

*Oh come on !!*

It is only 1 Garbage bag



**Why is it a Problem.....**



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# ***HARMONY WITH NATURE***

@ Smita Ahuja





*We are the only  
creature on earth  
that generates WASTE  
that  
NATURE  
Cannot digest*



**Waste Generation**  
Avg. Per Person every day  
World : 0.74 Kgs  
India : 0.50 Kgs

**It matters?**

1 beautiful planet...



But we are using  
the resources of 1.7



**It will matter!**

@Smita Ahuja



# How Big is the problem Globally



## WORLD

**Current :** 2.01 Billion MT of MSW

**By 2030 :** 3.4 billion MT of MSW . A 70 % Increase

**Recycled** 13.5%

**Composted** 5.5%

**Improperly managed** 33% To 40%  
Dumped or openly burned.



**2016** Global waste production accounted for about 5% of global emissions 1.6 billion metric tons of CO2 equivalent. By 2050 2.6 billion metric tons .

Food waste accounted for 47% of those emissions

A monumental problem that presents an opportunity for gases released by food waste to be harnessed for energy.

# INDIA: Our MOUNTING WASTE

62 MILLION MT PER YEAR



# Are we turning Gurgaon into a Garbage City !

Gurgaon generates 1400 MT MSW everyday  
1100 MT reaches the landfill  
300MT lies dumped in the city or gets burnt .

*Faridabad sends another 800 MT*

**The waste piled up is as high as the Qutab Minar!**

**35,00,000 MT of Waste  
40 ft high 250 ft deep.  
Spread over 30 Acres**

## Bandhwari Landfill Bursting at its Seam

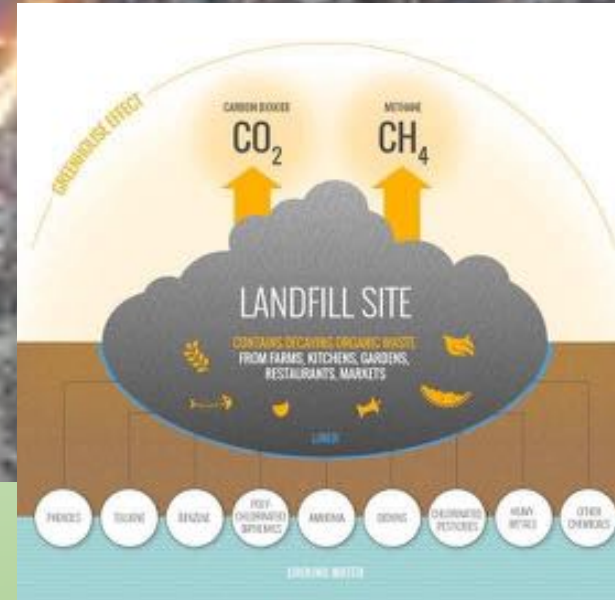
**Only 70% Reaches Bandhwari**

*Leachate*

*Landfill Fires*



**450 trucks move  
1100MT waste everyday  
to Bhandwari from  
Gurugram**



Who is Responsible for this **MESS ??**

The city is unable to cope with this waste.

