



## "Plastik Sulit": Accelerating Circular Economy for Difficult Plastics in Indonesia

### Part I: Project Information

GEF ID

10546

Project Type

FSP

Type of Trust Fund

GET

CBIT/NGI

☐ CBIT

☐ NGI

Project Title

"Plastik Sulit": Accelerating Circular Economy for Difficult Plastics in Indonesia

Countries

Indonesia

Agency(ies)

ADB

Other Executing Partner(s)

Coordinating Ministry of Maritime Affairs (CMMA), Ministry of Environment and Forests (MOEF)

Executing Partner Type

Government

**GEF Focal Area**

Multi Focal Area

**Taxonomy**

International Waters, Focal Areas, Ship, Freshwater, River Basin, Pollution, Plastics, Fisheries, Coastal, Chemicals and Waste, Open Burning, Waste Management, Industrial Waste, Persistent Organic Pollutants, Unintentional Persistent Organic Pollutants, Disposal, Emissions, Cement, Mercury, Influencing models, Deploy innovative financial instruments, Convene multi-stakeholder alliances, Transform policy and regulatory environments, Demonstrate innovative approaches, Strengthen institutional capacity and decision-making, Stakeholders, Private Sector, Large corporations, SMEs, Individuals/Entrepreneurs, Local Communities, Communications, Awareness Raising, Public Campaigns, Behavior change, Education, Beneficiaries, Type of Engagement, Partnership, Consultation, Information Dissemination, Civil Society, Non-Governmental Organization, Community Based Organization, Gender Equality, Gender results areas, Capacity Development, Participation and leadership, Knowledge Generation and Exchange, Access to benefits and services, Gender Mainstreaming, Sex-disaggregated indicators, Capacity, Knowledge and Research, Innovation, Learning, Indicators to measure change, Knowledge Generation

**Rio Markers****Climate Change Mitigation**

Climate Change Mitigation 1

**Climate Change Adaptation**

Climate Change Adaptation 0

**Duration**

48 In Months

**Agency Fee(\$)**

676,712

**Submission Date**

3/24/2020

## A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
IW-1-1	GET	3,561,644	21,000,000
CW-1-1	GET	3,561,644	40,000,000
Total Project Cost (\$)		7,123,288	61,000,000

## B. Indicative Project description summary

### Project Objective

To reduce plastic pollution and support Indonesia's transition to a circular plastics economy through a multi-stakeholder value chain approach demonstrated at city level

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
Circular governance and Indonesia NPAP Action Roadmap	Technical Assistance	1. Functional circular system for plastics in Indonesia enabled at national level	1.1 Market analysis of plastic value chains completed  1.2. Governance mechanisms to support plastics circular economy developed  1.3 Financing roadmap and financing mechanisms to achieve Indonesia's plastic pollution reduction targets developed  (with NPAP co-finance support)	GET	1,800,000	1,000,000

Investments in reduction and management of commercially problematic plastics	Investment	2. Circular business hub for problematic plastics established at city level	<p>2.1 Collaborative Forums for catalytic action established for selected cities</p> <p>2.1 Circular economy for commercially problematic plastics identified and piloted in one city</p> <p>2.2 Circular Business Hub, including Circular Economy Knowledge Hub (CEKH) and Circular Economy Test Facility (CETF) established and operated in one city</p> <p>2.3 Behavior change and capacity-development programs designed and implemented across selected cities (with NPAP co-finance support)</p>	GET	3,800,000	57,000,000
Knowledge management	Technical Assistance	3. Circular economy knowledge, technologies and innovations promoted and shared	<p>3.1 Multi-stakeholder capacity building, training and skills development on plastics circular economy conducted</p> <p>3.2 Innovation and technology events to share new and emerging solutions convened (with NPAP co-finance support)</p> <p>3.3 Knowledge products to support decision making, solutions and collaboration developed and disseminated</p> <p>3.4 Project monitoring and evaluation conducted</p>	GET	1,184,084	2,000,000
Sub Total (\$)					6,784,084	60,000,000

#### Project Management Cost (PMC)

GET	339,204	1,000,000
Sub Total(\$)	339,204	1,000,000
Total Project Cost(\$)	7,123,288	61,000,000

## C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
GEF Agency	Asian Development Bank	Loans	Investment mobilized	60,000,000
Others	National Plastic Action Partnership (NPAP) Secretariat	In-kind	Recurrent expenditures	1,000,000
			<b>Total Project Cost(\$)</b>	<b>61,000,000</b>

## Describe how any "Investment Mobilized" was identified

Through the ADB Country Operations Business Plan for Indonesia

## D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
ADB	GET	Indonesia	International Waters	International Waters	3,561,644	338,356	3,900,000
ADB	GET	Indonesia	Chemicals and Waste	POPs	3,561,644	338,356	3,900,000
Total GEF Resources(\$)					7,123,288	676,712	7,800,000



## E. Project Preparation Grant (PPG)

PPG Required



## PPG Amount (\$)

182,650

## PPG Agency Fee (\$)

17,350

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
ADB	GET	Indonesia	International Waters	International Waters	91,325	8,675	100,000
ADB	GET	Indonesia	Chemicals and Waste	POPs	91,325	8,675	100,000
Total Project Costs(\$)					182,650	17,350	200,000

## Core Indicators

Indicator 5 Area of marine habitat under improved practices to benefit biodiversity (excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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Indicator 5.1 Number of fisheries that meet national or international third party certification that incorporates biodiversity considerations

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
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Type/name of the third-party certification

Indicator 5.2 Number of Large Marine Ecosystems (LMEs) with reduced pollutions and hypoxia

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (achieved at MTR)	Number (achieved at TE)
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0	0	0	0
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LME at PIF

LME at CEO Endorsement

LME at MTR

LME at TE

## Indicator 5.3 Amount of Marine Litter Avoided

Metric Tons (expected at  
PIF)

Metric Tons (expected at CEO Endorsement)

Metric Tons (Achieved at MTR)

Metric Tons (Achieved at TE)

297,089.00			
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## Indicator 10 Reduction, avoidance of emissions of POP to air from point and non-point sources (grams of toxic equivalent gTEQ)

Grams of toxic equivalent gTEQ  
(Expected at PIF)Grams of toxic equivalent gTEQ (Expected  
at CEO Endorsement)Grams of toxic equivalent gTEQ  
(Achieved at MTR)Grams of toxic equivalent gTEQ  
(Achieved at TE)

380.20			
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## Indicator 10.1 Number of countries with legislation and policy implemented to control emissions of POPs to air (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 10.2 Number of emission control technologies/practices implemented (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	85			
Male	65			
Total	150	0	0	0

## Part II. Project Justification

### 1a. Project Description

#### Global Environmental Problems, Root Causes and Barriers

##### Global Perspective on Plastics and Plastic Leakage

Plastics are a ubiquitous element of modern life appearing in nearly every aspect of human activity. Packaging, electronics, automotive, agriculture, health care and consumer goods all rely heavily on plastics. However, the current linear production and consumption pattern of 'take, make, use, and dispose' is not sustainable. Global production of plastics has increased more than twenty times between 1964 and 2015. The current annual output of 322 million metric tonnes (MT) is expected to double by 2035 and almost quadruple by 2050.

Plastics may have played a pivotal role in technological and social development since their creation, but they are also a primary driver of natural resource depletion, waste proliferation, environmental degradation, and climate change. Over 99% of plastics are produced using non-renewable chemicals derived from oil, natural gas, and coal, which accounts for 6% of global oil production. If current consumption patterns continue, the plastic industry could account for 20% of global oil consumption by 2050, further accelerating global warming and climate change (UNEP, 2018).

Plastics are generally categorized into seven primary groups:


						
<b>PETE</b>	<b>HDPE</b>	<b>PVC</b>	<b>LDPE</b>	<b>PP</b>	<b>PS</b>	<b>OTHER</b>
polyethylene terephthalate	high-density polyethylene	polyvinyl chloride	low-density polyethylene	polypropylene	polystyrene	other plastics, including acrylic, polycarbonate, polyactic fibers, nylon, fiberglass
soft drink bottles, mineral water, fruit juice container, cooking oil	milk jugs, cleaning agents, laundry detergents, bleaching agents, shampoo bottles, washing and shower soaps	trays for sweets, fruit, plastic packing (bubble foil) and food foils to wrap the foodstuff	crushed bottles, shopping bags, highly-resistant sacks and most of the wrappings	furniture, consumers, luggage, toys as well as bumpers, lining and external borders of the cars	toys, hard packing, refrigerator trays, cosmetic bags, costume jewellery, CD cases, vending cups	

Figure 1: Plastics categories

Among the seven groups, PET (PETE) is the most widely and easily recycled type of plastic as it can cheaply and easily be formed into other products (e.g., fiber, bottles, containers, etc.). HDPE, LDPE, and PP are recyclable, but are often not recycled or problematic to recycle due to their lower economic value, inefficient collection and segregation or a lack of recycling facilities. This means that a minimum of 54% (or 174 million tons per year) of plastics globally operate on a linear economy and are lost to the environment and economy each year.

The manufacturing process for plastics has significant negative impacts on the environment through natural resource depletion, energy use and process emissions. The optimum solution is the overall avoidance of plastics in day to day use. However the primary, and most visual, route for leakage of plastics to the environment is through the mismanagement of waste materials, with solid waste management being one of the most neglected municipal services across developing Asia.

This is particularly apparent in developing countries where low-value plastics are observed freely entering the environment, either directly from households or during the disposal of wastes in open dumpsites, non-engineered landfills, and near or in waterways and oceans. At the local level, massive volumes of plastic are also being burnt at households or by illegal recycling factories, causing the release of Persistent Organic Pollutants (POP's) and particulate air pollution with the associated public health concerns.

#### Marine plastic debris

It is estimated that more than 150 million MT of plastic waste has accumulated in the world's oceans, with an additional 4.6-12.7 million MT added every year (Jambeck et al. 2015). Approximately 20% of marine plastic debris comes from international water sources (e.g., fisheries, aquaculture, illegal dumping, ghost fishing gear). The majority of pollution (>80%) originates from land-based plastic pollution, mainly caused by mismanagement of municipal and industrial waste.

Marine plastic debris is a complex multi-sectoral problem, but one largely resulting from (i) mass volumes of low-residual value, single-use, non-degradable plastic; and (ii) inefficient and unsustainable SWM systems. In 2015, plastic packaging waste, which is mostly single-use material designed for immediate disposal, accounted for 47% of the plastic waste generated globally. Such low-residual-value plastic is not collected by waste pickers as it cannot be resold, and so it is more likely to leak into the ocean. Further, plastic waste blocks waterways and sewers, exacerbating flooding and creating breeding grounds for pests that transmit vector-borne diseases.

Marine debris may be one of the fastest growing threats to the health of the world's oceans. It is now estimated that marine plastic is causing a one to five percent decline in the benefits that humans derive from oceans, particularly those relating to fisheries, aquaculture, recreation, natural heritage and human wellbeing. This decline in benefits equates to 0.5 to 2.5 trillion US \$ per year. Hundreds of marine species are affected, as are coral, mangrove and seagrass ecosystems. A quarter of all fish caught contain microplastic. The long-term impact of microplastic on human health remains largely unknown, but exposure is clear: microplastic particles have now been identified in drinking water and human stool samples across the world.

### Circular economy as the solution to plastic pollution

Avoidance, elimination and substitution are the key steps in reducing plastic pollution however action and investments are needed across the entire plastics system. Adopting true Circular Economy best practice, combined with increased and effective waste management, provides the solution for decoupling plastic use from the consumption of finite resources and plastic pollution to the environment.

A circular economy redefines current production and consumption patterns in a way where business and growth support positive economic, social and environmental benefits throughout supply chains, business models, and life cycles (e.g., from the choice of raw materials, design of products/services, to recycling and end-of-life).

The transition from a linear to circular economy requires collaborative rethinking of existing systems and actions across multiple sectors and industries. The New Plastics Economy Global Commitment, led by the Ellen MacArthur Foundation in collaboration with the UN Environment Program, unites business, governments, and civil society organizations behind a common vision of a circular economy for plastic "where plastic never becomes waste" (Ellen MacArthur Foundation, 2018). The Global Commitment defines three actions to realize the vision by 2025:

- **Eliminate** all problematic, avoidable and unnecessary plastic items;
- **Innovate** to ensure that the plastics we do need are reusable, recyclable, or compostable;
- **Circulate** all the plastic items we use to keep them in the economy and out of the environment.

All three actions are important and depend on each other to achieve the vision. The waste hierarchy of the circular economy suggests an order of approach:

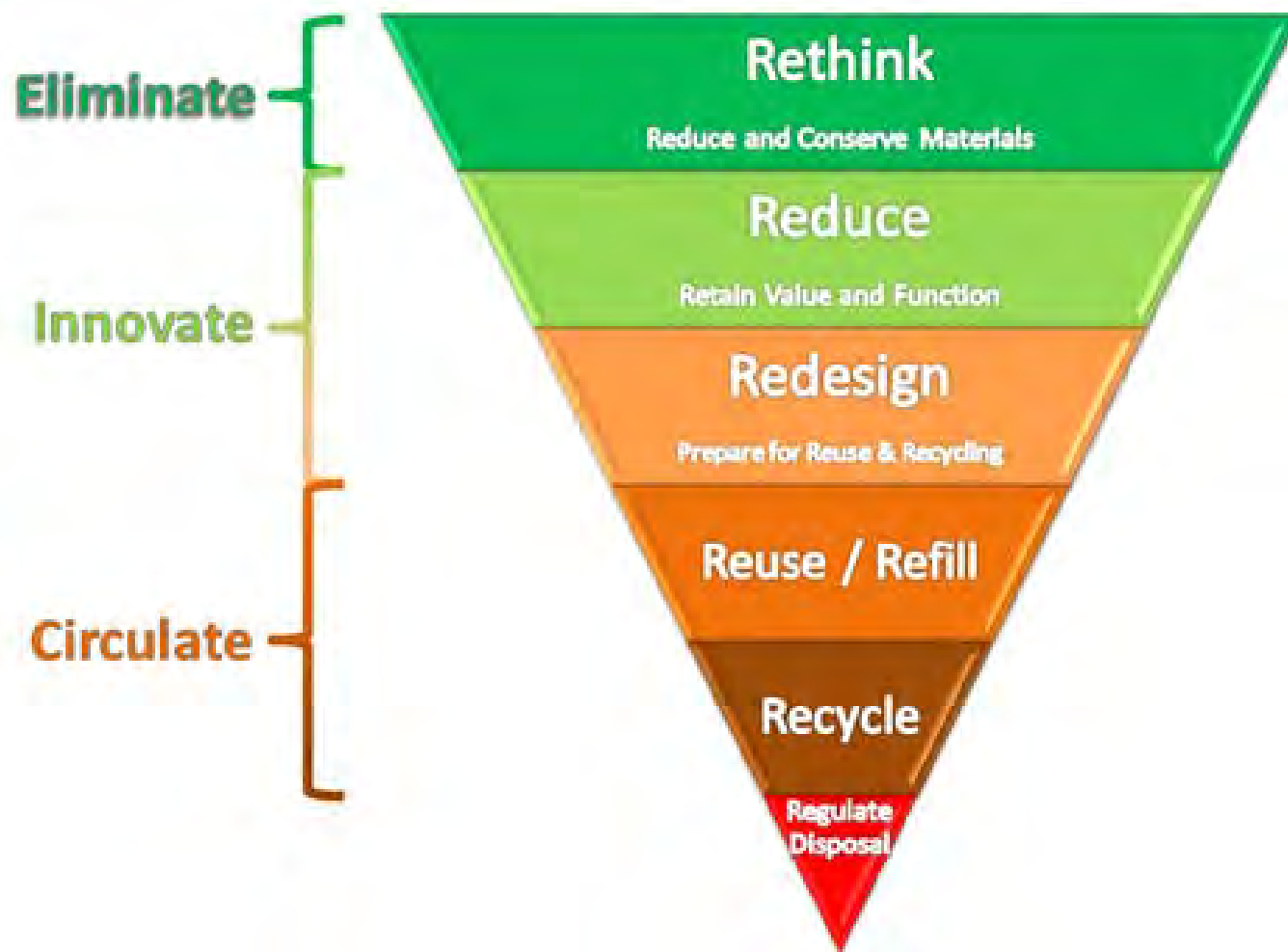


Figure 2. Action hierarchy in the circular economy  
(Source: adapted from International Solid Waste Association)

Adopting a hierarchical and value chain approach means that uniform background knowledge and continuous exchange of challenges and gaps among actors needs to be established. All actors from the various life cycles must be represented and engaged to formulate implementable solutions and the proposed GEF project achieves this in a two step process through initial analysis (Output 1.1) and then in depth engagement through Collaborative Forums (Output 2.1)

As shown in Figure 2, the three actions (*Eliminate, Innovate and Circulate*) require avoiding virgin resource consumption wherever possible. Elimination and Innovation allow the circular economy to avoid the need for plastics altogether, where this cannot be immediately achieved, circulation can be enhanced through waste prevention measures and recycling.



For plastic never to become waste, it must either be avoided completely or become a valuable material used in items where necessary, in small amounts with the longest possible projected lifespan. In a circular economy, the plastic materials used remain as a valuable commodity even at its end-of-life, and can seamlessly integrate back into the manufacturing of new plastic items in place of virgin plastic.

### **Importance of supporting integrated waste management:**

Paving the way for the New Plastics Economy requires a systemic shift towards sustainable resource management within the planetary boundaries. This needs capacity development and investments in all three tiers (Eliminate, Innovate, Circulate). An holistic approach must be timely and coordinated to establish a fully integrated, circular economy system. However even the most resource-efficient future economy, with reduced plastic usage, will require systems to capture and circulate end of life products.

To address this challenge, investments in waste avoidance, prevention, minimization, collection and recycling need to be made during and beyond the transition from a linear economy to a fully circular economy. This has been acknowledged by the National Plastics Action Partnership (NPAP)<sup>[1]</sup> facets C, D, & E (*see below*). The transition to a circular plastics economy can only be done incrementally for the following reasons:

1. Transitioning to a circular economy requires long term investments and behavior change. Governments need to develop and implement new policies, the private sector needs to redesign business models and products, and consumers and communities need to shift habits. Economies need to adjust as well. This all takes time and it is essential to immediately manage the volumes of low-quality plastic waste already in circulation, as these are subject to unsustainable disposal practices today and in the foreseeable future.
  2. Managing and phasing out of existing volumes of 'legacy' plastic waste should be considered a necessary component in the transformation to a circular plastics economy.
  3. Circular economy approaches, tools and methods need to be systematically introduced and internalized into the existing frameworks for sustainable urban and infrastructure development. This requires leadership from government, industry and civil society, and new types of investments.
  4. In order for industry to make adjustments to production practices and transform existing value chains, there will need to be technologies and innovations that are 'fit for purpose' with a strong and sustainable business case developed and adopted.
  5. Curbing reliance on virgin polymers must be supported by consumers. Consumers must be educated on the quality of recycled feedstocks driven by innovation and investment in recycling and manufacturing processes.
- . Indonesia has a diverse population of over 270 million people, spread across an archipelago of 17,500 islands, and as such, any rollout of programs and investments will need to be strategic and well-coordinated.

### **Indonesian baseline scenario and any associated baseline projects**

Indonesia is the largest archipelago in the world with 17,500 islands and 81,000 kilometers of coastline. Of the top "source" countries ranked by proportions of mismanaged plastic waste within the coastal zone, Indonesia places second, after People's Republic of China (PRC). Based on research supported by the NPAP an estimated 70% (4.8 million tons / year) of plastic pollution<sup>[2]</sup> in Indonesia is mismanaged: 48% openly burned, 13% dumped on land or poorly managed official dump sites, and 9% leaking into waterways and the ocean. Sixty percent (60%) of Indonesian households are not part of any regularized or formal waste collection system. Despite a ~3% growth in waste imports in 2018, approximately >95% of ocean plastic from Indonesia was generated within Indonesia.

Pollution levels vary greatly across plastic types and geographies. Post-consumer plastic films (e.g., flexible plastics such as bags, sachets, wrappers, multi-layer plastics) are twice as likely to leak into the environment as rigid plastics (e.g., bottles). The latter has become a valuable commodity for recyclers in some parts of Indonesia. Many household essentials (e.g., food, personal and home care products) are packaged in laminated plastic sachets. These small

quantities are more financially accessible to consumers who cannot afford bigger quantities. Similarly, the geographies that contribute most to plastic pollution are rural locations and small- to medium-sized cities. These areas represent 60% of Indonesia's population, and 72% of plastic pollution. The archipelagic nature of the country further exacerbates the problem; creating logistical infrastructure to reach small and/or isolated islands is challenging and costly.

Government agencies, non governmental organisations, private sector companies, universities and civil society organizations are all working on initiatives to prevent and clean up plastic pollution across Indonesia. However, projections show that without more ambitious action, plastic pollution in Indonesia will grow by 30% from 2017 to 2025 – from an estimated baseline ocean leakage of 620,000 tons/year in 2017 (~10% of plastic waste generation) to 790,000 tons/year in 2025.

