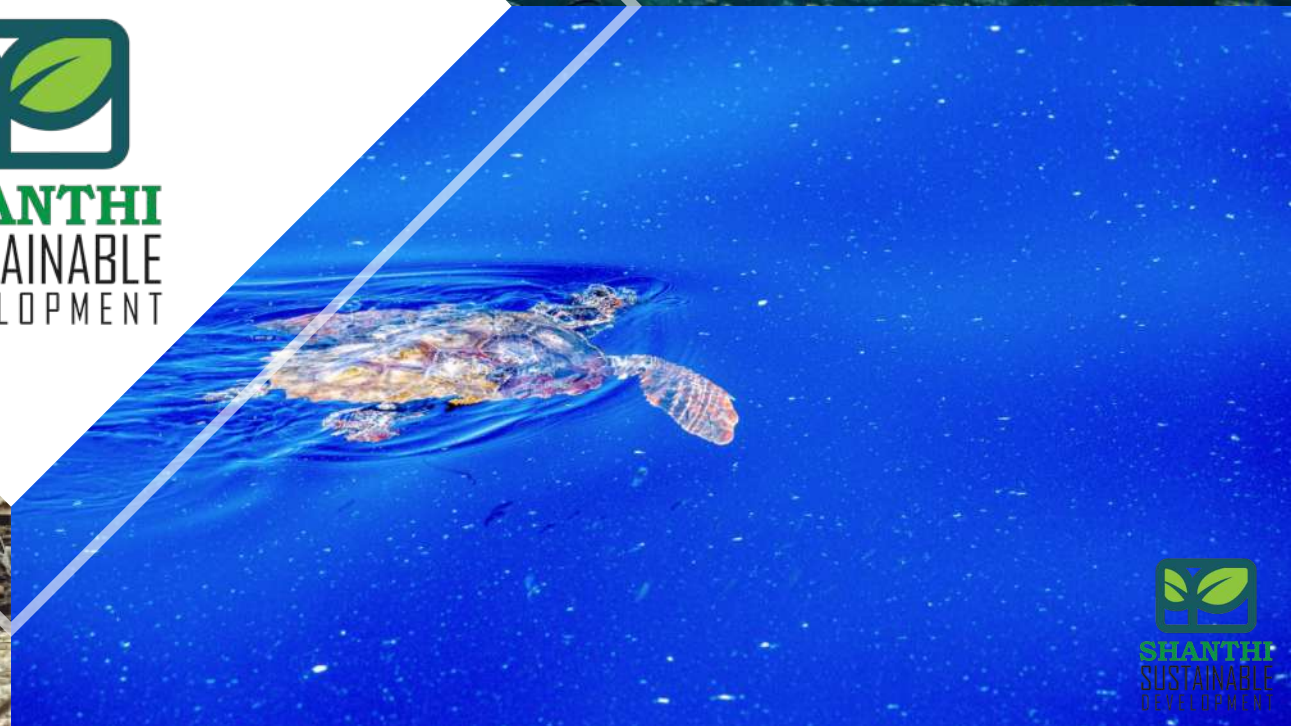
WASTE TRAP PROJECT

AIESEC - UNIVERSITY OF MORATUWA

SHANTHI SUSTAINABLE DEVELOPMENT



SHANTHI SUSTAINABLE DEVELOPMENT

SINGLE USE PLASTICS

- NON-BIODEGRADABLE = Can take hundreds & thousands of centuries to break down
- Bio accumulates in food chains, meaning that once ingested by fish, sometimes the plastics end up in our food chains, and the long-term health impacts on humans, other species, and ecosystems, are still being evaluated
- Globally, **11 million METRIC TONNES** of plastic waste flows into the oceans annually – equivalent to dumping the contents of one garbage truck into the ocean EVERY **minute**.
- Externalities of Plastic packaging are conservatively valued by UNEP at $40 B* and expected to **increase with strong volume growth in a business-as-usual scenario**
- By 2050, there will be **more plastic in the ocean than fish**

