SAVE WATT

"When the landfill's empty, energy will be of plenty."

Nyla Fernando
9B24

BABAJI
VIDHYASHRAM

PROBLEM STATEMENT

PROBLEM ONE

A lack of a both affordable and clean energy that is accessible to all.

PROBLEM TWO

Pollution, and the accumulation of waste in various landfills.

Populous countries produce a lot of waste, and if not disposed of properly, the consequences could be severe.

UN GOAL ADDRESSED : UN GOAL 7 AFFORDABLE AND CLEAN ENERGY

INTRODUCTION | STAGE ONE

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Population

Increasing population leads to an increase in **demand** for basic necessities such as **energy** + increase in **pollution**.

Energy

Energy, being the **central necessity** to nearly every major challenge and opportunities that face the modern world, should be granted at a **lenient cost**.

Waste pillation

Increasing pollution leads to pillation of waste in **landfills.**

Waste Management

Waste pillation and management are **huge problems** in India, a very populous country.

WASTE MANAGEMENT AND PILLATION

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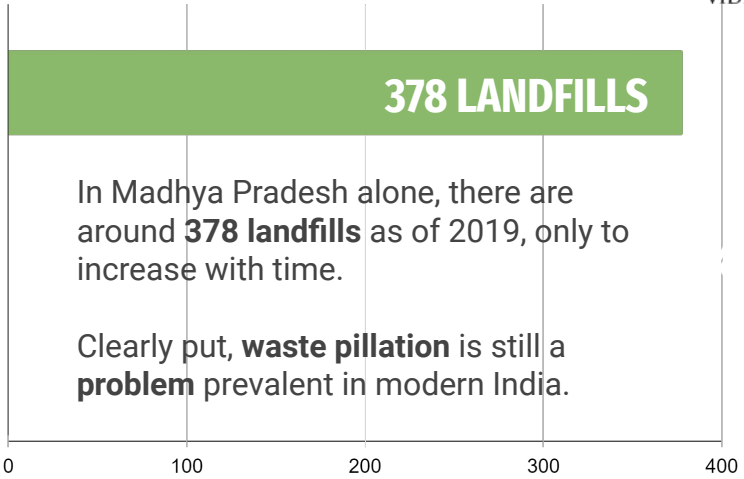
A flawed system

Experts believe that India is following a flawed system of **Waste Management**, and that becomes very evident as you start looking at how they **dispose of waste**.

8000 towns (India) generate 62 MT of solid waste.

Out of **62 MT**, only 43 MT are collected.

Out of 43 MT, **only 11 MT are treated**; the rest being dumped in the aforementioned landfills.



MT : Million Tones

A solution! WtE or EfW

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Why WtE / EfW?

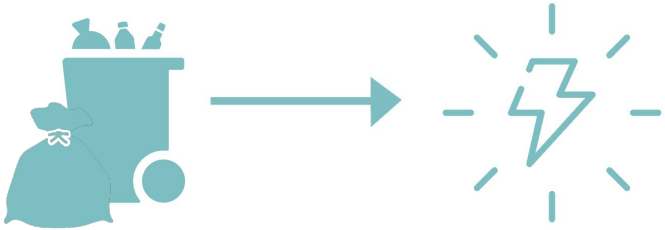
1 MT of waste can produce upwards of about **1.88 million MWh of energy!**

A single MWh of energy is equivalent to the amount of energy used by 330 avg. homes in one hour!

Urban India is estimated to produce around 62 MT of waste, which could potentially produce around **33 million MWh of energy!**

WtE / EfW : Waste to Energy / Energy From Waste

Waste-to-energy or energy-from-waste is the process of **generating energy** in the form of electricity and/or heat from the primary treatment of waste, or the processing of waste into a **fuel source**. WtE is a form of energy recovery.



