Centre for Science and Environment

The World Bank

Capacity Building Programme for Bihar State Pollution Control Board

Report on training need assessment survey

Training Needs Assessment of Bihar State Pollution Control Board

A. Collaboration between Centre for Science and Environment and the World Bank

Centre for Science and Environment (CSE) is a public interest think-tank based in New Delhi. Its core competencies are scientific research, advocacy and information dissemination, environmental education, capacity building and pollution monitoring.

CSE has been collaborating with Pollution Control Boards for more than a decade. In 2010, CSE, the Ministry of Environment and Forests (MoEF) and the Central Pollution Control Board (CPCB) signed a tripartite agreement to train the officers of pollution control boards on various issues including compliance and enforcement, waste management, best available technology and consent management. In the last three years, CSE has trained more than 350 officers of Pollution Control Boards and Pollution Control Committees. Given the expertise and experience of CSE in capacity building, the World Bank approached CSE to conduct a series of training programmes and exposure visits for the Bihar State Pollution Control Board (BSPCB) from December 2013 – April 2014.

The scope of the project includes conducting training need assessment, organising four training programmes and two exposure visits. The project will be conducted during December 2013 – April 2014. The plan is to conduct three two-days trainings in Patna, Bihar, two exposure visits and one three-days programme in Delhi for lab professionals.

B. About Bihar State Pollution Control Board

Bihar Sate Pollution Control Board was established in 1974 following the State Legislature's adoption of the Water Act of 1974 and then the Air Act of 1981. Bihar was one of the first states to establish a pollution control board. Initially set up to implement the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Board was subsequently given the responsibility of implementing a series of other environmental acts and rules, either directly or indirectly. The BSPCB has its head office in Shastri Nagar, Patna and two regional offices in the districts of Muzaffarpur and Begusarai. The Board has a Central Laboratory at its head office in Patna.

C. Methodology

In order to conduct relevant programmes, a training needs assessment (TNA) was carried out by CSE. CSE officials visited the BSPCB head office at Patna and interviewed the staff at the two regional offices *(see Table 1: How the survey was conducted?*).

The TNA was carried out through primary surveys and personal interviews. CSE designed separate TNA questionnaires for the chairperson, member secretary, senior and middle level officers and junior officers of the SPCB. The questionnaires were handed over to the concerned officials by CSE staff and CSE received twenty-one completed responses.

TABLE 1: How the survey was conducted?

Date	Meeting
December 9, 2013	Shri Rakesh Kumar, Member Secretary
	Prof. Subhash Chandra Singh, Chairman
	Birchandra Prasad Singh, Regional Officer, Muzaffarpur
	Ashish Kumar Gupta, Regional Officer, Begusarai
	Shambhu Nath Jha, Junior Environment Engineer,
	Ram Udgar Mahto, Junior Environment Engineer,
	Swami Dayanand Prakash, Assistant Scientific Officer
	Sain Kumar, Junior Environment Engineer
	Arun Kumar, Research Assistant
December 10, 2013	Dr. Naveen Kumar, Assistant Scientific Officer
	Dinesh Kumar, Assistant Environment Engineer
	Anjani Kumar Sinha, Junior Environment Engineer
	Shailendra Kumar, Deputy Analyst
	Ram Udgar Mahto, Junior Environment Engineer
	Shiv Shambhu Prasad, Research Assistant
	Anil Kumar Shrivastava, Laboratory Assistant
	S. F. Hassan, Assistant Scientific Officer
	Arvind Kumar, Assistant Scientific Officer
December 11, 2013	S. N. Jayaswal, Scientist
	Geeta Kumari, Assistant
	Sudhir Kumar Das, Assistant
	Basudev Mahapatra, Assistant
	Bidyanand Singh, Senior Law Officer
	Shri Shailesh Chandra Diwakar, OSD to Commissioner, Patna Municipal Corporation
	Two junior officers from Bihar Rajya Jal Parishad
	Visit to Patna Medical College Hospital to see the biomedical waste management

D. Challenges before Bihar State Pollution Control Board

Bihar State Pollution Control Board faces major challenges:

