

+ GREEN SCHOOLS | COVER STORY | SPOOF

# gobar times

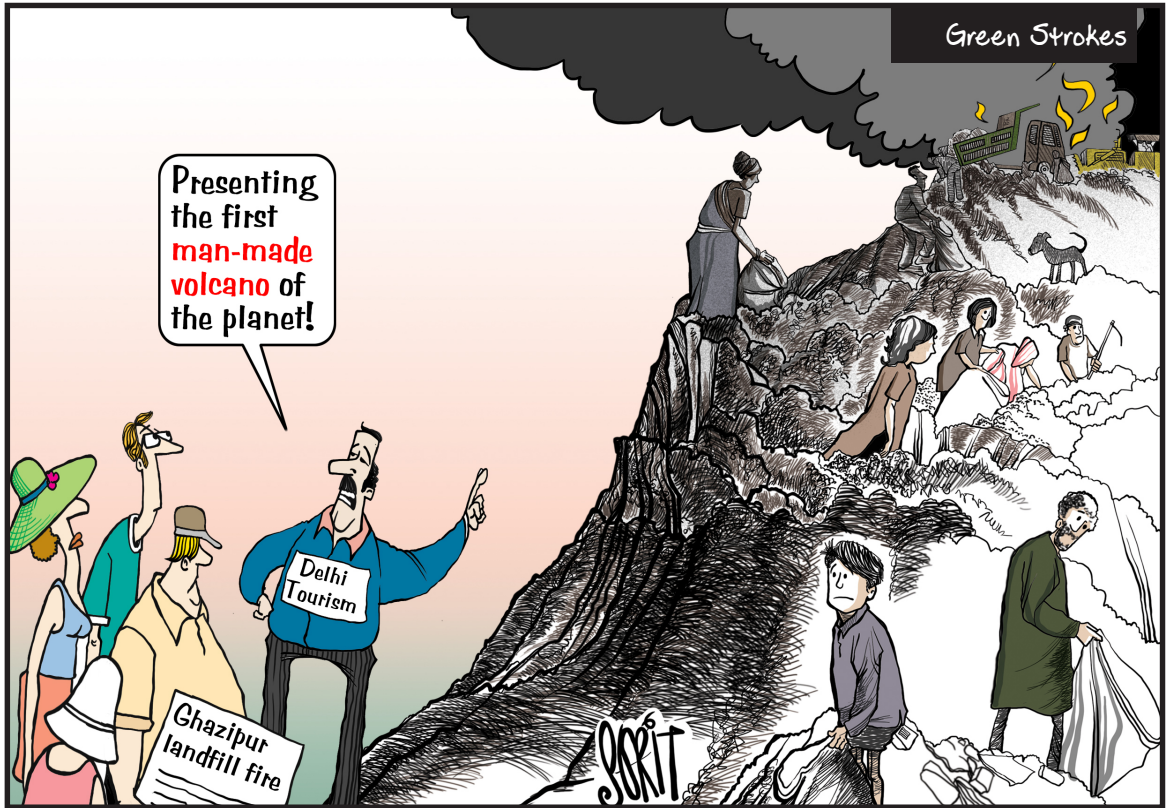
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A DOWN TO EARTH SUPPLEMENT FOR THE YOUNG AND CURIOUS

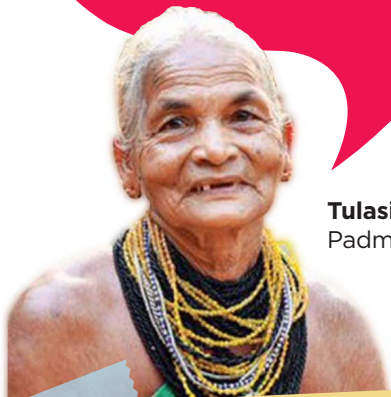
## TRASH LANDING!

The burning issue of landfills and  
the menace of garbage





Without forests,  
there is no water, no  
crops, the sun becomes  
unbearably hot. If forests  
thrive, the state would  
as well.