The Government of Indonesia has responded to the above situation by designing the National Plan of Action on Marine Debris 2017-2025 (NPOA), which has the ambitious target of reducing 70% of marine debris by 2025. The NPOA consists of five main pillars: (i) improving behavioural change, (ii) reducing land-based leakage, (iii) reducing sea-based leakage, (iv) reducing plastics production and use, and (v) enhancing funding mechanisms, policy reform and law enforcement. The scope of the plan is wide-ranging, as it covers local government responsibility (river basin authorities), national government (through Coordinating Ministry of Maritime Affairs and Fisheries), industry (producers), civil society and academe / research sectors - with the aim of reducing marine plastic debris by 70% in 2025. The country pledged to invest up to USD 1 billion over 8 years for plan implementation at the "Our Oceans" conference in Denpasar, Bali (October 2018).

In March 2019, Indonesia joined forces with the Global Plastic Action Partnership (GPAP)<sup>[3]</sup>, a public-private platform dedicated to fostering action to combat the plastic pollution crisis, to launch the first National Plastic Action Partnership (NPAP). Systemiq and NPAP collaborated to prepare an insight report called "Indonesia National Plastic Action Partnership: An Analysis and Action Plan to Radically Reduce Plastic Pollution in Indonesia". The report, referred to in this document as the "**NPAP Action Roadmap**" outlines the challenges the country will face to achieve the targeted 70% reduction in ocean plastic leakage by 2025 – and articulates Systems Change Scenarios as elaborated below:

### NPAP ACTION ROADMAP SYSTEM CHANGE SCENARIOS

1. **Reduce or substitute plastic** usage to prevent the consumption of more than a million tonnes of plastics per year by 2025 by switching to reuse and new delivery models, changing behaviours and replacing plastics with alternative materials that yield improved environmental outcomes.
2. **Redesign plastic products and packaging** for reuse or high-value recycling with the ultimate goal of making all plastic waste a valuable commodity for reuse or recycling.
3. **Double plastic waste collection from 39% to more than 80%** by 2025 by boosting state-funded and informal or private sector collection systems. This implies expanding plastic waste collection to four million new households each year until 2025. Give priority to medium and small cities as these represent three quarters of plastic pollution.
4. **Double current recycling capacity** by building or expanding plastic sorting and recycling facilities to process an additional 975,000 tonnes per year of plastics by 2025. To achieve this, large scale recycling hubs need to be strengthened in Java and developed in urban centres outside Java.

5. **Build or expand controlled waste-disposal** facilities to safely manage an additional 3.3 million tonnes of plastic waste per year by 2025 for the disposal of non-recyclable plastics, and plastic waste generated in locations without recycling facilities. A step up in enforcement of illegal waste burning and dumping is required to limit pollution in areas that have collection.

## Barriers

The NPOA and NPAP identify a considerable number of barriers and challenges to prevent, reduce and control plastic pollution and establish a circular and pollution-free plastics system. Some of these challenges are consumer behaviour based, some are driven by industry inertia and some are a result of technical know-how and lack of accountability, as the challenges associated with plastics cut across industries, sectors and geographic and demographic boundaries.

The main barriers at a policy level have been a combination of absent or ill-conceived legal frameworks, weak enforcement, and absence of incentives. Though there have been recent commitments by the Indonesian Government to introduce laws addressing circular economy approaches, challenges remain in implementing these policies while avoiding or minimizing unintended impacts to livelihoods, particularly for the most vulnerable members of Indonesian society.

The main barrier on the consumption side has been the lack of awareness and resistance to change of the general public and private sector. Despite the growing number of initiatives and campaigns, they are generally not aware of the true costs, adverse effects or the severity of plastic pollution to human health, economics and environment. The role of communities and civil society groups (e.g., religious groups, youth, and women groups) needs to be strengthened further.

The transition to a circular economy presents an opportunity to reframe the community as a co-creator of new business models, e.g., entrepreneurs in cooperatives, enabling them to regain financial in-dependency and thus reducing economic inequality. Civil society groups can promote formal and informal education on waste management and put more pressure on the public and private sectors to accelerate innovation, policies, and systemic change.

There has been resistance from the private and public sector to implement waste preventive measures and circular business models and to adopt the best available technology / best environmental practices (BAT/BEP) due to prohibitive costs, loss of competitive advantage and potentially delayed financial returns.

## Associated projects

Numerous donor governments, multilateral development banks (MDBs), private companies, global alliances, and NGOs are planning or implementing programs or projects in the region. The programs cut across sectors, levels of government, and themes/action areas. Most are in early phases of implementation (see Annex D: Ongoing waste management and circular economy initiatives in Indonesia).

The proposed GEF project has been designed to fully integrate with the NPAP Action Roadmap and potentially align with Project STOP (Stop Ocean Plastics), an initiative co-founded by SYSTEMIQ and Boraelis to further enhance the work of GEF and NPAP. The STOP project core objectives are (i) zero leakage of waste into the environment; (ii) increase recycling of plastics; (iii) socio-economic benefits for local communities; and (iv) economic sustainability. As of January 2020, STOP has been piloted in three regions in Indonesia, with plans to scale to 40 more, potentially including Cirebon in Northern Java. Taking an integrated approach would mean that a greater pool of knowledge and experience is available to each project.

## GEF- supported projects

A number of GEF-linked programs and projects are also examining problems related to plastic pollution. These include (i) the Coordinating Body on the Seas of East Asia (COBSEA) through its Regional Action Plan on Marine Litter funded by the Swedish International Development Cooperation Agency (SIDA) for USD 6.4 million; (ii) Partnerships in Environmental Management of the Seas of East Asia (PEMSEA) through its work on integrated river basin and coastal area management at priority sites in the region and the Sustainable Development Strategy for the Seas of East Asia; (iii) the Arafura-Timor Seas second phase; (iv) the Indonesian Seas Large Marine Ecosystem Program; and (v) the Sustainable Bay of Bengal Large Marine Ecosystem (BOBLME) Program.

Under GEF 6, the MSP (GEF ID 9681) “Addressing Marine Plastics – A Systemic Approach” aims to capitalize on a growing baseline of knowledge on marine plastic sources, pathways and environmental impacts to inform the GEF and apply a systemic approach to global plastic issues. This project will cover Indonesia, Viet Nam and the Philippines, and is executed by the Ellen MacArthur Foundation, the Ocean Conservancy and other partners.

Within the GEF 7 cycle, this project could also be aligned with a project proposed by ADB with the PRC National Development and Reform Commission on “Demonstrating Eco-Compensation Mechanisms in Yangtze River Basin (YRB)”. Among others, issues related to agricultural plastics would be given high priority, given that the Yangtze River is the largest contributing catchment to plastic pollution on the planet, with an annual input of 0.33 (range 0.31–0.48) million tons of plastic discharged into the East China Sea.

### ADB projects

ADB’s integrated solid waste management investment portfolio totaled just \$344 million from 2010 to 2017, compared with a total investment of \$15.6 billion in the urban sector. This reflects the chronic underinvestment in solid waste management systems across the region, the challenges faced and the lower priority of these projects for governments.

Further, ADB is preparing the proposed regional GEF-7 Regional MSP *‘Promoting Resource Efficiency and Circularity to Reduce Plastic Pollution for Asia and the Pacific’* - which has already started with ADB technical assistance co-funding. Indonesia is one of five Southeast Asian countries participating in this project, which will support national and city action planning, knowledge, and regional cooperation activities, among others. For Indonesia, the regional MSP support will focus on development of an action plan for Cirebon (tentatively) that looks at the entire system, including institutional arrangements and capacity building needs; policy and regulations to promote circular economy; infrastructure and technology needs; local business and community behaviors, trends and triggers; roles, responsibilities and actors; implementation and financing plans and mechanisms. The action plan development will be integrated, multi-stakeholder and participatory. ADB technical assistance co-funding will also support a small pilot demonstration of ISWM and plastics circular economy in Cirebon, covering around 4,000 households in one of the slum communities. Activities proposed would include separation of wet and dry waste at the household level creating favorable conditions for further processing/use of plastics and organic waste; small business and community behavior change campaigns; innovative PPP contracting of micro-enterprises to support the new system; small business and livelihood development support; and partnerships with local reprocessing/recycling companies. The work under the regional MSP and ADB co-funded activities (including the Livable Cities program below) will be closely synchronized with the current proposed national GEF project for Indonesia. The respective synergies would be better defined / interlocked during project preparation (for both proposed initiatives).

### *ADB Livable Cities program in Indonesia*

Discussions are currently ongoing with Indonesia’s Ministry of Public Works and Housing for a possible loan of around \$ 100 million for Cirebon, Makassar, Palembang, Banjarmasin and Sorong as part of ADB’s Livable Cities program. A pre-feasibility study has been prepared for Cirebon City (October 2019), which recommends interventions focusing mostly on Lemak Wungkuk slum area, with benefits also extending to the adjoining Kasepuhan slum area (especially in

relation to the coastal development and mangrove restoration scheme and development of health and education services with Lemak Wingkuk's slum area). These two areas are shown in Figure 3 below. The outputs of the proposed project in Cirebon may include:

- Coastal area investment projects (e.g. marina for fishing, transport and recreation, food kiosks), road access and recreational facilities for visitors from the contiguous communities and city at large;
- Protection and enhancement of mangrove forests and agricultural land;
- Flood protection interventions;
- Road network improvements including a new coastal road, widening of lateral roads, and improved pavements;
- New housing apartment buildings (2-3 storeys high) above a ground floor containing shops, workshops and community services, plus relocation options;
- Sewage treatment and water supply services;
- Drainage improvements;
- Firefighting through road widening; and
- Solid waste management, including provision of waste bins to households (or shared waste bins), collection and transport of waste to temporary storage facilities by light waste collection vehicles for sorting, composting, and packing of recyclable materials.

This proposed GEF project is expected to provide additionality to this baseline investment, as described in the Alternative Scenario below. As the loan preparation is still in very early stages, further details will be fleshed out and confirmed during the project preparation phase.

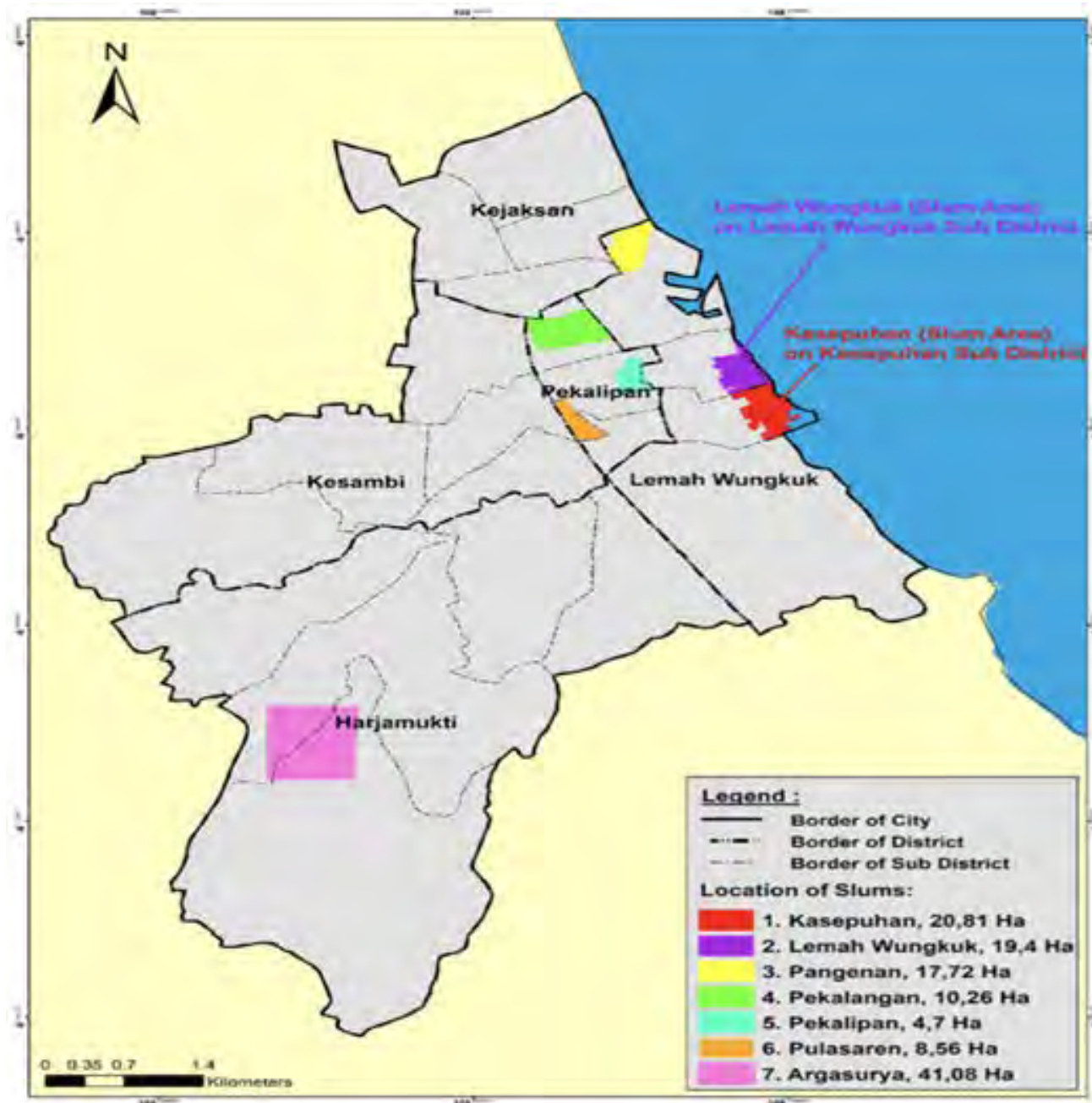


Figure 3: Map of Cirebon showing location of Lemah Wungkuk and Kasepuhan slum areas

NPAP Co-financing:

The proposed GEF project will benefit from the contribution of the GPAP and NPAP through the World Resources Institute (WRI) in Indonesia. The contribution will be in the form of “in-kind” co-financing, which will cover i) administrative overheads and office space, ii) staff / consultant time, iii) travel and logistics, iv) communications, and vi) prior investments in establishing the Indonesian baseline (e.g. work of Systemiq). It is anticipated that through its co-financing, NPAP Secretariat will: i) raise the profile of the Action Roadmaps and circular plastic economy at national level, ii) convene and coordinate NPAP Steering Board and Task Force activities, iii) contribute to content creation for specific actions within the terms of various Task Forces, for example, a Finance Specialist working on the financing roadmap (Output 1.3), iv) establish global networking linkages through the GPAP/World Economic Forum (WEF), World Resource Institute and others. NPAP is in its nascent stages of setting up in Indonesia, and has ongoing expansion plans. During project preparation, a more accurate estimate of co-financing will be reviewed and confirmed.

**Proposed alternative scenario** (with a brief description of expected outcomes and components of the project)

**Project approach:**

The proposed GEF project builds on the significant analysis done to date supported by GPAP/NPAP (as described above) and takes forward NPAP Action Roadmap recommendations for implementation in close collaboration and coordination with NPAP and the Government. The proposed GEF project will take a holistic approach to supporting Indonesia’s plastic pollution reduction efforts, but in order to serve as a catalyst in facilitating the transition to a circular plastics economy, focuses more on the NPAP System Change Scenarios A and B:

**A. Reduce or substitute plastic** usage to prevent the consumption of more than a million tonnes of plastics per year by 2025 by switching to reuse and new delivery models, changing behaviours and replacing plastics with alternative materials that yield improved environmental outcomes

**B. Redesign plastic products and packaging** for reuse or high-value recycling with the ultimate goal of making all plastic waste a valuable commodity for reuse or recycling.

The integration of the proposed GEF project outcomes and outputs with the NPAP Action Roadmap is illustrated in Table 1.

		NPAP ROADMAP SYSTEMS FOR CHANGE (SCS)				
		A	B	C	D	E
	DIRECT EFFECTS					
	INDIRECT EFFECTS					
G	<b>Outcome 1: Functional Circular Economy for</b>					
E	<b>Plastics in Indonesia Enabled</b>					
F	<b>Output 1.1: Market Analysis of Plastic</b>					
	<b>Value Chains Completed</b>					
P	<b>Output 1.2: Governance Mechanisms to</b>					
L	<b>Support Plastics Circular Economy</b>					
A	<b>Developed</b>					



S T R U C T U R E S A N D O U T P U T S	<b>Output 1.3:</b> Financing Road Map and Financing Mechanisms to Achieve Indonesia's Plastic Pollution Reduction Targets Developed	✓✓	✓✓	✓	✓	
	<b>Outcome 2:</b> Circular Plastic Economy Tested at City Level Through Circular Business Hub	✓✓	✓✓	✓	✓	
	<b>Output 2.1:</b> Collaborative Forums for Catalytic Action Established in Selected Cities	✓✓	✓✓			
	<b>Output 2.2:</b> Circular Market for Commercially Problematic Plastics Identified and Piloted in Cirebon (Tentative)	✓✓	✓✓	✓	✓	
	<b>Output 2.3:</b> Circular Business Hub Established and Operated in Cirebon (Tentative)	✓✓	✓✓	✓	✓	
	<b>Output 2.4:</b> Behaviour Change and Capacity Development Programs Designed and Implemented Across Selected Cities	✓✓	✓✓	✓	✓	✓
	<b>Outcome 3:</b> Circular Economy Knowledge, Technologies and Innovations Promoted and Shared	✓✓	✓✓	✓	✓	✓
	<b>Output 3.1:</b> Multi-stakeholder capacity building, training and skills development on plastics circular economy conducted	✓✓	✓✓	✓	✓	✓
	<b>Output 3.2:</b> Innovation and technology events to share new and emerging solutions convened	✓✓	✓✓	✓	✓	✓
	<b>Output 3.3:</b> Knowledge products to support decision making, solutions and collaboration developed and disseminated	✓✓	✓✓	✓	✓	✓
	<b>Output 3.4:</b> Project monitoring and evaluation conducted	✓✓	✓✓	✓	✓	✓

Table 1: Integration of proposed GEF project Outcomes / Outputs with NPAP Systems Change Scenario

In line with the New Plastics Economy Global Commitment, the proposed GEF project follows best practice circular economy approaches, supporting the Government and stakeholders to engage in these key actions:

- **Eliminate** all problematic, avoidable and unnecessary plastic items;
- **Innovate** to ensure that the plastics we do need are reusable, recyclable, or compostable;



- **Circulate** all the plastic items we use to keep them in the economy and out of the environment.

All three actions are important and depend on each other, and the transition from a linear to circular economy requires collaborative rethinking of existing systems and actions across multiple sectors and industries; across the entire plastics systems, throughout supply chains, business models, and life cycles. Engaging all levels of the government in these actions will ensure systemic and sustainable change.

Thus, the proposed GEF project is structured along three components that combine activities at national and sub-national levels (cities, but likely engaging provincial and municipal governments). At the national level, the government will be supported to create an enabling environment for a circular economy through comprehensive market analytics, policy and regulation, and finance; whilst also looking to support the implementation or operationalization of these actions at the city-level (Outcome 1). Localized activities in several cities will catalyze change and innovations towards a circular plastics economy through collaborative forums, capacity-building, knowledge sharing, and behavior change; one of these cities will serve as a hub for testing business models and innovative approaches and technologies, and providing practical demonstrations and “proof of concept” to further support the activities (Outcome 2). The knowledge, technology, and innovation gained from these activities (and those of partners) then needs to be shared, scaled-up and replicated across Indonesia with the support of NPAP, and the Asia and Pacific region with support of GPAP (Outcome 3). The structure is illustrated in Figure 4 below.