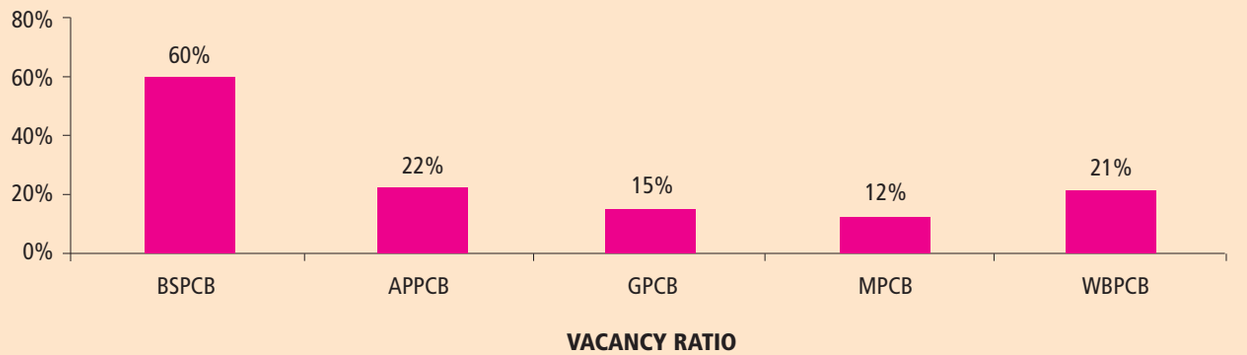
Lack of manpower

The present sanctioned staff strength is 199 while the actual number of officials is merely 78. Approximately, 60 per cent of the sanctioned posts are vacant *(see Graph 1: Vacancy Ratio across selected PCBs)*.

The gap is very high compared to other SPCBs. Lack of manpower hampers some of the most important functions of the board like inspection and monitoring, reviewing consent applications, etc.

As of now, BSPCB carries out site-monitoring visits only for red category industries. Due to insufficient manpower, monitoring of other categories of industries is neglected. Small-scale industries are not even inspected. Orange category industries are mandated just to submit an affidavit assuring compliance and implementation of mitigation measures to control pollution. They are rarely monitored.

GRAPH 1: Vacancy ratio across selected PCBs



Inadequate infrastructure

There are only two regional offices for the 38 districts of the state. Also there is inadequate infrastructure that are required for monitoring and enforcement like lack of adequate field monitoring kits, sampling vans and laboratory instruments.

Consents are handled manually

Online Consent Management System is in place but not operational. The headquarter is loaded with work as there is no delegation of power for managing consents. Regional offices are entrusted with managing consents only for green and orange category industries falling under the small-scale sector. The archiving and coding practice of consent files needs to be improved. Moreover, there is less use of ICT in monitoring and enforcement.

Lack of training programmes

The staffs are not exposed to good practices and innovative approaches adopted by other PCBs in the country. No regular training programmes have been conducted for staff members to update them with new techniques in pollution monitoring. Trainings are not designed and executed on the basis of the Board's requirement so as to strengthen their technical capacities and increase the efficiency of the Board. The staff members generally do not attend trainings conducted by private organisations as fund approval process is difficult and very time consuming. Sometimes, funds are not available in the first place to attend trainings.

Huge expenditure on administration

Major portion of the income goes towards administrative expenditures. Fifty seven per cent of total income is spent on administration including salaries.

Hazardous Wastes

The hazardous waste inventorisation in the state is not satisfactory. Under Hazardous Waste (Management and Handling) Rules, only 35 per cent of the total authorised units submitted the annual returns during the year 2011.

Bio-medical Wastes

Bio-medical Waste: There is no inventory of medical units operational in the state which makes the management of bio-medical waste difficult.

TABLE 2: Sample

Total participants interviewed	21 (including one participant who did not fill the form but informed verbally)
Average age of participants	52 years
Age of youngest participant	47 years
Age of oldest participants	59 years
Retirement age	60 years

E. Analysis of the Training Need Assessment Survey

There are only 20-25 technical people at the Board including the chairman, member secretary, engineers and scientists at head office and regional offices. There are three officials each at the two regional offices including the Regional Officer. In total, 21 officials filled the training need assessment questionnaire completely (*see Table 2: Sample*).

