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**United Nations
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**Ad hoc open-ended expert group
on marine litter and microplastics**

Fourth meeting

Online, 9–13 November 2020

Item 4 (c) of the provisional agenda*

**Consideration of paragraph 7 of United Nations
Environment Assembly resolution 4/6**

**Initial case studies on partnerships that undertake activities
in relation to the prevention of marine litter, including
plastic litter and microplastics**

Note by the Secretariat

1. The ad hoc open-ended expert group on marine litter and microplastics (AHEG) was established through United Nations Environment Assembly resolution 3/7 paragraph 10. Its mandate was extended through UNEA resolution 4/6 paragraph 7, which also requested the group to, amongst other things, through subparagraph 7(c):

“Encourage partnerships that undertake activities such as the development of source inventories, the improvement of waste management, awareness-raising and the promotion of innovation in relation to the prevention of marine litter, including plastic litter and microplastics;”

2. As part of the stock-taking exercise of existing activities and action towards the long-term elimination of discharges into the oceans to reduce marine plastic litter and microplastics (UNEP/AHEG/4/2 and UNEP/AHEG/4/INF/6), eighteen case studies were identified and presented herein, showing examples of partnership activities and actions from all regions.
3. Case studies were selected to provide:
 - Differing scope of actions, at global, transnational, regional, national, or subnational levels
 - Different types and scope of partnerships, especially public-private and public-civil society partnerships
 - Potentially replicable case studies

* UNEP/AHEG/4/1.

- A variety of other factors portrayed, such as a variety of financial implications, innovation, impact, and results.
 - Partnerships that undertook activities such as the development of source inventories, the improvement of waste management, awareness-raising and the promotion of innovation in relation to the prevention of marine litter, including plastic litter and microplastics were particularly sought out (see Table 1 summary).
4. Each case study is set out in a standard template format to aid navigation of the case study content.
 5. The content of each case study is a direct representation from the submissions made to the stock-taking exercise.
 6. The case studies were drawn up with the assistance of four universities in order to ensure that case studies reflect regional representation, and that information harvesting was possible in other languages than English. These are the Universidad de São Paulo (Brazil), the Western Philippines University (Philippines), the University of Ibadan (Nigeria), and the Univerza v Ljubljani (Slovenia).

List of Case Studies on Partnerships

Project Name	Area of Focus	Country/ies	Scope	Type of partnership
Assessing the plastic footprint in agriculture (UNEP North America Office)	*Improvement of waste management, *Awareness Raising, *Research	Regional/Global	Regional and global	Public-Civil society
BirdLife International	*Awareness raising, *Research	Global	Global	Public-Civil society
Capacity-building	*Awareness raising	Ecuador	National	Private-public partnership
Caracol beach cleanup - Fondation pour la Protection de la Biodiversité Marine (FoProBiM)	*Awareness Raising	Haiti	Sub-National	Corporate Social Responsibility
Clean Oceans Through Clean Communities	*Improvement of waste management	Indonesia and India	Geographical focus is on localized regions in two countries,	Public-Civil society
Clean Up/ICENENDEV	*Improvement of waste management Improvement of waste management *Awareness raising * Promotion of innovation to prevent marine litter	Cameroon	National	Private-public partnership, Public-Civil society
Extended Producer Responsibility (EPR) Project (WWF)	* Improvement of waste management *Development of source inventories	Global	Transnational now but with Global ambition	Civil-society, public, private
Fishing for litter	* Waste collection *Awareness raising *Data collection *Removal of marine litter	Adriatic sea	Regional	Private-public (Fishermen/travel agency-Institutions)
Formulation of the National Plan for the Sustainable Management of Single-Use Plastics	*Legislation (Single Use Plastics)	Colombia	National	Corporate Social Responsibility
MRPRI	*Improvement of waste management *Awareness raising *Research	USA/Mississippi River	National or Sub National	Public-Civil society
Municipal Waste Recycling Program	*Improvement of waste management	Three ASEAN countries + Sri Lanka	Three ASEAN countries + Sri Lanka	Civil society-public-private

