

# African Marine Waste Network

**Innovation** and **urgency**: Cornerstones of a coastal city response to plastic pollution & marine litter

African Marine Waste Conference

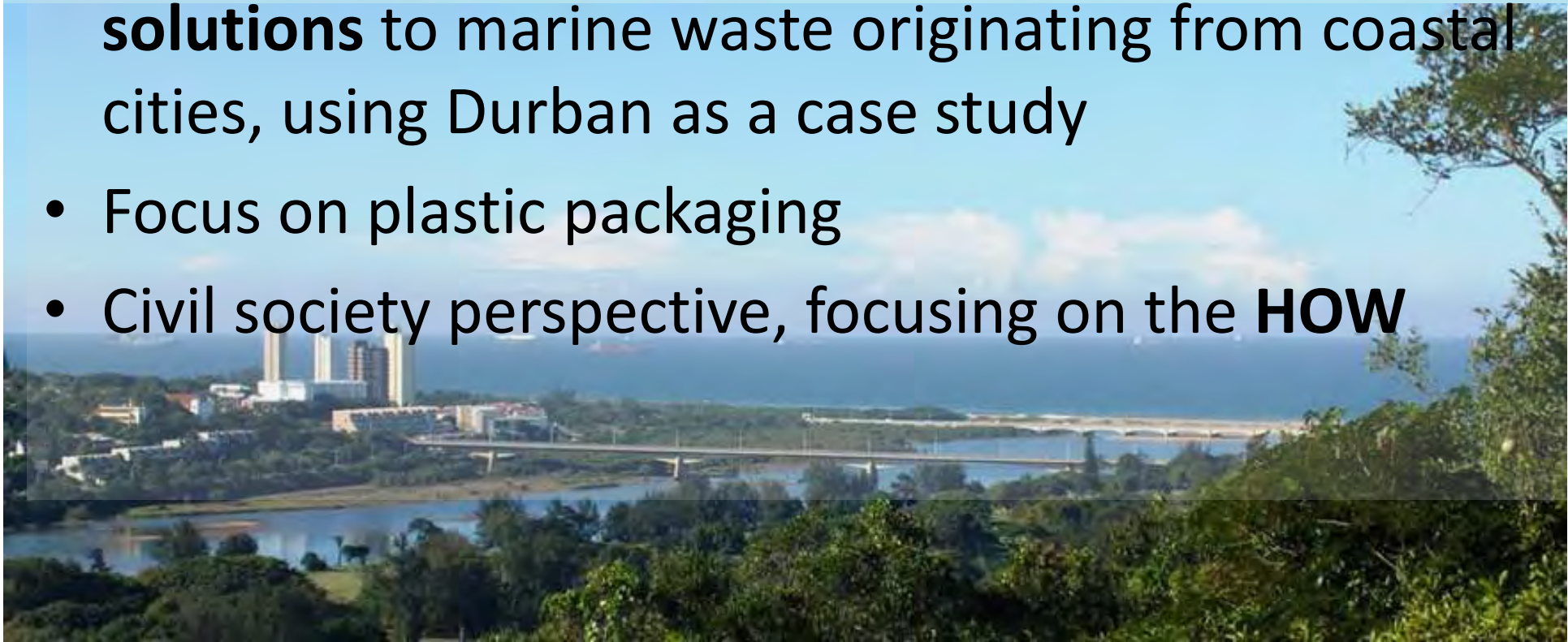
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# Introduction

- The South African city of Durban is a **coastal metropolitan** with socio-economic characteristics typical of other large coastal cities in Africa
- We take a view on the **challenges and potential solutions** to marine waste originating from coastal cities, using Durban as a case study
- Focus on plastic packaging
- Civil society perspective, focusing on the **HOW**



# eThekweni – A city with big successes and challenges

SA's 3<sup>rd</sup> largest city

3.6 million people & growing

Tourism destination

2<sup>nd</sup> largest container port in Africa

Sports event mecca



**Poverty**

**Unemployment**

**Inequality**

**Human settlements**

**Straining infrastructure and service delivery systems**



# 17 river catchments, 4 000kms of rivers 95 kilometres of beaches



## “Working Rivers” under pressure

Umgeni River  
Umbilo River  
Umlaas River  
Isipingo River

Steep topography and over 1000mm rain pa



## Top threats:

- **Water pollution/ faecal contamination**
- **Water flow**
- **Solid waste**
- **Aquatic invasives**



# Umgeni Estuary

Productive ecosystem & conduit for litter entering the sea



# Consumption & waste management profile

Socio-economic status	Settlements	Consumption environ
Middle class	Inner city	At home
Poor	Suburban	At work
Homeless	Townships	While commuting
Migrants/ in transit	Informal settlements	Restaurant/ hospitality
Tourists		Recreation outdoor