**Tulasi Gowda,**  
Padma Shri awardee

## Rights of Nature

A woolly monkey was captured from Amazonian forests in Ecuador and raised as a pet by a woman for 18 years. When the news got disclosed, the police rehabilitated it to a zoo because it was illegal to keep wild animals in captivity.



But within a month of relocation, the monkey died. So, the woman filed a case, upon which the court delivered a historic ruling. The landmark judgement invoked the 'rights of nature.'

It declared that both the woman and government were at fault as animals also have rights to exist and be free from cruelty, fear, and distress.

Compiled by Anubhuti Sharma



**Pooja Chandran**

# Resolve to Evolve

A snippet of the vibrant activities conducted from the kindergarten tiny-tots to the high-school teenagers under the Green Schools Programme

Online education became the talk-of-the-town in 2020 when the entire globe succumbed to an unknown lockdown for more than 300 days. Students became weary and so the entire education community sprung up to the challenge. Country-wide they took to their screens like wildfire, proving their resilience in a jiffy.

At the Pawar Public School, Chandivali, we went a step beyond with the Green Schools Programme (GSP). Organised by the Centre for Science and Environment, New Delhi, the GSP sensitised our youth about environment conservation by pursuing learning-by-doing.

Kick-started with an impactful video and presentation, it introduced our kids to the alarming issues of air pollution and solid waste management. GSP ensured almost 100% participation from our students across all levels. We are proud to present a brief catalogue of their accomplished activities here (see table below).

Our students, aged 5–15, all displayed incredible enthusiasm though these projects, which were integrated with their taught-subjects as part of their curriculum. These initiatives inculcated within them scientific temper, pragmatic consumer behaviour, and aptitude for responsible citizenship. Since these were done during the lockdown, not only children but

their parents and family also got motivated towards a sustainable lifestyle. No pandemic could deter our children's resolution to preserve the air we breathe, the water we drink, and the land we lay our feet on. Change has already begun with the aid of especially targeted programmes like the GSP. These have paved the way for our young minds to surge towards a better future.

*The author is the Facilitator of the Pawar Public School, Chandivali, Mumbai.*



## SECTIONS AND ACTIVITIES UNDERTAKEN

### Nursery

Plant a sapling  
Waste segregation, into biodegradable and non-biodegradable category, during the Ganapati festival

### Junior KG

Poster-making on air pollution  
Compost-making using vegetable and fruit peel

### Senior KG

Making best out of waste—by using old CDs to make handicrafts

### Class 1

Mask-making and writing a slogan on it  
Manure-making using vegetable and fruit peel

### Class 2 to 5

Making a pen stand using old cartons  
Making dolls using plastic polythene  
Making a board game using recycled materials  
Designing digital posters for raising awareness on air pollution

### Class 6 to 10

Poetry-writing to highlight our concerns related to air pollution and solid waste management  
Creating a monochromatic masterpiece on the present-day and future scenario of pollution and waste matters  
Slogan-cum-poster making on air pollution and waste management



# A TRASH COURSE!



Do we ever stop to think where all the trash that we produce goes? Most of it heads to a dumpsite – yes, those mountains of waste that you might have seen on one of your trips around the city. Let's dig into this subject a bit, shall we?

*Tushita Rawat*

A huge dark mountain is looming up amidst houses and buildings, with a flock of crows and eagles circling over it. As one goes closer, you can see people on it, scouring for things they can re-sell, while scrawny-looking dogs fight to find something to eat. Trucks carrying loads of trash trudge up the mountain. And quite often, you find a fire raging on one side of the mountain, slowly enveloping the nearby areas in thick, fetid smoke. The whole area stinks to high heavens, of course.

You know it. This is your friendly neighbourhood landfill, or dumpsite, as some would call it. You have often seen it as you go across the city or town, wondering how people manage to live in houses so close to it. In fact, you can smell it much before you catch sight of it. But have you ever stopped to think about it at some length?

