

WEBINAR III

10th Regional 3R Forum in Asia & the Pacific

Plenary Session : “3R and Circular Economy as the Basis for Moving Towards Zero Plastic Waste in Coastal and Marine Environment (-> SDG 14)”

08th December 2020

Presentation 1: “Introduction of book- State of Plastics Waste in Asia and the-Pacific - Issues, Challenges and Circular Economic Opportunities”

Presented By:



Amit Jain
*Managing Director,
IRG Systems South Asia Private Limited*

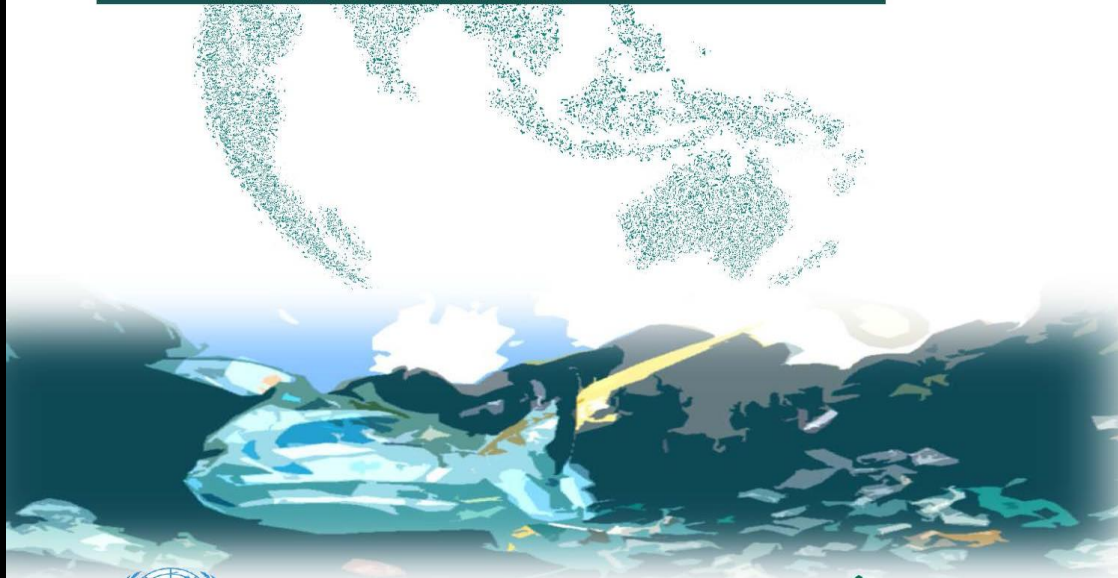
Thought Provoking.....



Table of Contents

- Content of the Book
- Major Drivers (Asia Pacific)
- Plastic Value Chain
- Resource Intensity (Asia Pacific)
- Trends in Plastic Consumption
 - Key Take Away
- Plastic Waste Management (Asia Pacific)
- 3Rs Approach to Achieve Circularity
 - Key Take Away
- Impacts
- Impacts / Key Take Away
- Summary of Regulations / Key Take Away
- Way Forward
- Major Challenges/ Enablers / Way Forward
- Plastic Economy to Circular Economy & SDG (14)

“State of Plastics Waste in Asia and the Pacific – Issues, Challenges and Circular Economic Opportunities”



UNCRD

Coordinated by

The Secretariat of the Regional 3R and Circular Economy Forum in Asia and the Pacific, United Nations Centre for Regional Development (UNCRD) of Division for Sustainable Development Goals (DSDG)/UN DESA



環境省

Ministry of the Environment

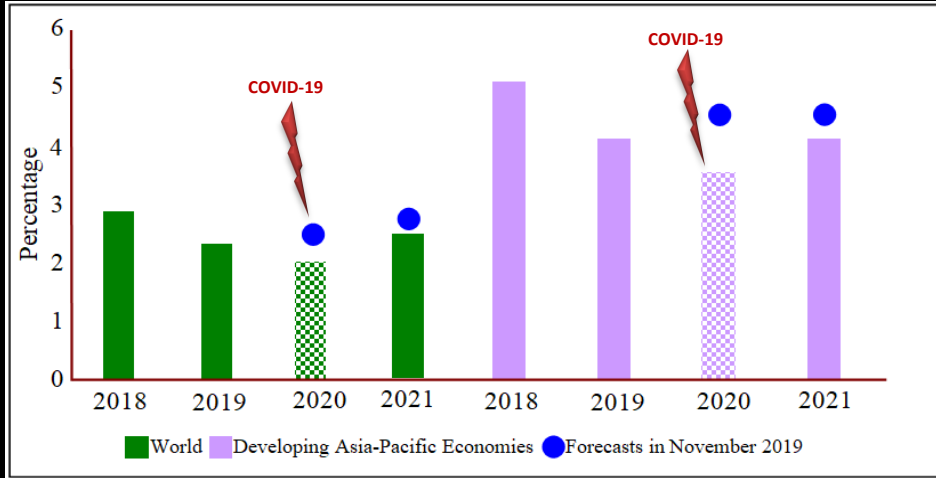
Supported by

Ministry of the Environment,
Government of Japan (MOEJ)
Office of Sound Material Cycle Society,
Waste Management and Recycling Department