Common feedback

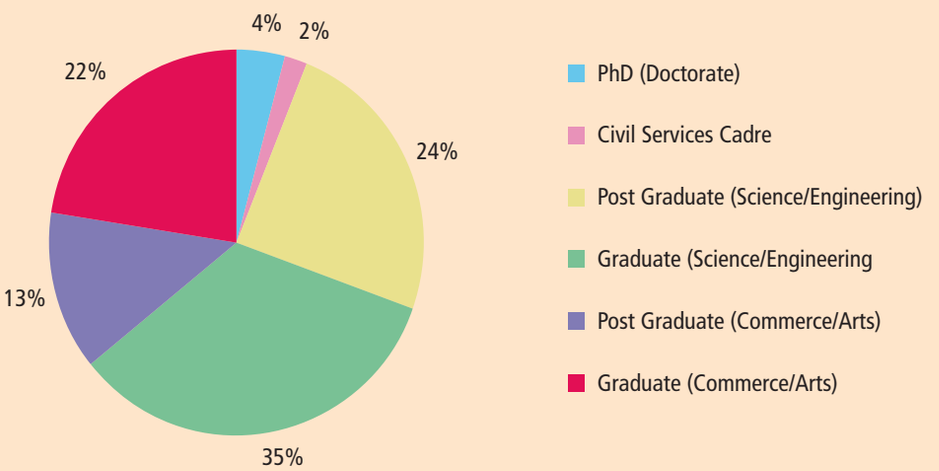
- *Acute shortage of manpower*
- *No recruitment for last twenty years*
- *No promotion since joining BSPCB*
- *No training to improve computer skill*
- *No motivation*

There has been no recruitment by the BSPCB for the last 20 years. If this trend continues for another 13 years, there will be no engineers or scientists left in the head office or regional offices with the necessary skill-set and experience to implement the board's regulatory function This is a major challenge for the board.

Educational background of staff

Majority of the BSPCB's technical staff is either a science or engineering graduate (33 per cent) or post-graduate (24 per cent) (see *Graph 2: Technical Staff's Educational Profile*). There is also a significant percentage of people from commerce/arts background both graduates (22 per cent) and post-graduates (13 per cent). More than fifty percent of the staff is at the graduate level. Candidates with commerce/arts background are involved in the

GRAPH 2: Technical Staff's Educational Profile



Source: Prasad Modak, 2013, *Situation Analyses of Bihar State Pollution Control Board,* pg. 31

Training attended by BSPCB's officials in last five years

- Global environment and disaster management
- Biomedical waste management
- Environmental impact studies
- Wastewater analysis
- Pollution monitoring techniques and instrumentation
- Wastewater and lake monitoring
- Appropriate insrumentation and techniques for complying with new ambient air quality standards

consent granting exercise without any proper training. In due course of time, they have learnt the same from their seniors. The ratio of technical staff to total staff in BSPCB is 36 per cent, which is low compared to other SPCBs where the ratio is between 40 to 50 per cent.

