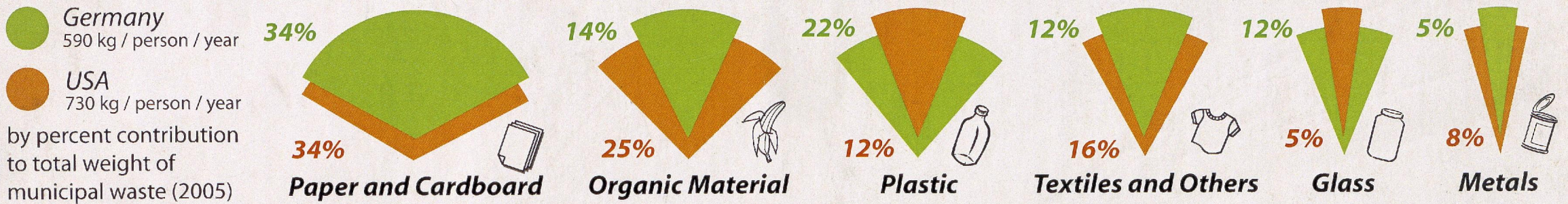


WASTE MANAGEMENT AND RECYCLING

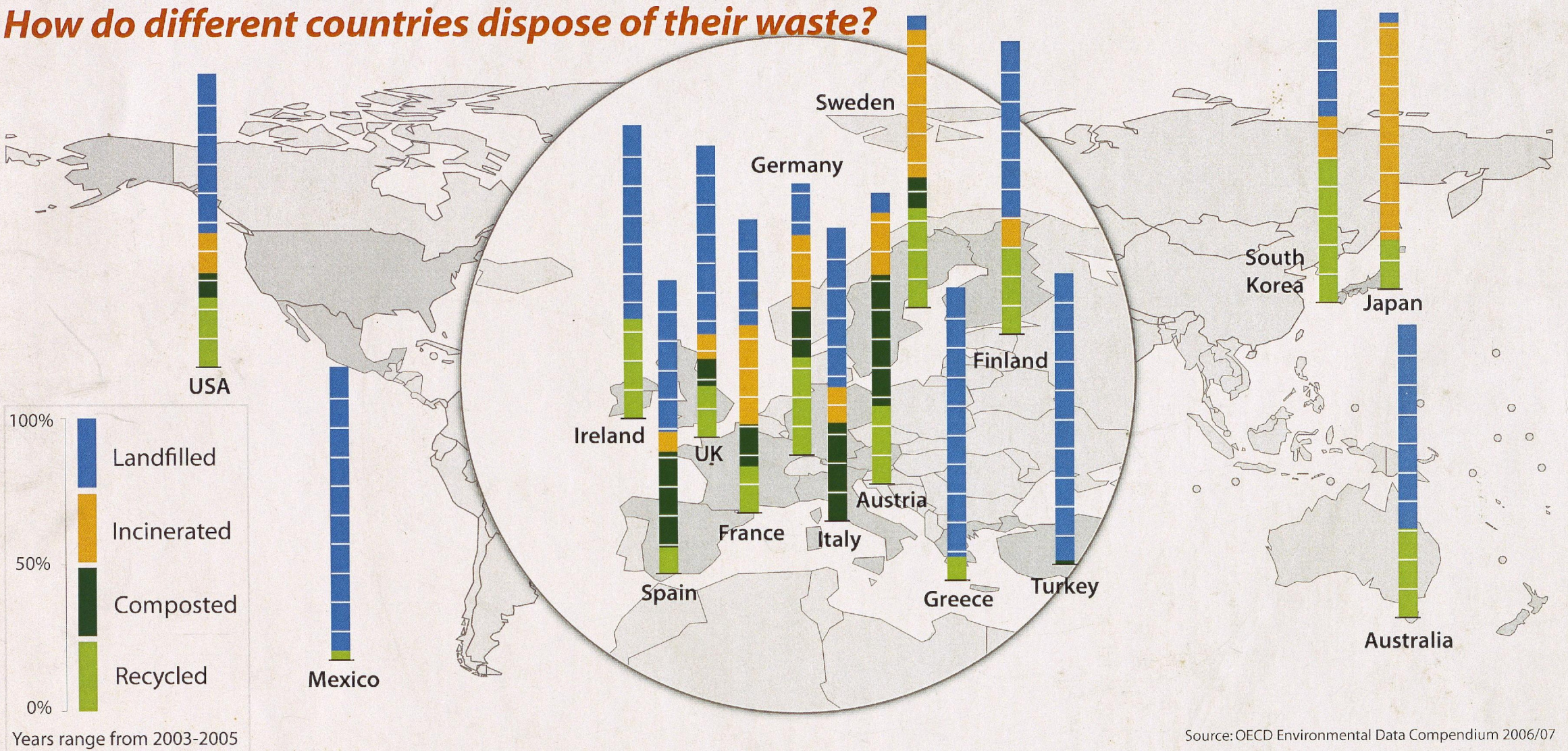
RESOURCE EFFICIENCY

What are the most common types of waste?



Source: UNEP GEO Data Portal, compiled from OECD

How do different countries dispose of their waste?



Source: OECD Environmental Data Compendium 2006/07

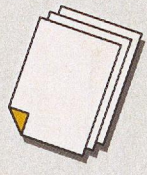
How do different wastes compare in terms of production and recycling efficiency?

Glass



- Recycled glass melts at a lower temperature, so the recycling process uses less energy.
- can be recycled indefinitely; 1 kg of old glass bottles produces 1 kg of new glass bottles.

Paper



- can be recycled 5-7 times before cellulose fibers break down.
- Small amounts of new fiber are often added to maintain quality, but new products can be made from 100% recycled material.

Aluminium



- Melting down scrap aluminium uses much less energy than making new aluminium.
- can be recycled indefinitely.
- The average aluminium can contains 40% recycled material.

