# CHAPTER V

# PERFORMANCE OF FUNCTIONS BY THE SPCBs-SOME ASPECTS

This chapter dwells upon some important aspects of physical performance of the State Boards. Barring some fresh initiatives, the SPCBs have largely remained as agencies for control of industrial pollution. Hence, this chapter attempts to evaluate the extent of success achieved by the State Boards in inventorising polluting industrial activities, ensuring compliance with the established standards for water and air pollution, observing the required frequency in air and water quality monitoring, according consents within the stipulated time, establishing a State-wide network that is commensurate with the task at hand, co-ordinating and organizing programmes for pollution prevention, promoting research and development and environmental training, etc. Major operational constraints faced by the State Boards in performing the above-mentioned functions are also discussed.

5.2.1 The analysis of the levels of achievements reached by the SPCBs in performing their functions as enshrined in the Pollution Control Acts is beset with enormous statistical and conceptual difficulties. Some of the serious problems are examined below:

5.2.2 The industry heads contained in the classification made by the CPCB of polluting units into red, orange and green units do not tally with those in the National Industrial Classification (NIC) adopted by the Annual Survey of Industries (ASI) of the Central Statistical Organization. This is especially so in the listing of green category of polluting units. The need for a one-to one/ close correspondence between the two classifications arises when one needs to examine the degree to which polluting units have been inventorised by the State Boards. Undoubtedly, with a wider network and longer standing than the PCBs, the CSO must have a broader database of industrial units across the country. The NIC, which bases itself on the values of principal products manufactured by registered industrial units, does not take stock of the pollution potentials of industrial units. However, with the decomposition of industrial units available upto the $8^{th}$ digit, it should not be difficult for the CPCB to pick out from the NIC, industry heads that are strictly comparable, if not identical, to its requirement. The Summary Results of Annual Survey of Industries, published by the CSO, combining the results of census and sample surveys, offer the closest approximation of industry characteristics in the registered manufacturing.

5.2.3 The number of units inventorised by a State Board cannot be taken to be the number of polluting units in the concerned State as there are observed deficiencies in the degree of inventorisation achieved by different State Boards. (This point is detailed in section 5.3). Inventorisation of polluting units should ideally be preceded by an inventorisation of all industrial units in the State. This can be realized only when the SPCBs work in close coordination with other governmental agencies, which undertake industrial surveys.

5.2.4 The second problem is one of under-defined and arbitrarily assigned jurisdictions in pollution control. For instance, while monitoring of air pollution is the

prerogative of the SPCBs, the control of vehicular pollution, the one of the important sources of air pollution is vested mostly with the State Transport Authority in majority of States. This renders it almost impossible to disentangle the effect of the control mechanisms employed by the SPCBs on the trend movement of air pollutants. (This is detailed in section 5.5). Again, the involvement of SPCBs in the implementation of the Public Liability Insurance (PLI) Act differs considerably across States. The State Boards of Bihar, Tamil Nadu, Orissa, Assam, Himachal Pradesh, Rajasthan and Madhya Pradesh have identified the units to be covered under PLI Act and urged them to take the requisite insurance policies. The Karnataka Board, though not vested with the powers under the Act, claims to have identified certain units to be covered under the Act. Kerala Board's role in this respect limits only to serving notices to the identified units. The State Boards of Uttar Pradesh, Maharashtra and West Bengal have reported that the implementation of the Act is outside their jurisdiction. Again, the regional and sub-regional offices of different State Boards are variedly structured and empowered. Finally, not all State Boards are entrusted with the task of preparing the zoning atlases for the districts coming under their respective jurisdiction.

5.2.5 Incomparable and inadequate database of different State Boards is a major factor that precludes an exhaustive analysis of their performance. This point will become amply clear in the sections that are to follow.

**Degree of Inventorisation of HPUs**

5.3.1 The degree to which the industrial units falling in the 17 categories of highly polluting industries operating in a State have been inventorised by the concerned State Boards can be one of the criteria for assessing the vigil kept by the Board on industrial pollution in the State.

5.3.2 Column 2 of table 5.1 gives an approximation of the number of industrial units that are potentially high polluting. This number is arrived at by picking out the number of factories under comparable – in most cases identical – industry heads at the 3 digit level from the Annual Survey of Industries 1994-95, Summary Results for the Factory Sector. The Column 3 gives the number of 17 categories of HPUs inventorised by the SPCBs. The ratio of Column III to Column II presented in Column IV gives an indication of the extent of inventorisation achieved by the State Boards. The ratio 113.3 achieved by Haryana is feasible, for, the ASI covers only those units which are employing 10 or more workers and using power and those employing 20 or more workers but not using power. This, it may be noted, is sufficiently large a scale to generate considerable quantum of effluent or emission.

5.3.3 While there are only two State Boards – those of Haryana & Orissa having ratios in excess of 80%, another two – those of Uttar Pradesh and Goa – possess ratios which hover around 50%. The abysmally low ratios associated with the SPCBs of Tamil Nadu, Punjab, Rajasthan, West Bengal, Himachal Pradesh, Bihar, and Madhya Pradesh need to be closely analysed. A host of factors may have to account for this dismal picture.

**Table 5.1: State-wise distribution of estimated and inventorised number of HPUs.**

| State | Estimated No. of HPUs | No. of HPUs inventorised | No. inventorised as % of No. estimated |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Andra Pradesh | 550 | 220 | 40.00 |
| Assam | 33 | 15 | 45.45 |
| Bihar | 226 | 62 | 27.43 |
| Goa | 14 | 7 | 50.00 |
| Gujarat | 551 | 200 | 36.30 |
| Haryana | 203 | 230 | 113.30 |
| Himachal Pradesh | 51 | 12 | 23.53 |
| Karnataka | 273 | 120 | 43.96 |
| Kerala | 78 | 24 | 30.77 |
| Madhya Pradesh | 371 | 103 | 27.76 |
| Maharashtra | 845 | 335 | 39.64 |
| Orrissa | 111 | 92 | 82.88 |
| Punjab | 413 | 58 | 14.04 |
| Rajasthan | 347 | 49 | 14.12 |
| Tamil Nadu | 1280 | 188 | 14.69 |
| Uttar Pradesh | 1438 | 735 | 51.11 |
| West Bengal | 400 | 73 | 18.25 |

