Project Title: Combatting Marine Plastic Litter in Cambodia
Implementing Partner: National Council for Sustainable Development
Start Date January 2021 **End Date:** July 2023 L**PAC Meeting Date:** 10 December 2020

Brief Description

The project aims to prevent and minimize plastic waste pollution on land and in the ocean through promotion of a 4R framework. The project will develop and implement policies and regulations, raise awareness, and support the reduction of plastic waste, and the introduction and promotion of new technologies such as recycling and plastic alternatives. Target provinces include Siem Reap, Sihanoukville, Phnom Penh, Kep, Kampot and Koh Kong for the effective reduction of marine plastic pollution at source. The project will attain the following five outputs:

- Output 1: Key enabling policies and regulations developed and implemented to promote 4Rs
- Output 2: Improved awareness about the plastic crisis and its solutions among citizens and the private sector through environmental education and awareness-raising activities
- Output 3: Plastic waste reduced in target cities through education, private sector-led best practices and innovation
- Output 4: Priority business models for plastic recycling and alternatives supported and tested
- Output 5: Best practices disseminated and shared

Contributing Outcome #3 (UNDAF/CPD): By 2023, women and men in Cambodia, in particular the marginalized and vulnerable, live in a safer, healthier, more secure and ecologically balanced environment with improved livelihoods, and are resilient to natural and climate change related trends and shocks.

Indicative Output(s): Output 2.1: Targeted cities and urban centers prepare and operationalize solid waste management plans to reduce environmental pollution impact from solid waste.
Output 2.3: Rules and regulations formulated and adopted for forest/natural resource management and market solutions developed for conservation and renewable energy.

Gender Marker rating: 2

Total resources required:		
Total resources allocated:		**3,108,851**
	UNDP TRAC I:	**80,000**
	Japan :	**3,028,851**
	Government):	
	Unfunded	

UNDP	Implementing Partner
Nick Beresford Resident Representative	H.E. Say Samal, Minister of Environment Chair of National Council for Sustainable Development
Date:	Date:

Acronyms

3Rs	Reduce, Recycle and Reuse
ASEAN	Association of South East Asian Nations
AWP	Annual Work Plan
ADB	Asian Development Bank
CCCA	Cambodia Climate Change Alliance
CO	Country Office (of UNDP)
CSOs	Civil Society Organizations
D &D	Deforestation and forest degradation
DIM	Direct Implementation Modality
EIA	Environmental Impact Assessment
EU	European Union
FFI	Fauna and Flora international
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gas
GGGI	Global Green Growth Institute
GIS	Geographic Information System
GSSD	General Secretariat for Sustainable Development
HACT	Harmonized Approach to Cash Transfer (of UNDP)
IPCC	Intergovernmental Panel on Climate Change
JICA	Japanese International Cooperation Agency
KRECA	Koh Rong Environmental Conservation Association
LoA	Letter of Agreement
NIM	National Implementation Modality
MEF	Ministry of Economy and Finance
MISTI	Ministry of Science Technology and Innovation
MoE	Ministry of Environment
MoI	Ministry of Interior
NCDDS	National Committee for Sub-National Democratic Development
NCSD	National Council for Sustainable Development
NGO	Non-Governmental Organisation
PEB	Programme Executive Board
PPP	Public Private Partnership
PPSEZ	Phnom Penh Special Economic Zone
RGC	Royal Government of Cambodia
RLM	Relevant Line Ministries
SDG	Sustainable Development Goal
SEZ	Special Economic Zone
SME	Small and Medium Enterprise
SNV	Stichting Nederlandse Vrijwilligers (“Foundation of Netherlands Volunteers”)
SIDA	Swedish International Development Cooperation Agency
SIS	Safeguard Information System
SWM	Sustainable Waste Management
ToR	Terms of Reference
TWGs	Technical Working Groups
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WB	World Bank

Content

1 Development challenges

1.1 Background

A global surge in plastic waste and marine plastic pollution

Plastic is cheap, light, flexible, and durable. It is used daily for bags, bottles, and containers. Our excessive reliance on plastic, however, comes at a heavy price.

The worldwide total volume of plastic has reached 8.3 billion metric tonnes. Around 90% of plastic waste ends up in the oceans. Every year, 13 million metric tonnes of plastic, the equivalent of a full garbage truck per minute, enters the sea. Most of this waste arrives by way of just 10 major rivers, one of which is the Mekong[1]. The biggest problem with plastic is that it does not biodegrade easily. It stays around for hundreds of years, slowly leaking chemicals that are harmful for the environment, for animals and for people. In marine areas, more than 1 million mammals, fish and birds suffer from ingesting plastic or becoming entangled in plastic materials. More than 90% of all birds and fish are reported to have plastic particles in their stomach. In this way, toxic chemicals accumulate and pass through the food chain. Since fish comprises more than 60% of the protein intake for rural Cambodians, this is a significant problem. Mitigating the harmful impacts of plastic is an urgent task, requiring efforts from every country, including Cambodia.

The rapidly growing plastic challenges in Cambodia

Over the last decades, a combination of rapid population growth and economic development has led to an exponential increase in the volume of solid waste, including plastic waste, in Cambodia. According to a UNDP report (2018)[2], the country generates about 3 million tons of municipal solid waste and about 16 million tons of commercial and industrial solid waste per year. The rapidly growing volume of waste has led to several increasingly urgent problems.

In Phnom Penh, more than 3,000 tons of municipal waste is generated every day. Approximately 80% of the waste is collected and disposed of at open landfills without treatment. In poor urban areas and in rural areas without full access to municipal waste collection services, waste is often burned in the open. The remaining waste is disposed of at informal dumpsites, on streets, or into local waterways, which carries plastic waste to the Mekong River.

A recent World Bank's research (2020)[3] identified the large quantity of plastic litter in Phnom Penh Canals, Siem Reap Canal and Sihanoukville Beach, which potentially carry plastic debris to the Mekong River and eventually to the oceans. Major plastic litters, found in these areas, include plastic wrappers, shopping bags, bottles, and bottle caps. In Sihanoukville, in addition to the above, polystyrene pieces (known as styrofoam), and plastic fishing gears primarily nylon nets and monofilament lines are also commonly found items. The study conducted by FFI (2020)[4] founds that plastic, mainly plastic bags and bottles, constitutes around 25 % of household waste in coastal areas (FFI 2020). Around a half of households burn plastic waste in open areas (ibid).

[1] Schmidt et al (2017) Export of Plastic Debris by Rivers into the Sea, Environ. Sci. Technol.

[2] UNDP (2018) Report on Solid Waste Management in Cambodia: Nationwide Context

[3] World Bank (draft) Cambodia Plastic Action Plan and Roadmap

[4] FFI (2020) Investigating soluitons to Marine Plastic Polluion in Camboida- A review and synthesis of scoping research from coastal and Maine sites

Plastic waste pollution has highly damaging environmental and economic impacts. The estimated clean-up cost of marine plastic pollution is USD 2.5 million per year for Cambodia.[5] Major cities such as Phnom Penh, Siem Reap and Sihanoukville are severely affected by increased flooding risks since plastic waste blocks waterways and clogs sewage and drainage systems. Burning plastics also releases harmful chemicals, such as dioxins and furans, into the atmosphere which heighten public health risks. In coastal areas, impacts of plastic waste to the tourism industry are particularly significant. In Sihanoukville, for example, nearly 80 % of debris found on beaches is plastic which deteriorates its natural environment, marine ecosystems and scenery (FFI, 2020).

While most high-income countries have advanced systems for recycling and treating such plastic waste, lower-middle income countries like Cambodia do not yet have adequate infrastructure, technologies, or human resources to do so. Current waste management practices focus mainly on collection and disposal. Private companies collect and dispose of waste at landfills without any sorting, recycling, or reuse. A minimal volume is collected informally by people who gather waste from landfills and sell recovered valuables, including plastic, to intermediaries for export to Thailand or Vietnam. Recently, both of these countries have announced that they will soon ban plastic waste imports. This makes it even more urgent to reduce the volume of plastic waste in Cambodia and to create an environment where waste is properly recycled or recovered.

Cambodia's initiatives to promote the 4Rs to reduce plastic waste

Around the world, more than 100 countries and cities are introducing new policies and measures for plastic waste that aim to shift their economies from a linear model based on mass production and mass consumption towards a more environmentally friendly model referred to as a circular economy.

In Cambodia, in April 2018, the Ministry of Environment (MoE) introduced a small charge for the purchase of plastic bags at supermarkets. And in April, 2019, the MoE and the National Council for Sustainable Development (NCSD) established a "Plastic Taskforce," to focus on **the 4Rs: Refuse, Reduce, Reuse, and Recycle** as a framework to provide solutions to the country's plastic problem. Since then, the Taskforce focused on three priority areas: 1) policy and regulatory reviews on plastic, 2) plastic waste communication and outreach, and 3) business development and support.

In line with the priorities set by the taskforce, the UNDP Policy and Innovation Unit has conducted two key pieces of research to support development of plastic policies and regulations. The first, a rapid review of single-use plastic regulations (plastic straws and Styrofoam) in countries across the world, led to important recommendations for Cambodia. The second, a review of plastic waste recycling, organic waste recycling, and Waste to Energy (WtE) options, identified the current state of practice, as well as key existing barriers and opportunities for promoting circular economies.

These research findings have been incorporated into a recommendation to the Plastic Taskforce for single-use plastic regulations (in draft) and a Circular Economy Strategy and Action Plan (in draft). The plan outlines a roadmap, including short, medium, and long-term priority actions to enable Cambodia's transition to a circular economy. Among others, this strategy includes priority measures to reduce, reuse, and recycle plastic. Moreover, with technical assistance from the World Bank, the MoE has now drafted a roadmap for plastic actions. The roadmap provides an overview of plastic challenges in Cambodia and lists priority actions to reduce plastic challenges.

[5] https://theoceancleanup.com/the-price-tag-of-plastic-pollution/

In support of communication and outreach priorities, a range of materials have been developed to raise awareness about problems with plastic waste and to promote the 4Rs of plastic. These include posters, a booklet, and contents of both MoE and UNDP websites, as well as social media messages to raise awareness among the general public about plastic problems and the urgent need to implement 4R actions. For wider outreach, a campaign against plastic waste was launched with Cambodian celebrities. It comprised a cartoon video featuring a plastic monster, two music videos, and a TV commercial about plastic issues that successfully reached around 10 million people.

To encourage business development and support, the Taskforce organized a national forum on plastic waste in December 2019 that brought together more than 100 stakeholders, including Government, private sector, schools, development partners and NGOs, to share best practices and discuss necessary actions.

2 Strategy

2.1 Overall Objective

Building on earlier efforts on plastic waste interventions, the overall objective of this project is to realize a circular economy model that will promote sustainable consumption and production of plastic in Cambodia. The project aims to prevent and minimize plastic waste pollution on land and in the ocean through promotion of a 4R framework. The project will develop policies and regulations, raise awareness, and support the reduction of plastic waste, and the introduction and promotion of new technologies such as recycling and plastic alternatives.

The project will attain the following five outputs:

- **Output 1: Key enabling policies and regulations developed and implemented to promote 4Rs**: To implement the 4Rs, the project supports the introduction and implementation of policies and regulations that promote the use of multi-use plastic, recycling, and plastic alternatives.

- **Output 2: Improved awareness about the plastic crisis and its solutions among citizens and the private sector through environmental education and awareness-raising activities:** In partnership with Government, international organizations, NGOs, private companies, and others, the project seeks to raise awareness of plastic pollution through environmental education, creative communication strategies, and other public relations and media activities. The project will also promote individual and company-led initiatives to reduce the use of single-use plastics.

- **Output 3: Plastic waste reduced in target cities through education and private sector-led best practices and innovations:** The project will support priority actions for the reduction and recycling of plastic waste in target provinces including Phnom Penh, Siem Reap, Sihanoukville as they are major cities generating waste. Kep was also included for these activities buiding on the ongoing support to operatioanalise circular economy models under the BESD project. The project will further include Kampot and Koh Kong for awareness raising activities.

- **Output 4: Priority business models for plastic recycling and alternatives supported and tested:** The project plans to support the establishment of business models feasible in Cambodia, as well as policy reform, recycling technologies, and the promotion of plastic alternative projects.

- **Output 5: Best practices disseminated and shared**: To support sustainable and transformational changes in Cambodia, the project will share key insights and lessons through domestic and international conferences and initiatives.

2.2 Theory of Change

Effective reduction of plastic waste requires an integrated approach, which builds on the following sets of interventions and is based on the set of assumptions and theory of change detailed below.

The first intervention is to **the policy and regulatory framework**. The Policy framework defined in draft documents like the Circular Economy Strategy and Action Plan plays a critical role, as it outlines the overall roadmap, including short, medium, and long-term priority actions, which will enable Cambodia and its relevant stakeholders to transit towards a circular economy. Regulatory instruments are crucial to induce changes in behaviors to limit the use of single-use plastic and adopt alternatives. For example, the sub-decree 168 to levy 10 cents per plastic bag has led to a reduction in the use of plastic bags in major Cambodian supermarkets, such as AEON and Lucky, by more than 50%. Building on earlier efforts, this project will provide support to the development of additional economic incentives to adopt alternatives to plastics and to encourage their reuse and recycling.

The effectiveness of new regulations further depends on **improved awareness and behavioral change** among stakeholders including both citizens and the private sector. Since plastic is an incredibly convenient material based on its cost effectiveness, light weight, flexibility and durability, there are significant challenges to move away from reliance on plastic. During the early phase of implementation, the sub-decree was met with resistance from consumers who were accustomed to receiving free plastic bags. In part this was because they were unaware of the environmental problems of plastic and failed to understand the problem to be solved by the regulation.

