Addressing marine plastics

Philip Karp
Lead Knowledge Management Officer

Silpa Kaza
Urban Development Specialist

June 19, 2019
Global Picture of Ocean Plastics

Dr. Jan van Franeker - Biologiste marin / Marine biologist
IMARES Texel / Netherlands
Magnitude of the plastics problem

8 million
metric tons of plastic waste enters the ocean every year
Jambeck et al, 2015

± 80% from land sources
UNEP GESAMP, 2005

450 years
Estimated time for a plastic bottle to decompose
NOAA / Woods Hole Sea Grant

400 million
tons of plastic produced every year

36%
Plastics packaging

10%
of plastic packaging is recycled

50%
Estimated growth in plastic consumption by 2025

250 million
metric tons of plastic waste could be in the ocean in fewer than 10 years
Ocean Conservancy

APEC estimates: costs of ocean plastics to the tourism, fishing and shipping industries
$1.3 billion
in that region alone;

Global cost estimated at $2.5 Trillion
Marine Pollution Bulletin April 2019
PLASTICS IN THE GLOBAL MARINE ENVIRONMENT:
WHERE DO THEY COME FROM? WHERE DO THEY GO?

TOTAL PLASTIC ENTERING THE MARINE ENVIRONMENT GLOBALLY
13.5 million tons per annum

BEACHES
11,400 lbs / sqmi (5% of total)

OCEAN SURFACE
102 lbs / sqmi (1% of total)*

SEA FLOOR
400 lbs / sqmi (94% of total)

LAND BASED - INLAND
0.55 Mtn pa

LAND BASED - COASTAL
10 Million tons per annum

AT SEA
FISHING LITTER - 1.27
SHIPPING LITTER - 0.66

PRIMARY MICROPLASTIC - 1.05 Million tons per annum

*Peak concentration found in North Pacific gyre. Average concentration globally is ~8 lbs per sqmi

Primary sources:
- Marine Paint
- Cosmetics
- Road Paint
- Building Paints
- Textiles
- Pellet Spills
- Vehicle Tyre Dust
Estimated Time for Plastic to Biodegrade

Source: NOAA Woods Hole Sea Grant

Estimated time taken to biodegrade

- Stryrofoam cup: 50 years
- Aluminium can: 200 years
- Nappy: 450 years
- Plastic bottle: 450 years
- Fishing line: 600 years

Exact time will vary by product type and environmental conditions
Top Rivers at the Origin of Marine Litter

Rivers:
- Yangtze
- Ganges
- Indus
- Xi
- Huangpu
- Cross
- Nile
- Brantas
- Amazon
- Pasig
- Niger
- Mekong
- Irrawaddy
- Solo

Source: Lebreton et al, 2017 and Schmidt et al, 2017
Why is this an important issue?

• Impact on Ocean Health
  • Harm to marine species
  • climate change impact
  • Potential harm to the ocean’s ability to produce Oxygen

• Impact on Human Health
  • Health impacts uncertain
  • But growing evidence that consumption of degraded plastic can cause organ damage
  • + hormone imbalances
  • Risk is greatest with shellfish

• Economic Impacts
  • Direct Costs
  • Indirect Costs
Addressing the ocean plastics challenge
Three Broad Sets of Solutions: No Silver Bullet...

1. Stop leakage of waste
2. Reduce, Reuse, and Recycle
   Resource Efficiency & Clean Production
   Circular economy
   Plastic prevention (single-use plastics)
3. Clean up
   Last resort
   Ecosystems recovery

Investments - Policy Reforms
Social, technological & financial Innovations

....Country Specific Solutions...

Solutions and transition pathways to curb plastic pollution from land-based and sea-based sources are determined by country conditions and cost-benefit analysis.
... in need of Global Cooperation

China import ban on plastic waste creates a window of opportunity

Early foundations for global coordination
- Recent Basel Convention Decision
- EU Plastics Action Plan

Goals:
- Make recycling market financially viable
- Facilitate Economies of scale
- Foundations for a global market
- Avoid Leakages

Goals:
- Make recycling market financially viable
- Facilitate Economies of scale
- Foundations for a global market
- Avoid Leakages
Regulatory Options For Plastic Management