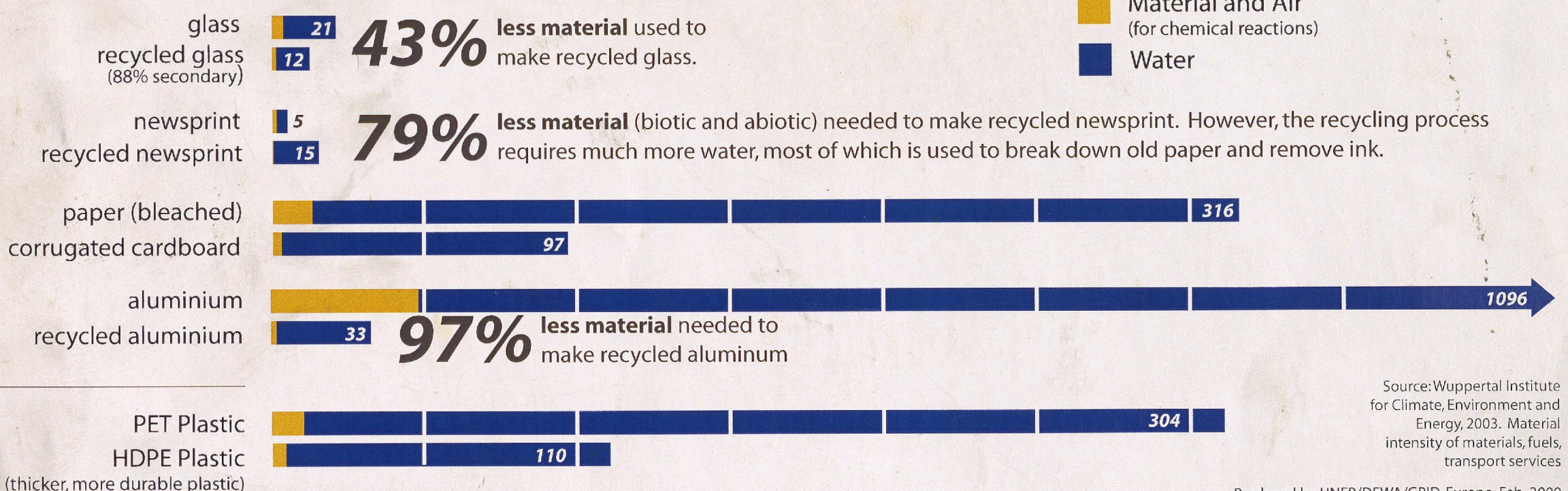
Plastic



- Lighter than other materials, so it can save energy on transportation.
- Many different types, all of which must be recycled separately.
- is "down-cycled" to make other products rather than new bottles.

Sources: Swiss Federal Office for the Environment, 2008. Waste management facilities: Recycling; US EPA, 2008. Common Wastes and Materials.

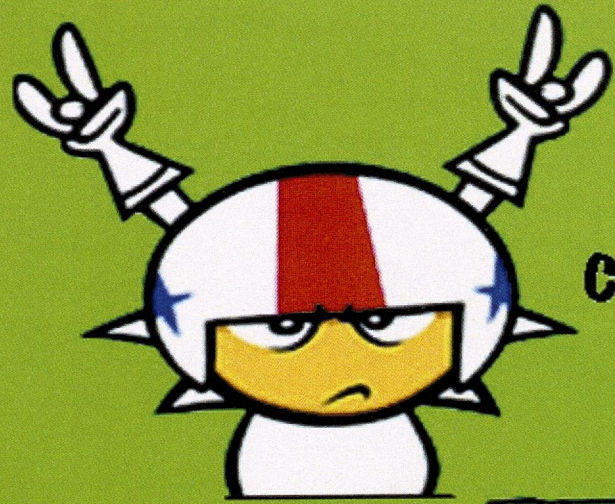
Comparison of Amount of Material Needed to Make New and Recycled Products (in kg material / kg product)



Source: Wuppertal Institute for Climate, Environment and Energy, 2003. Material intensity of materials, fuels, transport services

Produced by UNEP/DEWA/GRID-Europe, Feb. 2009

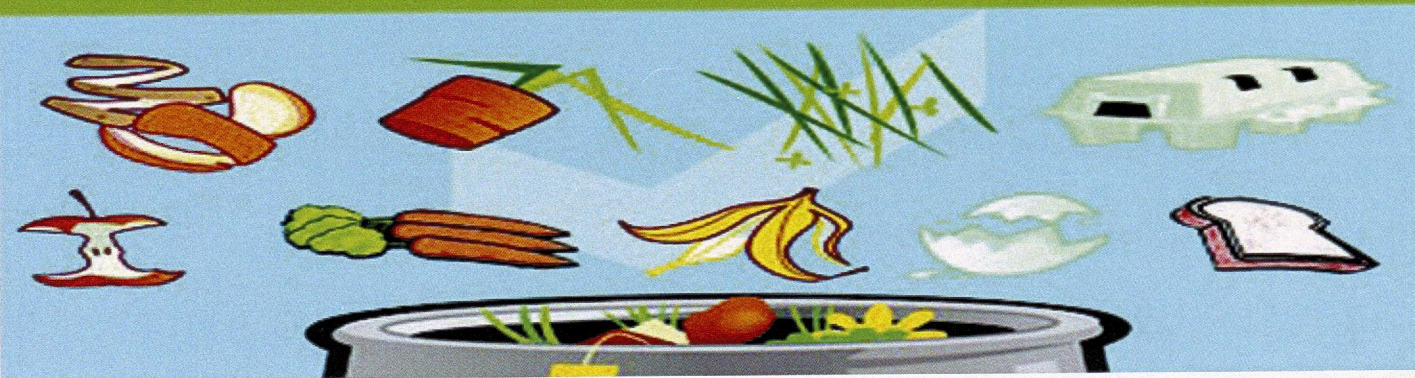
Step 6



Now your
compost pit is ready.



You can add kitchen wastes to your
COMPOST PIT.



Do's & Don't

Your compost pit is

- **only for uncooked food**
- cooked food should **NOT** be added to this compost pit.

