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GLOBAL PLASTIC PRODUCED
Humans have created about 8.3 billion metric tons of plastics, outgrowing all man-made materials other than steel and cement.

2M METRIC TONS
1950

8.3B METRIC TONS
2017

34B PROJECTED METRIC TONS
2050

HOW HEAVY IS 8.3 BILLION METRIC TONS?

1,000,000,000 X ELEPHANTS
(7.5 tons)

80,000,000 X BLUE WHALE
(104.5 tons)

800,000 X THE EIFFEL TOWER
(20,000 tons)

25,000 X EMPIRE STATE BUILDING
(331,000 tons)

PLASTIC WASTE
Plastic waste can be recycled, incinerated or discarded where it accumulates in landfills and the natural environment.

6.3B METRIC TONS
2015

12B PROJECTED METRIC TONS
2050

9% Recycled
12% Incinerated
79% Accumulated in landfills & natural environment
Strategic Intervention Framework to Reduce Plastic Pollution

1. REDUCE PLASTIC PRODUCTION
   - Industry led or reduce demand

2. INNOVATIVE MATERIALS & PRODUCT DESIGN
   - Green engineering, circular economy

3. REDUCE WASTE GENERATION
   - Reusable items, sharing / collaborative economy

4. IMPROVE GLOBAL WASTE MANAGEMENT
   - Context-sensitive Solid Waste management infrastructure

5. IMPROVE LITTER CAPTURE
   - Litter capture and clean-up

6. REDUCE INPUT CONCENTRATIONS (ZERO GOAL)
The Circularity Assessment Protocol (CAP) is a hub and spoke model that provides a snapshot of a city’s circularity that can provide data for local, regional, or national decision-making to reduce leakage of waste (e.g., single-use plastic) into the environment and increase circular materials management.
What do the components look at?

**INPUT**
What products are sold in the community and where do they originate?

**COMMUNITY**
What conversations are happening and what are the stakeholders’ attitudes and perceptions?

**PRODUCT DESIGN**
What materials, formats, and innovations are found in products, particularly packaging?

**USE**
What are the community trends around use and reuse of product types?

**COLLECTION**
How much waste is generated, what does it comprise, how is it disposed? How much is collected and what infrastructure exists?

**END OF CYCLE**
What is the fate of waste once it is properly discarded? How is it treated?

**LEAKAGE**
What waste ends up in the environment? Why and how is it getting there?
Preliminary Findings from Urban Ocean Cohort #1
By The Numbers

- **5** cities and **5** local implementing partners (6th coming soon)
- **24,328** litter items documented
- **1,039** convenience products sampled
- **118** restaurants and food vendors sampled
- **366** to-go items sampled
- **128** stakeholder interviews conducted
Litter Material Composition Across All UO Cohort 1 Cities
Distribution of Litter Densities in Transects of All UO Cohort 1 Cities
Average City Litter Densities Based On Population Count

![Bar chart showing average litter densities in different cities based on population count. The cities compared are Can Tho, Melaka, Panama City, Pune, and Semarang.]
Can Tho
1. Cigarettes
2. Plastic Food Wrapper
3. Plastic Grocery Bag
4. Straws
5. Foam or Plastic Cups or Lids

Melaka
1. Cigarettes
2. Plastic Food Wrapper
3. Hard Plastic Fragments
4. Straws
5. Other Fragments

Semarang
1. Cigarettes
2. Plastic Food Wrapper
3. Other Organic Waste
4. Straws
5. Other Food-Related Plastic

Pune
1. Tobacco Sachets
2. Paper
3. Glass or Ceramic Fragments
4. Plastic Food Wrapper
5. Cigarettes

Panama City
1. Film Fragments
2. Foam Fragments
3. Plastic Food Wrapper
4. Cigarettes
5. Plastic Bottles
Top Litter Items Across All

Among Top 5 in All Cities:
- Cigarettes
- Plastic Food Wrappers

Notable Items Among Top 10 in 4 of 5 Cities:
- Straws (all except Pune)
- Hard Plastic Fragments (all except Can Tho)
- Paper (all except Panama City)
Common Challenges

- Top convenience items - particularly chip and candy products - are largely made of multi-layer plastic film that is difficult to collect/capture and has little to no value in the recycling market.

- Tailored solutions are needed to address problematic items such as multilayer film packaging and tobacco products, including reduction, alternatives, and ways to add value for collection and market development.

- Single-use plastic to-go items are consistently cheaper and more readily available than alternatives, and cost and convenience are often cited as top barriers to change among consumers and business owners.

- Demand for programs that would get young and tech-savvy locals engaged in the waste sector, as well as new technology that can support the recycling and informal sectors.

- Space, capacity, technology, and manpower for existing waste collection and management infrastructure (especially transportation, space for sorting, and addressing ageing systems).
Common Strengths

- Domestic manufacturing and parent companies means opportunities for local EPR measures
- Innovations to maximize collection (ie. collaborations between formal and informal waste sector)
- Small but enthusiastic groups that support refill and reuse stations, bulk stores, and alternative delivery
- Energized younger generation
- Historical contexts around reusables and alternatives
- National or regional policies, strategies, and frameworks in place (despite differing implementation)
- Interest in community awareness campaigns that inform the community on how to properly sort/handle waste according to local protocols, coupled with supportive policies and enforcement
- High amounts of organic waste in waste stream and most cities have or working towards source segregation
THANK YOU!

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