

## **Evaluation Study on Functioning of State Pollution Control Boards**

Historically, the efforts at pollution control in India date back to mid nineteenth century. Many of these Acts dealt with environmental regulation in a piecemeal manner, were incidental in nature and proved ineffective in reducing the levels of pollution. The landmark in the recent times in environmental regulation was the passing of the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981. The Water Act, 1974 resulted in the institutionalization of pollution control machinery by establishing the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs).

The unfortunate Bhopal Gas tragedy precipitated the environmental regulation. Ministry of Environment and Forests with greater powers resulted. An umbrella act called the Environment (Protection) Act, 1986 was passed which vested the Pollution Control Boards with wide powers. Basically the measures adopted for environmental regulation are those of command and control.

### **Functions of SPCBs**

The SPCBs seek to achieve their objectives through three instruments - (a) consent to establish producing units (NOC), (b) consent to operate, and (c) standards for air and water pollution. The specific functions of the SPCBs include; (a) formulation of preventive measures; (b) laying down standards; (c) technology development which is environment-friendly; (d) control of pollution through inspection of industrial units; (e) regulation of location of industries; (f) disposal of hazardous wastes; and (g) collection and dissemination of information on the prevention and control of pollution.

### **Reports on Strengthening SPCBs**

The functioning of SPCBs has been reviewed by four committees / study groups viz. (1) Bhattacharya Committee, 1984; (2) Belliappa Committee, 1990; (3) the ASCI Study of 1994; and (4) Sub-Group, 1994. These studies have primarily been done at the instance of SPCBs / CPCBs. They highlighted, inter-alia, the need for adequate financial backing and appointing powers to the Boards, revising the categorisation of industries, use of economic incentives, enhancement of awareness generation among the general public.

## **The Study**

The present study was taken up at the instance of Planning Commission, with a primary objectives of understanding the functioning of the SPCBs and their efficacy in controlling water and air pollution, finding out the efficacy of functional tools employed by them in carrying out their objectives and identifying the constraints to their effective functioning.

## **Reference period**

The reference period of the study is six years, viz., 1992-93 to 1997-98, which covers the entire Eighth Plan period.

## **Study Design**

The SPCBs of all the 25 States were included in the Study. The primary information on the composition of Boards, sources of revenue, expenditure pattern, organizational structure, availability of building and laboratory facilities, R & D, monitoring mechanism, prevention activities etc was collected from all the SPCBs. Secondary information was collected from the publications of MoEF, CSO, CPCB, SPCBs, etc.

## **Layout of the Report**

This report contains 5 chapters. Information on organizational structure and its adequacy in terms of meeting the objectives is in Chapter 3. Chapter 4 analyses the financial position of the SPCBs and Chapter 5 gives an overview of some aspects of the performance of SPCBs.

## **Organizational Structure of SPCBs**

The Water Act, 1974 specifies the composition of the Boards. This study highlights the predominance of non-technical members in most of the Boards and the lack of professionals in the composition of Boards. It also highlights the tendency in Boards not to fill the vacancies of members representing local bodies. The State Boards of Assam, Karnataka, Bihar, Manipur, Tripura and Goa are exceptions to the above as they have maintained a balance between professionals and generalists. The report also refers to frequent changes of the Chairmen of SPCBs.

This study has attempted to correlate pollution intensity and the variables representing staffing pattern. The hypothesis that pollution intensity is directly proportional to the availability of staff per industrial unit does not bear out.

Non-filling of the sanctioned strength is one of the predominant factors behind the widely varying per unit staff ratios across SPCBs. The absence of any norm for staffing may also have contributed to this. In Andhra Pradesh one technical person has to monitor hundred units where as Kerala and Himachal Pradesh have fourteen and twelve persons respectively for the same task.

All State Boards of the North East (with the possible exception of Assam) are crippled with gross inadequacies of manpower. Some of them are unable to perform even basic functions like inventorisation of polluting units.

There are wide variations across State Boards in the ratio of technical to non-technical staff. The highest ratios are with the State Boards of Punjab and Bihar while very low ratios are associated with those of Haryana, Himachal Pradesh and Goa.

The primary functional tool deployed by SPCBs in controlling pollution is the inspection of polluting units. Due to shortage of staff all scientific, engineering and laboratory staff are being deployed for this purpose to meet the norms fixed by the CPCB.