Contents of the Book

1. Executive Summary
2. Chapter 1 – Introduction
 - Introduction
 - Economic Profile
 - Environmental Profile
 - Plastic Waste Management
 - Relevance of 3R Practices & Connectivity to SDGs & Targets
 - Scope of the Report
 -
3. Chapter 2 - Material Cycle of Plastic
 - Introduction
 - Material Inputs of Plastic
 - Material Inputs, Plastic Production, Consumption
 - Demographic Change, Material Distribution, Recycling Rates and Technology
 - 3R Efforts for Circular Economic & Environmental Implications in Asia and the Pacific
4. Chapter 3 – Status of Plastic Waste
 - Introduction
 - Plastic Waste in Asia & the Pacific
 - Institutional Stakeholders
 - 3R Approach & Achievement in Asia & the Pacific
 - Implications in Asia & the Pacific Region & Regional Challenges to Achieve 3R Goals
5. Chapter 4 – Plastic Pollution and its Impact
 - Introduction
 - Composition of Plastic & their Application
 - Key Pressures of Plastic Waste
 - Impacts on Terrestrial Ecosystem
 - Impacts on Aquatic & Marine Ecosystem
 - Impact on Human health
 - Other health Impacts
 - Impacts on Climate Change, Energy Production & Consumption and Ecosystem Services & Natural Capital
 - Energy Production & Consumption & GHG Emissions
 - Impacts on Ecosystem Services and Natural Capital
 - Overall Implications for Asia & the Pacific
6. Chapter 5- Major Policy Initiative & Responses
 - Introduction
 - Environmental Laws & Regulation
 - Bans & Restriction for regulatory Plastic Bags
 - Market based instruments for regulating plastic bags
 - Return, collection, recycling, and disposal of plastic
 - Bans and restriction for single use plastics
 - Market based instruments (MBI) for single use plastics
 - Market Based Instruments Upstream of Consumption
 - Market Based instruments Downstream of Consumption
 - Microbeads
 - Multilateral Environmental Agreements
 - Technological Interventions
 - Institutional Roles & Actions
7. Chapter 6 – Way Forward
 - Introduction
 - Summary of Results under DPSIR Framework
 - Barriers & Gaps and Potential Interventions
 - Plastic Economy Vs. Circular Economy

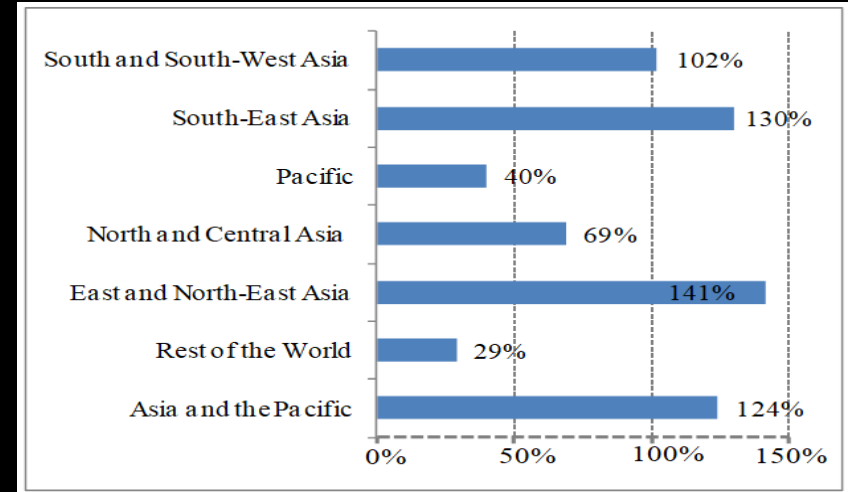
Major Drivers (Asia Pacific)



Growth of Developing Asia – Pacific Region Continues to Outpace the Rest of the World

Source: Estimates by the United Nations Department of Economic and Social Affairs, and ESCAP (2020);

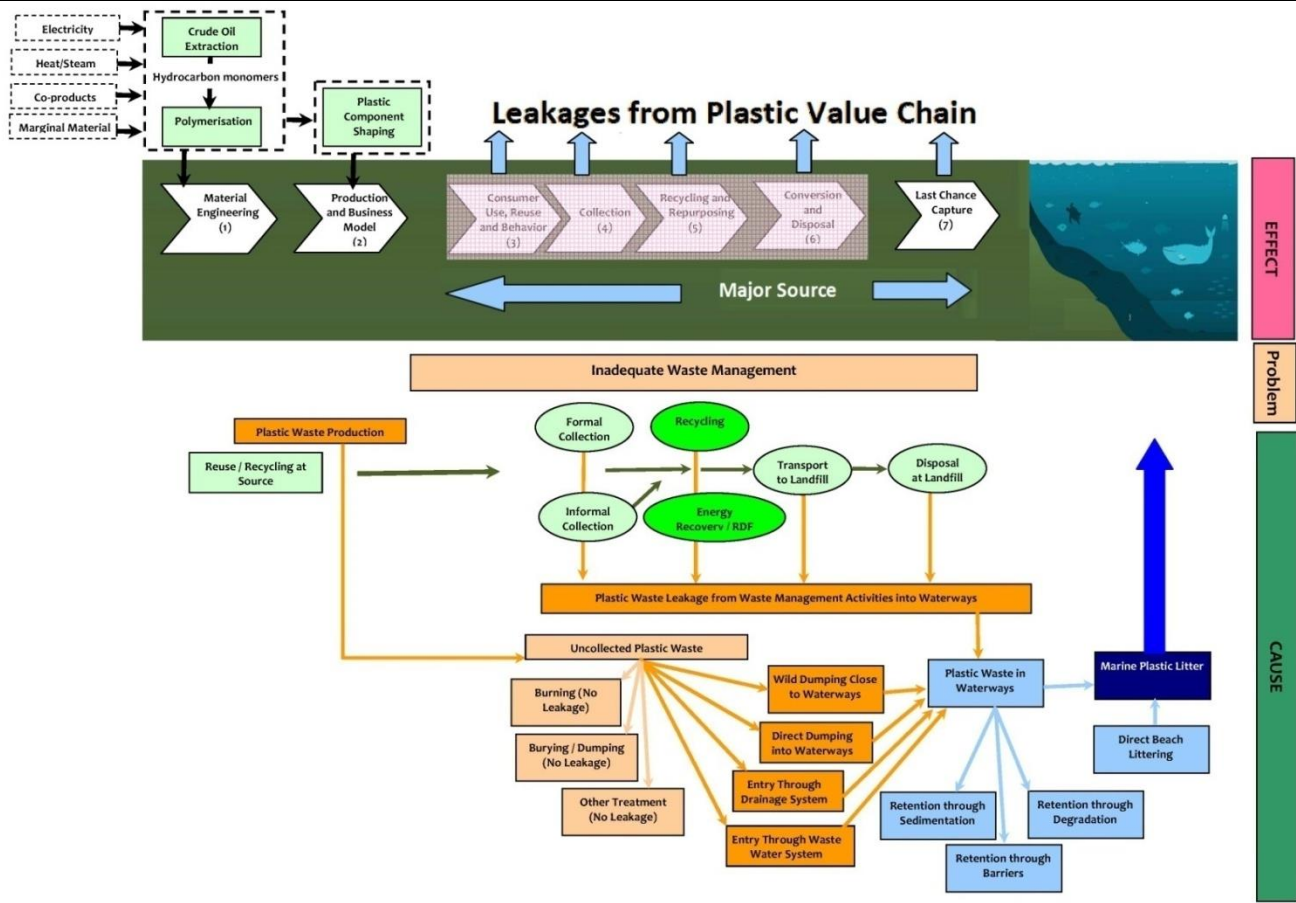
Population about (4 billion (2017) to 5.08 billion by 2050 (60% of the world's total population), Urbanization (Urban population from 48% of the region's population in 2017 to 63% of the total by 2050), Economic growth & Growing purchasing power and the domestic private consumption are the major drivers for Plastic Consumption in Asia & the Pacific



