. It works for MINAS and MINARAS. In spite of all the constitutional legal institutional and fiscal arrangements, the nature and extent of pollution is not well within control. Thus it is concluded that the command and control policy measures are inadequate and inefficient

The OSPCB and its Angul functionary supervise the norms of a command-control mechanism in the region. But it is too well known now that regulation alone is not enough for, in theory and practice, it is less efficient than innovations in market mechanism. It is felt that environmental governance in India should be done through a combination of command principles and market based incentives. Besides, the fiscal instruments which are in use now, do not meet the requirement very well. Investment subsidy and depreciation allowance for pollution control machinery do not render the polluters fully responsible. They can enjoy the subsidy and have pollution control devices, but may not operate them. Because, subsidy alone is a weak incentive to the polluter not to pollute. It is, therefore, necessary to combine regulation and subsidy with other fiscal incentives such as the pollution (Pigovian) tax. Imposition of emission charge or environmental excise duty should have to be chiseled under national fiscal management. The environmental control regime in the country has to change and to be dovetailed to the governance of public finance. However, till a new regime that combines MBIs with command principle comes into being the existing fiscal instruments can be modified, upgraded and used for the purpose along with the command and control measures.

Key Words: environmental governance, state pollution control boards, regulatory institutions, command and control, market based instruments (MBI), fiscal mechanism,

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1. Introduction:

Over the years, there has been an increasing awareness among the people to protect and promote the environment. Like any other social, economic and political problems, environmental problem has caught the attention of policy-makers, intellectuals, social activists and researchers (Sahu, No Date). Since the Stockholm Conference on the Human Environment, there have been sincere efforts both at the international level and at the state level directed towards the protection of the environment and halting environmental degradation. To achieve this objective, a number of actors are involved such as international and national institutions, civil society, environmental groups and local people in the decision-making process relating to environment preservation. The involvement of various actors in the environmental decision-making process has led to the development of the concept of environmental governance. Today the core issue of environmental governance is the way societies deal with environmental problems. It concerns interactions among formal and informal institutions and actors (Environmental Groups, Pressure Groups, and Political Parties etc.) within society that influence how environmental problems are identified and framed.

The issue environmental governance at present has become an increasingly important concern both at the national and international levels. Governance is about the process by which we take decisions, implement them while involving people. It relates to decision making at all levels —government and non government. In short, governance deals with who is responsible, how they wield their power, and how they are held accountable. Environmental governance addresses how decisions concerning the environment are made and who participates in the decision making process. However, the series of questions which environmental governance seeks to address reveal that environmental governance does not exclusively involve decisions made by single entity rather it demonstrates a much more diffuse level of responsibility for environmental governance. In this study, we look at the environmental governance profile and the role of State Pollution Control Boards (SPCBS) at the state level in India:

Environmental governance is important due to limitations of market induced correctives to internalize the externalities. Since the liability system in India is not very sound and underdeveloped it fails to improve the environmental quality due to informational disadvantages legal delays and poor monitoring and compliance (Prasad,2004). To this need the government of India established pollution control boards as control and protection authorities, the regulatory bodies who act as the guardian and custodian of the environmental regulations in India. Such pollution control boards exist both at centre and state level.

2. Environmental Governance in India

In India consciousness to protect the environment and measures needed to restore it exists since the early days of civilisation. The Vedic and Post-Vedic history bear testimony to this. In the modern days because of high priority to economic growth environment receded to a less important place. With a view to curb the pressure on environment a number of institutional arrangements and legislative measures have been adopted since 1970's. The environment action programme in India aims to improve environmental services and to facilitate the integration of environmental considerations into development programmes. The programme focuses on priority areas and tackling urban environmental problems. To curb pollution Government of India has made the sincere efforts in recent years.

During the first two decades of economic development in the country no specific attention was paid to environmental sickness. In the early 1970s, particularly after the Stockholm conference on 'Habitat' in 1972, committees and commissions came into being to recommend the broad contours of environmental policy. Legal frameworks, administrative and institutional mechanisms started taking shape. The need for institutional support was recognised. From the sixth five-year plan, attempts are being made to integrate environmental management plans with socio-economic planning. Government initiatives to improve environmental quality include preventive as well as promotive measures. Effective environmental governance is critical for the well being of a resource scarce society on a per capita basis like India. Among various levels of environmental governance, the most effective is the local level for efficient management and utilization of natural resources.

a).Constitutional provisions

India is the first country to bring an amendment in its constitution in order to enable the state to improve, protect and safeguard its natural environment. The forty second amendment in this effect was adopted in 1976 and implemented from January 3rd, 1977. Such entries in the Directive Principles of State Policy not only gives the state a protectionist role but also makes morally responsible to take steps to improve the degraded state of environment. Also it empowers the Government to impose checks and balances on such activities that cause harm to the environment. As a result of the United Nation's Conference on Human Environment at Stockholm in June 1972 and the enactment of the water (Prevention and Control of Pollution) Act, two new entries 48.A and 51.A (g) dealing with the protection and preservation of the environment were made by the 42nd amendment of the Constitution in 1977.By virtue of the above constitutional provisions, the Constitution of India requires the state to take steps to protect and improve the environment and safeguard the forest and wildlife of the country.

b). Legal Framework

India's concern over environmental improvement dates back to 1853 when the Shore Nuisance Act was passed. The Indian Penal Code Act, a more comprehensive legislation with several provisions of pollution control having fines and imprisonment for harming the environment was passed in 1860. The Police Act 1961 is an example of noise pollution control. The Indian Easement Act, 1892, the Indian Fisheries Act of 1897 are the legal provisions towards water pollution control. Several state level enactments like Bombay Smoke Nuisance Act 1912, Bengal Smoke Nuisance Act 1905, The Orissa River (Pollution Prevention) Act, 1953, The Motor Vehicles Act of 1939 empowered state

government to regulate emissions and effluents (Kuik *et al*., 1998). However, this approach of regulation was piecemeal, legal action was a long run business, penalties and punishments were not sufficient. After all, environment related legislation was not accorded top priority. There were no special institutions and arrangements to monitor and prevent such activities.