## **Finances of SPCBs**

The financial resources of a State Board consist of (1) own resources like reimbursement of water cess, consent fee collections, interest on investments, sample testing fees, consultancy receipts, receipts from sale of forms, fines and forfeitures and (2) external assistance in the form of grants-in-aid from Central and State Governments, project-based grants from CPCB and other grants.

Analysis of the relative positions of 25 SPCBs suggests that on one end of the spectrum there are State Boards like Manipur, Meghalaya, Tripura, Jammu & Kashmir and Kerala which are primarily dependent on grants-in-aid and at the other end there are States like Orissa, Haryana, Punjab, Uttar Pradesh, Maharashtra, Tamil Nadu, Andhra Pradesh and Karnataka which have a high ratio of own resources to total resources. Bihar, which also has 94% of its revenue from own resources, suggests helpless dependence on its own insufficient resources in the absence of any grants-in-aid.

Another finding of this study is that the structure of consent fee and other fees differs widely across States, which suggests at least inequitable horizontal treatment of industrial units. The ratio of consent fee to total revenue is considerably higher in the State Boards of Tamil Nadu, Andhra Pradesh, Karnataka, Haryana, Punjab and Assam than in others.

Reimbursement of water cess constitutes an important source of revenue in States like West Bengal, Orissa, Bihar, Punjab, Uttar Pradesh and Rajasthan. North Eastern States and Jammu & Kashmir have no revenue from this, probably, on account of low level of industrial activity.

The figures of reimbursement of water cess furnished by the MoEF differ from those furnished by the SPCBs, which is a cause of concern for proper reporting and monitoring.

The cess on water covers only specified industries. Some SPCBs find it disadvantageous, as their industrial profile is different and feel that the coverage should be expanded.

The local bodies, which are financially weak, are mostly unable to pay water cess to the State Boards.

An analysis of the expenditure incurred by SPCBs during the Eighth Five Year Plan shows that the primary expenditure was on administration (57 percent). The ratio of capital expenditure to total expenditure was about 14 percent. Maintenance, depreciation and other expenses constituted the major chunk of the remaining part. It follows that the expenditure on crucial items like pollution prevention activities, R&D, training etc. was negligible.

A paradoxical situation has arisen when whatever little resources raised by SPCBs are not fully spent and huge surpluses are built up by many Boards, despite a need for expenditure on infrastructure, R&D etc. This is primarily because of the lack of autonomy in 'expenditure decisions'.

This study has attempted to analyse the relative positions in resources and expenditure by building an index of the growth rate of expenditure, growth rate of own resources, per unit availability of own resources and per unit availability of expenditure. The results tend to suggest that none of the State Boards fare well in the overall ideal index, despite some strong growth rates in some of these parameters.

The position of SPCBs in the North Eastern States (except Assam) in financial terms presents a dismal picture. Their resources are low, yet some of them have huge surpluses, which are pointers towards the lack of functional autonomy and distinct identity.

When viewed against the levels of pollution control infrastructure required by the SPCBs and the huge surpluses run by some of them, the SPCBs are caught in a low-level equilibrium with distinct lack of functional autonomy.

## **Performance - some aspects**

### **Inventorisation**

An attempt is made in the Study to understand the nature of classification of industries adopted by Central Pollution Control Board by matching the same with National Industrial classification of the CSO and to examine the extent of inventorisation achieved by the SPCBs. This has been done for industrial units falling in the 17 categories of highly polluting industries (HPUs). Number of units inventorised by the SPCBs as a percent of the number estimated from the Annual Survey of Industries is very low in a majority of States. Again, it is found that the levels of inventorisation of hazardous waste generating units are less than complete in the States of Andhra Pradesh, Kerala, Tamil Nadu, Bihar and West Bengal and that when the inventorised units are taken, the percentage of units operating with licenses is not satisfactory in a few States.

### **Jurisdiction**

One of the major sources of air pollution is vehicular pollution, the control of which is beyond the jurisdiction of most of the SPCBs. This makes it difficult to relate the trend movement in air pollution to the efficacy of SPCBs in containing the same. Similarly, in the enforcement of Public Liability Insurance Act, SPCBs are differently empowered. Not all SPCBs are entrusted with the responsibility of preparing Zoning Atlas for their respective States.