USE OF WtE / EfW WORLDWIDE

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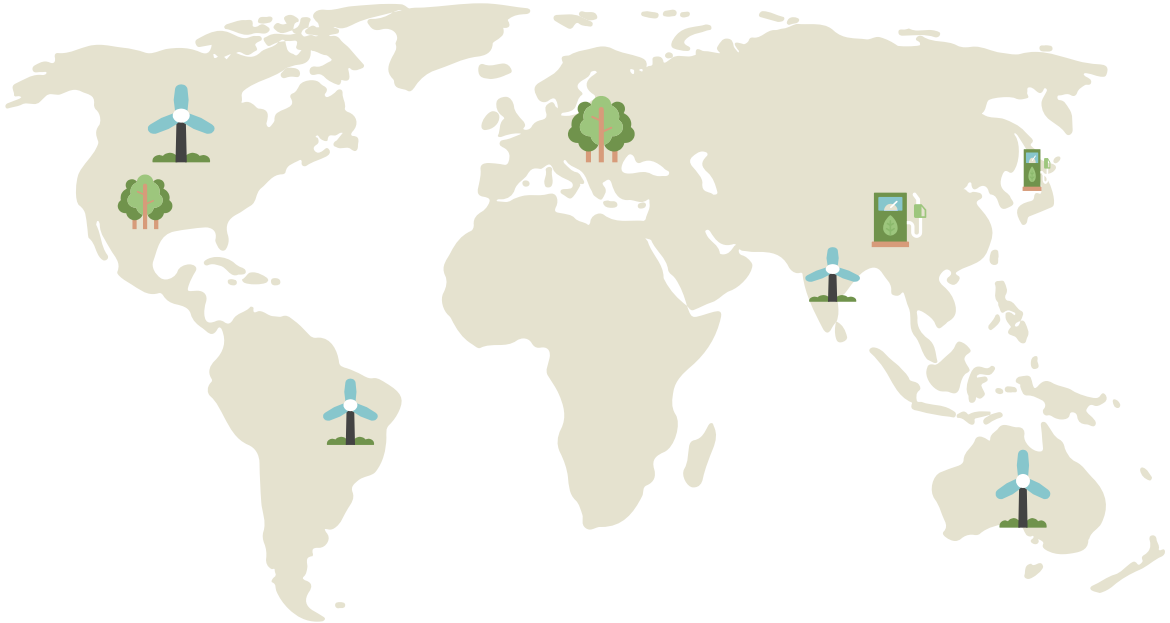

1 - 10

11 - 1000

> 1000

Link for better clarity.

LINKS AND NEWS ARTICLES

https://www.energy.gov/eere/bioenergy/waste-energy

> their utilization helps to address the unique and local challenges of disposing of them.
> ...
> the United States has the potential to use 77 million dry tons of wet waste per year, which would generate about 1.079 quadrillion British thermal units (Btu) of energy.

https://wedocs.unep.org/bitstream/handle/20.500.11822/29521/WTEPoster.pdf?sequence=1&isAllowed=y

https://energy.economictimes.indiatimes.com/news/power/andhra-pradesh-govt-pushes-for-early-commissioning-of-waste-to-energy-plant/80089580

WASTE TO ENERGY

TNN

Andhra Pradesh: Govt pushes for early commissioning of waste-to-energy plant

Srilakshmi expressed displeasure at the executives of Jindal firm for not meeting deadlines despite several extensions.

PROCEDURE

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WtE

Mass burn to energy method has seven steps

Step 1

Waste is dumped from garbage trucks into **large pits**.

Step 2

Waste is **collected** by a claw and is put in a **combustion machine**.

Step 3

Waste is burned and **releases heat**.

Step 4

Heat turns into **water** in a boiler.

Step 5

High pressure steam turns the **turbine spinner** and produces energy!

Taking care of the pollution produced

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Step 6

Air pollution control system **removes pollution** from combustion gas before it's **release**.

Added Step

The harmful substances in the combustion gas can be **diluted** with **artificial oxygen**, to then be **released** back into the atmosphere.

Step 7

Ash is **collected** from boiler and air pollution control system.

PRODUCT (APP) | STAGE TWO

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1

Screen 1

Starting screen.

2

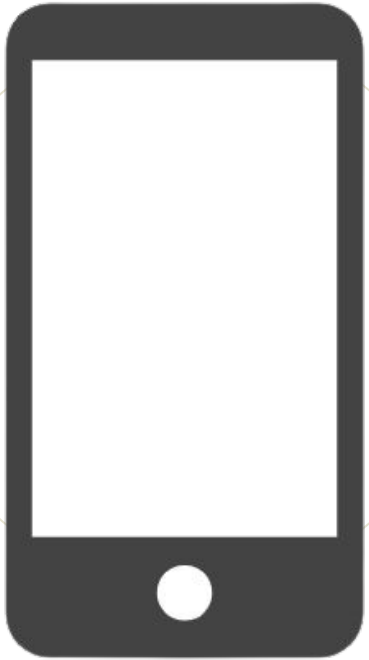
Screen 2

User can calculate how much waste they produce everyday.

3

Screen 3

User can see how inefficient waste disposal is.



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Screen 4

User can see how this waste can be used to generate energy.