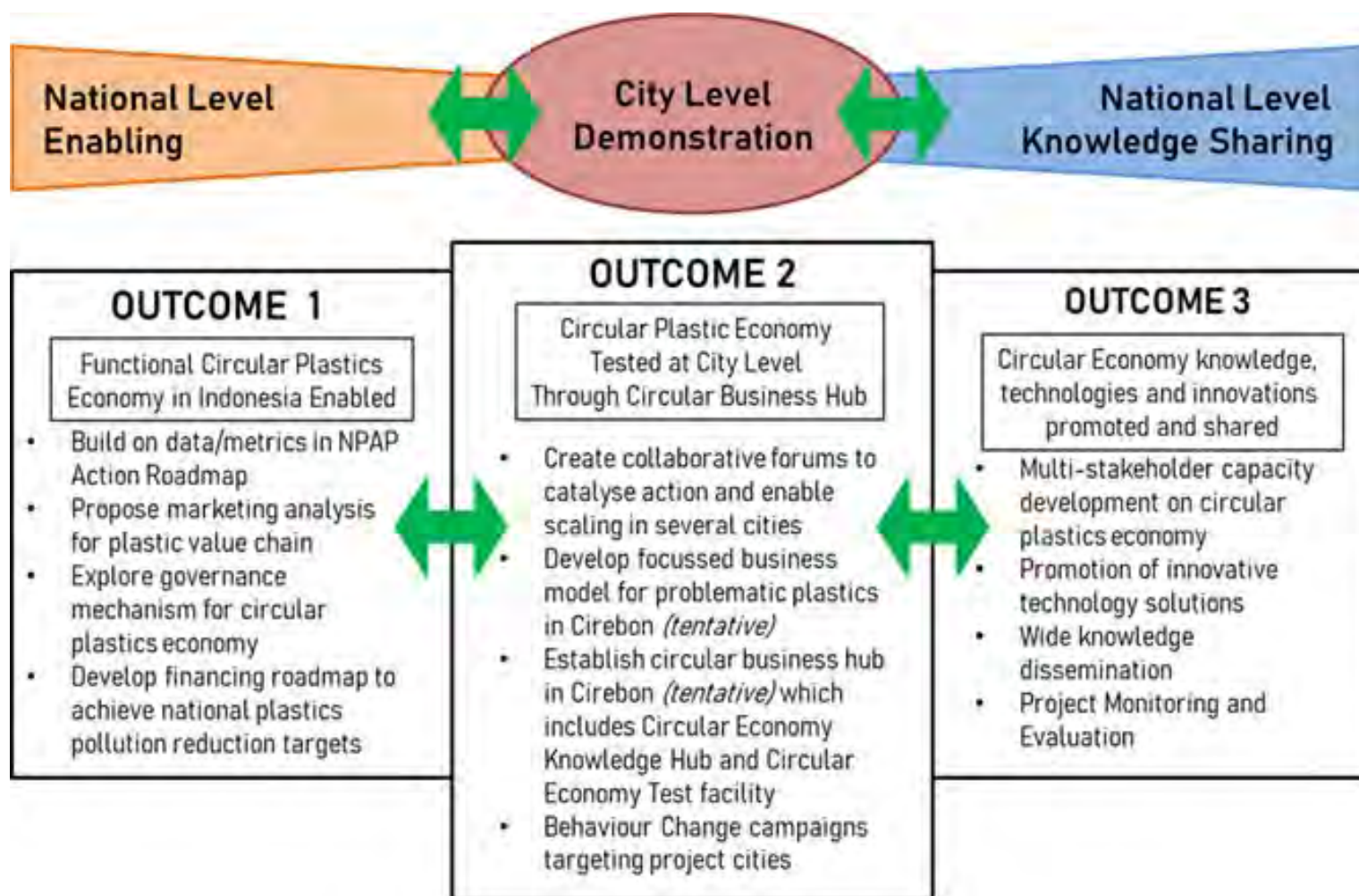


Figure 4: Proposed project structure and coverage

The project would identify and implement actions to address existing barriers, and accelerate the transition of Indonesia to a circular and pollution-free plastics economy. Following circular economy best practice and the NPAP Action Roadmap recommendations, the proposed GEF project will focus on the challenges of commercially problematic plastics (“difficult” plastics or “plastik sulit” in the local Indonesian language). The following commercially problematic plastics were identified during the GEF project initial scoping and stakeholder engagement activities. These correspond to those identified in the NPAP Action Roadmap:

- i. **Laminated Sachets** – these items are widely used and uncollected, thus ending up in the environment
- ii. **Low-Value Thin Film Plastics** – these plastics (carrier bags, business to business wrapping films) make up the majority of plastics observed in landfills and also form the primary feedstock for Solid Recovered Fuel (SRF) and Refuse Derived Fuel (RDF) manufacturing
- iii. **‘Ghost’ Fishing Gear** – Ghost fishing gear (i.e., discarded, lost, or abandoned, fishing gear) are often not retrieved by fishers as the value of these products in the recycling industry does not reflect the costs and risks associated with its recovery to shore and proper disposal<sup>[4]</sup>
- iv. **Business to Business** - low-value plastics not considered commercially recyclable e.g. due to low material value (PP, PS) or low recyclability due to use (Fibreglass)
- v. **Plastic Bottles** - low value thermoset type or those with higher recyclability (PET bottles) but originating in remote areas making their recovery to the circular economy more challenging.

By focusing on these plastics, the proposed GEF project could bring the knowledge, investment, time and technology necessary to develop solutions for the plastic waste types that have the most direct unwanted effects on livelihoods and the environment - and where solutions are not imminent and investments are lacking.



Figure 5. Linear economy for commercially problematic plastics

The approach taken to developing and implementing this proposed project will be integrated, multi-stakeholder and participatory. It will include a focus on fully engaging and building effective partnerships with the private sector, civil society organizations, and national and local governments. Capacity-building will be incorporated into each element of the project to enable full participation, informed decision-making and ownership by national and local government, private sector and civil society. All project components are aligned with the goals and strategies of the NPAP System Change Scenario, NPOA, and Indonesia Circular Economy Roadmap under development. The figure below presents a preliminary theory of change, illustrating the project logic.

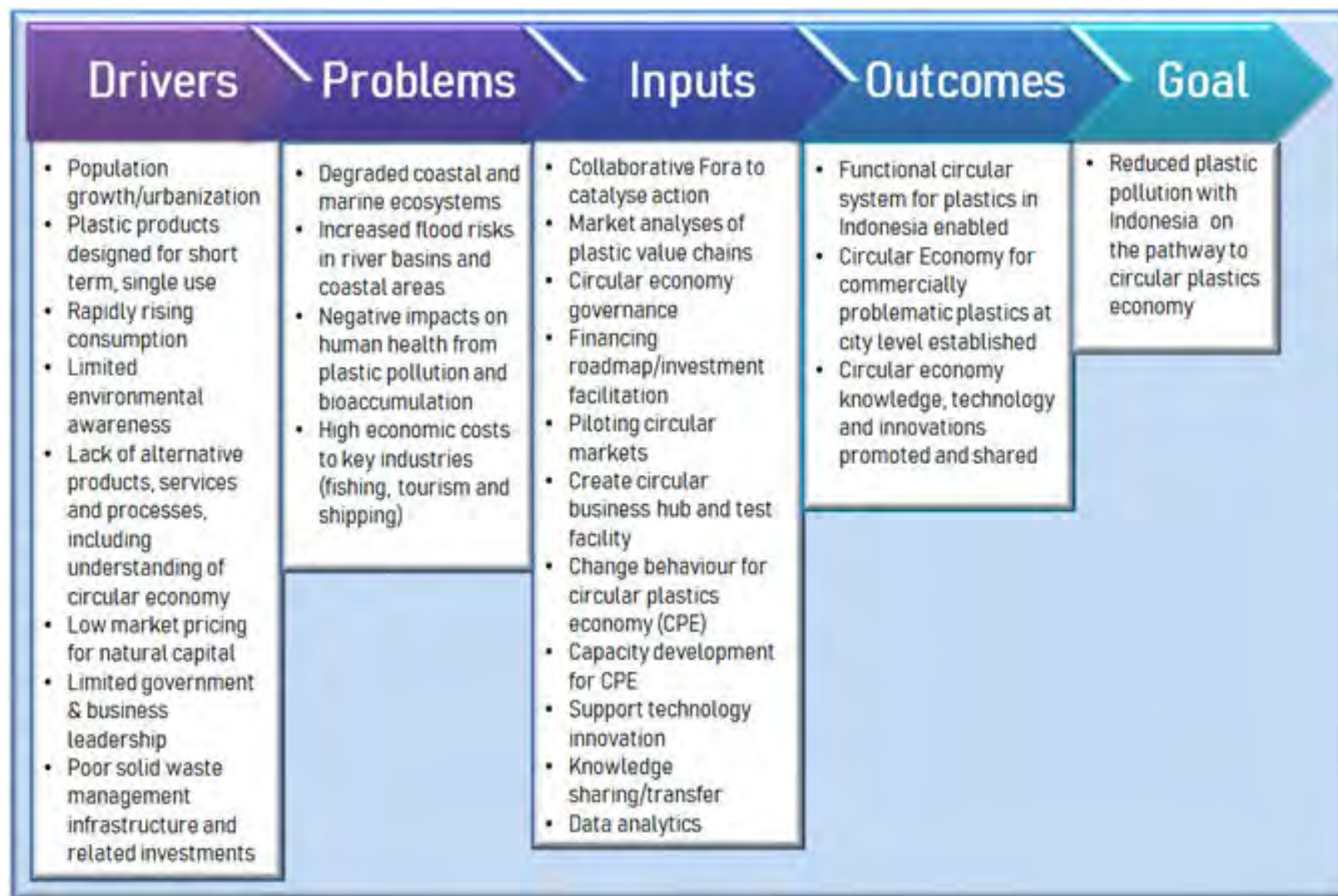


Figure 6: Theory of Change: illustration of project logic

**Project Objective:**

To reduce plastic pollution and support Indonesia's transition to a circular plastics economy through a multi-stakeholder value chain approach demonstrated at city level.

**Alternative Scenario:**

Outcome 1: Functional circular plastics economy in Indonesia enabled at national level



Activities under this component will have national implications. The circular plastics economy needs to be market-driven with well-established value chains all aware of their roles and responsibilities in the life cycle of the plastic products or packaging. Producers in the design phase must be made aware of their role in minimizing resource use and eliminating all problematic and unnecessary plastic items.

Those plastics essential to the product/packaging should be reusable and recyclable, with the goal of making all plastic entering the economy a valuable commodity throughout its lifecycle.

#### **Output 1.1: Market analysis of plastic value chains completed**

A market analysis covering the entire plastic value chain from importers of finished products & virgin polymers, through product manufacturers, designers and packaging users, retailers, private and industrial consumers to the major plastic recyclers in Indonesia.

The analysis will also identify the sources of imported and locally produced plastics and, in so doing, allow an assessment of those businesses and market segments which are directly or indirectly capable of providing solutions for reducing or redesigning plastic items.

In parallel the market analysis will examine the existing and proposed legal, policy, industrial best practice frameworks, roadmaps and cross reference these with observable market, industry and consumer behaviour changes. The analysis will also examine the opportunities and challenges these instruments offer to the creation of circular economies in Indonesia. The inclusion of the current role played by “elimination, reduction, and recycling” efforts will allow the examination of the existing circularity of plastic products in the Indonesian market.

The analysis will form the basis of the subsequent value chain dialogues and circular economy knowledge activities. To support these dialogues, the proposed GEF project will develop and communicate policy advice, framework recommendations and design principles that focus on the elimination and reduction of plastic items, especially commercially problematic plastics. The project will also develop and communicate design principles and criteria for reuse and recycling, enable the transformation for enhanced inclusion of recycled plastics into materials of high quality that can substitute virgin plastic materials of similar quality, thus closing the loop and answering the key questions of: Which products are possible to replace by reusable products or new delivery models? Which products are technically recyclable in Indonesian communities? What products are in practice recycled, and why?

These activities are key in working with stakeholders to adopt the optimal “circular supporting” decisions at the design phase of products to reduce or substitute plastics usage.

#### **Output 1.2: Governance mechanisms to support plastics circular economy developed**

A well-functioning circular plastics economy relies on sound regulatory measures, enforcement activities and strong institutions to deliver them at the national, provincial and city levels. The proposed GEF project will combine (i) current knowledge and experience from within Indonesia (including critical accelerators outlined in the NPAP Action Roadmap and recommendations from the National Circular Economy Roadmap)<sup>[5]</sup>; (ii) the findings of the market analysis (Output 1.1 above) and CoFo's (Output 2.1 below); (iii) applicable global best practices in policy and regulatory measures and recommendations from the recent Plastics Policy Handbook by the Oceans Conservancy; and (iv) lessons and recommendations from ADB's recent technical assistance project “Opportunities for Scaling Up Market-Based Approaches to Environmental Management in Asia” to contribute substantially to the objectives the NPAP Policy Task Force and Government policy goals.

The proposed GEF project will collaborate closely with the proposed 15 member Policy Task Force co-chaired by World Bank and CMMA to support the robust analysis and impact assessment, development and drafting of policies, regulations, and guidelines (see Output 1.1). This may include bans, voluntary industry action or market-based instruments and fiscal incentives such as subsidies, tax differentiation or allowances, product charges, market creation, extended producer responsibility, deposit refund systems, or green procurement tools for example. Priority will be given to supporting: (i) measures that Government is committed to taking forward; (ii) NPAP Action Roadmap System Change Scenarios A - Reduce or substitute plastic usage, and B - Redesign plastic products and packaging; and (iii) those shortlisted policy measures for reducing problematic and unnecessary single-use plastics (bans, taxes, levies) and for designing for circulatory (eco-design standards, recycled content standards, cross/inter industry standards) identified in the Plastics Policy Playbook. The proposed GEF project will also produce a policy guidance document tailored to Indonesia's provincial and city governments on how to operationalize the NPAP Action Roadmap. The guidance would cover all NPAP Action Roadmap "points of action" so as to take a systems approach and provide comprehensive guidance. Support for policy and regulatory reform will also be extended to cities actively participating in the proposed GEF project, where there is demand for such support and commitment to taking forward recommendations.

### **Output 1.3: Financing roadmap and financing mechanisms to achieve Indonesia's plastic pollution reduction targets developed**

The NPAP action plan has identified that delivering a 70% ocean leakage reduction scenario from 2017-2025 requires a total capital investment of \$5.1 billion and an operational funding budget of \$1.1 billion/year in 2025, to run an effective waste management and recycling system. Further, delivering a scenario that achieves "near-zero" pollution of plastics into nature and a circular plastics economy requires a total capital investment of \$13.3 billion between 2025 and 2040 and an operational funding budget reaching \$1.8 billion/year in 2040.

The proposed GEF project, in close collaboration with the NPAP Finance Task Force co-chaired by ADB and BAPPENAS, will develop a financing roadmap for achieving Indonesia's plastic leakage reduction targets and circular economy ambitions. This will include identifying and mapping investable projects and innovations clustered around the NPAP's five points of action; detailed analysis of current funding, financing mechanisms (including market-based and fiscal instruments that promote extended producer responsibility and financial contributions) and investment gaps; identifying barriers to financing and actions to overcome these; and, identifying sustainable and innovative financing mechanisms for further development or scaling-up. The financing roadmap will provide recommendations for actions at different levels of government (e.g. national, provincial, city) and for different Indonesian contexts. At a practical level, the GEF project will benefit from the contribution of the NPAP Finance Expert (to be hired by WRI).

The proposed GEF project will also support the development and implementation of blended and innovative financing mechanisms and project structures that help to crowd-in private sector investment. This will include aligning with the ASEAN Catalytic Green Finance Facility, the SDG Indonesia One: Green Finance Facility platform being developed at PT Sarana Multi Infrastruktur (SMI) with support from ADB, and other Government blended financing initiatives.

In addition, the proposed GEF project will develop key knowledge products to help in building the "business case" for increased investment (possible themes include: CO2 reduction potential of reducing and managing plastics; circular economy, green jobs and poverty reduction; and marine plastic pollution reduction and economic benefits for the tourism industry) and showcasing successful business models for a circular plastics economy in Indonesia and SouthEast Asia. The proposed GEF project will also develop a green job assessment methodology that considers the number of jobs, which sectors, which sociodemographic levels in the society, to reflect how initiatives reduce inequality.

<b>Outcome 2: Circular plastic economy tested at city level through Circular Business Hub</b>
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Activities under this outcome will focus on local governments, primarily cities, but will logically extend to district and provincial level governments. These will benefit from and also contribute to, the data analytics, assessments, governance mechanisms and financing roadmap under Outcome 1; the intention is to have a feedback loop between these components of the project.

Guided by the **A - Reduce or substitute plastic usage**, and **B - Redesign plastic products and packaging** systems identified by the NPAP Action Roadmap System Change Scenario (see above), the proposed GEF project will establish a Circular Business Hub to promote behavior change, plastic avoidance, implement capacity-building programs and liaise with the Collaborative Forums.

The Circular Business Hub will serve as a regional platform and be a national beacon for circular economy best practices for plastic in an Indonesian context. The Hub will operate a wide range of circular economy activities focusing on plastic elimination, engaging with local communities in developing business models and creating techniques that support reduction of plastic usage. This could showcase existing solutions for reuse and delivery models in Indonesia (identified under Output 1.1), or test and develop technologies that are emerging or formulated as projects by the CoFos (Output 2.1).

The Circular Business Hub will act as a catalyst and incubator, where new technologies and academic and community ideas can flourish, and where innovative stakeholders can test concepts, technologies, and experiments that support the circular plastics economy. At the Circular Business Hub, innovative recycling techniques/technology for problematic plastics in its pilot stage can be tested with the aim of identifying solutions with potential for scaling up in Indonesia. This will allow for robust technologies and techniques to be improved, which can reduce investment and implementation risks for financial institutions, industrial entities, local communities and Indonesian local and national government bodies looking for opportunities in the New Plastics Economy.

The Circular Business Hub will also be a place of local job creation, education and engagement, aiming at sparking Indonesian entrepreneurship and catalyse meaningful, safe and future fit jobs. Of special interest for the GEF project to engage with are women entrepreneurs, women's associations, micro business owners, the informal waste sector, youth and vulnerable community groups. The project will engage these groups by education programs, micro business development programs and livelihood skills programs. The Circular Business Hub will also be a place of learning, research and innovation. Academic institutions will be engaged through a series of inventor forums at the Circular Business Hub and will facilitate the development of new and innovative technologies through grants, competitions and also the provision of a dedicated testing platform. This capability will allow the project to feed learning and benefit directly back to the overall System Change Scenario targets.

#### **Output 2.1: Collaborative Forums for catalytic action established in selected cities**

The project will establish a range of Collaborative Forums (CoFos), each focusing on an aspect of circular economy development, where all actors from the various life cycles of the plastic products and packaging are represented. The individual CoFos will serve as platforms to discuss and initiate change and catalyze action in the parts of the life cycle of plastic items. The focus of individual CoFos will be formulated in collaboration with stakeholders under the guidance from the proposed GEF project and NPAP.

The CoFos will address issues (incl. single use plastics, policy and legal, plastic use avoidance, innovation and technology, community engagement) and themes relevant for all of Indonesia. Some industrial and policy focused CoFos will operate on a national level but those CoFo's with a more community and provincial focus will be piloted in three cities with the possibility for adjustment and scaling to other cities and regions. This will be done in close collaboration

with the NPAP Secretariat and all NPAP Task Forces to align with the System Change Scenario focal points A - reduce and substitute plastic usage, and B - redesign plastic products and packaging.

The proposed GEF project will facilitate and serve as the secretariat.<sup>[6]</sup> The purpose for selecting a few cities is to create enabling conditions which would contribute to scaling up the circular plastic economy under Outcome 3 and beyond the current project life. The CoFos will be the route by which academic, industrial or innovative technology research groups with collaborative projects can access the proposed project's demonstration facilities and test bed (i.e., the Circular Business Hub). The Circular Business Hub will also serve as a repository for the data and learning created by these activities.

The cross-value chain collaborations established within the CoFos will be able to provide a holistic view, highlight barriers and challenges, deliver recommendations and findings, and establish partnerships and initiate projects outside of the proposed GEF project's Circular Business Hub.

## Output 2.2: Circular market for commercially problematic plastics identified and piloted in one city

In Output 1.1 the proposed GEF project will conduct a detailed market analysis to identify the plastic value chains and priority engagement activities at all levels of Indonesia's plastics value chain. Output 2.2 will build on the results of this study and through the Circular Business Hub, will focus more closely on the value chains and economy structures of commercially problematic plastics. Engagement activities will be conducted for the identified commercially problematic plastics, and may cover:

- i) Consumer behaviour research and behaviour change solutions;
- ii) Waste characterization assessments, estimates of volumes, and assessment of elimination, reduction, reuse and recycling potential;
- iii) Review of options for new business models, systems, and technology, for elimination of plastics through substitution, reduction of plastic use by avoiding virgin plastics and redundant packaging, exploring reuse through refill systems, and increased recycling of problematic plastics through engagement activities enabled by the collaborative forums (Output 2.1);
- iv) Review of technology and social options for alternative packaging, plastic avoidance, substitution and product delivery systems to promote reduce, reuse and refill;
- v) Complete environmental full-cost accounting<sup>[7]</sup>;
- vi) Explore opportunities, methodologies and implement trials for consumer behaviour change
- vii) Use of Pull (increasing recycling) and Push (avoidance and substitution of plastics in design and manufacture) through the creation of **two** algorithm based calculators. The first is an algorithm-based market stimulation price calculator which will allow the project to actively use price stimulation for capturing problematic plastics **"Pulling"** them back into the circular economy whilst controlling the "skewing" effect of market intervention. The second is an algorithm-based EPR tax level calculation to tailor tax levels precisely to achieve the desired **"Push"** outcomes of plastic avoidance, reduction, reuse, refill and minimize unintended consequences.

The project will also draw lessons, identified during the initial market analysis (Output 1.1), from existing circular economy approaches for high-value plastics to explore market stimuli and specialist circular economy innovation in either avoiding problematic plastics in the design stages or transforming commercially problematic plastics into high-value plastic raw materials to substitute virgin polymers.

