

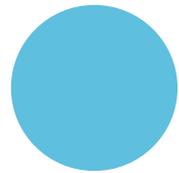
Closing event of the **German project PlasticBudget: Development of Budget Approach and LCA Impact Assessment Methodology for the Governance of Plastic in the Environment**

Optimizing plastic waste generation for environmental sustainability in Ghana, Africa

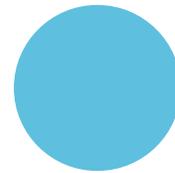
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Godfred Kwesi Teye
Maria Alzira Pimenta Dinis**

4th April 2022





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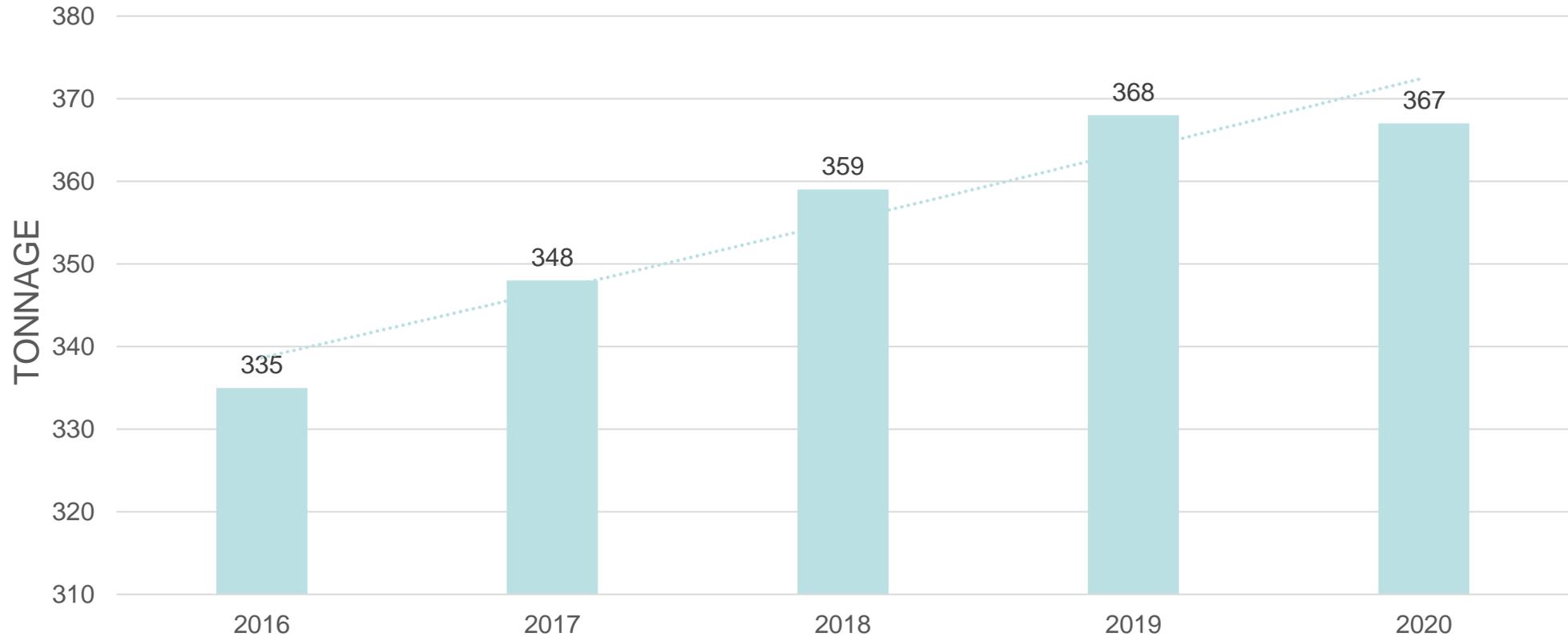
Conclusions

Introduction

- Plastic is a social good, but it has become a global severe anthropogenic phenomenon for the world to solve in recent times.
- Plastics are now omnipresent in the environment, and this increasing trend needs urgent action.
- Two million plastic bags are used every minute Globally (**Bombelli** et al. 2017; **Nielsen** et al. 2019).
- From 1950 to 2018, plastic waste production globally has increased to 6.3 billion metric tons (**Debrah** et al. 2021; **Geyer** et al. 2017)