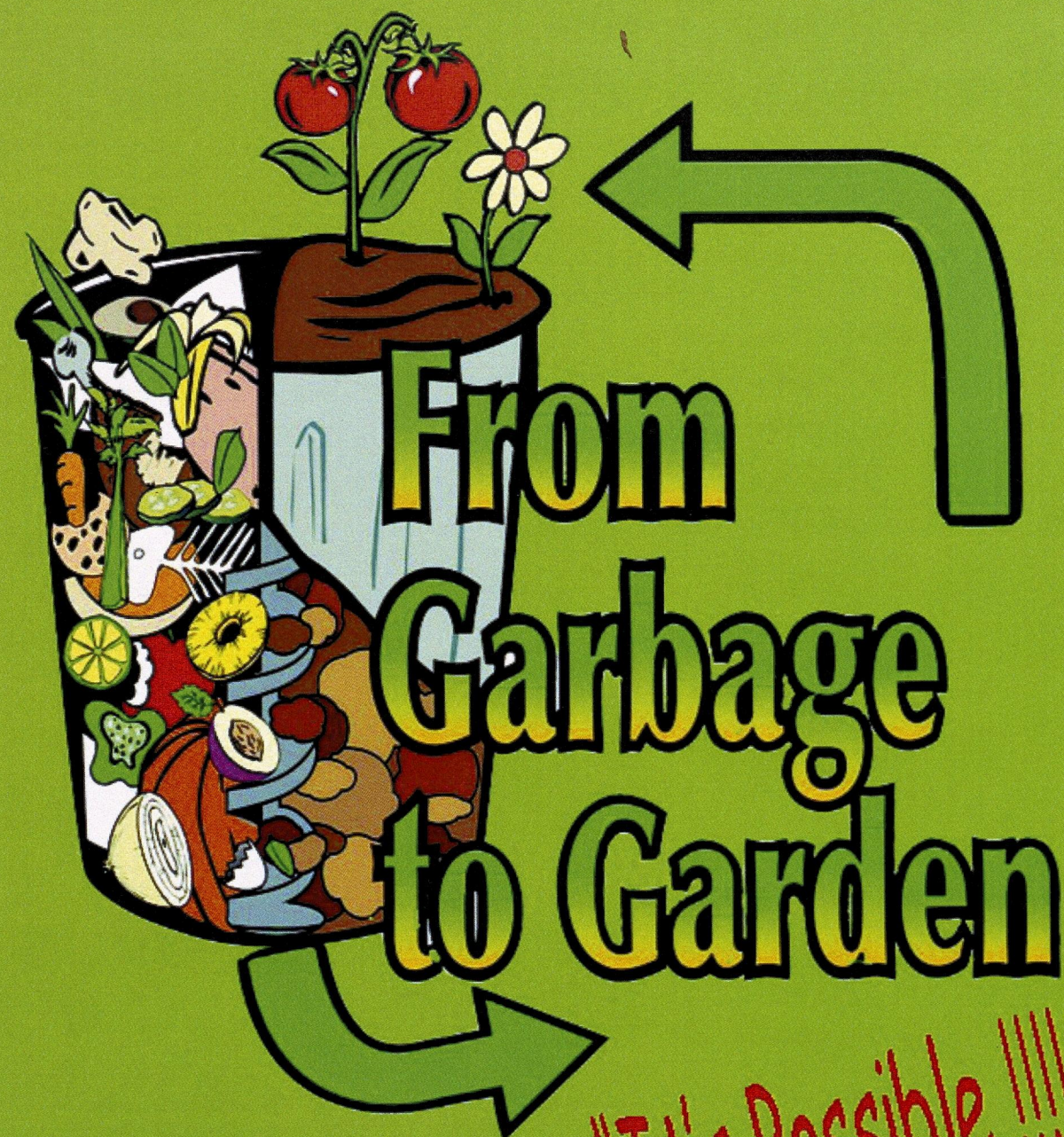
Put these in



Keep these out



Happy Composting



From Garbage to Garden

"It's Possible!!!!"

- But Remember.

Remove the manure which just below the top layer in 45 days.

Replace the charcoal or sugercane bagasse whenever exhausted.

Don't use this rich manure directly on plants, mix it with equal amount of soil.

An Initiative of

ESG

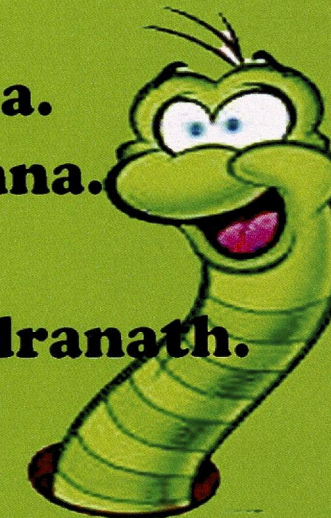
Environment
Support
Group.

Environment Support Group® - Trust
1572, 36th Cross, 100 Feet Ring Road,
Banashankari II Stage,
Bangalore 560070. INDIA
Tel: 91-80-26713559-3561
Voice/Fax: 91-80-26713316
Email: esg@esgindia.org
Web: www.esgindia.org



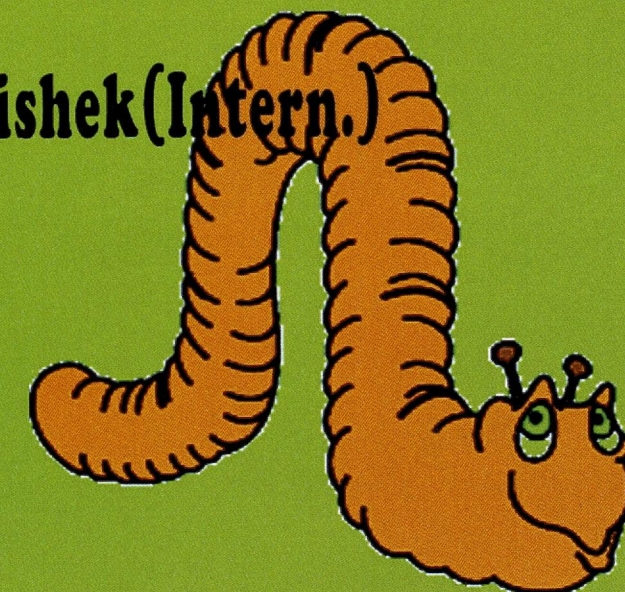
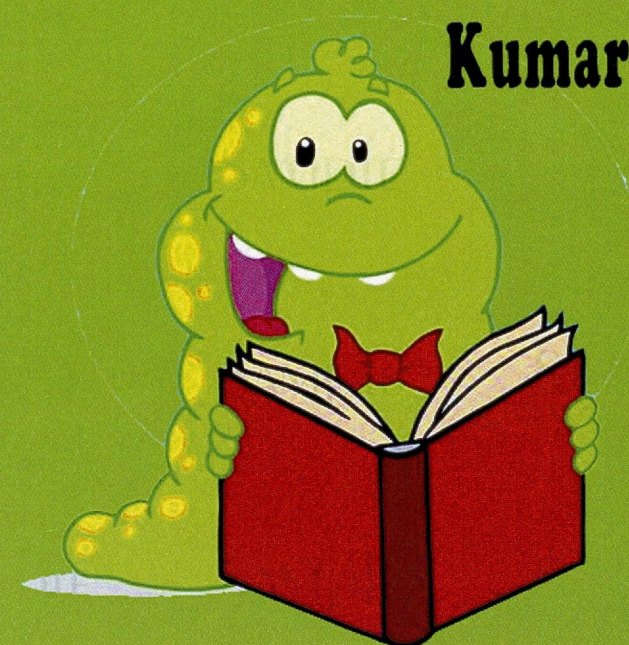
Concept.

- Leo Saldanha.
- Sruthi Subbanna.
- Bhargavi Rao.
- Divya Ravindranath.



Layout & Design.

Kumar Abhishek (Intern.)



How to make
COMPOST??