Hence, improved knowledge is favorable to the effective adoption of regulations and to induce behavioral change to limit single-use plastic usage and increase use of reusable alternatives to plastic. In collaboration with relevant NGOs and development partners, this project promotes dissemination of information and awareness raising among all relevant stakeholders. Communication and outreach materials will be developed and updated to share key messages about plastic problems and solutions that are of relevance to all stakeholders. Information will be disseminated through various communication channels such as Government websites, newspapers, posters, and social media. In addition, strategic campaigns will be promoted in partnership with development partners, the private sector, academic institutions, and celebrities.

Environmental education is another crucial factor in encouraging positive behavioural change. It is important that Cambodian students are made aware of the relations between human actions and environmental consequences, so they can participate in shaping a sustainable future for the country. This project will work with primary and secondary schools to develop and update education materials relevant to the plastic crisis in school curricula.

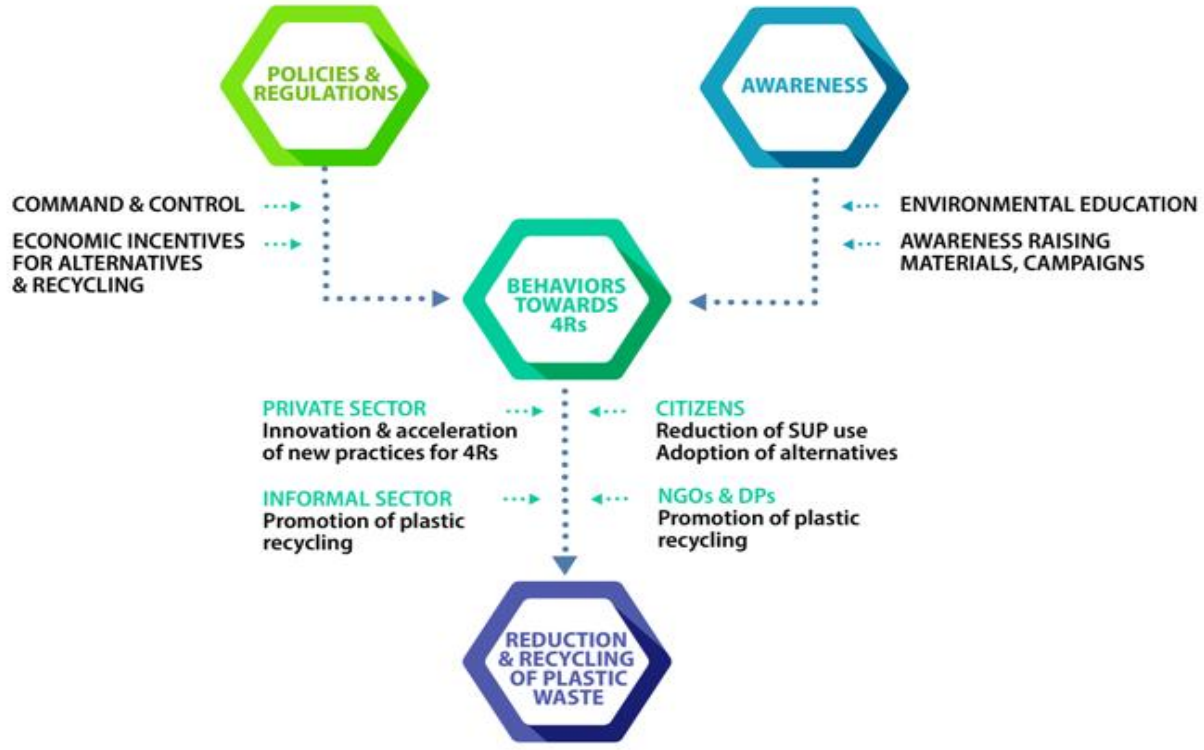
The successful reduction of plastic waste also requires active participation **of all stakeholders** in taking concrete action. The fight against plastic pollution is an urgent priority, requiring dedicated efforts from all stakeholders. The Government has a role in creating an enabling environment by developing regulations and providing economic and financial incentives. It also has a role in raising awareness among citizens through education programs in collaboration with academic institutions. Academic institutions are important for creating and sharing knowledge and for building capacities

essential to the adoption of circular economy approaches. The private sector has a role in driving innovation, mobilizing scalable investments, and adopting circular economy business models to promote sustainable production and businesses. Citizens have a role in adopting sustainable consumption habits and lifestyles, for instance, by consciously purchasing sustainable and green products, by reducing their individual volume of produced waste, and by supporting the reuse, and recycling of waste. Finally, technical and financial support from NGOs and development partners is important for a successful circular economy transition and for ensuring that all guiding principles are adhered to.

Systematic **engagement of the private sector** depends on a comprehensive understanding of the major features of current business practices, and of the drivers and business innovation opportunities needed to shift their business models towards a circular economy. It also requires a robust engagement strategy. This project will identify technology, business, and innovation opportunities, as well as the drivers and motivations of the private sector, and the market and financial environments appropriate for business development. Selected short-term pilot projects and innovations will be supported in the priority areas of single-use plastic recycling and the promotion of alternatives to generate lessons for innovation in the private sector circular economy involvement. These lessons will be used to scale up private sector circular economy innovations.

Another important stakeholder for plastic intervention is the **informal waste pickers** who collect materials from households, hotels, restaurants, and landfills for recycling. It is estimated that they are responsible for the recycling of 7.3% (75,000 tons) of the total municipal waste volume generated in Phnom Penh. Experiences from other countries indicate that active engagement of the informal waste sector for recycling is conducive to scaling up related interventions. The project will therefore identify and promote opportunities to engage informal waste pickers for recycling.

Figure 1: Theory of Change



Finally, **the above strategies need to be implemented on the ground**. Target cities for the reduction of plastic waste include Siem Reap, Sihanoukville and Phnom Penh and Kep. These are major cities and tourist destinations in Cambodia and generate large volumes of waste (e.g. 250-300 ton/day in Siem Reap, 250-1,000 ton/day in Sihanoukville and 3,600 ton/day in Phnom Penh). In terms of tackling marine plastic pollution, coastal provinces such as Sihanoukville, Koh Kong, Kampot and Kep play an important role in Cambodia. In recent years, it has undergone rapid development supported by foreign investments predominantly made by China. This has added enormous pressure to the current waste management system and led to the leakage of waste (including plastic) to the ocean. These coastal cities will be targted under awarenss raising activities.

The project support for these target cities has three major components. One is the integration of a plastic waste reduction strategy into the respective city management strategies. For plastic waste reduction, the project will target local schools and tourist businesses (e.g. tour operators, hotels, guesthouses, restaurants, and recreational places/resorts) for implementation of single-use plastic-free practices and for creating opportunities in the informal recycling sector. The project will also collaborate with relevant stakeholders such as Special Economic Zones, NGOs and others to promote priority actions for plastic waste reduction and recycling.

To tackle plastic waste, the project will apply the below hierarchy for waste management strategies. The waste hierarchy ranks waste management options from most preferred to least preferred from an environmental perspective. It gives the highest priority to preventing waste in the first place and ranks disposal in landfills as the least preferred form of waste management.

Figure 2: Waste Management Hierarchy

According to this hierarchy, the project targets waste prevention at source as the most preferred option. This will be achieved through reduction of the use of single-use plastic (SUP) items and promotion of multi-use plastic and alternatives. It will also promote repair and reuse of products as this retains a product's value by keeping it in use for a longer period of time and avoids or delays the need for recycling, which is a less preferred option on the waste hierarchy. While the project prioritizes waste reduction and reuse and repair, the project also explores business options for the recycling of plastic waste. It aims to identify feasible technology and business models applicable to the Cambodian context to enable larger-scale plastic recycling.

3 Results and Partnerships

3.1 Expected Results

Output 1: Key enabling policies and regulations developed and implemented to promote 4Rs and alternative businesses

Activity 1.1. Research on policy and regulatory gaps and solutions

- Identification of areas that need additional regulations to promote 4Rs and alternative businesses (e.g. single-use plastic regulations, Extended Producer Responsibility and take-back deposit scheme)
- Updates to a draft plastic roadmap to identify priority regulations and actions to be supported by activity 1.2.

Activity 1.2. Development and implementation of regulations/guidelines to promote 4Rs and alternative businesses

- Development and implementation of draft regulation(s) on single-use plastic items in collaboration with the World Bank. This may include promotion of the use of reusable containers, recycling, and plastic alternative industries. Among others, the target regulations may include but not be limited to:
  1) Ban on placing on the market plastic straws and drink stirrers
  2) Ban of single use plastic toiletries in hotels
  3) Revision of sub-decree 168 on plastic bags to enable fee collection
  4) Restrictions on sale and ban of use of certain single use plastic items in restaurants and hotels
  5) Consumer fee imposed on plastic food containers, cutlery, cups and lids
- Development of draft guidelines/regulations in support of plastic recycling and alternative businesses (as needed)
- Facilitation of consultations and support for the above
- Awareness raising on the proposed regulations

Activity 1.3. Facilitation of meetings and inter-ministerial discussions on plastic waste

- Organization of regular inter-ministerial meetings on sustainable consumption and production as well as sustainable cities
- Organization of an annual plastic forum to review progress and discuss priority actions

Output 2: Improved awareness about the plastic crisis and solutions among citizens and the private sector through environmental education and awareness-raising activities

In partnership with the Government, international organizations, NGOs, and private companies, the project seeks to raise awareness about plastic pollution and its harmful consequences through environmental education, creative communication strategies, and other public relations and media activities. The project will also highlight the importance of segrataion of waste to enable recycling.

Activity 2.1. Development of educational materials targeted at primary and secondary schools

- Design and development of measures and action plans for schools to reduce and eliminate single-use plastic by drawing on best case examples already available in Cambodia
- Design and development of easy-to-understand books/booklets/posters as supporting educational materials (environmentally friendly printing will be ensured)

- Design of guidelines and provision of training for teachers to educate students on the plastic crisis and its solutions
- Dissemination of awareness-raising materials (e.g. posters, banners) (linked to 3.1)

Activity 2.2. Development and dissemination of awareness-raising and outreach materials

- Design and development of cartoons, videos, and posters about plastic waste and solutions, tailored to the different issues with plastic use faced by various stakeholders. These include but are not limited to coffee shops, malls, grocery stores, hotels, and the garment industry
- Dissemination of information through websites, media channels and distribution of posters and videos

Activity 2.3. Strategic communication, campaigns, and stakeholder engagement

- Maintenance and updates to website and Facebook pages of MoE/NCSD on plastic issues
- Organization of environmental awareness events and campaigns about plastic waste, possibly in collaboration with celebrities
- Organization of an annual competition awarding businesses, students, and municipalities for the best practices in reducing and recycling plastic

Activity 2.4. Information provision and effective support for private sector-led initiatives

- Maintenance and updates to a website acting as a circular economy platform, which will feature the best circular economy practices by business and citizens
- Provide knowledge and technical support for the private sector to implement measures aiming to reduce or eliminate single-use plastic and to promote alternatives

Output 3: Plastic waste volume reduced in target cities compared to business as usual

The project targets Siem Reap, Phnom Penh, Sihanoukville and Kep as pilot cities for the reduction, sorting, and recycling of plastic waste. While businesses and schools are the initial targets of the interventions, the pilot activities will also explore and identify best options to engage households wherever possible. For awarenss raising activities, the project will also include Koh Kohg and Kampot as target provinces.

Activity 3.1. Awareness raising and environmental education, targeted at coastal provinces (Sihanoukville, Koh Kong, Kep and Kampot), Siem Reap and Phnom Penh

- Support for a total of 80 local schools to adopt single-use plastic-free practices and the provision of equipment including waste bins, and water filtration systems
- Single-use plastic-free campaign & dissemination of awareness raising materials (e.g. concerts, posters, banners)
- Dissemination of awareness raising materials (e.g. posters, banners)

Activity 3.2. Implementation of target activities to reduce plastic waste in major cities: Phnom Penh, Siem Reap, Sihanoukville including Koh Rong islands and Kep

- Scoping and baseline studies for pilot sites to identify major sources of plastic waste and target areas and stakeholders for interventions
- Technical support to work with tourism businesses to implement 4Rs and single-use plastic free practices, while also creating opportunities for the informal recycling sector. This support may also include working with SEZs based on feasibility in adopting single-use plastic-free practices and other circular economy priority measures (Siem Reap, Phnom Penh, Sihanoukville, Kep)
- Technical support to relevant city initiatives led by to effectively integrate circular economy priority measures, including a strategy to reduce plastic waste for the tourism sector and for

SEZs, and a piloting activity to manage solid waste and wastewater to avoid plastic leakages, while also creating opportunities for the informal recycling sector (Siem Reap and Sihanoukville, Kep)
- Support for NGO-led initiative(s) to reduce plastic waste on the nearby islands by reducing the use of single-use plastic items by hotels, guesthouses, and schools, and to promote proper management of waste and wastewater (Siem Reap and Sihanoukville only)

Output 4: Priority business models for plastic recycling and alternatives supported and tested

Activity 4.1. Identification of business solutions for plastic waste recycling
- Assessment of business needs, potentials, and feasibility for plastic recycling of industrial waste and alternative business models, taking into consideration the informal recycling sector. This activity supports recycling industries to explore options among others to use recycled materials for constructions.