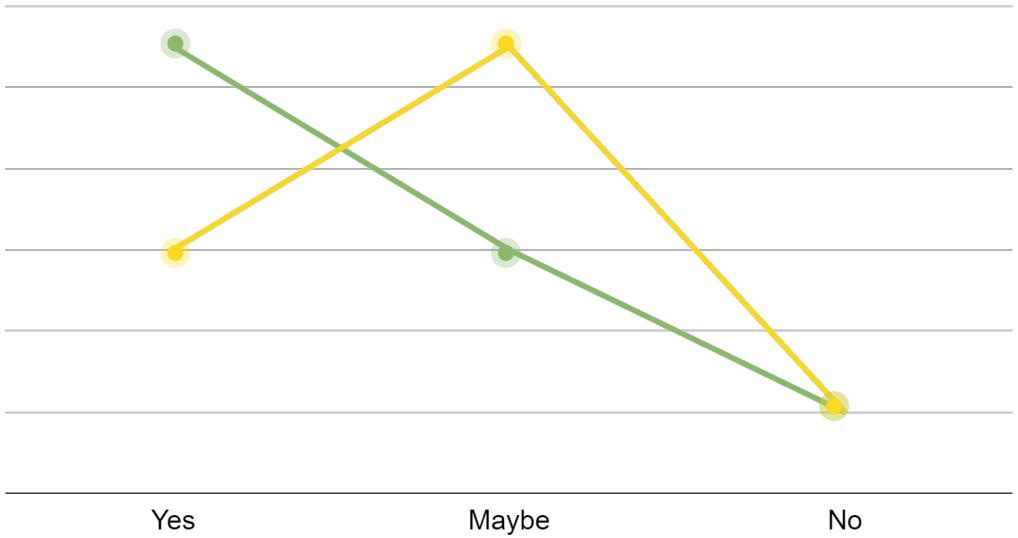
5

Screen 5

Final Thank You screen.

Doc. : Link

SPREADING AWARENESS



Do you think the initiation of WtE / EfW is a good solution?

Would you donate / support in the initiation of this plan?

Link :
https://forms.gle/4EZcM88eNk1XakBS8

SURVEY

I chose to conduct a survey to spread **awareness** about the plight of India, and to propose a **solution**.

Information was spread through text, and the **public opinion** about the initiation of WtE was gathered.

POSTER

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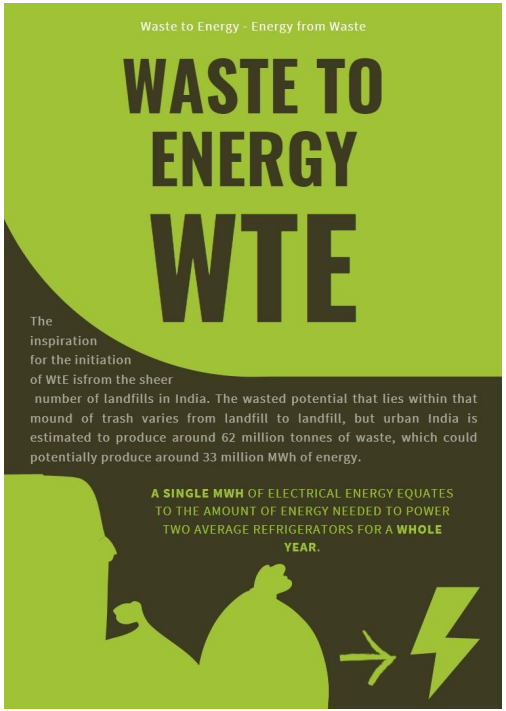


HOW?

This poster was sent to friends and family through **Mail** and **G Chat**.

PURPOSE

To spread awareness of a new way of **renewable energy**.

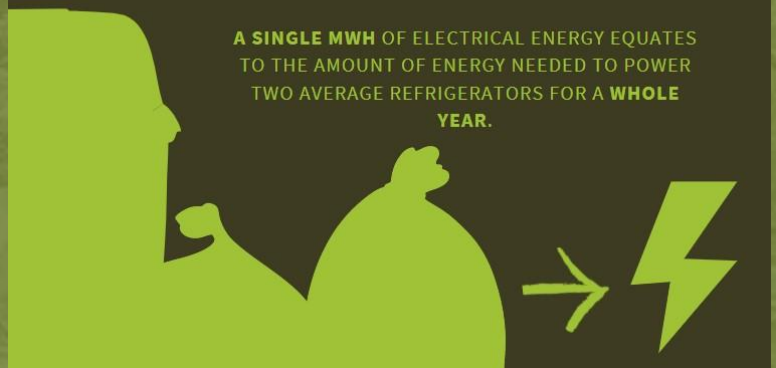
Waste to Energy - Energy from Waste

WASTE TO ENERGY

WTE

The inspiration for the initiation of WtE isfrom the sheer number of landfills in India. The wasted potential that lies within that mound of trash varies from landfill to landfill, but urban India is estimated to produce around 62 million tonnes of waste, which could potentially produce around 33 million MWh of energy.

