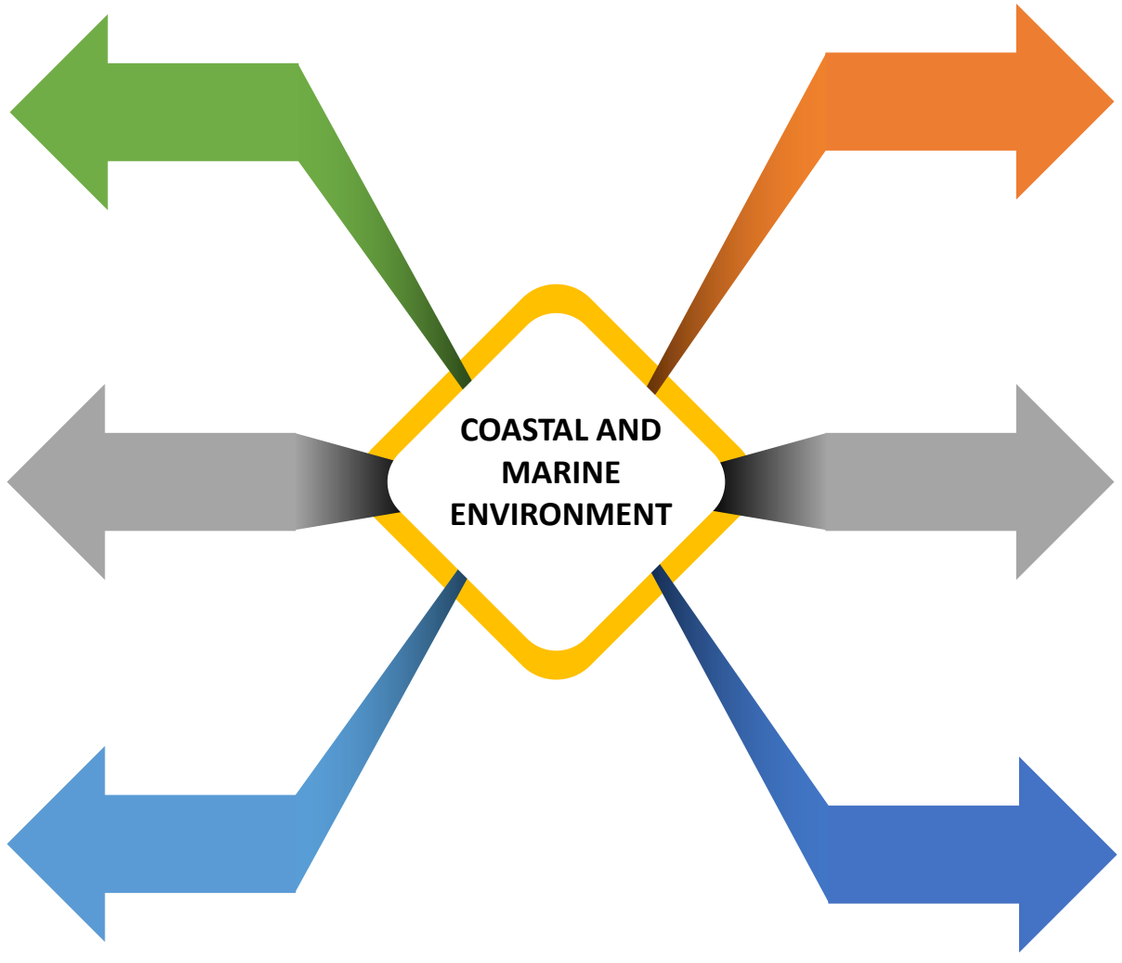
Ministry for Environment and Forestry
Republic of Indonesia

INNOVATIVE SOLUTIONS TO COMBAT MARINE PLASTIC LITTER THROUGH COLLABORATIVE APPROACH

Dida Migfar Ridha
Director of Coastal and Marine Pollution and Degradation Control

Japan Indonesia Environment Week
January 2021

1. STRATEGIC ISSUES RELATED TO COASTAL AND MARINE ENVIRONMENT 2020-2024



Strategic Issues on RPJMN 2020-2024

Restoration

Increasing level of coastal and marine pollution and degradation is way worse compared to its restorative efforts

Law Enforcement

Increasing law infringements related to natural resources and coastal and marine environment

Global Impact

The increase of potential impacts and risks of hydro-meteorological disasters from climate change in the coastal and marine environment

Strategic Issues related to Coastal and Marine Pollution and Degradation

Prevention

Sea water quality monitoring and prevention and coastal and marine pollution control, as well as marine ecosystem's health monitoring