Activity 4.2. Piloting and demonstration of selected business interventions
- Provision of equipment and technical and financial assistance
- Facilitation of business challenges (as required)
- Development of enabling regulations
- Setting the sleeted technology as a benchmark for plastic recycling in Cambodia

Output 5: Best practices disseminated and shared

The project will share key insights and lessons through a study tour, and through domestic and international conferences and initiatives.

Activity 5.1. Documentation and dissemination of project results and best practices
- Documentation of project results and best practices
- Dissemination of results through social media, newspapers, and websites

Activity 5.2. Learning and dissemination of best practices at workshops/international conferences
- Study tour to Japan to learn about Japanese experiences with managing plastic waste
- Dissemination of best practices at workshops/international conferences including through the ASEAN working group

Table 1: Project outputs and expected results

Output 1: Key enabling policies and regulations developed to promote 4Rs
1.1. Research on policy and regulatory gaps and solutions in promotion of 4Rs and alternative businesses
1.2. Development and implementation of regulations/guidelines to promote 4Rs and alternative businesses including consultations
1.3. Facilitation of meetings and inter-ministerial discussions on plastic waste
Output 2: : Improved awareness about plastic crisis and solutions among citizens and the private sector through environmental education and awareness-raising activities
2.1. Development and dissemination of educational materials targeted at primary and secondary schools
2.2. Development and dissemination of awareness raising and outreach materials (e.g. cartoons, infographics) targeting different types of stakeholders (business, tourists, citizens, children)
2.3. Strategic communication and campaigns, and stakeholder engagement
2.4. Information provision and effective support for the private sector led initiatives

Output 3: Plastic waste reduced in target cities through education, private sector led best practices and innovation
3.1. Awareness raising and environmenental education, targeted at coastal provinces (Sihanoukvile, Koh Kong, Kep and Kampot), Siem Reap and Phnom Penh
3.2. Implementation of target activities to reduce plastic waste in major cities: Phnom Penh, Siem Reap, Sihanoukville including Koh Rong islands and Kep
Output 4: Priority business models for plastic recycling and alternatives supported and tested
4.1. Identification of business solutions for plastic waste recycling
4.2. Piloting and demonstration of selected business interventions
Output 5: Best practices disseminated and shared
5.1. Documentation of project results and best practices
5.2. Dissemination of project results and best practices at workshops/international conferences

3.2 Resources Required to Achieve the Expected Results

Resources required to achieve the expected results include

- Staff time of key Government officers:
- Project staff:
    - 1 International Environmental Policy Specialist (P4) for overall technical guidance (80% time). 20% of the time is spent for the CO Policy and Innovation Unit to support research, policy, partnerships and programming
    - 1 National Project Coordinator (SB4) (100% time) to facilitate the overall coordination and project management
    - 1 National Project Assistant (SB3) (70-100% time) to handle administrative and financial tasks related to the project
- Staff time of UNDP Country Office in terms of technical advice, quality assurance, administration and finance support;
- International and national consultants to provide technical inputs; and
- International and national organization(s)/ firm(s)to undertake project activities.

3.3 Partnerships

The project will be implemented in partnership with the following partners, including Government, development partners and private sector.

Table 2: Possible Project Partners

Partners	Responsible parties	Partners
Output 1: Key enabling policies and regulations developed and implemented to promote 4Rs		
1.1 Research on policy and regulatory gaps and solutions in promotion of 4Rs and alternative businesses	**NCSD/DGE**	GDEP/SWM RLM, (Relevant Line Ministries) World Bank (WB)
1.2 Development and implementation of regulations/guidelines to promote 4Rs and alternative businesses including consultations	**MoE/GDEP/SWM**	NCSD/DGE, RLM WB
1.3 Facilitation of meetings and inter-ministerial discussions on plastic waste	**NCSD/DGE**	GDEP/SWM, RLM WB/EU Switch Asia/UNEP/GGGI
Output 2: Improved awareness about plastic crisis and solutions among citizens and the private sector through environmental education and awareness-raising activities		

2.1 Development and dissemination of educational materials targeted at primaryand secondary schools	**MoE/GDEKI**	MOEYS, MoE/GDEP/SWM
2.2. Development of awareness raising and outreach materials targetingbusiness, tourists, citizens, children	**MoE/GDEKI**	NCSD/DGE, GDEP/SWM MoEYS
2.3. Strategic communication, campaigns, and stakeholder engagement including awards and incentives	**MoE/GDEKI**	NCSD/DGE, GDEP/SWM MoEYS, AEON group
2.4. Information provision and effective support for the private sector led initiatives	**MoE/GDEKI (awards and incentives)** **NCSD: CE private sector platform**	NCSD/DGE
Output 3: Plastic waste reduced in target cities through education, private sector-led best practices and innovation		
3.1. Awareness raising and environmenental education, targeted at coastal provinces (Sihanoukvile, Koh Kong, Kep and Kampot) +Siem Reap and Phnom Penh	**NCSD** **MoE/GDEKI**	NCSD, MoI/NCDDS, MoT Teuk Saat 10000 WB, JICA
3.2. Implementation of target activities to reduce plastic waste in major cities: Phnom Penh, Siem Reap, Sihanoukville including Koh Rong islands and Kep	**NCSD/DGE**	NCSD, MoI/NCDDS, MoT, Sihanoukville, Siem Reap, Phnom Penh, Kep Koh Rong Environmental Conservation Association (KRECA) WB, JICA, GGGI, UNEP, FFI
Output 4: Priority business models for plastic recycling and alternatives supported and tested		
4.1. Identification of business solutions for plastic waste recycling	**MoE/GDEP/SWM**	MISTI
4.2. Piloting and demonstration of selected business interventions	**MoE/GDEP/SWM**	GDEP/SWM, MISTI, MEF PPSEZ (TBC), Sihanoukville SEZ (TBC)
Output 5: Best practices disseminated and shared		
5.1. Documentation of project results and best practices	**NCSD and MoE**	
5.2. Dissemination of best practices at workshops/international conferences	**NCSD and MoE**	UNEP, WB

Whenever relevant the project plans to collaborate and coordinate with the following related projects and actors working in the field of waste management in Cambodia.

A. Embassies and Bilateral Aid

	Name	Areas	Location	Brief description
1	The Embassy of Japan and JICA	*General Waste Management*	*Phnom Penh*	JICA implemented a project on solid waste management improvement for the municipality of Phnom Penh including capacity building and infrastructure development (October 2006 – March 2008). However, this initiative was terminated in 2008 due to the fact that certain conditions of support stipulated by JICA, including modification of PPCH and CINTRI service contracts were not fulfilled (JICA, 2008 in (B. Seng et al., 2011)).” The Embassy of Japan currently provides technical assistance for landfill management through city cooperation between Phnom Penh city & Kita Kyusyu city.
2	The Embassy of Korea	*General Waste Management*	*National*	Waste management has been identified as a priority sector for 2020 (KOICA, 2017). In 2019, the Government of Korea provided waste management trainings through the World Bank to Government officials of Cambodia.

B. Multilateral Development Banks

	Name	Areas	Location	Brief description
1	Asian Development Bank (ADB)	*General Waste Management*	*Northern Cambodia*	Under the Asian Development Bank’s *Second Urban Environmental Management in the Tonle Sap Basin* project (Ministry of Public Works and Transport, 2019), three different provinces (Battambang, Banteay Meanchey, and Kampong Thom) in Cambodia will receive improved solid waste management infrastructures, and other provinces may be added. The project **includes sewage treatment plants, drainage, and landfill construction.** The landfills will have the capacity to collect waste for ten years.
2	The World Bank	*General Waste Management*	*National, Sihanoukville and Siem Reap*	The World Bank plans to develop a new loan financed project on waste management, possibly focusing on Sihanoukville and Siem Reap provinces. The proposed components of activities are: • **Component 1:** Development of financially and environmentally sustainable solid waste management improved plans for selected cities including strengthening of legislation and regulation • **Component 2:** Development of a national roadmap for plastic waste management and reduction of plastic leakages to waterways for input to a national plastic action plan

C. International Organizations

	Name	Areas	Location	Brief description
1	The Asia Foundation	*General Waste Management*	*Phnom Penh*	The Asia Foundation has worked with both the Phnom Penh Municipal Government and the waste management collection company CINTRI. The pilot project involved fitting GPS devises on CINTRI trucks. Drivers tried to destroy these devises and the area for the project was changed from an outer Khan to inner Khan after a Government suggestion. The Asia Foundation has provided technical support for solid waste management planning in Kep province, as well as worked with Coca Cola on awareness raising activities on plastic targeted at local schools.
2	Global Green Growth Institute (GGGI)	*Plastic Recycling and Wastewater*	*Battambang*	Partnering with UNIDO, GGGI is supporting **waste recycling** in Battambang province (Global Green Growth Institute, 2019). They are currently providing technical support to one small plastic recycling business outside of Battambang town. GGGI is also looking at **wastewater** issues in Cambodia in Kep province (Global Green Growth Institute, 2019)
3	Institute for Global Environmental Strategies (IGES)	*General Waste Management/ Research*	*Phnom Penh and Battambang*	IGES has been working in the waste management field in Cambodia for many years and has developed **the State of Waste Management in Phnom Penh, Cambodia** (Singh, Gamaralalage, Yagasa, & Onogawa, 2018) in collaboration with UNEP and the **Phnom Penh Waste Management Strategy and Action Plan 2018-2035** (PPCA, IGES, Nexus, UN Environment, CCCA, 2018).
4	United Nations Development Programme (UNDP)	*General waste management, Research, policy and Awareness*	*Throughout Cambodia*	**Building an Enabling Environment for Sustainable Development for Cambodia (BESD):** Under a Circular Economy project in Cambodia with a projected two-year timeline of 2019-2020, the project promotes three main activities. The first activity is to test, implement, and support circular economy business models to **identify viable business models** for a circular economy. The second activity is **to raise awareness** and promote environmental education, including a plastic conscious concert that was held during Water Festival in 2019. The third activity is to **create an enabling policy framework for a circular economy**. Research has been conducted on creating an enabling environment for both plastic recycling and organic waste recycling. ***Cambodia Climate Change Alliance III:*** The Cambodia Climate Change Alliance (CCCA) programme aims to strengthen national systems and capacities to support the implementation and coordination of Cambodia's climate change response. Among many other priority activities, the CCCA promotes environmental education to mainstream climate change issues into school curriculums.

				Inclusive Governance for Service Delivery and Social Accountability (IGSS); The overall objective of the project is to continue improving the capacity of local administrations and citizen engagement in selected areas through the introduction and implementation of certain local service delivery models which reflect local needs, local initiatives, and key national policies and regulations. Improving service delivery through solid waste management is a key focus area. ***UNDP Accelerator Labs*** is a new UNDP initiative that "will transform our collective approach by introducing new services, backed by evidence and practice, and by accelerating the testing and dissemination of solutions within and across countries." The first project of the UNDP Accelerator Labs in Cambodia was focused on finding alternatives to plastic straws. Their private sector approach to development and innovative thinking will bring new ideas to the sector of waste management, including designing innovative waste bins.
5	United Nations Environmnetal Programme (UNEP)	*Marine plastic pollution*	*Regional including Cambodia*	SEA circular is an initiative from the UN Environment Programme and the Coordinating Body on the Seas of East Asia (COBSEA) to inspire market-based solutions and encourage enabling policies to solve marine plastic pollution at source. SEA circular is working in six countries in South East Asia: Cambodia, Indonesia, Malaysia, the Philippines, Thailand and Vietnam, from 2019-2023. The project is supported by the Government of Sweden. The focus is on several points along the plastic value chain. Interventions are designed and implemented with an understanding of land-sea interactions, and towards a circular economy. SEA circular works with national and provincial governments, private sector corporations, civil society groups and NGOs – and many other stakeholders – to support good governance and policy making, and promote circular economy principles. SEA circular focusses interventions on supporting market-based solutions, enhancing the science-basis for decision making, generating outreach to support awareness and behaviour change, and promoting a regional approach through collaboration and networking.

6	United Nations Industrial Development Organization (UNIDO)	*Plastic Recycling*	*Battambang*	UNIDO is currently working with GGGI in supporting **plastic recycling in Battambang province**. This is part of their much larger project on open burning in Southeast Asia.
7	Global Environment Facility (GEF)	*Waste Management*	*Regional (Cambodia, Philippines, Vietnam, Laos and Mongolia)*	The GEF has earmarked US$7.5 million for a regional project on waste management. In Cambodia, this project will be undertaken by the Ministry of Environment, the United Nations Industrial Development Organization (UNIDO) and Phnom Penh Municipal Hall, and it will first be implemented in Phnom Penh's largest dumpsite, Choeung Ek.
8	SNV Cambodia Waste to energy funded by EU, SWITCH-Asia	*Waste to Energy*	*Nine provinces in Cambodia*	SNV Cambodia implemented the Waste to Energy (WtE) project for the rice milling sector in Cambodia – a technology to generate electricity from rice husks – from 2012 to 2015. It targeted nine provinces across Cambodia: Battambang, Pursat, Kampong Speu, Banteay Meanchey, Kampong Thom, Siem Reap, Kandal, Kampong Cham and Prey Veng. This project aimed to make the industry greener, cleaner and more competitive.
9	UNESCO	*Plastic Awareness Raising*	*Nationwide*	***Anti-plastic bags campaign:*** UNESCO Cambodia, the Ministry of Environment, Ministry of Tourism and Union of Youth Federations in Cambodia jointly organized the Cambodian Anti-Plastic Bag Campaign to raise awareness on reducing plastic and recycling. It also aimed to influence behavioural change in Cambodian people.

