

Should we prohibit poly-bags?

by Lionel Wijesiri

On April 3, 2002 a complete ban on all types of polythene shopping bags became a permanent amendment to the Bangladesh Environment Conservation Law of 1995.

The new law provides strict penalties for violators. The polythene shopping bag ban applies to the production, import, marketing, sale, display, storage, distribution and carrying of these bags. The maximum penalty applies to those who import or market polythene bags. These violators will face up to 10 years in prison and/or a fine of up to 10 million taka.

Those who sell, display, store, distribute or carry plastic bags will face a maximum punishment of a 6-month sentence and a 10,000 taka fine.

The Bangladesh Government believes these penalties are strict enough to ensure that the law will be effective, and also target those who attempt to inflict the greatest damage on the country for their own profit.

Some environmentalists say that this law serves as a model for other nations in South Asia, particularly to Sri Lanka.

History

Time was when a small cloth bag sufficed for a visit to the local market. Used and reused over years, it had often been hand-embroidered lovingly by mother or grandmother.

Jewellery and curio merchants presented buyers with complimentary velvet bags displaying their brand name and address boldly.

But times have changed. Today few bother to carry a bag or a basket to market because vendors hand over their goods in the all-pervasive polythene carry bags. When polythene bags arrived in Sri Lanka in the early 80s, we found it handy as an alternative to our cloth, reed or cane shopping bags. But before long this chemical product proved to be environment-unfriendly.

Programmes

What is the reality? Are polythene bags as harmful as the environmentalists claim?

Vineeta Kataria, Indian environmental scientist says, "The polythene carry bags one sees in the market do have a harmful effect on humans.

For one, they are made of recycled plastic waste and the harmful chemicals in them leak into the food products they carry."

"If strewn on agricultural land, these plastics block free water circulation to plants, affecting the quality and the quantity of the agricultural produce. In urban cities, plastic litter blocks the drainage systems, which, during heavy rains, flood the roads. Finally, when these poor quality plastics are burnt in the process of waste disposal, they emit noxious fumes".

She suggests that South Asian countries should implement a ban on use of recycled, poor quality low-density polythene bags. There is no objection to plastic per se; As for the better quality high-density plastic bags, our recycling habits are so strong that most people will use them till they are worn out. The plus point is that such plastics are recyclable.

Carlton Wijesinghe, a retired lecturer in Social Sciences, too concedes that a total ban on poly bags is unrealistic. What should be

curbed is extensive usage and indiscriminate littering. For this, he says, awareness campaigns are necessary.

Action

In 1998, the Ministry of Forestry and Environment has forwarded a proposal to the Cabinet to introduce measures to minimise the use of polythene and to offer incentives to industries that promote alternatives.

Forestry and Environment Minister at that time said that the polythene menace was contributing to numerous environmental problems that will have dire repercussions in the coming years. He further said that alternatives such as coir rope, different varieties of reed and cane can be reintroduced to minimise the impact of polythene to some extent.

Two years later, in 2000, Mr. Mahinda Wijesekera who was then the Minister of Forestry and Environment held out incentives to industrialists introducing environmentally friendly alternatives to polythene bags which were being widely and increasingly used.

Citing the woven reed bags of the bygone era as a good example of more environmentally friendly alternatives the Minister said the modernisation process and the popularity of polythene have had an adverse impact on industries turning out traditional bags and containers.

Research

Dr Hossain Shahriar, an environmental expert quoting findings of a research on polythene conducted by the Korean Institute of Health Research, says that workers at polythene factories are more exposed to cancer, skin disease and other fatal health problems.

According to him, polythene-wrapped fish and meat generate a kind of heat that creates radiation, which ultimately makes the food poisonous.

Besides, anaerobic bacteria infect the polythene-wrapped fish, meat and vegetables; this germ is responsible for skin disease and cancer, Dr Shahriar says.

