Ocean Plastic Pollution: Sources, Effects, Challenges and Mitigation Measures

23 – 27 MAY 2022

SANO TEAM 5

THE SECOND INTERNATIONAL CONFERENCE OF THE AFRICAN MARINE WASTE NETWORK TOWARDS ZERO PLASTICS TO THE SEAS OF AFRICA

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The Context

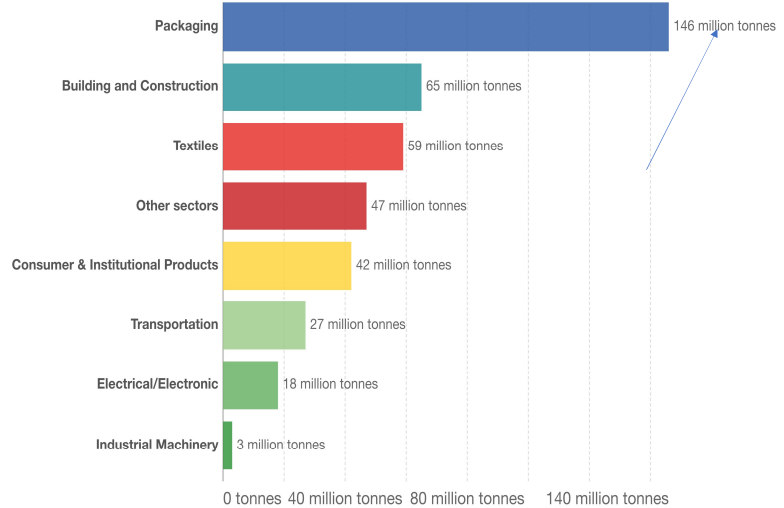**"The plastic you use once, tortures the oceans forever"**

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Introduction

- **Packaging** accounts for **42%** of plastic pollution

- **Building and construction** was the second largest sector utilizing **19%** of the total
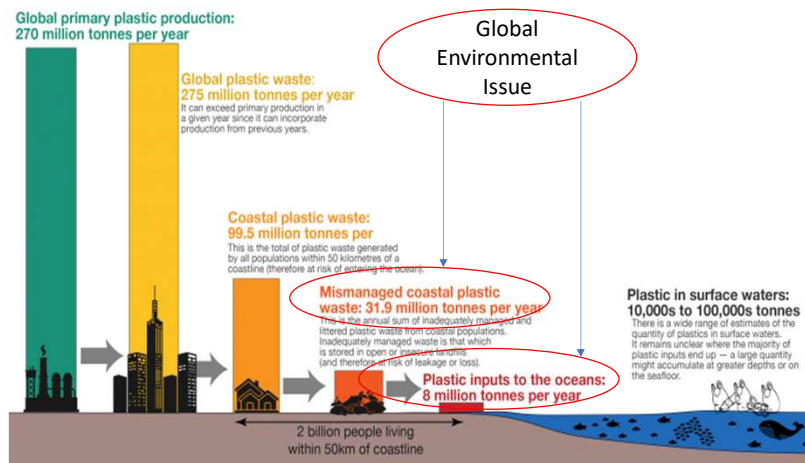
Primary plastic production by industrial sector,

Primary global plastic production by industrial sector allocation, measured in tonnes per year.

Sector	
Packaging	146 million tonnes
Building and Construction	65 million tonnes
Textiles	59 million tonnes
Other sectors	47 million tonnes
Consumer & Institutional Products	42 million tonnes
Transportation	27 million tonnes
Electrical/Electronic	18 million tonnes
Industrial Machinery	3 million tonnes