Using the developed design principles for reuse and recycling (Output 1.2) and the market price stimulation calculator, the project will offer simulated prices to encourage collection and recycling of current commercially problematic plastics. This will parallel the work of the EPR tax rate calculator in driving producers away from plastics and particularly commercially problematic plastics. This work would also be applicable for economic differentiation between producers (national producers and importers) according to degree of re-usability and recyclability of their packaging. This ensures that the producers are financially inclined to commit that the packaging (imported or produced) in Indonesia follows the guiding principles of the Global Plastic Commitment. Policy recommendations to local, regional and national governments for a solid framework for EPR in Indonesia, will emerge from this work.



## Output 2.3: Circular Business Hub established and operated in one city

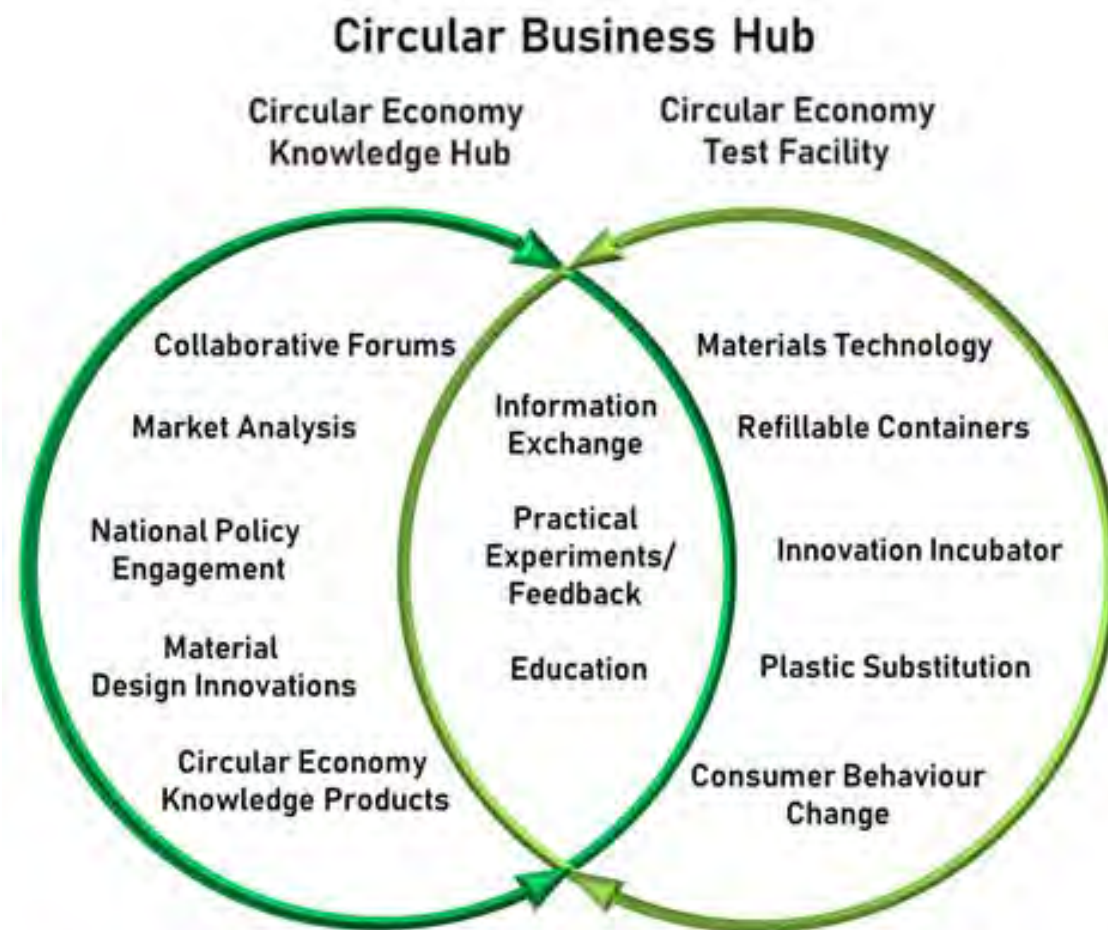


Figure 7: Interactive Model: Circular Business Hub comprising CEKH &amp; CETF

The proposed GEF project, with the Government and local partners, will establish a Circular Business Hub incorporating a Circular Economy Knowledge Hub (CEKH) and a Circular Economy Test Facility (CETF) in one Indonesian city, potentially Cirebon in Northern Java.<sup>[8]</sup> Driven by local initiatives and community needs, the Circular Business Hub will serve as an administrative focal point for the CoFo's, and a showcase for options to promote the elimination, innovation and increased circulation of commercially problematic plastics and ghost fishing gear in accordance with the guiding principles of the Global Plastic Commitment in a real world environment.

This could be through demonstrations of how design choices influence recyclability, exploration of new recycling technology, or how circular business models could be applied or adapted to current business models. The results of practical recycling and business trial activities, completed in the CETF, and experiences will be shared back through the CoFos (Output 2.1) depending on their focus areas. The CoFos will also use the Circular Business Hub to host knowledge-

sharing activities through the CEKH and visits as well as conduct tests and initiate projects at the CETF site.

The Circular Business Hub encompasses two interrelated sets of activities (as in Figure 6)::

- i) The Circular Economy Knowledge Hub (CEKH) will focus on the management, support and facilitation of the Collaborative Forums, academic engagement and innovation based challenges. Including offices, co-working areas and computing capabilities the CEKH will provide a combination of learning facilities, co-working environments, meeting venues and areas for scientific study.
- ii) The Circular Economy Testing Facility (CETF) will act as both incubator and development site for the overall project. The CETF will provide a testing area for a wide range of circular economy and recycling based experiments and trials; some of these will be on-going activities such as sachet recycling equipment and ghost fishing gear management technologies; whereas other trials will be shorter term activities either to support concepts and innovations drawn from the Collaborative Forums or to allow inventors an opportunity to test their innovations in the real world. Constructed with an industrial operations area and a co-located study and laboratory area, the CETF will facilitate the creation, evaluation and optimisation of new technologies to support the circular economy for plastics.

The medium-term vision for the Circular Business Hub is to serve as a source of updated and practical knowledge necessary for effective implementation of circular plastic technologies and business models at city level. Other Indonesian cities and provinces may also use it to test their respective circular plastics economy proposals in theoretical and practical environments. The box below provides more information on proposed activities and facilities requirements of the elements of the Circular Business Hub.

Circular Business Hub Description and Activities	
Circular Economy Knowledge Hub	Circular Economy Test Facility
Office based with meeting venues, co-working area, computer workshop and educational / learning spaces	Secure environmentally-friendly industrial working space with office, workbench, education / learning area and laboratory space
<b>Activities:</b> <ul style="list-style-type: none"> <li>• Management, facilitation and co-ordination of Collaborative Forums in pursuit of project aims</li> <li>• Liaison with NPAP Secretariat and other national groups to provide regular engagement for knowledge sharing activities</li> <li>• Engagement and interaction with local community groups</li> <li>• Engagement with local and regional government units to maintain alignment and support local and regional development</li> <li>• Research and Development facilitation for innovative technologies and inventors</li> <li>• Implementation and management of small grant</li> </ul>	<b>Activities:</b> <ul style="list-style-type: none"> <li>• Implementation and operation of long term circular economy trials for the key project and NPAP foci including creation and development of technology to support the recycling of laminated sachets, technology and systems for managing thin film and plastic carrier bags and ghost fishing gear management and recycling techniques</li> <li>• Operation and optimisation of refillable bottle systems to avoid problematic plastic use</li> <li>• Small grants: i) Scientific study and research to support the optimisation and commercialisation of innovative and new inventions sources through the collaborative forums. and ii) Challenge programs and community</li> </ul>

<ul style="list-style-type: none"> <li>• Implementation and management of small grant based Challenge Programs for local communities, schools, universities and young/female inventors and entrepreneurs</li> <li>• Management, co-ordination and operation of activities at the Circular Economy Test Facility</li> <li>• Production of knowledge products derived from Collaborative Forums, Hackathon events, Challenge Programs and the CETF outputs</li> </ul>	<p>... and by challenge programs and community engagement activities of the CEKH</p> <ul style="list-style-type: none"> <li>• Organizing, facilitating and monitoring trial runs and test bed activities for new and innovative technologies</li> <li>• Computing and laboratory support for trial activities to ensure demonstrable results and academic rigour in testing and operationalization</li> </ul>
<p><b>Facilities Requirements</b></p> <ul style="list-style-type: none"> <li>• 2 staff</li> <li>• Modern office space sufficient to provide clearly defined administrative area, co-working area, meeting and educational venue</li> <li>• ICT suitable for the administration of the project</li> <li>• ICT suitable for the educational and co-working environments to facilitate learning and knowledge transfer</li> <li>• Office/meeting equipment to support groups of up to 50 people</li> <li>• Disbursable funding for Challenge Events, Knowledge Events, Collaborative Forum Events and on-going community engagement activities</li> </ul>	<p><b>Facilities Requirements</b></p> <ul style="list-style-type: none"> <li>• 6 staff (incl. electrician and mechanic)</li> <li>• Purpose built or modified site up to 4000 m2 with impermeable slab, weather proof roof and environmental protection equipment to prevent negative effects of testing on the local environment</li> <li>• 400 Amp 3 phase electrical installation</li> <li>• Mobile equipment including forklift truck and front end loader</li> <li>• Initial fixed equipment suitable for the reception and sorting of segregated plastics waste</li> <li>• Support equipment to allow the repeated installation and modification of innovative technologies and those identified by the CEKH for trials and testing</li> <li>• Workshop and maintenance equipment</li> <li>• Operation and Maintenance Budget</li> <li>• ICT, SCADA and PLC monitoring equipment to provide measurable feedback and control of systems under test and development</li> <li>• Laboratory area with equipment sufficient to support the research and development of re-processing technologies including catalyst and solvent systems for laminated plastics (this will be undertaken in conjunction with a host university)</li> </ul>

Output 2.4: Behavior change and capacity-development programs designed and implemented across selected cities

The transition to a circular plastics economy requires behavior change in society and across value chains. The project will collaborate with the NPAP Task Force on Behavior Change, the World Bank and other relevant partners to apply the Indonesia Behavior Change Strategy at a city level. The proposed GEF project will develop and roll out targeted audience-segmented campaigns that raise awareness and encourage behavior change of various stakeholders (e.g., communities, local businesses, manufacturers, traders). Strengthening the role of the civil society organizations and grassroots communities as agents of behavior change can put them in control of their local environments and provide them with knowledge to act and advocate for systemic change. The CEFT allows the project to show and demonstrate activities in a much more tangible medium where language and educational barriers will be much less of an impediment to communication.

Campaigns will be supported by training and implementation of practical ways to reduce new plastics entering the system, which could include:

- i) Capacity development and training on designing circularity with manufacturers, encouraging manufacturers to re-design plastic items and packaging in accordance with the reuse and recycling design principles;
- ii) A refillable bottle trial to encourage communities to replace single-use laminated sachets with multi-use bottles, particularly for consumable household essentials;
- iii) Applying sustainable fishing methods and equipment combined with training of fishers on recovery and recycling of used, damaged and discarded fishing gear (potentially in collaboration with FAO-led sustainable fisheries management projects and the Global Ghost Gear Initiative); and
- iv) Incubating new recycling technologies and business ideas through the Circular Business Hub in coordination with ADB Ventures<sup>[9]</sup> and other partners such as Circulate Capital and Second Muse (through Incubator Network)<sup>[10]</sup> and facilitating access to finance for small and medium enterprises.

Capacity-development, training programs and especially the practical pilot and demonstration elements can be housed in or supported by the Circular Business Hub, CEKH and CETF, as appropriate. The CEKH and CETF could also be used to teach local schools and colleges, engaging younger generations to further accelerate the transition to a circular plastics economy.

### Outcome 3: Circular economy knowledge, technologies and innovations promoted and shared

Activities under this outcome will contribute to the curation, promotion and sharing of knowledge generated under the previous two components - and will be national in scope, with some regional and international elements. The proposed GEF project aims to exchange and promote a variety of knowledge activities and products generated by the CoFos, Circular Business Hub, CEKH, CETF and other knowledge partners. The Circular Business Hub, in particular, will provide access to trial facilities and function as a meeting point/repository for the data and learning created by the project for various stakeholders.

Knowledge promotion and exchange (coordinated by the project implementation team) will be purposefully peer-to-peer, focusing on dynamic dialogue and solutions through knowledge events such as mentoring programs, conferences, seminars and workshops. These activities will discuss findings and recommendations, lessons learned, share knowledge products as well as new technologies and innovative business solutions with stakeholders. These activities aim to build capacity, encourage innovation and strengthen collaborative networks that create an enabling environment for circularity throughout the plastics value chain and inform and support the activities of NPAP. Where relevant, knowledge exchange and promotion will also take place between countries and international organizations, such as the GPAP, with a view to replication and scaling-up. Knowledge exchange will further promote the elimination, innovation and increased circulation of commercially problematic plastics in accordance with the guiding principles of the Global Plastic Commitment.

During the project preparation phase, a knowledge management strategy will be developed in consultation with key stakeholders, which will focus around the outputs listed below:

### Output 3.1. Multi-stakeholder capacity building, training and skills development on plastics circular economy conducted

In order to create an enabling environment to use better technology, spur innovation, build human capital and accelerate the transition to a circular economy, various stakeholder engagement and capacity building activities need to be conducted. The project will look to develop workshops and seminars to support knowledge exchange, capacity building and collaboration, at community, municipal, national, regional and international levels, and to scale-up the proposed GEF projects interventions. These could include:

- **Twin Cities Program:** Twinning arrangements to share best environmental practices and best available technologies (BEP/BAT) will be explored at two levels. First at the national level between the city hosting the Circular Business Hub (potentially Cirebon) and another city in Indonesia with similar characteristics and second, at the regional level, in Asia and the Pacific, perhaps in the context of IW:LEARN5, and in coordination with the regional GEF MSP and GPAP.
- **Government workshops:** Facilitate country to country learning and knowledge sharing through workshops and cross-visits for Indonesia government officials, and key government officials from other countries participating in the regional GEF project (for ASEAN), hosted in Indonesia.
- **Private sector workshops:** Conduct workshops through CoFos, the Circular Business Hub and NPAP to share best practices, develop partnerships among key stakeholders, discuss actions based on the market analysis of plastic value chains, and consult on design principles and criteria for plastic products and packaging that will enable recycling and help to close the loop (in connection with Output 1.1).
- **Green/Blue Finance Forums and Roundtables:** to include participation from Indonesian government officials, ADB member countries, development partners, private sector and international finance experts to share strategies and finance innovations for accelerating the circular economy and improving ocean health.
- **Coordination with NPAP Policy Task Force and Behaviour Change Task Force:** share GEF project outcomes, learnings and recommendations with NPAP Task Forces for dissemination across relevant networks in Indonesia. Participate in and co-create, if relevant, knowledge events with NPAP to share project outcomes, learnings and recommendations with stakeholders; and develop collaborative pilots with other NPAP members.
- **Coordination with GEF IW:LEARN5<sup>[11]</sup>** Collaborate in a number of knowledge sharing forums, particularly through the Biennial International Waters Conferences (IWC), training workshops and learning networks, and twinning exchanges.
- **Share project lessons learned and recommendations regionally and globally:** share GEF project outcomes, learnings and recommendations with partners including GPAP. Knowledge shared aims to promote Indonesia's experience as a case study for inclusion in partner knowledge products and events, e.g., for example, "GPAP in a Box" (See Output 3.2 below), to support governments in creating and delivering their own plastics action plans.

### Output 3.2: Innovation and technology events to share new and emerging solutions convened

In an effort to strengthen Indonesia's innovation capacity, share technologies, and support replication and scaling up of the project's circular economy model for commercially problematic plastics and the successes of partners as well as the findings of the CoFos, Circular Business Hub and NPAP, the GEF project will consider developing and convening the following events and initiatives:

- **GPAP Plastics Pollution Action Playbook ("GPAP in a Box"):** The ADB-administered Indonesia GEF project and regional MSP will share knowledge and lessons learned from other GPAP-linked initiatives in Viet Nam and Ghana and package these with the proposed open source, user-centric knowledge toolkit being prepared by GPAP. The "GPAP in a Box" will support governments to address seven foundational elements, including: i) structure and governance, ii)

knowledge curation and analysis, iii) stakeholder mapping, iv) national action roadmap development, v) implementation, vi) strategic finance, and vii) measurement and evaluation.

- Indonesia Healthy Oceans and Circular Economy Technology and Innovation Forum (a regional/international event). Participants will include technology providers, entrepreneurs, business, government officials (national, provincial, city), civil society/NGOs, academia, development partners and potential investors.
- Plastics and circular economy-themed challenges under ADB's Digital Innovation Sandbox Program. Since 2018, ADB and the Asian Institute of Management (AIM) have been organizing the ADB-AIM Hackathon, presenting challenges that seek solutions with emerging technology. The winners will receive awards to prototype and pilot their proposals, and if deemed appropriate, they may be matched with the circular business hub or other suitable sites.

### **Output 3.3 Knowledge products to support decision making, solutions and collaboration developed and disseminated**

As part of the knowledge management strategy the project will undertake research and analysis to develop a range of knowledge products, including on knowledge extracted from work undertaken by the CoFos, Circular Business Hub and other partners. As part of this scope the project is looking to develop the following products:

- Benchmark studies of best practices in circular economy models for plastics
- Market analysis report for capture of low value plastics
- Indonesia NPAP financing roadmap
- A series promoting the socio-economic "business case" for increasing investment in the circular economy and measures to reduce plastic pollution
- Green job assessment methodology
- Successful business models for a circular plastics economy in Indonesia and SouthEast Asia
- EPR tax level assessment tool and EPR market stimulation price calculator
- Baseline analysis report of the circular economy at city level
- Awareness raising and training materials and multi-stakeholder toolkits
- Recommendations to the coming national Circular Economy Strategy and Roadmap on measures and actions to promote a circular economy for plastics to be launched by the Indonesian government

Stakeholder workshops and training will be conducted to share knowledge product findings and recommendations as well as guidance on their application where applicable.

### **Output 3.4 Project monitoring and evaluation conducted**

A project monitoring system will be created to capture key information and measure project progress throughout implementation, in line with GEF's monitoring policy. Elements of a project monitoring framework will be elaborated during the project preparation phase. Mid-term review will be conducted during Year 2 of implementation, followed by Terminal Evaluation Review towards the end of project.

### **Alignment with GEF focal area and/or Impact Program strategies**

The project will contribute to the IW and C&W focal areas to address the challenge of marine litter and microplastics. The prevention of commercially problematic plastics can contribute to the “POPs challenge,” as persistent organic pollutants (POPs) can be released when plastics littered in the open are burned. A large project for collection/recovery/remanufacturing of plastic and plastic avoidance would not only reduce plastic material from the marine environment but also reduce the release of UPOPs (dioxin and furans) from plastic disposed through open burning. UPOPs also affect air quality. A program that aims to limit or reduce the use of plastics would directly reduce the proportion of plastics disposed of in dumpsites. This would reduce the occurrence of waste being set on fire in improperly managed landfill sites, as waste is generally not combustible in the absence of plastics.

This project would also have direct links to the Stockholm Convention. The “*Industrial Chemicals Program*” aims to support investments in “*improved material management initiatives, including circular economy, sound material-cycle society, and sustainable materials management approaches, which promote the adoption of improved production, consumption and environmentally sound disposal patterns.*” These approaches can drive the redesign of packaging and products that contain or are potential generators of POPs, and the sound management of these materials and products, including plastics and electronic waste (e-waste). The project will also contribute to the reduction of key agricultural plastics; special or hazardous plastics; and/or POP waste that enter the global food supply chain, and address end-of-life and waste management issues. It is also directly relevant to the Basel Convention Technical Guidelines on the Identification and Environmentally Sound Management of Plastic Wastes and their Disposal. In particular, the most recent amendment (BC-14/13) calls on countries to undertake further actions to address plastic waste. Among other things, countries are encouraged to address plastic pollution issues “*by improving the collection, transport, treatment and recycling of plastic waste, by improving or creating markets for recycled materials made from plastic waste, by improving other means of recovery*”; as well as “*set time-bound targets and adopt adequate measures to ensure that plastic packaging is designed to be reusable or recyclable in a cost-effective manner, the plastic packaging recycling rate by weight is monitored and significantly improved*” at all levels.

### **Alignment with the GPAP / Indonesia NPAP**

The proposed GEF project builds on the baseline created by the NPAP and has been integrated tightly with the GPAP/NPAP System Change Scenario. It will support the rollout and implementation of the NPAP Action Roadmap, and directly support the upstream points of action (reduce and redesign). It will also have indirect effects on the downstream points of action (doubling of plastic waste collection and recycling capacity) as the knowledge gained and disseminated, will have multiplier effects. In particular this would be in the area of crowding in or mobilizing additional investments to support the NPAP (see Table 1 in the earlier section).

