CODS-T211

POLLUTION IN OCEAN BODIES

PROBLEM STATEMENT

Pollution in large water bodies due to marine dumping, in particular, the flow of contaminated river or lake water into them.

FOCUS

- Types of pollutants in rivers/lakes/other fresh water bodies
- How we can prevent them from reaching the ocean

TYPES OF POLLUTANTS

- Plastic Waste – All plastic material that is thrown away, especially single use plastic. Example – Plastic bottles, plastic bags, etc.
- Agricultural Run Off – Near fresh water bodies like rivers and lakes, farming is common. The pesticides, insecticides and fertilisers used in farming seep into the ground water and pollute the river.
- Industry Effluents – It is a very common practice for industries to let out the waste they produce into nearby water bodies. They release extremely toxic waste that is very harmful such as dyes, surfactants, minerals and certain metals.
- Household Chemicals – Many household chemicals can be found in the waterbodies. Example – Chemicals from shampoo, soap, detergent, cleaning liquids

TACKLING PLASTIC WASTE

- Plastic waste is very visible as it floats on water and is also quite large
- Thus, it is easy to identify
- Using a camera, we can photograph parts of the water body and then analyse them to see if there is any plastic waste.
- If there is, we could also analyse how much area of water is covered with the waste.
- If the area is less than 2 square metre, we could use a scooping arm which can collect the waste and bring it ashore.
- If the area covered in waste is larger than 2 square metre, we could use a net attached to an arm that can extend or retract as needed. The net could collect all the waste and bring it ashore.

TACKLING AGRICULTURAL RUN OFF

- To be able to identify the chemicals in the water and find out the best way to remove it from the water, we have to analyse a sample first.
- Setting up a small analytical centre that identifies the main chemicals present in most pesticides or fertilisers will allow a certain degree of autonomy.
- If the sample cannot be fully analysed, it can be sent to a real laboratory.
- If pesticides or fertilisers were found in the sample, the water could be sent through a charcoal filter.
- Reverse Osmosis Treatments could also be done.

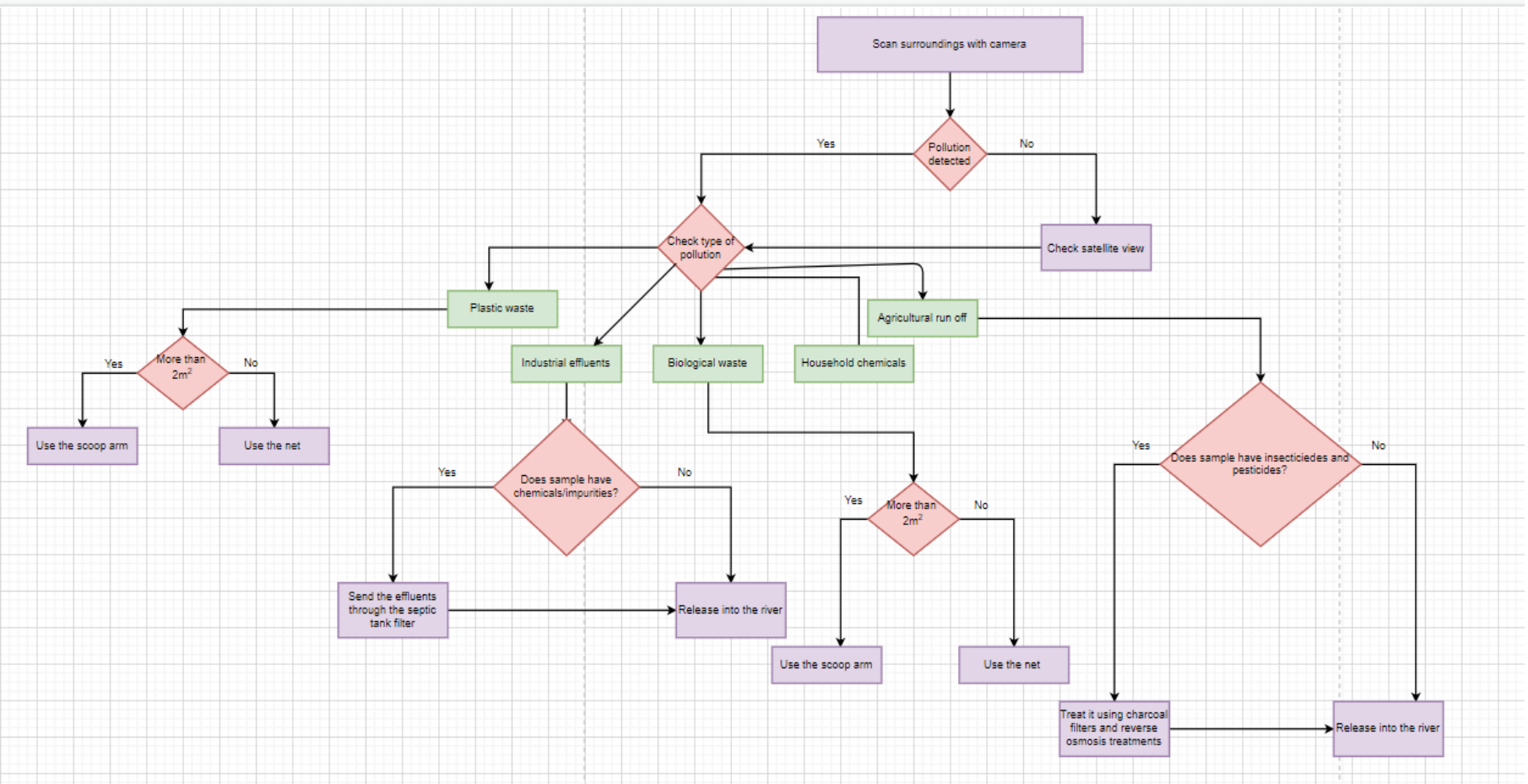
TACKLING INDUSTRIAL EFFLUENTS

- Industrial effluents can be tackled at the source even if the industries are uncooperative.
- The source can be identified through satellite tracing and by analysing the water samples for chemicals.
- To do a basic filter, we can use a septic tank filter after which we can re-analyse the water.
- If toxic chemicals are still present, we would have to divert the water to an external filtration plant.

