

EXTERNALLY AIDED PROGRAMMES

WBPCB-ICEF PROJECT ON POLLUTION PREVENTION AND WASTE MINIMIZATION OF SMALL SCALE INDUSTRIAL UNITS IN KOLKATA METROPOLIS AREA

Background

Kolkata, a metropolitan city with high population density, experiences high level of particulate matter (PM) in ambient air. Regular air quality monitoring surveys indicate the presence of high level of PM, especially the smaller and respirable fractions in the city air. Exposure to such high level of particulates affect the exposed city population. Studies conducted by the State Environment Department during 1997-2000 indicated that the lungs of the city residents was seven times more burdened with small particulate matters compared to their rural counterparts.

CHAPTER ELEVEN

Among various sources of air pollution in the city, the emissions from small industries using coal-fired heating installations were the major contributors. Inventorisation of small-scale air polluting industries in Kolkata in 1999-2000 revealed that more than 300 industries, using small energy-inefficient highly air-polluting coal-fired boilers (mostly belonging to the industry categories of rubber, dyeing bleaching, pharmaceuticals, paper etc.) were operating in Kolkata without minimum pollution control measures. Emission inventory also revealed that these industries were responsible for 44 per cent of particulate emission from industry sector in spite of using only 8 per cent of coal. Besides these boilers, significant air pollution was also caused by copious black smoke-emitting down draft coal-fired ceramic kilns operating within the immediate fringe areas of Kolkata. These industries were also enjoying a relaxed particulate emission standard of 1200 mg/Nm³.

In order to contain the emission level from these units and to improve the air quality of Kolkata,



New oil-fired boiler



New oil-fired ceramic kiln

on 11th May 2001, the West Bengal Pollution Control Board (WBPCB), under the Environment (Protection) Rules, 1986, introduced stricter emission standard of 150 mg/Nm³ for regulating their emissions. As most of these industries are small-scale in nature and do not have adequate space and fund for installing emission control system required for achieving the stricter standard, the WBPCB directed these small industries to convert their coal-fired heating installations to cleaner fuel-fired ones. This changeover obviously required new investment from the industries, which was a hindrance for implementation of this notification. Besides the investment, the change of mindset of these industries to switch from the age-old technologies to new technologies was also a challenge before the WBPCB to implement this notification. Therefore, the WBPCB-ICEF (India Canada Environment Facility) project was commissioned in October 2001, in order to provide financial assistance to these small units to successfully complete the fuel conversion (from coal to oil/gas) to reduce PM emissions. The project was designed to increase the understanding and willingness for adoption of better practices with respect to use of cleaner fuel. The industries had to invest upfront to complete the conversion and install the green field equipment, and claim for reimbursement of 50 per cent of the cost of conversion.

The project was started in October 2001 through signing of a Contribution Agreement between the India-Canada Environment Facility (ICEF), New Delhi and the West Bengal Pollution Control Board. Initially, the duration of the project was for five years and was scheduled to be completed

by September 2006. Subsequently, the project was extended for another six months and the project was finally completed in March 2007. The total project cost was Rs.16.49 crores, of which ICEF contributed Rs.4.80 crores, the WBPCB contributed Rs.4.18 crores and the remaining Rs.7.51 crores was spent by the concerned industries. Out of Rs.8.98 crores contributed by the ICEF and the WBPCB, a total sum of Rs.5.61 crores has been spent in the project, out of which the ICEF has provided Rs.2.76 crores and the WBPCB has provided Rs.2.85 crores.

Major Achievements

The WBPCB-ICEF project has recorded satisfactory overall quality performance during the implementation of all the technical and administrative steps. Five years down, no industries in Kolkata are operating small coal-fired boilers and ceramic kilns emitting black smoke from small chimneys in the city's skyline. All such industries have either completed fuel conversion of their heating installations or have stopped using the boilers/kilns. The project has been able to reduce 98 per cent particulate matter emission in Kolkata. Moreover, the project has been able to reduce about 32,000 tonnes of CO₂ emission per year by replacing the age-old energy inefficient coal-fired boilers/kilns with greenfield equipment. The project has provided a sum of Rs. 4.67 crores as financial assistance to 167 industries for converting their coal-fired small boilers and ceramic kilns to oil-fired ones. Although only 167 small industries could avail the financial assistance under the project, a total of 322 small units using small boilers and ceramic kilns have completed fuel conversion.