### **Standards and Compliance**

Complying with the minimum National Standards (MINAS) fixed by the CPCB requires near-the-maximum effluent reduction technically achievable. It has been found that a significant proportion of units discharging trade effluents to water stream do not have treatment plants in the States of Assam, Tamil Nadu, Punjab, Kerala, Karnataka, Gujarat and Haryana. Similarly, a considerable proportion of units emitting air pollutants do not have any air pollution control measures in the States of Punjab, Assam, Bihar, Gujarat, Karnataka and Kerala.

It has also been observed that significant proportion of polluting units, which have some treatment mechanism, do not comply with standards. The punitive action by SPCBs is more or less tied up with litigation and considerable proportion of cases is pending for more than a year. The SPCBs are, sometimes, not able to exercise the powers to force compliance by stopping electricity supply or water because of interference by powerful pressure groups.

## **Monitoring Water & Air Pollution**

NAAQM (National Ambient Air Quality Monitoring) was initiated by CPCB in 1984 to monitor air pollution in 290 stations all over India. The percent of stations operational is quite low in Bihar, Haryana, Maharashtra and Karnataka. The frequency of monitoring under NAAQM is generally lower than the norms prescribed for this purpose. This study found that the low level of funding is an important factor behind the less-than-adequate monitoring regime.

WQM (Water Quality Monitoring) with a network of 480 stations in 21 States and 4 Union Territories also suffers from similar problems in deficient measurements and non-operational stations, again primarily a result of low level of funding.

The trends in water and air quality reported from the NAAQM and WQM stations do not reflect directly upon the efficacy of activities of pollution control by SPCBs, as the sources of pollution could be both industrial and non-industrial and SPCBs have, in their present state, little to do with non-industrial pollution.

## **Consent Mechanism**

The data made available suggest that despite some lacunae in maintaining the data and absence of standardization, applications for consent are generally being disposed off within 120 days.

## **Regional Network**

There is no discernible norm for establishing the network of regional offices for SPCBs. This study has attempted to check the adequacy of the same across a sample of States. It has been observed that there are some deficiencies in this regard as regional offices are not established in some industrialised districts / areas of these States.

## **Training, Awareness & Publicity and Research**

- While most SPCBs claim to conduct training on their own or through external facilities, the percentage of expenditure incurred on training during 8<sup>th</sup> Plan remained abysmally low.
- A variety of programmes in generating environmental awareness and publicity are being undertaken by SPCBs. Considering that pollution prevention is a strategic objective, the levels of spending are meagre to make any sustainable impact.

- One of the important objectives of the SPCBs is to provide/develop technology, which is environmentally sustainable. The efforts of R&D by SPCBs have not produced much considering the low level of funding or importance attached to R&D.

## **Recommendations and Suggestions**

Based on the findings of the functioning of SPCBs, the following recommendations and suggestions are made.

### **General**

The SPCBs exist to provide a public service – that of reducing existing pollution levels in the country. The first and foremost requirement is to understand the existence of the pollution levels in various forms. SPCBs, in their functioning, have been reduced to Industrial Pollution Control Boards. Scientific studies on the level of (non-vehicular) non-industrial pollution in the country as a whole are not available. According to one estimate, industries contribute only 20% of the water pollution. Similar is the figure for Air pollution caused by industries. In cities, vehicular pollution contributes 50 to 70 percent of air pollution, the control of which is outside the purview of most SPCBs. It is essential to quantify the pollution levels across the country by causes/sources in order to effectively check pollution. It is, therefore, suggested that a 'State of Environment Report' be prepared for each State. An action plan along with strategy for achieving the same may also be prepared so that these can be built into the Tenth Five Year Plan proposals.

One of the main findings of this study is the mismatch in the classification of industrial heads made by CPCB and Annual Survey of Industries. From whatever alignment has been possible between the two, it has also been found that the inventorisation of polluting industries by SPCBs is not complete. A large number of small industries (capable of high levels of pollution) seem to have been left out. Therefore, it is suggested that a one-to-one or close correspondence be established between the two classifications. It is also suggested that a comprehensive study be conducted to know the extent to which industries have not been inventorized by SPCBs. This may be done by a committee of experts drawn from CPCB, NSSO, and Industries Depts. of State Governments, after which SPCBs would be able to complete inventorisation of polluting industries.