5.3.4 One important factor that might have led to these poor ratios is the non-inventorisation of small-scale units in the category of highly polluting units. It may, however, be noted that the CPCB listing of high polluting units is not attached with any threshold scale of operation, beyond which only an industrial unit may be treated as highly polluting. Secondly, the lucid and non-specific listing of industries by the CPCB has led to a divergence between specification of industry heads by ASI and CPCB, which, in turn, may have contributed its bit towards a big difference between Column 2 and Column 3 of Table 5.1 in the case of some State Boards. A third factor may be the sheer ignorance of the SPCBs about the existence of some highly polluting units in their respective States. The major causes for such ignorance could be the inadequate network of some of the SPCBs, (detailed in section 5.8) which render the full coverage of the State impossible and the lack of interdepartmental coordination, especially between the SPCBs and the field units of NSSO and DCSSI. The last factor could be the closure of some highly polluting units between 1994-95 and 1997-98. This may be an insignificant factor if closure of such units has been counter balanced by the opening up of new polluting units. In the final analysis, it remains that the anomaly factors (such as specification differences and closures) can explain only a portion of the observed differences between the inventorised and actual number of units and that the level of inventorisation of highly polluting category is low, in varying degrees, across State Boards. It is learnt that the inventorisation of small-scale units in the highly polluting category is yet to gain momentum. Low level of inventorisation is further evidenced in the case of hazardous waste generating units.

**Table 5.2: State-wise distribution of hazarduous waste generating units.**

| State | Inventorised number of HWG units | Estimated number of HWG units | No. with licence as % of column 2 | no. of sites identified for disposal | no. of sites operational |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| Andhra Pradesh | 233 | 744 | 98.71 | 2 | 0 |
| Assam | 18 | 31 | 100 | 0 | 0 |
| Bihar | 36 | 146 | 91.67 | 2 | 0 |
| Goa | 23 | 28 | 95.65 | 0 | 0 |
| Gujarat | 2376 | 1362 | 98.15 | 19 | 0 |
| Haryana | 299 | 178 | 100 | 1 | 0 |
| Himachal Pradesh | 78 | 25 | 76.9 | 1 | 0 |
| Karnataka | 325 | 333 | 88.31 | 2 | 0 |
| Kerala | 64 | 229 | 92.19 | 0 | 0 |
| Madhya Pradesh | 166 | 191 | 100 | 9 | 9 |
| Maharashtra | 3669 | 1763 | 88.72 | 7 | 0 |
| Punjab | 586 | 174 | 100 | 7 | 0 |
| Rajasthan | 306 | 174 | 63.07 | 5 | 0 |
| Tamil Nadu | 1026 | 1465 | 98.44 | 9 | 0 |
| Uttar Pradesh | 943 | 591 | 71.58 | 3 | 0 |
| West Bengal | 271 | 413 | 15.5 | 5 | 0 |

5.3.5 The report of Planning Commission on the status of urban solid waste management in India, published in 1995, gives a list of industrial heads in the small scale category, which may generate hazardous wastes. An attempt has been made to evaluate the degree of inventorisation of hazardous waste generating units by the SPCBs by estimating from the ASI the number of such industries in each State. Table 5.2 shows that the degree of inventorisation is far less than complete in the States of Andhra Pradesh, Kerala, Tamil Nadu, Bihar and West Bengal. This can be read along with the MoEF contention “current estimates indicate that around five million tonnes of HWs is generated in India every year, largely concentrated in the four States of Andhra Pradesh, Gujarat, Maharashtra and Tamil Nadu.” Comments cannot be offered on the situation in some other States in this respect, because of the conservative nature of estimation, which has left out industrial heads that do not have close correspondence in the two classifications. Incomplete inventorisation by the aforementioned four States is established even after omitting the number of incomparable categories from the final estimated number.

5.3.6 Secondly, though all the major State Boards have identified some sites for disposing hazardous wastes, yet most of them remain non-operational. Barring three State Boards – those of Haryana, Goa and Maharashtra rest of them have instituted a separate cell for dealing with hazardous wastes.

**Adoption of Pollution Control Devices and Compliance with Standards.**

5.4.1 The Central Pollution Control Board (CPCB) has promulgated (a) industry specific standards for specific industries and (b) general standards for those industries for which specific standards have not been promulgated. These standards stipulate pollutant-specific limits beyond which air and water polluting units are not permitted to make emissions and discharges. The State Boards, depending on the environmental situation prevalent in their respective States, are entitled to make these standards more stringent. It is, however, noted that the SPCBs barring those of Andhra Pradesh, West Bengal and Kerala (in some specific cases) have not ventured to impose more stringent standards. The World Bank Country Study (1995) observes that the Minimum National Standards (MINAS) fixed by the CPCB have not left any room for the SPCBs to make them further stringent as these standards at their current levels require near-the-maximum effluent reduction technically achievable. Suffice it to say that the producing units of a particular polluting industry, irrespective of their location and scale, are directed to comply with almost undifferentiated standards across the country.