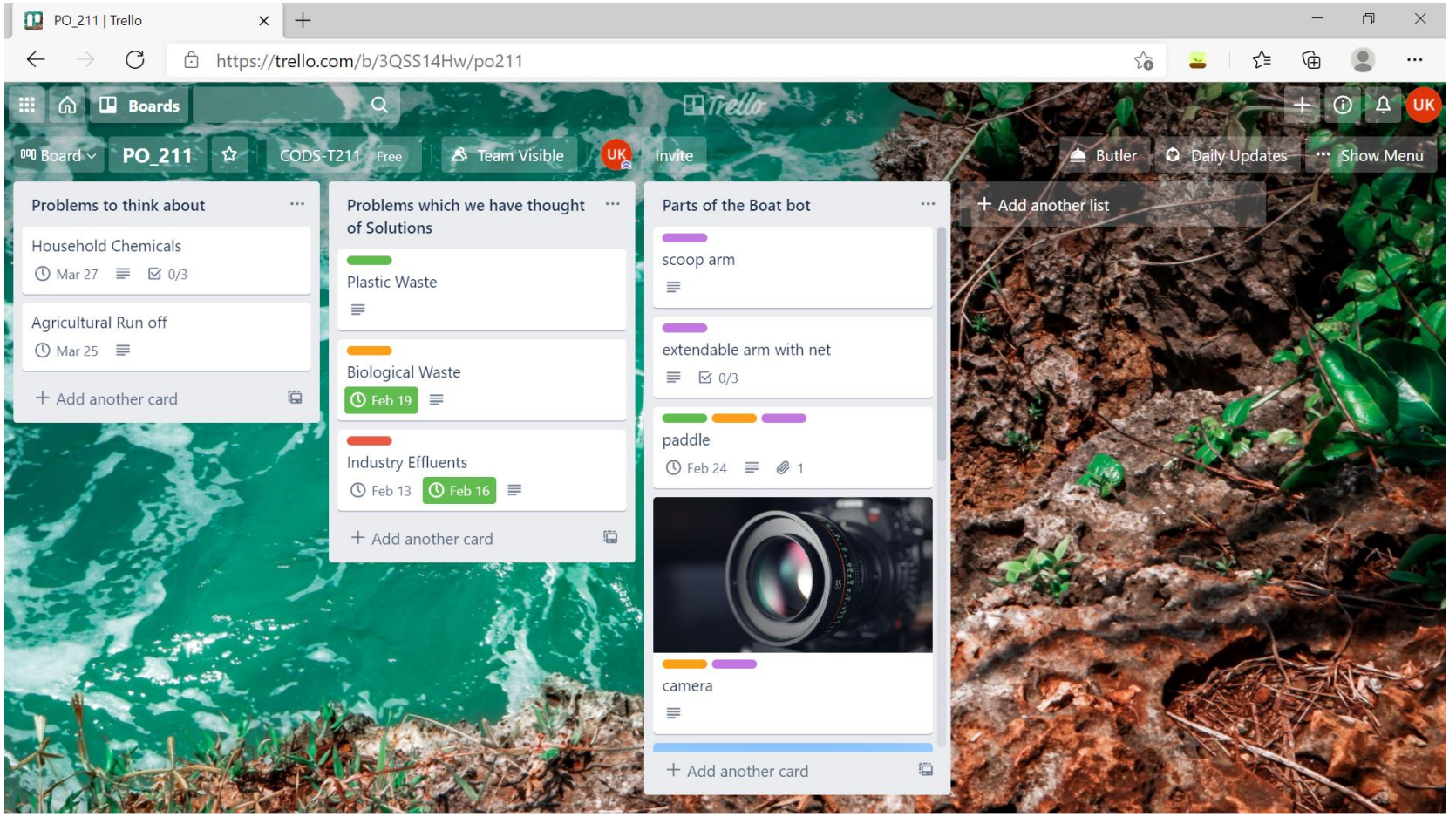
TACKLING HOUSEHOLD CHEMICALS

- Household Chemicals can be analysed similarly to both industrial effluents and agricultural run off.
- The water can be run through a combination of an aerobic reactor and an anaerobic reactor.
- This should rid the water of all harmful chemicals and even allow it to be safe for drinking.

DRAW.IO FLOWCHART



TRELLO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Boards
Trello
Board
PO_211
CODS-T211
Free
Team Visible
UK
Invite
Butler
Daily Updates
Show Menu
Problems to think about
Household Chemicals
Mar 27
0/3
Agricultural Run off
Mar 25
Add another card
Problems which we have thought of Solutions
Plastic Waste
Biological Waste
Feb 19
Industry Effluents
Feb 13
Feb 16
Add another card
Parts of the Boat bot
scoop arm
extendable arm with net
0/3
paddle
Feb 24
1
camera
Add another card
Add another list

THANK YOU