## DO YOU KNOW?

The Ghazipur dumpsite in Delhi is 65 metres in height, giving a stiff competition to the Qutub Minar, the tallest monument in India which is only 8 metres taller! The Deonar dumpsite in Mumbai is the oldest and the largest dumping ground in India, towering at above 18 floors in height and spanning over an area equivalent to 247 football fields!





These eerie mountain ranges of waste and trash are synonymous with urban India today. You will find them in almost every city and town – standing testimony to our lifestyles. We generate huge amounts of waste on a daily basis and most of this waste is not segregated, recycled, or reused: it ends up in these landfills every day, adding to their already huge volumes.

We Indians are the world leaders in generating waste – we reportedly produce over 60 million tonne of solid waste every year! On an average, we generate three and half times our weight as waste annually! How do we get rid of all this waste? Many would promptly dump it in landfills. But is that even a solution?

NO! Let us understand why.

## DO YOU KNOW?

Landfills and dumpsites are not the same. A landfill is a scientifically-constructed structure that ensures safe decomposition of waste by reducing its contact with the environment. A dumpsite is simply a piece of land that is used as a waste disposal site. It usually pollutes the land, water, and air around it.

## WHY IS THE PILE A MENACE?

### ENVIRONMENTALLY SPEAKING

Open dumpsites are a major environmental menace, as they contaminate the land and water around them. They give rise to the formation of toxic leachates (polluted liquids). These are created as a result of rainwater seeping through the waste, taking all soluble substances with it, and due to the decomposition of organic waste, mostly food. These leachates settle at the bottom of a dumpsite and seep through into the ground. They pollute the land, surface waterbodies—nearby rivers, ponds, lakes—and the groundwater aquifers in the vicinity. Dumpsites and landfills also contribute to air pollution: fires in landfills are a common sight during summers and the fumes that result are quite toxic. Besides the fire hazards, these sites also increase the PM (Particulate Matter) levels and release carcinogenic gases (causing cancer) due to uncontrolled decomposition.

### A CONTRIBUTOR TO THE CLIMATE CRISIS

What do our dumpsites have to do with the worsening climate change? Well, a lot! Organic waste lying in the open decomposes to form two very dangerous greenhouse gases: carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>). Methane is 84 times more potent than CO<sub>2</sub> in absorbing the sun's heat, and is therefore, a key reason behind the warming of our Earth! Often, it is CH<sub>4</sub> that triggers landfill fires. If CH<sub>4</sub> comes in contact with an ignitable source (something that can catch fire easily), it can quickly catch fire and emit noxious gases. Soaring temperatures and heatwaves during summers are another cause of fires and resultant emissions from landfills.

### HEALTH HAZARDS

Contaminants from a dumpsite can pollute the local water and land resources, and lead to multiple health problems among residents. Humidity and heat encourage faster bacteria growth, which adds to the odour and invites pests and vectors, like flies and mosquitoes. These can trigger disease outbreaks.

Quite apart from all this, many cities are struggling to find space for dumping their waste and have chosen to throw it outside their boundaries. This has led to conflicts with the poor locals living in those areas.

## DO YOU KNOW?

By 2047, India might need more than 1,400 square kilometre of land to build landfills – this is an area equal to the cities of Mumbai, Chennai, and Hyderabad put together! Can we afford to dedicate such a huge piece of land to landfills?