Global trends of plastic production (million metric tons)

Global trends on plastic production (million metric tons)



Year of productions
Source: **Statista 2022**

Global trends of plastic waste productions

- ❖ An average of 355.4 Million Metric Tons (MMT) of plastic is produced globally (**Debrah** et al. 2021; **Statista**, 2022).
 - 12% incinerated
 - 9% recycled
 - 79% untreated plastic
- ❖ Annually 281 MMT of plastic wastes get onto the environment (79% untreated plastic)
- ❖ Eight (8) MMT of plastics end up in the ocean every year (**Nava**, 2018), and this is expected to double by the year 2025 (**Lusher** et al. 2017)

Effects of plastic wastes on human and the environment

- Plastic waste destroys the aesthetic beauty of tourist destinations (**Thushari & Senevirathna, 2020**)
 - Plastic waste contributes to climate change and respiratory illnesses as a result of landfilling and incineration
 - Trapped shoreline plastic has a negative effect on shipping infrastructure, energy production, fishing, and aquaculture (**Sivan, 2011**).
 - Releasing harmful chemicals from chlorinated plastics into the soil, which end up in plants and water
- 

Effects of plastic wastes on human and the environment

- Accumulation of plastics in drains causes flooding when it rains.



source: www.myjoyonline.com/photos-of-piled-plastic-waste



shutterstock.com · 1857812842

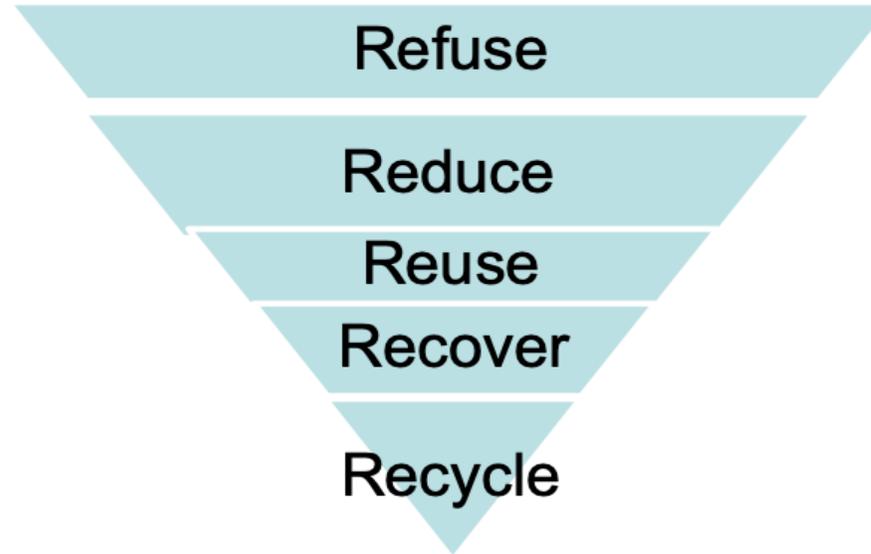
source: www.shutterstock.com/image-photo/accra-ghana-november-19-2020-drains

Effects of plastic wastes on human and the environment

- Choking animals when consumed with food (**Debrah et al. 2021**)



Optimizing plastic waste generation for environmental sustainability



- Introduction of worms to decompose the plastics (**Sharma**, 2018; **Zhao** et al. 2021)
- Growth of natural plants to replace the petroleum
- Building capacity (Human capital, logistics, and Infrastructure)

The Case of Ghana

- Ghana imports about 2.58 million metric tons of raw plastic annually (Debrah et al. 2021; Hervie et al. 2021)
- More than 1million metric tons of plastic waste is produced annually (UNDP, 2019; World Bank, 2020)
- About 5 % is recycled.

