Some aspects of Environmental Pollution in Sri Lanka

E. E. Jeyaraj
Head, Department of Microbiology, CISIR

Pollution is one of the aspects of population pressure on the environment, and man's use and mismanagement of land and water resources. This is seen in the use of modern methods of agriculture with high inputs of fertilizers and pesticides in problems of sewage and waste disposal caused by the increasing shift of the population from the countryside to the towns, and in new industrial technologies whose wastes are dumped on to the land, into surface waters or the ambient air.

Only a limited amount of data has been gathered on pollution in Sri Lanka. Even though it is less developed than many other countries in many respects, there can be no doubt that even here, pollution affects the quality of human life and if not controlled can cause irreversible changes in the environment and even bring about ecological disaster.

Air Pollution

The main air pollutants are smoke, dust (cement factories etc.), sulphur dioxide (petroleum refinery), carbon monoxide, nitrogen oxides and their poisonous products (emanating from automobile engines), noxious fumes of lead and other heavy metals (from electroplating smelting of type in the printing industry, accumulator manufacture) and chlorine — the poison gas of World War I (from caustic soda manufacture). Many of these are being brought under control — at least within the factory with respect to the workers' health — but we are still subject to noise, smoke, and fumes from belching buses while the Chemical Corporation is in the course of doubling its capacity for producing caustic soda as well as chlorine.

Eutrophication of Lakes, etc.

The effect of fertilizer run-offs on to surface waters is the increase of nitrogen (and phosphorus) compounds in the water. The nitrogen is made available as nitrate to algae through microbial action. In turn these multiply even to the extent of forming vast areas of water bloom on lakes. On their death, microbes decompose the cell materials, causing depletion of the oxygen in the water, causing death of fish and other animals, putrefaction, etc. and the lake proceeds to die. Castlereagh and Mousekelle are already subject to this process — while the Beira, Kandy and Lake Gregory have preceded them greatly aided by extra dosages of human wastes.

Pesticides

Another aspect is the heavy use of pesticides and the consequent harmful changes in the different ecosystems in which they have been employed. (Those who took the decision to eradicate the coconut pest *Promecotheca cumingii* using only biological methods are to be heartily congratulated.)

The contamination of vegetables by using pesticides without the respective precautions and conditions is evidently known by the market gardener who grows vegetables for his own use in a separate plot without employing these sprays. At a laboratory session of an international training course the Sri Lanka participant was found to have the highest blood level of DDT among those present!

Industrial Wastes and Sewage

Surface waters and the sea have long been used as dumps for waste. The most striking example we have of an open sewer is the Wellawatte Canal and the periodical stink which those who live around it are subject to. In this particular instance the chief causes are sewage from the city sewer/storm water overflow and from shanty dwellers along the canal banks together with organic waste effluents (milk, fruit and textile processing) which fertilise microbial growth which causes corresponding depletion of oxygen in the water. In addition, sea water gains entry and the sulphates are under these conditions reduced microbially to the malodorous hydrogen sulphide.

A study carried out on the water quality of the Kelani river shows that the last few miles of the river is subject to pollution by the effluents from a number of industries as well as city sewage. This area has a history of a dwindling fish population and an increasing pollution index stemming from chromium (leather factory) petroleum and other wastes. Computer programming of the data obtained indicates that at the present rate, within a few years the Kelani as it flows past the city will acquire the dubious distinction of becoming a highly polluted surface water. Meanwhile Colombo tap water (obtained from the Kelani) often tests for presence of faecal bacteria and there is a rise in the incidence of cholera and enteric fevers and viral hepatitis.

What is most disheartening is the callousness with which some factory effluent treatment plants have been left out in the open to rust and deteriorate without even being installed, while those in the vicinity have to suffer from a polluted water supply for drinking and domestic purposes and for irrigation of crops.

These are some of the areas where there is significant pollution in this country. Much more data have still to be obtained. Very little effort is at present expended in environmental monitoring and predicting the changes which can take place through the action of pollutants. It is only as a result of these that (environmental) scientists can place the facts before the citizens of the country in order that they may take action to see that the environment not only merely sustains life but enriches it, harmonising the efforts of man and nature for the greater good of all, including the generations yet to be born.