5.4.2 Table 5.3 gives the status of pollution control in water and air polluting units as reported by the SPCBs.

**Table 5.3:State-wise distribution of industrial units According to their pollution control status.**

| State | No. of water pollut-ing units | % of units with ETP | % of units satisfy-ing stand-ards | No. of air Pollut-ing units | % of units with APC meas-ures | % of units satisfy-ing stand-ards | No. of HPUs | % of HPUs with facilities to satisfy stand-ards |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Andhra Pradesh | 2820 | 90.85 | 90.85 | 2520 | 79.84 | 79.84 | 220 | 96.36 |
| Assam | 95 | 30.52 | 13.68 | 86 | 38.57 | 32.56 | 15 | 60 |
| Bihar | 116 | 70.69 | 29.31 | 1386 | 40.55 | 40.55 | 40 | 82.5 |
| Goa | 32 | 100 | 100 | 18 | 100 | 100 | 7 | 100 |
| Gujarat | 8098 | 52.72 | 32.16 | 5757 | 59.74 | 54.87 | 200 | 95 |
| Haryana | 2580 | 63.49 | 53.72 | 1513 | 74.88 | 26.76 | 2580 | 40.19 |
| Himachal Pradesh | 975 | 77.54 | 28.82 | 983 | 74.67 | 74.67 | 12 | 50 |
| Karnataka | 8015 | 59.5 | 57.83 | 6902 | 59.79 | 46.33 | 113 | 91.15 |
| Kerala | 2250 | 51.95 | 35.6 | 1528 | 62.04 | 24.41 | 24 | 91.67 |
| Madhya Pradesh | 526 | 78.9 | * | 526 | 68.63 | 68.63 | 88 | 98.86 |
| Maharashtra | 7169 | 86.29 | 62.29 | 7008 | 72.6 | 58.86 | 318 | 95.59 |
| Manipur | 0 | 0 | 0 | 26 | 100 | 100 | 4 | * |
| Meghalaya | 14 | 14.29 | 0 | 81 | 14.81 | 0 | 1 | 100 |
| Punjab | 3280 | 49.72 | 49.72 | 8299 | 17.62 | 17.62 | 51 | 76.47 |
| Rajasthan | 692 | 80.6 | * | 430 | 91 | * | 49 | 97.95 |
| Tamil Nadu | 6338 | 41.23 | * | 6998 | 86.12 | * | 188 | 98.4 |
| Uttar Pradesh | 454 | 81.94 | 48.9 | 281 | 90.75 | 80.07 | 627 | 83.41 |
| West Bengal | 62 | 96.77 | 59.68 | 6188 | * | * | 64 | 81.25 |

* not specified by the SPCB

5.4.3 It may be seen from Table 5.3 that a significant proportion of units discharging trade effluents do not have effluent treatment plants in the States of Assam, Tamil Nadu, Punjab, Kerala, Karnataka, Gujarat and Haryana (Column 3). Similarly, a considerable proportion of units emitting air pollutants do not have air pollution control measures in the States of Punjab, Assam, Bihar, Gujarat, Karnataka and Kerala (Column 6). The corresponding figure for the State of Punjab – 17.6% - stands out dubiously. Though the facilities available with the highly polluting units (both in water and air polluting category) are generally better, the States of Haryana, Himachal Pradesh and Assam fair badly in this respect too.

5.4.4 The table 5.3 (Column 4&7) also brings out the fact that having facilities to control pollution is not a sufficient condition for polluting units to comply with the prescribed standards. In the States of Assam, Himachal Pradesh and Bihar more than 50% of the water polluting units having effluent treatment plants do not comply with effluent standards. The States of Uttar Pradesh, West Bengal and Gujarat and to some extent Kerala and Maharashtra have also not performed well in this respect. Similarly, in the States of Haryana and Kerala, among the air polluting units having APC measures only 35.7% and 39.4% respectively have complied with the standards. In general, what transpires is an unsatisfactory level of control of industrial pollution in most parts of the country. It should also be noted that prima-facie compliance with concentration-based standards might have meant non-compliance, had the standards been load based. This is because, concentration based standards facilitate dilution of concentration of pollutants to ensure superficial compliance with standards. Several factors may have contributed towards this dismal scenario.

5.4.5 Non-installation of abatement mechanisms by the polluting units is a direct consequence of the absence of any effective punitive and deterrent mechanism in case of non-compliance. First, the SPCBs, do not have the power to impose on-the-spot-fines on persistently non-complying units. In the absence of such power, the State Boards will have to either hope for the non-complying unit to abide by their directions or file a case with the Court of Justice against the said unit and wait for the court verdict. The Court is entitled to impose stringent punishments ranging from imprisonment of 18 months to 6 years plus fine. Courts are generally busy with day-today criminal and civil cases and may keep environmental cases on pending for years together. Table 5.4 brings out the gravity of the problem of pendancy of environmental cases filed by the SPCBs.

5.4.6 It is not difficult to read from Column 2 through Column 6 of Table 5.4 that a considerable proportion of cases filed by the SPCBs over the years have been pending with the courts for more than a year. The pendancy problem is particularly alarming in States like Madhya Pradesh, Orissa, Gujarat, Punjab and Assam. A case pending for more than a year tantamounts to an unhampered license to a non-complying firm to continue flouting standards for that duration. The growing disillusionment with the efficacy of litigation as a control mechanism felt by some of the State Boards, especially those of Madhya Pradesh, Tamil Nadu, Punjab, Orissa and Gujarat is evidenced by the negligible number of environmental cases (compared with the preceding years) filed by them during 1997-98. Reading tables 5.3 & Table 5.4 together makes it clear that the cumulative number of cases filed by

the State Boards like those of Assam, Punjab, Maharashtra, Gujarat, Kerala, Karnataka and Tamil Nadu was far less than the number of non-complying industrial units. Some State Boards complain that when the cases are finally decided, the verdicts often go against them, for, the courts are reluctant to award 18 months of imprisonment to the recalcitrant units. The Pollution Control Acts do not provide for the constitution of Special Courts to try environmental cases.

**Table 5.4: Legal Status of some State Boards.**

| State | year of constitu-tion | No. of cases filed upto 31.3.98 | No. of cases disposed upto 31.3.98 | No. of cases Pending as % of no. filed | No. of cases filed in 1997-98 | No. of cases disposed in 1997-98 |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Andhra Pradesh | 1976 | 156 | 120 | 23.08 | 48 | 29 |
| Assam | 1975 | 5 | 0 | 100 | 1 | 0 |
| Gujarat | 1974 | 2961 | 1181 | 60.11 | 20 | 76 |
| Karnataka | 1974 | 158 | 95 | 39.87 | 17 | 7 |
| Kerala | 1974 | 66 | 63 | 4.55 | 0 | 0 |
| Maharashtra | 1970 | 524 | 389 | 25.76 | 38 | 15 |
| MP | 1974 | 164 | 38 | 76.83 | 3 | 8 |
| Orissa | 1982 | 109 | 11 | 89.91 | 6 | 0 |
| Punjab | 1975 | 848 | 482 | 43.16 | 1 | 26 |
| Tamil Nadu | 1982 | 454 | 299 | 34.14 | 0 | 9 |
| UP | 1975 | 444 | 329 | 25.9 | 24 | 39 |

5.4.7 The Environment Protection Act, 1986 vested the power of issuing directions (in regard to pollution control) with the Govt. of India which, subsequently, was delegated to the SPCBs. This includes the power to direct; a) closure, prohibition or regulation of any industry, operation or process, and, b) stoppage or regulation of the supply of electricity or water or any other service. The directions are to be issued only after hearing the objections that may be placed before the SPCBs by those persons who are sought to be directed. However, the efficacy of the SPCBs in exercising this and other powers is affected by the interference of powerful interest groups and pressure groups. This problem of acute dimensions has been reported by many State Boards. Such interference is sometimes based on the argument that strict compliance with standards will lead to closure of industrial units, which in turn may result in unemployment and social disorder.