**Economic and financial instruments**
- Taxes: virgin plastic
- Fees
- Deposit-refund schemes
- EPR

**Regulations & enforcement instruments**
- Bans
- Recycling targets
- Sanctions
- Standards – Product redesign, recyclable content
- Disclosure standards (e.g., env footprint)

**Behavioral nudges**
- Awareness & Information
- Labelling

Create market & fiscal conditions for
- Investing in SWM, MRF & recycling
- Reducing waste generation
Technical Options For Plastics Management

Collection and management of waste
- Collection of all waste and environmentally-sound, safe treatment and disposal
- Traditional technologies
- New technologies

Recycling
- Recycling of plastics as virgin materials for manufacturing
- Use of plastics and other materials in shredded form as inputs other products (i.e. car seats, carpet, clothing)

Recovery of ocean plastics
- Unproven technologies at large scale
World Bank Group’s Approach
WBG engagement: Invest, Innovate and Influence

1- INFLUENCE

- G7, G20
- CBD
- High-level Panel on Sustainable Blue Economy
- ASEAN/APEC/EAS
- Global Plastics Action Partnership (GPAP) WEF
- Other alliances and initiatives
- Systematic Country Diagnostics & Country Partnership Frameworks

2- INNOVATE

- NEW INITIATIVES
  - PROBLUE
  - IDA Program for Marine Plastics
  - Innovation Fund (tbc)
  - Blended finance

- NEW CUSTOMIZED MODELS
  - SIDS (e.g. Fiji Regional Recycling Hub),
  - Global analytical work
  - Policy innovations
  - Country roadmaps: investments & policies

3- INVEST

- INFORMATION & ANALYTICAL WORK: plastics profiles; hotspot assessments; technology options including alternatives; economics of transition pathways, etc.

- INVESTMENTS: WBG public and private sector investments in waste management, circular economy, policy reforms
Influencing the International Agenda

2016 / 2017
- G20 Germany
- Our Ocean Conference Malta

2018
- G7 Canada World Economic Forum/GPAP
- Our Ocean Conference Bali

2019
- Davos WEF
- G7 France & One Planet Summit
- G20 Japan
- ASEAN 2019 - Thailand
- Our Ocean Conference Norway 2019
- High Level Panel for a Sustainable Ocean Economy

2020
- CBD Biodiversity China
Influencing the Country Level Agenda

Policy analysis

Economic & financial analysis

Countries specifics

Influence Systematic Country Diagnostics & Country Partnership Frameworks
- Costs of Business as Usual
- Costs & Benefits of reducing plastic wastes

Pathways out of Plastics: Identifying the right mix and sequence of policy and investments

Financial support to Policy changes & Investments
PROBLUE – Program for Blue Economy
Pillar 2 on Marine Pollution Management

Goal: reduce marine pollution & contribute to the restoration of coastal and marine ecosystems

Global knowledge products & tools
Country identification & preparation of projects
Investments
1. Developing decision-making tools to support cost-effective and sustainable solutions
2. Developing Baselines - Identifying “low-hanging fruits” (regulations) - Identifying opportunities for private sector
3. Developing Roadmaps & National Action-plans
Baselines, low-hanging fruits and private sector interventions

• Mapping sources & pathways:
  • Cambodia, Myanmar, Vietnam, the Philippines: mapping the sources & pathways, characterizing waste to define national action plans.

• Customizing solutions to Islands
  • Fiji Eastern Pacific Regional Recycling Network Scoping Study & Roadmap for 1st hub of a regional recycling network
WBG is investing and supporting policy reforms in all regions, across sectors

Examples of WBG current engagement in (solid and water) waste management, circular economy, reduction of single-use plastics (analytics & advisory, investments, policy reforms)

Source: Lebreton et al 2018
Circular Economy: a Long-term Approach To Address Marine Plastics Issue

- Integrated Solid Waste Management => provide the feedstock for recycled plastics
- Recycling markets development
  - Public & private investments – e.g., Mexico IFC, recycling hub Fiji
  - At the regional level – e.g., ASEAN
  - Global standards in materials, product design
  - Disclosure & Monitoring at all market stages
  - Create commodity exchanges (spot, forward, futures)
- Reducing consumption & contaminating products (resource efficiency & clean production) requires:
  - technological & social innovation
  - behavioral change
  - Policy reforms and Education
Thank you