The complex matrix of contexts in which waste is generated and managed in Durban  
Understanding context is critical in framing the response

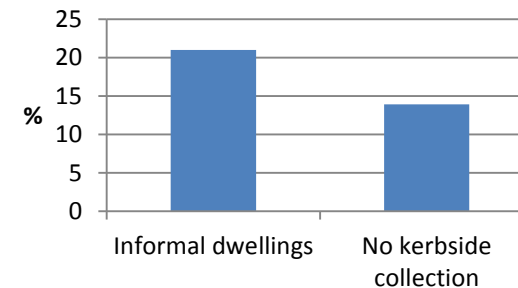
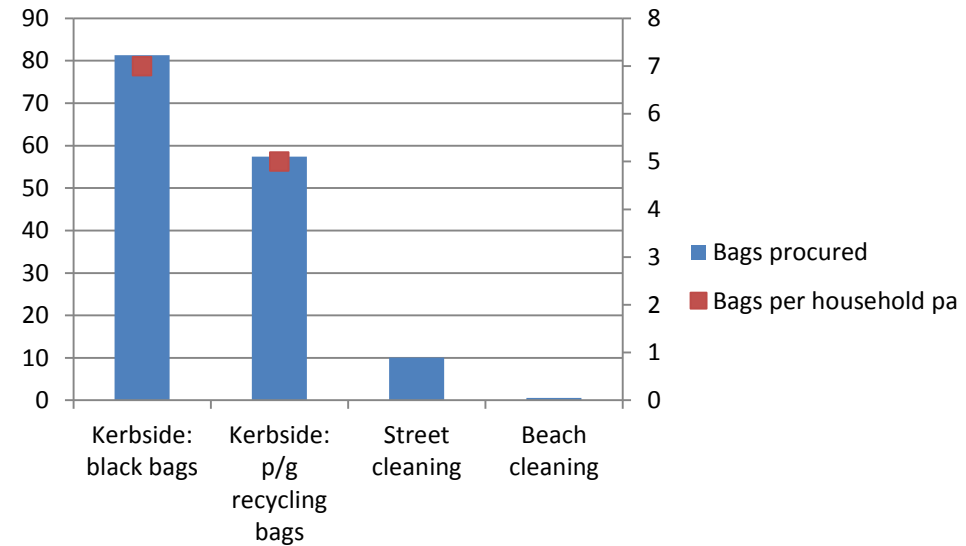
# eThekwini solid waste production & management

Metric	2017
No of households serviced pa	965 126
Tons removed & disposed pa	426 352
Tons from Durban's beaches	365
Landfills	3
Drop off and buy back centres	22
% of city budget spent on cleaning and solid waste mment	6.5%
Estimate of plastic entering the sea in Durban, 2010 (tonnes)*	45 900
Estimate of plastic entering the sea in Durban, 2025 (tonnes)*	61 047

\* Jambeck et al 2015. Assume 27% of coastal waste in SA from eThekwini (eThekwini population/ total SA coastal population within 50km).