MICROPLASTICS

- Plastic debris < 5 mm in length, known as microplastics, can also affect marine life – from corals to sea birds, and fish to microorganisms.
- Often mistaken for food, microplastics are ingested and have been found in zooplankton, fish, invertebrates and mammalian digestive systems.
- Tiny plastic pellets, also called 'nurdles' are the raw material processed for all types of plastic products – can be disastrous if leaked into our surroundings

PREVENTION > CURE

- The best way to tackle plastic pollution is prevent it from entering our waterways to begin with, managing our waste better, and moving towards circular economies – totally changing our perspective on waste.
- Plastics reach oceans through waterways – from canals to rivers and eventually spilling into the sea
- Increasing awareness, demanding better quality products as consumers through Extended Producer Responsibility, and above all – seeing the connectivity of waste, especially non-biodegradable plastics and how it affects all life forms

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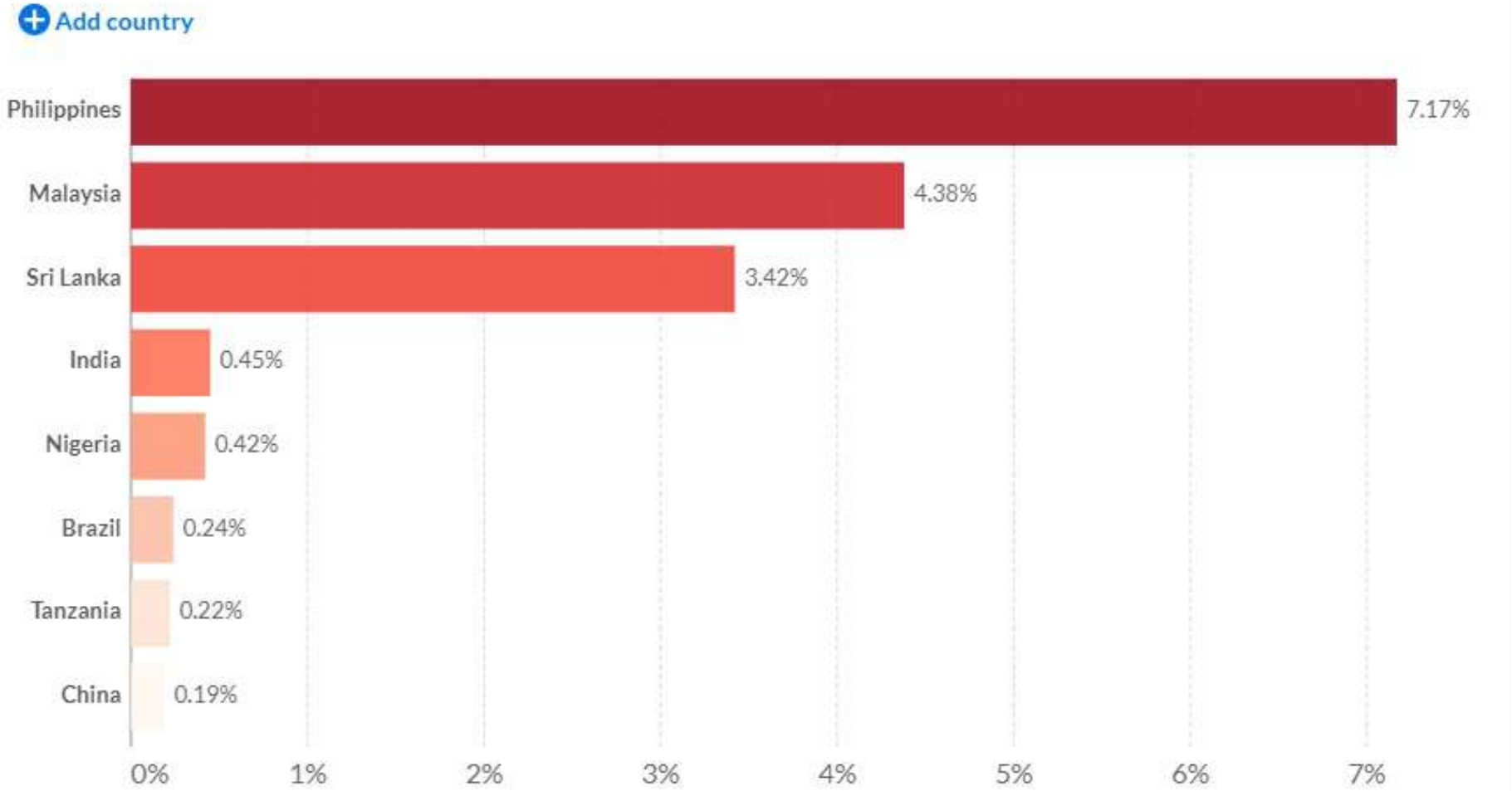
Probability of mismanaged plastic waste being emitted to ocean, 2019