5.4.8 Equally disturbing is the problem of non-compliance even while possessing the necessary mechanisms for pollution abatement. Once the capital cost is incurred on obtaining the treatment equipment, it is the operating cost of the equipment that guides the firm to determine its level of operation. If the marginal abatement cost is prohibitively high, it is quite possible that the firm may keep the equipment idle. In the absence of any economic incentive system which is based on the marginal abatement cost of polluting units, it may be difficult for the SPCBs to ensure that the available pollution control mechanisms are operated to their optimal capacity.

5.4.9 Available literature on water pollution abatement suggests that there are significant economics of scale with respect to the volume of Waste Water Stream (*'Incentives and Regulations for Pollution Abatement with an Application to Waste Water Treatment'* Mehta,S.,Mundle and U.Sankar, 1993). As such, small scale polluting firms may find it difficult to install and operate ETPs, as they would have extremely high marginal abatement costs at their small scales of operation.

**NAAQM and SPCBs**

5.5.1 The National Ambient Air Quality Programme, initiated by the CPCB in 1984, is operated mainly through the SPCBs. A country-wide network of 290 monitoring stations has been established for NAAQM. It may, however, be noted that in most of the States, not all the sanctioned stations are operational. This picture is unveiled in table 5.5.

**Table 5.5: State-wise distribution of NAAQM stations**

| State | No. of NAAQM Stations sanctioned | No. of stations Operating | No. operating as % of no. sanctioned |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Andhra Pradesh | 12 | 9 | 75.00 |
| Assam | 5 | 5 | 100 |
| Bihar | 12 | 6 | 50.00 |
| Goa | 2 | 2 | 100.00 |
| Gujarat | 23 | 18 | 78.26 |
| Haryana | 8 | 3 | 37.50 |
| Himachal Pradesh | 8 | 7 | 87.50 |
| J&K | 2 | 0 | 0 |
| Karnataka | 14 | 5 | 35.71 |
| Kerala | 16 | 13 | 81.25 |
| Madhya Pradesh | 25 | 22 | 88.00 |
| Maharashtra | 25 | 14 | 56.00 |
| Punjab | 12 | 8 | 66.67 |
| Rajasthan | 19 | 19 | 100.00 |
| Tamil Nadu | 16 | 13 | 81.25 |
| Uttar Pradesh | 38 | 25 | 65.79 |
| West Bengal | 14 | 9 | 64.29 |

5.5.2 It may be seen from table 5.5 that only in 4 States, Rajasthan, Orissa, Assam and Goa – all the NAAQM stations sanctioned by the MoEF are operating. The status of Karnataka and Haryana is extremely poor in this respect. The position of Bihar, Maharashtra, Uttar Pradesh, West Bengal and Punjab is also not appreciable. None of the North Eastern States – each sanctioned with 2 NAAQM stations – have any of these stations operational. Among other things, the fund constraint of the Central Pollution Control Board in financing the SPCBs to establish and operate the sanctioned stations also accounts for the difference between the number of sanctioned and operating stations.

5.5.3 The National Ambient Air Quality Standards (NAAQS) for the three parameters that are regularly monitored - Sulphur dioxide ($SO_2$), Oxides of Nitrogen ($NO_X$) and suspended particulate matter (SPM) – have been defined in terms of their annual

**Table 5.6: State-wise distribution of frequency of monitoring of SPM, $NO_2$ & $SO_2$ in selected NAAQM stations in 1992 and 1996.**

| | 1992 | | | 1996 | | | |
|---|---|---|---|---|---|---|---|
| State | $SO_2$ | $NO_2$ | SPM | $SO_2$ | $NO_2$ | SPM | |
| Andhra Pradesh | 116 | 116 | 116 | 76 | 75 | 35 | SPCB |
| | 70 | 70 | 73 | 69 | 69 | 47 | NEERI |
| | 132 | 132 | 132 | 55 | 55 | 17 | SPCB |
| Bihar | 88 | 89 | 94 | 77 | 77 | 83 | SPCB |
| Goa | 33 | 35 | 50 | 65 | 83 | 84 | SPCB |
| Gujarat | 114 | 114 | 114 | 75 | 75 | 76 | SPCB |
| | 90 | 89 | 99 | 86 | 86 | 88 | SPCB |
| | 100 | 100 | 101 | 95 | 95 | 95 | SPCB |
| Haryana | 96 | 96 | 8 | 66 | 66 | 58 | SPCB |
| Himachal Pradesh | 1 | 92 | 102 | 104 | 104 | 104 | SPCB |
| | 4 | 90 | 93 | 104 | 104 | 104 | SPCB |
| | 2 | 84 | 85 | 104 | 104 | 104 | SPCB |
| Karnataka | 38 | 38 | 38 | 12 | 12 | 12 | SPCB |
| | 38 | 38 | 38 | 40 | 40 | 40 | SPCB |
| Kerala | 108 | 108 | 107 | 94 | 81 | 95 | SPCB |
| | 109 | 109 | 108 | 92 | 92 | 94 | SPCB |
| | 108 | 108 | 108 | 92 | 71 | 94 | SPCB |
| | 92 | 92 | 92 | 93 | 93 | 93 | SPCB |
| Madhya Pradesh | 30 | 43 | 64 | 84 | 84 | 100 | SPCB |
| | 34 | 36 | 67 | 63 | 65 | 74 | SPCB |
| | 45 | 45 | 77 | 92 | 92 | 95 | SPCB |
| | 12 | 19 | 25 | 78 | 78 | 82 | SPCB |
| | 66 | 67 | 76 | 88 | 88 | 88 | SPCB |
| Maharashtra | 66 | 66 | 16 | 69 | 69 | 45 | NEERI |
| | 92 | 92 | 69 | 88 | 88 | 91 | VRC |
| | 53 | 53 | 55 | 52 | 52 | 40 | NEERI |
| Orissa | 37 | 37 | 37 | 86 | 86 | 88 | SPCB |
| | 69 | 72 | 110 | 25 | 25 | 41 | SPCB |
| Punjab | 99 | 99 | 99 | 89 | 89 | 88 | SPCB |
| | 86 | 88 | 98 | 97 | 97 | 97 | SPCB |
| Rajasthan | 79 | 79 | 1 | 69 | 70 | 48 | NEERI |
| | 61 | 61 | 31 | 73 | 73 | 81 | SPCB |
| Tamil Nadu | 93 | 93 | 65 | 92 | 92 | 48 | NEERI |
| Uttar Pradesh | 85 | 85 | 84 | 71 | 53 | 79 | SPCB |
| | 96 | 71 | 43 | 59 | 59 | 44 | NEERI |
| | 9 | 9 | 10 | 58 | 58 | 58 | SPCB |
| West Bengal | 56 | 56 | 23 | 57 | 57 | 54 | NEERI |
| | 88 | 88 | 88 | 0 | 0 | 54 | SPCB |
| | 82 | 82 | 82 | 0 | 0 | 48 | SPCB |