**50%**  
**DUMPED IN LANDFILLS**  
*Mountains of garbage*



**30%**  
**LITTERED, BURNT, CLOGGING WATERBODIES**





20% TREATED

# Informal Resource Recovery

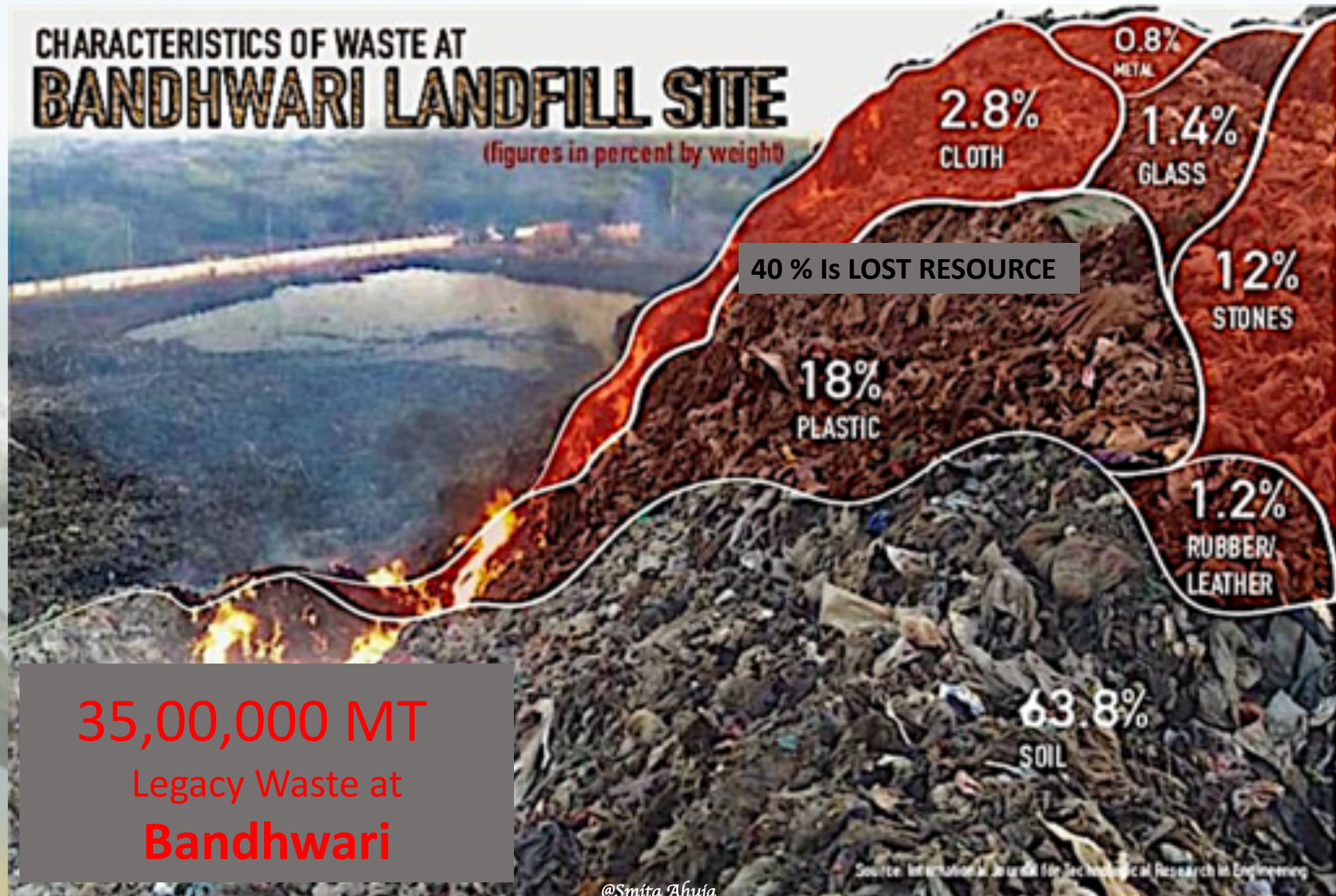
**RESOURCE LOSS :** Most Recyclables cannot be recovered once mixed!!



@Smita Ahuja

# CHARACTERISTICS OF WASTE AT BANDHWARI LANDFILL SITE

(figures in percent by weight)



@Smita Ahuja

Source: International Journal for Technological Research in Engineering

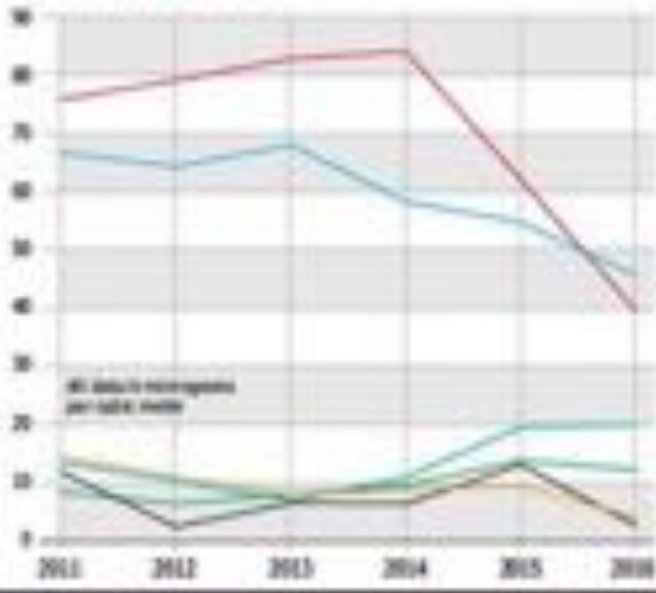


# Health Hazard

## TROUBLE IN AIR: MERCURY & MORE

The city's air is laced with hazardous air pollutants like mercury and formaldehyde, according to the findings of an experimental station being run by CPCB in east Delhi to monitor toxic trace gases. However, there are no permissible standards set in India yet for these gases, which means that we don't know if the levels being recorded at the station are too high or within the acceptable limit. Experts say these pollutants are dangerous even at "trace" levels.

● Ozone ● Toluene ● Benzene ● Formaldehyde  
● Mercury ● Xylene



4

TIMES CITY | GURGAON

## Leachate effect: Groundwater in Mangar, Bandhwari not fit for drinking, says CPCB

No System Of Waste Management At Landfill Means Pollution Can Increase, It Warns

Delhi, Aug 21 | Times Group.com

**Gurgaon:** The worst fears of green activists about contamination of groundwater due to flow of leachate from the defunct Bandhwari waste treatment plant have come true. Central Pollution Control Board (CPCB) has found that the groundwater in Bandhwari and Mangar villages are polluted to such a level that it is unfit for drinking. The board submitted its report to National Green Tribunal (NGT) on Thursday.