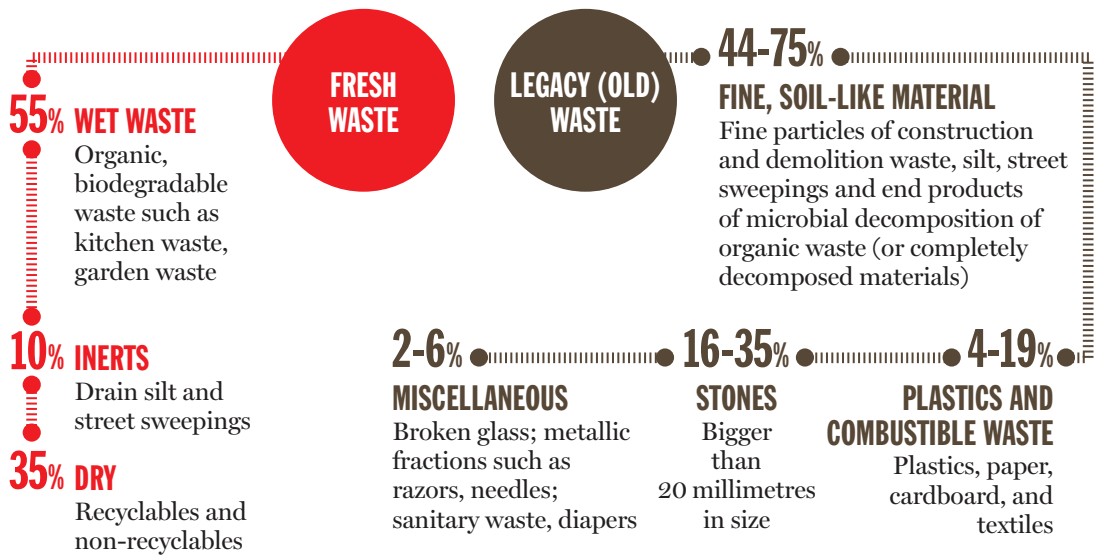


## WHAT KIND OF WASTE DOES A DUMPSITE CONTAIN?

Waste at dumpsites comes largely from households and commercial establishments. Household waste includes food, paper, plastic, glass, diapers, and domestic hazardous waste such as broken thermometers and pesticides.

Waste from commercial establishments includes plastic, cardboard, etc.

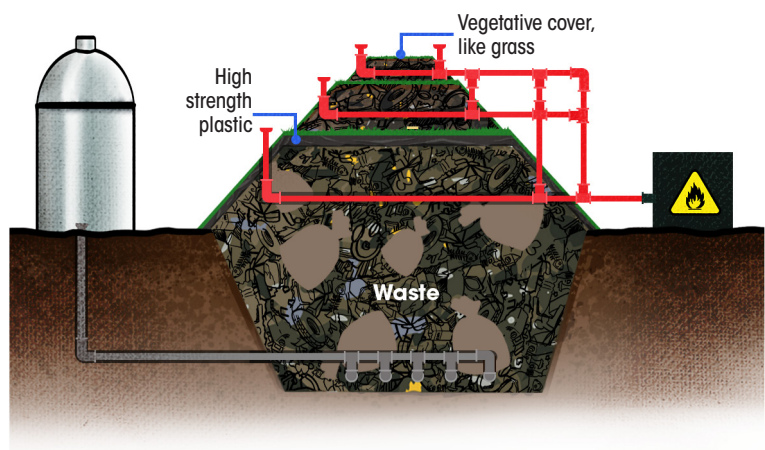
Indian dumpsites contain a mix of fresh and legacy (old) waste. Take a look at the composition of the two types of waste at an average dumpsite.



## WHAT IS BEING DONE TO MANAGE DUMPSITE WASTE BETTER?

Based on the composition of waste, there are two processes that can manage the mountains of waste.

**1 BIOCAPPING** This involves placing a cover of a barrier layer—high strength and high-density plastic, soil, and vegetation—over the waste. The release of methane and other toxic gases is managed through vent pipes that allow the gases to come out of the waste so that they can be treated appropriately, avoiding emissions from going into the environment. This technique does not address the root cause of the problem but ensures that the waste is kept in place to avoid contamination. It is usually performed at dumpsites with a huge quantum of waste.