arithmetic means (80mg/$m^3$, 80mg/$m^3$ and 360 mg/$m^3$ respectively for $SO_2$, $NO_2$ and SPM in the designated industrial areas) of a minimum of 104 measurements in a year, taken twice a week 24 hourly at uniform interval. It is also provided that 24 hourly values should be within 120mg/$m^3$, 120 mg/$m^3$ and 500 mg/$m^3$ for $NO_2$, $SO_2$ and SPM respectively in at least 98% of the measurements in a year. This requires the State Boards to annually furnish at least 104 observations from each National Ambient Air Quality Monitoring (NAAQM) Station assigned to them. The extent to which the State Boards cater to this requirement is examined in Table 5.6.

5.5.4 The status of 39 industrial locations which are common to the years 1992 and 1996 is presented in Table 5.6. Of these, 7 are being monitored by NEERI, Nagpur, 1 by Vishveswaraya Regional College of Engineering, Nagpur, and the remaining 31 stations by the respective SPCBs. In 1992, there were only 6 stations – 2 in Andhra Pradesh, 1 in Gujarat and 3 in Kerala – from which 104 or more measurements could be reported. All these stations were being monitored by the corresponding SPCBs. However, none of these 6 stations could report 104 measurements in 1996. Barring three stations of Himachal Pradesh, none could report 104 measurements in 1996. None of the stations monitored by NEERI reported the required number of measurements in either of the 2 years. The VRC, Nagpur, also could not report the required number of measurements.

5.5.5 While the number of measurements from the NAAQMs of Orissa, Punjab, Rajasthan, U.P and West Bengal did not show any clear sign towards improvement during 1992-96, the number of measurements reported by the State Boards of Andhra Pradesh, Bihar and Gujarat exhibited a distinct declining trend. The number of measurements from Madhya Pradesh and Himachal Pradesh showed an increasing trend over the period.

5.5.6 It is for lack of facilities required for complex tests with the SPCBs that 30 stations in 10 metro cities were entrusted with the NEERI for monitoring. CPCB is contemplating on handing these stations over to the SPCBs, which implies need for additional financial provisioning for NAAQM network.

5.5.7 The system in place to conduct the NAAQM itself explains, to some extent, the situation in which most of the State Boards fail to maintain the required monitoring frequency. Most of those employed on this task are on temporary bases. Among the field staff, the Junior Scientific Assistant is paid Rs. 1800/- as monthly salary and the Field Assistant, only Rs. 1200/-. The amount annually earmarked by the CPCB for all the expenses related to the monitoring of a NAAQM station including maintenance of the equipment supplied to the station and the salary and conveyance of the field staff stands at Rs. 50000 (stipulated in 1994).

5.5.8 For many reasons, the time trend of $NO_2$, $SO_2$ and SPM estimated from the measurements obtained from the NAAQM stations located in the designated industrial areas cannot be taken to throw light on to the levels of achievements of the State Boards in controlling industrial pollution. First, of course, is the inadequacy of measurements from which annual arithmetic mean of these three parameters is calculated. Secondly, an area that had originally been designated as industrial may gradually have turned commercial or residential or a combination of the three, depending on the dynamics of the developments which have occurred in that area.

Thirdly, the coming up of new air polluting industrial units in the area may have increased the concentration of pollutants in the atmosphere, despite the existing units, more or less, complying with the standards. Fourthly, assessing the above said developments, the CPCB has time and again relocated the monitoring stations (within a city), which restricts the number of locations common to different time periods. The last and the most important reason is that air pollution emanates from many sources and industrial pollution is only one among them. A considerable portion of air pollution is caused by vehicular sources. It is already noted that in most of the States, vehicular pollution control is outside the jurisdiction of the SPCBs.

**WQM and SPCBs**

5.6.1 The CPCB in collaboration with the SPCBs has established a Water Quality Monitoring (WQM) network of 480 stations spread over 21 States and 4 Union Territories in the country. The monitoring of these stations is entrusted with the SPCBs and the Pollution Control Committees of the Union Territories.

5.6.2 There are observed inadequacies in the number of measurements reported by the State Boards when compared with the frequency norms fixed by the CPCB. The factors like insufficient laboratory facilities and skilled manpower in the regional and sub-regional offices of the SPCBs, unfavourable climatic conditions and inadequate supply of funds for the WQM programme might have contributed towards these deficiencies. Per sample norm of grants was stipulated by the CPCB in 1989 and the same remains even without an inflation indexation.