Pollution prevention is an area of activity, which requires serious attention. Some amount of work is being undertaken by CPCB and some SPCBs in creating environmental awareness amongst public. However, as revealed by this study, the percentage of expenditure on such activity is negligible as of now. Serious consideration should be given to address this issue, as non-vehicular and non-industrial pollution is a major issue, which needs to be

tackled at various levels. It is, therefore, suggested that pollution prevention activities are stepped up and institutional arrangements made for creating environmental awareness.

## **Organisation**

The Water (Prevention and control of pollution) Act 1974 lays down the constitution of the State Pollution Control Boards. It has been noted that the representative character of the Board members is not wide and for all practical purposes the Board is bureaucratized. It is suggested that the guidelines for members' nomination should be laid down to ensure representation of academics, legal professionals, environmental activists and NGOs. Certain degree of environmental awareness and exposure to environment related issues/ works should be made an eligibility criterion for membership. Secondly, it is also suggested that the tenure of the Chairman be fixed for sustaining policies and programmes. A multi-disciplinary approach to solving the problems of pollution may have to be adopted by inducting professionals from health and environmental economics.

One of the important findings of this study is that the staffing pattern of some SPCBs is highly skewed with domination by non-technical staff. Given the limited resources, it is desirable that this bias is set right. It is suggested that the existing administrative staff may be re-trained and oriented to technical works of elementary nature. This would entail a procedural review of the various functions being carried out, introduction of a fair degree of Desk Officer system and computerization of these organizations. CPCB may lay down a broad norm for an appropriate ratio between technical staff and non-technical staff. The norms and procedures laid down for supervision of polluting industries should be reviewed, because, in a 'Command and Control' paradigm it is difficult to ensure compliance without repeated testing if polluting units do not comply with standards or choose not to operate ETPs or there is a collusion. Also, SPCBs, given their relative financial and staff positions, may be provided differential norms for monitoring per person based on regional geographical dispersion of the polluting units. A minimum frequency of monitoring should be laid down as a benchmark to ensure compliance with standards.

It has been noticed from the study that State Boards are running surpluses even when their basic infrastructure requirements are not fulfilled. This is a direct consequence of the lack of financial autonomy to the SPCBs. It is suggested that broad guidelines be laid down by the respective State Governments and functional autonomy be given to SPCBs for appointment to vacant posts and creation of posts in the scientific and engineering category carrying higher scales and in undertaking capital expenditure. The SPCBs of the North East,



some of which have even not started inventorising polluting units, may be bestowed with such powers and facilities which will enable them to initiate the process.

It has been observed that the basic formation available for controlling pollution (regional/sub regional offices) in some SPCBs is inadequate in absolute terms and also in their staffing. It is suggested that CPCB should undertake a detailed study of the state-wise regional pollution control requirements in terms of the location, size and per-unit staff ratio. If some State Boards are unable to raise resources that are adequate to conform to the norms for reasons beyond their control, CPCB should provide budgetary support to them.

Belliappa Committee has recommended certain measures, which do not seem to have been accepted by the PCBs. It is not clear as to what alternative proposal is being considered for fulfilling the staff requirements to address the concerns of gross inter-state disparities in staffing pattern which was highlighted in the XXXI Conference of the Chairmen and Member Secretaries held on 7.8.1990. It is suggested that whenever a committee of experts is appointed, the acceptance / rejection of the report by concerned Ministry / State Government be made within a reasonable time after submission of the report. In case of rejection of the report, the committee members should be given an opportunity to be heard of the reasons for the decision and the alternatives being explored.

## **Financial**

It is evident from Chapter IV that while some SPCBs like those of Maharashtra, Karnataka, Tamil Nadu and Uttar Pradesh are having large own resources, those of the North East, J&K, Himachal Pradesh, Kerala, Goa and Rajasthan are not. The main source of revenue of the SPCBs, given the low financial capacity of the States, is their own resources out of which reimbursement of water cess is a major item. While consent fee is also a major revenue, it is nevertheless water cess which, given the industry-orientation of SPCBs, could bring buoyancy in revenue to them. It has been a long felt demand of the States that water cess should not be selective and should cover all industries. MoEF may seriously consider this.