Mitigation

Mitigation of coastal and marine pollution and degradation, including the handling of marine litter

Restoration

Restoration of degraded coastal and marine environment and ecosystems

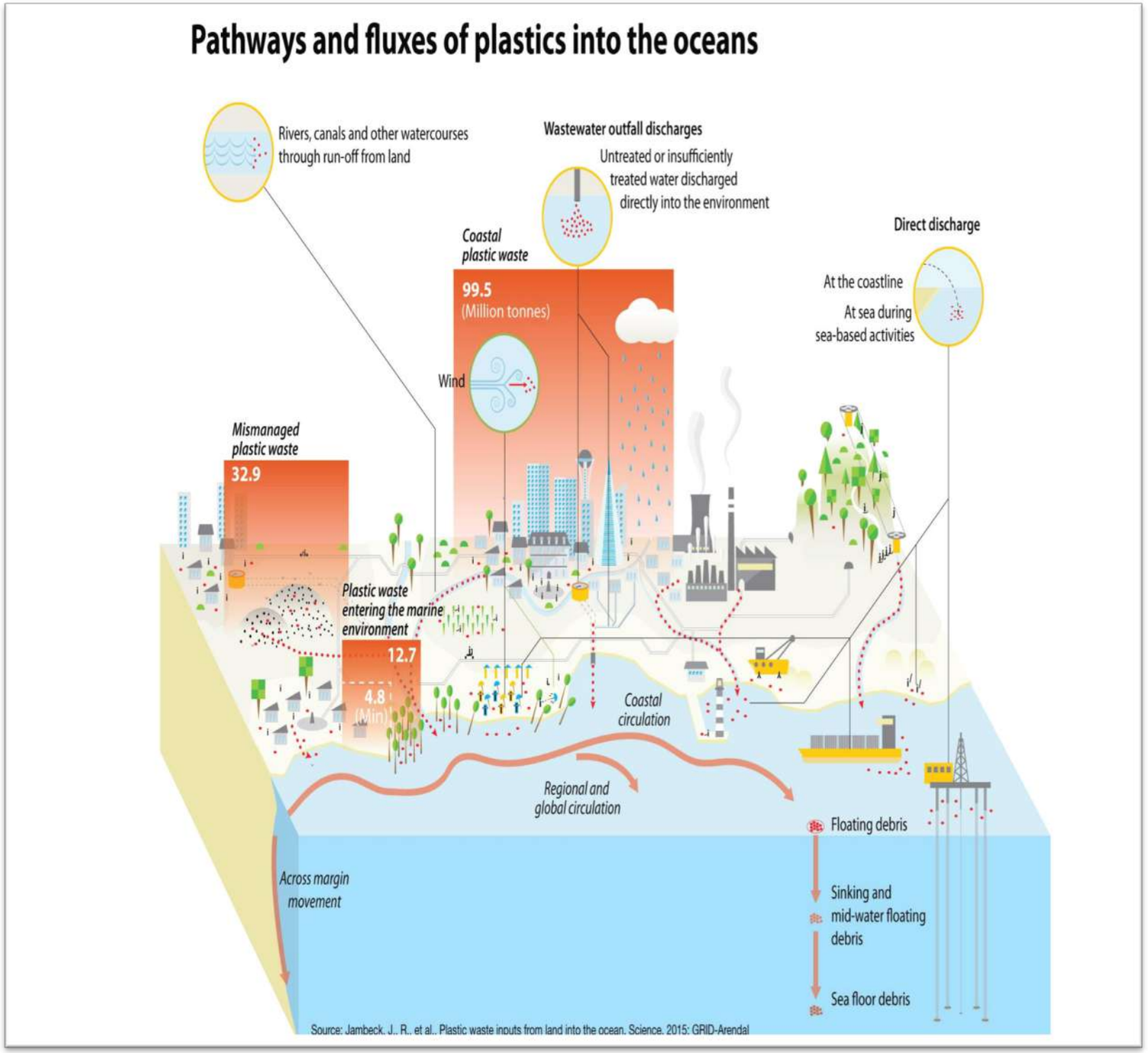
Strategic Issues Related to Coastal and Marine Environment 2020-2024

- Coastal and marine pollution and degradation control from institutional sources:
  - Mitigation and restoration of coastal and marine environment are the responsibility of every entity whose activities are causing pollution and/or degradation of environment.

