



02. TECHNOLOGY IN ENVIRONMENT MANAGEMENT

M2U2P2 DESIGN AND TECHNOLOGY

ENVIRONMENT MANAGEMENT

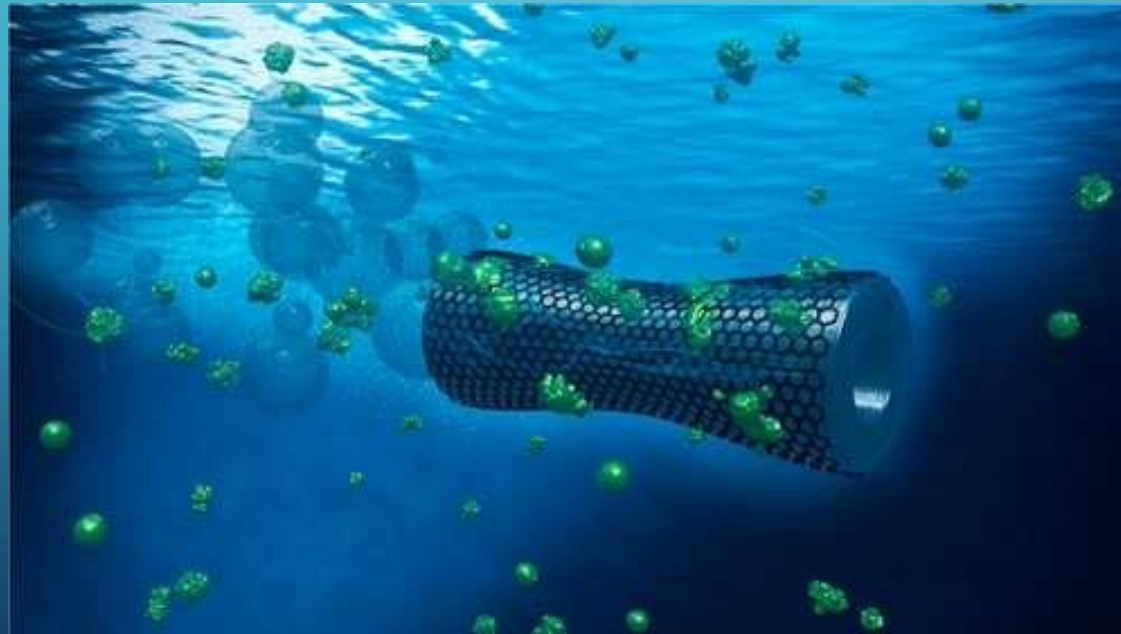
- These days we try to develop new technologies that will fix environment problems
- Example:
 - Waste water treatment
 - Air pollution treatment
 - Solid waste management