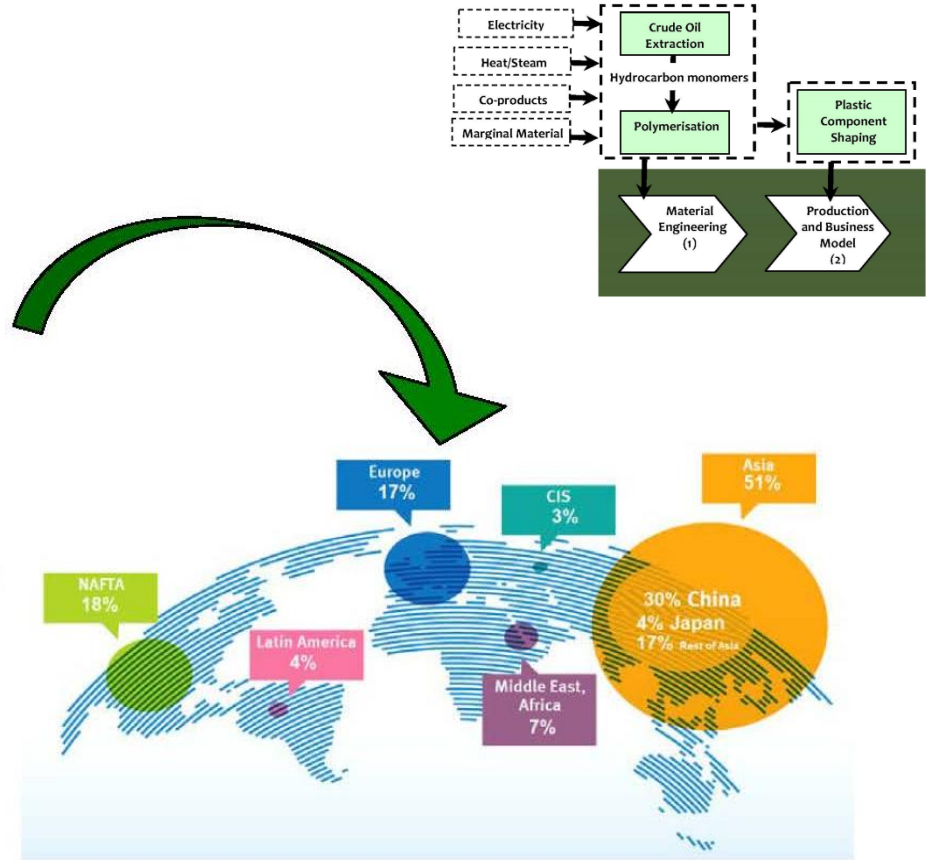
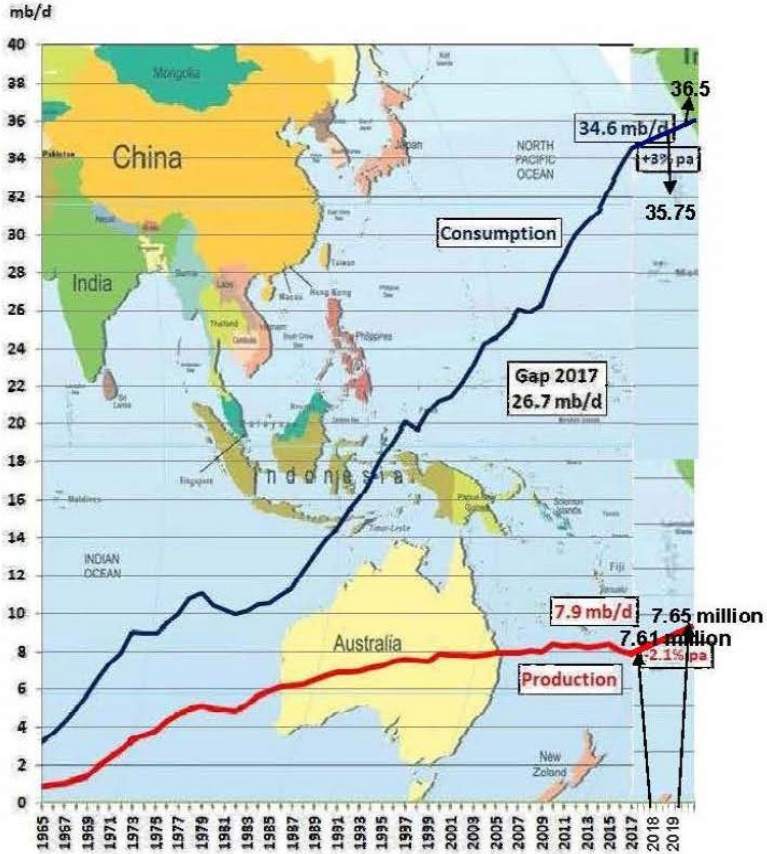
Net Change in Material Footprint, 2000-2017