National Recyclable Solid Waste Collection Project (iCARE project)	*Improvement of waste management	Trinidad and Tobago	National	Public-Civil society
Project "Building knowledge to combat marine litter: the plan of monitoring and assessment of marine litter of São Paulo state, Brazil"	*Monitoring and Assessment	Brazil	Sub- National	Corporate Social Responsibility
Promotion of innovative solutions (in Japan)	*Promotion of Innovation	Japan	National	Private-public partnership
RecycleIt!	* Waste collection *Awareness raising *Waste removal *Waste management	Armenia	National – Armenia	Private-civil (Municipality - NGO)
Rivers Clean Up (The Ocean Clean-up)	*Promotion of innovation to prevent marine litter	Indonesia, Malaysia, Vietnam, Dominican Republic	Transnational (Three ASEAN countries plus 1 Caribbean country as pilot sites)	Private-public partnership
Sea to Source: Ganges' Expedition	*Waste Management	India Bangladesh	Transnational	Public-civil society, government, academia, private institution
The show Wave of Waste: From Visible to Invisible Dangers.	*Awareness raising	Brazil	National	Private (University of Vale do Itajaí) - civil society

Table 1: Summary of eighteen partnership case studies by Project Name, Focus, Location of Action, Scope and Type of Partnership.

1. Assessing the plastic footprint in agriculture (UNEP North America Office)

Area of focus:

Improvement of waste management

Awareness raising

Others: Research

Short summary of the case study:

UNEP's North America Office has actively engaged, followed and supported work on environment and health in the region and globally. The office has promoted the protection and sustainable management of the world's marine and coastal environments.

Plastics in the agricultural sector has been understudied, despite increasing use of plastics in food production and packaging. UNEP is leading efforts to better understand the use of plastics in agriculture, the various economic and environmental implications, and the potential innovations that could reduce plastic dependency.

The white paper developed with Think Beyond Plastic is aimed at understanding the factors driving agricultural plastics use, including economics, price and performance characteristics, as well as global and local market trends, mapping the plastic footprint, understanding the impacts, conceptualizing the economic drivers, and identifying potential intervention strategies.

Partners involved:

1. Think Beyond Plastics - is a social profit venture that addresses global plastic pollution by harnessing the forces of entrepreneurship and innovation, and the power of the markets to do good.
2. Food and Agriculture Organization (FAO)
3. Academics and industry experts

Type of partnership:

Public-Civil society

Scope of the Case Study:

The scope of the activities carried out by UNEP's North America Office is at the regional and global levels.

Aspects of the partnership that are replicable elsewhere:

Harnessing the forces of innovation and entrepreneurship that exist between the UNEP North America Office and the Think Beyond Plastics is a good initiative that could be replicated elsewhere. The Think Beyond Plastics leads a multidisciplinary effort to identify and commercialise innovations from each segment of the plastics value chain and to connect industry and investors to the innovation ecosystem.

Financial Implications/learnings from this case study:

N/A

Environmental and social impacts of the partnership:

Report of the internal white paper identified areas that needed further research on potential impacts of plastic on soil health, human health, waste collection and disposal.

2. BirdLife International

Area of focus:

Awareness raising

Research

Short summary of the case study:

BirdLife International is a global partnership of conservation organisations (NGOs) that strives to conserve birds, their habitats, and global biodiversity, working with people towards sustainability in the use of natural resources. Their activities are in response to UNEP/CMS/Resolution 12.20, paragraph 7 of identification of the most threatened species or most vulnerable populations given the densities and seasonal distribution of marine debris.

Although plastic pollution is a global and conspicuous threat, little is known about its impacts on marine life. The BirdLife International is leading a project that is evaluating the risk of plastic encounter for seabirds, using an extensive tracking dataset and models of marine plastic distribution. Their focus is on petrels; an ocean-going group of seabirds containing some of the most threatened and least known species, many with feeding habitats that may put them at particular risk of ingesting plastic debris.

The project was carried out to:

- evaluate the risk of marine plastic encounter for different petrel species and identify the areas where risk is greatest;
- model seabird distributions to produce maps that match models of plastic density;
- analyse the spatial overlap between petrels and plastics to assess the risk of plastics encounter.

Partners involved:

1. Fauna and Flora International
2. University of Cambridge – Department of Zoology
3. British Antarctic Survey
4. Cambridge Conservation Initiative Collaborative Fund Initiative.

Type of partnership:

Public-Civil society

Scope of the Case Study:

The scope of the activities carried out by BirdLife international is of global outlook, cutting across many nations.

Aspects of the partnership that are replicable elsewhere:

The study being carried out by BirdLife international could be replicated in other places. The study used predictive models of plastic debris distributions along with analyses of the extensive tracking data held in the Seabird Tracking Database to map the spatial overlap (and therefore potential risk) of plastic encounter by seabirds.