ADB will be represented on the NPAP Steering Board, and contribute to providing advice, technical direction and development of strategic alliances. ADB will also co-chair the NPAP Finance Task Force with BAPPENAS and provide assistance as defined under Output 1.4, and will participate in most if not all of the Task Forces. These cover Policy, Behaviour Change Communications, Innovation and Data / Metrics. ADB's participation will ensure coordination of the project with other initiatives and secure inter-agency alliances. It is also proposed that WRI (host institution for NPAP Secretariat) be considered as co-chair of the GEF project steering committee.

### **Incremental/additional cost reasoning and expected contributions from baseline, GEF and co-financing**

Under current business practices and operations, most initiatives that address issues related to plastic pollution in Indonesia are in nascent stages, spatially diverse, fragmented across different sectors, characterized by limited understanding at local and community levels, not fully supported by robust and solid enabling frameworks, and not directly addressing upstream linkages in the production/supply chain. The NPOA and NPAP Action Roadmap has already taken significant steps to address these challenges and the GEF project scope and collaborative fora will solidify and build upon these achievements. By combining the inclusivity of Collaborative Forums, aligned the NPAP System Change Scenario, and the opportunities offered by the Circular Business Hub the proposed GEF project can provide the engagement levels necessary to deliver unified progress.



The proposed GEF project will be instrumental in enabling Indonesia's government and stakeholders to make decisions based on research and analysis that provides a systemic understanding of the plastic pollution problem. By paralleling and extending the activities and focal areas identified in the NPAP Action Roadmap the combined activities will stimulate and contribute to collaborative efforts across multiple stakeholder groups, particularly the private sector, to reshape the plastics economy in Indonesia, through a combination of support for national, provincial and city level dialogue, and demonstration of practical System Change Scenario driven interventions at city-level. The project also aims to encourage a new generation of investment initiatives which internalize and implement circular economy principles and practices. It will shed light on key issues at the consumer and producer levels, from the manufacture of raw materials to the finished products which contain the essential base chemicals which form plastics. The project will aim to operationalise facets A,B,C and D of the 5 System Change Scenario concepts identified by NPAP by introducing circular economy elements into the value chain, which would shift thinking towards 'circularity' - i) preserve and extend existing products, ii) use waste as a resource, iii) prioritize the re-generation of resources, iv) collaborate to create new value, v) rethink business as usual and create new business models, vi) catalyze design for the future, and vii) deploy new, digital technologies.

### Global environmental benefits

The project will contribute to:

- Restored and sustained freshwater, coastal, and marine ecosystems, including globally significant biodiversity (Sub-indicator 5.3: estimated 297,089 metric tons of marine litter avoided over 14 years ) Reduced vulnerability to climate risks, and increased ecosystem resilience through reduced greenhouse gas emissions as a result of better integrated solid waste management (e.g. reduction of volume of wastes in illegal dumpsites, diversion of waste away from landfills and improved management of plastics related wastes)
- Indirectly, reduced and/or avoided chemicals of global concern and their waste in the environment and in processes, materials and products (Indicator 10: 380.2 g/TEQ over 14 years)

Please see the worksheet attached (**Annex B**). The baseline and impact metrics from NPAP/SystemiQ were used when calculating the potential Global Environmental Benefits (GEBs). Based on this information and the focus on problematic plastics, a significant positive impact is anticipated. TEQ figures were estimated using the methodology prescribed in the document "Estimating Releases and Prioritizing Sources in the Context of the Stockholm Convention" (reference page 19), published by UNEP, GEF, UNIDO and others (2005).

### Innovation, sustainability and potential for scaling up

#### *Innovation*

Indonesia is currently ranked 85th in the Global Innovation Index (moving up two positions since 2017). However, it is still lagging behind on the four knowledge economy pillars which include (i) innovation, (ii) education and skills, (iii) information and communications technology; and (iv) economic incentive and institutional regime. This has affected its ability to maximize technological breakthroughs because of the high costs of tapping innovation, the concentration of expertise in select countries, the lack of local technical and skilled resources and the constraints to attract skilled and affordable partners. Indonesia needs support to convert to a knowledge based economy through innovation and increase its technological readiness in a variety of sectors. The scale of Indonesia's plastic pollution requires innovative approaches and advanced technologies to leapfrog development of the country's circular economy for plastics.

The project will incorporate innovative approaches and promote innovation through the following:

- The financing road map (as part of Output 1.3) will include identifying and mapping innovations for (i) reduce and substitute; (ii) redesign; (iii) collect; (iv) recycle and (v) dispose, and the project will develop and share innovative financing mechanisms.
- As part of the Circular Business Hub the project will integrate a Circular Economy Test Facility (as part of Output 2.2) which will incorporate a sandbox testing site for local and academic institutions and industry partners to demonstrate design solutions for recyclability and showcase how to apply circular business models to current businesses. It will also be the focal point for pilot investments.



- The CoFos and Circular Business Hub will draw together lessons learned from existing circular economy approaches to high value plastics, these will be used as a baseline from which to explore market stimuli and specialist recycling technology innovation in promoting the inclusion of problematic plastics in the circular economy (as part of Output 2.1 and 2.2).
- Ongoing experiments within the trial will test implementation of circular economy principles at the industry and community levels, and innovative technologies and approaches for reduction and management of plastic waste.
- Awareness raising activities will promote success stories, technology and innovation, and build capacity of various stakeholders
- The development of the Market Stimulation and EPR Rate Calculators will represent the next stage of innovation for these tools; by building social impact and substitution metrics and weighting onto existing Total Cost Accounting and conventional market metrics. The intention is to provide National Government policy and decision making teams with tools which fully reflect the social benefit/cost of plastics. The removal of laminated plastics sachets, for example, without a suitable substitute would unfairly burden the most vulnerable members of society and the calculators will ensure this is captured and presented during the EPR and substitution decision making processes.

### *Sustainability*

Sustainability will be core to the design and implementation of the proposed GEF project. The following principles and approaches will be followed to ensure the sustainability of interventions:

- The project will be designed in close collaboration with the city and national governments and in consultation with stakeholders (e.g., private sector, civil society, communities and other relevant partners) to ensure that outcomes are responsive to current and future needs.
- All activities will be aligned with the goals and strategies of the NPAP, NPOA, and Indonesia Circular Economy Roadmap under development.
- Capacity-building will be incorporated into each outcome to enable full participation, informed decision-making and ownership of project activities and successes.
- The NPAP Financing Roadmap and investments identified will be feasible, linked to financing mechanisms and shared with relevant partners and potential investors.
- A 'design for the future' approach will be applied to infrastructure and technology solutions promoted through the project.
- By heavily engaging industry, retailers and local businesses, the informal waste sector and communities, the project will build support for adopting and sustaining the project outcomes.
- Sustainability will be a focus of the knowledge management strategy. In addition to NPAP acting as a key knowledge platform, the proposed project will form partnerships with several regional bodies to support mainstreaming and a wider dissemination of knowledge.
- Local implementation partners with a track record in the successful delivery of circular economy and waste management projects will be carefully selected.
- Activities will be designed for the local context, and project responsibilities and timelines will be realistic and based on current and projected capacity and resources.

### *Scaling-up*

According to a recent Circularity Gap Report, the global economy is only 9% circular; 8.4 Gt of materials have circular input, while 84.4 Gt come from extracted resources. This shows a significant opportunity to scale-up the circular economy. All components of the project have been designed to promote replication of successful interventions and scaling-up of a circular plastics economy in Indonesia. In particular the focus on cities is expected to increase the probability of uptake of best practice and best available technology by supporting CoFOs, the Circular Business Hub, CEKH and CETF, crowding in finance around investable ideas, and also the significant focus on knowledge generation and knowledge sharing. The longer term plan is to integrate this with the STOP plans to scale up to 40 cities, and generate at least \$ 400 million in funding.

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[1] NPAP Indonesia Action Plan 2020

[2] The term "plastic pollution" covers both upstream and downstream plastic waste leaking into the marine and terrestrial environments.

[3] GPAP was created "to drive the transition towards a circular plastics economy while helping to restore our natural systems and creating growth opportunities". GPAP represents the "plastic pillar" of the Program for Accelerating Circular Economy (PACE) of the WEF.

[4]

[5] In consultation with the Government and GPAP/NPAP ghost fishing gear has been included as a problematic plastic under the GEF project for the following reasons: i) in response to a request from Government of Indonesia; ii) this was not included in the NPAP scenario assessments due to the paucity of data as indicated in the draft Action Roadmap (2019, p.25), therefore the GEF project make advances in this regard, iii) Indonesia is a major fishing nation which provides as opportunity for project lessons and successes to be replicated and scaled-up for greater impact; and iv) it is complementary to other ADB and GEF initiatives including ADB Green Ports program, Bay of Bengal LME Programme, Coastal Fisheries Initiative etc.

[6] Under development by the Government of Indonesia with support of the Danish Government.

[6] One CoFo could be in Cirebon, a potential location for the Circular Business Hub, and the selection of two other cities for CoFos will be decided during the project preparation phase in consultation with the Government and GPAP/NPAP. Candidate cities could include those that are participating in Project Stop (Muncar, Pasuruan, Jembrana) or other ADB Livable Cities program (Makassar, Palembang, Banjarmasin, Sorong).

[7] Environmental Full Cost Accounting is a method of price/cost/value assessment which recognizes the direct and indirect economic, environmental, health and social costs of a product.

[8] Tentatively, Cirebon has been identified as a promising candidate city due to: i) support from the national government for a focus on Northern Java, ii) GPAP/NPAP to focus on Cirebon; iii) strong support from the city government; iv) presence of complementary projects and investments; and v) presence of an active fishing industry (facilitating action on fisheries sector waste as requested by government). The city selection will be confirmed with the Government and NPAP during the project preparation phase.

[9] <https://www.adb.org/news/adb-unveils-venture-platform-invest-impact-technology-startups>

[10] <https://www.circulatecapital.com/press/categories/the-incubation-network>

[11] One percent of the GEF IW project allocation will be dedicated for IW:LEARN5 collaboration. This will be elaborated in a detailed project budget, should the PIF be approved for PPG.

#### 1b. Project Map and Coordinates

**Please provide geo-referenced information and map where the project interventions will take place.**

Cirebon City, West Java, Indonesia Coordinates: 6.7377° S, 108.5582° E

Refer to Annex A for the map.

## 2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

A provisional stakeholder engagement plan is presented below and a more detailed stakeholder / partnership presentation is contained in Annex E.

**In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.**

Civil society organizations (CSOs) and private sector entities have been consulted during project identification (see section 6 'coordination'). A consultation/scoping mission has been completed in Indonesia during February 2020, which has complemented consultations undertaken for the regional GEF project in ASEAN. The mission was able to engage closely with representatives of the National Government (CMMAI, MOEF and MMFF) who were briefed on the project concept. Both teams showed interest and support for the project and actively participated in discussions with the mission team in the refinement of the project scope and inclusion of items, such as Ghost Fishing Gear which are of particular interest to them (MMAF, in particular).

Engagement with larger private companies and industry groups was also successfully completed with concerns being raised about the implementation of the EPR and the options for substitution of single use plastics.

During the mission visit to Cirebon the team were able to engage closely with the Vice Mayor and the head of the Cirebon Environmental Department. The local government was briefed on the initial concepts and ideas of the proposed GEF project. They showed significant levels of interest and actively engaged with the mission to team to explore locations and opportunities for the hosting and implementation of the Circular Business Hub and Circular Economy Testing Facility.

During the mission visit to Cirebon the team were also able to engage with members of the recycling community and other waste management stakeholders to discuss the most challenging elements of recycling and those items which posed the greatest difficulties in collection and recycling.

The private sector will be engaged, as described in section 4, 'private sector engagement' below.

A more detailed stakeholder analysis will lead to development of a Stakeholder Engagement Plan during project preparation. The plan will adhere to the core principles of the new GEF Policy on Stakeholder Engagement (2018), supplemented by ADB principles for stakeholder engagement. In short, and to the extent possible, stakeholder engagement would: i) be constructive, responsive, accountable and transparent, ii) encourage fair, balanced and inclusive participation of stakeholders (including women and youth), iii) apply across all GEF-financed activities, iv) be 'meaningful' in the sense that it will promote sustained commitment and action (including allocation of resources) through the project cycle, and v) be supported by accessible documentation.

Outlined below are the provisional elements of a stakeholder engagement plan, based on consultations undertaken during the PIF preparation stage, which indicate possible roles and means of engagement.

Provisional Stakeholder Engagement Plan
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Institution / Agency / Company	Possible Role
Coordinating Ministry for Maritime Affairs (CMMA) (now called Coordinating Ministry for Maritime Affairs and Investment)	<p>GEF Executing Entity.</p> <p>Overarching coordination and convening responsibility, hosting of Secretariat for Indonesia's Plan of Action on Marine Debris; and chairing of the NPAP Steering Board. Proposed co-chair of a GEF project steering committee, including role in project monitoring and policy processes.</p> <p>Means of engagement: Possible MOU with ADB; Linkages through NPAP Steering Board and relevant Task Forces</p>
Ministry of Environment and Forestry (MOEF)	<p>GEF Executing Entity. Direct links with the Directorate General for Solid Waste, Hazardous Waste and Hazardous Substance Management, in particular the Directorate for Solid Waste Management and Sub-Directorate for Product and Packaging. Proposed member of proposed GEF project steering committee, including role in project monitoring and policy processes.</p> <p>GEF project will align with ongoing MOEF programs, including support for SWM infrastructure and promoting waste banks at provincial, district and city level</p> <p>Means of engagement: Through NPAP Steering Board and various Task Forces</p>
Ministry of Maritime Affairs and Fisheries (MMAF)	<p>Linkages with ongoing program on retrieval and recycling of ghost fishing gear (Directorate for Coastal Management and Small Islands). Proposed member of GEF project steering committee, including role in project monitoring and policy processes.</p> <p>Means of engagement: Through direct participation in project activities at city, district and provincial levels</p>
Cirebon City Government	<p>Possible direct engagement with Department of Environment, Head of Landfill primarily for activities under Outcome 2. Potential for: i) provision of land / space, facilitation, convening stakeholders, ii) hosting of Circular Business Hub. CEKH and CETF, iii) reference model for governance, policy and regulatory reform related to circular plastics economy.</p> <p>Means of engagement: Through direct participation in project activities (and potential ADB loan)</p>
National Plastic Action Partnership (NPAP), Secretariat / World Resources Institute (WRI)	<p>Direct collaboration with NPAP Secretariat, as the proposed GEF project will be a key implementing partner for the NPAP Action Roadmap.</p> <p>The proposed GEF project will be represented by ADB on the NPAP Steering Board and Task Forces, with main focus on financing (Output 1.3), among others (<a href="#">see separate section</a>) in the execution of the Indonesia NPAP Action Roadmap.</p> <p>WRI could also serve as a resource with respect to interlinkages between the proposed GEF project and the GEF Sustainable Cities Impact Program (SCIP) in Indonesia.</p>

	Means of engagement: Outlined in Letter of Commitment.
Indonesian Plastic Industry Association (INAPLAS)	<p>Fosters linkages with private sector. Platform for integration of project activities with the wider industries, drives, initiatives and projects. Important for NPAP Task Force participation, particularly with respect to: data / metrics, behaviour change, policy, financing, scaling up.</p> <p>Collaboration envisioned for Outcomes 2, and 3 where relevant. Possible proposed GEF project steering committee participant.</p> <p>Means of engagement: Participation in project activities and NPAP Task Forces</p>
Packaging and Recycling Association for Indonesia Sustainable Environment (PRAISE)	<p>Fosters linkages with private sector. Platform for integration of project activities with the wider industries, drives, initiatives and projects. Important for NPAP Task Force participations with respect to data / metrics, behaviour change, policy, financing, scaling up.</p> <p>Collaboration envisioned for Outcome 2, and 3 where relevant. Possible proposed GEF project steering committee participant.</p> <p>Means of engagement: Participation in project activities and NPAP Task Forces</p>
Waste Banks	<p>In coordination with MOEF, the proposed GEF project would contribute to and complement the waste bank system in and around cities. Project would promote linkages with Outcome 2 - Circular Business Hub, particularly the collection system; as well as engage community beneficiaries for targeted capacity development and training; as well as behaviour change campaigns.</p> <p>Means of engagement: TBD (through MOEF)</p>
SYSTEMIQ	<p>Systemiq will be a key project partner, with collaboration envisioned through all components of the GEF project, as well as in the context of NPAP task forces. Importantly, the GEF project will aim to engage with Systemiq to align work with the Project STOP, which aims to target an additional 40 cities. The collaboration will foster linkages with city/district/provincial governments, private sector and civil society.</p> <p>Means of engagement: Participation in project activities and NPAP Task Forces</p>
Unilever	<p>Packaging manufacture and developer of specialist recycling technology for laminated sachets. Potential partner for collection of sachets and goods for refilling stations. Cooperation anticipated with respect to the Circular Business Hub activities in Outcome 2, as well as participation in knowledge work in Outcome 3.</p> <p>Means of engagement: Consultations in design and potential participation in implementation of Circular Business Hub</p>
Re>Pal	<p>User of low value plastics for manufacturing plastic pallets. Potential industrial partner and material off-taker (Outcome 2).</p> <p>Means of engagement: Consultative. Potential off-take agreement</p>

Ocean Conservancy	<p>Project will benefit from the 'Plastics Policy Playbook', particularly relevant for Outcome 1.</p> <p>Means of engagement: Consultative (through associated GEF 6 project)</p>
Global Ghost Gear Initiative	<p>Foster linkages with civil society, particularly fishersfolk and informal sector waste pickers. Project will benefit from learnings in the 2018 gear-marking and ghost gear retrieval pilot project case study in Java. Potential partner for capacity-building/behavior change activities under Outcome 3.</p> <p>Means of engagement: TBD (through MMAF)</p>
Circulate Capital	<p>Project will liaise with Circulate Capital on matters related to the NPAP financing roadmap (Output 1.3). Linkages will also be developed with their associated company, SecondMuse, in the context of the NPAP Steering Board. The Incubator Network would fit well with the Innovation Incubator of the project CETF with opportunities related to mobilizing finance, capacity development and training.</p> <p>Means of engagement: Consultative. Through NPAP Task Forces (and NPAP Steering Board)</p>
McKinsey.org	<p>Link to ongoing waste management and plastics recycling initiative in Bali Project would benefit from data management, analysis and full cost accounting capabilities. Potential participation in Outcomes 1 and 2.. Given the links to the parent consulting firm, opportunities will be explored under Outcome 3 - broader knowledge management and in particular, thought leadership in the circular plastic economy.</p> <p>Means of Engagement: Consultative and through NPAP Task Force</p>

To see potential stakeholders identified for further engagement, see Annex E.

### 3. Gender Equality and Women's Empowerment

**Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).**

A gender perspective is critical for understanding the plastic pollution challenge and for designing effective solutions in Indonesia. Already, women already play a significant role in Indonesia's national waste management efforts, and the essential role of women in designing and implementing solutions is increasingly recognised. For example, women are playing a larger role as volunteers, effective community engagement campaigns are being activated through women's associations, and women manage household waste and adhere more frequently to proper disposal behaviour. However, there are issues that must be addressed:

1. Jobs in government-run waste management are predominantly held by men, though waste sortation is often handled by women workers.
2. Both women and men working in the plastic industry are exposed to health risks, though safe exposure levels for women are often lower. Further, female workers in the informal sector waste system are more exposed to safety risks, workplace violence and discrimination.
3. As women handle household waste, they are more directly exposed to the negative effects of plastic pollution.
4. Women generally have limited access to finance to support business ventures associated with the circular economy.

The proposed GEF project offers the opportunity to make progress in advancing gender equality, being critical in its own right, in Indonesia. During the project preparation phase, a gender specialist will be engaged to support project design and preparation to ensure it will actively support ADB's Strategy 2030 Operational Priority no. 2 "Accelerating Progress in Gender Equality" and meet ADB's classification for an 'Effective Gender Mainstreaming' project. [1]

The gender specialist will prepare a Gender Action Plan for the project with specific gender-design features to facilitate and ensure women's participation and access to project benefits, and clear gender targets and monitoring indicators. This will help the project to achieve these strategic priorities: (i) women's economic empowerment increased; (ii) gender equality in decision making and leadership enhanced; and (iii) women's time poverty and drudgery reduced.

[1] A project is assigned EGM if the project outcome is not gender equality or women's empowerment, but project outputs are designed to directly improve women's access to social services, and/or economic and financial resources and opportunities, and/or basic rural and urban infrastructure, and/or enhancing voices and rights, which contribute to gender equality and women's empowerment.

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes**

closing gender gaps in access to and control over natural resources;

improving women's participation and decision-making; and/or Yes

generating socio-economic benefits or services for women. Yes

**Will the project's results framework or logical framework include gender-sensitive indicators?**

Yes



#### 4. Private sector engagement

Will there be private sector engagement in the project?