D. Private Sector

	Name	Areas	Location	Brief description
1	CINTRI	*Waste Management*	*Phnom Penh, Kampong Cham, Battambang*	**CINTRI is the private waste management company in Phnom Penh, Battambang, and Kampong Cham**. They had a long-term contract with the city of Phnom Penh to collect the city's waste until recently. The collection rate of waste in Phnom Penh has yet to reach 100%. Some organizations have had difficulties working with them in the past and CINTRI is usually quite formal when scheduling meetings with outside groups. Other organizations have had success conducting productive interviews for their research with CINTRI.
2	Global Action for Environment Awareness Plc. (GAEA)	*Waste Management*	*Siem Reap, Kampot, Kampong Thom*	**GAEA is the waste management company in Siem Reap, Kampot, and Kampong Thom**. They have been involved in a few projects outside of their original mandate of collecting the waste within the cities they work in**. GAEA has recently launched a glass recycling project in Siem Reap and has started a municipal composting program in Kampot**.

3	ATEC Biodigesters International	*Biogas and Compost*	*Throughout Cambodia*	ATEC has designed a patented home **biodigester for rural families in Cambodia** and other Asian countries to manage their organic waste. For families with two to three livestock, the biodigester will be able to produce enough biogas to support daily cooking needs and compost for 1.5 hectares of rice farming. This helps families manage their waste and provides a fuel alternative, so they do not need to purchase gas or firewood. When the biodigesters are installed each family is also provided with a duel burner cookstove and rice cooker which are connected to the biodigester. They are currently still in the start-up phase but have identified over 1 million potential customers in Cambodia.
4	TWIN AGRI Co. LTD	*Organic Recycling*	*Phnom Penh, Sihanoukville*	Twin Agri Co. LTD **collects organic waste and creates compost which is then sold to farmers throughout the country**. They have both traditional compost and vermicompost. They have two facilities. One is in Phnom Penh and the other is in Preah Sihanoukville. In total, they can produce about 800 tonnes of organic compost in one month
5	GOMI Recycle	*Plastic Recycling*	*Phnom Penh and Svay Rieng*	GOMI Recycle is one of the **largest plastic recycling businesses in Cambodia**. They have two future recycling facilities, one in the Phnom Penh Economic Zone and another in the Svay Rieng Special Economic Zone. They will have the capacity to recycle 2-3 tonnes of plastic waste and convert it into construction material and other furniture. GOMI Recycle has been assisted by JICA and knows firsthand the regulatory hurdles of working in the recycling sector in Cambodia.
6	Coca Cola	*Plastic Recycling and Upcycling*	*Phnom Penh*	Coca Cola has been providing waste bins for local schools and promoting upcycling their bags of sugar into reusable tote bags for shopping.
7	Chip Mong Insee Cement Corporation	*Waste to Energy*	*Kep & Kampot*	Chip Mong Insee Cement Corporation (CMIC), a subsidiary of local conglomerate Chip Mong Group, has invested another $4 million to establish a new industrial waste management facility. CMIC aims to process hazardous and non-hazardous waste through a technological process known as "co-processing". For cement industries, co-processing refers to the use of waste as raw material, and as a source of energy to replace coal, in cement production. Its facility can process some 10 tonnes of industrial waste per hour or more than 7,000 tonnes per month as sources of energy for clement production. The facility processes solid waste from garment and footwear factories, as well as from other industrial sectors.

E. International and National NGOs/Small Businesses

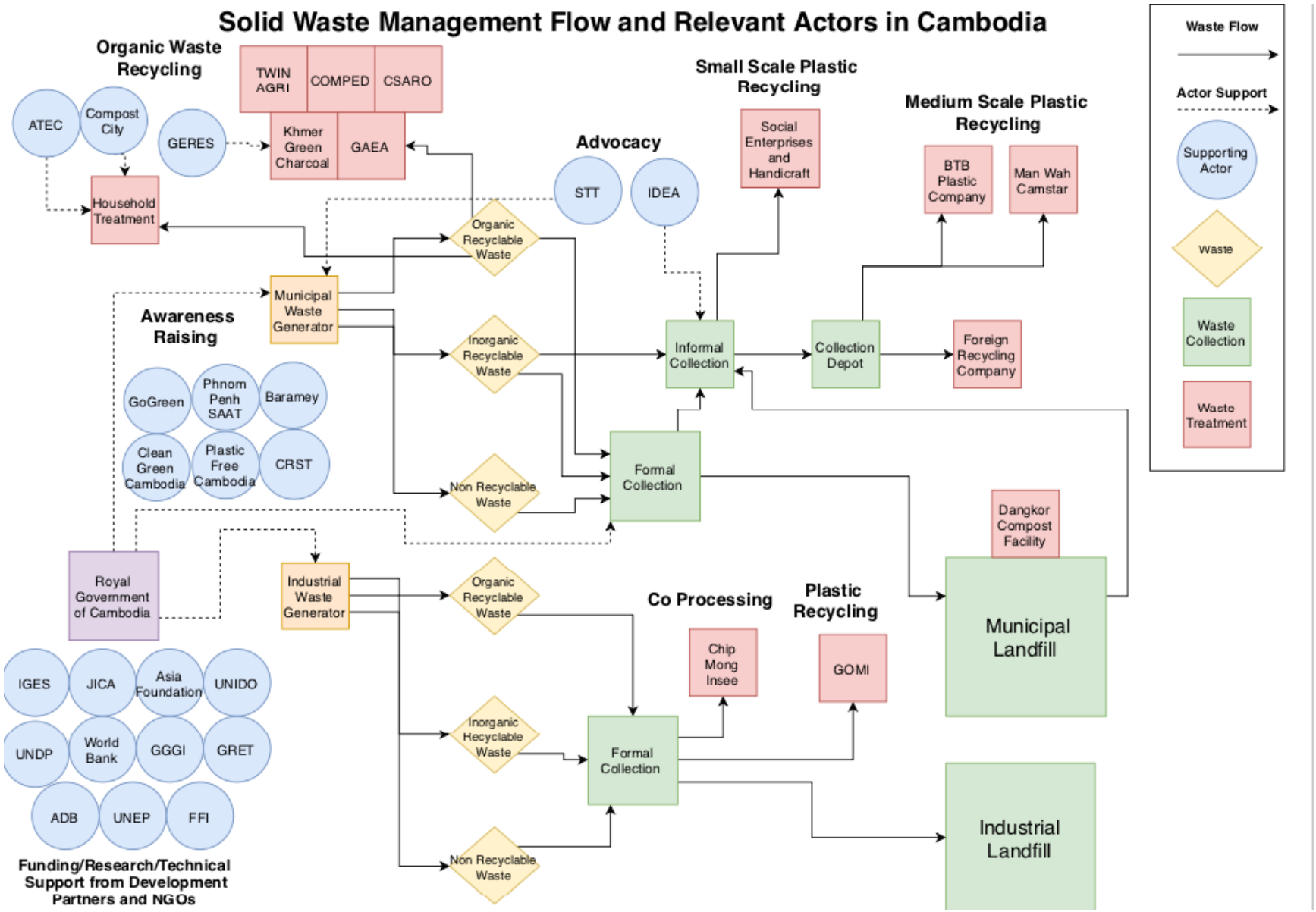
	Name	Areas	Location	Brief description
1	Koh Rong Environnemental Conservation Association	*Environmental Conservation and Awareness Raising*	*Sihanoukville*	Koh Rong Environmental Conservation Association is a local NGO working with communities and hotels on the Koh Rong islands. One of their initiatives focuses on plastic waste. Under this initiative, they seek to promote environmental education among schools on the islands about plastic pollution and its impacts on marine life. They work with local shops and hotels to adopt plastic-free practices to minimize negative impacts of plastic waste. They also aim to promote local recycling and upcycling businesses in partnership with communities.
2	Fauna and Flora international (FFI)	*Environmental Conservation and Awareness Raising*	*Sihanoukville*	FFI is an international NGO focusing on conservation of biodiversity. Their activity covers the marine protected area of Sihanoukville. One of the activities seeks to address the threats posed by plastic waste and pollution to local livelihoods and marine life. They conduct baseline research to quantify plastic waste and support local community-led activities to prevent pollution, as well as the recycling of plastic waste.
3	GoGreen Cambodia	*Awareness Raising*	*Phnom Penh*	GoGreen Cambodia is a local NGO in Phnom Penh focused on waste management issues in Cambodia. They have developed a phone application which helps citizens identify areas in Phnom Penh that are not well kept and need waste management solutions. They also have **hosted many clean-ups around Phnom Penh** which are well attended. Finally, they have a very active Facebook group where many people post about different environmental initiatives.
4	Phnom Penh SAAT	*Awareness Raising*	*Phnom Penh*	Phnom Penh SAAT is a locally run group that is focused on education and raising awareness of waste management and encouraging behavioural change. They have run several campaigns since 2017 and have partnered with other businesses and other groups.
5	Sahmakum Teang Tnaut (STT)	*Awareness and Advocacy*	*Phnom Penh*	**STT mainly works in land and housing rights in Phnom Penh but** have released two waste management related documents. Their report on waste management focused on urban poor communities including their waste management challenges along with issues involving CINTRI's labour force (Sahmakum Teang Tnaut, 2019). They have also released a handbook for urban poor communities on waste management issues (Sahmakum Teang Tnaut, 2019). Recently they have begun training members of the urban communities where they work to use this handbook.

6	Plastic Free Cambodia	*Awareness Raising*	*Siem Reap*	Plastic Free Cambodia provides workshops and training to businesses that want to reduce their plastic use. They annually host the Plastic Free July campaign in Siem Reap and Phnom Penh.
7	Smart Bins	*Waste Management*	*Phnom Penh*	Smart Bins is a small start-up in Phnom Penh run by a few young Cambodians. Their project seeks to help waste management companies optimize their routes by understanding how full trash bins around the city are. The bins would also reward users for recycling and separating their waste. They are currently in the start-up phase.
8	Group for the Environment, Renewable Energy and Solidarity (GERES)	*Organic Waste to Briquettes*	*Throughout Cambodia*	GERES has worked with organic waste to develop sustainable green fuel. They have worked with rice millers to transform rice residuals into a **rice husk briquette** for fuel.
9	Compost City	*Organic Waste and Awareness Raising*	*Phnom Penh*	Compost City is a very new organization in Phnom Penh that promotes home composting. They have hosted several events in Phnom Penh and have recently won a small grant from SmartSpark to support their **home composting system**.
10	Cambodian Education and Waste Management Organization (COMPED)	*Organic Recycling and Advocacy*	*Battambang*	COMPED has worked in the waste management sector in Cambodia since 2000 in both Phnom Penh and Battambang. Although they were originally working in Phnom Penh, when the Stung Meanchey dumpsite closed in 2009 they moved to Battambang. **Their three main goals are to work with the local government to offset the amount of organic waste sent to landfills by promoting composting, knowledge exchange between farmers, and to provide educational opportunities to children.** COMPED has assisted researchers on various reports and academic papers.
11	Community Sanitation and Recycling Organization (CSARO)	*Organic Recycling and Advocacy*	*Phnom Penh*	CSARO has worked in Phnom Penh since 1997 and works in the Sen Sok district of Phnom Penh. **They have an organic composting project and also work with informal waste pickers.** Throughout the years they have developed several additional projects such as home composting training or upcycling waste to provide income-generating activities. Many of these projects have not continued after funding ended. CSARO also was involved in a municipal composting program in Kampot which is now run by GAEA. Overall CSARO can provide significant firsthand knowledge in running community-level waste management programs in Cambodia.
12	Bokashi	*Organic Composting*	*Phnom Penh*	Bokashi is a small business in Phnom Penh that sells home composting kits and a mixture which helps citizens to compost at home.

13	Funky Junk Recycled	*Plastic Upcycling*	*Phnom Penh*	Funky Junk Recycled is an innovative social enterprise that is based in Phnom Penh. They upcycle plastic bag waste into handicrafts and other usable products.
14	Battambang Plastic Recycling	*Plastic Recycling*	*Battambang*	There is one small plastic recycling company in Battambang which has been supported by both UNIDO and GGGI. **Their current capacity is about 20 tonnes per month,** but they will soon get new machinery which will triple their capacity. They receive plastic bags from Battambang, Banteay Meanchey, and Siem Reap province which they then turn into plastic pellets. The pellets are sold to plastic producers in Thailand.
15	Naga Earth	*Plastic Upcycling*	*Siem Reap*	Naga Earth is a business in Siem Reap that **collects used cooking oil and converts it into biofuel** which they then sell to local businesses in Cambodia. They also produce soap, some of which is made from used cooking oil. In 2017 Naga Earth fundraised to make a plastic recycling machine based on the precious plastic model, but it has not been used for any initiative since.
16	Rehash Trash	*Plastic Upcycling*	*Siem Reap*	Rehash Trash is a social enterprise in Siem Reap that **upcycles plastic bag waste into handicrafts** which are then sold to tourists who visit the city. Their labour-intensive process provides employment opportunities for locals. Rehash Trash normally hires older women from disadvantaged backgrounds.

F. Informal Recycling Collection

There is no formal collection of recyclable waste in Phnom Penh. All of this is done informally. The most recent estimates show that there **are 2,000 waste pickers in Phnom Penh** and hundreds of recycling depots. Informal collectors travel the city and buy recyclable waste from households and businesses and then sell them to recycling depots. The depots then either sell them to larger collection centers in Phnom Penh or send them abroad where they are recycled. This long supply chain provides many opportunities for intervention. Most of the separation of household waste is done by women, and many of the informal collectors are also women.