Financial Implications/learnings from this case study:

The plastic pollution problem cannot be solved in isolation by single countries or companies, given the dynamic nature of the oceans and the multitude of sources. Using threatened seabirds as flagships, the project aims to effect evidence-based changes in policies, practices, and human behaviour.

The grant provided by the Cambridge Conservation Initiative (CCI) Collaborative Fund Initiative will assist in enabling the BirdLife international to achieve the project's aims and objectives. The CCI Collaborative Fund for Conservation exists to support innovative, collaborative conservation projects undertaken by CCI partners.

Environmental and social impacts of the partnership:

The activities carried out by BirdLife international aims to achieve the following:

1. promote the collaboration between countries for the conservation and governance of marine areas, particularly of the high seas, and
2. promote international corporate best-practice with regards to their plastic products, such as implementing suitable Extended Producer Responsibility schemes.

3. Capacity-building

Area of focus:

Awareness raising

Short summary of the case study:

The Education Programme, with support from “Banco del Pacífico” and voluntary donations, is held in public schools in coastal communities in Ecuador. They work to raise ocean awareness through audio-visuals (diving, marine life, marine litter), outdoors experiences (beach clean-up and eco-walls), and participatory stories, encouraging children to change plastic consumption habits, be more familiar to ocean issues, protect marine biodiversity, and be Ocean Heroes.

Partners involved:

1. Fundación Amiguitos del Océano (NGO)
2. Super Héroes de corazón
3. SeaLifeDiving
4. Private sector (eco entrepreneurs/private companies)
5. Banco Del Pacífico
6. Public Schools

Type of partnership:

Private-public partnership

Scope of the Case Study:

National

Aspects of the partnership that are replicable elsewhere:

The Education Program could be replicated to several Public Schools in Ecuador and other countries through the investment of local companies that aim to encourage environmental education, change in behaviour and the strengthen the relationship of students with the environment.

School managers and principals may include these activities in the school curriculum, together with training for education professionals to develop such content with the students.

Financial Implications/learnings from this case study:

Having multiple (and creative) sources of funding may promote higher economic security and the continuity of the actions. In this case, the initiative has different sources of funding, such as:

- Crowdfunding;
- Voluntary donations (people willing to donate, as also eco-entrepreneurs who donate a voluntary percentage to our foundation);
- They organize events to raise funds such as "salsa for the ocean", and "jazz for the ocean", together with sponsors.

And they also collaborate with private companies to develop specific projects based on the United Nations Sustainable Development Goals, e.g. SDG4 (Quality Education), SDG12 (Responsible Consumption and Production), SDG14 (Life below Water), and SDG15 (Life of Land).

Environmental and social impacts of the partnership:

Many students from Ecuador's coastal areas do not have understand their relationship with the Ocean and do not have these topics addressed in the classroom. Therefore, the project aims to connect them with the marine environment that surrounds them and provide an understanding of the importance of a healthy ocean free from pollution.

Project investors, aware of this demand and the importance of a healthier ocean, could channel their resources towards this cause and have due recognition.

4. Caracol beach cleanup - Fondation pour la Protection de la Biodiversité Marine (FoProBiM)

Area of focus:

Awareness raising

Short summary of the case study:

Fondation pour la Protection de la Biodiversité Marine (FoProBiM) is a non-governmental, non-profit organization located in Haiti.

It is the only institution in Haiti undertaking lower watershed/coastal and marine environmental activities focused on the areas of sustainable development, education, research, monitoring, and advocacy. They work with watershed and coastal area inhabitants including women's groups, youth, farmers, fishers, and those making use of environmental resources. They also have many local and international partners and are Haiti's only IUCN member and the National Focal Point in Haiti for: IUCN – The World Conservation Union (World Commission on Protected Areas, Marine; Commission on Ecosystem Management).

A few of their actions:

- Promotion of local coastal communities' trainings;
- Rehabilitation/restoration of mangrove forests throughout Haiti;
- Promotion of educational activities for adults, students, and the public sector in environmental sciences, mangrove restoration, sustainable fisheries, alternative income generation, capacity building, conflict resolution, and association building;
- Researches local fisheries, coral reefs, mangrove stands, socio-economic issues and pollution.

It also helps to strengthen local communities by providing support for local actions such as community clean-ups, assistance to local schools and associations, guidance to local government, and support for local initiatives.