Dr Shahriar adds: "Polythene bags and other plastic materials, if burnt below 7,000 degrees Celsius, create a dioxin like poisonous gas, which can cause cancer and skin diseases. Polythene bags dumped near households are the safe havens for breeding mosquitoes, which causes dengue fever, filariasis and malaria".

Discussion

A few months ago at the city of Chandigarh, India, a number of experts participated in a panel discussion on polythene menace. All of them underlined the need to educate the masses about the harmful consequences of using plastic materials.

R.C. Sobti-Dean of Punjab University, pointed out that the benzene, vinyl chloride, ethylene oxide and several other chemicals used in the manufacture of polythene adversely affect genes, reproduction, hormonal activity and the immune system. At the same time, he questioned whether a ban on polybags was the solution to the problem of plastics, remarking: "We live with plastic, it is an everyday thing ... Can we live without it?"

P.D. Sharma of the University Institute of Pharmaceutical Sciences stressed education as the best way to counter the use of polybags, observing: "One can easily educate the uneducated but it is dif-

icult to educate the educated one."

Jerry Nadarajah, a company director and a much travelled environment-lover says: "I believe that if the people of Sri Lanka, particularly, users of polythene bags behaved like those of Britain or Australia, we would not have any problem here. But what we find in Sri Lanka is very shameful. It seems that we are not yet accustomed to using waste bins inside and outside of houses. There is also a shortage of public waste bins where people could dispose of the waste properly. And where there is a bin, all the garbage is not put within, rather littered all around it. This scenario is very common around Colombo and major cities. We dispose of all sorts of waste including polythene bags in the street corners indiscriminately".

Local Scene

"Solid waste management is one of the most daunting problems facing our cities. In spite of massive expenditure by each local body, hardly 50 per cent garbage is collected at a time, but the disposal in a scientific manner has never been taken up seriously".

"If the system is properly organized at all the three levels - collection, transportation and disposal - not only the expenditure can be reduced but money can also be generated through recycling and composting. In the bargain, lifting of hundred per cent garbage can also be ensured".

"In view of the past experience of Colombo and other cities such as Kandy and Galle, it is obvious that unless the roles of municipal sanitary staff, private entrepreneurs and recycling industry were accepted and redefined, the problem would not be solved".

"It is also obvious that the collection and transportation of garbage could be made a lucrative business if at the land-fill sites proper arrangements for sorting out garbage, basic infrastructure for the recycling industry, and place for composting were made".

I asked him: "Is there anything we can do?"

Nadarajah says: "Litter just simply doesn't appear. It is the result of careless attitudes and improper waste handling. Knowing more about litter and where it comes from is a good place to start. Research by environmental experts has found that people litter because:

• They feel no sense of ownership, even though areas such as roads, parks and beaches are public property.

• They believe someone else - municipal or urban council maintenance worker - will pick up after them. Litter already has accumulated. I asked him what he thinks the best solution is.

Nadarajah adds: "In my view what Government needs to do is to take a policy decision to deal with the demand side of polythene bags.

First, the Government can undertake extensive educational programmes through all available media so that people in general become conscious about their behaviour while they dispose of the solid waste. Second, the Government can resort to economic policy instruments like fine and penalty to address the proper disposal of solid waste. And third, the Government can also introduce social tax on manufacturing units of polythene bags so that they are motivated to diversify their products in favour of environmental friendly alternatives".

Food for thought?

New age approach

We need to go back to the drawing board to reinvent a green toilet. If necessary, to go back to our past and find technological innovations that are sustainable and equitable to that every Indian can have access to sanitation and still have clean water to drink. The alternatives to the flush toilets are emerging. These are beginnings of the new approach of sanitation - sewer less and less water intensive.