- Coastal and marine pollution and degradation control from non-institutional sources:
  - Government is responsible for taking mitigation and restoration measures, in collaboration with initiative of actions from various stakeholders.

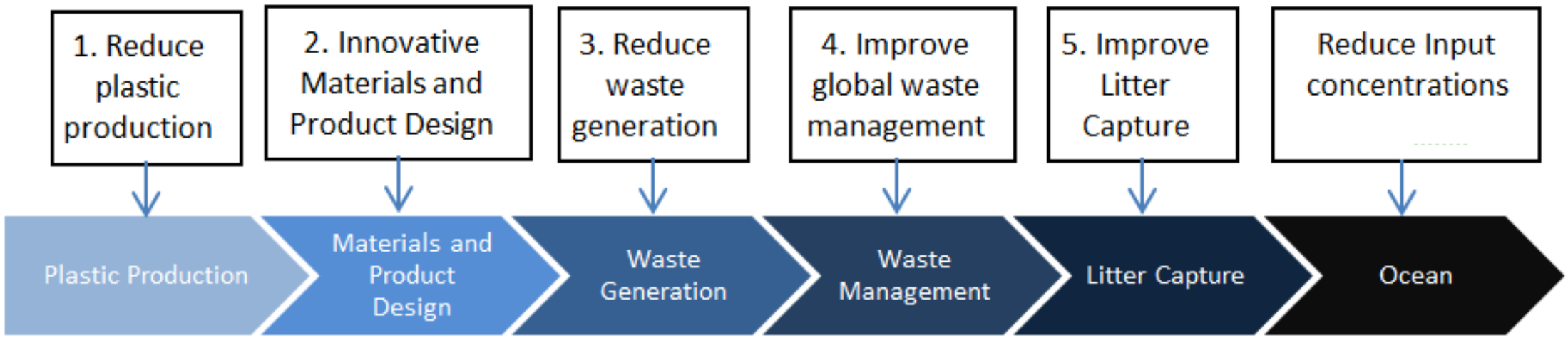
2. EXISTING POLICIES ON MARINE LITTER

- 80% of marine litter originated from land-based activities, entering the ocean through waterways (rivers or canals).
- Prevention, reduction, and mitigation of marine litter including plastics and microplastics from land-based and sea-based sources.



Existing Policies on Marine Litter

- Government of Indonesia has issued Presidential Regulation No. 83 of 2018 on Handling Marine Litter.
- Consists of strategies, programmes, and activities aiming to reduce the number of waste in the ocean, particularly marine plastic litter, with 5 (five) strategies:
  - National awareness-raising campaign for stakeholders;
  - Management of land-based source of waste;
  - Mitigation of waste in coastal and marine areas;
  - Funding mechanisms, institutional enhancement, surveillance, and law enforcement;
  - Research and development.

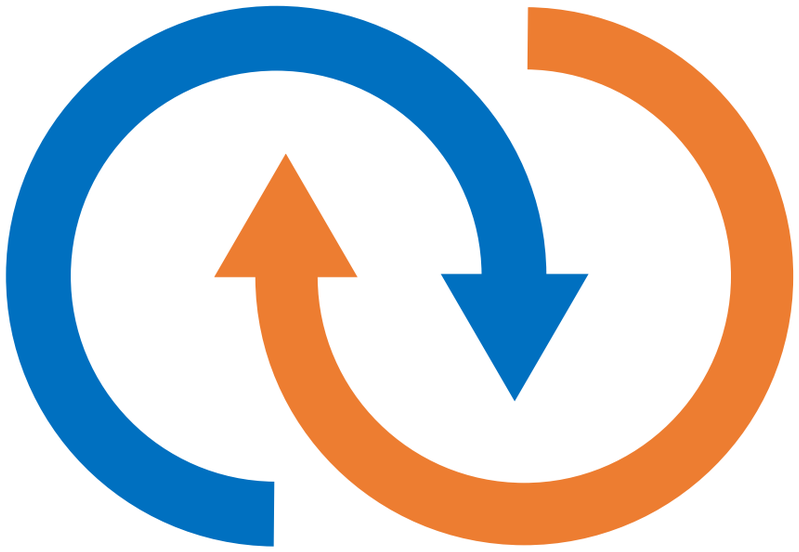


3. COMBATTING MARINE PLASTIC LITTER THROUGH COLLABORATIVE APPROACH

Combatting Marine Plastic Litter Through Collaborative Approach

Approach #1:

Provision of a **DIGITAL COLLABORATION PLATFORM** to engage all stakeholders in marine plastic litter control.