The green tribunal had asked CPCB in July to conduct laboratory tests of the groundwater in and around Bandhwari in the wake of a plea filed by environmentalist Vivek Kamraj in 2015. In its petition, Kamraj alleged that leachate from the solid waste management plant in Bandhwari, which has been lying dormant for the past four years, was flowing into underground aquifers, thereby contaminating the groundwater of the

**Green Alert**

area. "Nitrate in the groundwater samples from Mangar village and Bandhwari villages are not complying with the drinking water standards, hence groundwater at Mangar and Bandhwari villages is not fit for drinking purpose, but water can be used for bathing and irrigation purposes," states the report (a copy

**YOU READ IT HERE**

**Aravali mess puts Delhi groundwater in peril**

Sept 25 2016

**THE PLANT**

The plant is a solid waste management plant in Bandhwari, Gurgaon. It has been lying dormant for the past four years. The leachate from the plant is flowing into the groundwater, contaminating it.

of which is with TOC).

The board has blamed leachate formation at the defunct Bandhwari waste treatment plant for high levels of chloride, manganese, calcium and boron in the groundwater of these villages. "High values of manganese, calcium, boron and chloride content at a borewell at Bandhwari site and a borewell at Dera village

**POLLUTION |** In its petition, Kamraj alleged that leachate from the solid waste management plant in Bandhwari, was flowing into underground aquifers, thereby contaminating the groundwater of the area.

are located 300 metres away from landfill site are observed. Such contents are higher than the acceptable upper limits for drinking purposes. This may be attributed to contamination of the borewells from landfill leachate," states the report.

While chlorides at a borewell has been found to be 800 mg/l (milligrammes per litre) — three times higher than the desirable limit — nitrate level at another borewell is 18.7 mg/l (two times higher than desirable

limit). The desirable limit of chlorides and nitrate should be below 250 mg/l and 45 mg/l, respectively. Similarly, highest levels of manganese, calcium and boron are 14.0 mg/l, 250 mg/l and 60 mg/l, respectively. The desirable limit of manganese, calcium and boron, on the other hand, should be below 0.1 mg/l, 75 mg/l and 0.5 mg/l, respectively.

Shockingly, the board also said, in its report, there are chances that groundwater contamination could rise in the area. "Parameters like TSS (total suspended solids), TDS (total dissolved solids), BOD (biochemical oxygen demand), COD (chemical oxygen demand), arsenic and chloride are not complying with the discharge standards of the leachate and it is found that there is no proper management system for storage and treatment of leachate at the site. This practice shall increase the chances of groundwater contamination," the report states.

"The report proves that what we were saying is true. Our stand has been vindicated. I

am happy that a true report has been submitted. It also shows that reports conducted by other government agencies (in the past), including Haryana State Pollution Control Board (HSPCB) and MCG, which claim that there is no groundwater contamination, are incorrect. It is sad that authorities are hiding major pollution taking place at the landfill," said Kamraj from Harys, an environmental NGO.

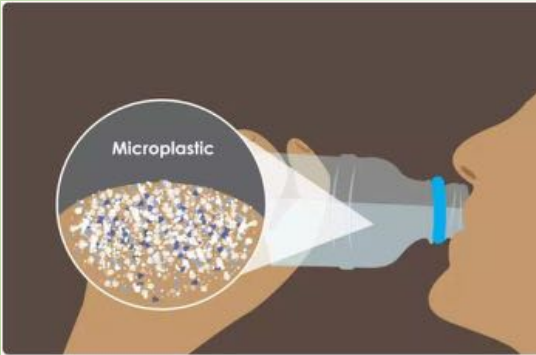
Villagers expressed helplessness as the groundwater is their only source of drinking water. "We are completely dependent on groundwater for our survival. There are only a few households that have water purification system. We have been telling authorities to relocate Bandhwari waste treatment plant, but no action has been taken yet," said Manoj Taneja, a resident of Bandhwari village.

Located off the Gurgaon Faridkot road, Bandhwari waste treatment plant has been lying dormant since 2011. Over 1,000 tonnes of mixed waste is dumped every day at the plant.