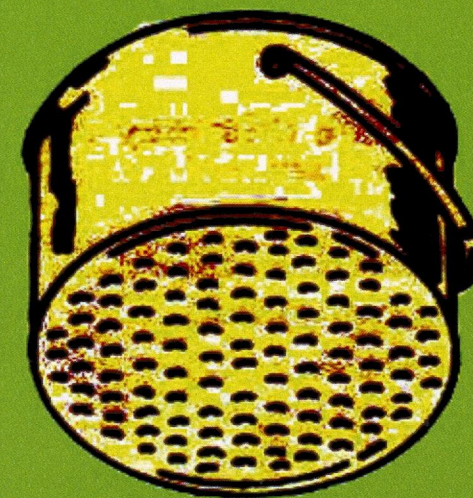


STEP 1

Take an old plastic bucket....



Make holes at....



Bottom of Bucket.



Side of the bucket.

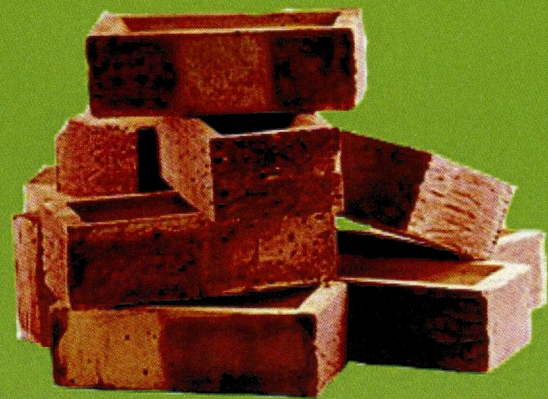
This is to ensure excess water drains out of the compost pit
and there is inflow of fresh air in it.

STEP 2

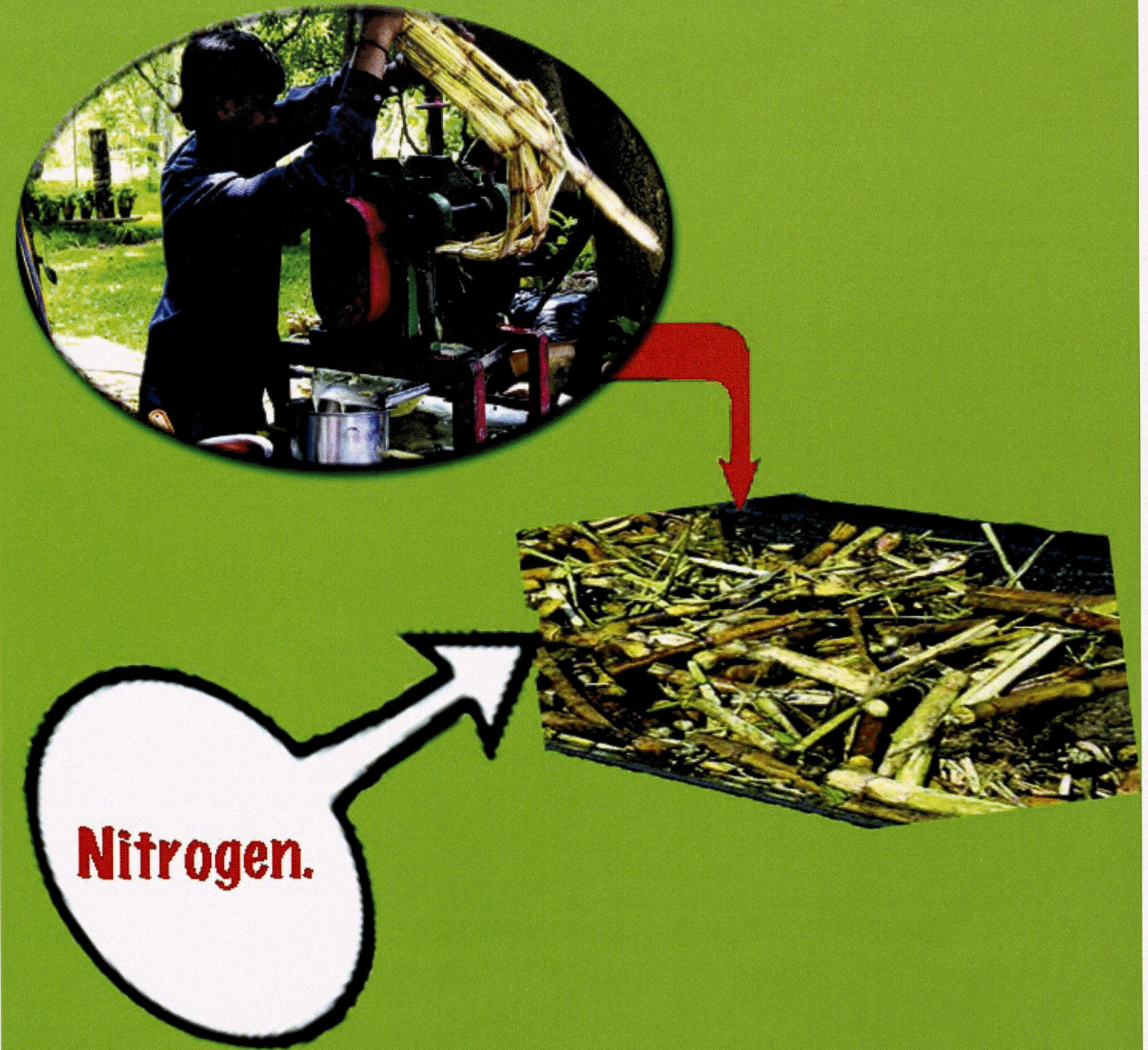


- Add a layer of charcoal inside the bucket.
- This acts as a source of carbon in the compost pit.

*In case there is no charcoal,
one can also add bricks.*



Step 3



- Add a layer of sugarcane bagasse above the layer of charcoal.
- The sugercane bagasse acts as a source of nitrogen in the compost pit.

Step 4



- Add some water to the bucket.



Excess water will drain out of the holes.