Approach #2:

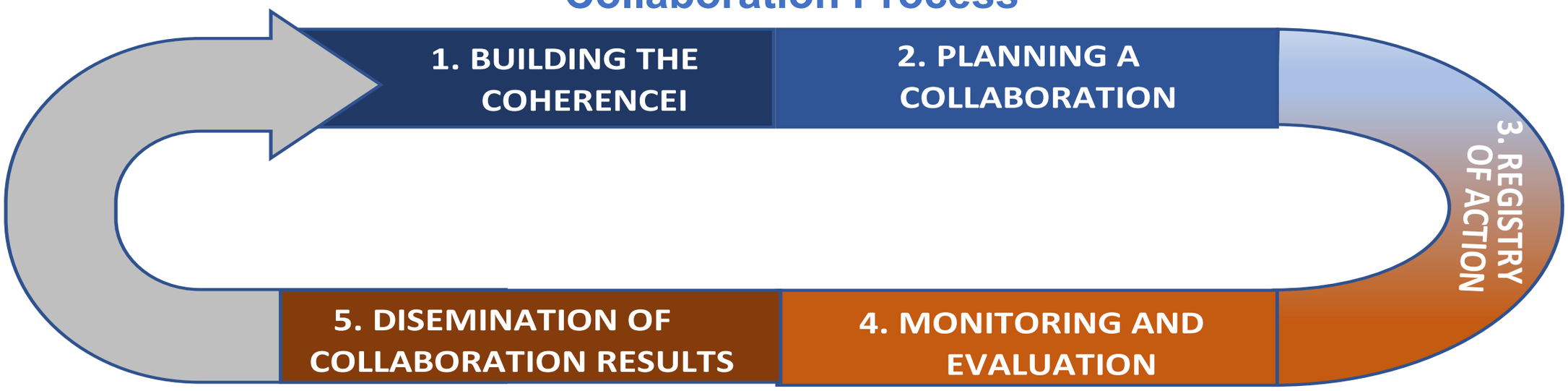
Enhance **COLLABORATION-BASED GOVERNANCE** from planning, monitoring/verification, and dissemination of success stories.

COMBATTING MARINE PLASTIC LITTER THROUGH COLLABORATIVE APPROACH

Collaboration Partners

- Ministries / Institutions / Local Governments
- Private Sector
- Local Community
- Academics / Universities
- Media

Collaboration Process



Output of Collaboration

1

COLLABORATION FORUM

- The forum builds coherence and explores real solutions and actions.
- The output is in the form of a proposal for an action for handling marine debris.

2

COLLABORATION COMMITMENT

- Collaboration commitment is the foundation for implementing collaboration.
- The output is a statement of willingness to collaborate.

3

DIGITAL PLATFORM FOR COLLABORATION

- The Digital Platform becomes a medium of collaboration, including a registry of actions and monitoring of their achievements.
- The output is in the form of a Collaboration Monitoring System

Collaboration Areas of Marine Litter Solution

Reuse, Reduce, Recycle (3R)	V	Waste Bank
	V	3R-Landfill / Recycling Facility
	v	Creative Recycled Products
	v	Plastic Bottle-paid Bus
	v	City's Initiatives to limit Single Use Plastic Bags
	v	Waste to Energy Initiatives
Alternatives to Plastic	v	Alternatives to Plastic Bags
	v	Alternative Food Packaging from Seaweed
	v	Eco-friendly Products
Clean-up Activities	v	Beach Clean-up
	v	Ocean Clean-up
	v	River Clean-up
	v	Waste Management
Monitoring, System and Institutional	v	Marine Litter Monitoring
	v	Marine Litter Forecasting and Analysis System
	v	Research and Development

4. Best Practices of Collaboration Approach

01 Waste Bank

Image by : Fahmi Hidayat

The main source of national waste generation comes from household activities, counted as 36% from total waste generated. The waste management approach must also be based on community participation, therefore building waste bank facilities is important to raise public awareness in applying the 3Rs (reduce, reuse, recycle) principles. In so doing, the community could be encourage to sort and process their waste independently.

Waste Bank has been operating in 31 Provinces and 218 Cities/Municipalities with total waste managed as follows: plastics (40,79%), papers (33,43%), aluminium/iron/zinc (21,7%), and the rest is metal, cans, and other. Waste bank has positive impacts for the environment, social, and economy. In addition to reducing the number of waste piling up in landfills or drifting into the environment, job opportunities and new sources of income are also the benefit from this initiative.