**Air ,Soil & Water : All are impacted**

Smita Ahuja

# HEALTH AT STAKE !!

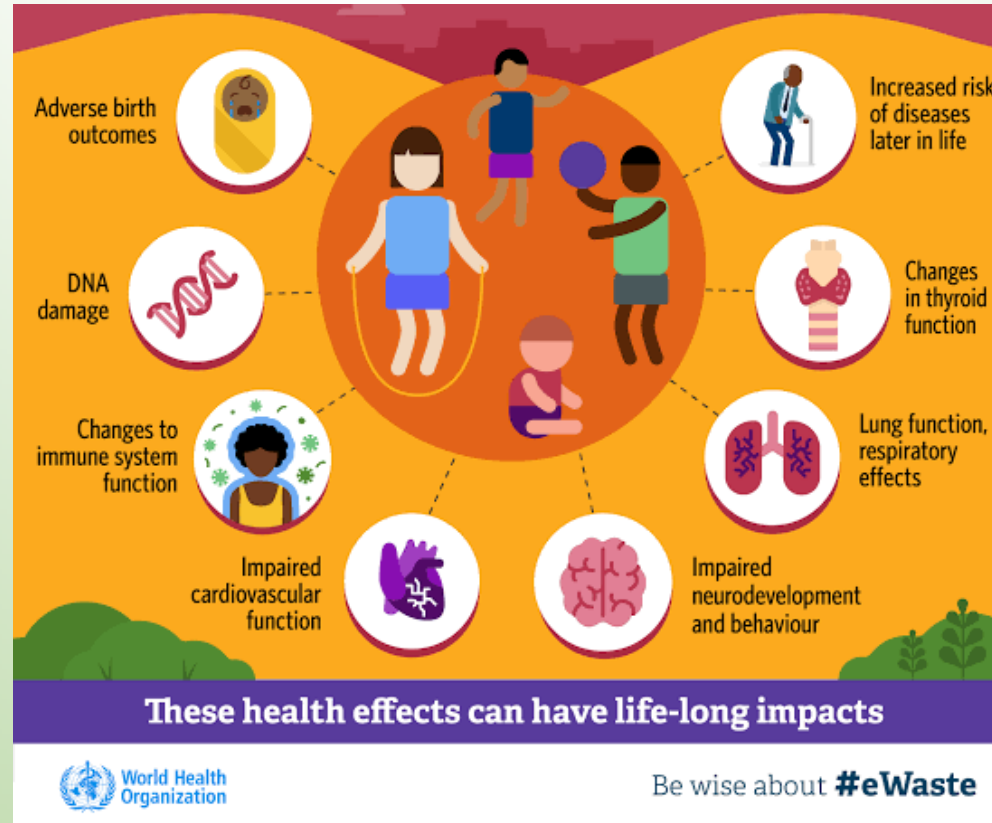


## Humans swallow 1 credit card's worth of plastic each week: Study

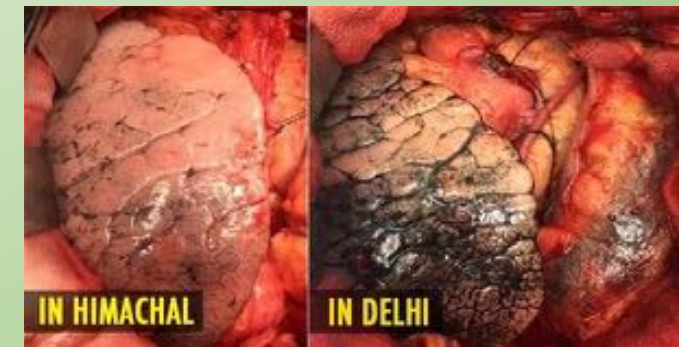
Humans may be ingesting five grams of plastic each week, the equivalent of a credit card, a study commissioned by the World Wide Fund for Nature said. The largest source of plastic ingestion is drinking water, with the plastic particles found in bottled, tap, surface and groundwater. The findings are the first to estimate the ingestion of microplastics by humans.

## Water: A source of life or contamination?

In a study, 2x more plastic was found in the tap water of the US or India than in European or Indonesian water.



- Heavy Metals
- Microplastics
- PM2.5



3

**Toxic Chamber we are creating !!**

# SOLUTION



**# ACT NOW**



**STOP POLLUTION. CONSERVE RESOURCE . GIVE LIVELIHOOD**

UNTIL YOU  
FIX IT HERE



AND  
ADDRESS  
IT HERE

NOTHING  
CHANGES  
HERE



# SOLUTION

## 1 BECOME AWARE

- Feel the problem
- Know more

## 2 AWAKEN

- Make it a Priority
- Feel responsible

## 3 ACTION

- Convenient /easily doable
- Cost Effective



BE RESPONSIBLE RESOURCE MANAGERS

*We are the problem and the solution*

# SAMADHAAN HUB

## Case Study



# SAMADHAAN HUB

## PHASE 1 : Feel the problem

*Art project : Where does it go?*

**Art** is an effective medium to create awareness and influence change..

Art installations made us look at the waste we create a little more closely ..... How it is impacting us ?

- ❑ The installations were hard hitting.



**13 artists lead by Arunkumar HG** worked over 10 days on material collected over a month from RWA's, Schools, Corporates Informal workers, Recyclers .

- ❑ Successful in bringing key stakeholders **together**

# Role We Play - *Feel the problem*



Waste Detector:  
Pinaki R Mohanty



*The Toxic Chamber by Arunkumar HG*



Left over: Arnav Chandra & Debi Prasad



Beautification: Santanu Dey

In the frame:  
Pawan  
Vishwakarma



Steal the Treasure: Ramkumar K

Those who visited have been moved. Able to “feel” the waste we generate (leaving a visual imprint in the brain) initiating change



Engage, Introspect, Reflect, Act & Transform



@Smīta Ahuja

# SAMADHAAN HUB

## PHASE 2 *Waste Solution Centre*

*A One stop solution point for maximum categories of waste*

- Build greater awareness and a desire to change
- Create a space that provided the **essential information** to take those critical steps towards a more sustainable way to live.
- A space which gives easy **access to solutions** to reduce our waste load .Allow call for action at individual/community /corporate /school level
- An **interactive public space** to have fun, hold workshops and events