TECHNOLOGY USED FOR WATER TREATMENT

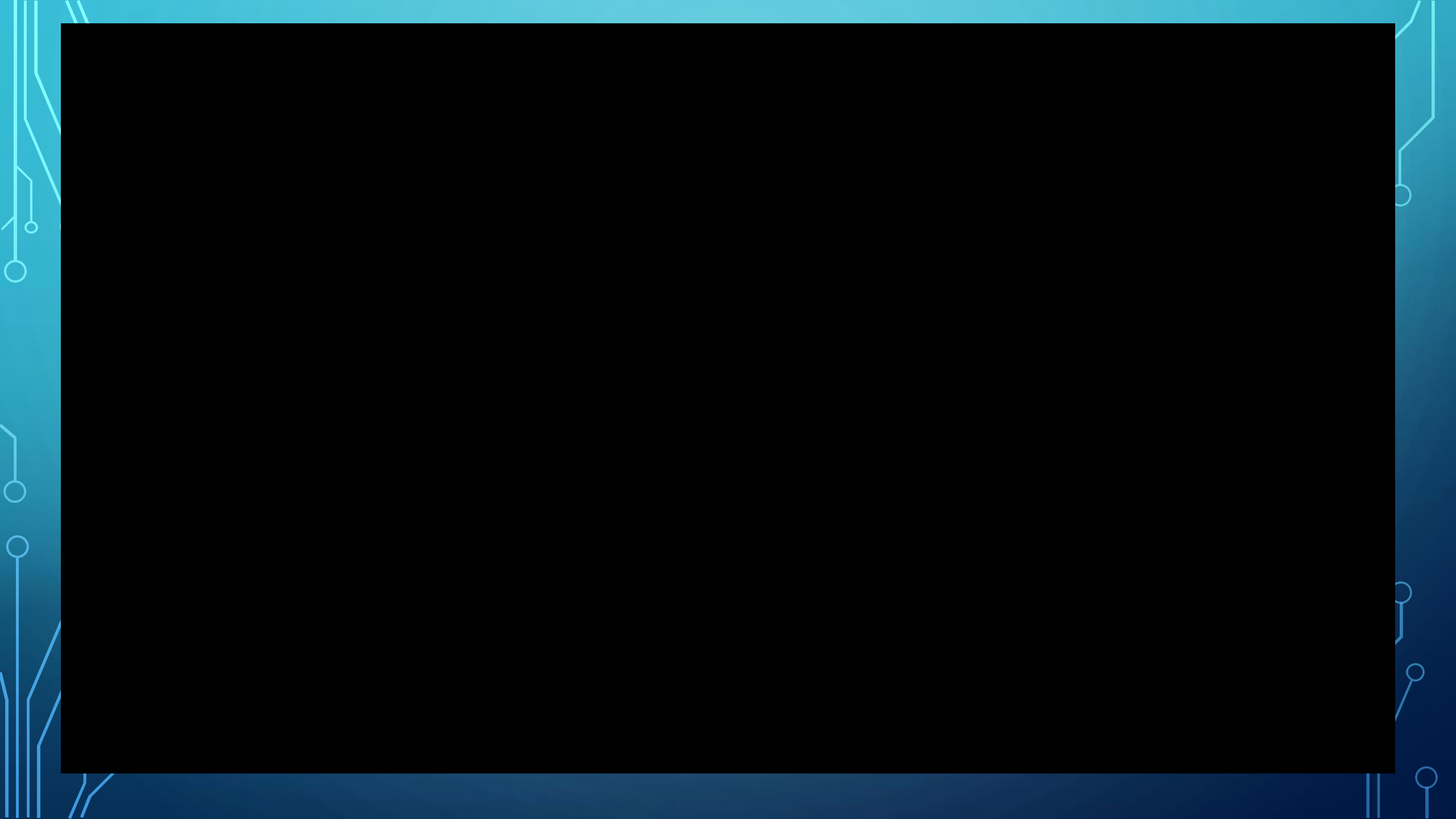
- Companies that produce electronic equipment(batteries, circuit boards) during their production they release some levels of lead, arsenic, cadmium and chromium into the environment
- They are poisonous to us which causes a problem if they end up in the water
- They can cause cancer, damage our breathing system and nervous system
- Animals that live in that water can also be affected, and we can be affected by consuming them

TECHNOLOGY USED FOR WATER TREATMENT

- A swarm of hundreds of thousands of tiny microbots, each smaller than the width of human hair, can be deployed into the industrial wastewater to absorb and remove toxic heavy metals
- They can remove up to 95% of the lead in polluted water in 1h

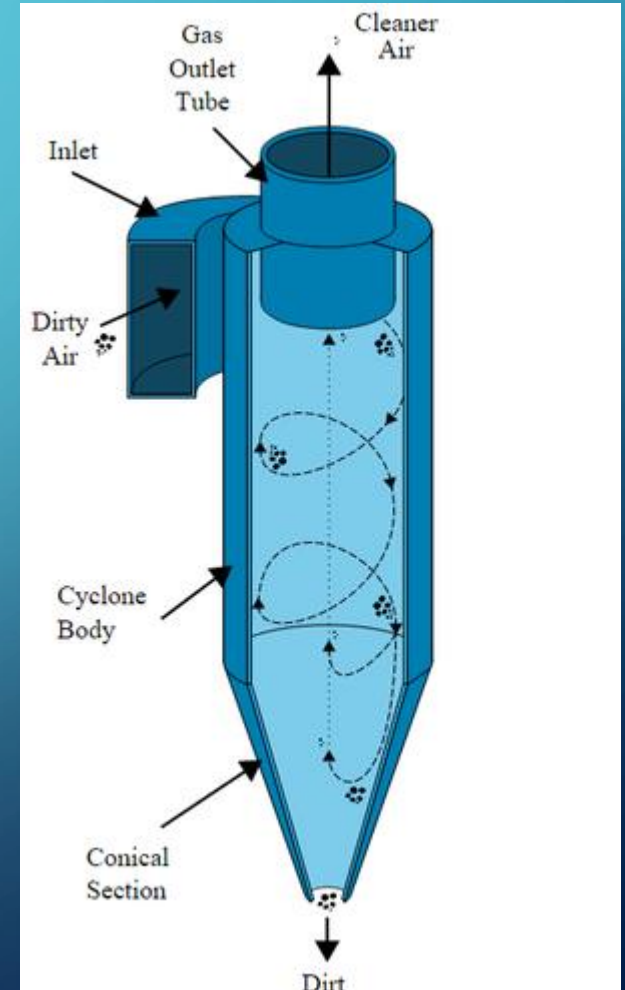


- The outer layer of graphene oxide adsorbs the lead from the water
- The middle layer, nickel, makes the microbots ferromagnetic so that their direction of motion can be controlled by an external magnetic field.
- The inner layer, platinum, gives the microbots the ability to self-propel themselves through water
- When hydrogen peroxide is added to the wastewater, the platinum decomposes the hydrogen peroxide into water and oxygen microbubbles, and ejecting the microbubbles from the back of the microbot propels it forward



