



Dilemma in the Developing World

Small-Scale Industries Drive India's Economy But Pollute Heavily: What Can Be Done?

by Dr. Anil Agarwal

Illegal discharges from small-scale industry, are difficult to regulate and control in India.

Since independence, India has had strong policies to promote the small-scale industrial sector: it is labor intensive and thus creates more jobs, it contributes to decentralized industrial development and the units are flexible and able to quickly reorient themselves to emerging demands. In these units Western technological systems are getting adopted far and wide which produce enormous gaseous, liquid and solid wastes.

But the pollution control technologies developed in the West are not economically suitable for these small enterprises. The number of such enterprises is huge and so is the pollution from them. They contribute some 40 percent of the total industrial wastewater in India.

Small-Scale Industries are Major Economic Players

These industries today account for 40 percent of the industrial production, 35 percent of the total exports, and employ almost 17 million people in 3.2 million industrial units. They are involved in food processing, hosiery and garment, and leather and leather products. All these sectors are globally

competitive and have a high export earning potential. The share of small enterprises directly and indirectly is estimated to be 60 percent of the total manufactured exports of India.

These enterprises tend to form strong clusters with serious water pollution problems. The total waste waters generated amount to some 3900 million liters per day or 1.2 Gm³ per year.

Clusters of textile dyeing industries have led to serious problems in towns situated on small rivers like Pali, Balotra and Jodphur in Rajasthan, Jetpur in Gujarat and Tiruppur in Tamil Nadu. Units producing dyes and dye intermediates have also become major sources of both groundwater and surface water

pollution. The village of Bichhri has seen all its wells become black in one monsoon.

Extremely Difficult to Control

No industrial license is required from the central government to locate a small-scale industry in cities with less than one million inhabitants. In larger cities, polluting industries must be located in designated areas. This policy is however extremely difficult to implement. In Delhi, for instance, several tens of thousands of polluting industries – nobody knows the exact number – are located in non-conforming areas. A Supreme Court order this year to relocate them led to riots. Leading political parties blamed each other for the situation and protested in favor of the industries. The order has gone largely unimplemented.

In some cases upstream/downstream conflicts develop. In River Bhadar in Gujarat, after 14 years of public protests, the High Court ordered closure of 1200 sari dyeing and printing units in Jetpur till effluent tre-

atment plants were installed. But little has happened. In Rivers Bhavani and Noyyal in Tamil Nadu downstream farmers have filed a public interest litigation against pollution from 800-odd dyeing and bleaching units in Tirupur due to the severe pollution caused to their irrigation water source.

Despite the scale of the problem, there is still limited civil society interest in river pollution. A number of actions taken by the government of India in terms of training workshops, studies in waste minimization, publication of guidelines and manuals, awareness campaigns, assistance to individual units to set up pollution control equipment, assistance in the establishment of Common Effluent Treatment Plants for small industrial clusters, or introduction of clean technologies have remained very limited. This is due to the large scale of the problem and fear of losing profits from this economic sector.

Moreover, in a democratic country like India, the large number of small enterprises make them powerful “vote banks,” why politicians do not want to touch them.

Not Much Different in China

Township and Village Industrial Enterprises play an important role in the development of rural areas in China, too. Because of rapid development in the rural non-agricultural sectors, the real per-capita income in rural areas increased to nearly 4-fold in 15 years. In 1998, there were 6.6 million units with altogether 73 million employees. By comparison, the number of state owned industrial enterprises is only 65,000. The small enterprises contribute 56 percent of the country’s total gross output value. The major pollutants discharged by these units were expected to reach 50 percent of the total national industrial pollution by 2000.

The major contributors are paper companies. More than half the total wastewater

is generated by small enterprises in the eastern provinces.

Given all these problems, the governments of both countries are adopting a policy of closure. But the scale of the problem is so big and employment and production so high from these units that the closure policy cannot be taken to its ultimate.

What Does this Tell Us?

All developing countries, as they begin to industrialize based on Western models, will find an important segment of their industries using outdated and highly polluting technologies, and their scale of operation will prevent them from adopting pollution control technologies. The problem has largely to do with the highly toxic model of Western industrialization. India has dyed cloth and tanned leather for centuries using only vegetable dyes and tanning substances. It is only with the advent of Western industrialization that dyeing and tanning units have switched to chemicals.

And the West moved out of this phase of industrialization without contributing to any research in this field. For example, small-scale paper mills, which use agricultural residues as raw material, can greatly add to the incomes of poor farmers. But little research has been done to make them non-polluting.

Although the solutions are in a way evident – find low cost pollution abatement technologies, move from pollution control to pollution prevention, and international cooperation – there are no easy solutions. Resistance from these enterprises is very high. Local political support is very weak. And there is not much interest in this problem in the West.

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and irrigation districts brought about more efficient water use, as stated for the Lower Rio Grande/Rio Bravo Basin.

Also, given that all the modes of human security are linked through the dynamics of water falling as precipitation and passing through a catchment as a mobile solvent, water management has to involve compromise-building efforts. Cross-sectoral management of basins as well as public-private partnerships were cited as playing a key role.

It was furthermore presented that the major concerns for industry is not the price of water but rather an assured source of supply. Clear signals from a stable government would support an economic development. But technical solutions and institutional arrangements can only be as good as the people managing it. Urban areas, especially, would need professional support and assistance, as urban water security is closely linked to urban stability, a considerable task in informally supplied, unregulated shanty towns.

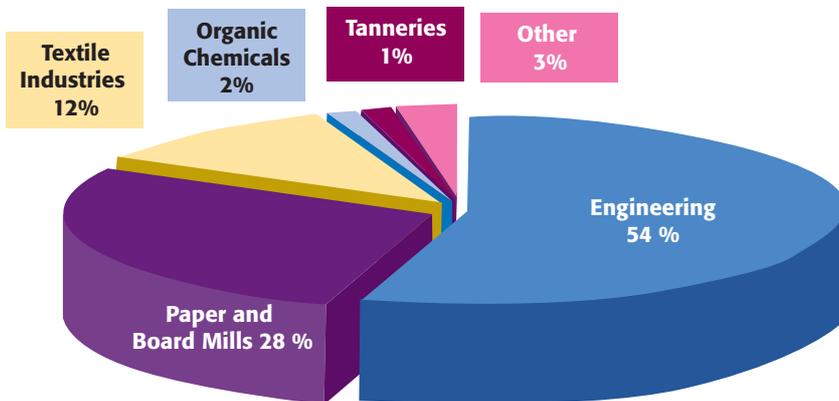
In short, rules are now needed and institutional mechanisms have to involve competence to make cross-sectoral analyses on the catchment level.

The Water Associations Worldwide (WAW), a global network of working water quality practitioners such as environmental engineers and research chemists, held a seminar August 12 during the World Water Week. The WAW emphasizes that good professional people are integral to the building of successful sustainability programs. At the seminar, which was attended by about 50 people, Dr. Patricia Wouters of the American Water Resources Association discussed legal and institutional issues in water resources management.



Thank You!

World Water Week Seminars
 East African Community
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Small-scale enterprises in India generate 3900 million liters of wastewater per day. The graph above indicates the percentage contributed by sector.