This situation continued even after independence till 1972. Although many legal actions and enactments took place in between 1947-1972 but such acts dealt only incidentally and proved ineffective. The whole approach was felt sporadic. Through this the Government of India has long recognised the importance of environmental protection and management rooted in Constitution since 1950 and the foundations of present day frame work dates back to the early 1970s, breakthrough came in 1972 in the wake of Stockholm conference and with the establishment of NCEPC (Kuik *et al*, 1997). The enactment of environmental laws and such other related provisions has marked the beginning of an era of governmental regulation for the control of environmental pollution in India (Murty, 1995). Environmental pollution control in India is governed by three basic statutes. The Water (Prevention and Control of Pollution) Act, 1974 as amended in 1986, the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1988 and the Environment Protection Act, 1986. The Water and Air acts are the basic legal framework providing the preliminary institutional set up and regulatory measures for pollution control in the country. The Acts provide for a wide range of penalties, including fines and incarceration for non-compliance. The above acts are complemented by two more pieces of legislation, the Water (Pollution Prevention and Control) Cess Act, 1977 and the Public Liability Insurance Act, 1991, (World Bank, 1995).

C). Institutional Framework

For establishing an institutional set up for pollution control in India the U.N Conference on Human Environment of 1972 played a catalyst role. The first formal step was the formation of the National Committee on Environmental Planning and Coordination (NCEPC), 1972 to prepare a report on the state of environment in India for the Human Environment Conference at Stockholm in June 1972 (Saxena, 1993). In February 1980, the Government of India appointed a committee for recommending legislative measures and administrative machinery for environmental protection under the chairmanship of Mr. N.D. Tiwari (Saxena, 1993). As per the recommendations of Tiwari Committee the Department of Environment was established in November 1981 to provide explicit recognition to the pivotal role to environmental conservation for sustainable development (Agarwal, 1987). In January 1985 a new Ministry of Environment and Forests (MOEF) was created (World Bank, 1995).

The important institutions actively involved in policy decision in environmental management and pollution control are the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs). The CPCB was created in 1974 under the Water (Prevention and Control of Pollution) Act 1974. Most of the states also adopted the Water Act and operated it through the respective state pollution control boards. Because of the growing awareness of environmental problems in the country a large number of Non-Governmental Organisations (NGOs), voluntary agencies, community groups, academic societies, corporate entities have emerged in the last few years which are actively engaged in environmental protection and developmental programmes.

The mechanism of policy enforcement for Environmental Governance can be presented in a simplified manner with the help of the following figure.

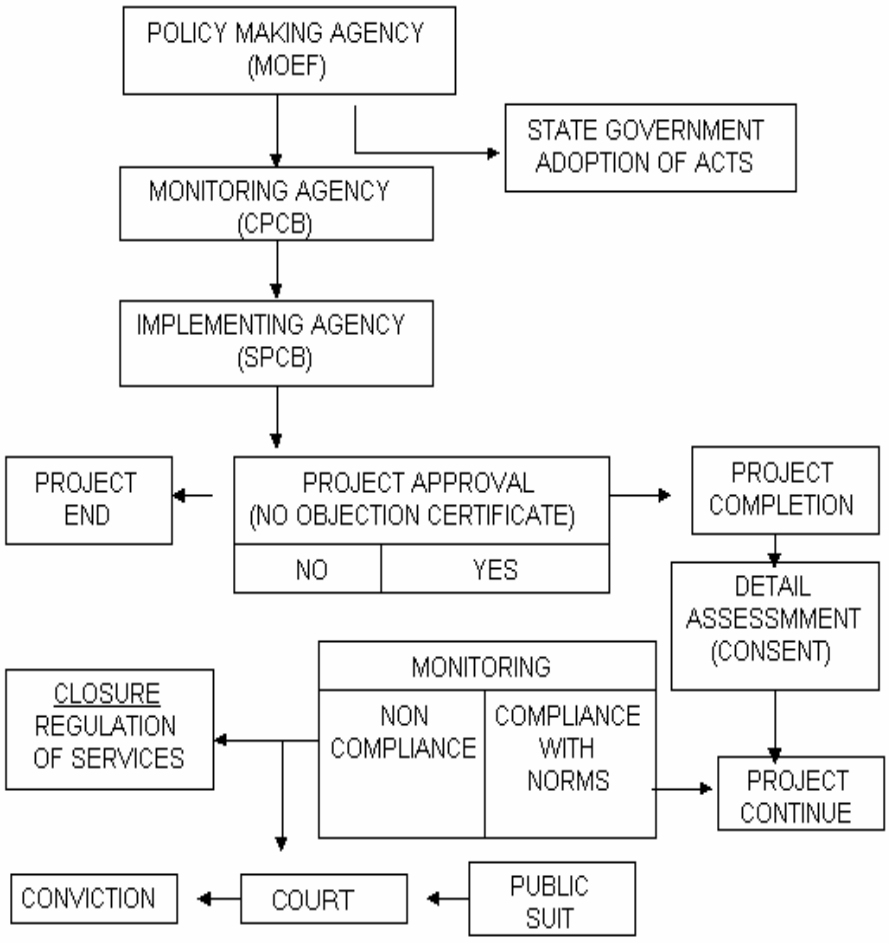

Fig 1: The Pollution Abatement Policy Enforcement Mechanism in India

From the above figure it is evident that pollution control boards in general and State Pollution Control Boards in particular are the chief tenets of environmental governance in India.