Our World in Data

Mismanaged plastic waste is defined as "plastic that is either littered or inadequately disposed. Inadequately disposed waste is not formally managed and includes disposal in dumps or open, uncontrolled landfills, where it is not fully contained.



Source: Meijer et al. (2021). More than 1000 rivers account for 80% of global riverine plastic emissions into the ocean. Science Advances. CC BY

CHART | MAP | TABLE | SOURCES | DOWNLOAD

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Sri Lanka's waterways play a significant role in transporting plastic to oceans

- It has been estimated that Sri Lankans produce 23 Million metric tons of solid waste a year or generates about 7100MT of solid waste per day, with the Western Province accounting for nearly 60%.
- Each Sri Lankan generates an average of 1-0.4kg of waste per day.
- According to the Waste Management Authority and the Central Environmental Authority, only half of the waste generated is collected
- Mismanaged waste (usually unsegregated), contains plastics in all forms and end up in our waterways and eventually our oceans

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WATERWAYS & CANALS

Looking backwards to the sources of pollution takes us to rivers and canals, where plastic waste gets washed away, this is made worse when it rains

Garbage may also block drains, creating other issues with waste and wastewater treatment, increase pathogens, and the chance of illnesses such as dengue fever

Plastics including microplastics travel down such waterways and spill out into the ocean, ending up in our food webs

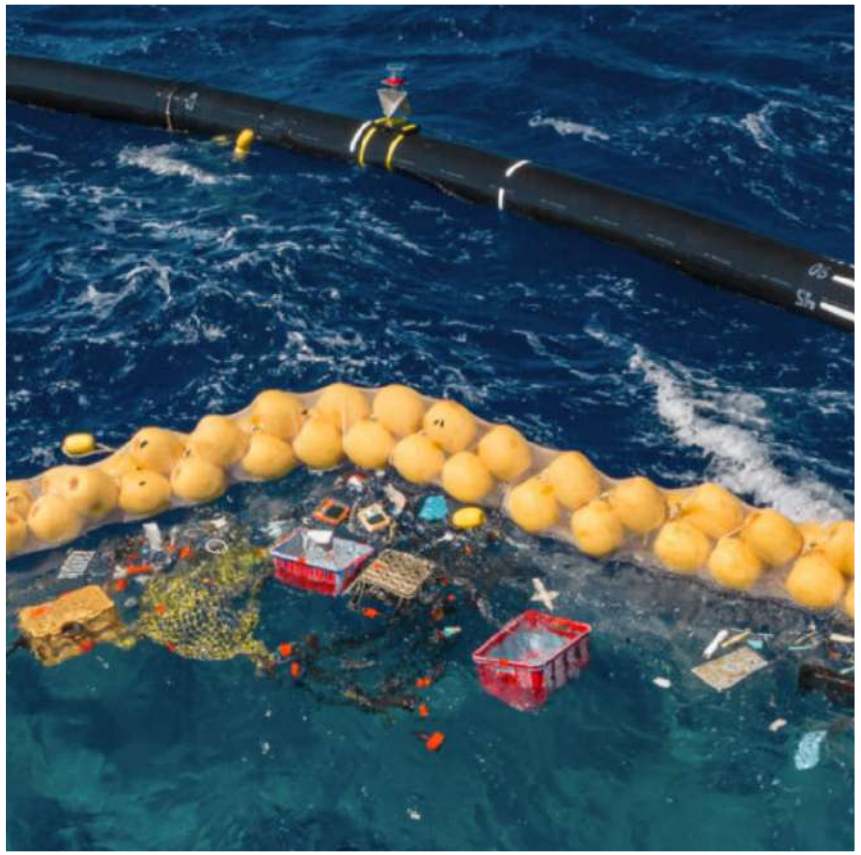
Research is still analyzing the long-term impacts of plastic in our ecosystems and bodies