One of the findings of this study is that some States are running large surpluses, while there are infrastructure inadequacies. The amount of money spent on environmental awareness, training and research leaves much to be desired considering the levels of industrial and non-industrial pollution. It is suggested that special emphasis be given to training (including retraining and re-orientation of non-scientific staff) on pollution prevention and control. A plan scheme for capacity development may be included in the Tenth Five Year Plan. Also as already suggested, the expenditure on research should be

increased considering the need for building public environmental awareness. This can take the form of institutionalising the same in the formal and non-formal education system.

It is observed that the consent fees charged by SPCBs differ widely. Also, consent fee collections as percentage of total receipts is different across SPCBs. The CPCB may evolve a consent fee structure valid for all SPCBs. The fee structure may differentiate between different scales of operation, say cottage industries, small, medium and large scale industries, and, industries may be classified into a manageable number of categories on the basis of their pollution potentials and the rates may be differentiated accordingly. Such a fee structure with graduated scales will secure the advantages of (a) relating the pollution potential of industrial units with the amount of consent fee charged from them, and (b) aligning consent fee collections with the requirements of pollution control in the respective States.

It is observed that the shortcomings with the NAAQM and WQM monitoring can, to a great extent, be attributed to the insufficient financial provision for these activities. It is suggested that the annual per station norm for NAAQM and the per sample norm for WQM should be revised by the MoEF. The Ministry should also consider financial requirements of re-locating monitoring stations, the need for which arises due to dynamic changes in locational features.

## **Functions**

SPCBs in their present form are functioning as industrial pollution control boards. In almost all States, the vehicular pollution is mostly outside the purview of SPCBs. While it is inevitable that vehicular pollution prevention is to be vested with Road Transport Authorities, it is suggested that concurrent jurisdiction in penal action on erring vehicles be vested with the SPCBs and the fines arising thereof may be used to fund these operations.

There is a wealth of information available on the need for introducing Market Based Instruments (MBIs) in pollution control system. The main argument forwarded in favour of this approach is that uniform standards of pollution within an industry irrespective of the scale of operation, though legally valid and desirable, are inequitable. It is suggested that common effluent treatment plants (CETPs) be set up by SPCBs / private bodies in industrial clusters where large number of polluting SSIs are available and units be charged as per the marginal cost of abatement of pollution.

It is very much evident from the study that; only about 38 percent of polluting large scale units are complying with the standards; many units may not operate the ETPs if running cost is high/ lax supervision/ collusion; those units which neither have the treatment facility nor have made any attempt to treat them through CETP, have been polluting till such time

judicial process sets them right. To obviate the above problems, it is suggested that the Acts may be amended to provide quasi-judicial powers to enforcement officers of SPCBs. Such powers should include powers (a) to levy spot fine in case of violations, which should be 5-10 times operational cost of running the ETP for the period before the last visit and the earlier one, (b) to provide for arrest/detention of persons responsible for toxic waste pollution; (c) to call for documents which might throw light on the above issue and (d) to record statements. This process is to be backed up by an Appellate Authority, which can provide remedy for industries in case of departmental abuses/excesses.

The functioning of SPCBs as of now precludes participation of local populace of the industrial cluster, who may be directly affected by pollution of their environment. There is also no transparency in the pollution control administration and dissemination of information to the public whose interests the SPCBs seek to protect. It is suggested that the pollution control could be better administered and monitored, if local community action groups are created/sensitised to take up vigilant community action against pollution. This could, perhaps take the form of this group monitoring periodically the samples generated by the polluting industries and getting the same tested in private labs. Funding for such activity is to be provided under SPCB separately. This would effectively prevent polluters-authorities nexus. SPCBs could also impart necessary training to such groups.

Apart from the above, it is desirable that transparency in 'consent' sanction is established. Details of applications, reasons for rejection, date of sanction, etc. could be computerised and periodically published in the SPCB web-site. The pollution control activity seems to have seriously been provided momentum after the Bhopal gas tragedy. There is no comprehensive documentation of the lessons from the tragedy. The MoEF may like to place before the public the action taken by pollution control machinery to identify, relocate and build into the process of consent such dangerous industries from highly populated areas.