Partners involved:

International partners:

1. l'Agence Française de Développement
2. Agrofrontera
3. Air France
4. Apigua
5. Caribbean Large Marine Ecosystem Project
6. Caribbean Natural Resources Institute (CANARI)
7. Colgate-Palmolive
8. Conservation International
9. Conservatoire Botanique des Antilles Françaises
10. Counterpart International
11. Critical Ecosystem Partnership Fund
12. EnviroSynergy
13. Fond de Cooperation (France)
14. Fondation Nature et Découvertes
15. French Embassy in Haiti
16. Global Coral Reef Monitoring Network (GCRMN)
17. Global Environment Facility
18. Government of Japan
19. Inter-American Development Bank (IDB)
20. International Coral Reef Initiative
21. IUCN - The World Conservation Union
22. Japanese Mission to Haiti
23. KZO Sea Farms
24. Mon Ecole Ma Baleine
25. National Fish and Wildlife Foundation (NFWF)
26. National Oceanic and Atmospheric Administration (NOAA)

Local partners:

1. A.C.M. Mufflers
2. A&B Hardware, S.A.
3. Allied Assemblers, S.A.
4. Brasserie Nationale D'Haiti
5. Chatelain Tours
6. Club Indigo Beach Hotel
7. Compadata
8. Consulate of Israel
9. Consulate of the Netherlands
10. Cormier Beach Hotel
11. Culligan
12. Dollar Rent a Car
13. Eau Minérale Naturelle Valvert
14. Expressions
15. Goals Haiti
16. Goldstar
17. Hotel Mont Joli
18. Inter Media
19. J2 Communications
20. K-dis
21. Kaliko Beach Hotel
22. M.A.G. Ceramiques
23. Maison Cassis et Fils
24. Maison Deschamps
25. Maison Dupuy, S.A.
26. Maison Reinbold
27. Ministry of Environment
28. Ministry of Tourism
29. Monell Industries
30. Moulin sur Mer Beach Hotel
31. Ouanga Bay Beach Hotel

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| 27. Organization of American States (OAS) | 32. Pantalons Boucaniers, S.A. |
| 28. Seacology | 33. Pepsi |
| 29. The Barr Foundation | 34. Pharmadis |
| 30. The Flora Family Foundation | 35. Pharmastore |
| 31. The Goldman Environmental Prize | 36. Pinson, S.A. |
| 32. The John D. and Catherine T. MacArthur Foundation | 37. SEMA |
| 33. The Paul and Maxine Frohring Foundation | 38. Shell Haiti |
| 34. UNEP-CAR-SPAW | 39. SuperGraph |
| 35. United Nations Environment Programme (UNEP) | 40. Wahoo Bay Beach Hotel |
| 36. UNESCO/CSI | 41. Xaragua Beach Hotel |
| 37. United Nations Development Programme (UNDP) | |
| 38. United States Fish and Wildlife Service | |
| 39. USAID - CMBP | |
| 40. Whitley Fund for Nature | |
| 41. Wider Caribbean Sea Turtle Conservation Network (WIDECAST) | |

Type of partnership:

Corporate Social Responsibility

Scope of the Case Study:

Sub-national (it covers parts of one country)

Aspects of the partnership that are replicable elsewhere:

Most of their actions could be replicated and are focused on raising awareness concerning needed changes in regulations and attitudes, increasing knowledge and capabilities at the governmental, community and individual levels to make sustainable improvements in the environment and the lives of people. It also conducts educational programs as well as scientific research, including environmental monitoring, to promote improved management of the environment and the protection of biodiversity through a better understanding of the need to sustainably use environmental resources.

Some of their actions are: work with watershed and coastal area inhabitants including women's groups, youth, farmers and fishers, promote local coastal communities' trainings, rehabilitate and restore mangrove forests, provide educational activities for adults, students, and the public sector in environmental sciences and research on local fisheries, coral reefs, mangrove stands, socio-economic issues and pollution.

Financial Implications/learnings from this case study:

The initiative gathers voluntary donations to carry out their actions. On their website there is a tab for donations, and they provide two payment options: 1) PayPal and credit card; 2) Partnership with AmazonSmile (smile.amazon.com) that allows them to receive 0.5% of a few purchases when the customer chooses to help FoProBiM. This partnership offers a strategy that could be replicated by other organisations.

Furthermore, promoting many and different kinds of partnerships increases the opportunity of developing actions.