Best Practices of Collaboration Approach

02 Creative Recycled Products

Plastic Upcycling into Useful Containers

The recycling process begins by shredding and decomposing items into its basic material and forming it into another item, often into a material of lower quality than the initial item. Upcycling, on the other hand, is the process of transforming unused items into something more useful and valuable than the previous item.

Fashion Items made from Recycled Materials

Upcycling is identical to the process of recycling inorganic goods such as plastic bottles or glass, cans, cardboard, cloth, tires, beverage-packaging boxes, detergent packs, or other food wrappers. The purpose of this concept is to prevent wasting materials by optimizing existing ones.

Best Practices of Collaboration Approach

03 Plastic Bottle-paid Bus

Bus Suroboyo: Plastic Bottle-Paid Bus

Suroboyo Bus is a rapid transit service in the city of Surabaya which fares paid using plastic waste. This bus can carry as many as 67 people at maximum. The plastic waste collected will then be deposited to the Waste Bank to be recycled into more useful materials.

Image : Fahmi Hidayat

Suroboyo Bus Passengers are required to pay using plastic waste. For a one-way trip, each passenger must exchange 10 plastic mineral water cups, or 5 medium-sized plastic water bottles, or 3 large plastic bottles.

Best Practices of Collaboration Approach

04 Waste to Energy

Benowo Landfill Gas Power Plant

Benowo landfill receives and processes waste from the city of Surabaya with volume of up to 1,500 tons per day on an area of 37.4 hectares with the largest proportion (57-60%) of this waste is organic. This landfill serves 3 million people in Surabaya and could provide up to 2 MW of electricity from processed methane and 7 MW of Electricity from its gasification process (Thermal Process). PT. Sumber Organik holds a 20-year concession to manage Benowo Landfill as a result of an agreement with Surabaya City Government.

TOSS (Local Waste Processing Site)

TOSS is a waste management facility to process waste into alternative energy. The TOSS program is the product of collaboration between the College of Engineering (STT)-PLN Jakarta and PT Indonesia Power. The method used in the TOSS program is to process waste into pellets and briquettes as a renewable energy source. This TOSS program also often visited by local Balinese institutions, as well as national and international levels.

Best Practices of Collaboration Approach

05 Alternatives to SUP Bags

Banjarmasin's Purun as Single Used Plastic Replacement

One of the ways to reduce waste generation is through alternative of plastic bags. Some of it are traditional bags from every region in Indonesia, such as Purun (Banjar's traditional) and Noken (Papuan traditional bag).

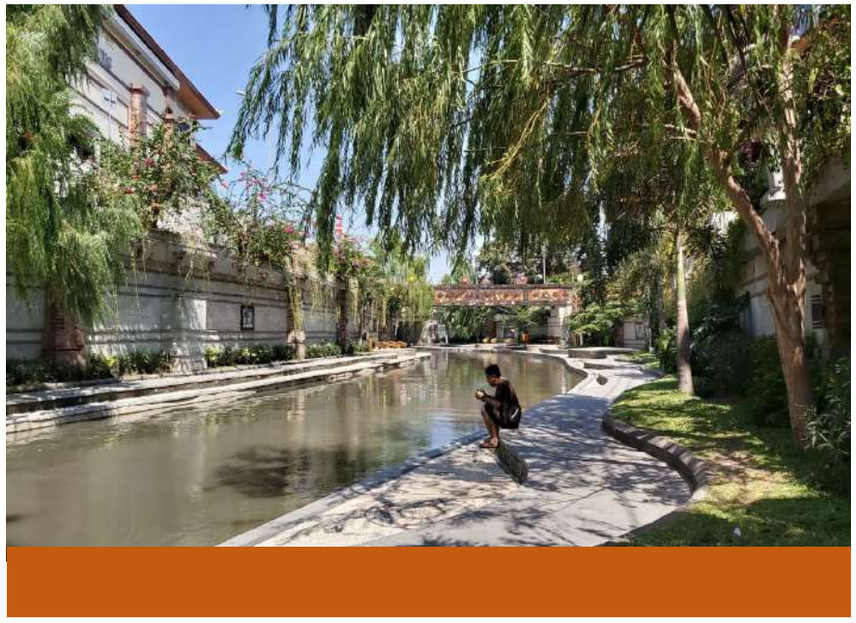
In the city of Banjarmasin, the Government have a policy in place to ban the use of plastic bags in modern retail stores. The policy has also encouraged local residents to be back using Purun to carry their groceries.