3). Pollution control mechanism in States

In India, states do not pursue independent environmental policy of their own but adopt the policies formulated at the national level subject to such variations as may be necessary to suit to the local conditions. The central government has also been issuing guidelines to the states on various environmental matters. The sectoral policies and programmes pursued by the states are usually formulated within the framework of the national policies and guidelines. The policies and programmes under environment policy are usually implemented through State Pollution Control Boards (SPCBs) in the states. In Orissa also, all policy measures towards environment protection, control and

preservation are carried out by the SPCB. The state has its Ministry of Environment and Forests to oversee the activities relating to environmental protection.

The state pollution control boards (SPCBs) in India are mandated to enforce key environmental legislations for the protection of the environment under the overall guidance of the central pollution control board(CPCB),The SPCBs ensure compliance to the recently formulated complex environmental regulations. The SPCBs strengthen the infrastructure and deploy modern tools in the fields of monitoring and information management. The present role of SPCBs is no more confined to as enforcement agencies. They function as regulators and facilitators too. They act as strategic planners and promoters of public private partnership.

This present study intends to make a critical assessment of the State Pollution Control Board of Orissa(OSPCB). It is pertinent to note here that Orissa is one of the poorest states of Orissa next to Bihar. Further the state is rich in natural resources especially mines and minerals. Further in the days of Globalisation there is a big move towards industrialization and that to with the help of MNCs, Big Business Houses. In this context the OSPCB has a greater role to ensure Sustainable Development and a stiking balance between poverty and economic development.

4). OSPCB: A Brief History

The Orissa State Pollution Control Board (OSPCB) came into being with effect from 6.4.1983 (OSPCB, 1997) after the Orissa Legislative Assembly adopted the Water (Prevention and Control and Pollution) Act, 1974 amended 1978 and the Air (Prevention and Control of Pollution) Act, 1981 and repealed the Orissa River (Pollution Prevention) Act 1953. The amendments made by the centre in 1987 have also been incorporated.

a). Constitution of the Board

After adoption of the Central Water (Prevention and Control of Pollution) Act, 1974 and Central Air (Prevention and Control of Pollution) Act, 1981 by the State Assembly in April, 1983, the OSPCB was constituted vide notification no.1484/STE dated the 15th July, 1983 of the Government of Orissa, Department of Science Technology and Environment (OSPCB, 1984). The State Government as per provisions of sub-section (2) of Section 4 of Water (Prevention and Control of Pollution) Act 1974 and corresponding provisions of the Air (Prevention and Control of Pollution) Act, 1981 reconstituted the OSPCB, Orissa vide Notification no.4803 dated 29.2.96. The Board shall consist of a Chairman who possesses special knowledge of environmental protection and promotion and at the same time capacity to administer institutions, at best five representative officials of the government of Orissa, maximum five members from local bodies, maximum three people from among the area of agriculture, fishery, industry, trade or any other interest as desired by the government, two members to be nominated by the government who represent the companies and corporations owned ,controlled, managed by the state government, a full time member secretary possessing knowledge of science, technology or engineering in the field of pollution control and to be appointed by the state government. The government of Orissa reconstituted the Board vide notification No, Env-E-8/2002 14219/ F&E, dated 17th August , 2002 for a period of three years. During 2006-07 the Board consists of 15 members including a chairman and a member secretary and other members from different fields. Apart from the above the Board regular activities are run by the appointed employees. Thus it has a two tier system. The first group consists of the above 15 members nominated and appointed by the government of Orissa. The second branch of people are regular employees, the staff members who run day to day routine works of the Board.

At present the Board functions with its headquarters at Bhubaneswar, the capital city of Orissa, and seven regional offices at Angul, Rayagada, Rourkela, Balasore, Baripada, Berhampur and Sambalpur. The regional offices work under the leadership of a Regional Officer and such other regular employees appointed by the government of Orissa. The regional offices are located in the industrial towns and other urban centers. Initially the Board was assigned the functions, to execute and ensure proper implementation of different provisions contained in the Water Act and Air Act. After enactment of the Environment Protection Act 1986, the State Boards assumed wide variety of functions.

b). Functions of the Board

The important functions of the OSPCB is to ensure the implementation of environmental legislations ,acts and statutes promulgated and amended from time to time. The Board is vested with the responsibility of maintaining and restoring the wholesomeness of water, control of air pollution, preparation of standards in consultation with the central pollution control board, issue of consents of establishment and operation of industries, collection of water cess, advising the state government in the matters of control and prevention of environmental pollution, management and restoration of wholesomeness of the environmental quality in the state and such other functions as warranted under Water(Prevention and Control of Pollution) Act 1974 and the Air(Prevention and Control of Pollution) Act 1981 and the Environment Protection (the Umbrella) Act 1986. The above functions of the Board can be categorised under three main heads namely (1) enforcement (2) advisory and (3) research and public awareness generation. The SPCBs employ three instruments, namely, consent to establish producing units, consent to operate, and standards for air and water pollution.. The other functions of the SPCBs are advising the state governments, formulation of preventive methods, technology development, and regulation of location of industries, disposal of hazardous wastes, and collection and dissemination of information on the prevention and control of pollution. The PCBs also have the power to move court for 'restraining apprehended pollution' as a preventive measure (Section 33 of the Water Act and Section 22A of the Air Act). In an extreme case, a PCB can give 'directions to any person, officer or authority' in the interest of pollution control, which 'includes the power to direct closure, prohibition or regulation of any industry or process, or stoppage or regulation of supply of electricity, water or any other service' (Section 33A of the Water Act and Section 31A of the Air Act).