**The Role We Play ! The Role We Can Play !!!**

**We can Contribute to reduce a part of the 400 MT RECYCLABLE Waste from reaching the landfill daily**

@Smíta Ahuja



# Making of Samadhaan Hub



2020/09/29 18:16

Upcycled Waste and Sustainable materials

@Smita Ahuja

# Samadhaan Hub

## ❑ INFORMATION WALLS



BUILD AWARENESS TO DESIRE CHANGE : FACT & FIGURES

# Samadhaan Hub

## ❑ INFORMATION WALLS



STEP BY STEP GUIDE TO TAKE ACTION

# Samadhaan Hub

## ❑ RECYCLE CORNER



# ❑ DONATE4REUSE



गूज..  
GOONJ.. a voice, an effort  
Dropping Center



FINDING SOLUTIONS FOR SPECIFIC  
CATEGORIES OF WASTE

# ❑ DISPOSE RESPONSIBLY

## EXPIRED MEDICINES

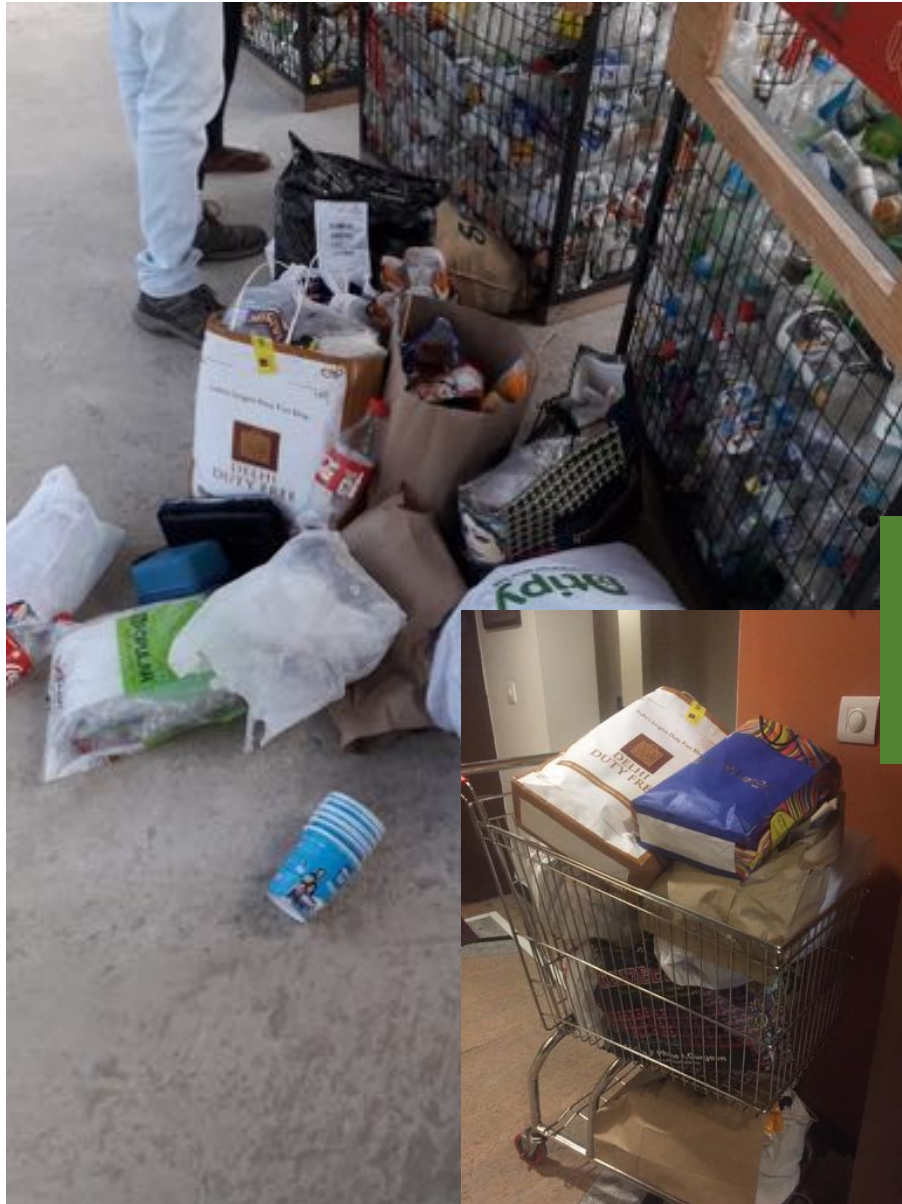




A POPULAR DESTINATION  
FOR MANY GURUGRAM  
RESIDENTS

@Smita Ahuja





COMMUNITY/  
ORGANISATION  
DROP OFF POINT



# Collection Drives



# Upaygiri Workshops



# Having Fun



# Sustainable Living Market

## -Alternatives & Recyclable Products



# EXPANDED TO 3 RECYCLE STATIONS

**BE AWARE. BE RESPONSIBLE.**  
**DROP YOUR DRY SEGREGATED WASTE AT THE RECYCLE CENTRES**



**OPEN**  
7 Days  
9 a.m. to  
6 p.m.

**RECYCLE STATIONS**

Samadhaan Hub Wazirabad Bundh, Next To Excelalor American School, Off Golf Course Road, Sector 43, Gurugram	Badshahpur Forest Corridor, Southern Peripheral Rd, Tatvam Villas, Dhanu, Sector 69, Gurugram	Sikanderpur Pahadi, Khushboo Chowk, Df phase -1, Gurgaon
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**OPENING 1<sup>st</sup> July...**