Source: UN ESCAP (2020); Based on Methodology in UNEP International Resource Panel's Global Resource Outlook 2019

Plastic Value Chain

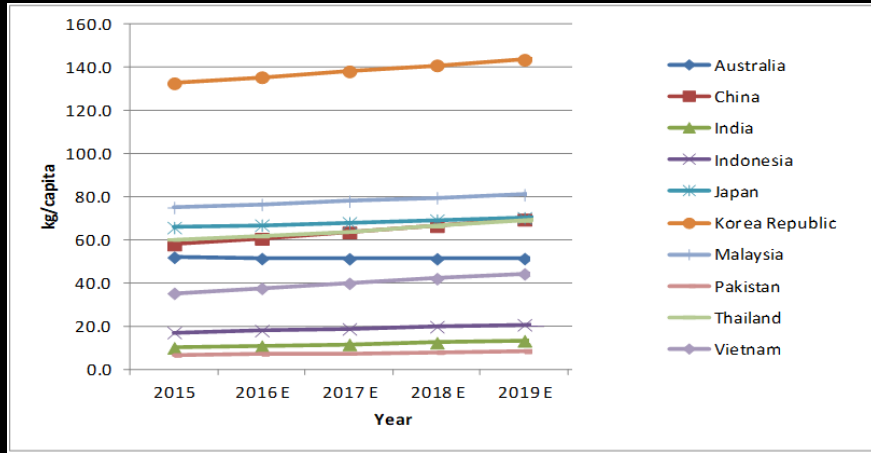


Resource Intensity (Asia Pacific)

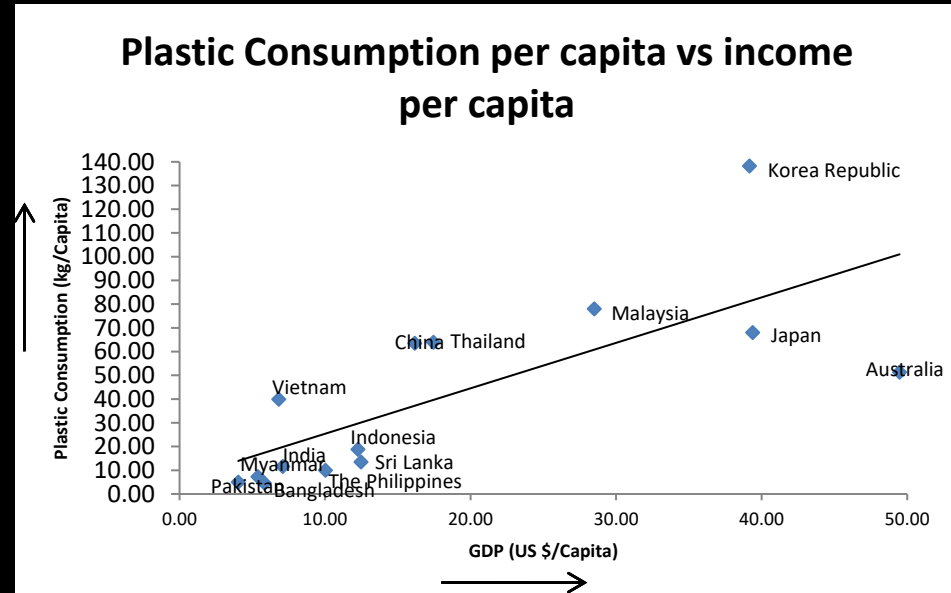


Trends in Plastic Consumption

1. Plastic consumption ranges from 0.13% to 0.75% of material consumption
2. Importer of fossil fuel, the feedstock for manufacturing plastics
3. Positive correlation exist between GDP growth rate and plastic consumption in the region
4. Increasing trends of plastic consumption (Packaging 40 – 50 %)



Plastic Consumption Per Capita (2015-2020)