According to Water and Air Acts the Orissa State Pollution Control Board is empowered to constitute as many committees as required for its efficient and smooth functioning. By doing this the Board facilitates the process of decentralization of power and that leads to better and smooth function of the Board. Each committee works under a convener and expert people are placed in different committees.

c).Activities of the board

i. Command and Control (CAC) Mechanism

(a) Consent

Under section 25 & 26 of the Water(Prevention and Control of Pollution) Act 1974 and under section 21 of the Air(Prevention and Control of Pollution) Act 1981 any prospective entrepreneur who wants to establish an industry within the jurisdiction of

the state of Orissa needs to obtain the consent for the establishment of the industrial unit. Essentially it is a certificate of site clearance to be obtained by an entrepreneur from the SPCB before establishment of the proposed new project. This is issued once in life span of an industrial undertaking. The SPCB issues the certificate only after considering the impact of the proposed project on the specified environment, only after examining its impact on climate, topography, compatibility with land use proximity to protected areas, biological diversity and the human settlement, for a hazardous industry cannot be established near a human settlement, emergence of human settlement near such an unit cannot be prevented after the establishment of the industry. However, there have to be adequate safety measures against hazards of any kind at any time in any case.

The Orissa State Pollution Control Board under its power of Command and Control as per the acts and statutes from time to time is authorized either to grant or to refuse the consent to establish the industry. Consent applications along with requisite fees are submitted by the industries in specific forms prescribed by the state government. The industries are required to submit along with the consent applications, responses to specific questionnaires on environmental assessment. The prescribed forms and the general questionnaires are designed to obtain information on nature and quantity of raw materials, production process, quality and quantity of effluent, mode of discharge of effluent, atmospheric emission in each stack, process emission, particulate analysis, details of water and air pollution control measures. The questionnaire relating to environment impact assessment intends to gather information on general environment, climate, settlement, solid and liquid waste and cost of pollution control. Table 1 shows the status of grant of consent to establish by the Board during 2004-05 to 2006-07 a period of three years (Table-1and 2). An analysis of Table 1 shows about the command and control activity through grant or rejection of proposals on consent to establish and operate to the polluting units.

b) Grant of No Objection Certificate (NOC) or Consent to Operate:

Consent is required to be obtained after establishing the proposed industrial unit but before commissioning the manufacturing process. The consent is given only subject to condition that all required pollution control measures, methods and equipments are installed satisfactorily to abate pollution. Without the consent no industry can operate the process. The consent however, is to be renewed once in a year. The consent may be conditional or unconditional or even can be withdrawn in case of inadequate or unsatisfactory pollution control measures (CPCB, 1992). Starting of an industrial establishment without the consent is illegal and is punishable with imprisonment with minimum of two years and can be extended up to six years along with a fine. The consent is obtained only with the payment of a consent fee, which is a source of fund for the SPCB to run its activities. The consent fee may vary from state to state depending upon the decision of the SPCBs. In respect of certain industries of highly polluting nature, it is not only necessary to install suitable pollution control equipments but also to identify a site where particular industrial project could be set up.

In this regard, the OSPCB has constituted the consent committee which is authorised to grant or refuse or withdraw the consent and NOC for compliance and non-compliance. During 2006-07, the OSPCB has renewed and granted consents and No Objection Certificate (NOCs). Table -2 describes about this.

c) Environmental Standards

Standards refer to specific parameters quantified. Previously with respect to

measures for disposal, discharge and emission of solid, liquid and gaseous waste into the environment. These standards form the basis of enforcement of any legislation for the abatement of pollution. Standards are based on the knowledge of pollutants, their chemistry and both short and long term effects on the receiving environment (Kuik *et al.*, 1998). he Ministry of Forest and Environment, (GOI) in their Notification No. GSR95(E) dated 10.2.92 have notified the time schedule for enforcement of standards under the Environment Protection Act, 1986, according to which any industry, operation or process which has commenced production on or before 16.5.81 and has shown adequate proof of at least commencement of physical work for establishment of facilities to meet the specified standards within the time bound programme to the satisfaction of the State Pollution Control Board shall comply with such standards latest by 31.12.93 similarly any industry, operation or process which has commenced production after 16.5.81 but before 31.12.92 and has shown adequate proof of at least commencement of physical work for establishment of facilities to meet the specified standards within the time bound programme to the satisfaction of the State Pollution Control Board shall comply with such standards latest by 31.12.92. As a matter of fact of this notification priority has been given to 17 categories of highly polluting industries for the enforcement of the standards. To this effect, the OSPCB publishes the status of 17 categories of highly polluting industries of the state regularly.

d) Legal actions/ Provisions

Legal actions against the polluters for non compliance of pollution control norms follow from the Command-and-Control measures. Under the various provisions of Water and Air Acts, and other environmental legislations, violation of protection laws lead to punishments including fine, closure and imprisonment. In the State of Orissa now all courts of the rank of Sub-divisional Judicial Magistrates function for the purpose. Apart from these, the cases are sued and trials offered in the High Court, Orissa and the Supreme court of India. Table-3 contains information about the number of cases instituted in the courts during 2006-07.