A study conducted on the social impacts of the project revealed that the owners of the industries consider the new oil-fired technology as user-friendly, time-effective and has resulted optimum fuel use with lesser wastage of fuel compared to coal-fired systems. The boiler or kiln operators overwhelmingly accepted the new technology and felt better health and working environment, as the new system is less labour-intensive. The people living in the neighbourhood appreciated the fact that there was no existence of black smoke, and felt that the new system would ensure

better health. The land use pattern has been completely changed in some of the areas. The project has also built better industry-neighbourhood relationship.

Dignitaries including the Hon'ble Canadian High Commissioner, Director General of Canadian International Development Agency (CIDA) and representatives of CIDA visited the project sites. All of them highly praised the success of the project and appreciated the efforts of the WBPCB and the ICEF in solving a long standing problem of the ancient city of Kolkata. The Canadian Broadcasting Corporation prepared a short documentary on the project highlighting the problems and achievements gained through the project.

Two major publications were released on the project. The first one included the details of the project including the main objectives and achievements. The second publication is a compilation of two independent studies under the project conducted by the Technology Informatics Design Endeavour (TIDE), Bangalore on assessment of environmental improvement achieved through the project, and the Environment Governed Integrated Organisation (EnGIO), Kolkata on the social impacts of the project. A short bilingual (in English and Bengali) documentary film was also prepared on the project.

In December 2006, a National Seminar on 'Emission reduction from small-scale industries in Kolkata' was organised in Kolkata to showcase the project before a national audience including Chairmen, Member Secretaries and senior



*Hon'ble Environment Minister release publications
at the National Seminar*

officials of different State Pollution Control Boards, industry associations, academic institutions and foreign funding agencies. The Seminar was inaugurated by Shri Sainen Sarkar, Hon'ble Minister-in-Charge, Department of Parliamentary Affairs and Environment, Government of West Bengal. The representatives of State Pollution Control Boards highly appreciated the success of the project and discussed about the possible replication of the project in their states, in order to solve similar environmental problems of small industries.

GTZ-ASEM COOPERATION PROJECTS WITH WBPCB

The West Bengal Pollution Control Board (WBPCB) approached the Consul General, the Federal Republic of Germany, Kolkata requesting technical and financial cooperation from the German Republic, specifically mentioning a few projects for technology development for abatement of pollution from clusters of various small-scale industries operating in the state. Subsequently, the Federal Republic of Germany agreed to extend their cooperation to the WBPCB for the project activities under Indo-German Environment Programme. A team of officials of German Technical Cooperation (GTZ) was sent for preparation of report on detailed project activities mentioning the implementing agencies (GTZ or the WBPCB) for each sub-project. The project activities, as mentioned above, are as follows:

1. Technology development for abatement of pollution for small ceramic kilns (earthen pottery);
2. Technology development for abatement of pollution for small galvanizing units;
3. Technology development for abatement of pollution for small non-recovery fuel coke units; and

4. Development of Common Effluent Treatment Plant (CETP) for small textile processing units involved in dyeing and bleaching operation.

The first three projects will involve technology development for solving environmental problems in concerned sectors with due consideration of the economic status of typical industries. The fourth project titled 'Development of Common Effluent Treatment Plant (CETP) for small textile processing units involved in dyeing and bleaching operation' will aim to address the long standing requirement of preparation of detailed project report for environmentally managed industrial estate for shifting a section of the environmentally problematic textile processing units. These will include the illegally operating textile processing units located within Maheshtala Municipal area and Chatta Kalikapur Gram Panchayet under Maheshtala Police Station in South 24 Parganas district. The objective of the fourth project will be to design a model industrial estate for relocation of illegally operating textile processing industries involving dyeing and bleaching operation. This project can be replicated for setting up of similar industrial estates for relocation of large number of illegal dyeing and bleaching units operating in Garden Reach area and Chatta Kalikapur Gram Panchayet under Maheshtala Police Station.

The GTZ has already completed the preliminary survey work for all four projects. They will now be holding a kick-off workshop involving various stakeholders of the projects under reference, where foreign and country experts invited by the GTZ will explain the objectives of the projects with some initial indication regarding the technology development directions. This workshop will be held in February 2008 at Paribesh Bhawan, Bidhan Nagar.