Solid Waste Management Flow and Relevant Actors in Cambodia
Organic Waste Recycling
TWIN AGRI
COMPED
CSARO
ATEC
Compost City
GERES
Khmer Green Charcoal
GAEA
Household Treatment
Advocacy
STT
IDEA
Small Scale Plastic Recycling
Social Enterprises and Handicraft
Medium Scale Plastic Recycling
BTB Plastic Company
Man Wah Camstar
Organic Recyclable Waste
Municipal Waste Generator
Awareness Raising
GoGreen
Phnom Penh SAAT
Baramey
Clean Green Cambodia
Plastic Free Cambodia
CRST
Inorganic Recyclable Waste
Informal Collection
Collection Depot
Foreign Recycling Company
Non Recyclable Waste
Formal Collection
Dangkor Compost Facility
Municipal Landfill
Royal Government of Cambodia
Industrial Waste Generator
Organic Recyclable Waste
Co Processing
Plastic Recycling
Chip Mong Insee
GOMI
IGES
JICA
Asia Foundation
UNIDO
UNDP
World Bank
GGGI
GRET
ADB
UNEP
FFI
Inorganic Recyclable Waste
Formal Collection
Industrial Landfill
Non Recyclable Waste
Funding/Research/Technical Support from Development Partners and NGOs
Waste Flow
Actor Support
Supporting Actor
Waste
Waste Collection
Waste Treatment

3.4 Risks and Assumptions

Table 3 summarise key sets of anticipated risks and countermeasures to address each type of risk (See Annex 3: Risk Log for more details).

Table 3. Types of risks and countermeasures to be taken by the project

No	Types of risks	Countermeasures
1	Government staff capacity is not fully available for program implementation	The project activities include capacity building of key government staff for effective design and implementation of project activities. Key Government staff include staff from the Ministry of Environment (MoE), National Council for Sustainable Development (NCSD), Ministry of Science Technology and Innovation (MISTI) and provincial halls (Siem Reap, Sihanoukville and Phnom Penh).
2	Government agencies do not cooperate and coordinate activities effectively	The project supports the strengthening of NCSD, an inter-ministerial coordination mechanism, to assure support and coordination across line-ministries.
3	Lack of adequate skills and knowledge among NGO partners	This project will build on and leverage existing expertise and experiences of local and international NGOs for management of plastic waste wherever possible. For the organizations requiring additional waste management and recycling skills, capacity building support will be provided to ensure adequate level of skills and knowledge.
4	The private sector does not cooperate and coordinate activities effectively	The private sector has a pivotal role in driving and scaling up business innovation, and in accelerating a shift from a linear towards a circular economy. Their active engagement is crucial in introducing alternatives to single-use items, and to promoting reuse, repair, and recycling. Systematic collaboration with the private sector requires a comprehensive understanding of major features of their current business practices, drivers and business innovation opportunities for creating a circular economy, in addition to a robust engagement strategy. The project will identify technology, business, and innovation opportunities, drivers and motivations of the private sector, and the market and financial environments appropriate for business development. The strategy will reflect these findings and mechanisms for promoting effective means to ensure private sector's long term and continuous engagement and buy-in to reducing plastic use and waste. These may include rewards and incentives. Several short-term quick pilots and innovations will be supported in the priority areas of single-use plastic waste and recycling. These lessons will be used to scale up private sector innovations. This scaling means both increasing the size of the innovation or widening its reach, ensuring that nationally, the entire country benefits from business-led innovations, including secondary cities.
5	Programme inputs (funds, human resources, etc.) are not mobilized in a timely fashion	The project seeks to avoid this risk by ensuring that procurement of services (individuals, firms) is done in the most efficient manner with due consideration of the need for high levels of expertise to successfully implement the project.

6	Potential impact on gender equality, women's empowerment and human rights	Within the general context of vulnerability, women face more severe socio-economic obstacles to social and economic opportunities and well-being than men. To mainstream gender and equality issues, the project incorporates several strategies and actions aiming to ensure inclusion and involvement in relevant decision-making processes related to the transition towards a circular economy, and equitable sharing of economic, environmental and public health benefits. These strategies and actions will include: **1.** Enabling involved actors to exercise the rights and ability to participate freely in making decisions and in implementing activities that affect them and their environment. Special attention will be paid to the poor and marginalized, including women and girls, who are among the most vulnerable; **2.** Incorporating gender and vulnerability perspectives in the development of awareness and education materials, and in training and capacity-building activities (by including women and the physically disabled, as well as ethnic minorities and indigenous people); **3.** Ensuring equal participation of both women and men in adopting sustainable circular economy options both in households and workplaces (e.g. in promoting the use of sustainable energy, energy efficiency, reusable items and recycling); **4.** Ensuring fair compensation for increased labour associated with activities taking place at the household level; **5.** Developing employment opportunities along with targeted capacity building support that recognize and enhance the capabilities and strengths of women and vulnerable groups as equal to other groups; and **6.** Developing business models and support mechanisms that address the needs and enhance the capability of women and vulnerable groups.
7	The project's major focus is testing of new approaches for scaling up. However, reflective and timely learning does not take place to effectively incorporate lessons from pilots for successful scaling up	The project places a central focus on "effective learning" to identify what works and what does not work in a timely manner. For this reason, the project conducts regular assessments to rigorously evaluate the design of models applied under the project and to improve the design and implementation approaches, by incorporating lessons learned. The project will make use of the lessons learned for designing a successful approach for scaling up.
8	Effective reduction of plastic waste requires drastic change in consumer behavior	Improved knowledge is conducive to the effective adoption of regulations and to induce behavioral change to limit single-use plastic usage and to increase use of reusable plastic as well as alternatives to plastic. This project therefore has a strong focus on education and awareness raising. In collaboration with relevant NGOs and development partners, the project promotes dissemination of information and awareness raising among all relevant stakeholders. Communication and outreach materials will be developed and updated to share key messages about plastic problems and solutions of relevance to all stakeholders. Information will be disseminated through various communication channels such as government websites, newspapers, posters, and social media. In addition, strategic campaigns will be promoted in

		partnerships with development partners, the private sector, academic institutions, and celebrities. The project will also strengthen environmental education as another crucial means of encouraging positive behavioural change. This project will work with primary and secondary schools to develop and update education materials relevant to the plastic crisis in school curricula. The outcome will be school graduates with better knowledge of environmental relations and actions, capable of contributing directly to the reduction of plastic waste through their actions in daily life and in their future employment opportunities.

3.5 Stakeholder Engagement

Throughout project implementation, the key guiding principle of the project is to ensure the **full and effective participation of all relevant stakeholders**. Stakeholders include the Government, citizens, the private sector, academic institutions civil society organizations, and development partners with particular attention to the rights of socially marginalized groups including women and informal waste pickers. This will be facilitated through the following specific sets of principles.

Non-Discrimination and Intersectional Approach: The project will ensure that all, regardless of race, colour, gender, creed, religion, place of birth, age, health, education, ethnicity, and ability, have their rights respected, and have equal access to participate in decision-making processes and benefit from economic opportunities, natural resources, environment and energy for their health and well-being. By recognizing the varied interests and needs of people of different genders, ethnicities, ages, and abilities, CE approaches shall be designed and implemented to reduce inequality and to support economic and social development for all.

Inclusive and Effective Participation: The project will ensure all concerned actors have the right and ability to participate freely in decision-making and in activities that affect them and their environment. While this is entailed by the principle of inclusiveness, it will also positively contribute to reaching strategic goals, since it enables the circular economy approach to draw from the knowledge of participants who have firsthand experience with their own challenges. Enabling women and vulnerable groups to actively contribute to solve the issues they face is therefore also a way of building meaningful partnerships. Accordingly, special attention will be paid to the poor and marginalized, including women and girls, who are among the most vulnerable to environmental degradation and have limited access to economic opportunities. Drawing on full consultations, the perspectives of all including the vulnerable shall be incorporated in designing and implementing activities, while enhancing their ability to benefit equitably from these activities.

Multi-Sectoral and Multi-Stakeholder Approach: The project will promote intersectoral and inter-ministerial collaboration to ensure the effectiveness and long-term impacts of project interventions. The project will further promote collaboration among the Government, private sector, citizens, civil society, development partners, NGOs and academic institutions, based on the full recognition of their imperative roles in accelerating a shift towards a circular economy. For instance, the Government has a role in creating an enabling environment by developing regulations and providing economic and financial incentives. It has also a role in raising awareness among citizens through education programs in collaboration with academic institutions. In addition to raising awareness, academic institutions have a role in enhancing knowledge and building capacities essential for adopting circular economy approaches. The private sector has a role in driving innovations, mobilising scalable investments, and adopting circular economy business models to promote sustainable production and businesses. Citizens have a role in adopting sustainable consumption habits and lifestyles, for

instance, by making conscious choices for purchasing sustainable and green products, by reducing their volumes of waste produced, and by supporting the reuse and recycling of waste. Finally, technical and financial support from NGOs and development partners is conducive to the successful transition to a circular economy, while ensuring all of the guiding principles are met.

3.6 South – South Triangular Cooperation

The project will promote South-South and Triangular Cooperation through close coordination with the UNDP regional and global offices.

The UNDP regional and global offices will play a lead role in disseminating best practices and lessons learned from other countries and in connecting Cambodia with other countries in order to share lessons and experiences related to environmental activities. This will happen through exchange visits and regional workshops/meetings.

The project will organize regional level learning events and a study tour to Japan to foster knowledge sharing of environmental challenges and devising common and regional level solutions and strategies to tackle environmental problems among the ASEAN countries including Thailand, Laos, Myanmar, and Vietnam. The project will also draw on lessons learned and best practices from other countries in the global south who have become leaders in the area of plastic reduction regulation. These include Kenya, Rwanda, and Bangladesh who introduced strict regulation in regard to plastic bags.

3.7 Knowledge

Improved knowledge is conducive to the effective adoption of regulations and encouragement of behavioral change to limit single-use plastic usage and to increase use of reusable plastic and alternatives to plastic. This project therefore has a strong focus on education, awareness raising, and the generation and dissemination of new knowledge.

Practical and effective solutions are urgently needed for tackling the rapidly growing volume of plastic waste. This project will identify best practices led by citizens and the private sector, drawing on existing and emerging waste management practices and lessons learned from Cambodia and other countries, including Japan. The project will disseminate this information in a manner that fully addresses the interests and motivations of target stakeholders.

In collaboration with relevant governments, NGOs and development partners, the project promotes dissemination of information and awareness raising materials among all relevant stakeholders. Communication and outreach materials will be developed and updated to share key messages about plastic problems and solutions of relevance to all stakeholders. Information will be disseminated through various communication channels such as Government websites, newspapers, posters, and social media. In addition, strategic campaigns and events will be promoted in partnership with development partners, the private sector, academic institutions, and celebrities.

This project will also consolidate and disseminate information on project-led activities and information relevant to project themes. Full access to information on project-related activities and decisions will be ensured by making all relevant information available on the project and UNDP country website.

3.8 Sustainability and Scaling Up

Financial sustainability: will be achieved through promoting measures that are cost saving and effective to ensure the long-term sustainability of the activities and businesses beyond the project duration. For instance, the project will promote a shift from the use of single-use items to the use of multi-use items (e.g. from single-use shampoo bottles to refillable shampoo bottles in hotels). This measure will save costs by avoiding multiple purchases as well as reducing costs for waste collection services. The project's support will also target innovations and businesses that demonstrate financial sustainability, generating an adequate level of profit to sustain the business models.

Institutional sustainability: will be improved through systematic capacity development measures for Government partners at the level of national and subnational Government officials. The project supports the leadership of Government agencies in further developing and facilitating inter-ministerial mechanisms for information sharing and decision-making on environmental issues.

Social sustainability: will be improved through the development of effective stakeholder engagement mechanisms as described in the section 3.5.

Environmental sustainability: will be achieved through a coordinated approach involving a wide range of Government, private sector and civil society organizations and communities to address the proper management of waste. The project targets actors within the private sector who have demonstrated commitment to SDG integration. Their adoption of sustainable practices will impact the supply chain as well as other business actors, for example those in the garment industry.

Innovation and scaling up: The project will pioneer a number of innovative approaches for recycling and promoting plastic alternatives that are not currently applied widely or practiced in Cambodia. The project strategy is to establish localized pilot initiatives, which will test new approaches and models for the management of plastic waste that can be replicated and scaled. Knowledge and good practices from the pilot initiatives will be demonstrated and scaled up to national level implementation.

3.9 Communication and Visibility

The project will follow UNDP's Editorial Style Manual and Brand Manual. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects need to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the Japan logo. UNDP will also acknowledge the Embassy of Japan's contribution to this project in the Cambodian Development Cooperation database.

4 Project Management

4.1 Cost Efficiency and Effectiveness

The project seeks to deliver maximum results with the available resources by partnering with related initiatives and by linking the project with pipeline projects for scaling up.

The project will build on and apply the earlier results of research conducted by UNDP Cambodia on solid waste management as well as the draft Circular Economy Strategy and Action Plan to identify and implement priority actions against plastic waste. The project will also coordinate with and build on the ongoing work supported by the Building an Enabling Environment for Sustainable Development (BESD) project. Further, the project will coordinate with other related initiatives, for example led by World Bank, ADB and GGGI on solid waste management issues, through knowledge sharing and seeking opportunities for joint implementation, if and when deemed effective.

In addition, during the period between January and June, 2021, a related project, "BESD" will be co-funding some of priority activities related to circular economy and cost sharing salary of the technical staff.