Environmental and social impacts of the partnership:

FoProBiM has increased awareness regarding the conservation of biodiversity by linking environmental protection with sustainable livelihoods throughout the country. They develop several activities with social and environmental impacts, for example: they promote rehabilitation and restoration of mangrove forests due to its eco-systemic role that traps four times more carbon from the atmosphere than any other tropical forest and because it is a nursery of thousands of species. Therefore, avoiding the loss of mangrove forests and their biodiversity, also represents the guarantee of fisheries resources that sustain communities.

Also, they act with environmental rehabilitation of watershed/coastal and marine environments and they strengthen local communities, by working with watershed and coastal area inhabitants.

5. Clean Oceans Through Clean Communities

Area of focus:

Improvement of waste management

Short summary of the case study:

Much plastic gets incinerated or accumulates in landfills, dumps or the natural environment. Waste management systems in low and middle-income countries could contribute to the quantities of plastic finding their way to the oceans. Investing in effective waste management in low-income countries is likely to represent a cost-effective and immediate solution to reducing marine litter in the short term.

Avfall Norge is a nationwide industry organisation for the waste and recycling industry in Norway with over 200 members from municipalities, inter-municipal waste companies and private actors. As a National Member in Norway of the International Solid Waste Association (ISWA), Avfall Norge approached ISWA to partner in the innovative project Clean Oceans through Clean Communities (CLOCC), with the overarching goal of tackling the issue of plastic marine litter through the implementation of sustainable solid waste management practice locally. The project is funded by the Norwegian Agency for Development Cooperation (NORAD).

During the CLOCC project's inception phase in 2019, Avfall Norge and ISWA conducted a one-week long training programme in Indonesia about important and scientifically proven principles of local solid waste management planning to prevent plastic litter from entering the marine environment. Over the next few years several more trainings will be conducted globally.

The participants of these trainings will be selected from those regions where plastics currently enter the marine environment and correspondingly where there is a great demand in improving their municipal solid waste management. The training programme will be targeted at policymakers, practitioners, and waste managers, to enhance their knowledge of marine litter issues, culminating in a waste management plan for the municipality they represent.

Partners involved:

1. International Solid Waste Association (ISWA)
2. Avfall Norge
3. Norwegian Agency for Development Cooperation (NORAD)

Type of partnership:

Public-Civil society

Scope of the Case Study:

Transnational geographical focus on localized regions in two countries, Indonesia and India.

Aspects of the partnership that are replicable elsewhere:

While plastic production is increasing, only 9 percent of plastic waste is being recycled globally. The CLOCC project constitutes a unique opportunity for Avfall Norge and ISWA to take part in an international cooperation to reduce plastic waste in the world's oceans.

The project manager for the NORAD project Clean Ocean through Clean Communities (CLOCC) stated that marine plastic pollution is a global challenge that must be solved through international cooperation.

The infrastructure for waste management and recycling must be improved on land, in combination with training and capacity building of local authorities. Knowledge transfer from countries such as Norway, which have built a solid infrastructure, can be an important tool to succeed.

Although this action is still ongoing and has been delayed due to the Covid-19 outbreak, the initial aspects of the action such as conducting intensive trainings and capacity building among local communities and authorities of the proponent sites regarding improvement of waste management and existing infrastructures to better accommodate and process plastic wastes could be replicated by other regions or countries.

Financial Implications/learnings from this case study:

This action allotted a total amount of 566,572.00 USD solely from public financing. In addressing waste management, it is imperative to include the industry sector not just financially but also in conceptualizing and implementing these types of projects.

The Covid-19 outbreak and the following travel restrictions temporarily delayed the project's plans to arrange a training to improve waste management in Bali, Indonesia. To adapt to the current reality, CLOCC is transforming itself digitally, and is arranging a virtual training to improve the capacity of local authorities to reduce Indonesia's plastic waste.

Environmental and social impacts of the partnership:

CLOCC is in the first phase of the project focusing on improving waste management in Indonesia, as the country constitutes a large source of marine plastic pollution.

Indonesia was selected as CLOCC has a relatively high chance of reducing plastic waste in the oceans through improving waste management in local Indonesian communities. Additionally, Indonesian authorities have shown a strong commitment to reducing plastic waste. The country has set a target to reduce plastic waste with 70 percent by 2025, and with 100 percent by 2040.

In September 2019, the CLOCC project held five-days training in Bali to assist local authorities with building well-functioning waste systems. 34 participants from waste management across Bali's nine provinces, participated. The training laid the foundation for further training modules, with some adjustments based on the lessons learned.