It is time to go back to basics and examine what toilets and sewerage systems are supposed to do. The point of all these systems is the safe disposal of human waste matter. Flush toilets and sewerage transfer the problem elsewhere; they are complicated ways of spreading pathogens away from the user to the public at large. Toilets and sewerage can be split up into two, since there really is no logical connection between the two, just a historical one. The safe disposal of wastes can be undertaken in two ways:

Off-plot system in which excreta are collected from houses and then transported away. This is what the modern sewerage system is. On-plot systems in which safe disposal of excreta takes place on or near the household.

If sewerage and flush toilets are considered indispensable, the way to reduce their environmental and financial impact is controlling how much water they waste. What options are available to reduce water use in sewage systems?

Back to nature

In the flush system, the water is used not just to clean the toilet bowl, but also to transport the excreta. A family of five who uses a water toilet contaminates more than 150 thousand litres of water to transport 250 litres of excrement in one year. We must recognise that:

* Water is a precious resource and should not be used to transport faeces.
* Waste should be managed as close as possible to its source.
* Faeces and urine are resources rather than waste products.

The first step is seeing our biological 'waste' as resources. All organisms need nutrients to grow; plants get these nutrients from the soil. Sewage systems bypass the natural flow of nutrients back to the soil and instead dump these nutrients into water. On an average, a healthy person discharges 100 to 400 grammes of faecal matter and 1-1.31 kilogramme of urine per day, which has nitrogen, phosphate and potassium.

So with this first step, toilets can be seen as collection devices rather than methods of getting rid of wastes. The problem is cultural - a society is 'civilised' if it has access to flush toilets; faeces and urine are used only by less developed ones. But if these cultural blinkers are thrown away, progress can be made towards solving the problem of polluted rivers and groundwater, waterborne diseases and the enormous cost of sewage treatment.

The second step is recognise that water is a precious resource and should not be used to transport faeces. And since we know excreta contains dangerous pathogens, it makes very little sense to dilute pathogens in water. Even in a small amount of pathogen-carrying material is mixed with a lot of pure water, the results is still a dangerous mixture. Unless treated properly, human waste is hazardous waste and 'civilised' society puts it into drinking water sources.

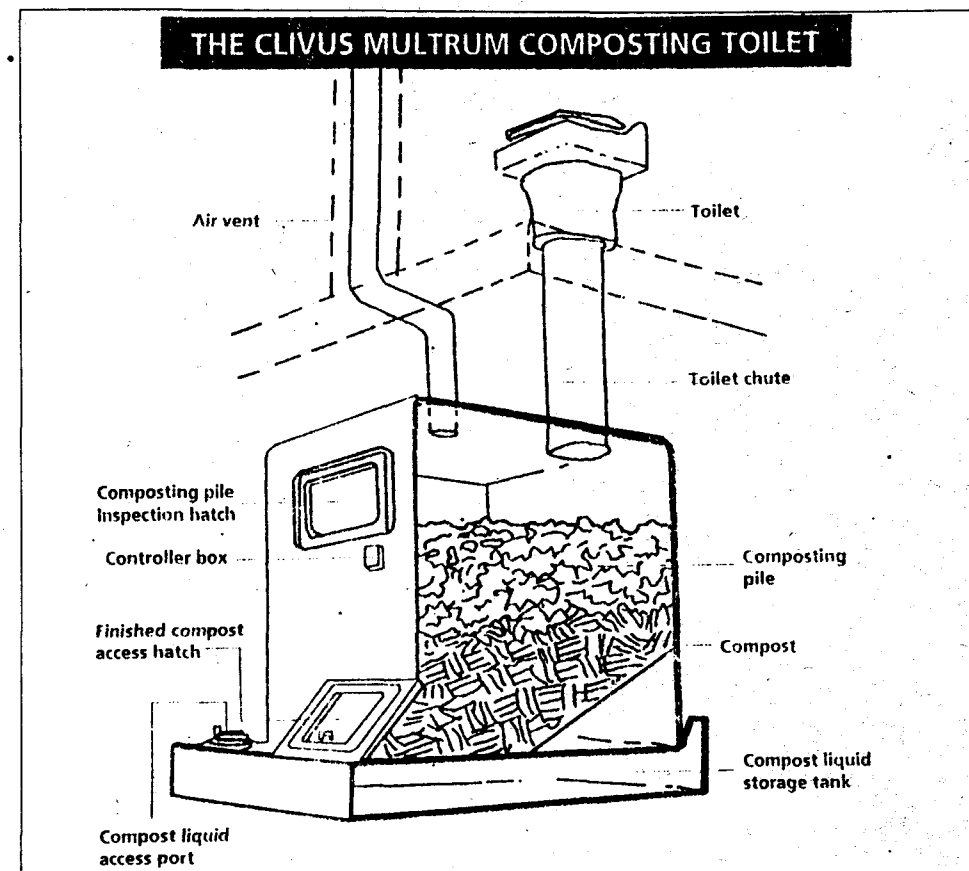
The third basic principle is that waste should be managed as close as possible to its source. Ignoring this principle is one of the reasons centralised sewage systems are so unsuitable both financially and environmentally.