A SINGLE MWH OF ELECTRICAL ENERGY EQUATES TO THE AMOUNT OF ENERGY NEEDED TO POWER TWO AVERAGE REFRIGERATORS FOR A **WHOLE YEAR.**



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CONCLUSION

My Learning

India is a country with many great **opportunities**, but **utilising** them is a task that shouldn't be taken lightly.

I learnt about the **inefficient waste disposal** methods currently in use, and about the lack of an affordable and clean energy source.

Researching about WtE / EfW and about artificial oxygen made me realise just how **valuable natural resources** are.

Reducing, reusing and recycling of not only waste but also energy should be practiced.

Link for website. (Works best with a 1920 x 1080 screen display)

THE TAKEAWAY FROM THIS PROJECT

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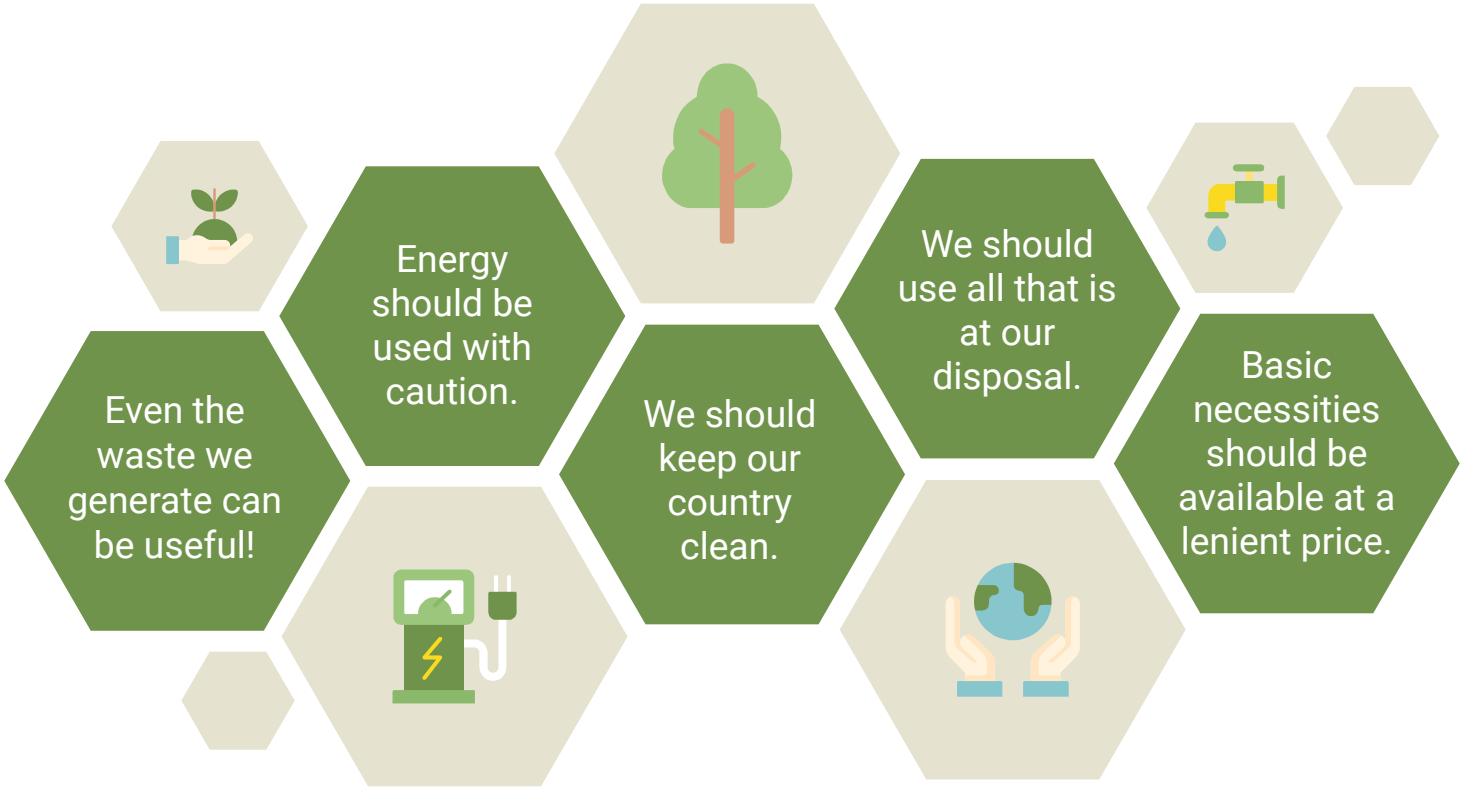


QUESTIONS?
ANSWERS!