5.6.3 For many reasons, the trend in water quality statistics cannot be related to the performance of the SPCBs. Firstly, 'the presence of large/medium or clusters of Small Water Polluting Industries' is only one among the 12 criteria based on which WQM stations are selected by the CPCB. It is, thus, not always tenable to attribute the changes in the levels of water pollution observed in the WQM stations to the changes in the levels of industrial discharges to the water body. Secondly, with the advent of new industries, the water quality may deteriorate, even in the event of better compliance of the existing units with standards. Thirdly, the coming up of new barrages and abstraction points, which is uncorrelated with the efforts of the SPCBs, may distort the time trend in the levels of pollution at the monitoring stations. Concentration of pollutants observed at a monitoring station is, thus, effect of the confluence of a set of point and diffused sources of water pollution, many of which are beyond the ambit of SPCB control.

**Award of Consents**

5.7.1 Consents to be awarded by the SPCBs are of two types: Consent to establish and consent to operate. Consent to establish is essentially a site clearance from the concerned SPCBs for establishing an industrial unit. Consent to operate outlets (under water Act and Air Act separately or together) refers to the consent that an industrial unit must obtain from the concerned SPCB before starting its operations.

5.7.2 The number of active consents maintained by a State Board (under Water Act and Air Act) is said to approximate the number of polluting units in the respective States. Table 5.7 gives cumulative number of consents awarded by the State Boards as is recorded by them.

**Table 5.7: Consent status of State Boards**.

| | Consent to establish | | | Consent to operate (Water Act) | | | Consent to operate (Air Act) | | |
|---|---|---|---|---|---|---|---|---|---|
| States | Appli-ed for | Gran-ted | Pen-ding | Appli-ed for | Grant-ed | Pen-ding | Appli-ed for | Gran-ted | Pen-ding |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Andhra Pradesh | 126785 | 126471 | 142 | 2866 | 2253 | 0 | 2781 | 2160 | 0 |
| Assam | 2082 | 1765 | 35 | 3432 | 3298 | 80 | 2956 | 2608 | 150 |
| Bihar | 1627 | 903 | 275 | 1172 | 1122 | 0 | 5733 | 4313 | 1108 |
| Goa | 705 | 678 | 27 | 688 | 678 | 10 | 0 | 0 | 0 |
| Gujarat | 15976 | 12866 | 153 | 10441 | 7420 | 272 | 7884 | 6489 | 175 |
| Haryana | 33903 | 21806 | 2607 | 18990 | 12363 | 1162 | 14913 | 9443 | 1445 |
| Himachal Pradesh | 2811 | 2811 | 0 | 975 | 975 | 0 | 783 | 783 | 0 |
| Karnataka | 5329 | 4298 | 924 | 22293 | 20642 | 1428 | 16092 | 13638 | 2236 |
| Kerala | na | 2850 | 7 | na | 2785 | 10 | na | 1666 | 135 |
| Madhya Pradesh | 580 | 558 | 8 | 2394 | 2376 | 18 | 1912 | 1894 | 18 |
| Manipur | 65 | 65 | 0 | 10 | 10 | 0 | 20 | 20 | 0 |
| Meghalaya | 129 | 86 | 42 | 45 | 38 | 2 | 81 | 70 | 0 |
| Orissa | 38 | 25 | 1 | 0 | 0 | 0 | 38 | 25 | 1 |
| Punjab | 12225 | 11358 | 721 | 7182 | 6590 | 518 | 5151 | 4768 | 311 |
| Rajasthan | 4140 | 3955 | 185 | 4906 | 4444 | 462 | 3880 | 3502 | 358 |
| Tamil Nadu | 18847 | 15429 | 0 | 14845 | 12667 | 0 | 0 | 0 | 0 |
| Uttar Pradesh | 13637 | 7035 | 131 | 6474 | 1942 | 0 | 5934 | 1742 | 0 |

5.7.3 It is not certain whether the cumulative number of consents awarded by the Boards can be taken to be the number of active consents or not. It should be noted that the cumulative figures of consent to operate under Water Act and Air Act could be made available by the State Boards of Andhra Pradesh and Uttar Pradesh only since 1994. The State Boards of West Bengal and Orissa could not furnish any cumulative figure at all. Without such a record, it is difficult to understand as to how these Boards keep track of the growth in the number of polluting units in their respective States.

5.7.4 The Water Act provides that, the "consent ……. shall unless given or refused earlier be deemed to have been given unconditionally on the expiry of a period of four months of the making of an application in this behalf complete in all respects to the State Boards". The State Boards of Goa, Andhra Pradesh, Haryana, Orissa, Karnataka and Assam, while furnishing the details of the time taken in awarding or refusing consents in intervals, i.e. 0-15 days, 16-30 days 31-45 days, 45-120 days and beyond 120 days, declare that all the consent applications received by them were disposed off within 120 days. The State Boards of Rajasthan, Kerala and Madhya Pradesh admit that the consent processing of some of their cases involved more than 120 days. Such data details could not be furnished by the State

Boards of Uttar Pradesh, West Bengal, Gujarat, Maharashtra, Bihar, Punjab and Tamil Nadu. Of them, the State Boards of Uttar Pradesh and Bihar claim that the consent applications have been disposed within 120 days. The State Board of Tamil Nadu claims to have awarded consents within 45 days if the applications were complete in every respect.

**Regional Offices and Regional Laboratories of SPCBs.**

5.8.1 The CPCB has not stipulated any standard norm to be followed by the SPCBs while establishing their regional and sub regional offices and laboratories. This leaves the SPCBs with the discretion to establish regional offices and laboratories in accordance with their priorities and financial position.