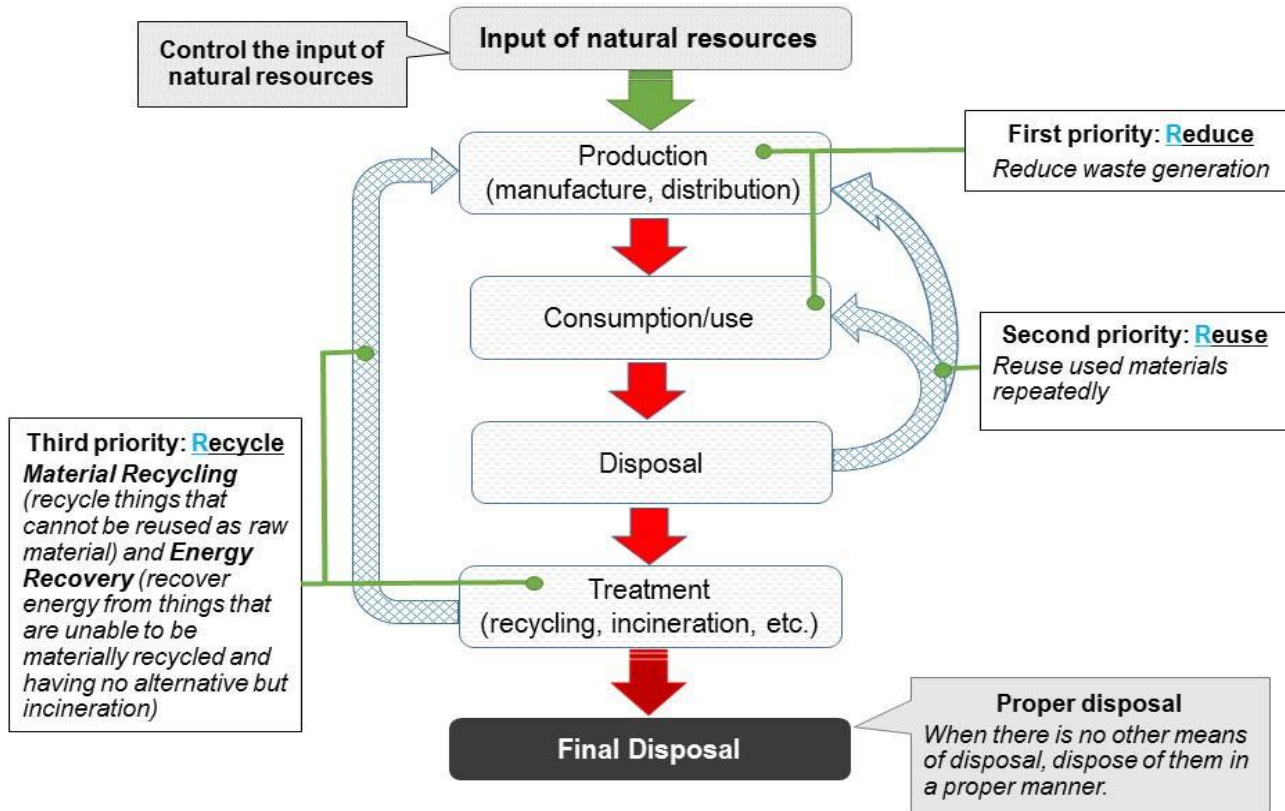
Key Take Away

1. Major drivers like population growth, increasing urbanization, strong economy & growing purchasing power is leading to higher resource intensity (2.9 tones/capita in 1970 to 11.9 tones/capita in 2015) & plastic consumption which is putting pressure (changes in land use, Emissions & Climate Change) on existing finite natural resource base (material resources, fuel consumption) with major plastic production (50% of the world) happening in China, Japan & rest of Asia.
2. Further, countries in the region with eleven major countries, the major generators of plastics waste with poor recycling rates (< 15 %), lack of waste treatment & disposal infrastructure (open dumping) are putting pressure on climate (open burning – GHG emissions) & marine ecosystem in the region.
3. 3R efforts & circular economy offers potential to address the plastic value chain and pressures in the region.
4. Examples of Singapore, China, Japan & India

Plastic Waste Management (Asia Pacific)

1. (MSW) for Asia and the Pacific was estimated at around 870 million tonnes in 2014 to 1.4 billion tonnes a year by 2030
2. An average generation rate of 1.4 kilograms per person per day, accounting for 43% of the world total (2014) to 1.6 kilograms per person per day (2030)
3. The proportion of plastic, is around 8–12% across all the countries , to reach 140 million tonnes by 2030.
4. Strong correlation, between per capita waste generation and the income level of a country.
5. Waste collection rates are moderate (40–80%) in developing countries, 100% in more developed economies (Japan, Australia, Republic of Korea and Singapore)
6. About 55 to 74% of the municipal solid waste is disposed off at disposal sites with zero to 26% being incinerated and 1 to 5% composted . Average recycling rates have increased.
7. Globally, around 14%-18% of waste plastics generation is collected for recycling, 24% is thermally treated (e.g. by incineration, gasification or pyrolysis), remainder is disposed off in controlled / uncontrolled landfill, or the natural environment.