Prevent it from entering our landfills,  
polluting our air & impacting our eco-system

WhatsApp only # 9811402103, 9811577173





**Opportunity to  
involve the entire  
city and attempt to  
carve out an identity  
as a future zero  
waste Millennium  
CITY**

# CASE STUDY : COLLECTIVE ACTION & COMMUNITY MOBILISATION

## RECYCLING PROGRAMS

### EWASTE



### PLASTICS



SOFT PLASTIC

# COLLECTIVE E-WASTE RE-CYCLING PROGRAM

- 30 communities in Gurugram recycling since 2018



1. E-waste Bin
2. Segregate . Store . Drop off in the E-waste bin
3. Awareness & Collection Drives





# SOFT PLASTIC RECYCLING PROGRAM

COMMUNITY PROGRAM

## MLP & SOFT PLASTIC UPCYCLING

**1** COLLECT YOUR SOFT  
PLASTICS & MLP FOR A MONTH



**MUST BE CLEAN & DRY**

**2** GIVE IT NICELY PACKED  
END OF THE MONTH



**3** AGGREGATE



**4** COLLECTED  
BY  
THE NGO  
ONCE A  
MONTH



For more details contact  
Smita Ahuja  
earthtreebysa@gmail.com  
on whatsapp 9818661408



# *BE A GREEN HEART*

## COMMUNITY/COLLEGE PROGRAM



साफ सॉफ्ट प्लास्टिक और एमएलपी  
यहाँ रीसायकल करें



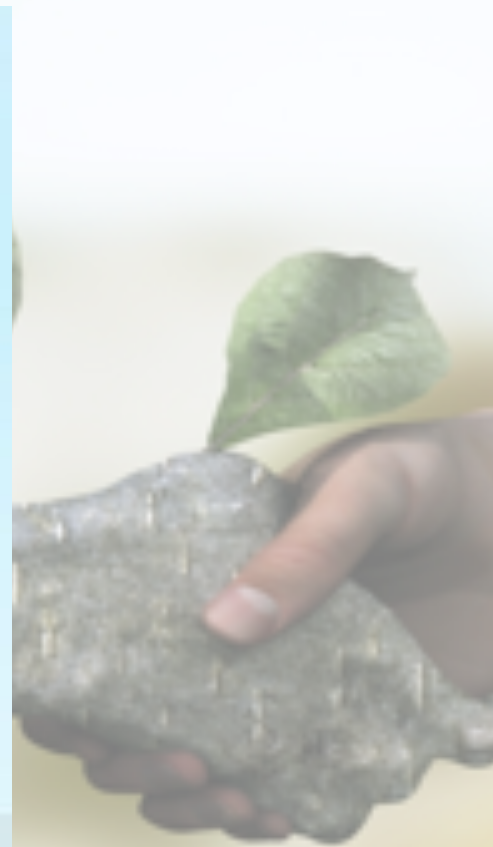
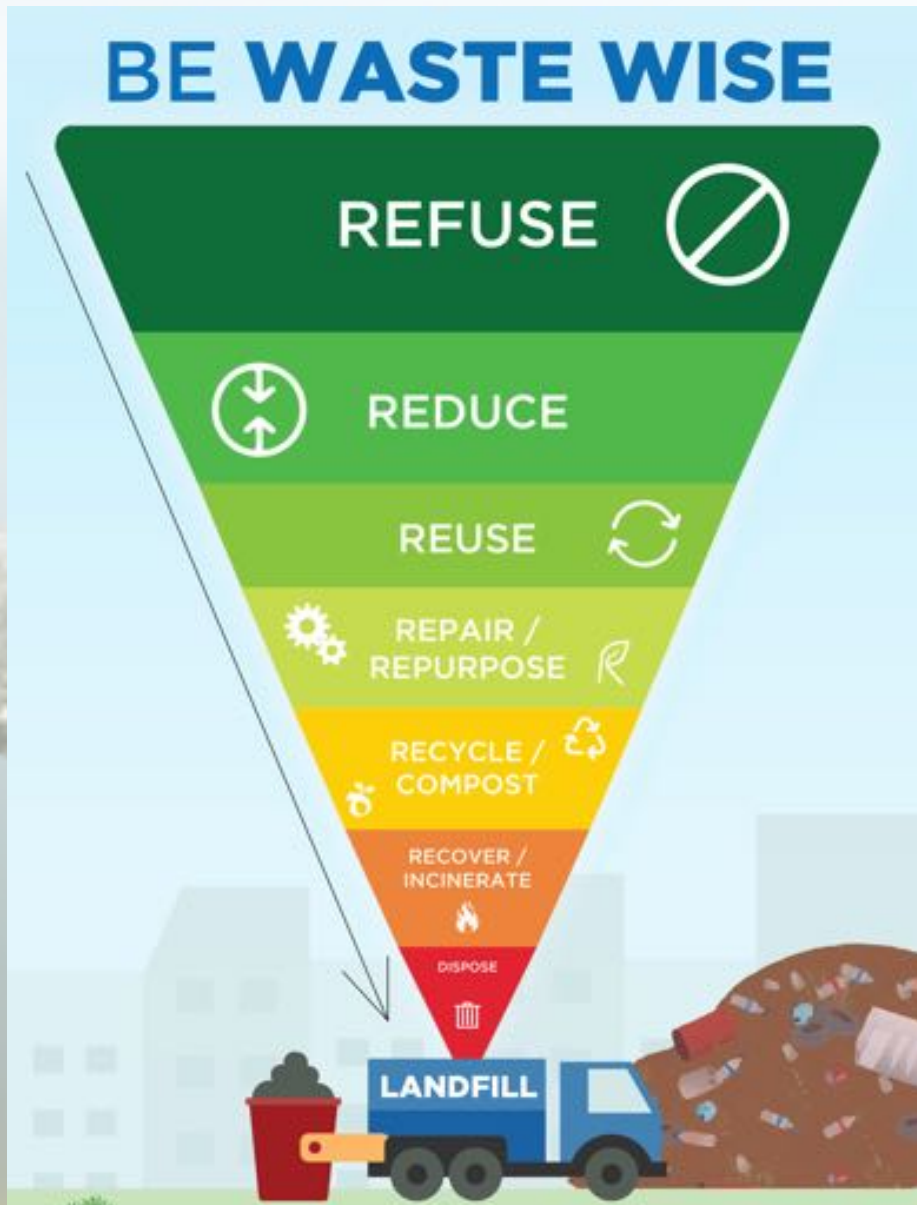
VILLAGE PROGRAM