**Table 5.8. Distribution of regional offices and laboratories of SPCBs**

| State | No. of regional offices | No of regional labs | No of sub-regional offices | No of sub-regional labs | No of mobile labs |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| Andhra Pradesh | 14 | 8 | 2 | 0 | 0 |
| Assam | 7 | 3 | 0 | 0 | 1 |
| Bihar | 7 | 7 | 0 | 0 | 3 |
| Goa | 0 | 0 | 0 | 0 | 0 |
| Gujarat | 6 | 6 | 0 | 0 | 0 |
| Haryana | 9 | 4 | 0 | 0 | 0 |
| Himachal Pradesh | 10 | 3 | 0 | 0 | 0 |
| Karnataka | 15 | 6 | 0 | 0 | 0 |
| Kerala | 9 | 8 | 2 | 0 | 1 |
| Madhya Pradesh | 13 | 11 | 5 | 0 | 0 |
| Maharashtra | 11 | 5 | 26 | 0 | 7 |
| Orissa | 6 | 7 | 0 | 0 | 2 |
| Punjab | 11 | 4 | 0 | 0 | 1 |
| Rajasthan | 10 | 4 | 0 | 0 | 1 |
| Tamil Nadu | 5 | 2 | 20 | 9 | 3 |
| Uttar Pradesh | 15 | 12 | 1 | 0 | 1 |
| West Bengal | 4 | 2 | 0 | 0 | 0 |

5.8.2 Table 5.8 does not provide any conclusive information regarding the adequacy of the network of regional offices and laboratories created by the SPCBs. The following discussion attempts to supplement table 5.8.

5.8.3 Establishing an office for each district may render some of the district offices redundant, as there are considerable inter-State and intra-State variations in the levels of industrialisation. For most of the State Boards, this is financially infeasible also. If the question of financial adequacy is set aside, it appears that the concentration of polluting industrial units within an area (district) and the distance of the area from the adjacent regional office (which, to some extent, measures manageability of the said area from the adjacent office) should determine the number and location of regional offices and labs. There are other factors such as connectivity and manpower and equipments available with regional offices that may

influence decision-making in this respect. The ensuing preliminary analysis presents the State-wise details of some of the obvious inadequacies in the number of regional and sub regional offices.

**West Bengal**

5.8.4 All the four regional offices (ROs) of the WBSPCB are located in the South Bengal region. This may keep the Board completely in the dark about the potential pollution sources of the North Bengal region (especially places like Siliguri), a region which only has agro-based industries.

**Goa**

5.8.5 The Goa Board functioned (as on 31-3-1998) with 4 technical staff and did not have any regional office in either of its two districts. The Board claims that the entire region is manageable from the head office located at Panaji. The Board did not have a Central Laboratory. Routine samples were being sent to the laboratory of the Environmental Pollution Control Wing of the Government of Goa and samples for complex tests to the neighbouring SPCBs and the zonal office of CPCB at Bangalore. It may be noted that both the districts of Goa are fairly industrialised.

**Haryana**

5.8.6 Haryana SPCB has 9 ROs spread over the whole State. However, two districts – Yamunanagar (rolling mills and paper mills) and Panipat (handloom with dyeing) – consist of areas that are to be closely monitored but are far off from adjacent regional offices.

**Punjab**

5.8.7 Punjab SPCB has a reasonably dispersed network with 11 ROs. But the district of Rupnagar with some polluting industries and a thermal power plant may require a separate office.

**Orissa**

5.8.8 Sambalpur district which has some potentially polluting industries is more than 100 k ms away form the nearest regional offices at Rourkela and Angul. Sambalpur does not have an office of the SPCB.

**Bihar**

5.8.9 The State Board of Bihar has 7 ROs, which can cover the major industrial centres in the State. However, the district, Giridh, with uranium and coal mines does not have an office of the SPCB.

**Andhra Pradesh**

5.8.10 Except for the absence of a regional office in Anantpur in which district Tadapatri region (with cement and matchbox units) falls, the network of offices of the Andhra Pradesh SPCB seems adequate.

**Rajasthan**

5.8.11 The district of Ajmer (which houses a big city and the Kishangad region where there is a good concentration of marble mining) does not have an office of the SPCB and is more than 100 kms away from the adjacent ROs at Jaipur and Bhilwara. The districts of Jhunjhun, Churu and Sikkar can together have one office of the SPCB. It should also be examined whether Sirohi (with marble mining and cement units) can be managed from Udaipur.

**Tamil Nadu**

5.8.12 TNSPCB has 5 regional offices and 20 district offices, a network commensurate with its pollution potential. However, it should be seen whether Sivakasi (falls in Virudanagar district) abounds with fireworks and lithopress, can be monitored from Madurai, more than 100 kms far from Sivakasi.

**Gujarat**

5.8.13 The industrialised district of Ahmadabad (Reliance industries Ltd. Arvind Mills, Mafatlal) does not have an office of the SPCB. It is also to be seen whether the districts of Amreli, Mahesana and Surendranagar can be effectively monitored from the adjacent ROs.

5.8.14 It may be noted that the above analysis considers only the numerical adequacy of regional and sub-regional offices (only for a sample of States). However, the monitoring potential of the network depends more on the availability of skilled manpower and well-equiped laboratories in the ROs and SROs than their number. A regional office without technical manpower is rather a burden than an asset.

**Environmental Training**

5.9.1 Skill formation should be one among the primary activities in a technical organisation like SPCB. State Boards barring those of North East (except Sikkim) and Rajasthan claim to have conducted training programmes for their staff and others. While the State Boards of Tamil Nadu, Karnataka, Madhya Pradesh and Bihar report to have imparted training to their staff through their own mechanism, those of Gujarat, Maharashtra and Himachal Pradesh reported the use of inhouse and external facilities for this. The State Boards of Orissa, West Bengal, Punjab, Andhra Pradesh, Uttar Pradesh and Haryana relied entirely on other institutions to

get their staff trained. Boards of Maharashtra and Andhra Pradesh report to have sent their personnel abroad for training. The training component in Kerala Board was only in the form of weekly seminars.

5.9.2 However, when the share of training in the total expenditure of State Boards is examined, it becomes clear that the relative importance attached by the SPCBs to this activity is exceedingly low. Table 5.9 substantiates this.