**BIOCAPPING**

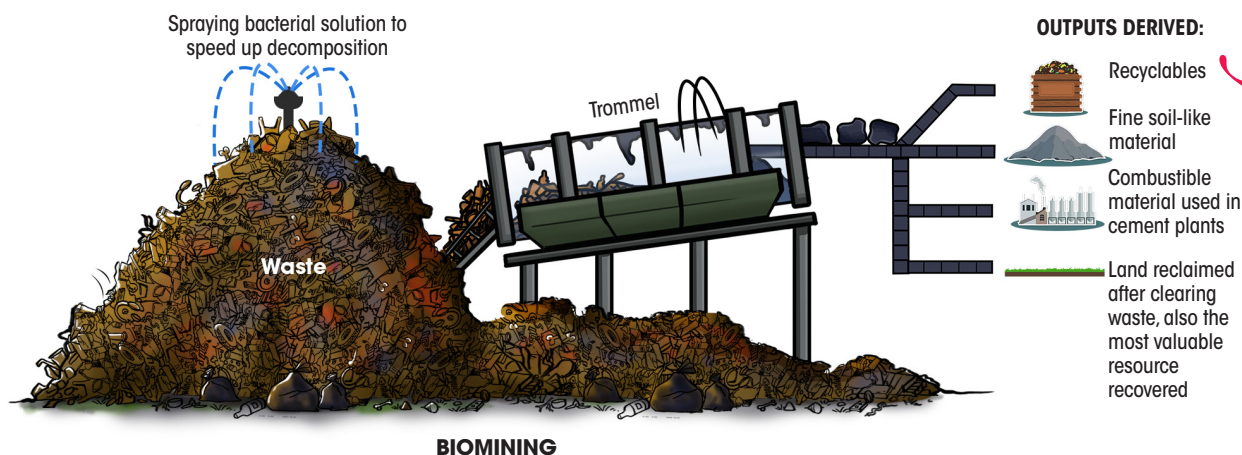


## 2 BIOMINING AND BIOREMEDIATION:

In this process, the waste is excavated from the dumpsite and treated with the help of bacteria. These bacteria ensure that the organic waste is decomposed and converted into a chemically stable material. This process is known as bioremediation. The treated waste is then sorted in trommel machines where valuable recyclable materials are separated. The end produce, mostly

soil-like material, is utilized for filling up some low-lying areas. The combustible materials are sent to cement plants where they are used as a fuel.

In theory, biomining is preferred over biocapping as it reclaims the land that can be used for alternative purposes; but in practice, both the processes have their limitations. Landfills are simply not a solution.

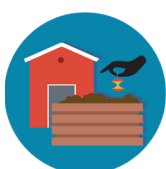


## SO, WHAT CAN WE DO?

‘Out of sight, out of mind’ is the biggest problem with the way household waste is managed. It is far too convenient to put everything we want to discard in plastic bags, put them in the garbage truck, and forget all about it. So, what else can we do? The answer is simple: do not send your waste to landfills. And below are some tips following which you can get started.



**Reduce  
food waste**



**Compost  
wet waste**



**Bring your  
own bag to  
grocery stores**



**Phase-out  
single-use plastics,  
such as straws, cups,  
etc.**



**Recycle paper,  
glass and metal  
by giving it to a  
kabadiwalla**



**Buy things with  
less packaging**



**Start segregating  
waste into wet, dry and  
domestic hazardous**



**Donate  
old clothes;  
don't throw them**



**Repair;  
don't replace**

*The author is Programme Manager in the Environment Education Unit of the Centre for Science and Environment (CSE), New Delhi. This article has also received inputs from Richa Singh, Programme Officer, Municipal Solid Waste team, CSE.*



# HAANJI

*‘Bahut bada hai tu...  
bahut akad hai tora mein...  
dekh ...dekh kaise ukhadte hain...  
akad teri ,*

Landfills are unsightly, smelly, and environmentally harmful. According to the World Bank report *What a Waste 2.0*, the world is expected to generate 3.40 billion tons of waste annually by 2050. This is a drastic increase from today's 2.01 billion tons of waste generated annually. Therefore, let us curb our surging landfills: by buying things with less packaging or buying in bulk, eliminating single-use plastic, reusing and recycling stuff, donating clothes, and reducing and composting food waste.