Trainings attended in last five years

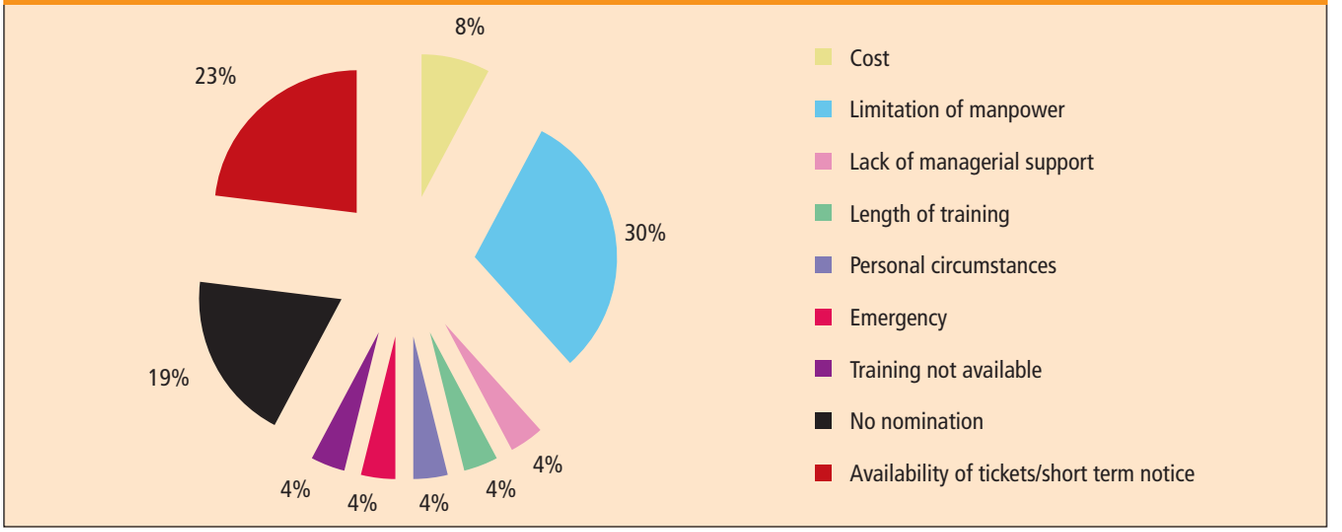
Fifty eight per cent of the respondents said that they had not attended any training programme in the last five years. Thirty two per cent said they have never received an opportunity to attend any training since joining BSPCB.

The majority of the scientists have received an opportunity to attend training programmes. Most of the trainings were organised by CPCB in association with other institutes. The engineers at BSPCB, though interested, could not attend because of work pressure as a result of lack of manpower.

Thirty-one per cent of the respondents said that due to lack of manpower they could not leave office for trainings *(see Figure 3: Reasons for not attending trainings)*.

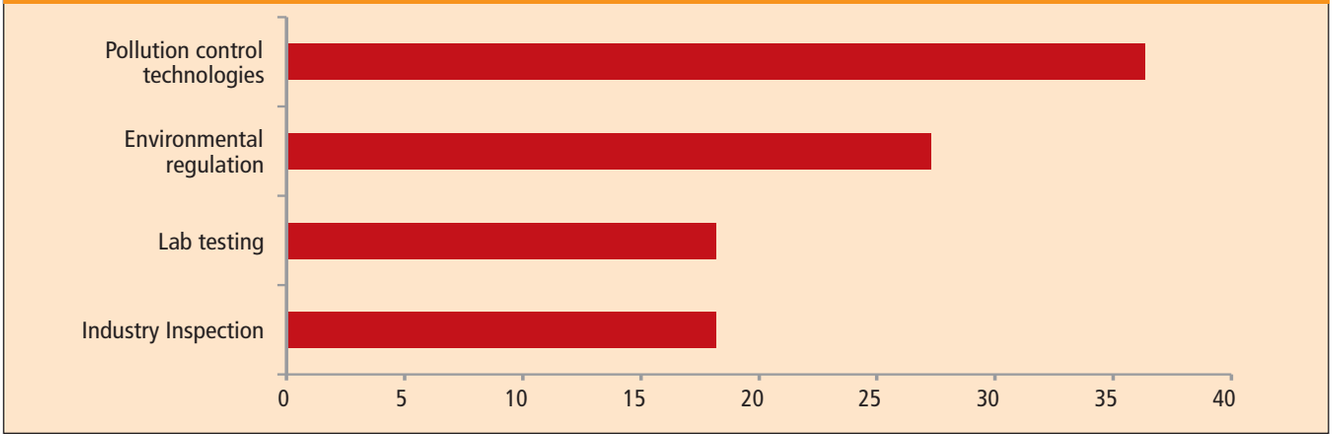
Another significant factor listed was that officials were informed about training too late. In a majority of cases, due to the short notice, they could not get tickets and hence had to cancel their participation. Another limiting factor was the fee of the training programme.

GRAPH 3: Reasons for not attending trainings



Source: Analysis of data collected during training need assessment survey

GRAPH 4: Topics of interest



Source: Analysis of data collected during training need assessment survey

Interest in training

The most important question asked by the CSE team to the officials was that if they are interested in participating in training programmes. In spite of the number of constraints listed above, officials expressed their interest to participate in trainings with the intention of learning innovative tools and techniques for compliance assurance. Except one official, rest expressed desire to attend training programmes. Officials have shown a huge interest to learn about pollution control technologies (36 per cent) and environmental regulation (27 per cent) (see *Graph 4: Topics of interest*). Surprisingly, industry inspection, which is the pivotal job of SPCBs, was one of the topics of least interest for trainings.