Hamilton Canal Wattala (Photo Kosala Ubhayawardhana)

SHANTHI SUSTAINABLE DEVELOPMENT

THE WASTE TRAP

- Functions to collect all sorts of plastic waste, placed strategically
- Many countries around the world have initiated waste traps to help minimize plastic pollution
- Sri Lankan waterways have been gateways to the ocean, and our weather patterns (monsoon seasons etc.) coupled with weak regulations for proper waste management increase runoff and litter entering canals, streams and other waterbodies - eventually moving into the ocean
- The Waste Trap Project will be a Sri Lankan University FIRST.
    - The Waste Trap **must** ensure minimal disruption to surrounding water, landscape, and biodiversity,
    - **Sustainable and eco-friendly design** – from raw materials to functionality



WASTE TRAP : PILOT PROJECT

The FIRST waste trap designed and engineered by students from the University of Moratuwa, SRI LANKA

In collaboration with Shanthi Sustainable Development, Knowledge Partner for AIESEC – University of Moratuwa

UNIVERSITY OF MORATUWA DEPARTMENTS & INVOLVEMENT ANTICIPATED

DEPARTMENT [REPRESENTATION FROM ALL 4 STUDENT BATCHES]	Role & Involvement – TBC*
Department of Civil Engineering	Develop, design, pilot test the feasibility of the waste trap, including design with sustainable/recovered material , practical application – depending on the area of implementation
Department of Electrical Engineering	
Department of Material Science and Engineering	
Architecture Faculty	Design inputs for waste trap
Information & Technology	Develop software for data tracking and monitoring of waste collected at waste traps
VOLUNTEERS – open to any student {Approx. 5 }	Conduct awareness programs for surrounding communities & support with the installation process

Shanthi Sustainable Development will provide overall guidance, and support for the above activities