Innovative use of plastic waste in Ghana



A. Plastic wastes

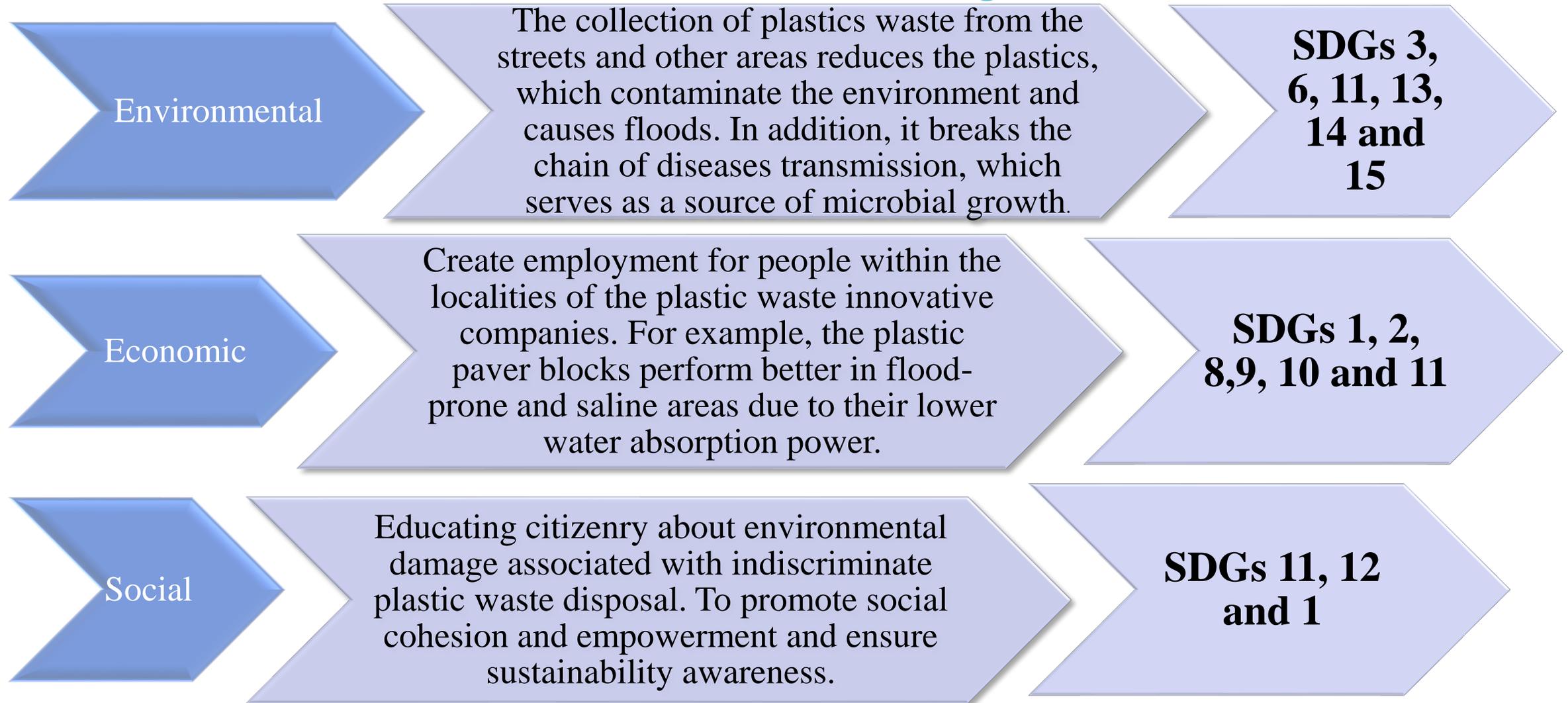
B. Converting plastic wastes into pavement blocks