3Rs Approach to Achieve Circularity



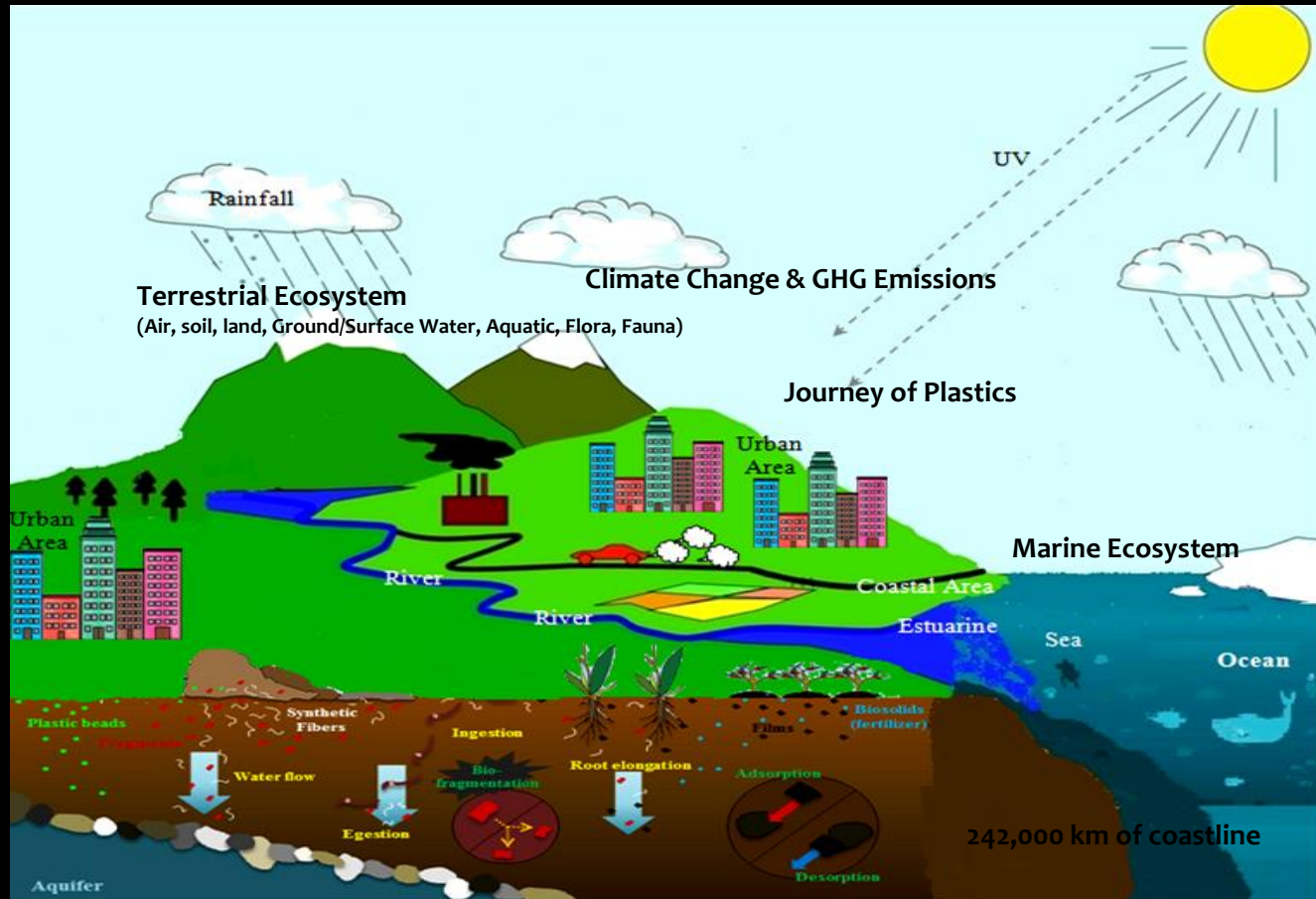
Ha Noi 3R Declaration which proposed 33 goals and their indicators to monitor the progress of implementation of each goal in Asia and the Pacific region For 2013 -2023

Key Take Away

1. Further, countries in the region with eleven major countries, the major generators of plastics waste with poor recycling rates (< 15 %), lack of waste treatment & disposal infrastructure (open dumping) are putting pressure on climate (open burning – GHG emissions) & marine ecosystem in the region.
2. Progress achieved in implementing 3R efforts (Policy, Regulation, Treatment & Disposal Options) in Asia & the Pacific region is addressing the pollution due to plastic waste in the region.

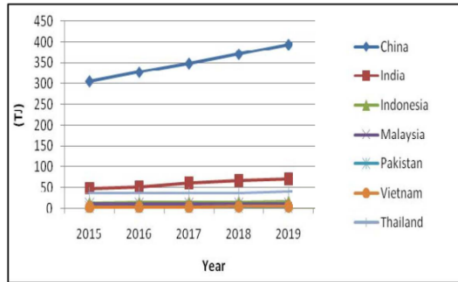
(Need updates on baseline data on MSW & plastic waste specifically in reference to point number 2)

Impacts



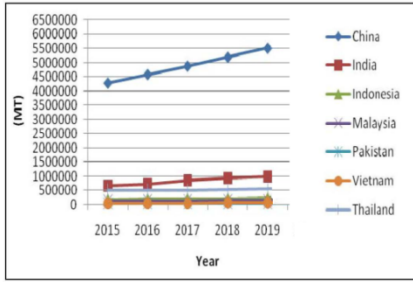
Ecosystem Services, Natural Resources, Health, & Socio-Economic Impacts

Impacts (Contd.)



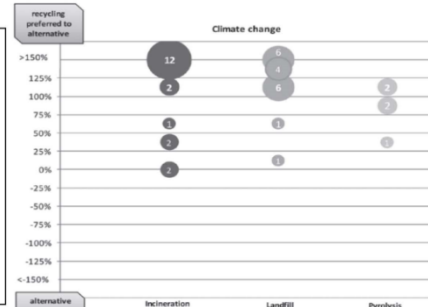
Atmospheric Emission (CO₂) due to Plastic Production in Asia-Pacific (Estimated)

Source: Derived from EUROMAP (2016); Country Cluster Plastics Resin Production and Consumption in 63 Countries Worldwide (2009-2020)



Energy Consumption due to Plastic Production (TJ) in Asia-Pacific (Estimated)

Source: Derived from EUROMAP (2016); Country Cluster Plastics Resin Production and Consumption in 63 Countries Worldwide (2009-2020)



Relative difference between the climate change impacts of different end-of-life options vs. recycling for plastics

Source: Michael, Farrant and Jan (2010[9]), "Environmental benefits of recycling", www.wrap.org.uk/sites/files/wrap/Environmental_benefits_of_recycling_2010_update_3b174d59.8816.pdf