Step 5



- Add a layer of manure on top

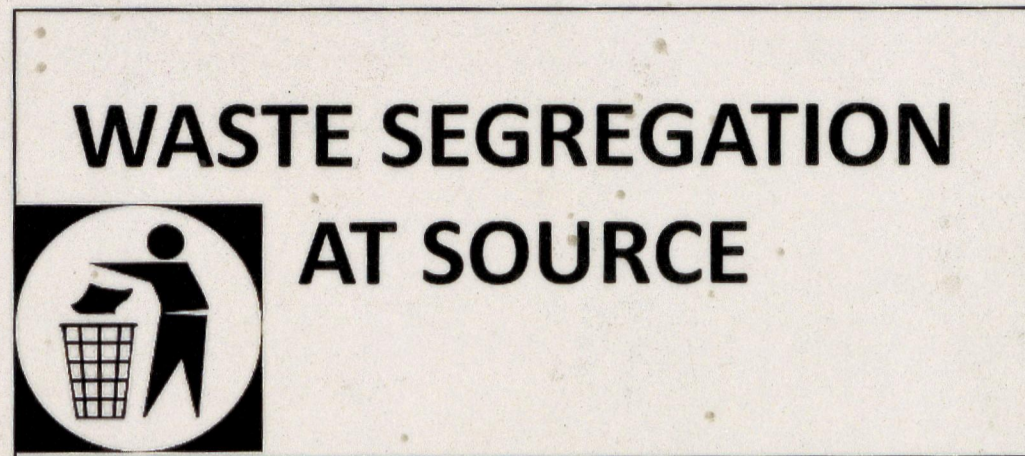
- This will act as a start-up to begin the process of **COMPOSTING**.

Proposed management of Municipal Solid Waste

Environment Support Group

www.esgindia.org

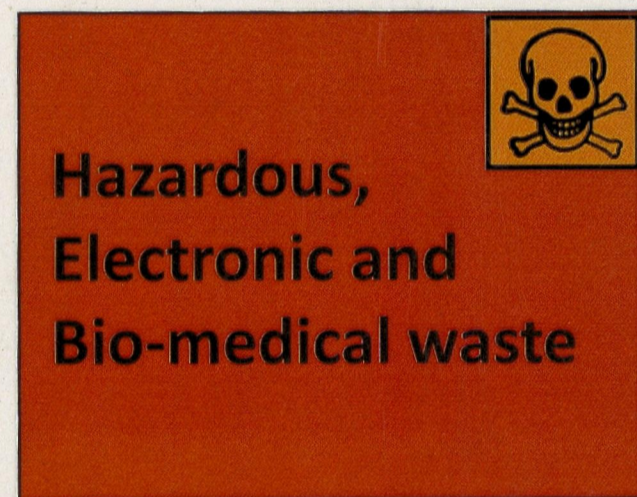
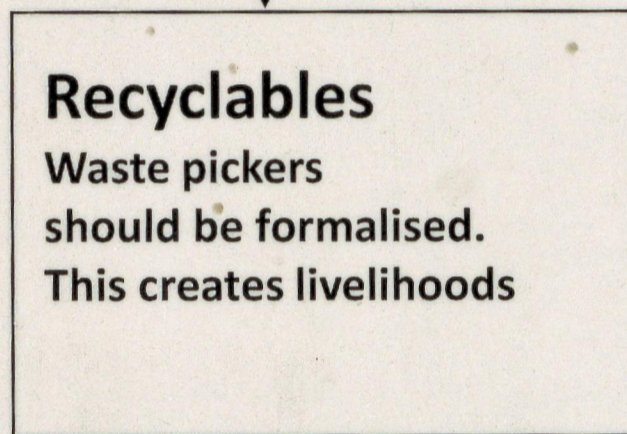
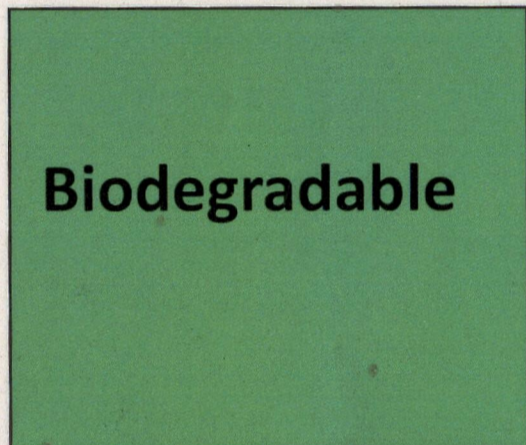
esg@esgindia.org