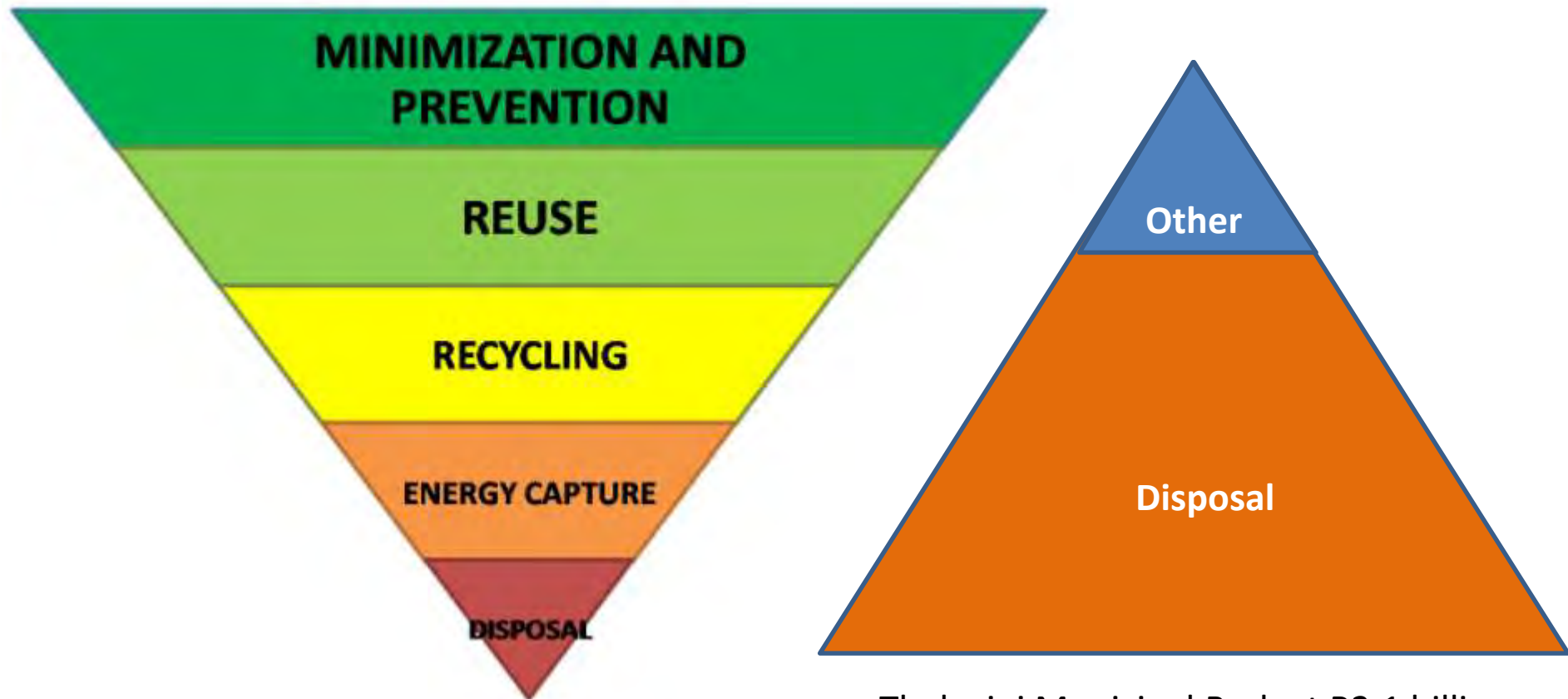
Assume mid-point in data range for plastic entering the sea

Bags used (millions) '17/18



# Investment in waste hierarchy

Waste management hierarchy



eThekweni Municipal Budget R2.1 billion  
(2017/18)



# Current situation: Relatively clean but a disaster after rain events



All photographs taken in Durban in 2016

# Dumping is common place (driven by necessity and delinquency)



Source: KZN DTEA

# A crisis for our coastal and marine environment



# Dry season rain event (>100mm), 2016



# Impacts on Durban's marine environment

- 70 % of Mullet surveyed in Durban contained micro-plastics
- 77 % of Trachus (Maasbanker) contained fibres irrespective of size at Vetch's Pier, Durban Staegemann; Naidoo 2013



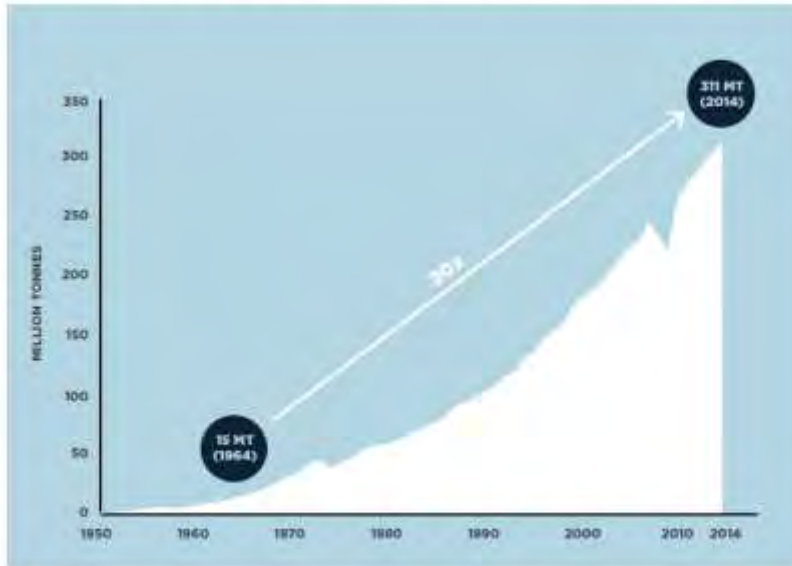
# Why are we failing?