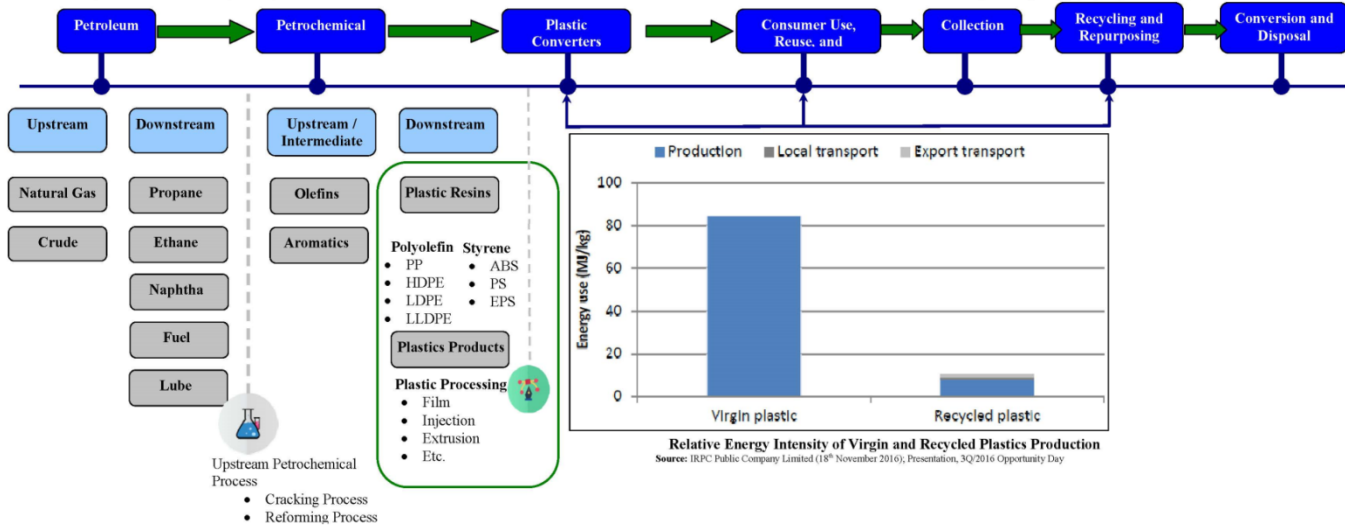


Figure 4.7: Estimated GHG Emissions and Energy Consumption during Plastic Production, Relative Energy Intensity of Virgin and Recycled Plastics Production and Climate Change Impacts of Different End-of-Life Options vs Recycling for Plastics

Source: EUROMAP (2016); Country Cluster Plastics Resin Production and Consumption in 63 Countries Worldwide (2009-2020) / IRPC Public Company Limited (18th November 2016); Presentation, 3Q/2016 Opportunity Day/ Michaud, Farrant and Jan (2010[19]), "Environmental benefits of recycling", WRAP, www.wrap.org.uk/sites/files/wrap/Environmental_benefits_of_recycling_2010_update_3b174d59.8816.pdf

Impacts / Key Take Away

1. Though impact of plastic pollution on air, water, soil, freshwater, health, aquatic & marine ecosystem & climate change is well recognized in the region, its quantification with respect to baseline is required at city, national and regional level to identify interventions related to technologies & mitigation and management strategies.
2. Further, in view of the significant income differences (coastal Vs. mainland) population, socio-economic impacts need to be assessed and addressed in the region. e.g. Coastal tourism a subset of cultural services in the natural capital is also affected as tourists seek to avoid beaches known to have high concentrations of plastics litter. Asia-Pacific Economic Cooperation (APEC) forum estimates that the cost of ocean plastics to the tourism, fishing and shipping industries is US\$ 1.3 billion in the region alone.