4.2 Project Management

The project will be implemented under the National Implementation Modality (NIM) with the National Council for Sustainable Development (NCSD) as the Implementing Partner.

Project activities will be undertaken by Responsible Parties from the Government, namely the Ministry of Environment (MoE), Ministry of Interior/National Committee for Sub-National Democratic Development (NCDDs), provincial governments of Siem Reap, Sihanoukville, Phnom Penh and Kep. Other possible partners may include but not be limited to the Ministry of Tourism (MoT), the Ministry of Economy and Finance (MEF), the Ministry of Education, Youth and Sports the Ministry of Industry, Science Technology and Innovation (MISTI), and Ministry of Interior (MoI), KRECA, and Special Economic Zones (SEZ)s.

The quality of the project will be regularly monitored and assured by UNDP staff, including country office advisers, regional advisors, programme analysts, and associates.

5 Results Framework

Intended Outcome as stated in the UNDAF/Country Programme Results and Resource Framework: UNDAF Outcome 3: **By 2023, women and men in Cambodia, in particular the marginalized and vulnerable, live in a safer, healthier, more secure and ecologically balanced environment with improved livelihoods, and are resilient to natural and climate change related trends and shocks.**
Outcome indicators as stated in the Country Programme Results and Resources Framework, including baseline and targets: *2.1.1: Number of cities/urban centres with operational Solid Waste Management Plans* *Baseline (2018): 0 Target (2023): 5*
Applicable Output(s) from 2018-21 Strategic Plan: *1.1.1 Capacities developed across the whole of government to integrate the 2030 Agenda in development plans and budgets, and to analyse progress towards the SDGs, using innovative and data-driven solutions (SP1.1.1)* *1.4.1 Solutions scaled up for sustainable management of natural resources, including sustainable commodities and green and inclusive value chains*
Project title: Tackling plastic waste in Cambodia and Atlas Project Number: 125235

EXPECTED OUTPUTS	OUTPUT INDICATORS	DATA SOURCE	BASELINE		TARGETS[6]			DATA COLLECTION METHODS
			Value	Year	2021	2022	2023	
Output 1 Key enabling policies and regulations developed and implemented to promote 4Rs	**1.1. A circular economy strategy and action plan is adopted** with measures to ensure gender equality and participation of volunerabble groups Measured by: 0 = drafted only, not endorsed or signed 1 = endorsed and signed	Project report (annual and quarterly report)	0	2020	1	1	1	Reviews of documents
	1.2. Number of enabling regulatory measures developed and implemented in support of the reduction of plastic and increase in recycling and alternatives Measured by number (cumulative)	Project report Policy measures	0 (draft regulation on single-use plastic)	2020	1 (regulation on single-use plastic)	2	3	Reviews of pilot documents and field monitoring
	1.3. Extent to which CE and plastic approaches are adopted by line ministries Measured on a three-point scale: 0= None	- Project report	0	2020	1	2	2	Reviews of documents

[6] Targets are cumulative.

EXPECTED OUTPUTS	OUTPUT INDICATORS	DATA SOURCE	BASELINE		TARGETS[6]			DATA COLLECTION METHODS
			Value	Year	2021	2022	2023	
	1= Moderate extent: Initial endorsement 2= Great extent: Priority measures are adopted							
Output 2 Improved awareness about plastic crisis and its solutions among citizens and the private sector through gender sensitive environmental education and awareness-raising activities	**2.1. Number of public schools that received gender sensitive educational materials and training on the plastic crisis and solutions** Siem Reap (SR), Sihanoukville (SV), Phnom Penh (PP), Koh Kong, Kep and Kampot Measured by number of schools and students (cumulative and gender disaggregated)	- Project report	0	2020	SR: 10 SV: 10 Koh Kong: 5 Kep+Kampot: 5	SR: 20 SV: 20 Koh Kong : 10 Kep+Kampot: 10	SR: 25 SV: 25 Koh Kong : 15 Kep+Kampot: 15	Document reviews Field monitoring
	2.2. Number of gender sensitive awareness raising materials developed and disseminated to the public Measured by number (per year) a) Information on website b) Messages on social media c) Posters d) Videos & cartoons	- Project report	0	2020	a) 1 b) 12 c) 2 d) 1	a) 3 b) 12 c) 1 d) 1	a) 3 b) 12 c) 1 d) 1	Document reviews
	2.3. Number of people reached by awareness-raising communications on appropriate plastic waste management (gender disaggregated) Siem Reap (SR), Sihanoukville (SV), Phnom Penh (PP)* Measured by number of people per target city (cumulative and gender disaggregated)	- Project report	0	2020	Social media 1 million (50 % women)	Socail media 3 million (50 % women)	Social media 5 million (50 % women)	Document reviews
	2.4. Number of best practices to reduce plastic by private sector/citizens identified and featured on circular economy platform Measured by number (cumulative and gender disaggregated)	- Project report	0	2020	5 (50% women-led)	10 (50% women-led)	15 (50% women-led)	Website review
Output 3	**3.1. Number of cities/urban centres with operational Solid Waste Management Plans**	- Project report	0	2020	1	2	3	Reviews of documents, meeting minutes

EXPECTED OUTPUTS	OUTPUT INDICATORS	DATA SOURCE	BASELINE		TARGETS[6]			DATA COLLECTION METHODS
			Value	Year	2021	2022	2023	
Plastic waste volume reduced in target cities compared to Business as Usual	**3.2. Extent to which priority measures for plastic waste are integrated in city plans** with measures to ensure gender equality and participation of volunerable groups Siem Reap (SR), Sihanoukville (SV), Phnom Penh (PP)* Measured on a three-point scale: 0= None 1= Moderate extent: Initial set of policy measures are proposed 2= Great extent: Agreed set of measures receive Government endorsement	- Project report	0	2020	SR: 1 SV: 1 PP: 1	SR: 2 SV: 2 PP: 2	SR: 2 SV: 2 PP: 2	Reviews of documents, meeting minutes
	3.3. Number of public schools with reduction measures for single-use plastic items adopted Siem Reap (SR), Sihanoukville (SV), Phnom Penh (PP), Koh Kong, Kep and Kampot Measured by number of schools and students (cumulative and gender disaggregated)	- Project report	0	2020	SR: 10 SV: 10 Koh Kong: 5 Kep+Kampot: 5	SR: 20 SV: 20 Koh Kong : 10 Kep+Kampot: 10	SR: 25 SV: 25 Koh Kong : 15 Kep+Kampot: 15	Reviews of documents Field monitoring
	3.4. Volume of plastic waste reduced as a result of the above support for schools Measured by volume against baselines (note: exact targets will be defined after baseline assessments)	- Project report	NA		SR: 24 tons SV: 24 tons PP: 24 tons Total: 72 tons	SR: 48 tons SV: 48 tons PP: 48 tons Total: 144 tons	SR: 72 tons SV: 72 tons PP: 48 tons Total 192 tons	Document reviews Field monitoring
	3.5. **Number of business entities (primarily in the tourism sector) with measures for single-use plastic items/recycling adopted** Measured by number (cumulative and if relevant gender disaggregated)	- Project report	0	2020	SR: 10 SV: 05 PP: 05	SR: 30 SV: 20 PP: 20	SR: 50 SV: 30 PP: 30	Reviews of documents, meeting minutes
	3.6. Volume of plastic waste reduced as a result of the above support for business-led initiatives Measured by volume against baselines (note exact targets will be defined after baseline assessments)	- Project report	0	2020	SR: 2.6 tons SV: 1.3 tons PP: 1.3 tons Total: 4.9 tons	SR: 7.9 tons SV: 5.3 tons PP: 5.3 tons Total: 18.5 tons	SR: 13.1 tons SV: 7.9 tons PP: 7.9 tons Total: 28.9 tons	Reviews of documents Field monitoring

EXPECTED OUTPUTS	OUTPUT INDICATORS	DATA SOURCE	BASELINE		TARGETS[6]			DATA COLLECTION METHODS
			Value	Year	2021	2022	2023	
Output 4 Priority business models for plastic recycling and alternatives supported and tested	**4.1. Number of priority business solutions identified for plastic recycling and alternatives** Measured by number (cumulative)	- Project report	0	2020	5	8	15	Reviews of documents
	4.2. Number of plastic recycling and alternative innovations that ensure inclusion of women and vulnerable groups supported and tested for replication Measured by number (cumulative and gender disaggregated)	- Project report	0	2020	2	3	4	Reviews of documents
Output 5 Best practices disseminated and shared	**5.1. Number of gender sensitive communication materials disseminated on the project best practice to increase local knowledge sharing** Measured by number (per year) a) Project report b) Project brief c) Social media posts d) Newspaper articles	- Project report	0	2020	a) 1 b) 1 c) 3 d) 1	a) 1 b) 0 c) 3 d) 1	a) 1 b) 1 c) 3 d) 1	Reviews of documents
	5.2. Number of events organized and/or attended to disseminate project achievements and increase international knowledge sharing Measured by number (per year)and number of particiapnts (gender disaggregated)	- Project report	0	2020	1	2	1	Reviews of documents, meeting minutes

Notes for data and assumptions used for output 3 calculation

Output 3.3: Plastic in Schools

- Estimated number of school days = 200 per year[7]
- Estimated average number of students per school = 1000
- Weight of 500 ml PET bottle = 10 grams[8]
- Weight of EPS takeaway box = 8 grams[9]
- Number of PET bottles sold per school day = 1000 (1 per student)
- Number of EPS takeaway boxes sold per school day = 250 (with estimation of 25% of students using takeaway)
- Weight of EPS and PET water bottles sold at a school in one year = 2.4 tons

Output 3.5: Plastic in Hotels (output 3.5)

- *Total amount of PET water bottles given for free by hotels in each city*
- Number of Tourists

III. INTERNAL TOURISM

Foreign visitor arrivals to the regions in January - December 2018

	Arrivals			Share (%)	Change (%)	
	2016	2017	2018	2018*	17/16	2018*/17
Phnom Penh & Surrounding	2,806,438	3,144,875	3,610,262	50.5	12.1	14.8
Siem Reap Angkor	2,205,274	2,457,282	2,590,815	36.2	11.4	5.4
Coastal Areas	643,289	739,884	877,236	12.3	15.0	18.6
Eco-tourism Areas	66,349	71,697	75,096	1.0	8.1	4.7
Total	**5,721,350**	**6,413,738**	**7,153,409**	**100.0**	**12.1**	**11.5**

Source: Tourism Statistics Department, MOT.

- **Average length of visit** = 7 days[10]
- **Number of 500 ml PET bottles a hotel gives a customer per night** = 1
- **Weight of 500 ml PET bottle** = 10 grams[11]

Total number of PET water bottles given for free by hotels/guesthouses per year
Phnom Penh = 25,271,834
Siem Reap = 18,135,705
Sihanoukville = 6,140,652

Weight of 500 ml PET water bottles given for free by hotels/guesthouses per year
Phnom Penh = 252 tons
Siem Reap = 181 tons
Sihanoukville = 61 tons

Estimated weight of PET bottles given by an average hotel

- **Average number of rooms for a hotel** = 50 rooms
- **Cambodia hotel occupancy rate** = 72%[12]
- **Number of 500 ml bottles given per night** = 2
- **Number of 500 ml PET bottles given by one 50 room hotel per year** = 26,200
- **Weight of the total amount of PET bottles given by one 50 room hotel per year** = .262 tons
- **Results framework based on data and assumptions above**

Against the estimated baseline the impact would be a 5-10% reduction.

[7] http://www.ibe.unesco.org/fileadmin/user_upload/Publications/WDE/2010/pdf-versions/Cambodia.pdf
[8] https://www.aspower.com/aspaweb/bids/RFP%20NO.%20ASPA14.1216%20ASPA%20AND%20PUBLIC%20JOINT%20VENTURE%20RECYCLING-Appendix%20A.pdf
[9] https://www.researchgate.net/publication/329166723_Environmental_impacts_of_takeaway_food_containers
[10] https://www.nagacorp.com/eng/ir/tourism/tourism_statistics_201909.pdf
[11] https://www.aspower.com/aspaweb/bids/RFP%20NO.%20ASPA14.1216%20ASPA%20AND%20PUBLIC%20JOINT%20VENTURE%20RECYCLING-Appendix%20A.pdf
[12] https://www.nagacorp.com/eng/ir/tourism/tourism_statistics_201909.pdf

6 Monitoring and Evaluation Plan

In accordance with UNDP's programming policies and procedures, the project will be monitored through the following monitoring and evaluation plans