TECHNOLOGY FOR AIR TREATMENT

- There are technologies that are used to filter the air in industrial factories
- Cyclone machine separates the bad things from the air by spinning the air inside of it, and the bad particles get stuck in the filter
- It's mostly used in woodworking and metalworking companies



TECHNOLOGY FOR SOLID WASTE MANAGEMENT

- We have many types of waste (organic waste, general waste, recyclable waste and toxic waste)
- To make it easier to destroy the waste we need to manage the waste by separating different types of trash





ขยะ
ทั่วไป

GENERAL
WASTE

Trash that
we can't
recycle



ขยะเปียก
(ย่อยสลายได้)

COMPOSTABLE
WASTE

Organic
waste that
can be
degraded
and used as
fertilizer



ขยะ
รีไซเคิล

RECYCLABLE
WASTE

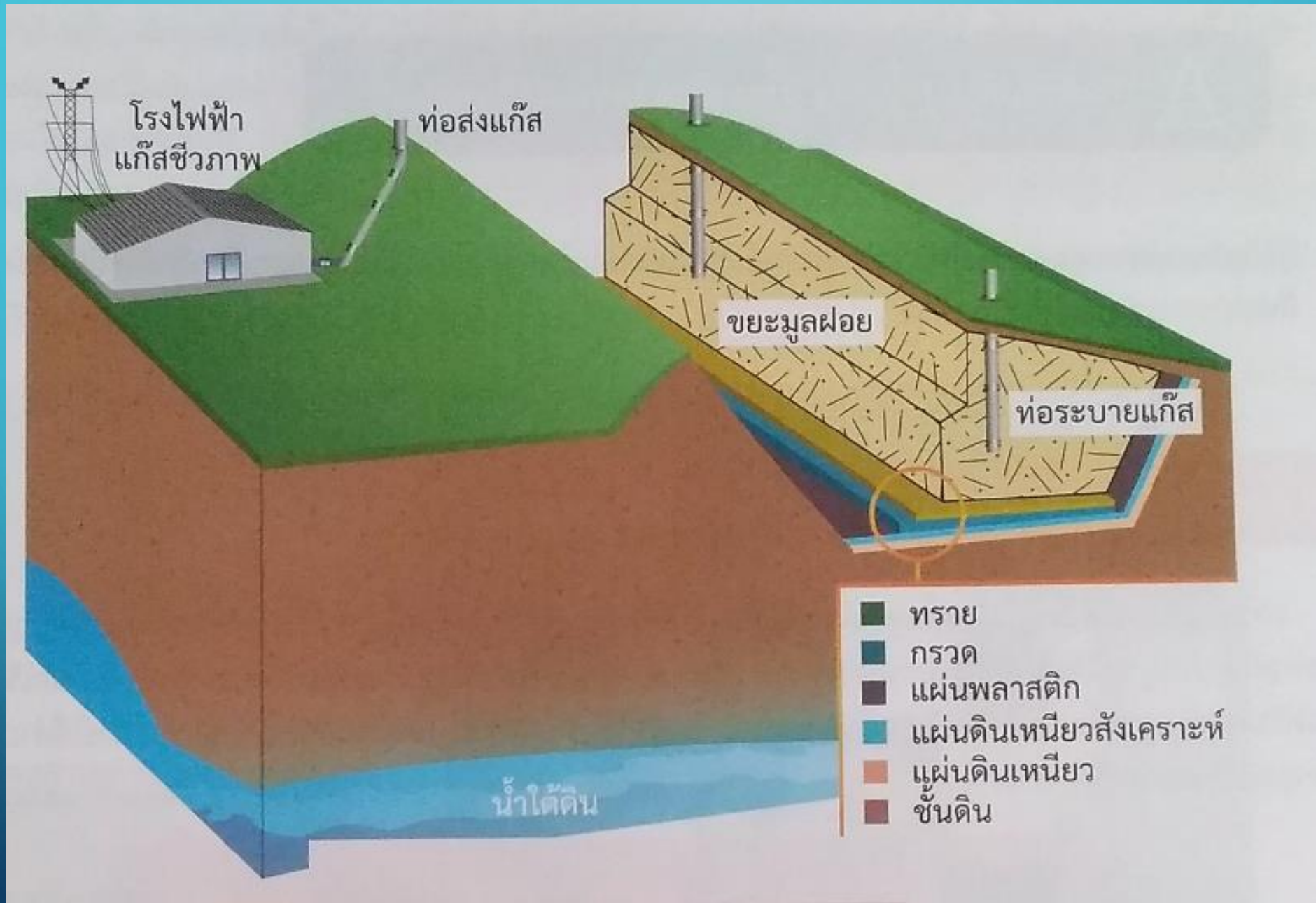
We can
recycle and
resell again

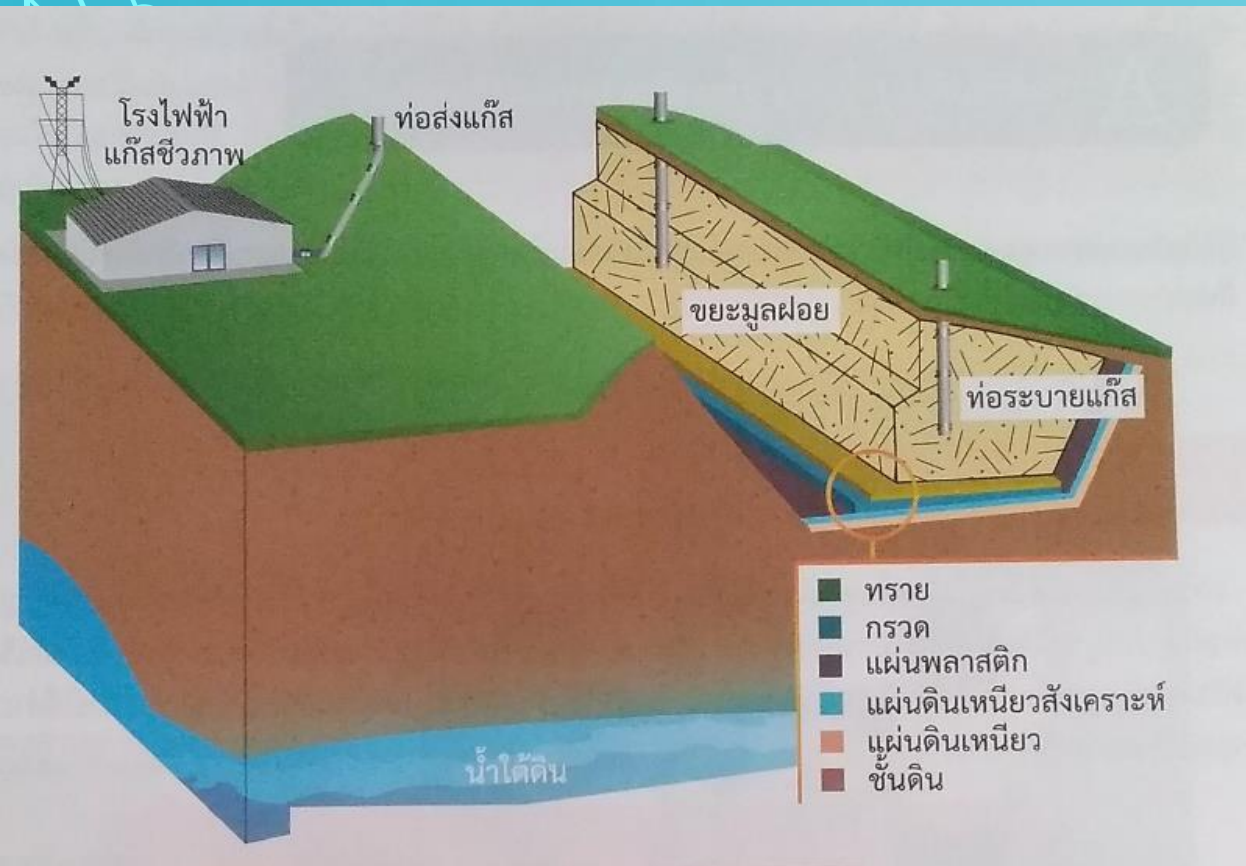


ขยะ
มีพิษ

HAZARDOUS
WASTE

Toxic waste
has to be
destroyed
in safe and
controlled
environment





- General waste is mostly buried in the ground because it's not profitable to recycle it and we need to do something with it
- At the bottom of the hole we put a filter so that the bad things don't go into the earth
- There are exhaust pipes that go out of the holes so that the gas inside doesn't explode
- The gas can be used to produce electrical power



THE END