- We have been doing the following for the last 20 years:
  - Building and promoting the recycling value chain
  - Undertaking environmental education at schools
  - Improving management of the beachfront and recreation areas
  - Annual beach clean up campaigns

But the problem has got **significantly** worse

# Society has not managed this

FIGURE 1: GROWTH IN GLOBAL PLASTICS PRODUCTION 1950-2014



+

Social,  
structural  
drivers

=

Pollution crisis

Note: Comparison from virgin (not recycled) feedstock only (does not include bio-based alternatives) provided in (Global Plastics)  
Source: PlasticsEurope, Plastics – the Facts 2012 (2012), PlasticsEurope, Plastics – the Facts 2015 (2015).

# Innovation and urgency

## What we need to do (Urgent):

1. Plug the leaks of litter in to the marine environment, NOW (whilst working on turning off the tap).
2. Scale up evidence-based interventions that work (throughout waste management continuum) whilst dealing with longer term social and structural drivers of coastal waste
3. Develop government-led action plan, targets and mechanisms for mutual accountability

## How we do it (Innovation)

1. Take back our rivers, streams and open spaces
2. Incentives for collection and recycling of post consumer waste
3. Context-specific community based waste management systems
4. Behaviour change & social mobilisation through social media and other participatory tactics
5. Waste capture
6. Innovative financing required.... What is the funding gap?



# Partnerships and mutual accountability

We can't manage what we don't measure

- Establish municipal level body to co-ordinate the response to coastal and marine waste – political awareness and will critical
- Costed implementation plan with roles and responsibilities
- Multi-sectoral (all relevant departments)
- Multi- stakeholder
- Multi-disciplinary expertise
- Monitoring, evaluation and reporting system

All coastal municipalities should have “3 ones”: one structure responsible for the response to coastal & marine waste, one action plan for all stakeholders and one MER framework used by all stakeholders

# Towards the source:

## Take back our rivers and open spaces

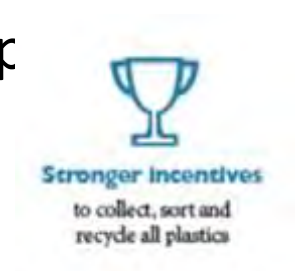
- Reclaim ecosystem services and public utility value
- River care co-ops (community custodians) responsible for stretches of the priority rivers and streams
- Clean, rehabilitate, encourage positive use
- Integrated service to achieve multiple outcomes (co-investment = efficiencies)
- Linkage river care to recycling value chain and community outreach & education



# Bottom up strengthening of recycling value chain

- Strengthen kerb side collection of recyclables
- Strengthen recycling programmes in townships and informal settlements
  - Address waste management system holistically
  - NGO-private-government partnerships – draw on comparative strengths
  - Incentives and rewards for collection
  - Strategically located, micro enterprise buy back centres
  - Support with equipment and training
  - Facilitate logistical and trading links with recycling intermediaries
  - Management information system tracking material and p

Target high impact and hard to reach areas



# Litter booms and traps



- Piloted for last 5 years in Durban
- Low cost design & management
- Successful in preventing tons of waste from reaching the sea
- Way forward: Comprehensive programme with improved design, systematic placement selection and strengthened operational norms and standards
- Pilot waste to energy conversion for contaminated plastic



# Litter booms and traps



Average days with precipitation per month



Event	bags
October 2014 SPCA boom	1,300
April 2017 (20mm)	900
Average per month 2017	500
Boom failure: May 2016 Downstream collection	2,100



# Volunteer clean-ups

200 – 1000 bags per 2  
hr clean up on Umgeni  
estuary sand bar  
500 metres

2 – 5 bags per volunteer

Municipality collects  
the bags

Currently no formal data  
collection outside of  
International Coastal  
Clean Up Day



#CleanBlueLagoon

# Awareness and social mobilisation

- Awaken **conscious consumers** and active citizens using social media and participatory activities
- Citizen / crowd sourced data on wasteful practices
- Push for change in the retail sector
- Social marketing of less harmful products & alternatives
- Role models (officials, sports stars)
- Peer education
- Mobilise corporate investment in social enterprise



# Conclusion

We are excited and energised to work with local partners and those in the AMWN to, mobilise resources, implement best practice and achieve our vision for Durban.

**Zero** coastal and marine waste

It always seems impossible...  
until its done

Nelson Mandela





# DPaPP Partners

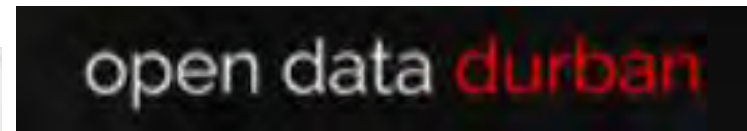


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*Aqua Amazing-* Marine Science & Education



EThekweni  
Conservancies  
Forum





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