Monitoring Plan

Monitoring Activity	Purpose	Frequency	Expected Action	Partners	Cost
Track results progress	Progress data against the results indicators in the RRF will be collected and analysed to assess the progress of the project in achieving the agreed outputs.	Quarterly, or in the frequency required for each indicator.	Slower than expected progress will be addressed by project management.	MOE/NCSD	
Monitor and Manage Risk	Identify specific risks that may threaten achievement of intended results. Identify and monitor risk management actions using a risk log. This includes monitoring measures and plans that may have been required as per UNDP's Social and Environmental Standards. Audits will be conducted in accordance with UNDP's audit policy to manage financial risk.	Quarterly	Risks are identified by project management and actions are taken to manage risk. The risk log is actively maintained to keep track of identified risks and actions taken.	MOE/NCSD	Oversight, monitoring and Audit cost
Learn	Knowledge, good practices and lessons will be captured regularly, as well as actively sourced from other projects and partners and integrated back into the project.	At least annually	Relevant lessons are captured by the project team and used to inform management decisions.	MOE/NCSD	
Annual Project Quality Assurance	The quality of the project will be assessed against UNDP's quality standards to identify project strengths and weaknesses and to inform	Once every two years	Areas of strength and weakness will be reviewed by project management and	MOE/NCSD	

	management decision making to improve the project.		used to inform decisions to improve project performance.		
Review and Make Course Corrections	Internal review of data and evidence from all monitoring actions to inform decision making.	At least annually	Performance data, risks, lessons and quality will be discussed by the project board and used to make course corrections.	MOE/NCSD	
Project Report	A progress report will be presented to the Project Board and key stakeholders, consisting of progress data showing the results achieved against pre-defined annual targets at the output level, the annual project quality rating summary, an updated risk long with mitigation measures, and any evaluation or review reports prepared over the period.	Annually, and at the end of the project (final report)		MOE/NCSD	
Project Review (Project Board)	The project's governance mechanism (i.e., project board) will hold regular project reviews to assess the performance of the project and review the Multi-Year Work Plan to ensure realistic budgeting over the life of the project. In the project's final year, the Project Board shall hold an end-of project review to capture lessons learned and discuss opportunities for scaling up and to socialize project results and lessons learned with relevant audiences.	At least annually	Any quality concerns or slower than expected progress should be discussed by the project board and management actions agreed to address the issues identified.	MOE/NCSD	US$3,000 (Cost of PEB meetings)

Evaluation Plan

Evaluation Title	Planned Completion Date	Cost and Source of Funding	Key Evaluation Stakeholders	Related Strategic Plan Output	UNDAF/CPD Outcome
Final Evaluation	May 2023	$30,000 (Project budget)	MOE/NCSD/	**Output 1.1:** National and sub-national systems and institutions enabled to achieve structural transformation of productive capacities that are sustainable and employment - and livelihoods- intensive **Output 1.3:** Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste **Output 1.4:** Scaled up action on climate change adaptation and mitigation across sectors which is funded and implemented	UNDAF Outcome 3: By 2023, women and men in Cambodia, in particular the marginalized and vulnerable, live in a safer, healthier, more secure and ecologically balanced environment with improved livelihoods, and are resilient to natural and climate change related trends and shocks.

7 Multi-Year Work Plan

EXPECTED OUTPUTS	PLANNED ACTIVITIES	Budget Description	RESPONSIBLE PARTY	Planned Budget by Year			TOTAL
				2021	2022	2023	Amount (USD)
Output 1: Policies and regulations are in place to promote 4Rs	**Activity 1.1:** Research on policy and regulatory gaps and solutions in promotion of 4Rs and alternative businesses	Salary & Post Adj Cost-IP Staff (5%)	UNDP	7,313	9,000	5,250	21,563
		Int. consultant	UNDP	15,000	15,000	5,000	35,000
		Local consultants	NCSD (GDE)	10,000	10,000	5,000	25,000
		GMS (8%)	UNDP	2,585	2,720	1,220	6,525
			Total Act. 1.1	**34,898**	**36,720**	**16,470**	**88,088**
	ACTIVITY 1.2: Development of policies/regulations/guidelines to promote 4Rs and alternative businesses	Salary & Post Adj Cost-IP Staff (10%)	UNDP	14,625	18,000	10,500	43,125
		Contractual Services - Individuals (5%)	UNDP	1,688	2,250	1,313	5,251
		Int. Consultant	UNDP	15,000	15,000	7,500	37,500
		Local consultants	NCSD (MoE/GDEP)	21,250	20,000	5,000	46,250
		Meeting/workshop/ conference	NCSD (MoE/GDEP)	10,000	10,000	5,000	25,000
		GMS (8%)	UNDP	5,005	5,220	2,345	12,570
			Total Act.1.2	**67,568**	**70,470**	**31,658**	**169,696**
	ACTIVITY 1.3: Facilitation of the inter-ministerial Working Group on SCP	Salary & Post Adj Cost-IP Staff (5%)	UNDP	7,313	9,000	5,250	21,563
		Contractual Services - Individuals (5%)	UNDP	1,688	2,250	1,313	5,251
		Local consultants	NCSD (GDE)	10,000	10,000	5,000	25,000
		Meeting/workshop/ conference	NCSD (GDE)	5,000	5,000	2,500	12,500
		GMS (8%)	UNDP	1,920	2,100	1,125	5,145
			Total Act.1.3	**25,920**	**28,350**	**15,188**	**69,458**
			TOTAL Output 1:	**128,385**	**135,540**	**63,316**	**327,241**
Output 2: Improved awareness about plastic crisis and solutions	**ACTIVITY 2.1:** Development of educational materials targeted at priority and secondary schools	Salary & Post Adj Cost-IP Staff (5%)	UNDP	7,313	9,000	5,250	21,563
		Contractual Services - Individuals (10%)	UNDP	3,375	4,500	2,625	10,500
		Local consultants	UNDP	10,000	0	0	10,000
		Local consultants	NCSD (MoE/GDEKI)	7,750	2,750	2,750	13,250

among citizens and the private sector through environmental education and awareness-raising activities		training/workshop/ Conference	NCSD (MoE/GDEKI)	7,500	7,500		15,000
		Audio visual & print prod cost	NCSD (MoE/GDEKI)	6,600	6,600		13,200
		Travel and meeting	NCSD (MoE/GDEKI)	3,000	3,000	3,000	9,000
		GMS (8%)	UNDP	3,643	2,668	1,090	7,401
			Total Act. 2.1	**49,181**	**36,018**	**14,715**	**99,914**
	ACTIVITY 2.2: Development of awareness raising and outreach materials (e.g. cartoons, infographics) targeting different types of stakeholders	Salary & Post Adj Cost-IP Staff (5%)	UNDP	14,625	18,000	10,500	43,125
		Contractual Services - Individuals (10%)	UNDP	1,688	2,250	1,313	5,251
		Int. consultants	UNDP	15,000	10,000	5,000	30,000
		Audio Visual & Print Prod Costs	UNDP	3,000	3,000	3,000	9,000
		Contractual service	NCSD (MoE/GDEKI)	10,000	10,000	3,000	23,000
		Audio Visual & Print Prod cost	NCSD (MoE/GDEKI)	3,000	3,000	3,000	9,000
		GMS (8%)	UNDP	3,785	3,700	2,065	9,550
			Total Act. 2.2	**51,098**	**49,950**	**27,878**	**128,926**
	ACTIVITY 2.3: Strategic communication and campaigns	Salary & Post Adj Cost-IP Staff (5%)	UNDP	7,313	9,000	5,250	21,563
		Contractual Services - Individuals (5%)	UNDP	1,688	2,250	1,313	5,251
		Local consultants	NCSD (MoE/GDEKI)	20,000	22,000	10,000	52,000
		Training workshops/conference	NCSD (MoE/GDEKI)	2,500	2,500	1,250	6,250
		GMS (8%)	UNDP	1,680	1,860	1,005	4,545
			Total Act. 2.3	**33,180**	**37,610**	**18,818**	**89,608**
	ACTIVITY 2.4: Information provision and effective support for the private sector led initiatives	Salary & Post Adj Cost-IP Staff (10%)	UNDP	14,625	18,000	10,500	43,125
		Contractual Services - Individuals (10%)	UNDP	3,375	4,500	2,625	10,500
		International consultant(s)	UNDP	15,000	12,500	5,000	33,750
		Local consultants	UNDP	5,000	5,000	2,500	12,500
		Local consultants	NCSD (DGE)	8,000	10,000	4,000	22,000
		Training/workshop/ Conference	NCSD (DGE)	2,500	2,500	1,250	6,250
		GMS (8%)	UNDP	3,880	4,200	2,170	10,250
			Total Act.2.4:	**52,380**	**56,700**	**29,295**	**138,375**
			TOTAL Output 2:	**185,838**	**180,278**	**90,706**	**456,822**
		Salary & Post Adj Cost-IP Staff (10%)	UNDP	14,625	18,000	10,500	43,125

Output 3: Plastic waste volume reduced in target cities compared to Business as Usual	**ACTIVITY 3.1:** Implementation of awareness raising and campains in target provinces (Siem Reap, Sihanoukville, Kep, Kampot and Koh Kong)	Contractual Services - Individuals (10%)	UNDP	3,375	4,500	2,625	10,500
		Equipment and Furniture (water filteration)	UNDP	140,000	140,000	0	280,000
		Contractual Services-Companies	UNDP	30,000	30,000	15,000	75,000
		Travel and Meeting	UNDP	4,500	4,500	2,250	11,250
		Equipment/furniturewaste bins (for schools and subnational)	NCSD (DGE)	35,000	35,000	15,000	85,000
		Local consultants	NCSD (GDE)	10,000	10,000	5,000	25,000
		Travel/ Meeting	NCSD (DGE)	4,500	4,500	2,250	11,250
		GMS (8%)	UNDP	19,360	19,720	4,210	43,290
			Total Act. 3.1	**261,360**	**266,220**	**56,835**	**584,415**
	ACTIVITY 3.2: Implementation of target activities to reduce plastic waste in Sihanoukville, Siem Reap, and Phnom Penh	Salary & Post Adj Cost-IP Staff (15%)	UNDP	21,938	20,700	12,075	54,713
		Contractual Services - Individuals (20%)	UNDP	6,750	9,000	5,350	21,100
		International consultant(s)	UNDP	25,000	5,500	0	30,500
		Grant for CSOs in Koh Rong, Sihanoukville	UNDP (CSO)	15,000	10,000	5,000	30,000
		Local Consultants	NCSD (DGE)	40,260	23,485	93,940	40,260
		LoA with NCDD-S (local consultant, travel/meeting)	NCDD-S	10,000	12,000	8,000	30,000
		Sub-grants to subnationals (Siem Reap)	NCSD (DGE)	15,000	25,000	10,000	50,000
		Sub-grants to subnationals (Sihanouk ville)	NCSD (DGE)	15,000	25,000	10,000	50,000
		Sub-grants to subnationals (Phnom Penh)	NCSD (DGE)	10,000	15,000	5,000	30,000
		Sub-grants to subnationals (Kep)	NCSD (DGE)	10,000	10,000	5,000	25,000
		Equipment/Furniture	NCSD (DGE)	30,000	0	0	30,000
		Travel and Meeting	NCSD (DGE)	7,500	7,500	3,750	18,750
		Training/Workshop/ Conference)	NCSD (DGE)	7,500	7,500	7,500	22,500
		Travel/Meeting	UNDP	7,500	7,500	3,750	18,750
		GMS (8%)	UNDP	16,911	15,597	7,913	40,420
			Total Act. 3.2	**228,293**	**210,557**	**106,823**	**545,673**
			TOTAL Output 3:	**489,653**	**476,777**	**163,658**	**1,130,088**
Output 4: New business models to	**ACTIVITY 4.1:** Identification of	Salary & Post Adj Cost-IP Staff (5%)	UNDP	7,313	9,000	5,250	21,563
		Contractual Services - Individuals (5%)	UNDP	1,688	2,250	1,313	5,251
		International consultant(s)	UNDP	28,000	0	0	28,000

reduce and recycle industrial waste identified and promoted	business solutions for plastic waste recycling	Local consultants	NCSD (MoE/GEDP)	10,000	0	0	10,000
		Travel and meeting	UNDP	2,000	2,000	1,000	5,000
		General Management Services (8%)	UNDP	3,920	1,060	605	5,585
			Total Act. 4.1	**52,920**	**14,310**	**8,168**	**75,398**
	ACTIVITY 4.2: Piloting and demonstration of selected business interventions (baseline assessments, technical assistance, development of enabling regulations)	Salary & Post Adj Cost-IP Staff (10%)	UNDP	14,625	18,000	10,500	43,125
		Contractual Services - Individuals (5%)	UNDP	1,688	2,250	1,313	5,251
		International consultant(s)	UNDP	10,500	17,500	7,000	35,000
		Local consultants	NCSD (MoE/GDEP)	5,000	8,000	5,000	18,000
		LoA with MISTI *(Local consultants, Training/ Workshop/ Conference)*	MISTI	12,500	12,500	7,500	32,500
		Equipment and Furniture	UNDP	0	290,000	0	290,000
		General Management Services (8%)	UNDP	3,545	27,860	2,505	33,910
			Total Act. 4.2	**47,858**	**376,110**	**33,818**	**457,786**
			TOTAL Output 4:	**100,778**	**390,420**	**41,986**	**533,184**
Output 5: Best practices to manage plastic waste disseminated nationally and internationall y	**ACTIVITY 5.1:** Documentation and dissemination of project results and best practices through social media, newspapers, website	Salary & Post Adj Cost-IP Staff (5%)	UNDP	7,313	9,000	5,250	21,563
		Contractual Services - Individuals (5%)	UNDP	1,688	2,250	1,313	5,251
		Local consultant(s)	UNDP	10,000	10,000	7,500	27,500
		General Management Services (8%)	UNDP	1,520	1,700	1,125	4,345
			Total Act. 5.1:	**20,520**	**22,950**	**15,188**	**58,658**
	ACTIVITY 5.2: Dissemination of best practices at workshops/internatio nal conferences	Salary & Post Adj Cost-IP Staff (5%)	UNDP	7,313	9,000	5,250	21,563
		Contractual Services - Individuals (5%)	UNDP	1,688	2,250	1,313	5,251
		Travel and meeting	UNDP	7,500	25,000	4,500	37,000
		General Management Services (8%)	UNDP	1,320	2,900	885	5,105
			Total Act. 5.2:	**17,820**	**39,150**	**11,948**	**68,918**
			TOTAL Output 5:	**38,340**	**62,100**	**27,136**	**127,576**
Project Management	**ACTIVITY:** General Management Support	Project oversight and monitoring (Programme Analyst)	UNDP	15,879	17,000	16,500	49,379
		Project oversight and monitoring (Programme Associate)	UNDP	13,879	15,000	12,500	41,379
		Project driver	UNDP	2,414	2,414	2,414	7,242
		Contractual Services - Individuals (10%)	UNDP	3,375	4,500	2,625	10,500

