

### 5.3.1 Industrial Requirements

#### *Market Overview and Current Activity*

Indian industry needs clean water for a range of industrial operations and is being pressured by the Central Pollution Control Board and the courts, to improve water discharge quality. Wastewater is commonly discharged into lagoons or dumped on low-lying areas without any pre-treatment, contaminating ground waters and salinizing soils. Scarcity of water and tighter pollution control measures have prompted Indian industry to seek alternative systems that reduce, recycle and reuse water in the production process.

#### *Technology Opportunities*

There is a need for practical and cost-effective wastewater technologies. Indian industry requires specialized physio-chemical and thermal treatments of wastewater. Flotation technologies, currently used primarily in the pulp and paper industry for material and water recovery, are in demand in the dairy, sugar, textile processing, coal, leather, oil exploration and petrochemical industries.

The Indian environment industry has access to conventional technologies to treat organic wastewater from industrial and municipal sources but has yet to fully implement such systems. Advanced technology is still scarce in areas such as anaerobic treatment of highly organic wastewater from distilleries, food processing and pulp and paper with methane recovery.

Specific water and wastewater technologies that have application in India include:

- Absorption technology for control of BOD and toxic compounds in the textile, paper, and fibres industries, among others;
- Ozonation technology for control of toxic chemical and pathogens in the iron and steel, dye, paper and pesticides industries;
- Reverse osmosis for control of dissolved inorganics for industries requiring water reclamation;
- Ultrafiltration technologies for the control of COD, as well as dissolved polymers and colloids in the dairy, oil refinery, wood, breweries, paper and paint industries;
- Ion exchange technology for control of heavy metals, cyanides and fluorides for the metal finishing, pulp and paper, distillery, and electronics industries;