# What You Can Do *LIVE* **SMART**



*RETHINK CHOICES*



**#ACTNOW**



# Segregate

GET STARTED .....STORE SEPARATELY



**WET /ORGANIC**

**DRY RECYCLABLE**

**KITCHEN**

**COMPOST**

**RECYCLE**

*INDIVIDUAL/COMMUNITY LEVEL*



**HAZARDOUS  
+REJECTS**

**ANY BAG**

**SANITARY  
+MEDCAL**

**BATHROOM**

**RESPONSIBLE DISPOSAL**

*INDIVIDUAL/COMMUNITY LEVEL*



**E-WASTE**

**ANY BAG**

**RECYCLE RESPONSIBLY**

# Law - Solid Waste Management Rule 2016 (SWM 2016)

**makes it Mandatory**

- ❑ For Everyone to **Segregate Waste at Source**
- ❑ For everyone to **pay User Fee**
- ❑ For Bulk Waste Generators to do **insitu Composting or Bio Methanation** of the Wet/Organic Waste

## SOLID WASTE MANAGEMENT RULES 2016



### DUTIES OF WASTE GENERATORS.-

(1) Every waste generator shall -

a) **Segregate the waste** generated by them in three separate streams namely Bio-Degradable, Non-Biodegradable And Domestic Hazardous wastes in suitable bins and handover segregated wastes to authorised waste pickers or waste collectors as per the notification by the local body (MCG);

b) **Wrap securely the used Sanitary Waste** like diapers, sanitary pads etc., in the pouches provided by the manufacturers or brand owners of these products or in a suitable wrapping material as instructed by the local authorities and shall place the same in the bin meant for hazardous waste;

c) **Store separately Construction and Demolition Waste**, as and when generated, in his own premises and shall dispose of as per the Construction and Demolition Waste Management Rules, 2016

d) **Store Horticulture Waste and Garden Waste** generated from his premises separately in his own premises and dispose of as per the directions of the local body (MCG).

(2) **No waste generator shall throw, burn or bury the solid waste** generated by him, on streets, open public spaces outside his premises or in the drain or water bodies.

(3) **All waste generators shall Pay User Fee** for solid waste management, as specified by the local body (MCG).

(4) **No person shall organise an event** or gathering of more than one hundred persons at any unlicensed place **without intimating the local body (MCG)**, at least three working days in advance and such person or the organiser of such event shall ensure segregation of waste at source and handing over of segregated waste to waste collector or agency as specified by the MCG.

(5) **Every street vendor** shall keep suitable containers for storage of waste generated during the course of his activity such as food waste, disposable plates, cups, cans, wrappers, coconut shells, leftover food, vegetables, fruits, etc., and shall deposit such waste at waste storage depot or container or vehicle as notified by the local body (MCG).

(6) **All Resident Welfare and Market Associations, Gated Communities, Institutions With More Than 5,000 Sqm Area, Hotels and Restaurants** shall, within one year from the date of notification of these rules and in partnership with the local body, ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. **The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible.** The residual waste shall be given to the waste collectors or agency as directed by the local body (MCG).