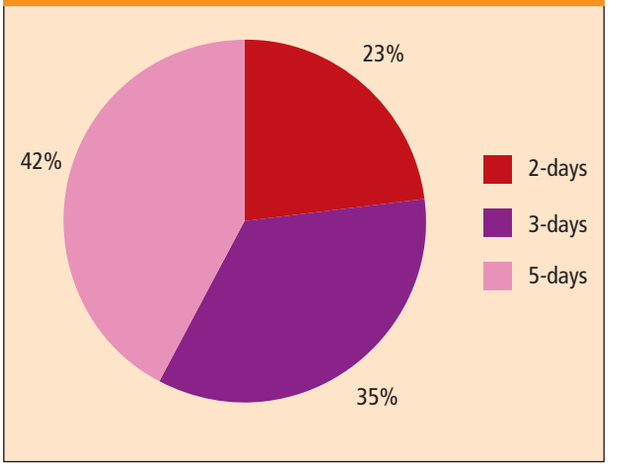
Ideal duration for training programme

The responses to this question reveal that it is not possible for the officials to attend trainings of long duration because of the intensity of workload as well as family commitments.

Twenty three per cent of the participants are interested for two-days trainings (see *Graph 5: Preferred training duration*) while the rest felt that it is difficult to get trained on specialized topics in just two days. Ideally, according to them, training should be for 3-5 days. Not a single official was interested for 15-days or one month training. CSE conducts one-month long training programme for SPCB officials with less than 10 years experience. At BSPCB, all technical staff has more than 20 years of experience.

The offcials have also provided their feedback on what exactly they wish to learn from capacity building programme. The main concern area for BSPCB's offcials is sugar, thermal power plant and distillery sector. Among the small scale are brick kiln, flaked rice (*churra*) and rice mill. The participants wish to learn about air pollution and water pollution control technologies in the respective sector as well as protocol for inspection and monitoring. They have also shown interest to learn innovative waste mangement practices. They wish to go for field visit to other states with good waste management practices. Enforcement and implenetation of acts and rules was another area where majority feel they need capacity building.

GRAPH 5: Preferred training duration



Source: Analysis of data collected during training need assessment survey

Suggestions to make capacity building programme more effective

- *Practical oriented training programmes, more field visits*
- *Basic computer training especially on excel*
- *Training on consent management*
- *Data management, analysis and interpretation*
- *Cell tower radiation monitoring*
- *Exposure visit to*
  - *State of art sugar and distillery units*
  - *Transport, storage, disposal facility (TSDF)*

F. Environmental challenges before the state of Bihar

Bihar is the 12th largest state in terms of geographical size at 9.9 million hectares (ha) and 3rd largest in terms of population population (103.8 million). The urban population is 11.3 per cent and rural is 88.7 per cent. Population density at 1,106 people per square km.

The major environmental challenge faced by Bihar is sanitation and waste management. Sewage generated in Class 1 cities in Bihar is estimated to be 863.6 million litres per day (MLD) and treatment capacity is 167.2 MLD. Treatment capacity is therefore, less than 20 per cent. The treated and untreated waste water is either disposed on land (6.37 per cent) or river (93.6 per cent). This is reflected in the water quality of Ganga and its tributaries in terms of biological oxygen demand (BOD) and total coliform. In case of Class 2 cities of Bihar, total wastewater generated is 125.2 MLD of which 45.5 MLD is going into water bodies (36.3 per cent) and 79.7 MLD is disposed on land (63.46 per cent), which means there is no wastewater treatment plants in Class 2 cities. Moreover, even the four sewage treatment plants in Bihar are working on a very low load.

Total municipal solid waste generated in the state of Bihar is 1,825 tonnes per day. Out of which Class 1 cities generated 1,401. tonnes (76.78 per cent) solid waste while Class 2 cities generated 418.93 tonnes (22.95 per cent). In addition, approximately six tonnes waste is generated by hospitals per day. Out of which 1.23 tonnes per day is infectious waste and 4.9 tonnes per day is municipal waste.