Best Practices of Collaboration Approach

06 River Clean-up Action

Trash Boom

The installation and operation of “Trash Boom” in Labuan Bajo engages environment-related communities in Sungai Kemiri and has been implemented since 2019 to reduce marine litter pollution into Labuan Bajo waters.



Tukad Badung

The city of Denpasar has demonstrated the initiative and innovation on managing domestic waste through the restoration of Tukad Badung. In addition to garbage, water quality improvements were also carried out at Tukad Badung using Plasma Nano Bubble Technology.

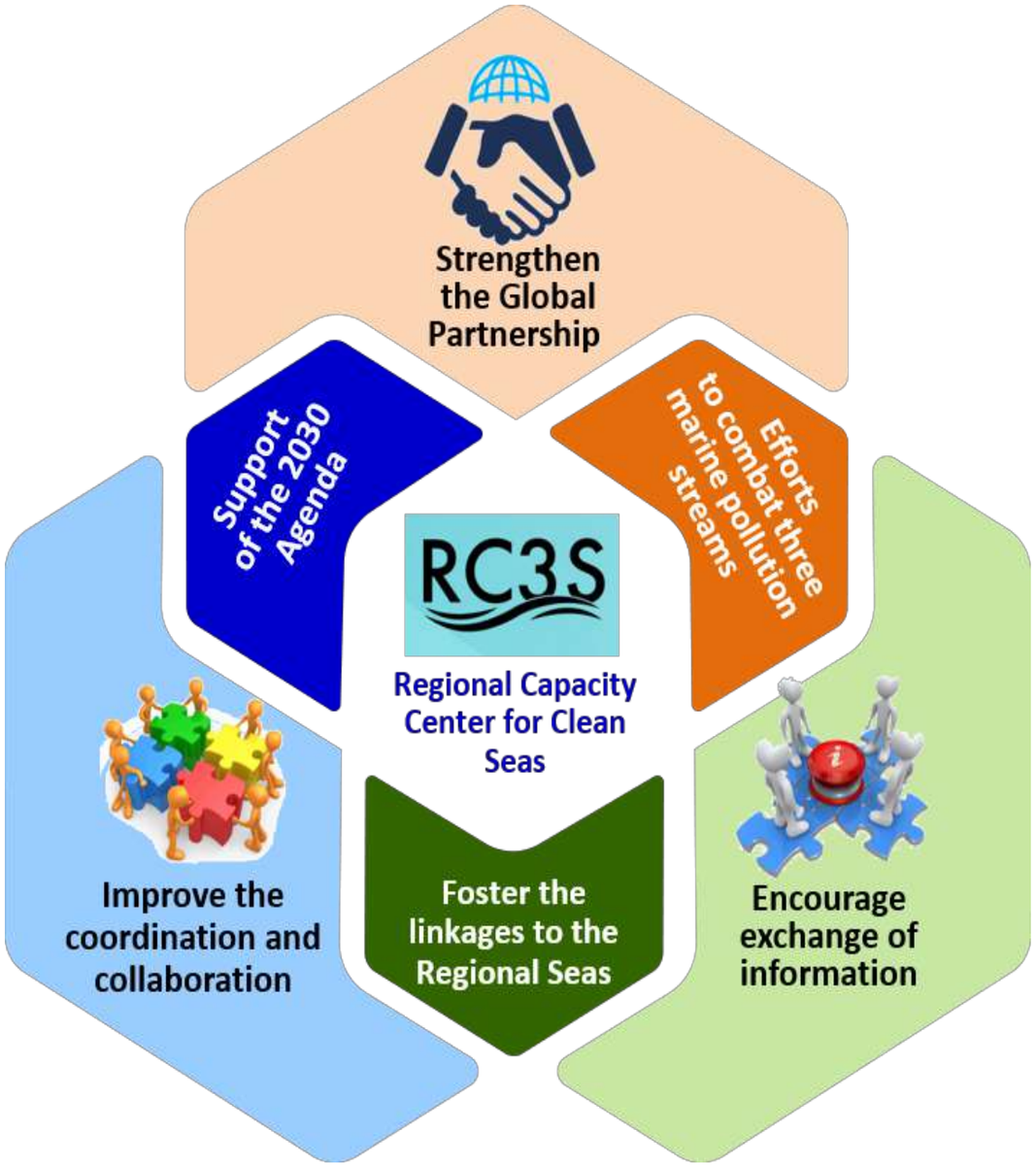
Best Practices of Collaboration Approach

07 | Coastal Clean-up

The clean-up activities has been carried out by stakeholders, namely governments, private sectors, and communities, and general public. The Ministry of Environment and Forestry alongside with partners have successfully reduced marine litter by as much as 38.5 tons with 15,000 participants involved in 21 locations throughout 2017-2019.