Yes

**Please briefly explain the rationale behind your answer.**

The project will engage the private sector on a number of fronts:

- (i) as active participants in design and implementation of the Circular Business Hub, CEKH and CETF;
- (ii) as beneficiaries of actions taken to reduce/mitigate plastic pollution (e.g. the tourism and fisheries sectors);
- (iii) as recipients of new knowledge and applications of best practice;
- (iv) as participants in and beneficiaries of technology and innovation promotion activities;
- (v) as providers of professional services and goods for project implementation;
- (vi) as future investors, benefiting from the research, analysis and development of the NPAP Financing Roadmap; and
- (vii) as potential beneficiaries of investments prepared under the project and beyond, particularly those designed to assist private sector companies to adopt and internalize circular economy within their business practices (through the ADB Private Sector Operations Department).

Importantly, the proposed GEF project will contribute towards transformational change by harnessing the private sector as an “agent of scaling,” with all components of the project being interlinked with a view to creating a new generation of investment programs and projects that integrate action on marine plastic and encourage circular economy.

## 5. Risks

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved or may be resulting from project implementation, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable).

A summary of some key risks is provided below and a full risk analysis will be undertaken during the project preparation phase.

Risk	Mitigating Measures
Indonesia is not fully committed to participate in the project	Indonesia has shown a consistent commitment to tackling its plastic problem and has a history of successful participation in projects. The project is being scoped and designed in collaboration with government agencies so that it is responsive to Indonesia's needs.
Change of local government during project	The project will demonstrate a positive contribution to the local environment and community with strong community education and engagement activities to maintain relevance and benefit across political groups.
Capacity limitations exist within key executing agencies	A capacity needs assessment will be undertaken during the project preparation phase and capacity-building incorporated into the project. Indonesia has committed significant funding to the CMMA, broadening the resources and bandwidth of the executing agency
Current high levels of interest shown by the private sector, NGOs, and civil society in circular economy could decrease if the interest of the government changes and reduces support	The project has a significant focus on stakeholder, private sector and community engagement (including women and the informal sector) and will work to demonstrate benefits across stakeholder groups, and as such will not be entirely dependent on Government interest levels.
Flooding or natural disaster at the Circular Business Hub (climate risk)	The facility will be located to avoid or reduce climate-related risks and the physical infrastructure climate-proofed.
Potential environmental, socio-economic and health and safety risk from the Circular Business Hub and other project activities	The project is required to comply with ADB's Safeguard Policy Statement (2009) Environmental Safeguards and its assessment, monitoring and reporting and approval procedures. This will entail project screening and preparation of an environmental assessment that identifies potential impacts and risks (including environmental and

es	d socio-economic, such as impacts on livelihoods and vulnerable groups, and occupational and community health and safety) within the project's area of influence, and identifies suitable measures to avoid where possible, or minimize or mitigate the impacts. At the Circular Business Hub workers will be provided with safe and healthy working conditions and preventative and emergency preparedness and response measures will be put in place. An occupational health and safety plan will be prepared during the project preparation phase.
Despite efforts, plastic production continues to increase at current pace	Given the almost insurmountable challenge of getting the fossil fuel industry to change course, the project will look at a range of measures to reduce demand and to manage and reduce plastic waste and pollution. It will encourage the testing and adoption of a circular economy, promote alternative material, processes and business models, and provide credible information to challenge the status quo.

### Environment and Social Safeguards (ESS)

During preparation of this concept (PIF) preliminary environmental and social safeguards (ESS) screening was not possible due to logistics, resource and time constraints. Normally ADB would build on TA or loan-related ESS screenings and assessments which are associated with the GEF financing. However, in this case the ADB co-financing is being processed in parallel, so these are not available.

However, it is possible to provide some initial risk identification and classification based on field level consultations done for this, and related ADB/GEF initiatives in the project countries.

During project preparation, more detailed ESS assessment will be undertaken as part of the broader scoping and site selection process. The project will comply with ADB's Safeguard Policy Statement (2009) and its assessment, monitoring and reporting and approval procedures. This will entail project screening and preparation of an environmental assessment that identifies potential impacts and risks (including environmental and socio-economic, such as impacts on livelihoods and vulnerable groups, and occupational and community health and safety) within the project's area of influence, and identifies suitable measures to avoid where possible, or minimize or mitigate the impacts.

The project will be designed so classified as ADB's Safeguard Category Environment: B, which means that the proposed project's potential adverse environmental impacts are site-specific, few if any of them are irreversible. Mitigation measures can be readily designed. It will also adhere to ADB's Social Protection Policy (2001) as relevant. Gender and social development specialists will be engaged to support project preparation.

Safeguard standard relevant to project	Risk Rating (Low, Medium, High)	Notes / Comments
Gender equality	Low	A gender equality specialist will be engaged to support project design and preparation to ensure it will actively support ADB's Strategy 2030 Operational Priority no. 2 "Accelerating Progress in Gender Equality" and meet ADB's classification for an 'Effective Gender Mainstreaming' project.

		<p>The project will engage and empower women in stakeholder consultations that will inform project design, as well as in leadership roles during project implementation (e.g. membership in CoFOs, women-led proposals for the Circular Economy Business Hub). The project intends to achieve the following strategic priorities: (i) women's economic empowerment increased; (ii) gender equality in decision making and leadership enhanced; and (iii) women's time poverty and drudgery reduced.</p>
Biodiversity and natural habitats	Low	<p>The project will support proactive efforts to prevent wastes from entering the natural environment and coastal and marine ecosystems.</p> <p>The project sites will be in already heavily modified environments within cities and selected so to not have negative impacts on biodiversity and natural habitats. To the extent possible the project will promote improved management of biodiversity and natural habitats, particularly as the it is linked to the ADB Action Plan for Healthy Oceans and Sustainable Blue Economies.</p>
Resource efficiency, pollution prevention, chemicals and wastes management	Low	<p>Resource efficiency, pollution prevention and reduction are key elements in building a circular economy for plastics. By creating value for waste and problematic plastics, the design and manufacturing of new products are expected to use discarded wastes as raw materials instead of virgin plastics and other newly extracted raw materials.</p> <p>The project will also explore elimination and substitution of problematic plastics by extending the life of specific products and exploring alternative delivery systems for goods (e.g., refilling stations for household essentials). Further, the activities contribute to Indonesia's national targets to reduce or substitute plastic usage; redesign plastic products and packaging; double plastic waste collection; and double current recycling capacity.</p> <p>The project will also contribute to reduced emissions of dioxins by diverting plastics away from open burning and incineration; as well as encouraging use of alternatives or substitutes.</p>
Involuntary resettlement	Low	<p>This project will not involve any involuntary resettlement. The project sites will be selected in close consultation with the national and local governments and civil society groups, and activities aim to build</p>

		capacity of local communities and maximize local resources.
Indigenous peoples	Low	<p>The proposed project is not expected to have negative impacts to indigenous peoples.</p> <p>It is possible that customary communities (“adat”) particularly fishers may be present in areas where the project deals with ghost fishing gear. There are already a number of government and non-government agencies active with these coastal communities. Initial screening of, and consultations with, these communities will be included in the broader ESS assessment during project preparation.</p>
Occupational health, safety and labour conditions	Low	<p>The project will not use child labour, nor will it decrease employment. It will aim to improve health, safety and labour conditions through capacity development and training for local communities, including the informal waste sector. The Project would adhere to GEF and other internationally recognized standards, such as those of the International Labour Organization (ILO).</p> <p>At the Circular Business Hub workers will be provided with safe and healthy working conditions (including equipment) and preventative and emergency preparedness and response measures will be put in place. Information sessions on occupational health and safety will be conducted with the waste-picker communities, waste banks, collection hubs and other stakeholders associated with the Circular Business Hub.</p> <p>The overall ESS assessment during project preparation will include screening of occupational health and safety concerns for this sector, including a monitoring component.</p>
Physical cultural heritage	Low	<p>There may be historical, cultural, artistic, traditional or religious values and beliefs that will need to be recognized and protected in relation to plastic use and disposal. This could also include some Islamic principles associated with waste management.</p> <p>Strategies to identify, protect and adhere to such values will be jointly developed through participatory processes with stakeholders and local communities and institutions.</p>
Economic sustainability	Low	The project will not have direct negative impacts on livelihoods for local communities. Rather, it seeks to understand the current market for plastics and

	<p>create a higher value for targeted plastics by engaging local communities and developing business models. The Circular Business Hub will act as a catalyst and incubator, where innovative stakeholders can test concepts, technologies, and experiments before scaling these to ensure minimal risk.</p> <p>The project also aims to build governance mechanisms to support the plastics circular economy through culturally appropriate and socially just regulatory measures and policies. Robust policy analysis and regulatory impact statements will be conducted prior to proposing market-based or fiscal instruments, bans etc. that impact markets and prices.</p>
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## 6. Coordination

**Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.**

### *Global coordination and partnerships*

At the global level, ADB will prioritize coordination and collaboration with GPAP and the NPAP, through its secretariat at the World Resources Institute in Jakarta. This will help to bring global experiences and best-practices on fast-tracking circular economy solutions to the program and participating countries. This collaboration is integrated throughout the project design and articulated in several parts of the document.

### *Regional coordination*

To ensure regional coordination and collaboration, and a mainstreamed/sustainable program, ADB will form new or strengthen existing partnerships with several regional coordination / intergovernmental bodies, based on the relative mandates, spatial coverage of programs, internal capacity, links with domestic institutions, networks etc. This type of 'hybrid' partnership is considered the best approach due to the broad scope of this program in terms of geography, levels of government, and activities. Regional intergovernmental bodies will likely include: ASEAN Secretariat, PEMSEA Resource Facility and COBSEA, plus well-established ADB-supported sub-regional cooperation programs - the Indonesia-Malaysia-Thailand Growth Triangle and Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area.

### *Relevant GEF projects in Indonesia*

This GEF-7 project will benefit from the knowledge and lessons generated by the GEF-5 project titled "Reducing Releases of PBDEs and UOPs originating from unsound waste management and recycling practices and the manufacturing of plastics in Indonesia" (GEF ID 5052) with UNDP as the GEF Agency and the Ministry of Industry as executing partner. In particular it will draw on the work conducted with respect to: i) Detailed inventory on polybrominated diphenyl ethers (PBDEs), imported, handled and applied in plastics manufacturing, ii) Capacity building work on finding suitable PBDE alternatives, iii) Development of quality assurance programs PBDE-free plastic manufacturing and, iv) approaches taken to create awareness and understanding at the level of government, industry and civil society. In particular, it will be important to learn from the development of the EPR, which covered 14 plastic industries, four recyclers, three manufacturers association, four governments agencies, and two universities covering three provinces (Jakarta, West Java and East Java Provinces)<sup>[1]</sup>.

### *Country level institutional arrangements*

At the country level, ADB will work through the designated national focal point agencies and in close coordination with other development partners. A multi-stakeholder project steering committee may be created and could be chaired by the CMMAI, with representation from the MOEF, MMAF, MHPW and NPAP Secretariat through World Resources Institute (WRI) Indonesia. The institutional arrangements will be developed during the project preparation phase.

<sup>[1]</sup> 2019 PIR GEF ID 5052

## 7. Consistency with National Priorities

### Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions

Yes

If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc

- National Action Plan for Adaptation (NAPA) under LDCF/UNFCCC
- National Action Program (NAP) under UNCCD
- ASGM NAP (Artisanal and Small-scale Gold Mining) under Mercury
- Minamata Initial Assessment (MIA) under Minamata Convention
- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD
- National Communications (NC) under UNFCCC
- Technology Needs Assessment (TNA) under UNFCCC
- National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD
- National Implementation Plan (NIP) under POPs
- Poverty Reduction Strategy Paper (PRSP)
- National Portfolio Formulation Exercise (NPFE) under GEFSEC
- Biennial Update Report (BUR) under UNFCCC
- Others

The Convention on Biological Diversity (CBD) recognizes that marine debris is a key global environmental concern, and poses serious threats to marine and coastal biodiversity. [1] Around 75% of all marine debris is plastic, a persistent and potentially hazardous pollutant, which fragments into microplastic that can be taken up, or bio-accumulated, by a wide range of marine organisms. Countries that are signatories to the CBD would need to prioritize plastic-related concerns in their national biodiversity strategic action plans, if they have not already. Critical among the issues is the pervasiveness of microplastic. Plastic represents a persistent pollutant that is already present vertically - in all marine and freshwater habitats across the globe; and horizontally – from ocean surface to seabed – with every level of the food web exposed.

The Stockholm Convention recognizes that plastic pollution can arise at all stages during the life-cycle, from leakages during production and manufacturing, abrasion while products are in use, to dumping or poor practices in the handling of wastes. Plastic may contain hazardous substances including POPs. Plastic can also absorb POPs such as PCB, DDT and dioxins and these are frequently present in marine plastic litter. In 2018, the Convention controls 28 POPs, including those which have been used as additives, flame retardants or plasticizers in plastic.

The provisions of the Basel Convention apply to plastic waste, as some plastic is listed as “hazardous wastes”, much of which is generated at household level. In 2016, UNEA emphasized the importance of this elaboration, to expand the meaning of environmentally sound management of waste, including waste prevention, minimization and recovery, to address the underlying causes of marine litter and plastic. In 2017, the Conference of the Parties to the Basel Convention decided that its Open-ended Working Group consider relevant options available under the Convention to further address marine plastic litter and microplastics. The Household Waste Partnership also includes plastics in the definition of “environmentally sound management of household wastes”. Regional centres of the Basel and Stockholm Conventions now work on the impact of plastic waste, marine plastic litter, microplastic, and measures for prevention and environmentally sound management. [2]

The project will contribute directly to the objectives of the Indonesia Plan of Action on Marine Plastic Debris 2017-2025 (NPOA). The strategy sets an ambitious target of 70% reduction in marine plastic debris by 2025, and recognizes the importance of source prevention combined with evidence-based science in developing policies and regulations. The NPOA, whose Secretariat is chaired by the CMMA, addresses five main pillars: i) improving stakeholder awareness and behaviour change, ii) reducing land-based leakage of plastics, particularly from cities and human settlements, iii) reducing ocean-based sources of plastic, including ships, fishing lines and pleasure boats, iv) engaging plastics manufacturers to use recycled plastics as input materials as much as possible, while at the same time producing more biodegradable plastics, and v) enhancing financial mechanisms, policy reform and law enforcement.



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[1] Marine Debris: Understanding, Preventing and Mitigating the Significant Adverse Impacts on Marine and Coastal Biodiversity. Technical Series No.83. Secretariat of the Convention on Biological Diversity, Montreal, 2016. Microplastics are defined as plastic pieces or fragments less than 5 millimetres in diameter.

[2] Communiqué from Secretariat of the Basel, Rotterdam and Stockholm Conventions. 2018.

## 8. Knowledge Management

**Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.**

During the project preparation phase, a knowledge management strategy will be drafted for the project, in consultation with key stakeholders. The general approach to knowledge management will be designed within the broad framework of ADB's Finance ++ approach, the GEF knowledge management, the GEF STAP guidance, the GPAP Plastic Action Playbook (GPAP in a Box), and other best practices in behavior change communications. KM actions have been mainstreamed throughout the Alternative Scenario, for example, Outputs 1.1, 1.4, 2.3 as well as Outcome 3. More specifically the knowledge management framework will aim to:

- (i) develop high quality and innovative knowledge services and products to address the current and emerging challenges of marine plastic pollution, in order to design appropriate action plans, provide high quality policy advice and investment preparation, as well as build capacity for knowledge and innovation.
- (ii) capture and disseminate lessons learned from project implementation to facilitate scaled-up interventions in Indonesia
- (iii) identify and expand knowledge partnerships (e.g communities of practice), dissemination and feedback channels to increase the usage and effectiveness of the project's knowledge services and products
- (iv) curate data and relevant metrics into a broader knowledge framework in Indonesia, as well as within ADB's and GEF's enterprise-wide systems, and
- (v) contribute to South-South and global learning systems.

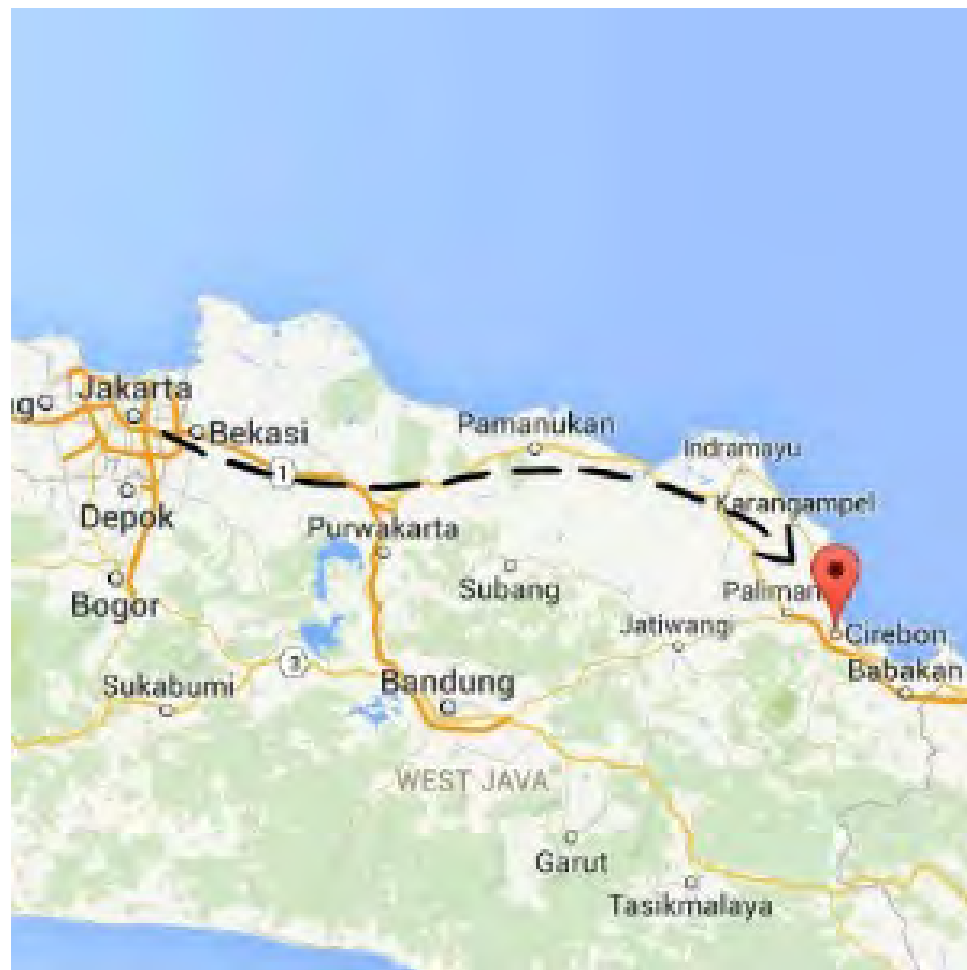
**Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).**

<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b>
Ibu Laksmi Dhewanthi	Senior Advisor to the Minister on Industry and International Trade	Ministry of Environment and Forestry	

**ANNEX A: Project Map and Geographic Coordinates**

Please provide geo-referenced information and map where the project intervention takes place



Cirebon is a preferred site for investment activities under Outcome 2 (to be confirmed during project preparation)

Indonesian National Plastic Waste Generation	6,800,000	SystemIQ 2019
Plastic Recycled or Otherwise Safely Disposed (t/yr)	2,568,000	SystemIQ 2019
Open Burning of Plastic (t/yr)	3,210,552	SystemIQ 2019
Plastic Dumped on Land (t/yr)	331,840	SystemIQ 2019
Plastic Leaked to the Oceans (t/yr)	601,460	SystemIQ 2019
Total Indonesian Plastics Mis-Managed (t/yr)	4,143,852	
Indonesian National Population	270,625,568	UN
Current Best Possible Diversion Rate	80%	SystemIQ 2019
National Open Burning of Plastic Best Possible Diversion (t/yr)	2,568,442	Calculation
National Plastic Dumped on Land Best Possible Diversion (t/yr)	265,472	Calculation
National Plastic Leaked to the Oceans Best Possible Diversion (t/yr)	481,168	Calculation
Cirebon Population	2,541,830	Wikipedia 2019
Cirebon as percentage of the National Population	0.94%	Calculation
Cirebon Open Burning of Plastic (t/yr)	30,155	Calculation
Cirebon Plastic Dumped on Land (t/yr)	3,117	Calculation
Cirebon Plastic Leaked to the Oceans (t/yr)	5,649	Calculation
Current Best Possible Diversion Rate	80%	Calculation
Cirebon Open Burning of Plastic Best Possible Diversion (t/yr)	24,124	Calculation
Cirebon Plastic Dumped on Land Best Possible Diversion (t/yr)	2,493	Calculation
Cirebon Plastic Leaked to the Oceans Best Possible Diversion (t/yr)	4,519	Calculation

			Project Phase				Extended Benefit Phase									
	Year	Notes and Assumptions	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Waste Increase	Estimated Annual Increase in Waste		2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
National	Baseline Number: Ocean (t/yr)		601,460	616,497	631,909	647,707	663,899	680,497	697,509	714,947	732,821	751,141	769,920	789,168	808,897	829,119
	Baseline Number: Combustion (t/yr)		3,210,552	3,290,816	3,373,086	3,457,413	3,543,849	3,632,445	3,723,256	3,816,337	3,911,746	4,009,540	4,109,778	4,212,522	4,317,836	4,425,781
	Project Impact Discount Rate	Assumed Ramp Up of Project Impacts	80%	70%	60%	50%	45%	40%	35%	30%	25%	20%	20%	20%	20%	20%
National	Diversion from Oceans due to Project (t/yr)		120292	184949	252764	323853	365145	408298	453381	500463	549615	600913	615936	631334	647117	663295
	Diversion from Combustion due to Project (t/yr)		642,110	987,245	1,349,234	1,728,707	1,949,117	2,179,467	2,420,116	2,671,436	2,933,809	3,207,632	3,287,822	3,370,018	3,454,268	3,540,625
	gTEQ avoided due to project (UNEP Toolkit) (g/yr)	Based on UNEP Dioxin Toolkit Figures for Open Burning of PVC rich plastics	963.2	1480.9	2023.9	2593.1	2923.7	3269.2	3630.2	4007.2	4400.7	4811.4	4931.7	5055.0	5181.4	5310.9

			Project Phase				Extended Benefit Phase									
	Year	Notes	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Waste Increase	Estimated Annual Increase in Waste		2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Cirebon	Baseline Number: Ocean (t/yr)		4519	4632	4748	4867	4988	5113	5241	5372	5506	5644	5785	5930	6078	6230
	Baseline Number: Combustion (t/yr)		24,124	24,727	25,345	25,979	26,628	27,294	27,976	28,676	29,393	30,127	30,881	31,653	32,444	33,255
	Project Impact Discount Rate	Assumed Ramp Up of Project Impacts	80%	70%	60%	50%	45%	40%	35%	30%	25%	20%	20%	20%	20%	20%
Cirebon	Diversion from Oceans due to Project (t/yr)		904	1390	1899	2433	2744	3068	3407	3760	4130	4515	4628	4744	4862	4984
	Diversion from Combustion due to Project (t/yr)		4,825	7,418	10,138	12,989	14,646	16,376	18,185	20,073	22,044	24,102	24,704	25,322	25,955	26,604
	gTEQ avoided due to project (UNEP Toolkit) (g/yr)	Based on UNEP Dioxin Toolkit Figures for Open Burning of PVC rich plastics	7.2	11.1	15.2	19.5	22.0	24.6	27.3	30.1	33.1	36.2	37.1	38.0	38.9	39.9

## GEF 7 TAXONOMY

## Annex C

Please identify the taxonomic information required in Part I, Item G by ticking the most relevant keywords/ topics/themes that best describe the project.