In 2020, CLOCC plans to mobilize experts to participate in training in Indonesia, firstly in Bali and Banyuwangi in East Java. Additionally, the trainers and the trainees will engage in a digital network for sharing of knowledge and experiences.

In 2021 the CLOCC project will be implemented in India.

6. Clean Up/ICENECDEV

Area of focus:

- Improvement of waste management
- Awareness raising
- Promotion of innovation to prevent marine litter

Short summary of the case study:

ICENECDEV is a resource-based organization that uses Environmental Education as an approach to share information, create awareness and address issues of global, national, and local concern. ICENECDEV is Combating Marine Plastic Litter and Microplastic by creating awareness and actions on the need to reduce marine litter and its impact on the environment.

ICENECDEV has been involved in:

- promoting community-based organizations and plastic companies to participate in regular beach clean-ups in Cameroon;
- engaging companies, business and shops to inform customers of the negative environmental impact of plastics Carrier Bags and microplastics;
- supporting the ban on microplastics by the Cameroon Government;
- promoting research and community investigation on plastics and waste;
- establishment of an informal Network to combat marine litter in Cameroon;
- establishment of a blockchain technology model for registration of plastic waste collected through Beach clean-up actions and financial compensation of waste pickers/plastic waste collectors through online platform promoting transparency.

Partners involved:

1. Local governments
2. Social business owners
3. Environmental non-profit organizations and
4. Community-based organizations

Type of partnership:

Private-public partnership

Public-Civil society

Scope of the Case Study:

National

Aspects of the partnership that are replicable elsewhere:

The establishment of the blockchain technology model for registration of plastic waste collected during Beach clean-up, financial compensation of waste pickers/plastic waste collectors are innovations that could be replicated in other places.

Financial Implications/learnings from this case study:

N/A

Environmental and social impacts of the partnership:

ICENECDEV beach clean-up actions to combating marine plastic litter has contributed significantly to improved socio-economic and environmental conditions along the West Coast of Cameroon.

The coastal plastic clean-up campaign has contributed to reducing the adverse impacts of marine plastic litter and microplastic in the fishing industry in the west coastal Region of Africa.

7. Extended Producer Responsibility (EPR) Project (WWF)

Area of focus:

- Improvement of waste management
- Development of source inventories

Short summary of the case study:

The world's oceans are drowning in plastic. Each year, an estimated 4.8 to 12.7 million metric tons of plastic waste flows into the seas, with serious negative consequences for marine life. Plastic waste production is expected to quadruple until 2050 which will lead to more plastic than fish in the oceans by then.

To tackle this crisis, the WWF International Network has set a goal of "No Plastic in Nature by 2030." That means stopping the flow of plastics from entering the natural world by eliminating unnecessary plastic items; doubling reuse, recycling, and recovery efforts; and ensuring the remaining plastic is sourced responsibly. WWF has identified Extended Producer Responsibility (EPR) schemes as a critical policy tool with a successful track record that could hold manufacturers accountable for their plastic products and plastic packaging's end-of-life impact. Adhering to the "polluter-pays-principle," the EPR also encourages holistic eco-design practices in the business sector. Thus, the WWF Network EPR Project seeks to facilitate partnerships among various stakeholders and share best practices globally. It hopes to promote and enhance the adoption of EPR schemes and reduce the amount of plastic that escapes into nature.

WWF mobilizes governments in target countries to incorporate EPR into their legal frameworks. Current efforts are underway in China and Southeast Asian countries. It also facilitates multinational and regional companies to take responsibility for the end-of-life impacts of their products and packaging.

Partners involved:

Industry

1. Philippine Alliance for Recycling and Materials Sustainability (PARMS)
2. Thailand Public Private Partnership for Plastic and Waste Management
3. Packaging Recycling Organization VN (PRO Vietnam)
4. Packaging and Recycling Alliance for Indonesia Sustainable Environment (PRAISE)

Non-Governmental Organisations (NGO's)

1. WWF

Government

1. Department for Environment and Natural Resources (Philippines)
2. Ministry of Energy, Science, Technology, Environment and Climate Change (Malaysia)
3. National Environment Agency (Singapore)
4. Ministry of Natural Resources and Environment (Vietnam)
5. NORAD (Norway)

United Nations Agency

1. UNEP

Type of partnership:

Civil-society, public, private

Scope of the Case Study:

Transnational now but with Global ambition

Aspects of the partnership that are replicable elsewhere:

EPR mechanisms for packaging emerged in the late 1980s and have since been implemented in most European Union countries as well as in other countries. In this project, WWF focused in Southeast Asian countries in the implementation of EPR. There are two policies for partnership that need to be followed to achieve the EPR goals:

Mobilize governments in target countries to incorporate EPR into their legal framework

Governments, at both the national and regional/local level, have an important role in supporting and promoting EPR. Crucially, by developing the necessary policy and legislation they could create the right conditions for well-functioning EPR schemes. Governments are also well-placed to engage and support other stakeholders, including businesses, waste management companies, the informal sector and the public, in the implementation of EPR to ensure its success. Introducing EPR could also lead to benefits for governments. This includes the potential to support the transition to a circular economy by increasing waste collection, reuse and recycling at a low cost to government, since EPR ensures that producers and businesses contribute financially to (or in some cases cover the whole cost of) the management of the waste created by their products.

Facilitate multi-national and local companies to take responsibility for end-of-life impacts of their products and packaging

The introduction of EPR schemes makes businesses accountable for the products they place on the market throughout their life cycle. Producers could take the lead in setting up and managing their EPR schemes, to ensure compliance with collection and recovery targets.

Several consumer companies have already made commitments regarding the design of packaging, recycling, and support of packaging waste collection. But these commitments do need structures for collection, sorting, and treatment of packaging waste, which could be developed on a regional or national level through collective industry and governmental efforts. The informal sector and other regional characteristics need to be integrated, as the imposition of systems from foreign countries have the potential for failure. EPR schemes developed as an inclusive governance model associating all stakeholders could play an important role to help the infrastructure build up.

The responsibility placed on producers is often delegated to a third-party organisation – a Producer Responsibility Organisation (PRO). Through this type of collective entity of companies, the obliged industry collects funding, cooperates with local authorities and ensures cost-efficient recycling. In order to ensure proper functioning of the scheme, close partnership between producers and local authorities is envisaged. By liaising with local authorities, so as to agree on the most appropriate collection schemes, producers could also have a say on take-back and recycling schemes.

Financial Implications/learnings from this case study:

Around USD 223,214 has been allocated by WWF and the Norwegian Agency for Development Cooperation (NORAD) for the implementation of projects in five pilot countries (China and Hongkong, Thailand, Vietnam, Indonesia and Philippines). The goal of the project is to adopt the EPR schemes in 5 pilot countries to achieve the “No Plastic in Nature by 2030” goals of WWF. The implementation and practice of EPR requires additional cost in both government and companies, thus one of the factors that hinder the proper and effective implementation of scheme.

Some SEA countries have already started introducing approaches for EPR systems or similar programs. Together with companies, many of SEA countries already embarked on the EPR journey and established producer responsibility organizations (PRO):

- Philippine Alliance for Recycling and Materials Sustainability (PARMS)
- Thailand Public Private Partnership for Plastic and Waste Management
- Packaging Recycling Organization VN (PRO Vietnam)
- Packaging and Recycling Alliance for Indonesia Sustainable Environment (PRAISE)

In practice, rather than each company individually taking responsibility for the waste it produces, EPR schemes are usually managed by a collective system operator, sometimes known as a producer responsibility organization (PRO). Companies pay a fee to this organisation for the packaging they introduce onto the market, and the PRO is then responsible for organising collection and further processing of the packaging waste, as well as for communicating with consumers.

If the scheme is properly implemented for example in Germany, companies pay a fee of around €450 per tonne. Applying this figure to the estimated 27.12 million tonnes of plastic packaging in China, Indonesia, Malaysia, the Philippines, Thailand and Vietnam could raise a total of €12.2 billion. This is of course only a rough estimate, as costs in Germany are very different to the six countries analysed here. In addition, the EPR fees predominantly aim to cover the annual running costs of the system; they should also contribute to setting up an effective waste management infrastructure in the first place, although other sources of upfront investment may also be needed. Nevertheless, they give some indication of the revenue-raising potential of EPR schemes in Southeast Asia.

The coverage of costs for collection, sorting, and recycling has been identified as one of the major strengths of responsibility systems because they could ease the burden on public budgets, reducing the financial costs of waste management. In addition, producers are encouraged to optimize the cost efficiency for waste management and recycling.