C & D. Artifacts made from plastic wastes



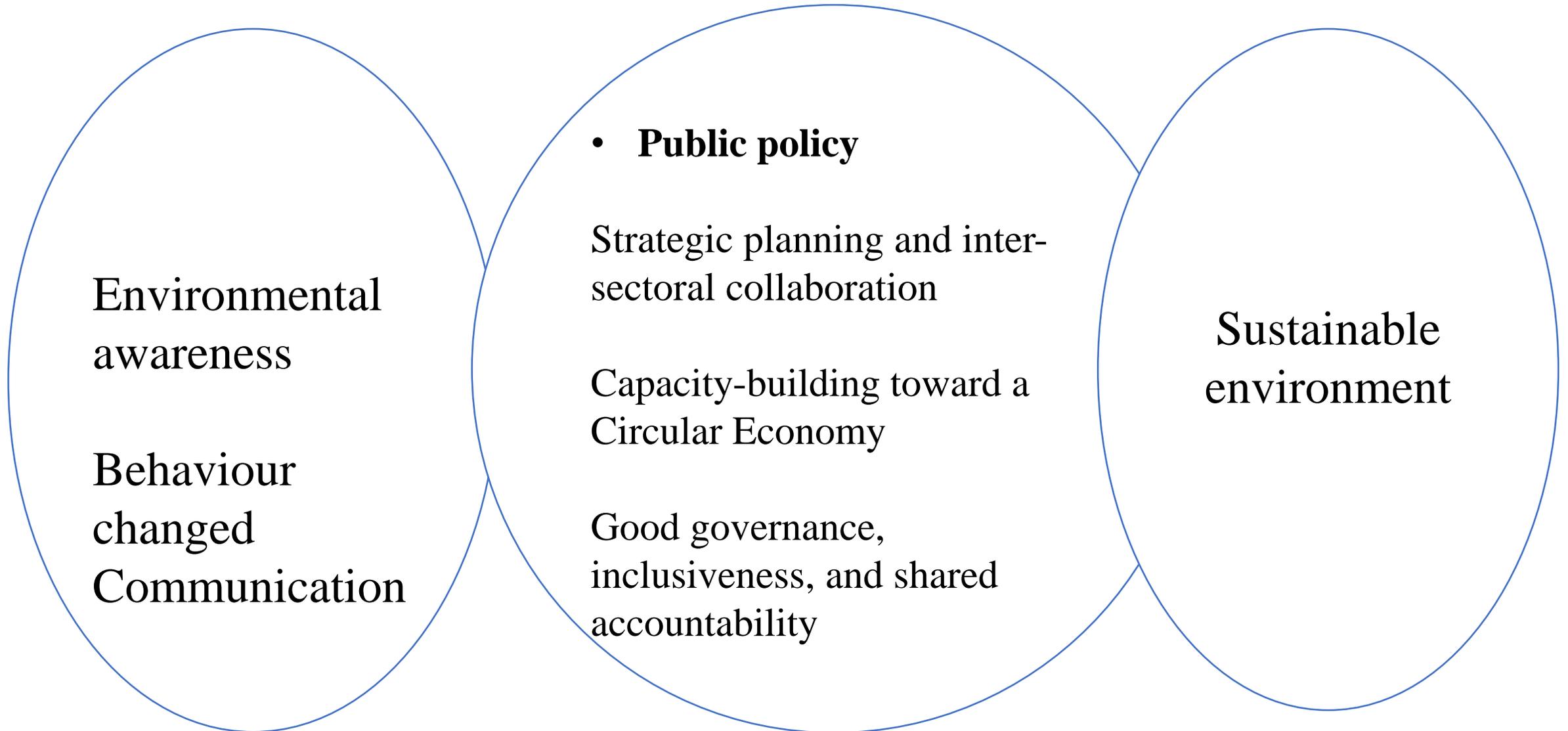
(Debrah et al. 2021)

Environmental and socio-economic benefits of innovative use of plastics and contributions to the United Nations 2030 Agenda



Adapted from (Debrah et al. 2021)

Other ways of Optimising plastic waste in Ghana



(Ministry of Environment, Science, Technology, and Innovation (MESTI), 2020)

Conclusions

The development and survival of human society thrive in a serene and innovative environment.

- ❖ Improper management of plastic waste is detrimental to the environment leading to climate change, tourism sites, and habitats for animals among others.

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- ❖ Hence, optimizing plastic waste management will enhance environmental sustainability when stakeholders, policymakers, and individuals are committed to innovative ways to address the plastic waste menace.
 - ❖ This can be done through education, political commitment, inclusiveness, and shared responsibilities among plastic producers to achieve the SDGs.

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THANK YOU