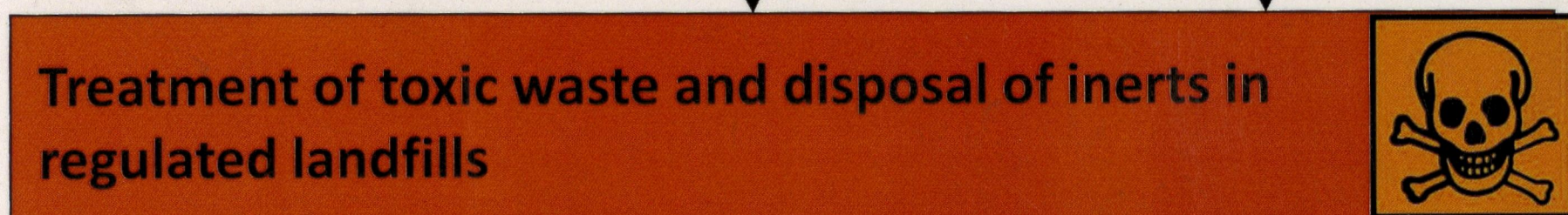
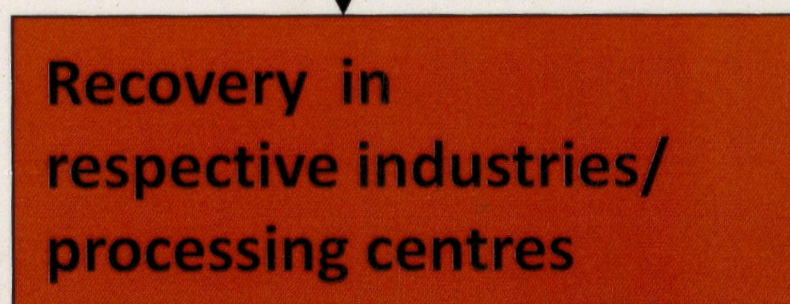
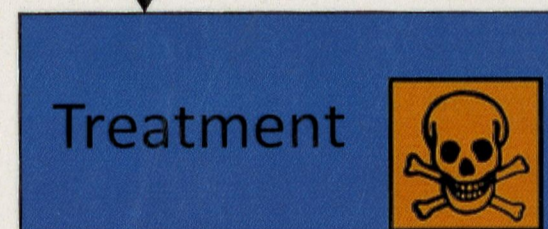
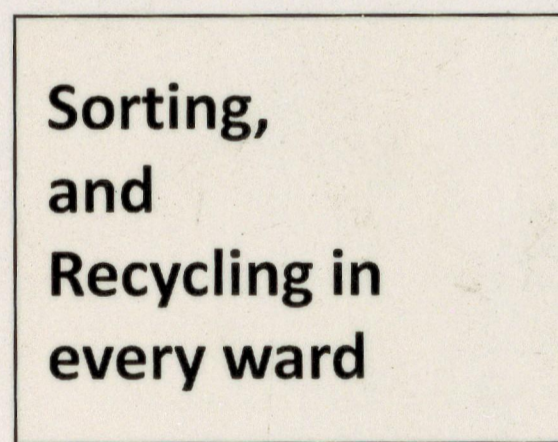
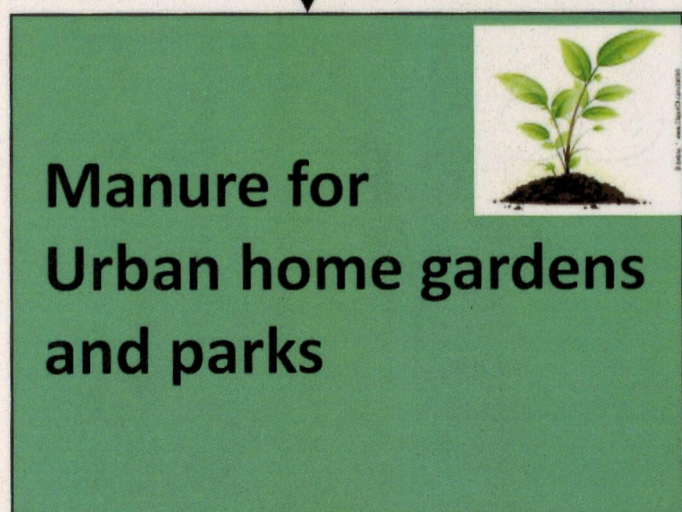
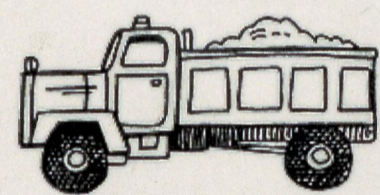
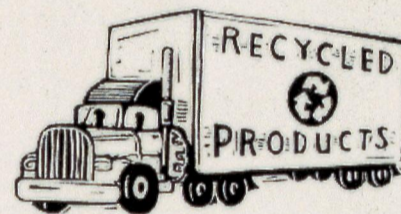
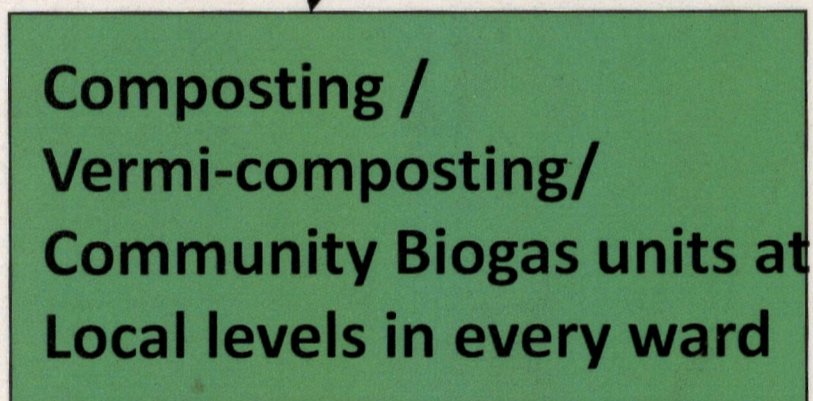
Pourakarmikas