Sewerage tactics

One way to do this would be change sewerage tac-

tics. The condominial sewerage system was developed in Brazil as a low-cost option as they cost about 50-80 per cent less than standard systems. Households are connected to small-bore pipes rather than directly to sewers. These smaller pipes meet up and connect to the main municipal sewer. Smaller bore pipes need less water and at far lower pressure, making an immediate savings in the volume of water used to carry faeces.

Another possibility is decentralised effluent treatment. A block of houses or a housing colony can have its own sewage treatment plant. Again this



means that compared to centralised systems, far less water is used, as wastes do not have to be transported very far. Treatment plants can be smaller in size since the volume of wastes they will deal with will be comparatively small. Any sludge produced is used locally as fertiliser.

A high-tech system is to do away with water-based sewerage and have vacuum-based sewer system like the one developed in Germany. If these can be coupled with vacuum toilets there is virtually no need of water.

The outflows from toilets, kitchens, and baths are sucked by a local pump into household vacuum station, from where they are sucked into a central treatment point. Vacuum sewer network can work up to a 4 km radius with one vacuum station. The collected sludge can then be conventionally treated or used in a biogas digester. However, these systems as yet are expensive and energy intensive.

A place where this is being tried is a pilot housing project in Lubeck-Flintenbreite in Germany where an integrated system with vacuum toilets, vacuum sewers and a biogas plant for blackwater as well as greywater treatment in reed-bed filters is under construction.

Flush facelift

Instead of focussing on the sewerage and treatment plants, flush toilets themselves can be modified to the amount of water they use. Low flush toilets that use just one litre per flush have been designed. Quite a large amount of water can be saved and

recognising this, many cities, like Los Angeles, USA, are giving rebates to people willing to change their toilets to low water systems, and in some cases, provide them free.

These possibilities make a large difference to the problem of water pollution. But again they presuppose sewerage lines, however small. On-plot sanitation solves this problem.

Toilets originally designed for ships and airplanes are now being adapted for houses. The vacuum toilets mentioned earlier also reduce the amount of water. Electric incinerator toilets fall into this category where the faeces and urine mixture is dried by electric fans and then burnt.

Of low-tech versions the standard on-plot solution seems to be pit latrines. These are merely holes dug into the ground and covered with superstructure that contains the toilets seat or pan. When the pit is full, it is either emptied or at either pit dug and the superstructure moved to it. The old site with a topping of soil is suitable for growing trees. Instead of a straight drop, an 's' bend is attached just below the toilet pan, a water seal can be included which cuts off most of the odours. This is basically a simplified version of the septic tank. In terms of the environmental impact, both pit and septic tank toilets pose risks to groundwater. The US Environment Protection Agency has also expressed concern about the amount of groundwater contamination that is caused by septic tanks: they pose the greatest risk to groundwater in the US.

Courtesy: Down To Earth