

Universidad Tecnológica Nacional

Facultad Regional Paraná

Water Pollution Reduction: Waste Management Methods to Make Rivers Cleaner

Student: Santiago Kuttel Bes
Class: English II,
Electromechanical Engineering Department
Academic Year: 2022

This work is an EFL student project. The pictures in this presentation are only used for educational purposes . If there is a copyright conflict, they will be immediately removed.



Introduction



Map of the Presentation

TYPES OF WASTE



METHODS TO CLEAN RIVERS



ADJUSTMENTS OF THE SELECTED METHOD



Types Of Waste

Plastic Waste

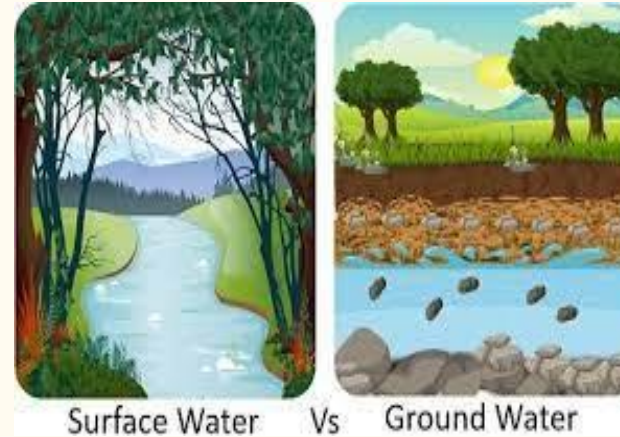
- Plastic is a synthetic material.
- It is the most harmful kind of waste.
- It takes between 100 and 1000 years to degrade.



Types Of Waste

Chemical Waste

- It can infiltrate both surface and groundwater sources.
- It permanently affects the waters.
- It is difficult to remove from rivers.



Types Of Waste

Organic Waste

- It is the less harmful waste.
- It has fast decomposition.
- It can be detrimental to environmental health.



Methods to Clean Rivers

The River Cleaning System



River Oil



Harbor Skimmer



The Multi-Purpose Amphibious Dredger



The River Cleaning System

Functioning

This method is made up of a series of floating devices that make it possible to intercept plastic waste.

This system is very useful to clean the surface of the river but it does not manage to clean deeper parts of it.



River Oil



Functioning

River Oil is an improved version of the River Cleaning System. A filter is added to the device developed for the river cleaning system, which is used to retain polluting liquids such as oil. It has a higher cost to implement and debris can pass under the devices if they are heavy enough to submerge in water.

Harbor Skimmer



Functioning

The Harbor Skimmer is a water vehicle that has two pumps and a stainless steel filter used to attract floating debris and plastics.

This method has a drawback: there must be workers on the ground to empty the garbage and keep the machine in good condition.

The Multi-Purpose Amphibious Dredger



Functioning

This machine seeks to remove debris and obstructions from the river through a large claw that deposits the collected debris on the shore.

The problem with this machine is its maneuverability

Chosen Method And Its Conditioning

River Oil



- Put a net under the devices.



- Have a team to clean and maintain the devices.



- Take into account the flow of the river



Conclusion

Despite the amount of various residues in rivers, they can be cleaned with a simple but effective method such as River Oil, as long as it is optimized.



The chosen method will help to achieve the objective of cleaning the rivers and, in this way, it will also contribute to cleaning the seas and oceans.



References

United Nations, *The Sustainable Development Goals of 2021* page 23

<https://unstats.un.org/sdgs/report/2021/The-Sustainable-Development-Goals-Report-2021.pdf>

National Ocean Service “A guide to plastic in ocean”

<https://oceanservice.noaa.gov/hazards/marinedebris/plastics-in-the-ocean.html#:~:text=That%20means%20plastic%20can%20stick,form%20of%20abandoned%20fishing%20nets> . (accessed Dec. 9, 2022)

T.V. Emmerik, and A. Schwars, *Plastic derbis in rivers* Nov.29, 2019. [Online].Aviable: <https://wires.onlinelibrary.wiley.com/doi/full/10.1002/wat2.1398>

Envirotech “What are the different types of water pollution”

<https://www.envirotech-online.com/news/water-wastewater/9/breaking-news/what-are-the-different-types-of-water-pollution/51055> (accessed Dec. 9, 2022)

S.Mandal, A.Kunhikrishnan, N.S.Bolan, H.Wijesekara, and R.Naidu, *Application of Biochar Produced From Biowaste Materials for Environmental Protection and Sustainable Agriculture Production*,

2016. [Online]. Aviable: <https://www.sciencedirect.com/science/article/pii/B9780128038376000044>

“River Cleaning System” 2022

<https://rivercleaning.com/river-cleaning-system/> (accessed Dec. 9, 2022)

4Ocean “Harbor Skimmer” 2022

<https://www.4ocean.com/blogs/blog/skimming-the-surface>

(accessed Dec. 9, 2022)

Watermaster “THE AMPHIBIOUS MULTIPURPOSE DREDGER”

https://watermaster.fi/?gclid=CjwKCAjw9NeXBhAMEiwAbaY4ljtyigCiPheet25_5sI-SPQWT144l8N8pPjnOThDLI68jsqK-nPwOBoCT_gQAvD_BwE (accessed Dec. 9, 2022)

Universidad Tecnológica Nacional

Facultad Regional Paraná

Water Pollution Reduction: Waste Management Methods to Make Rivers Cleaner

Student: Santiago Kuttel Bes
Class: English II,
Electromechanical Engineering Department
Academic Year: 2022

This work is an EFL student project. The pictures in this presentation are only used for educational purposes . If there is a copyright conflict, they will be immediately removed.