Various communities whose work are related to the coastal and marine environment have been undertaking Marine Litter Clean-up Actions. Trash Hero is one of the number of communities that has actions regularly, alongside with other communities.

5. REGIONAL CAPACITY CENTER FOR CLEAN SEAS (RC3S)

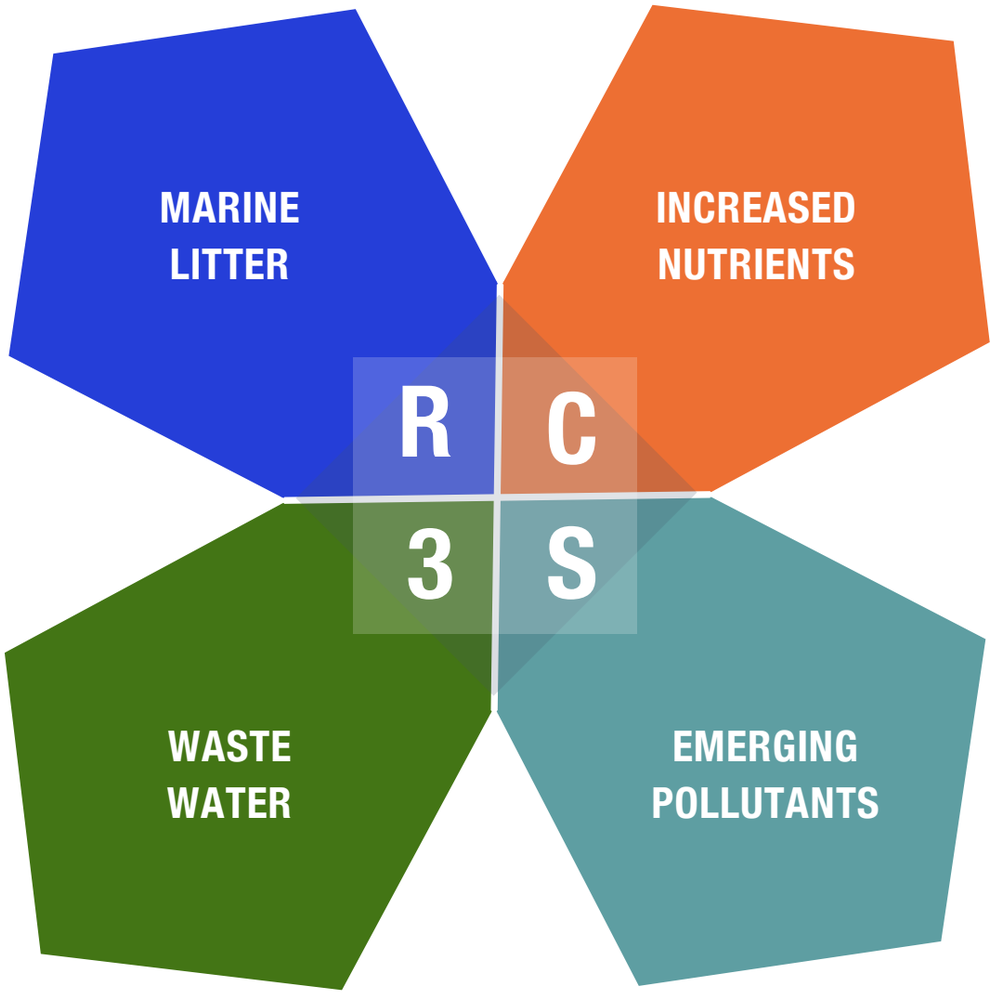


- Regional Capacity Center for Clean Seas (RC3S) is a center for strengthening capacities related to marine pollution control originated from land-based activities. The center was established by the Government of Indonesia as a firm commitment to implement Bali Declaration, adopted at the 4th Intergovernmental Review Meeting in 2018. RC3S is one of the many contributions from the Government of Indonesia to reduce marine pollution.

- RC3S functions as a hub for strengthening capacities through the development and implementation of marine pollution related programmes. In addition to that, RC3S is aiming to enhance the capacity of decision makers for marine pollution prevention.

ABOUT RC3S

- To assure the commitment of Bali Declaration on the Protection of the Marine Environment from Land-based Activities adopted at the fourth session of the Intergovernmental Review Meeting (IGR-4) and to assertively and effectively addressing regional priorities.
- Indonesia has established a Regional Capacity Center for Clean Seas (RC3S) in Bali, Indonesia.
- The purpose of RC3S is to contribute to the reduction and mitigation of land-based sources of marine pollution, in particular:
    a) marine litter,
    b) increased nutrients,
    c) wastewater, and
    d) emerging pollutants.



