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Help solve waste crisis! - I

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That our country is gradually getting buried in a waste crisis is no news. However, the vast extent of its adverse effects is news to many as the crisis is affecting our environment, people and economy, slowly "poisoning" our country. Even "more news" is, however, the decisive role we all have to play as individuals in solving this crisis.

Based on a discussion with Professor Ajith de Alwis (Head, Department of Chemical & Process Engineering, University of Moratuwa), this article consisting of two parts discusses the solid waste generated in Sri Lanka, draws attention to the causes of the crisis, highlights its adverse effects, and briefly discusses the options available to solve it. Today, Part A looks at the solid wastes we produce, and Part B will discuss the rest.

Subsequent articles will explore in more detail the crisis and options for solving it - hopefully!

Wherever we are, we produce waste. Houses, businesses, industries, institutions, hospitals, construction sites, agriculture land, and even on the road! No matter where we are, we all produce waste. We produce solid waste, wastewater and sewage and generate hazardous wastes as well.

As solid waste, we produce:

- * Residential waste (e.g., food waste, paper & cardboard, yard waste, plastics, glass, metals, wood, textiles) at houses

- * Commercial waste (e.g., Food waste, paper & cardboard, plastics, glass, metals, wood) at

shops, restaurants, hotels, offices, markets, service stations & garages

- * Institutional waste (e.g., Food waste, paper & cardboard, plastics, glass, metals, wood) at schools & universities, government institutions

- * Clinical wastes (e.g., Human tissues, sharps, pathology and laboratory wastes, pharmaceutical wastes, disposable containers for urine and body fluids, low level radioactive wastes, disposable medical materials such as contaminated aprons, gloves) at hospitals, medical laboratories, drugs manufacturers & suppliers

- * Construction & demolition wastes (e.g., concrete, bricks, steel, wood, dirt) at building construction sites, road repair & construction

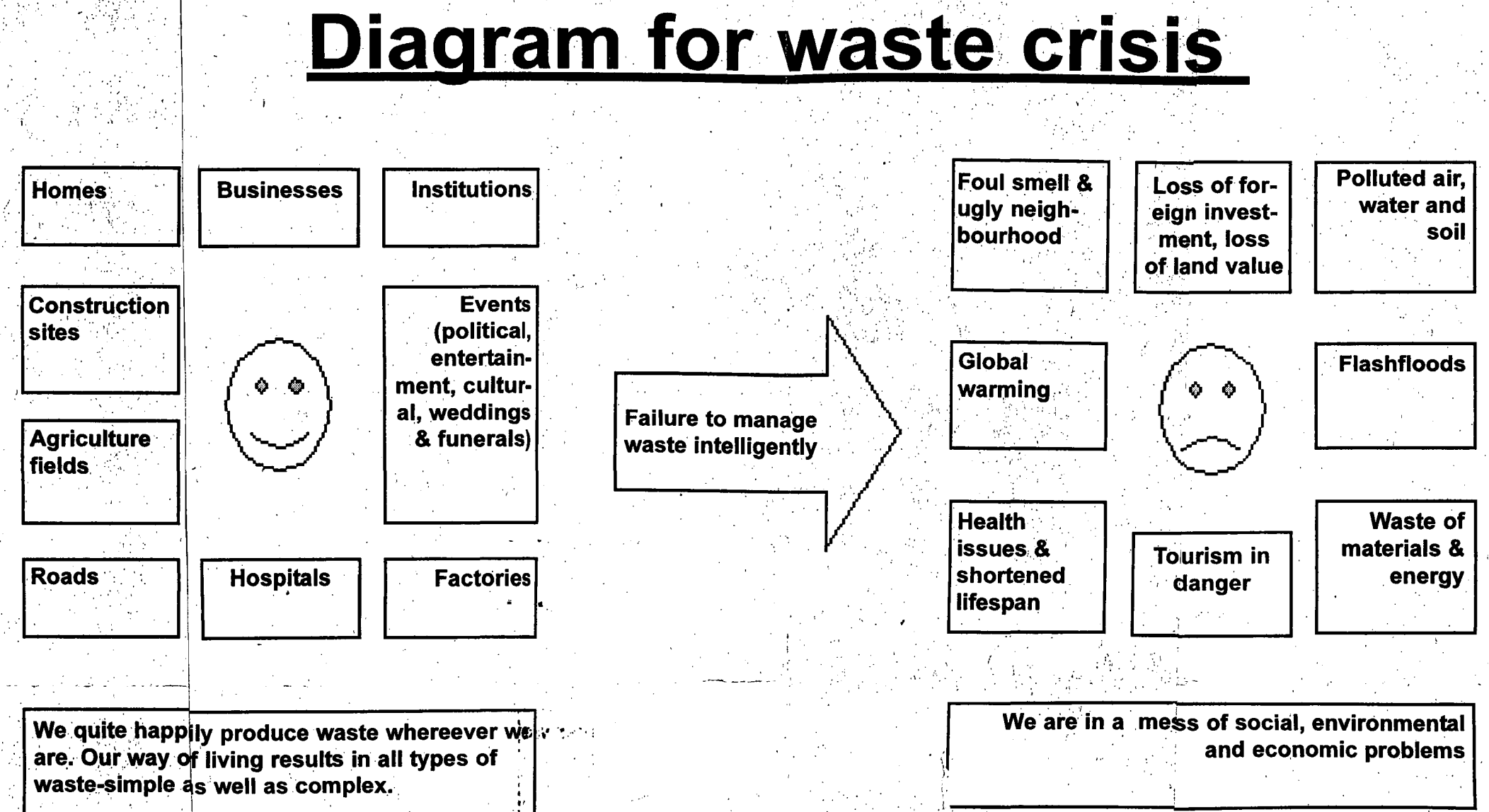
- * Municipal services wastes (e.g., litter, sweepings, debris) from street cleaning, landscaping