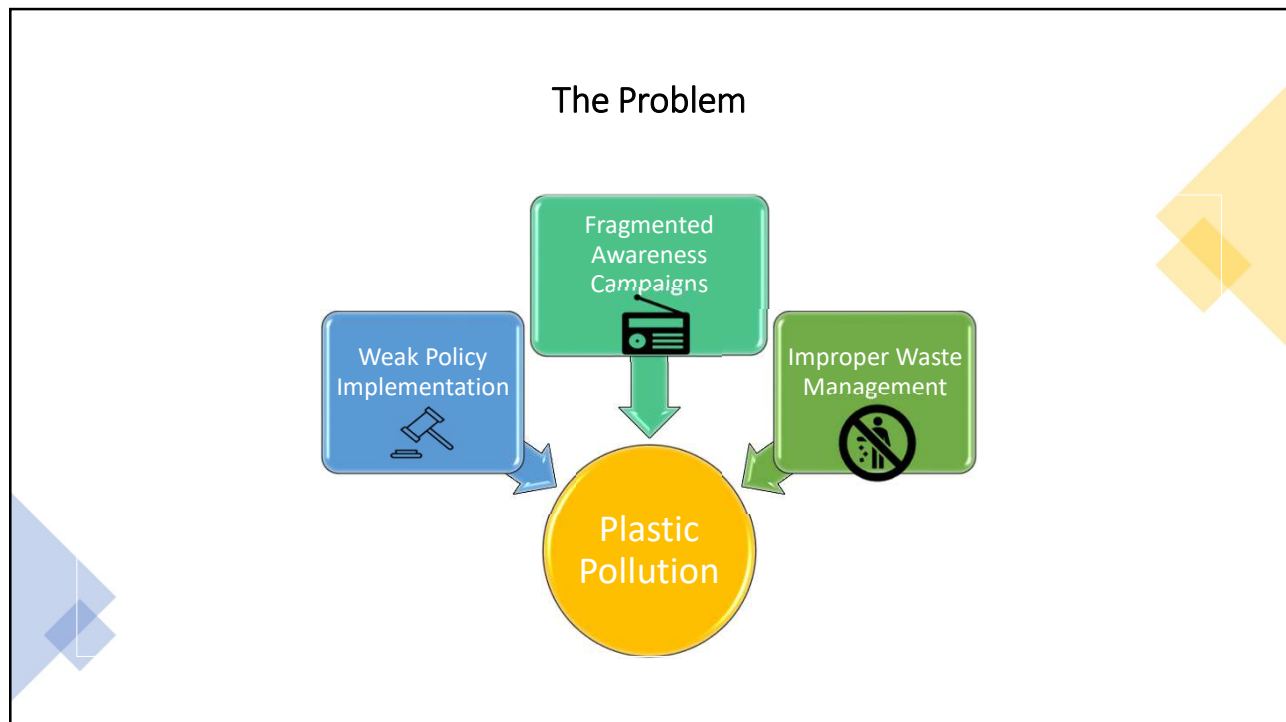0 tonnes 40 million tonnes 80 million tonnes 140 million tonnes

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Introduction

- Around **32 million** tons/year of coastal plastic waste are due to mismanagement

- Of the above, **8 million** tons/year find their way to the sea

- About **90%** of the ocean plastic **originates from the land** attributed to human activities

Global primary plastic production: 270 million tonnes per year

Global plastic waste: 275 million tonnes per year
It can exceed primary production in a given year since it can incorporate production from previous years.

Coastal plastic waste: 99.5 million tonnes per
This is the total of plastic waste generated by all populations within 50 kilometres of a coastline (therefore at risk of entering the ocean).

Mismanaged coastal plastic waste: 31.9 million tonnes per year
This is the annual sum of inadequately managed and littered plastic waste from coastal populations. Inadequately managed waste is that which is stored in open or insecure landfills (and therefore at risk of leakage or loss).

Plastic inputs to the oceans: 8 million tonnes per year

2 billion people living within 50km of coastline

Plastic in surface waters: 10,000s to 100,000s tonnes
There is a wide range of estimates of the quantity of plastics in surface waters. It remains unclear where the majority of plastic inputs end up — a large quantity of plastic might accumulate at greater depths or on the seafloor.

Global Environmental Issue

Pathway through which plastic enters the world's ocean

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The Problem

Fragmented Awareness Campaigns

Weak Policy Implementation

Improper Waste Management

Plastic Pollution

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South African and Norway Ocean Plastic Scenario

South African Perspective	Norwegian Perspective
• SA generate an average of **2.4 million tons** of plastic waste every year	• It's estimated that Norway generated approximately **540,000 tons** of plastic waste annually
• Sadly **240,000 tons** of discarded plastic end up in the ocean	• About **380 tons** enters the ocean annually.
• In South Africa, **only 16%** of plastic is recycled.	• **80%** of plastic is collected for recycling

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South African and Norwegian Ocean Plastic

Plastic Pollution by Country

Plastic Pollution Emission by Country

Continents That Emit Most Ocean Plastics
% of total plastic emissions per continent

Asia	Africa	South America	North America	Europe	Oceania
81.0%	8.0%	5.5%	4.5%	0.6%	0.4%