As is evident from Table-3 during 2006-07 the process of disposal of cases is very slow. During the year a total number of 64 cases filed by the Board against the non compliance of the polluters. This shows the strength of the Board in monitoring and inspection against the polluting units. However, against which only 49 cases got disposed off. The highest number of cases lying with the High Court followed by the State Appellate Authority. More number of cases fall within the jurisdiction of PILs and Writs under the Hon'ble High Court and Supreme Court. It is felt that a delayed disposal of the legal cases slow down the process of environmental governance. To this efforts are needed for a quick disposal of the legal suits.

(iv) The Water (Prevention and Control of Pollution) Cess Act, 1977

The Water Cess Act was enacted in 1977 (amended in 1988) for levy and collection of cess on water consumed by the industries and local bodies with a view to augment the financial resources of the Central and State Pollution Control Boards. The cess combines the features of resource tax and effluent tax (Pandey, 1998). The water cess is collected by the State Boards for the state governments and by the Central Board for the union territories and credited to the consolidated fund of India. A proportionate amount is reimbursed to the State Government for making it available to the State pollution control boards after deducting the cost of collection (MOEF, 1987-88, Saxena, 1993).

ii). Monitoring

(a) **Ambient Air Quality Monitoring**

In collaboration with the CPCB, OSPCB has been regularly monitoring ambient air quality at 15 stations spread over 09 important industrial and commercial towns under National Ambient Air Quality Monitoring (NAAQM) programme. The NAAQM stations are located in the prime industrial areas of the state like Angul, Rourkela and Rayagada. In Angul area 3 such stations operate at Angul Town, NALCO township and TTPS in Rourkela area at IDL Sonoarparbat and Rourkela Municipality and in Rayagada two stations Rayagada town and Jakavpur industrial complex. Under the NAAQM programme, air quality parameters such as SO_2, NO_x and SPM are continuously monitored. Besides the above air monitoring stations under NAAQM programme, the Board has been periodically monitoring the ambient air inside some of the industrial premises and other sensitive places of the state for which there exists mobile monitoring stations. Vehicular pollution is also monitored in the busy towns from time to time. In the process of monitoring, air-polluting industries are identified by the Board and advised to install air pollution control measures/ equipments. As revealed from OSPCB (2007) during 2006-07, the Board has analysed 1858 numbers of industrial samples so far as air quality is concerned and 5424 numbers of ambient air samples through 15 air monitoring stations under both state and national programme. As narrated in the Annual report of the Board for 2006-07 in many places with industrial and residential air quality in the state exceeds the prescribed standard, and it is in the range of moderately polluted to highly polluted stage. In one station at Badambari bus stand it becomes critical which may be due to a large fleet of transport vehicles. After declaring the entire state of Orissa as pollution free zone the OSPCB has widened the monitoring activities in the field of air pollution.

(b) Water Quality monitoring

The Board has established water quality monitoring stations covering major rivers and their tributaries. Under the CPCB sponsored MINARS (Monitoring of Indian National Aquatic Resources) projects, surface water samples of four major rivers namely: Mahanadi, Brahmani, Baitarani and Rushikulya,Nagabali, Subarnarekha and their tributaries and distributaries are collected from 64 sampling/monitoring stations for analysis of 23 physico-chemical and bacteriological parameters. Besides the above MINARS stations, the Board is regularly monitoring on a monthly basis the water quality of river Mahanadi at 5 points and river Brahmani at 6 point. Apart from the above water quality monitoring programmes, the Board is regularly monitoring the effluents of industries in the state as well as the wastewater generated by urban human settlements. During 1996-97, the Board has monitored and analysed 1673 number of industrial samples and 1215 surface water samples through monitoring of rivers and lakes.

iii. Research and Training

The environmental research programme aims at developing strategies, technologies and methodologies for better environmental management. It also seeks to strengthen facilities and infrastructure to facilitate research and training of manpower for undertaking environmental research. The programme particularly aims at attempting solutions to the practical problems of resource management and provides necessary inputs for development and formulation of Action plans for degraded ecosystem. Research projects are funded in multidisciplinary aspects of environment protection,

conservation and management at various universities, research and development institutions and reputed non-governmental organisations.

OSPCB has always been keen in evolving new methodologies and means to control pollution. Survey and research are felt to be pre-requisites in realizing these objectives. The OSPCB has taken a stand to undertake collaborative research programme with leading Research institute and reputed universities.

To collect and disseminate information relating to water and air pollution, the prevention and control of such pollution and to make the public aware about such matters are some of the key functions of the Board. A centre in the name of "Pollution Awareness and Assistance Centre" has been created in the Board on 1.1.96 funded by the CPCB. Ever since its inception, the centre deals with public complaints relating environmental pollution and measures to redress them. It also publishes advertisements on pollution control and prevention activities and methods, and other popular publications in local dailies to create awareness among the various sections of the society. A strategy paper on "Public Relation" has been prepared and submitted to the OEP, in which emphasis has been given to include NGOs in creating public awareness.

As a matter of awareness and public participation, the OSPCB, is observing important occasions, State Board is observing World Enviornment Day every year on the 5th June in its head office as well as the regional offices. On December 2, every year, the memory of the World's largest industrial accident the 'Bhopal Gas Tragedy', the 'National Pollution Prevention Day' is observed. Also on the 16th September of every year, the World Ozone Day is observed by the Board. The occasions are observed by organising seminar, discussions, public meetings, debates and competitions among school and college students, by distributing pamphlets and posters, broadcasting slots in Radio and Television and organising rally and *padayatra* for spreading message relating to prevention of pollution and protection of environment.