**Table 5.9: Expenditure on training across State Boards During the 8th Plan and 1996-97.**

| State | Expenditure on training during 8th Plan | Training expenditure as% of total expenditure | Expenditure on training during 1996-97 | Training expenditure as % of total expenditure |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| Andhra Pradesh | 1.413 | 0.060 | 1.514 | 0.221 |
| Assam | 0.53 | 0.098 | 0.07 | 0.055 |
| Bihar | 0.68 | 0.084 | 0 | 0.000 |
| Goa | 0 | 0.000 | 0 | 0.000 |
| Gujarat | 0.88 | 0.047 | 0.63 | 0.106 |
| Haryana | 3.56 | 0.403 | 0.1 | 0.040 |
| Himachal Pradesh | 0.01 | 0.002 | na | |
| J&K | 0.9 | 0.608 | 0 | 0.000 |
| Karnataka | 0 | 0.000 | 0 | 0.000 |
| Kerala | 0.53 | 0.049 | 0 | 0.000 |
| Madhya Pradesh | 4.33 | 0.149 | 3.88 | 0.425 |
| Maharashtra | 0 | 0.000 | 0 | 0.000 |
| Orissa | 12.4 | 1.582 | 9.86 | 2.716 |
| Punjab | 1.35 | 0.042 | 1.01 | 0.118 |
| Rajasthan | 0 | 0.000 | 0 | 0.000 |
| Tamil Nadu | 6.96 | 0.179 | 1.54 | 0.131 |
| Uttar Pradesh | 2.37 | 0.093 | 0.23 | 0.033 |
| West Bengal | 1.62 | 0.213 | 0.44 | 0.180 |

5.9.3 Apart from the State Boards of the North East, those of Rajasthan and Goa also did not earmark any amount for training during the 8th Plan and in 1997-98. The percentage share of training in total expenditure was less than 1% in the case of all State Boards except Orissa. The year 1997-98 does not show any visible sign of improvement in this respect. With the task of preparation of zoning atlas and other technical activities being increasingly thrusted upon the Stated Boards, a reversal of this trend is urgently called for.

**Awareness and Publicity**

5.10.1 The crucial importance of mass awareness and publicity programmes of the SPCBs lies in their potential to inspire public action, especially, collaborative efforts of affected parties, polluters, the Government and non-Governmental agencies to abate pollution. The secondary information obtained from the SPCBs suggests that

the State Boards other than those of North East and Goa are involved in a variety of awareness generation programmes such as stage shows, film shows, exhibitions, trade fairs, workshops, seminars, symposia etc. Besides this, the State Boards of Orissa, Kerala, Bihar, and Karnataka have instituted “pollution control” awards, of which the recipients include industrial units and the general public. Awards were proposed to be instituted by the State Boards of Tamil Nadu and Punjab too. Maharashtra Board's publication of booklets for school children and the inhouse journal called “Prakruti” and Andhra Pradesh Board's “Community Consultation” on treatment, storage and disposal of hazardous wastes are examples of potentially effective public awareness programmes.

5.10.2 However, the percentage share of advertisement, publicity and awareness generation in the total expenditure of the SPCBs of some big States corroborates that this important activity has so far remained a low priority head of expenditure. The percentage shares were 0.25% (advertisement and publicity) in Kerala during 1995-96, 1.16% (Mass awareness and publications) in Maharashtra during 1995-96, 0.31% (advertisement, publicity and awareness) in Tamil Nadu during 1996-97, 0.85% (environment awareness programmes) in Andhra Pradesh during 1994-95 and 0.60% (advertisement, mass media and pollution awareness) in Bihar during 1996-97.

**Public Hearings**

5.11.1 Apart from the SPCBs of the North Eastern States, those of Assam, Haryana, Uttar Pradesh and Maharashtra have not introduced public hearing as an instrument to resolve environmental conflicts. It may be interesting to note that the State Boards of Sikkim and Mizoram also are reported to have organised public hearings to a limited extent. However, it is the West Bengal SPCB that has claimed to have kept an impressive record in organizing public hearings to resolve environmental complaints. On receipt of the complaint from an affected party, the Board officials claim to undertake site inspections, and, subsequently on the basis of inspection report a hearing of the complainant and the respondent is organised in an attempt to mitigate their differences.

**Research and Development Activities**

5.12.1 The State Boards of Assam, Haryana, Andhra Pradesh, Goa and Maharashtra do not have separate wings for R&D works, nor do they collaborate with any other institution to undertake research works. Though the State Boards of Orissa, Karnataka, Rajasthan and Uttar Pradesh do not maintain separate R&D wings, they claim to have tied up with other research or academic institutions to undertake R&D activities. The State Boards of West Bengal, Himachal Pradesh, and Tamil Nadu claim to maintain their own R&D wing and at the same time to have research tie ups with other institutions. None of the State Boards of the North East with the exception of that of Sikkim, which report to maintain its R&D wing and to have research tie-ups do not undertake any research activity.

## Zoning Atlas Preparation and the SPCBs

5.13.1 Zoning Atlas, which classifies environment and presents the possible alternative sites for industries and their pollution receiving potential in terms of easy-to-read maps, is slated to become the pivotal instrument of environmentally compatible spatial planning in India. The programme is co-ordinated by the CPCB and executed through SPCBs and other institutions with technical assistance from the German Agency for Technical Cooperation (GTZ) and the World Bank funding of US$8.44 millions for the five year period 1997-2003.

5.13.2 Districts of 19 States including the North Eastern States of Tripura, Manipur and Meghalaya are being increasingly covered under the programme on a priority basis. The efforts of some of the State Boards like those of Uttar Pradesh, Andhra Pradesh and Karnataka in this respect have been appreciated by the CPCB. The SPCB of Karnataka has gone ahead to prepare Zoning Atlas for 6 districts with its own funds. On the other hand, the State of Haryana is not seen in the Atlas because of its luckwarm response to the CPCB call to provide it with the background data for initiating the programme.

## Summing Up

5.14.1 The forgoing analysis of the physical performance of the State Boards draws a mixed picture. The degree of inventorisation achieved by some State Boards falls clearly short of its desired level. The extent of compliance with pollution standards observed by the inventorised polluting units is also not satisfactory in many States. Among other things, absence of an effective punitive mechanism contributes to non-compliance. There are many pitfalls in the observance of the required frequency of monitoring in NAAQM and WQM and in the functioning of monitoring stations. Though elaborate monitoring networks have been created by the SPCBs of the industrialised States, yet some serious deficiencies are evident from the above preliminary analysis. The relative importance attached to crucial areas like environmental research, awareness generation and publicity and R & D leaves much to be desired. To conclude, the existing system of industrial pollution control, despite its wide network and moderate achievements, exhibits many symptoms of underdevelopment, which need to be urgently attended to.