Summary of Regulations / Key Take Away

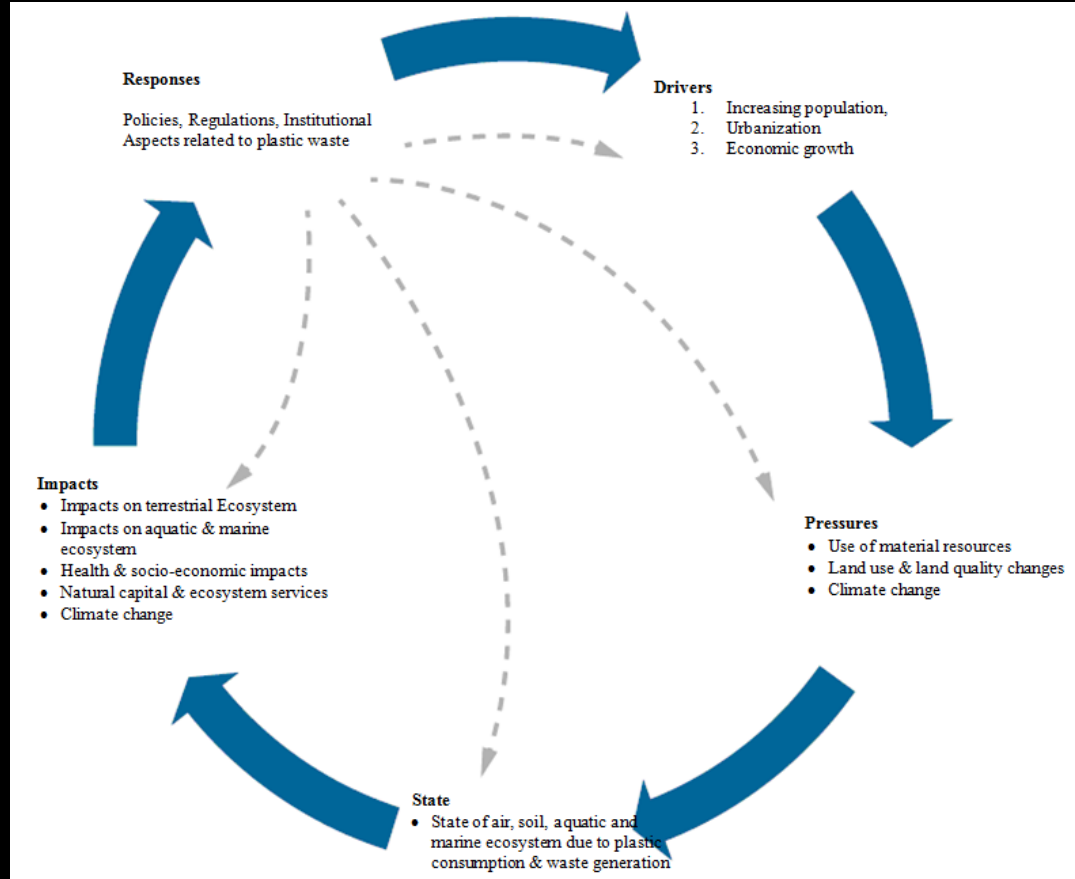
Summary

1. Regulations on SWM in the region
2. Ban & restrictions on plastic bags & single use plastic
3. Market Based Instruments for Regulating Plastic Bags & single use plastic
4. Market based instruments on return, collection, recycling and disposal of plastic bags & single use plastic
5. Ban & restrictions on Microbeads
6. Voluntary initiatives on Microbeads

Key Take Away

1. Formulation of regulations to address plastic waste across all the countries in the region is the priority
2. Implementation of regulation with close coordination of institutions and major stakeholders including private sector will address the major issue of plastic waste

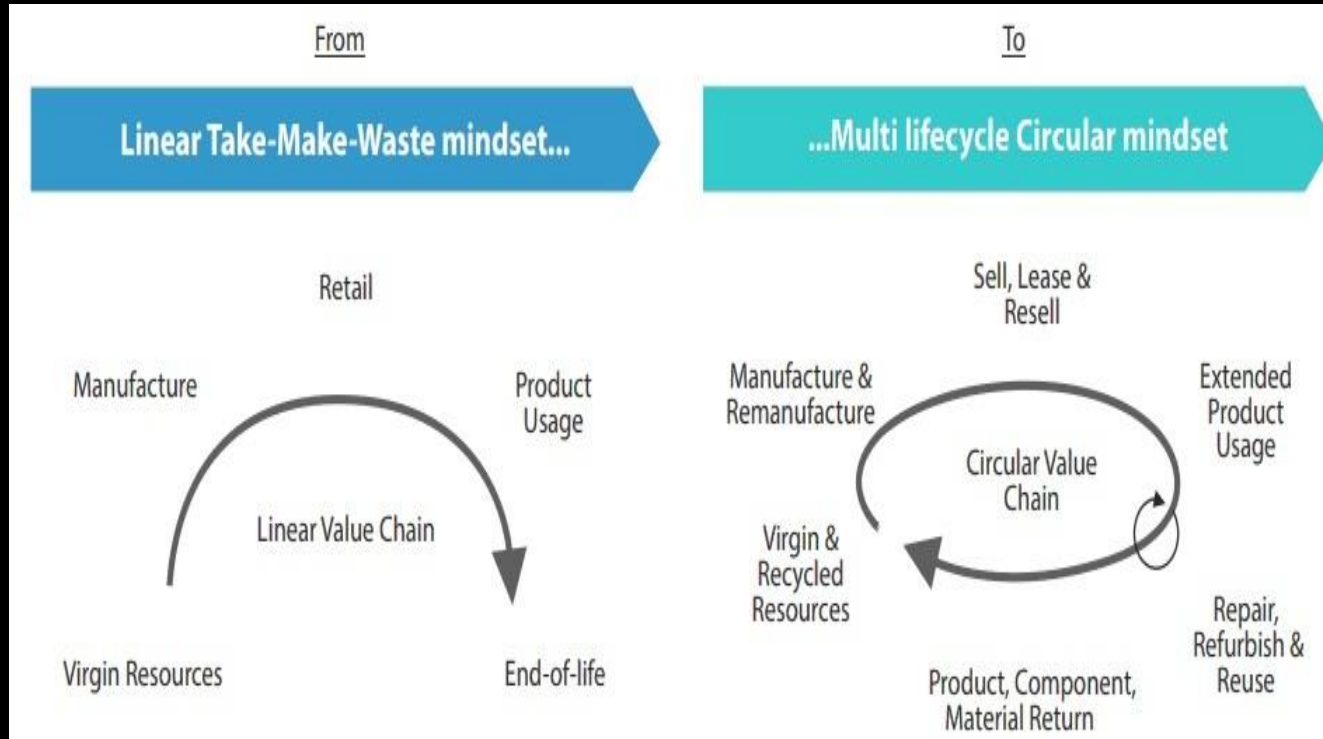
Way Forward



Major Challenges/ Enablers / Way Forward

1. Policy & Regulatory (Linear Vs. Circularity, 3Rs, Coverage, Type of intervention e.g. ban on items such as single use, ban from landfill, statutory targets for recycling rate, EPR etc.)
2. Economic instrument e.g. resource tax,
3. Technology (Recycling Vs. WtE, Waste plastic sorting, technology for recycling mixed plastics, Thermosets, Alternate materials)
4. Knowledgebase, Data & Information (Baseline data across region; Impacts assessments across terrestrial, aquatic, marine ecosystem, health & socio economics; Human resources/ experts; Indicator monitoring; Capacity building; Sharing of best practices
5. Voluntary measures (Industry led market transforming interventions/ projects, better labeling and declarations on packaging, sustainability reporting SDG 12, 14)

Plastic Economy to Circular Economy & SDG (14)



From Current Plastic Economy



Circular Economy

SDG Target 14.1 is one of the most important and aims “By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution”.

THANK YOU !

amit@irgssa.com / amit@irgindia.com