WORK OF **RC3S**

CLEAN SEAS KNOWLEDGE MANAGEMENT

Clean Seas Knowledge Management is a system to identify, manage, store and disseminate knowledge on solutions to marine pollution from land-based activities.

The activities in this category include:

(1) **Clean Seas Forum** provide opportunities to exchange information through webinars, workshops and exhibition.

(2) **Clean Seas Knowledge Platform** serves to produce, collect, disseminate and permanently preserve materials such as flyers, videos, policy briefs, and scientific papers

CLEAN SEAS CAPACITY BUILDING AND AWARENESS

Clean Seas Capacity Building and Awareness covers efforts to strengthen the capacity building and promote public awareness in taking effective measures to control the marine pollution from land-based activities.

The activities in this category include:

(1) **Cleas Seas Capacity Building** will be conducted through National and regional training programmes, workshops, and seminars.

(2) **Clean Seas Awareness** will promote public awareness to respond and taking effective measures the impact of marine pollution from land-based activities.

CLEAN SEAS SOLUTION MODEL

Clean Seas Solution Model is a framework for numerous initaitives and innovations on solutions to marine pollution from land-based activities which have been carried out to replicate them into broader scales.

The activities in this category include:

(1) **Clean Seas Solution Model on Marine Litter** will be develop through pilot projects for model creation.

(2) **Clean Seas Solution Model on Nutrient** will be develop through pilot projects for model creation.;

(3) **Clean Seas Solution Model on Wastewater** will be develop through pilot projects for model creation..

RC3S ACTIVITIES

CLEAN SEAS KNOWLEDGE MANAGEMENT

Clean Seas Forum

- Side Event Workshop at the 4th UN Environment Assembly (2019);
- Side Event Workshop at the Archipelagic & Island States (AIS) Forum (2019);
- Indonesia Pavilion at the COP25 UNFCCC (2019);
- Forum for Researchers and Practitioners (2019);
- Discussion on Collaboration to Build on Initiatives for the Protection of Marine Environment from Land-based Pollution (2019);
- Workshop on Private Sector's Best Practices: Innovative Solutions to Combat Marine Pollution from Land-based Activities (2019);
- Private Sectors, Youth and Community, and Local Government Solutions to Marine Pollution form Land-based Activities (2020);
- Scientific Research on Marine Pollution from Marine Litter (2020);
- Scientific Research on Marine Pollution from Increased Nutrient (2020);
- Scientific Research on Marine Pollution from Wastewater (2020).

Clean Seas Knowledge Platform

- Booklet "Best Practices Innovative Solutions to Combat Marine Litter" (2019);
- Clean Seas Knowledge Management Platform (2020).

CLEAN SEAS CAPACITY BUILDING AND AWARENESS

Clean Seas Capacity Building

- Training of Trainers on Monitoring & Assessment of Marine Plastic Litter & Microplastics (2019), collaboration wtth UNEP and COBSEA;
- Asian Regional Workshop on Data & Information Management Large Marine Ecosystems collaboration with PEMSEA (2019);
- Workshop on Marine Litter Monitoring for West Sumatera Province (2019);
- Capacity Building for Marine Litter Monitoring in Estuary Area in Collaboration with Center for South East Asian Studies (CSEAS) (2020);
- Capacity Building for Land-based Pollution and Integrated Coastal Management (ICM) with ICM Learning Sites (2020).

Clean Seas Awareness

- Beach Clean-up Asia World MUN in collaboration with UN Information Center (2019);
- ASEAN Coastal Clean-up with 21 Ambassadors from ASEAN and Dialogue Partners (2019).

CLEAN SEAS SOLUTION MODEL

2019

- Pilot Project "Waste to Energy".

2020

- Model to Mitigate Plastic Waste Leakages from River Bodies;
- Model to Monitor Marine Litter Transboundary Movement.

6. CONCLUSION

- There is a need to strengthen Capacity Initiatives and Innovation on Collaboration-based Solution for Marine Litter.
- Utilizing, developing and complementing existing initiatives and innovation.
- Leveraging the resources from various expertise to develop innovative solution for marine pollution control, including from civil societies, private sectors, and researchers.
- Promoting innovative solutions that are sustainable, economically and environmentally feasible, and reflect on local and regional circumstances.