Plastic Pollution Emission by Continents
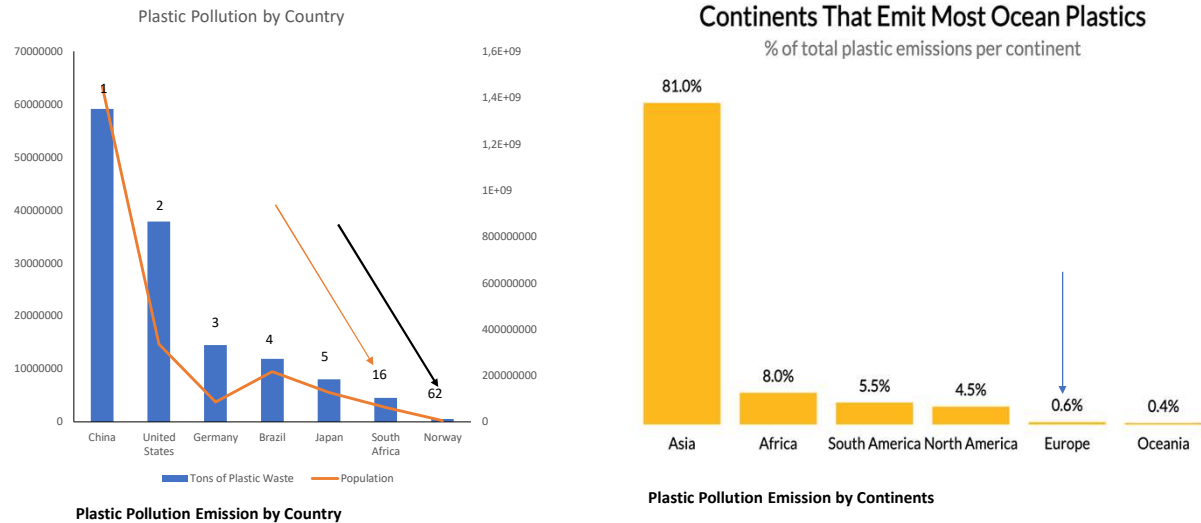
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SA Policy Framework

Whilst SA has one of the best plastic pollution management policy framework, the **actual implementation remains problematic**

National regulations against the use of plastic materials have been implemented over the years

Moral Hazard conundrum – retailers have only shifted from selling certain types to other types of plastic products

Despite this, plastic production is set to double up to **R100 trillion** by 2040 resulting in about **600 million tons** of plastic floating in the oceans.

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Fragmented Awareness Campaigns

Lack of local data on plastic pollution adversely impact on the messaging to key stakeholders (especially community members)

Language barrier as awareness campaigns are not conducted in local languages

Lack of collaboration among key groups

Limited political will from various stakeholders especially government

Limited private sector participation in driving awareness among plastic product users

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Improper Waste Management

Lack of waste collection facilities in strategic points

Limited recycling efforts and poorly serviced landfill sites

Poor waste collection service delivery among local municipalities – only GP, NC and WC collect around **55% of waste** others collect way less

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ACTION PLANS | Proposed Initiatives

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Problem Solution-Perspective Model

- Need for **adaptive policy framework** aligned to best practice (take a leaf from EU and Oceania countries)
- Promote **investment into the recycling sector**
- Strengthening **multi-stakeholder partnership** approach (avoid siloed approach to addressing the problem)
- Reinforcing the **3Rs Initiative from grassroots** level
- Inculcate **community ownership mindset** among local communities
- **Incentivize waste collection** by citizens

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Youth Workshop

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BLUE LAGOON CLEAN-UP

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Proposed Artificial Intelligence App

- Provide **incentive for locals to collect** and get cash from waste – provide waste auction platform
- Provide an **awareness training portal**
- Provide **real time data repository** to inform collaborative awareness campaigns and policy advocacy
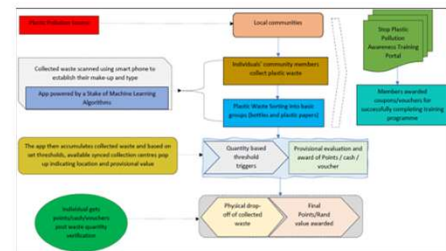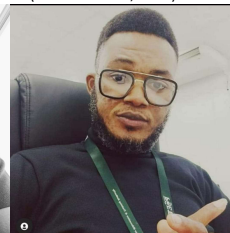

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Our Team
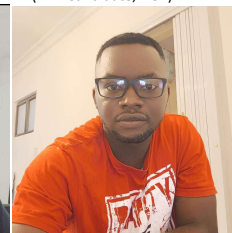
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(Machine Learning)

Mphathesithe Mkhize
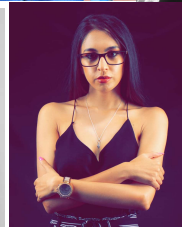Public Policy
(PhD Candidate, UKZN)
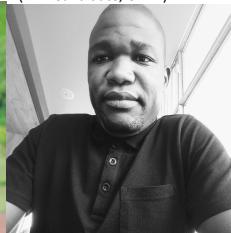
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THANK YOU

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