The OSPCB organising and collaboratin in the organisations of various meetings, discussions,training,workshops and symposia to spread awareness and environmental education

iv.) Information Dissemination

The Board has a library comprising of books, journals, reports, periodicals and other documents including audiovisual materials, maps and atlases dealing with different aspects of environmental science and engineering. The Board is getting environmental information from National and International agencies. The Board has procured a CDS/ISIS software developed by UNESCO through which bibliographic data of reference pertaining to various aspects of environmental science and engineering, pollution by specific subject, author and title are collected and disseminated. At present the library is provided environmental clipping services to scientists, engineers and research scholars of different organisations. The Board has also undertaken recently to assess the environmental impact of festivals and therefore is widely advertising on different media to aware and educate the people.

V). Board's publications

The Board has published five volumes on Control of Pollution in industries of Orissa and two booklets on noise pollution and vehicular pollution, which contain lot of useful information. The Board also publishes a quarterly newsletter, 'Paribesh Samachar' that creates awareness among the general public. The important publications of the Board are Pollution Control in Industries in Orissa 5 Volumes, Staus Report of the

important places like industrial towns of Angul-Talcher, Rourkela, Rayagada, Bhubaneswar, Puri for tourist importance etc.

Apart from the above conventional functions few important activities of the OSPCB is note worthy:

OSPCB has always been keen in evolving new methodologies and means to control pollution. Survey and research are felt to be pre-requisites in realising these objectives. The OSPCB has taken a stand to undertake collaborative research programme with leading Research institute and reputed universities. In order to plan a comprehensive programmefor prevention and control of pollution the board has undertaken the following in recent years.

1. The Board has initiated the work for preparing a Regional Environmental Management Plan for Talcher-Angul-Meramundali (TAMRIT) area in Angul and dhenkanal districts of Orissa which is known for its high intensity air and water pollution. The Board has developed another such proposal for the rapidly industrializing Joda-Barbil in Keonjhar a tribal and forest dominated iron ore mining area. In 2006-07 Zoning Atlas for siting industries in the most back ward districts like Koraput, Rayagada, Malkangiri and Nabarangpur in Southern Orissa has been taken up by the Board. Under its water monitoring the Board also has initiated works for the protection and preservation of the endangered marine species like Olive Ridley Sea Turtles.

2. Agreement or contract paper (TOR) has been signed with the consultancy services at NORCONSULT International of Norway under NORAD project to strengthen the research cell of the Board under the agreement, air quality modeling of Angul-Talcher area, a CPCB-NORAD joint collaboration project has been undertaken.

3. Research work is being carried on utilisation of solid industrial wastes in effluent treatment, particularly pertaining to evaluation of the potentiality of blast furnace flue dust with removal of Hexavalent chromium, Cr (VI) from the effluent.

4.In collaboration with Regional Research Laboratory, Bhubaneswar, the Board has undertaken a research project on 'Abatement of Pollution caused by chromite mining and processing industries'.

5.Baseline environmental data collection for IB thermal at Banharpalli and Super Thermal power station, Kaniha has been undertaken.

6.Monitoring of Fluoride in and around Indian Aluminium Ltd. (INDAL) smelter, Hirakud is yet another research programme of OSPCB. Though the studies reveal a concentration of fluoride in surface and ground water below the permissible limit of 1.5 mg/l, there is much higher concentration in other segments of environment due to bio-accumulation and bio-concentration.

7.The other research projects of the state Board include ambient noise monitoring at Cuttack, Pollution Zoning Atlas of Sundargarh district in collaboration with RRL, Bhubaneswar, preparation of management plan for urban solid wastes in Berhampur, Sambalpur, Bhubaneswar, Cuttack and Puri Municipalities. The cost of these projects are shared by the municipalities and NORAD. Monitoring of water and soil in Hirakud command area with emphasis on pesticides and fertilizer, air quality monitoring at Bhubaneswar and status of urban solid wastes of towns in Orissa are carried on in collaboration with the ORITCO.

8.The Board has provided environmental training to its official in different institutions. During 1996-97, 47 officials of the Board have undertaken various programmes of training in different fields, of which 25 personnel got training regarding environmental protection, quality monitoring, environmental management, industrial safety and diaster

management, technology development, environmental law and legislations conducted in several institutions of national reputation spreading all over the country.

9.Apart from the above training to officials, the Board also provided training to other people who are outside the Board family. The Board conducted workshop on Public Liability Insurance Act, 1991 at Sambalpur to appraise the provisions of the Act to district collectors, police superintendents, and other officials of the Revenue Division.

10.In collaboration with the Small Industries Development Bank of India, the Board conducted a workshop on 'Environmental Management of Small Scale Industries' at Rourkela on 14.10.96. The programme was largely attended by owners and executives of small scale industries. The participants were made aware of the various provisions of environmental law and low cost treatment methods.

11.A training programme for law officers and advocates of the Board, other advocates and NGOs on pollution control law and other common laws was organised at Bhubaneswar during 13-16 January 1997 in collaboration with OSLAS. Luminaries like Mrs. Menaka Gandhi addressed the trainees in the workshop.

5. Performance in Angul-Talcher A Pollution Hot Spot:

It is important to note that OSPCB believes in decentralization and therefore, assigned responsibility and function to the regional offices at present working in 9 important places of industrial, mining and urbanization significance. The functioning of one regional office is desribed here.