Level 1	Level 2	Level 3	Level 4
<input checked="" type="checkbox"/> <b>Influencing models</b>			
	<input checked="" type="checkbox"/> <b>Transform policy and regulatory environments</b>		
	<input checked="" type="checkbox"/> <b>Strengthen institutional capacity and decision-making</b>		
	<input checked="" type="checkbox"/> <b>Convene multi-stakeholder alliances</b>		
	<input checked="" type="checkbox"/> <b>Demonstrate innovative approaches</b>		
	<input checked="" type="checkbox"/> <b>Deploy innovative financial instruments</b>		
<input checked="" type="checkbox"/> <b>Stakeholders</b>			
	<input type="checkbox"/> <b>Indigenous Peoples</b>		
	<input checked="" type="checkbox"/> <b>Private Sector</b>		
		<input type="checkbox"/> Capital providers	
		<input type="checkbox"/> Financial intermediaries and market facilitators	
		<input checked="" type="checkbox"/> Large corporations	
		<input checked="" type="checkbox"/> SMEs	
		<input checked="" type="checkbox"/> Individuals/Entrepreneurs	
		<input type="checkbox"/> Non-Grant Pilot	
		<input type="checkbox"/> Project Reflow	
	<input checked="" type="checkbox"/> <b>Beneficiaries</b>		
	<input checked="" type="checkbox"/> <b>Local Communities</b>		
	<input checked="" type="checkbox"/> <b>Civil Society</b>		
		<input checked="" type="checkbox"/> Community Based Organization	
		<input checked="" type="checkbox"/> Non-Governmental Organization	
		<input type="checkbox"/> Academia	
		<input type="checkbox"/> Trade Unions and Workers Unions	
	<input checked="" type="checkbox"/> <b>Type of Engagement</b>		
		<input checked="" type="checkbox"/> Information Dissemination	
		<input type="checkbox"/> Partnership	
		<input checked="" type="checkbox"/> Consultation	
		<input checked="" type="checkbox"/> Participation	
	<input checked="" type="checkbox"/> <b>Communications</b>		
		<input checked="" type="checkbox"/> Awareness Raising	
		<input checked="" type="checkbox"/> Education	
		<input checked="" type="checkbox"/> Public Campaigns	
		<input checked="" type="checkbox"/> Behavior Change	
<input checked="" type="checkbox"/> <b>Capacity, Knowledge and Research</b>			
	<input type="checkbox"/> <b>Enabling Activities</b>		
	<input checked="" type="checkbox"/> <b>Capacity Development</b>		
	<input checked="" type="checkbox"/> <b>Knowledge Generation and Exchange</b>		
	<input type="checkbox"/> <b>Targeted Research</b>		
	<input checked="" type="checkbox"/> <b>Learning</b>		
		<input type="checkbox"/> Theory of Change	
		<input type="checkbox"/> Adaptive Management	
		<input checked="" type="checkbox"/> Indicators to Measure Change	
	<input checked="" type="checkbox"/> <b>Innovation</b>		
	<input checked="" type="checkbox"/> <b>Knowledge and Learning</b>		

		<input checked="" type="checkbox"/> Knowledge Management	
		<input checked="" type="checkbox"/> Innovation	
		<input checked="" type="checkbox"/> Capacity Development	
		<input checked="" type="checkbox"/> Learning	
	<input checked="" type="checkbox"/> Stakeholder Engagement Plan		
<input type="checkbox"/> Gender Equality			
	<input checked="" type="checkbox"/> Gender Mainstreaming		
		<input checked="" type="checkbox"/> Beneficiaries	
		<input type="checkbox"/> Women groups	
		<input checked="" type="checkbox"/> Sex-disaggregated indicators	
		<input type="checkbox"/> Gender-sensitive indicators	
	<input checked="" type="checkbox"/> Gender results areas		
		<input type="checkbox"/> Access and control over natural resources	
		<input checked="" type="checkbox"/> Participation and leadership	
		<input checked="" type="checkbox"/> Access to benefits and services	
		<input checked="" type="checkbox"/> Capacity development	
		<input checked="" type="checkbox"/> Awareness raising	
		<input checked="" type="checkbox"/> Knowledge generation	
<input checked="" type="checkbox"/> Focal Areas/Theme			
	<input type="checkbox"/> Integrated Programs		
		<input type="checkbox"/> Commodity Supply Chains (1Good Growth Partnership)	
			<input type="checkbox"/> Sustainable Commodities Production
			<input type="checkbox"/> Deforestation-free Sourcing
			<input type="checkbox"/> Financial Screening Tools
			<input type="checkbox"/> High Conservation Value Forests
			<input type="checkbox"/> High Carbon Stocks Forests
			<input type="checkbox"/> Soybean Supply Chain
			<input type="checkbox"/> Oil Palm Supply Chain
			<input type="checkbox"/> Beef Supply Chain
			<input type="checkbox"/> Smallholder Farmers
			<input type="checkbox"/> Adaptive Management
		<input type="checkbox"/> Food Security in Sub-Saharan Africa	
			<input type="checkbox"/> Resilience (climate and shocks)
			<input type="checkbox"/> Sustainable Production Systems
			<input type="checkbox"/> Agroecosystems
			<input type="checkbox"/> Land and Soil Health
			<input type="checkbox"/> Diversified Farming
			<input type="checkbox"/> Integrated Land and Water Management
			<input type="checkbox"/> Smallholder Farming
			<input type="checkbox"/> Small and Medium Enterprises
			<input type="checkbox"/> Crop Genetic Diversity
			<input type="checkbox"/> Food Value Chains
			<input type="checkbox"/> Gender Dimensions
			<input type="checkbox"/> Multi-stakeholder Platforms
		<input type="checkbox"/> Food Systems, Land Use and Restoration	
			<input type="checkbox"/> Sustainable Food Systems
			<input type="checkbox"/> Landscape Restoration
			<input type="checkbox"/> Sustainable Commodity Production
			<input type="checkbox"/> Comprehensive Land Use Planning
			<input type="checkbox"/> Integrated Landscapes
			<input type="checkbox"/> Food Value Chains
			<input type="checkbox"/> Deforestation-free Sourcing

		<input type="checkbox"/> Sustainable Cities	<input type="checkbox"/> Smallholder Farmers
			<input type="checkbox"/> Integrated urban planning
			<input type="checkbox"/> Urban sustainability framework
			<input type="checkbox"/> Transport and Mobility
			<input type="checkbox"/> Buildings
			<input type="checkbox"/> Municipal waste management
			<input type="checkbox"/> Green space
			<input type="checkbox"/> Urban Biodiversity
			<input type="checkbox"/> Urban Food Systems
			<input type="checkbox"/> Energy efficiency
			<input type="checkbox"/> Municipal Financing
			<input type="checkbox"/> Global Platform for Sustainable Cities
			<input type="checkbox"/> Urban Resilience
	<input type="checkbox"/> Biodiversity		
		<input type="checkbox"/> Protected Areas and Landscapes	
			<input type="checkbox"/> Terrestrial Protected Areas
			<input type="checkbox"/> Coastal and Marine Protected Areas
			<input type="checkbox"/> Productive Landscapes
			<input type="checkbox"/> Productive Seascapes
			<input type="checkbox"/> Community Based Natural Resource Management
		<input type="checkbox"/> Mainstreaming	
			<input type="checkbox"/> Extractive Industries (oil, gas, mining)
			<input type="checkbox"/> Forestry (Including HCVF and REDD+)
			<input type="checkbox"/> Tourism
			<input type="checkbox"/> Agriculture & agrobiodiversity
			<input type="checkbox"/> Fisheries
			<input type="checkbox"/> Infrastructure
			<input type="checkbox"/> Certification (National Standards)
			<input type="checkbox"/> Certification (International Standards)
		<input type="checkbox"/> Species	
			<input type="checkbox"/> Illegal Wildlife Trade
			<input type="checkbox"/> Threatened Species
			<input type="checkbox"/> Wildlife for Sustainable Development
			<input type="checkbox"/> Crop Wild Relatives
			<input type="checkbox"/> Plant Genetic Resources
			<input type="checkbox"/> Animal Genetic Resources
			<input type="checkbox"/> Livestock Wild Relatives
			<input type="checkbox"/> Invasive Alien Species (IAS)
		<input type="checkbox"/> Biomes	
			<input type="checkbox"/> Mangroves
			<input type="checkbox"/> Coral Reefs
			<input type="checkbox"/> Sea Grasses
			<input type="checkbox"/> Wetlands
			<input type="checkbox"/> Rivers
			<input type="checkbox"/> Lakes
			<input type="checkbox"/> Tropical Rain Forests
			<input type="checkbox"/> Tropical Dry Forests
			<input type="checkbox"/> Temperate Forests
			<input type="checkbox"/> Grasslands
			<input type="checkbox"/> Paramo
			<input type="checkbox"/> Desert
		<input type="checkbox"/> Financial and Accounting	
			<input type="checkbox"/> Payment for Ecosystem Services



			<input type="checkbox"/> Natural Capital Assessment and Accounting
			<input type="checkbox"/> Conservation Trust Funds
			<input type="checkbox"/> Conservation Finance
		<input type="checkbox"/> Supplementary Protocol to the CBD	
			<input type="checkbox"/> Biosafety
			<input type="checkbox"/> Access to Genetic Resources Benefit Sharing
	<input type="checkbox"/> Forests		
		<input type="checkbox"/> Forest and Landscape Restoration	
			<input type="checkbox"/> REDD/REDD+
		<input type="checkbox"/> Forest	
			<input type="checkbox"/> Amazon
			<input type="checkbox"/> Congo
			<input type="checkbox"/> Drylands
	<input type="checkbox"/> Land Degradation		
		<input type="checkbox"/> Sustainable Land Management	
			<input type="checkbox"/> Restoration and Rehabilitation of Degraded Lands
			<input type="checkbox"/> Ecosystem Approach
			<input type="checkbox"/> Integrated and Cross-sectoral approach
			<input type="checkbox"/> Community-Based NRM
			<input type="checkbox"/> Sustainable Livelihoods
			<input type="checkbox"/> Income Generating Activities
			<input type="checkbox"/> Sustainable Agriculture
			<input type="checkbox"/> Sustainable Pasture Management
			<input type="checkbox"/> Sustainable Forest/Woodland Management
			<input type="checkbox"/> Improved Soil and Water Management Techniques
			<input type="checkbox"/> Sustainable Fire Management
			<input type="checkbox"/> Drought Mitigation/Early Warning
		<input type="checkbox"/> Land Degradation Neutrality	
			<input type="checkbox"/> Land Productivity
			<input type="checkbox"/> Land Cover and Land cover change
			<input type="checkbox"/> Carbon stocks above or below ground
		<input type="checkbox"/> Food Security	
	<input checked="" type="checkbox"/> International Waters		
		<input checked="" type="checkbox"/> Ship	
		<input checked="" type="checkbox"/> Coastal	
		<input checked="" type="checkbox"/> Freshwater	
			<input type="checkbox"/> Aquifer
			<input checked="" type="checkbox"/> River Basin
			<input type="checkbox"/> Lake Basin
		<input type="checkbox"/> Learning	
		<input checked="" type="checkbox"/> Fisheries	
		<input type="checkbox"/> Persistent toxic substances	
		<input type="checkbox"/> SIDS : Small Island Dev States	
		<input type="checkbox"/> Targeted Research	
		<input checked="" type="checkbox"/> Pollution	
			<input type="checkbox"/> Persistent toxic substances
			<input checked="" type="checkbox"/> Plastics
			<input type="checkbox"/> Nutrient pollution from all sectors except wastewater
			<input type="checkbox"/> Nutrient pollution from Wastewater

		<input type="checkbox"/> Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		<input type="checkbox"/> Strategic Action Plan Implementation	
		<input type="checkbox"/> Areas Beyond National Jurisdiction	
		<input type="checkbox"/> Large Marine Ecosystems	
		<input type="checkbox"/> Private Sector	
		<input type="checkbox"/> Aquaculture	
		<input type="checkbox"/> Marine Protected Area	
		<input type="checkbox"/> Biomes	
			<input type="checkbox"/> Mangrove
			<input type="checkbox"/> Coral Reefs
			<input type="checkbox"/> Seagrasses
			<input type="checkbox"/> Polar Ecosystems
			<input type="checkbox"/> Constructed Wetlands
	<input checked="" type="checkbox"/> Chemicals and Waste		
		<input type="checkbox"/> Mercury	
		<input type="checkbox"/> Artisanal and Scale Gold Mining	
		<input type="checkbox"/> Coal Fired Power Plants	
		<input type="checkbox"/> Coal Fired Industrial Boilers	
		<input checked="" type="checkbox"/> Cement	
		<input type="checkbox"/> Non-Ferrous Metals Production	
		<input type="checkbox"/> Ozone	
		<input checked="" type="checkbox"/> Persistent Organic Pollutants	
		<input checked="" type="checkbox"/> Unintentional Persistent Organic Pollutants	
		<input type="checkbox"/> Sound Management of chemicals and Waste	
		<input checked="" type="checkbox"/> Waste Management	
			<input type="checkbox"/> Hazardous Waste Management
			<input checked="" type="checkbox"/> Industrial Waste
			<input type="checkbox"/> e-Waste
		<input checked="" type="checkbox"/> Emissions	
		<input checked="" type="checkbox"/> Disposal	
		<input type="checkbox"/> New Persistent Organic Pollutants	
		<input type="checkbox"/> Polychlorinated Biphenyls	
		<input checked="" type="checkbox"/> Plastics	
		<input type="checkbox"/> Eco-Efficiency	
		<input type="checkbox"/> Pesticides	
		<input type="checkbox"/> DDT - Vector Management	
		<input type="checkbox"/> DDT - Other	
		<input type="checkbox"/> Industrial Emissions	
		<input checked="" type="checkbox"/> Open Burning	
		<input type="checkbox"/> Best Available Technology / Best Environmental Practices	
		<input type="checkbox"/> Green Chemistry	
	<input type="checkbox"/> Climate Change		
		<input type="checkbox"/> Climate Change Adaptation	
			<input type="checkbox"/> Climate Finance
			<input type="checkbox"/> Least Developed Countries
			<input type="checkbox"/> Small Island Developing States
			<input type="checkbox"/> Disaster Risk Management
			<input type="checkbox"/> Sea-level rise
			<input type="checkbox"/> Climate Resilience
			<input type="checkbox"/> Climate information
			<input type="checkbox"/> Ecosystem-based Adaptation
			<input type="checkbox"/> Adaptation Tech Transfer
			<input type="checkbox"/> National Adaptation Programme of Action
			<input type="checkbox"/> National Adaptation Plan

			<input type="checkbox"/> Mainstreaming Adaptation
			<input type="checkbox"/> Private Sector
			<input type="checkbox"/> Innovation
			<input type="checkbox"/> Complementarity
			<input type="checkbox"/> Community-based Adaptation
			<input type="checkbox"/> Livelihoods
		<input type="checkbox"/> Climate Change Mitigation	
			<input type="checkbox"/> Agriculture, Forestry, and other Land Use
			<input type="checkbox"/> Energy Efficiency
			<input type="checkbox"/> Sustainable Urban Systems and Transport
			<input type="checkbox"/> Technology Transfer
			<input type="checkbox"/> Renewable Energy
			<input type="checkbox"/> Financing
			<input type="checkbox"/> Enabling Activities
		<input type="checkbox"/> Technology Transfer	
			<input type="checkbox"/> Poznan Strategic Programme on Technology Transfer
			<input type="checkbox"/> Climate Technology Centre & Network (CTCN)
			<input type="checkbox"/> Endogenous technology
			<input type="checkbox"/> Technology Needs Assessment
			<input type="checkbox"/> Adaptation Tech Transfer
		<input type="checkbox"/> United Nations Framework on Climate Change	
			<input type="checkbox"/> Nationally Determined Contribution

#### ANNEX D: Ongoing waste management and circular economy initiatives in Indonesia

Organization	Global/Regional Initiative	Local Initiative	References
Indofood		<p><b>Managing Non-Hazardous Solid Waste</b> Solid waste, which is non-hazardous, is segregated based on the “3R” principles in order to be reduced, reused and recycled. In Agribusiness Group, organic by-products like empty fruit bunches (“EFB”) and palm kernel shells are reused for composting or biomass for boiler feedstock.</p>	<a href="https://www.thejakartapost.com/news/2019/10/26/plastic-waste-from-big-brands-still-polluting-indonesia-report.html">https://www.thejakartapost.com/news/2019/10/26/plastic-waste-from-big-brands-still-polluting-indonesia-report.html</a>
		<p><b>Post-Consumer Packaging Waste</b> Indofood with several retail industry leaders formed the Packaging and Recycling Association for Indonesia Sustainable Environment (“PRAISE”). PRAISE aims to take proactive action in reducing the impact of packaging waste on the environment. It is an excellent platform for the sharing of best practices in packaging, regulatory updates and dialogue on waste management issues.</p>	<a href="https://www.indofood.com/page/managing-waste">https://www.indofood.com/page/managing-waste</a>
		<p>The Waste Bank program aims to raise consumer awareness on the management of post-consumer packaging waste and to engage the public, local government and NGOs to jointly address the packaging waste issue. Through this program, the community members separate and collect recyclable waste to be valued at Waste Bank. The waste collected at Waste Bank was sold for further recycle process</p>	<a href="https://www.indofood.com/sustainability/protecting-the-environment">https://www.indofood.com/sustainability/protecting-the-environment</a>