In absence of proper environmental sanitation and waste management, it is reported that the water borne diseases such as diarrhoea, typhoid, malaria, and dengue are common health hazard in the state of Bihar.

G. Course correction

After interacting with the Board officials, two key issues were identified. Firstly, considering the manpower constraint, BSPCB will not be able to spare too many officials for the training. Secondly, considering the environmental challenge that Bihar is facing, training of other stakeholders like municipality and water and sanitation department is also very important.

It was therefore, decided to broaden the scope of the programme by including other stakeholders. In oder to understand the capacity need of other stakeholders, CSE delegate met officers from Patna Municipal Corporation (PMC) and Bihar Rajya Jal Parishad (BRJP).

CSE delegates met Mr Shailesh Chandra Diwakar, OSD to Commissioner, Patna Municipal Corporation. Mr Diwakar appreciated the idea of training municipal officers on areas such as proper understanding and

implementation of Municipal Solid Waste Management Rules, handling and treatment options. He requested us to send a detailed proposal to initiate the things.

CSE delegates then visited the office of Bihar Rajya Jal Parishad (BRJP) but in vain as most of the senior people were busy in the inauguration function of a new STP chaired by Mr Nitish Kumar, Chief Minister, Bihar. On the condition of anonymity, two junior officers informed they need capacity building on operation and maintenance of STPs. They also expressed a desire to learn about decentralised wastewater management.

The CSE team also visited one of the major and biggest hospitals of Patna, the Patna Medical College Hospital (PMCH) to see the Bio-medical waste management in place. The waste management scenario in the hospital was not up to the mark. The team saw that different category waste coming from the wards in the hospital were lying in corner of a room in an area earmarked for biomedical waste management and two ladies were struggling to segregate it. The team found out that the ladies were uneducated and had not even been given any basic training on BMW management. They were carrying out the waste management exercise without any supervision and guidance from the hospital staff.

H. Recommendations:

Based on the feedback received from Bihar State Pollution Control Board officers and interaction with officers from municipality and Bihar Rajya Jal Parishad, CSE has identified certain crucial capacity building areas. These are not only important for BSPCB but also for other stakeholders.

- Training programme on waste management for the officials of Bihar State Pollution Control Board, Nagar Nigam/Nagar Parishad and Urban development departments.
- Training programme on sewage treatment technologies and the role of decentralised wastewater treatment system for the officials of Bihar State Pollution Control Board, Bihar Rajya Jal Parishad and Urban development departments.
- Training programme on monitoring and compliance of industries for the officials of Bihar State Pollution Control Board.
- Exposure visit to learn best practices in industries for the officials of Bihar State Pollution Control Board.
- Exposure visit to learn innovative waste management practices for the officials of Bihar State Pollution Control Board, Nagar Nigam/Nagar Parishad and Urban development departments.
- Training programme on pollution monitoring techniques and instrumentation for the officials of Bihar State Pollution Control Board.

The Centre for Science and Environment is a public interest research and advocacy organisation, which promotes environmentally-sound and equitable development strategies. The Centre's work over the past 30 years has led it to believe and argue, both nationally and internationally, that participation, equity and community-based natural resource management systems alone will lead the nations of the world towards a durable peace and development.

As a public interest organisation, the Centre supports and organises information flow in a way that the better organised sections of the world get to hear the problems and perspectives of the less organised. Environmental issues are seen in an anthropocentric perspective that seeks to bring about changes in the behaviour of human societies through appropriate governance systems, human-nature interactions, and the use of science and technology.

Though the public awareness programmes of the Centre have been its key strength and focus of work, it has endeavoured to move into associated areas of work like policy research and advocacy in the past years. Learning from the people and from the innovations of the committed has helped the Centre to spread the message regarding environment without its normal association with doom and gloom. Rather, the effort of the Centre is to constantly search for people-based solutions and create a climate of hope.

The Centre has always been, and will continue to be, editorially independent of interest groups, governments, political parties, international agencies and funding sources. CSE never accepts funding to push a donor's viewpoint. All its outputs are available for public dissemination.

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