Pourakarmikas and
waste pickers

Pourakarmikas



Incentivize
composting at source



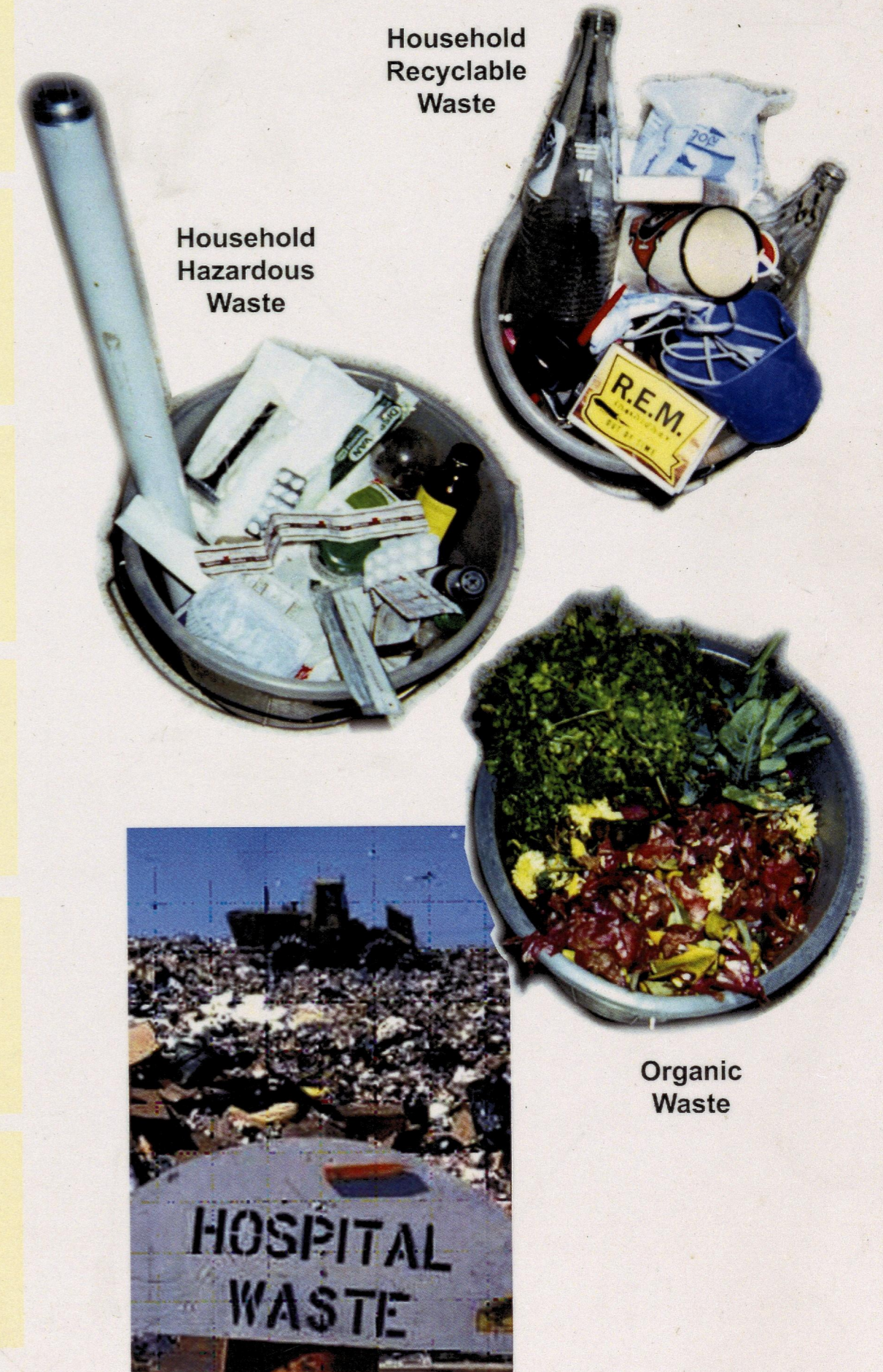
Waste

Municipal	Biomedical	Industrial and Hazardous
Residential – Food wastes, paper, cardboard, plastics, textiles, leather, wood, glass, batteries, oil, tires, sanitary and household hazardous wastes	Human anatomical waste	Mercury, Arsenic, Thallium and Cadmium bearing wastes
Industrial – Housekeeping wastes, construction and demolition materials, non-hazardous refuse	Microbiology & biotechnology waste	Non-halogenated hydrocarbons including solvent; Halogenated hydro-carbon including solvents
Commercial – Paper, cardboard, plastics, wood, food wastes, glass, metal, non-hazardous refuse	Waste sharps, medicines & cytotoxic drugs	Wastes from paints, pigments, glue, varnish and printing ink
Construction and demolition – Wood, steel, concrete, dirt, non-hazardous refuse	Solid waste, liquid waste, incineration ash & chemical waste	Wastes from dyes, dye intermediates containing inorganic chemical compounds
		Tarry wastes from refining and tar residues from distillation or prolytic treatment
		Phenols ; Asbestos; Wastes from manufacturing of pesticides and herbicides and residues from pesticides



Industrial Waste

Types of Waste



Household Recyclable Waste

Household Hazardous Waste

Organic Waste

HOSPITAL WASTE

Capacity Building

WASTE and the CITY

NAGARA NYRMALYA

In a recklessly consumptive world, ESG works to keep awake the consciousness that circular economies or a world without waste pollution, especially from plastics, is impossible unless communities and local governments work together to define the terms of use and reuse of material. And that this needs to be done by ensuring those who handle and recover value from 'waste' are treated professionally and with utmost dignity.

This approach is represented through two short films ESG has produced with support from United Nations Environment Programme and Indo Norwegian Environment Programme, and in collaboration with Karnataka State Council for Science and Technology and Grassroots Media.

Nagara Nyrmalya, produced in 2000 and Nammuru Chandadooru, in 2004, conceptualised and directed by renowned cinematographer G S Bhaskar, continue to inspire millions to transform their ways and turn earth centric in how the use material, and especially when they have no use for it.

See: <https://tinyurl.com/ESGNagaraNyrmalya>



That you would throw it into the dustbin.

As a part of this effort, ESG has advanced a Public Interest Litigation before the High Court of Karnataka (WP 46523/2012), which makes a case for decentralised urban governance as a key strategy to resolving the waste conundrum and advances rights of workers and those impacted by landfills. Such efforts have resulted in advocating a city without landfills! Besides, it also caused in 2016 the comprehensive rewriting of India's laws regarding municipal waste management.

ESG has played a key role in proposing a progressive Solid Waste Management Strategy for Karnataka.

See: <https://tinyurl.com/ESGandWaste>



Report of Workshop on

Status of Law, Policy & Practices
Solid Waste Management in Bengaluru



Organized by
Bruhat Bengaluru Mahanagara Palike
in collaboration with
Environment Support Group
On
31 May 2017 at IPP Hall,
Bruhat Bengaluru Mahanagara Palike, Bengaluru

Report by:
Apoorva Patil
Namrata Kabra
Harsh Vardhan Bhati
Environment Support Group

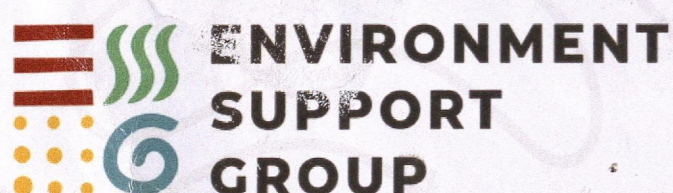
#BreakFreeFromPlastic



In collaboration with Break Free From Plastic, ESG has advanced Socially Just and Environmentally Sustainable Solutions to Waste in the City, in Banagalore, Mangalore, Bhubaneswar and even Imphal.

Intersectoral, interdisciplinary and Intersectional representation, of local waste worker unions, street vendors, government officials, fishing unions, student unions, local administrators, and wider civil society, is key to this strategy.

See: <https://tinyurl.com/ESGinMloreSWM>



Environmental Social Justice
& Governance Initiatives
WWW.ESGINDIA.ORG



Bio-Medical

Waste

A police complaint of the act was made. Since the waste was a mixture of non hazardous canteen waste and hazardous biomedical wastes, M/s Apollo Hospital was advised to collect and dispose the waste dumped as per the Biomedical (Management and Handling) Rules, 1998. It was however observed the next day that workers who came to collect the waste were doing so without any protective gear.



City

SHAME STORY

Medical waste lands up as garbage

Syringes, vials, tissue found in pile of waste in Anjanapura Layout

Veena Joshi | ENS
Bangalore, November 3

Medical waste, syringes, vials, tissue, gloves, and other items were found in a pile of garbage in Anjanapura Layout. The waste was dumped by Apollo Hospital. The residents of Anjanapura Layout have filed a police complaint against Apollo Hospital. The Karnataka State Pollution Control Board (KSPCB) has been notified for conducting inspection, clearing the waste and disposing of it in accordance with law.

The law requires that bio-medical waste shall be disposed of properly in incinerators. Not all hospitals have the facility, and smaller clinics generally ensure that the medical waste generated at their establishments are transported to hospitals with incinerator's premises.

It has been dumped two days ago and has been stinking badly. As the residents could not tolerate the stench they burnt the waste on Monday morning," added Saldanha.

It was also observed that animals were feeding on the bio-medical and other hospital wastes and the passersby had to cover their nose to avoid the stench.

When Wookhardt Hospital's officials were contacted, they claimed to be ignorant about the issue.

However, the officials at Apollo Hospital did recognise the food wastage of their hospitals. Speaking to Express, Ajay Singh Bas, General Manager, Operations and Hospitality, Services said, "We have found some of the sugar packets and other printed labels used by the hospital. However, to avoid the negligence in future, the hospital authorities will immediately cancel the contract with the service provider and will make sure that the same does not repeat in future."

Promising action against the violators, C D Kumar, Senior Environmental Officer, Karnataka State Pollution Control Board (KSPCB), said, "We are investigating the matter and gathering evidence. As a first step we are in the process of clearing the waste from the place for appropriate disposal. Once, we get necessary evidence, we will issue showcause notice to the hospitals."