# #ACTNOW

## 1. REFUSE or REDUCE 5 Items

☐ PACKAGING



☐ PLASTIC BAG



☐ DISPOSABLES

☐ STRAWS

☐ WATER BOTTLES

## 2. RECYCLE



COLLECT AS AN INDIVIDUAL



GIVE - DROP OFF POINTS IN  
THE CITY



# DRY RECYCLABLES

SEGREGATE.CLEAN.DRY

## TOP 4

### PAPER



- Bottles & jars
- Containers
- Other glass items

### GLASS



- Cardboard box
- Soft cardboard
- Newspaper
- Magazines
- Tags & bills
- Junk mail

### METAL



- Metal cans & caps
- Foil containers
- Old utensils
- Foil

### PLASTIC

#### HARD

#### SOFT

PET

RIGID PLASTICS [HIGH VALUE]

SOFT PLASTICS [LOW VALUE]

MIX WITH FOIL



- Water bottles
- Soft drink bottles
- PET jars
- Containers



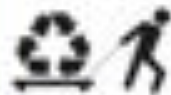
- Plastic covers
- Bottles & boxes
- Takeaway containers
- Plastic disposables



- Plastic bags
- Plastic packaging
- M/F packaging
- Milk, grocery & oil packets



- Chips & Wafer packets
- Cereal packets
- Toilet paper



GIVE TO LOCAL KABADI / RECYCLER

Informal Chain is very well developed.



GIVE TO RECYCLER  
/ COPROCESSOR



# HOME COMPOSTER

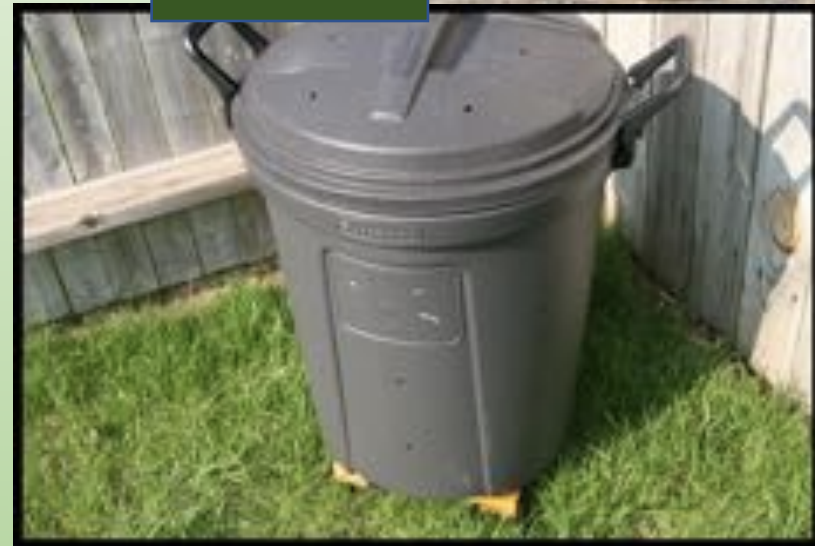


HANDMADE  
IN INDIA

OPTIONS IN  
THE  
MARKET



MAKE SHIFT  
COMPOST  
BIN



# Creating a Green Campus

**ZERO  
WASTE**

1. **Say no to Single Use** Plastic Bag ,straw ,disposables and water bottles
2. **Recycle Station** ( Dry & E-waste ) & **Donation station /Drives**
3. **Horticulture Waste** – Compost & Mulch
4. **Wet Waste :**
  - STOP Food Wastage
  - Bio gas/Compost
5. **Dispose Responsibly** – Hazardous Waste + Rejects

# 1

# SAY NO TO SINGLE USE PLASTICS (SUP)

Plastic Bag ,straw ,disposables and water bottles



## Campus Shop :

- Delivery in Basket /Rent a bag
- Reuse Drop box



## Reusable Cups for Staff



# 2

# COLLEGE/COMMUNITY LEVEL



## START WITH 2

### E-WASTE RECYCLING



RECYCLE RESPONSIBLY  
ONLY WITH AN  
AUTHORISED RECYCLER

### SOFT PLASTICS RECYCLING



### SAMADHAAN ZONE



OR GIVE SEPARATELY TO HOUSEKEEPING

# HORTICULTURE WASTE MANAGEMENT



# WET WASTE MANAGEMENT

## ❑ Cut Food Waste

- Messaging(ICT) in the canteen to take only what you need
- Food Drop area to leave the extra food
- Community Fridge
- Tie up with **Robinhood Army** for pick up



# ORGANIC WASTE MANAGEMENT

## COMPOST / BIOMETHANATION

40 to 60 % of our waste is organic  
Organic waste can be converted to  
Compost or Bio gas

### 1.Organic Compost

Replace Chemical  
Fertilizers



*Give back what we  
take as nutritious  
food for the soil*

### 2.Bio Methanation

Replace Fossil Fuel

## COMPOST

**Convert to manure in a composter**

Contrary to the decomposition that happens in a landfill which emits methane,

- composting is mostly aerobic
- emits carbon dioxide which has comparatively lesser green house gas potential per atom of carbon emitted.
- Use of compost in agriculture increases carbon sequestration,
- Decreases the need for irrigation by as much as 70%,
- Reduces the need for chemical fertilizers.



# BULK COMPOSTING : DIY KITS



# COMPOSTING SYSTEMS



# ACTIVITIES & EVENTS – BEHAVIOUR CHANGE

## ☐ Repair Café



## ☐ Plogging & Clean up Drives



## ☐ Markets to buy recycled/upcycled & Biodegradable Alternatives



## ☐ Exchange Offer





**SMALL ACTS  
WHEN MULTIPLIED  
BY  
MILLIONS OF PEOPLE  
CAN  
TRANSFORM THE WORLD**

# Together We can *Make a Difference*



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