The regional office of the OSPCB at Angul looks after the pollution problem of Angul-Talcher industrial area.

a).Composition of the Regional Office

The Angul regional office was established in April, 1988. Prior to its coming up as a full fledged regional office of the OSPCB, it was working only as an air monitoring station under the NAAQM scheme of the CPCB. The office is headed by a Regional Officer in the rank of an Environmental Scientists. To assist him there is one assistant environmental scientists and one assistant environmental engineer, who are to monitor and analyse samples collected from the field. Three field assistants with technical qualification are posted to look after three air monitoring stations under the NAAQM scheme. One senior technical assistant helps the scientists in the laboratory. In addition to the above technical personnel, there is one senior assistant, one junior assistant, a typist, two peons, two drivers and a watchman who help in the functioning of the office.

The regional office has a scientific laboratory collection of samples, monitoring and controlling of pollution. The laboratory has the following monitoring equipments.

Equipments	Type of Pollution to be monitored
High volume sampler	Air
Stack monitoring kit	Air
Smoke meter	Air
BOD incubator	Water
Ion analyser	Water
Water analysis kit	Water
COD analyser	Water
Oven for gravimetric analysis	Water
Sound meter	Noise

Apart from the above, the regional office also uses the monitoring kits and equipments of the various industries of the region. The office also has a mobile monitoring van for this purpose.

b). Functions of the Regional Office

There are three air monitoring stations under the NAAQM provisions of the CPCB located at its own office building, NALCO industry premises and the TTPS premises. The office monitors air quality daily in three stations and the report is submitted to the OSPCB every month. The emission of the air pollutants like $NO_{x,}$, SPM and SO_2 are analysed with reference to the prescribed norms. Besides air, water samples are regularly collected and analysed. Effluent analysis is a routine work of the office. Also it monitors the emissions from the stacks of the different industries in the region. Necessary directives are given to the undertakings to prevent and control any sort of pollution in excess of the prescribed norms.

Under MINARS river Nandira, the most polluted water stream of the state of Orissa, is also monitored and the water quality is analysed regularly on a monthly basis. Various points of the stream such as joining of industrial effluent channels, ash pond over flows of FCI, TTPS, NALCO are monitored and the confluence point of nandira and Brahmani at Kamalanga is studied. River Brahmani, its tributaries and distributaries are monitored at three stations in the region such as at Talcher upstream, Kamalanga and Kamalanga down stream.

As a part of its water monitoring activity, the office also looks after ground water quality regularly on monthly basis. Along with the Central Ground Water Board, a report has been prepared with regard to fluoride contamination in and around the NALCO smelter plant, Angul.

The regional office at Angul also enjoys the status of a regulatory body. On behalf of the OSPCB, it issues warnings against any deviation from the norms and standards of emission and effluent. NOCs for the new industrial units in Angul-Talcher area are issued by the OSPCB only on the recommendations of the regional office at Angul. As an agent of the State Board all the standards and legislations are enforced by the Regional office. Consent applications of the area are also processed through the regional office.

As a part of command and control, non-compliance of consent conditions leads to legal action against the polluters. For Angul-Talcher area there exists three such cases filed in the special court of Bhubaneswar against the large scale industries of the region. Two cases have been filed against TTPS under CRPC for non-compliance of consent condition and violation of Air and Water Acts. Apart from the above criminal proceedings there are two public interest litigation cases in the region. A non-governmental organisation called Mahamanab Nirved Satya Dharma filed a case against the state government and OSPCB regarding Brahmani River pollution. Similarly villages of Takua, filed a case against the NTPC, State government and OSPCB regarding the water pollution caused by the industry.

Unlike Angul the other regional Offices also take care of environment in the respective locations.

6. An Assessment:

From the above analysis it is found that the OSPCB like all other State Boards routinely function for its duties and responsibilities for the purpose it has been created.

But few important shortcomings are also found which inhibits its proper and smooth functioning.

First of all as an institution of command and control in most of the cases of inspection and assessment even closure, the board works only on public complain. So far as formulation of location specific and situation specific standard is concerned the Board has not much but to carry out minimum sample tests and certify that the industries strictly follow the standards. One of the reasons for ineffective monitoring is the lack of technical skills of the PCBs. All this shows the improper functioning of the Board.

The Planning Commission study revealed that the PCBs are very poorly staffed. The study highlighted the predominance of non-technical members in most of the Boards, the lack of professionals in the composition of the Boards, and also the tendency to not fill vacancies of members representing local bodies. Thus, both motivationally and in ability, the PCBs are ill-structured. The same is the case with OSPCB as many of the required post are lying vacant. So a poorly staffed and inadequately equipped Board works inefficiently.

Financial inadequacy is an important feature that leads to failures in the functioning of the Board. Since the Board depends upon important sources are the consent fee, no objection certificate, and Water Cess paid by the industrialists and the local authorities. This may lead the possibility that the Board may issue consents subject to conditions that favour the industries rather than protect the environment this may reduce its effectiveness as a control body. However in case of OSPCB it is interesting to note that the Board fails to spend the money it has allocated and collected as per the budget provisions.

Information is power and lack of information fails to check environmental injuries. OSPCB as a regulatory body is supposed to disseminate information freely but many times information is not shared in the name of confidentiality and secrecy.

Given the increasing levels of environmental pollution the PCBs are not free from the influence of interest groups. Politicians, union leaders and industrialists exercise greater pressure on the functioning of the board.

Since OSPCB does not possess punitive power a simple recommendation by the Board does not bear any fruit.