- * Treatment plant wastes (e.g., effluent and residual sludge) at water and wastewater treatment plants and industrial treatment processes

- * Industrial wastes (e.g., industrial process wastes, ceramics, waste oil, plastics) at manufacturing, fabrication and timber, refineries, chemical plants and power stations

- * Agricultural wastes (e.g., food wastes, rice husk) at paddy fields, dairies and farms

In Sri Lanka, the amount of solid waste we generate every day is estimated to be nearly 2500 tons, amounting to over 910,000 tons a year. And we all contribute to this massive heap of waste. Each year, directly or indirectly, you produce 50kg of solid waste, and so do I! Another 50kg! Normally, it is said if you are living in a city in Sri Lanka that you are producing between 0.75-1 kg of waste per day.



If you live in the Western province, you are even more responsible as over half of the country's waste is generated in the Western province. In this province, everyone produces 90kg of waste every year!

Hazardous and toxic waste, the most dangerous of all

Among the waste we generate are hazardous and toxic wastes, which are quite dangerous and potentially harmful to human health and the environment. Therefore, hazardous wastes require safe handling and disposal. As individuals with increasingly complex lifestyles, we are going to make use of more and more hazardous materials (computers and mobile phones, solvents, cleaning fluids etc.), paving the way for more and more hazardous wastes.

Some of the characteristics of hazardous wastes can be illustrated as follows:

- * Under certain conditions, wastes such as waste oils and used solvents can create fire, sometimes on their own

- * Acids and bases (e.g., battery acid) can corrode metal containers such as storage tanks, drums, and barrels

- * Wastes such as lithium sulfur batteries and explosives can be unstable under "normal" conditions and can cause explosions, toxic fumes, gases or vapors when heated, compressed or mixed with water

- * Toxic waste such as wastes containing mercury or lead are harmful or fatal when ingested or absorbed. (Both tube lights and CFL's contain mercury, so think how you dispose of your bulbs!)

In Sri Lanka, the amount of hazardous waste generated in 2003 is estimated to be over 57,000 tons. In other words, in 2003, each of us produced about three kilograms of this dangerous stuff! With economic growth, this amount is sharply increasing. Although hazardous waste generation is not comparatively excessive, the facilities they require for safe disposal are matters for serious concern. Hazardous wastes comprise byproducts of

manufacturing processes or simply discarded commercial products such as cleaning fluids and pesticides or wastes from hospitals and medical laboratories. Although the main sources of hazardous wastes are industries and medical establishments, other sources such as houses, businesses and institutions can also generate hazardous waste.

Among the major industrial sources of hazardous wastes are tanneries, paint and pigment industries, metal finishing industries, battery and fluorescent lamp industries. They generate a variety of hazardous wastes, comprising:

- * Inorganic wastes (e.g., inorganic acids and alkalis, zinc bearing wastes, heavy metal wastes, waste treatment sludge)

- * Organic wastes such as oil wastes (liquid and semi-solid), solvent wastes, waste paints, lacquers and varnish, waste agro chemicals, waste pharmaceuticals, wood preservative wastes,

- * Other wastes such as asbestos wastes, plastic, resin wastes and oil wastes from motor vehicles

Hazardous wastes from medical sources such as hospitals include human tissues, pathology and laboratory wastes and pharmaceutical wastes. Today, the number of veterinary clinics is also increasing and almost all these have no proper waste disposal mechanism.

Hazardous wastes generated at houses include adhesives, asbestos, household cleaners, insecticides, paints, paint thinners, outdated or unused medicines, used tyres, car batteries and single-use batteries. E-wastes such as waste computers, mobile phones and televisions are also hazardous wastes.

All types of hazardous wastes require safe and careful handling and management in order to prevent any adverse effect on people and the environment.