GUIDELINES

According to the Biomedical Waste (management and handling) Rules 1998 amended in 2000 regarding segregation, packing, transportation and storage of such waste

- 1) Bio-medical waste shall not be mixed with other waste.
- 2) Bio-medical waste shall be segregated into containers/bags at the point of generation prior to its storage, transportation, treatment and disposal.
- 3) The containers shall be labelled properly
- 4) If a container is transported from the premises where bio-medical waste is generated to any waste treatment facility outside the premises, the container shall, apart from the label prescribed in Schedule III, also carry information prescribed in Schedule IV.
- 5) No untreated bio-medical waste shall be kept/stored beyond a period of 48 hours. Provided that if for any reason it becomes necessary to store the waste beyond such period, the authorised person must take permission of the prescribed authority and take measures to ensure that the waste does not adversely affect human health and the environment.

BLOOD ON THE ROAD
(Above) Pockets bearing Wookhardt and Apollo names found in the garbage dumped in Anjanapura Layout; (below) cattle feasting on the hazardous waste

"To avoid the negligence in future, the hospital will immediately cancel the contract with the service provider"

"We are gathering evidence. Once, we get necessary evidence, we will issue showcause notice to the hospitals."

— Apollo spokesman

— KSPCB officer

City

SHAME STORY

Chain of waste disposal violations continue in city

The bio-medical waste was cleared but without any safety gear for workers

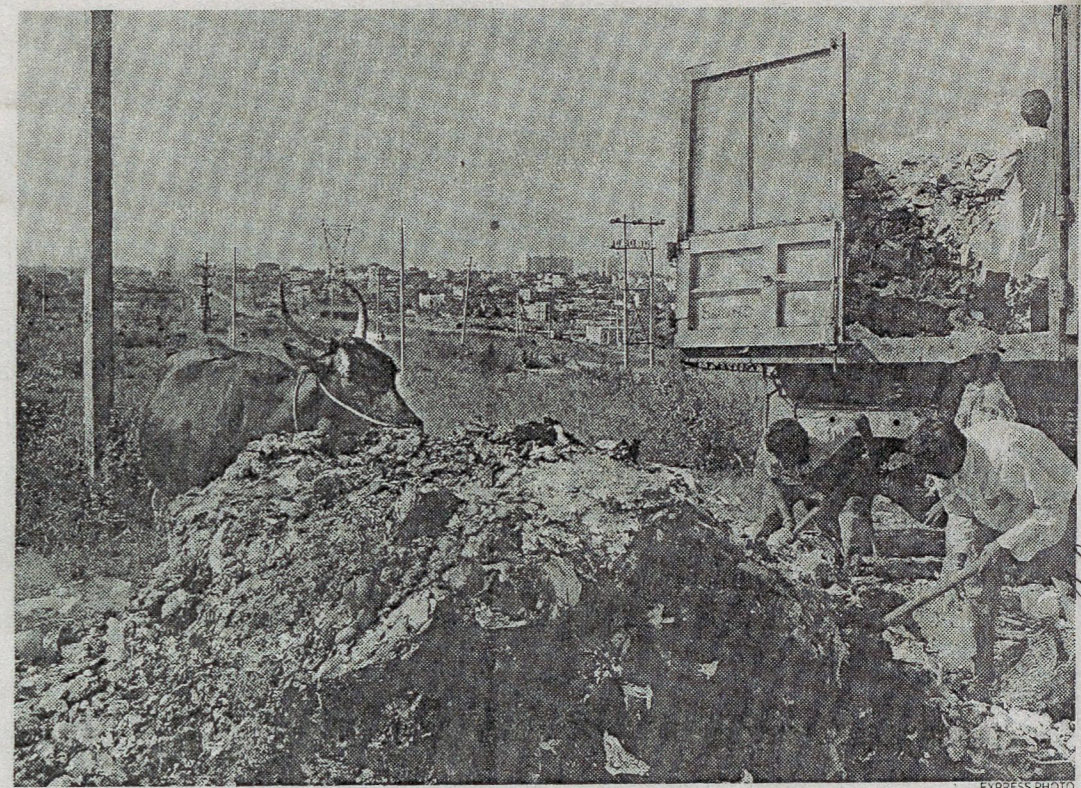
Veena Joshi | ENS
Bangalore, November 4

No gloves or gumbots for them. With able hands and feet they applied themselves to the task all too plainly. They were dealing with medical waste - body parts, syringes, drug packets, cotton, disposed bandages, smear tissues, diapers, waste food and so on.

What The Express unearthed as the violation of the guidelines on disposal of bio-medical waste on Monday, graduated to a full-blown violation of Bio-medical Waste Management & Handling Rules on Tuesday. It looks like a season when nothing seems to be going right for top-of-the-line private hospitals like Wookhardt and Apollo. As reported in this column earlier, sealed bags, patient records with the insights of the two hospitals all too visible were part of the hospital waste that was disposed haphazardly on Anjanapura Main Road at Anjanapura Layout limits in the City.

Private contractors Gautham Enterprises cleared the waste late on Monday evening but its workers, five in number, had absolutely no safety gear against what they were dealing with. When queried, Gautham, proprietor of Gautham Enterprises, said, "Despite telling the workers about the safety measures, they do not wear the gumbots and gloves while loading the waste in the lorry. But, as a safety measure we give them septic injections once in three months. We provide them gumbots and gloves but they hardly use it as they do not feel comfortable wearing them."

Now that the can of worms on bio-medical waste management in the city is laid open, private hospitals are laying the blame on the disposal management service providers. Speaking to the Express, C D Kumar,



No Safety Measures: Workers of Gautham Enterprises clearing the medical waste at Anjanapura layout.

senior environmental officer, KSPCB, said, "The entire waste from Anjanapura layout has been segregated at Apollo hospital. Apart from the stationary and cafeteria waste, small quantity of bio-medical waste was also found. But, Apollo hospital authorities have said that the bio-medical waste did not belong to them. However, we are in the process of preparing the show cause notices

against the hospitals. Once it is prepared we will seek explanation from both the hospitals - Apollo and Wookhardt."

An eye witness to the waste clearance, Laxmi, a resident of Vajra halli, said, "Despite telling the workers to wear gloves and shoes, they did not pay heed. They said that they have already taken precautionary injections."

Taking note of the issue Environment Support Group (ESG), an NGO, has demanded a comprehensive health check up of the workers and immediate family members by the hospitals. We will also send a letter to the health secretary in this regard," said ESG chief Leo Saldanha.

All this gives rise to the question as to whether these hospitals actually care about public health and welfare or is it just another business proposition where making profit is the main agenda irrespective of its consequences to workers, and general public who came across this waste due to deliberate carelessness on part of these hospitals.