SHANTHI SUSTAINABLE DEVELOPMENT

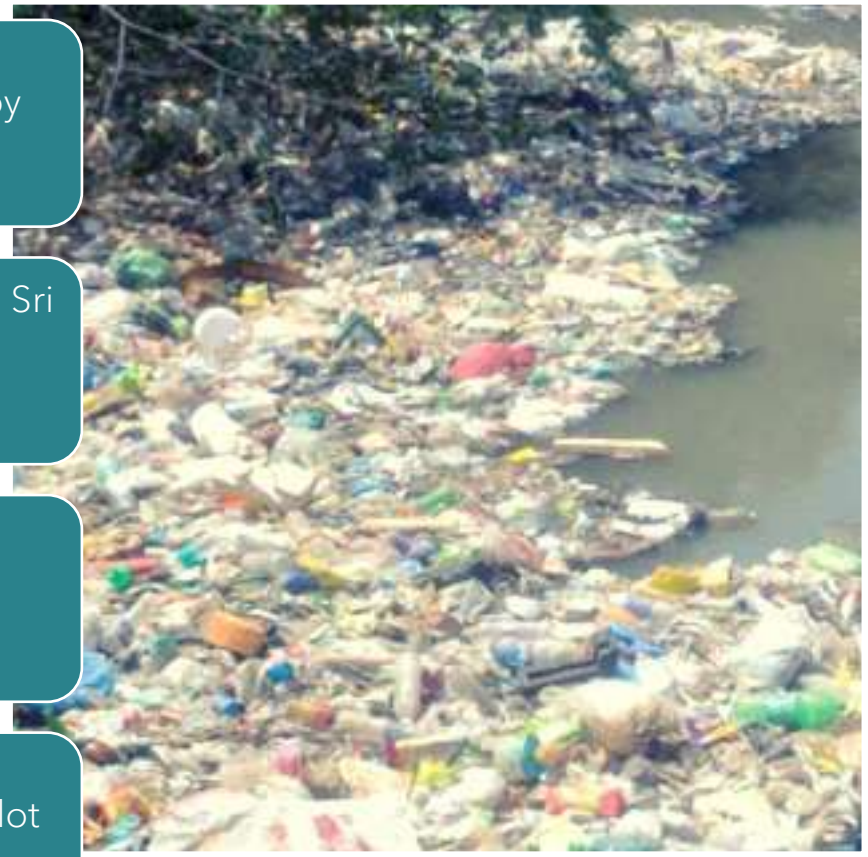
LOCATION OF PILOT WASTE TRAP

The Pilot Project will take place in Wennapuwa (Nainamadama Area, by Maha Oya)

The selected river catchment is MAHA OYA, one of the largest rivers in Sri Lanka, covering 4 Provinces & 5 Districts & supports over 1.1 million people who live in the area. It also provides water for domestic & industrial needs for surrounding communities.

The river has been a major source of sand [used as raw material for construction activities]. River sand mining has high environmental and socioeconomic impacts.

Other locations will be added depending on the success rate of the Pilot Project.



PROJECT TIMELINE

Preliminary project activities,:-

- Select & set up teams (PROCESS TBD)
- Raise awareness
- Identify location feasibility,
- Obtain relevant permits etc.

FEBRUARY 2022 :

WEEKS 1- 4

FEBRUARY 2022 : WEEK 2

- Teams design and develop the components of the waste traps

MARCH 2022: WEEK 1 & 2

MARCH 2022

WEEK 3 & 4

Design and conduct awareness programs on the project for surrounding communities

MARCH 2022

WEEK 3 & 4

- PILOT TEST the Waste Trap
- Raise project awareness

Project Conclusion

APRIL 2022

TEAM

TEAM LEAD - ENGINEERING

TASKS –
- Ensure overall project success
- Report regularly to SSD
- Work to troubleshoot any project issues with the team
- Develop methods to monitor project progress

TEAM LEAD - DESIGN

TASKS –
- Ensure overall project success
- Oversee the sustainable design of the waste trap in line with requirements
- Report regularly to SSD
- Work to troubleshoot any project issues with the team

TEAM LEAD – COMMUNITY & PARTNERSHIPS

TASKS –
- Ensure overall project success
- Report regularly to SSD
- Develop the awareness programs in consultation with the team
- Oversee the community engagement, university student project experience, and awareness activities

TEAM LEAD – MARKETING

TASKS –
- Ensure overall project success
- Report regularly to SSD
- Work to troubleshoot any issues with the team
- Work with Team Lead – Communications to develop methods to ensure appropriate marketing activities to raise project awareness

TEAM LEAD – COMMUNICATIONS

TASKS –
- Ensure overall project success
- Report regularly to SSD
- Work with Team Lead - Marketing to develop methods to ensure appropriate communications activities to raise project awareness

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THANK YOU

GET IN TOUCH WITH US!

https://shanthisustainabledevelopment.com

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At Shanthi Sustainable Development, we provide sustainable, innovative and high-quality Waste Management solutions through expertise and collaboration.

We are working towards a cleaner tomorrow, so that future generations can enjoy the benefits of a beautiful Sri Lanka, the way we did..