Chandra Asri		PT Chandra Asri Petrochemical Tbk (CAP), the largest integrated petrochemical company in Indonesia and City Government of Cilegon signed Memorandum of Understanding (MoU) for the construction of asphalt road with mixture of plastic bag waste for 10 kilometers long in Cilegon. According to research conducted by Indonesian Ministry of Public Work and Public Housing (PUPR), the stability of asphalt road with mixture of plastic bag waste, type High Density Polyethylene (HDPE), increase to 40 per cent.	<a href="http://www.chandra-asri.com/files/attachments/press_releases/2019/Chandra%20Asri%20Petrochemical%20Supports%20%20Implementation%20Plastic%20Road%20in%20Cilegon.pdf">http://www.chandra-asri.com/files/attachments/press_releases/2019/Chandra%20Asri%20Petrochemical%20Supports%20%20Implementation%20Plastic%20Road%20in%20Cilegon.pdf</a>
World Bank	ProBlue	The World Bank is supporting several studies and providing financing to fight this in East Asia and Pacific.	<a href="https://www.worldbank.org/en/who-we-are/news/campaigns/2019/east-asia-pacific-marine-plastic-pollution">https://www.worldbank.org/en/who-we-are/news/campaigns/2019/east-asia-pacific-marine-plastic-pollution</a>
	What A Waste 2.0		<a href="http://datatopics.worldbank.org/what-a-waste/tackling_increasing_plastic_waste.html">http://datatopics.worldbank.org/what-a-waste/tackling_increasing_plastic_waste.html</a>
United in Diversity (UID)		Envirochallenge is a movement that challenges high school students or equivalent to develop school-wide environmental initiatives. 25 high schools or equivalent in Jabodetabek, Bandung Metropolitan and Bali have been engaged in an attempt to reduce plastic pollution.	<a href="https://sdsnyouth.org/blog-posts/12/18/envirochallenge-movement-in-bandung-and-bali-to-reduce-plastic-pollution">https://sdsnyouth.org/blog-posts/12/18/envirochallenge-movement-in-bandung-and-bali-to-reduce-plastic-pollution</a>
Indonesia Waste Platform		<p>Indonesia - The Indonesian Waste Platform (IWP) was established in October 2015 as a 'hub' connecting stakeholders who are involved in solutions on land-based and marine-based waste from all sectors and regions in Indonesia and abroad.</p> <p>IWP promotes and facilitates cross-sector and cross-border collaboration, the forming of a common-shared vision, strategy and action plans.</p>	<a href="http://www.indonesianwaste.org/en/home/">http://www.indonesianwaste.org/en/home/</a>

Nestl	Commitment to making 100% of our packaging recyclable or reusable by 2025. Creation of its Institute of Packaging Sciences to evaluate and develop various sustainable packaging materials and to collaborate with industrial partners to develop new packaging materials and solutions	Reducing the thickness of tinplate used in the packaging for sweetened condensed milk and Nestlé BEAR BRAND products, which has enabled us to reduce can packaging weight by 745 tonnes every year. In addition, this year we have also started reducing the width of the printed label on our sweetened condensed milk products packaging, which is predicted to reduce paper use for labels by 2%, or around 6.5 tonnes every year.	<a href="https://www.nestle.co.id/en/as-k-nestle/nestle-in-indonesia/environment/green-peace-plastic-waste-research-finding">https://www.nestle.co.id/en/as-k-nestle/nestle-in-indonesia/environment/green-peace-plastic-waste-research-finding</a>
		Started the optimization of plastic wrapping on finished goods this year, resulting in 13% reduction of plastic shrink film compared to the previous year.	<a href="https://www.nestle.com/media/pressreleases/allpressreleases/nestle-action-tackle-plastic-waste">https://www.nestle.com/media/pressreleases/allpressreleases/nestle-action-tackle-plastic-waste</a>
		Using recycled materials for all our products using this type of packaging since 2014. All our product packaging using carton has included the FSC logo on the label, which means that the material used in the packaging is sourced from a forest managed responsibly and sustainably.	
		Rolling out the paper straws on the Nescafé packaged drinks — for its two modern-day variants, the Lively Yuzu and Cool Coconut — throughout October to December this year.	<a href="https://www.thejakartapost.com/adv/2019/10/03/nestle-launches-paper-straws-cups-to-curb-plastic-use.html">https://www.thejakartapost.com/adv/2019/10/03/nestle-launches-paper-straws-cups-to-curb-plastic-use.html</a>
		Nestlé and Project STOP today received the support of the regional government of Pasuruan in East Java, Indonesia, to establish a Material Recovery Facility, a key component to create a comprehensive waste management system for communities in the area.	<a href="https://www.nestle.com/media/news/nestle-project-stop-create-sustainable-waste-management-system">https://www.nestle.com/media/news/nestle-project-stop-create-sustainable-waste-management-system</a>
H&M	H&M also has a vision of achieving 100 percent renewable production by only using recycled and sustainable materials	Tirta Investama, the local unit of French consumer giant Danone and producer of Aqua, Indonesia's oldest brand of bottled water, has teamed up with Swedish budget clothing giant Hennes & Mauritz, better known as H&M, to turn plastic waste into clothing products.	<a href="https://jakartaglobe.id/business/danone-aqua-hm-agree-to-turn-plastic-waste-into-fashion-products/">https://jakartaglobe.id/business/danone-aqua-hm-agree-to-turn-plastic-waste-into-fashion-products/</a>

	in all its products by 2030.		
Unilever	In January 2017, we committed to ensuring that 100% of our plastic packaging will be designed to be fully reusable, recyclable or compostable by 2025. To help create an end market for this material, we also committed to increase the recycled plastic content in our packaging to at least 25% by 2025.	<p>CreaSolv® Sachet Recycling technology is a breakthrough process that produces safe, high-quality polymers for use again and again – including in our non-food packaging sachets. It enables us to recover six kilos of pure polymers with the same energy effort as the production of one kilo of virgin polymer, reducing the CO2 footprint of sachets.</p> <p>Our pilot plant in Indonesia, opened in 2018, is the only facility in the world where this technology is being used to recycle sachets. It can process three tonnes of material a day. Once we've proved the technical and commercial viability of the technology, our ambition is to start discussions with investors and other interested parties to develop a full-scale commercial plant, capable of processing around 30 tonnes of material a day.</p>	<a href="https://www.unilever.com/sustainable-living/reducing-environmental-impact/waste-and-packaging/rethinking-plastic-packaging/">https://www.unilever.com/sustainable-living/reducing-environmental-impact/waste-and-packaging/rethinking-plastic-packaging/</a>
PRAISE		PRAISE (Packaging and Recycling Association for Indonesia Sustainable Environment)	<a href="https://praiseindonesia.com/about/">https://praiseindonesia.com/about/</a>
CSIRO	Undertaking a large plastic pollution survey, working with countries to apply science to reduce the amount of litter entering our oceans.	Will be a member of Indonesia NPAP Steering Board	<a href="https://www.csiro.au/en/Research/OandA/Areas/Marine-resources-and-industries/Marine-debris/Global-marine-pollution">https://www.csiro.au/en/Research/OandA/Areas/Marine-resources-and-industries/Marine-debris/Global-marine-pollution</a>

Alliance to End Plastic Waste	\$1.5B commitment over five years; The Alliance to End Plastic Waste is a not-for-profit organization that includes companies that make, use, sell, process, collect and recycle plastics, including chemical and plastic manufacturers, consumer goods companies, retailers, converters, and waste management companies.		<a href="https://endplasticwaste.org">https://endplasticwaste.org</a>
Coca-Cola Amatil	<p>We aim to help collect and recycle a bottle or can for every one we sell by 2030. We're working to:</p> <p>Make our packaging 100% recyclable by 2025</p> <p>Use 50% recycled material in our bottles and cans by 2030</p>	The Coca-Cola system recently launched its newest production line called the Affordable Small Sparkling Package (ASSP) bottle in Indonesia. The technology that was developed in partnership with KHS GmbH, Germany enables Coca-Cola to produce the first high quality-lighter plastic bottles of its kind in Indonesia and reduce plastic usage by more than 40 percent or approximately over 800 tons per year in Indonesia.	<a href="https://en.cocacola.co.id/stories/coca-cola-indonesia-introduces-assp-technology-to-reduce-plastic">https://en.cocacola.co.id/stories/coca-cola-indonesia-introduces-assp-technology-to-reduce-plastic</a> <a href="https://www.coca-colacompany.com/faqs/what-is-world-without-waste">https://www.coca-colacompany.com/faqs/what-is-world-without-waste</a>



Dow Indonesia	Beginning in 2017, one of the world's largest plastic producers, Dow Chemical, began building roads with recycled plastic as a way to reduce waste. Their combined efforts have saved 220,000 pounds of waste from ending up in landfills.	Dow Packaging and Specialty Plastics (P&SP), a business unit of The Dow Chemical Company, has announced a joint effort with The Indonesian Aromatic & Plastic Olefin Industry Association (INAPLAS); Indonesia Plastic Recycling Association (ADUPI); PT Polytama Propindo (Indonesia PP Manufacturing); the Bandung Institute of Technology (ITB) and the Indonesian government to further develop the country's environmentally friendly plastic road building project. ADUPI will continue to provide the necessary plastics waste material, and together with Dow's technology expertise, will work with various stakeholders to turn that waste into sustainable roads.	<a href="https://www.businessinsider.com/dow-chemical-recycled-plastic-streets-2019-2">https://www.businessinsider.com/dow-chemical-recycled-plastic-streets-2019-2</a> , <a href="https://corporate.dow.com/en-us/news/press-releases/building-sustainable-roads-dow-strengthens-indonesias-plastics-waste-management-efforts">https://corporate.dow.com/en-us/news/press-releases/building-sustainable-roads-dow-strengthens-indonesias-plastics-waste-management-efforts</a>
The Ocean CleanUp	The Ocean Cleanup is designing and developing cleanup systems to clean up what is already polluting our oceans and to intercept plastic on its way to the ocean via rivers.	The very first Interceptor, our prototype, is currently deployed in the Cengkareng Drain in Jakarta. The Ocean Cleanup met with members of the government of Indonesia for the first time in 2016. Jakarta was chosen as the starting place since DKI Jakarta already conducted cleanup operations in rivers here.	<a href="https://theoceancleanup.com/rivers/">https://theoceancleanup.com/rivers/</a> , <a href="https://theoceancleanup.com/updates/the-ocean-cleanup-unveils-plan-to-address-the-main-source-of-ocean-plastic-pollution-rivers/">https://theoceancleanup.com/updates/the-ocean-cleanup-unveils-plan-to-address-the-main-source-of-ocean-plastic-pollution-rivers/</a>
Deloitte		Scouting study commissioned by Nestlé: objective is to better understand how waste is managed in Indonesia, to map waste flows and to identify key stakeholders that could help reduce plastic leakage to the ocean.	<a href="https://www2.deloitte.com/fr/fr/pages/sustainability-services/articles/uncovering-indonesia-packaging-waste-management.html">https://www2.deloitte.com/fr/fr/pages/sustainability-services/articles/uncovering-indonesia-packaging-waste-management.html</a>

Deltares	Deltares is involved in a number of projects that aim to monitor plastics in innovative and more automated ways. For example, Deltares has been involved in experiments for the CleanSea project using our own simulated plastic soup.		<a href="https://www.deltares.nl/en/issues/human-health-needs-knowledge-about-water-and-the-subsurface/tackling-plastic-soup/">https://www.deltares.nl/en/issues/human-health-needs-knowledge-about-water-and-the-subsurface/tackling-plastic-soup/</a>
SAP	SAP stands for Systems, Applications, and Products in Data Processing (Anwendungen und	SAP is onboarding organizations, like Plastics for Change, onto Ariba Network to help integrate the informal waste-picker economy into more formalized supply and demand systems for secondary materials.	<a href="https://www.sap.com/corporate/en.html">https://www.sap.com/corporate/en.html</a>

	<p>Produkte in der Datenverarbeitung in German). SAP innovations help 437,000 customers worldwide work together more efficiently and use business insight more effectively.</p>	<p>According to Stephen Jamieson, head of Sustainable Business Innovation for SAP in the EMEA North region, tools like the “Plastics Cloud” can help tackle the issue of single use plastic in several ways.</p> <p>First, it can create a new marketplace for recycled plastics and connect big brands and waste picker communities in an ethical, consistent manner through Ariba Network.</p> <p>Second, it can drive best practices in responsible production emanating from Northern Europe to all parts of the world. Third, it can connect startups and investors and help them understand the market opportunity for scale out into the markets most needing infrastructure. And lastly, it can engage consumer preferences for sustainable products and help encourage demand for recycled content in products.</p>	<p><a href="https://news.sap.com/2019/06/how-to-create-plastic-free-ocean-in-ten-years/">https://news.sap.com/2019/06/how-to-create-plastic-free-ocean-in-ten-years/</a></p>
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Minderoo Foundation	<p>'Sea the Future' will make fossil-fuel-based plastics more expensive to produce, more valuable to collect, and will tip the scales in favour of re-using the plastics we already have. It will bring innovative recycling technologies into the forefront, making them competitive against the production of plastic from fossil fuels.</p> <p>If, with the benefit of regulatory approvals, industry embraces the 'Sea the Future' initiative, tens of billions of dollars can be collected every year to support the new circular economy and directly deal with the environmental problems.</p> <p>It will drive demand for recycled plastics, which in turn will drive</p>	Will be a member of the Indonesia NPAP Steering Board	<a href="https://www.minderoo.org/no-plastic-waste/">https://www.minderoo.org/no-plastic-waste/</a>
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	collection and recycling efforts.		
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Ellen MacArthur Foundation	<p>The New Plastics Economy Global Commitment unites businesses, governments, and other organisations behind a common vision and targets to address plastic waste and pollution at its source.</p> <p>Signatories include companies representing 20% of all plastic packaging produced globally, as well as governments, NGOs, universities, industry associations, investors, and other organisations.</p>	A number of signatories are piloting initiatives in Indonesia (e.g. Danone, Nestle, SC Johnson, PT Evogaia Karya Indonesia, Unilever)	<a href="https://www.ellenmacarthurfoundation.org/assets/downloads/GC-Report-June19.pdf">https://www.ellenmacarthurfoundation.org/assets/downloads/GC-Report-June19.pdf</a>
#BreakFreeFromPlastic	#breakfreefromplastic is a global movement envisioning a future free from plastic pollution. Since its launch in September 2016, nearly 1,900 organizations from across the world have joined the movement to demand massive reductions in single-	Brand audit during coastal cleanups, advocating for single-use plastic bag bans	<a href="https://www.plasticpollutioncoalition.org/blog/2019/9/23/break-free-from-plastic-conducts-massive-global-brand-audit-actions">https://www.plasticpollutioncoalition.org/blog/2019/9/23/break-free-from-plastic-conducts-massive-global-brand-audit-actions</a>  <a href="https://www.breakfreefromplastic.org/">https://www.breakfreefromplastic.org/</a>

	use plastics and to push for lasting solutions to the plastic pollution crisis.		
World Business Council for Sustainability (WBCS)	WBSC's goal is to build a critical mass of engagement within and across business to move the circular economy to deliver and scale solutions needed to build a sustainable world.	WBCS leads the Food and Land Use Coalition to build a cross-sector program to reduce food loss and waste in Indonesia by 50 percent by 2030.	<a href="https://www.wbcsd.org/Programs/Food-and-Nature/Food-Land-Use/News/New-Partnership-Aims-to-Drastically-Cut-Food-Loss-and-Waste-in-Indonesia">https://www.wbcsd.org/Programs/Food-and-Nature/Food-Land-Use/News/New-Partnership-Aims-to-Drastically-Cut-Food-Loss-and-Waste-in-Indonesia</a>
Consumers Beyond Disposability	A platform that brings together government, civil society and business. Through the platform, stakeholders will help identify, guide and accelerate innovative solutions that promise better outcomes for consumers and the environment.		<a href="https://www.weforum.org/agenda/2019/07/reusable-plastic-packaging/">https://www.weforum.org/agenda/2019/07/reusable-plastic-packaging/</a>  <a href="https://pacecircular.org/consumers-beyond-disposability">https://pacecircular.org/consumers-beyond-disposability</a>

## ANNEX E: Potential stakeholder engagement and link to outputs and KPs

	Engagement	Possible Solutions / Knowledge Products
Government	<ul style="list-style-type: none"> <li>Engagement to examine existing Extended Producer Responsibility policies and legislation</li> <li>Framework modelling to understand the interaction of EPR and related policies and legislation with Indonesia's identified targets and SDGs</li> </ul>	<ul style="list-style-type: none"> <li>EPR Tax Level Assessment tool</li> <li>Policy Instrument guidance on achieving plastics reduction in a way that increases the quality of life for vulnerable communities</li> <li>Guidance on green procurement strategies and actions for plastic items and packaging</li> </ul>
Plastic Importers and Manufacturers	<ul style="list-style-type: none"> <li>Engagement regarding the opportunities for eliminating the use of problematic and unnecessary plastic items, innovation through design for reuse and recycling and increased efforts to circulate plastic waste materials of high value back into the economy.</li> <li>Knowledge generation regarding the challenges and opportunities for circular economy activities and the role of Extended Producer Responsibility in a circular plastics economy</li> <li>Connect and support innovative technologies for both the improved manufacturing of plastics and the elimination of problematic and unnecessary plastic items</li> </ul>	<ul style="list-style-type: none"> <li>Action plans and guidance to address specific barriers to progress and development</li> <li>Guidance for the maximization of recycled content and reduction of virgin polymer use</li> <li>Knowledge sharing and support regarding the use and availability of innovative technologies for closed loop recycling and avoiding downcycling</li> <li>Promoting integration with plastics users and recyclers</li> <li>Guidance on design for reuse and recycling of plastic packaging</li> </ul>
Plastic Packaging Producers	<ul style="list-style-type: none"> <li>Exploration of the opportunities to avoid using plastics in packaging with particular focus on those laminated sachets and</li> </ul>	<ul style="list-style-type: none"> <li>Knowledge sharing and support promoting innovative technologies for avoiding plastic packaging</li> <li>Knowledge sharing of consumer research regarding acceptance</li> </ul>



	<p>thin films which are difficult to recycle</p> <ul style="list-style-type: none"> <li>• Exploration of the opportunities and routes for recycling polymers and their inclusion in new packaging</li> <li>• Discussion on the challenges of substitution of recycled polymers and non plastics packaging with regards to product safety, avoiding waste and religious concerns</li> <li>• Challenges and opportunities of Extended Producer Responsibility</li> <li>• Connect and support innovative technologies for the avoidance and substitution of plastic packaging</li> <li>• Explore opportunities for green jobs and micro business activities within plastic packaging</li> </ul>	<p>and expectations of alternative packaging or product delivery methods</p> <ul style="list-style-type: none"> <li>• Promoting integration and links with plastic manufacturers, retailers and consumer groups to promote dialogue and understanding</li> <li>• Guidance on design for reuse and recycling of plastic packaging</li> </ul>
Retailers	<ul style="list-style-type: none"> <li>• Market research and investigation focused on the challenges and opportunities for retailers associated with reduced plastics packaging</li> <li>• Exploration of circular economy solutions benchmarking global best practice including return and deposit schemes</li> <li>• Identify solutions appropriate to the Indonesian consumer market</li> <li>• Explore opportunities for green jobs and micro business activities within plastic packaging for men and women</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge sharing and best practice benchmarking for alternative product delivery systems</li> <li>• Logistics options to avoid single use wraps and promote return and deposit systems for retail and transport packaging</li> <li>• Guidance on design for reuse and recycling of plastic packaging</li> <li>• Guidance on green procurement ment strategies and actions for plastic items and packaging</li> </ul>
Consumers	<ul style="list-style-type: none"> <li>• Conduct market research to understand consumption habits and key purchase decision drivers</li> </ul>	<ul style="list-style-type: none"> <li>• Education and socialisation of alternative product delivery options</li> <li>• Promote recycling and source segregation with particular</li> </ul>

	<ul style="list-style-type: none"> <li>• Undertake educational activities regarding recycling and circular economy purchasing opportunities</li> <li>• Education for men and women on recycling and waste disposal options with particular focus on avoiding leakage to the environment</li> </ul>	<p>emphasis on avoiding the leakage of plastics to the environment</p> <ul style="list-style-type: none"> <li>• Guidance on green procurement ment strategies and actions for plastic items and packaging</li> </ul>
Waste Collection	<ul style="list-style-type: none"> <li>• Engagement to understand the challenges faced by waste collection with particular focus on difficult plastics</li> <li>• Education regarding source separation and ongoing segregation</li> <li>• Explore opportunities for green jobs and micro business activities to promote recycling and avoidance of environmental leakage for men and women</li> </ul>	<ul style="list-style-type: none"> <li>• Education regarding plastics capture</li> <li>• Introduction of innovative and sustainable business models</li> <li>• Community engagement activities to encourage source segregation and responsible disposal of waste</li> </ul>
Primary Recyclers	<ul style="list-style-type: none"> <li>• Explore opportunities to stimulate collection of difficult plastics</li> <li>• Education activities focusing on segregation and adding value during the primary recycling phase to support local communities</li> <li>• Implement strategies to create green jobs and promote the creation of micro business and gender equality in the recycling industry</li> </ul>	<ul style="list-style-type: none"> <li>• Education on value adding activities to benefit both the community and upstream market opportunities</li> <li>• Introduction of innovative technologies and business practices to reduce plastic leakage and promote upstream flows to support the circular economy</li> </ul>
Specialist Recyclers/ Innovative Recycling Technology	<ul style="list-style-type: none"> <li>• Stimulate the development and operationalisation of innovative recycling technologies with particular focus on those targeting currently commercially unrecyclable plastic materials (difficult plastics)</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge sharing regarding innovations and commercialisation of recycling technology</li> <li>• Promotion and support of nascent technologies and young inventors</li> <li>• promote links and integration between innovative technologies and other stakeholders to promote early adoption</li> </ul>

	<ul style="list-style-type: none"><li>• Engage with Indonesian academic institutions to stimulate young inventors and entrepreneurs</li><li>• Promote adoption of appropriate technologies at all levels of the plastics recycling chain</li></ul>	
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