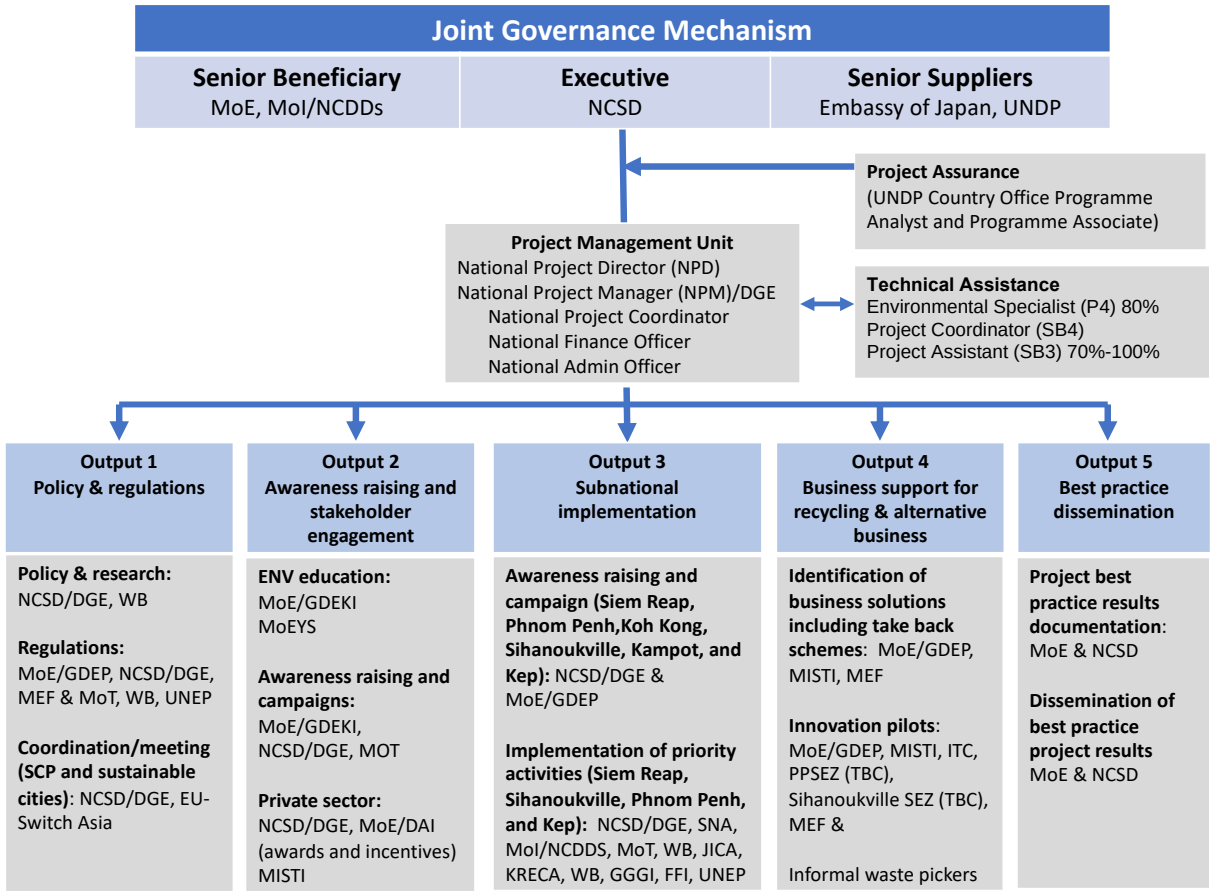
		Contractual Services – SB3-Individuals (100%)	UNDP	28,000	30,000	17,500	75,500
		IT equipment for project staff	UNDP	8,300	0	0	8,300
		DPC3 & ISS charges	UNDP	25,000	25,000	25,000	75,000
		Communication charge	UNDP	3,000	3,000	3,000	9,000
		Independent Consultant for Project's Final Evaluation	UNDP	0	0	30,000	30,000
		Training, Workshops & Conference	NCSD (DGE)	1,000	1,000	1,000	3,000
		Miscellaneous	NCSD (DGE)	1,360	1,000	700	3,060
		Loal consultants (Finance and Admin Assistants)	NCSD (DGE)	19,500	26,000	15,167	60,667
		Office furniture	NCSD (DGE)	1,000	0	0	1,000
		Operation costs	NCSD (DGE)	1,300	1,300	650	3,250
		Communication charge	NCSD (DGE)	1,425	1,425	721	3,571
		Overhead cost (maintenance, fuel)	NCSD (DGE)	1,240	1,240	620	3,100
		Overhead cost (bank charge, cheques)	NCSD (DGE)	800	800	400	2,000
		Project car (NCSD/DGE & MoE)	UNDP	70,000	0	0	70,000
		IT equipment for project staff (MoE+NCSD)	UNDP	16,600	0	- 0	16,600
		General Management Services (8%)	UNDP	15,112	8,181	8,111	31,404
TOTAL Project Management:				**229,184**	**137,860**	**136,907**	**503,952**
TOTAL Output 1-5 + Project Management Costs				**1,172,178**	**1,382,975**	**523,709**	**3,078,862**
Total UNDP's Contribution (TRAC I)							**80,000**
Total Japan's Contribution (project activities + 8%GMS + 1% Levy)							**3,028,851**
General Management Services (8%)							**220,045**
UN coordination Levy (1%)							**29,989**
GRAND TOTAL (TRAC + Japan's Contribution)							**3,108,851**

8 Governance and Management Arrangements

The project duration is 2 years and 7 months: from January 2021 until July 2023. The project will be implemented under the National Implementation Modality (NIM) with NCSD as an Implementing Partner. Responsible Parties from the Government include the Ministry of Environment, the Ministtry of Interior/NCDDS, and provincial governments such as Siem Reap, Sihanoukville, Phnom Penh and Kep. Other possible partners may include but not be limited to the Ministry of Tourism (MoT), the Ministry of Economy and Finance (MEF), the Ministry of Education, Youth and Sports the Ministry of Industry, Science Technology and Innovation (MISTI), and Ministry of Interior (MoI), KRECA, and Special Economic Zones.

The quality of the project will be regularly monitored and assured by UNDP staff, such as country office programme analysts and associates. Technical assistance will be provided by 1) 1 international environmental policy specialist (P4), 2) a project coordinator (SB4), and 3) a naiotnal project assistant (SB3) (see annex 4 for more information about the TORs).

Figure 3. Project Governance Structure



The project board, referred herein as the Joint Programme Executive Board (PEB): Performance and results will be overseen by the Joint Project Executive Board (PEB). The PEB will be co-chaired by a representative of NCSD and by UNDP Resident Representative or his/her designate. Other PEB members under the project include a representative from the Embassy of Japan, the Ministry of Environment, and Ministry of Interior/NCDDS,

The Project Board provides strategic guidance to the project team and oversees the implementation of the project. The PEB will be responsible for making management decisions on

a consensus basis for a project when required including approval of project revisions. PEB will be held at least annually to evaluate activities and progress. Project reviews by the PEB are made at designated decision points during the project implementation, or as necessary. In order to ensure UNDP's ultimate accountability, PEB decisions should be made in accordance to standards that shall ensure best value to money, fairness, integrity transparency and effective international competition. In case a consensus cannot be reached, final decision shall rest with the UNDP Programme Manager (the Resident Representative or his/her designated staff of UNDP). The PEB is consulted when project tolerances have been exceeded[13]. Based on the approved annual work plan (AWP), the PEB may review and approve project quarterly plans when required and authorises any major deviations from these agreed quarterly plans. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems between the project and external bodies.

Project management unit: The team at the NCSD will provide their day-to-day technical advisory support and administrative assistance for the implementation of the project (Figure 3). In order to ensure the smooth and effective implementation of the project, a National Project Manager (NPM) will be appointed by NCSD and will work under the direction of the NPD. The Project Manager will be responsible for all four outputs under four components (Figure 3) to be delivered by the respective agencies on time, on scope and on budget, as well as in accordangce with their own financial rules and reuglations, while ensuring the application of all UNDP administrative and financial procedures and efficient use of funding.

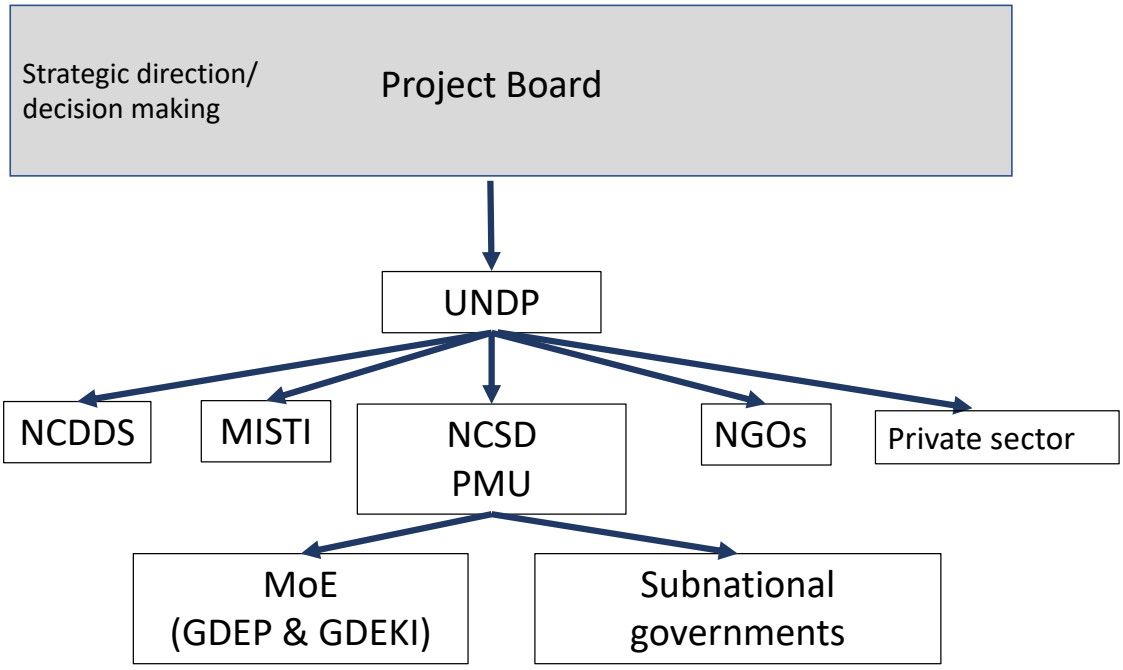
For each result area, there will be a Technical Committee comprised of representatives of responsible parties and other key stakeholders in the respective result area. This Committee will be responsible for guiding day-to-day technical aspects of the project implementation to ensure coordination amongst responsible parties and key stakeholders, and smooth implementation of the project (See Figure 3 for relevant institutions and partners) for each result area.

The project implementation will be supported by a team that consists of the following staff, consultants and service providers:

- A Natioanl Project Director (NPD)
- A Naiotnal Project Manager (NPM)
- A National Coordinator Consultant under NCSD
- A National Fiannce Consultant under NCSD
- A Naiontal Admini Consultnat under NCSD
- An International Environmental Specialist (P4)
- A National Coordinator (SB4)
- A National Admin and Finance Assistant (SB3)
- Other consultants and service providers based on the needs identified by the project.

[13]The Project Executive Board has the responsibility to define the specific project tolerances within which the project can operate without intervention from the Project Executive Board. For example, if the Project Executive Board sets a budget tolerance of 10%, the project can expend up to 10% beyond the approved project budget amount without requiring a revision from the Project Executive Board.

Figure 4. Financial flows



- UNDP may release the fund to responsible parties such as NCDDS and MISTI based on the letter of agreement (LOA).

UNDP Support Services

The quality of the project will be regularly monitored and assured by UNDP staff, such as country office programme analysts and associates. UNDP country office will also provide policy advisory; developing and testing innovative solutions; exploring and testing of Public Private Partnership (PPP); coordination; communication and advocacy; resource mobilization; recruitment of key project personnel; procurement of goods and services; and identification and facilitation of training activities in accordance with the Letter of Agreement between UNDP and the Government for the Provision of Support Services (Annex 5). The project will be audited as per requirements in the UNDP's Programme and Operations Policies and Procedures.

Additional technical support may be provided through access to external expertise pool locally and internationally, regional experts or institutions from the region as and when the Project Management Team identifies the need. UNDP may also provide support, particularly for compiling lessons learned and sharing experiences with other stakeholders locally and internationally. UNDP will continue to mobilise and provide necessary technical and financial resources and to provide quality assurance for analytical works, policy discussion, formulation, and implementation facilitated under the initiative. UNDP will also ensure coordination among development partners wherever required while individual partners may take the lead on specific areas of support, within this broader framework.

In addition, UNDP will contribute an estimated amount of $80,000 as parallel co-financing. The parallel co-financing from UNDP will be used for covering the costs of programme anlaysts, associastes and operational costs.

For the project, UNDP is required to recover the cost for providing Implementation Support Services (ISS) on the basis of actual costs or transaction fees. These costs are an integral part of