As is evident from the Annual Reports no doubt the Board is monitoring the total environment of the state under its command and control mechanism yet it is found that in many places the ambient quality of air and water exceeds the prescribed standards. The harmful pollutants like RSPM, SPM are in excess of the ambient norm in case of Angul, Rourkela, Rayagada, Cuttack and even in the localities where the Offices of the Board is located. So is the case with water in the rivers like Mahanadi, Brahmani and Rushikulya. In case of biodiversity the excess concentration of pollutants in rivers and water bodies pose a threat to the important species like Olive Riddley Turtles and many fish species and Dolphins in the state. Similar is the case with the heavy metals concentration. An important failure of the Board is regarding location of the NALCO Smelter plant in a place which is already endemic to natural concentration of Fluoride.

The study reveals that the role of the Board is of great importance but the achievements are not fully realized. It fails to internalize the environmental externalities in the process of economic development. This is mainly because of the deficiencies narrated above. Lack technical and scientific staff, prevalence of uncertainty over

resource base, presence of the influence of the interest groups, absence of punitive measures, lack of effective and efficient working culture, and non-disclosure of information etc are important issues need immediate attention. So it needs to restructure the State Boards, empowering them to impose fine and other punitive actions and provide adequate fund for self reliance.

Success or failure of environmental legislation in our country and hence in Orissa depend upon the appropriate and adequate functioning of the Pollution Control Boards. Therefore there is an urgent need of upgrading and strengthening the State Pollution Control Board in Orissa.

7. Conclusion

The OSPCB and its Angul functionary supervise the norms of a command-control mechanism in the region. But it is too well known now that regulation alone is not enough for, in theory and practice, it is less efficient than innovations in market mechanism. It is felt that environmental governance in India should be done through a combination of command principles and market based incentives. Besides, the fiscal instruments which are in use now, do not meet the requirement very well. Investment subsidy and depreciation allowance for pollution control machinery do not render the polluters fully responsible. They can enjoy the subsidy and have pollution control devices, but may not operate them. Because, subsidy alone is a weak incentive to the polluter not to pollute. It is, therefore, necessary to combine regulation and subsidy with other fiscal incentives such as the pollution (Pigovian) tax. Imposition of emission charge or environmental excise duty should have to be chiseled under national fiscal management. The environmental control regime in the country has to change and to be dovetailed to the governance of public finance. However, till a new regime that combines MBIs with command principle comes into being the existing fiscal instruments can be modified, upgraded and used for the purpose along with the command and control measures.

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9. TABLES

Table 1: Status of Consent to Establish Industries in Orissa during 2004-05 to 2006-07

Sl. No	Year / Description	Large and Medium	Small Scale	Stone Crushers	Brick Kiln	Total
1	2004-05					
	Total	400	438	164	123	1125
	Complete	220	327	107	68	722
	Incomplete	180	111	57	55	403
	Granted	181	174	24	14	393
	Refused	04	34	42	37	117
	Under Process	35	119	41	17	212
2	2005-06					
	Total	385	527	112	75	1099
	Complete	224	288	66	42	620
	Incomplete	161	239	46	33	479
	Granted	218	281	54	23	576
	Refused	06	07	05	07	25
	Under Process	00	00	07	12	19
3	2006-07					
	Total	1002	125	119	18	1264
	Complete	514	125	109	06	754
	Incomplete	488	00	10	12	510
	Granted	497	124	72	05	698
	Refused	17	01	02	01	21
	Under Process	00	00	35	00	35

Source: Annual Reports 2004-05,05-06 & 06-07 of OSPCB,

Table2: Status of Consent to Operate Industries in Orissa during 2004-05 to 2006-07

Sl. No	Year / Description	Large and Medium	Small Scale	Stone Crushers	Brick Kiln	Total
1	2004-05					
	Total	360	276	165	20	821
	Complete	337	234	120	15	706
	Incomplete	23	42	45	05	115
	Granted	262	176	22	03	463
	Refused	58	28	64	07	157
	Under Process	14	30	34	05	83
2	2005-06					
	Total	461	204	NA	NA	665
	Complete	417	172	NA	NA	589
	Incomplete	44	32	NA	NA	76
	Granted	292	108	NA	NA	400
	Refused	19	28	NA	NA	47
	Under Process	319	36	NA	NA	355
3	2006-07	NA	NA	NA	NA	
	Total	NA	NA	NA	NA	1837
	Complete	NA	NA	NA	NA	
	Incomplete	NA	NA	NA	NA	
	Granted	NA	NA	NA	NA	1259 (Including SCN)
	Refused	NA	NA	NA	NA	20
	Under Process	NA	NA	NA	NA	549
		NA	NA	NA	NA	

Source: Annual Reports 2004-05,05-06 & 06-07 of OSPCB,

Table 3: Status of Legal Cases in different Courts during 2006-07 filed by the Board (As on 31-03-07)

Sl. No	Name of the Court	No of Cases	
		Filed	Disposed
A	Lower Court(SDJM)		
1	Water Act	00	01
2	Air Act	00	00
3	Environment Protection Act	05	00
B	High Court		
1	PIL	08	01
2	WRIT	25	15
C	Supreme Court		
1	PIL	00	00
2	WRIT	00	00
D	Other Court		
1	Civil Suit	01	00
2	Consumer Dispute Cases	03	00
3	Lokpal Cases	02	01
4	Cases U/S 133 Cr PC	02	00
5	Cases Before the State Appellate Authority	23 (19 A+04 W)	21(18 A+03 W)
6	Cases Before the National Appellate Authority	03	00

Source: Annual Reports 2006-07 of OSPCB,