The introduction of EPR schemes to other countries should be carefully adapted to fit the local particularities. The design of an EPR scheme must be based on the specific waste management, political, and social context of the country. Only in this way, could it truly serve to promote progress on prevention and reduction of waste leakage in these countries.

Environmental and social impacts of the partnership:

The partnership between WWF, the Southeast Asian countries and companies constitutes one of the partnerships to attain the goal of No Plastics in Nature in 2030. Improving waste management for plastic packaging in Southeast Asia and China is vital for stemming the tide of marine plastic pollution in the world – and, in the longer term, for moving towards a sustainable circular economy. EPR schemes play a crucial role in addressing this problem by providing an ongoing source of financing for collecting and processing waste, as well as encouraging companies to adopt eco-design practices and educating consumers. This partnership makes a distinct contribution to the elimination of marine plastic litter as the vision of WWF by 2030 through proper implementation and monitoring. EPR through this

partnership provides a powerful tool which could support businesses in reducing the environmental impacts associated with their products and services. The rationale behind the introduction of EPR schemes lies behind the need to establish feedback loops, so as to incentivise improvements in products' design and, as a consequence, minimise the costs associated with their waste management. Companies and business could produce an eco-design and increase end-of-life products, packaging waste collection, treatment and reuse/recycling to reduce the environmental impacts. Partnership in EPR implementation could create jobs for partners, better working conditions and corporate social responsibility opportunities.

8. Fishing for litter/ ML-REPAIR

Area of focus:

- Waste collection
- Awareness raising
- Data collection
- Removal of marine litter

Short summary of the case study:

Fishing for litter or ML-REPAIR is the Interreg project of the European Union. This project focused on the removal of marine litter from the seas. It is a continuation of previous projects focused on fishing for litter activities e.g. DeFishGear project. The main aim of this project is to involve fishermen and motivate them to collect marine litter during their regular fishing activities. The collected litter is then transported to the harbour, where it can be transported to the prepared municipal waste containers. This project is also focused on education regarding marine litter, raising tourists' awareness on coastal areas, providing data about marine litter in ML-REPAIR applications.

Partners involved:

This is an Interreg project between Italy and Croatia. The partners are:

1. Ca' Foscari University of Venice – it is a public university.
2. Italian Institute for Environmental Protection and Research, under the vigilance of the Minister of the Environment, Territory and Sea (ISPRA) - it operates within the Environmental Agencies System, presently composed of 20 Regional and 2 Provincial Agencies.
3. M.A.R.E. Cooperative - is a research centre for technology innovation in fishery and aquaculture, and, also, a service centre linked to government institutions, cooperative world, public research institutes, European projects and European funding.
4. The Institute of Oceanography and Fisheries - is the scientific public institute and the main platform for carrying national and international scientific projects in the field of fisheries and aquaculture.
5. RERA SD - is a regional development agency established by Split-Dalmatia County (regional self-government body) for preparation and implementation of projects related to regional development.
6. Sunce - is one of the leading organizations for protecting nature and environment in Croatia with a commitment to increase the standards and improve the environment and nature protection, encourage public involvement and advocate for the creation of a responsible society.
7. SlowVenice network – Limosa - is a company of environmental guides that operates in sustainable tourism, environmental education, research and land management. In 2014 we became a Travel Agency — Tour Operator. SlowVenice is the brand name under which they offer accompanied tours of Venice and its Lagoon based on environmental and social sustainability principles.

Within the project, it is essential to cooperate with local **fishermen via Fishermen and Fisheries Associations / Cooperatives**.

Type of partnership:

Private-public (Fishermen/travel agency-Institutions)

Scope of the Case Study:

Regional - Adriatic Sea

Aspects of the partnership that are replicable elsewhere:

This project is mainly based on cooperation between the public institutions (institutes, universities), private sector (fishermen/fisheries association) and civil society (local inhabitants, tourists).

The private sector – fishermen are volunteers and their motivation is based on the need for a healthier marine environment, which is essential for their future work and sustainable fishing. To influence locals and tourists' behaviour, it is important to run a campaign to inform, educate, and raise awareness regarding littering and marine litter.

Similar projects, in general, called *Fishing for litter* have been successfully implemented in other countries since 2014 (please see <https://fishingforlitter.org/>). Since several countries have been able to run proposed activities, this approach could be implemented worldwide. The project replicability is therefore high, and it could help to reduce marine litter on a global scale.

Financial Implications/learnings from this case study:

This project is financed by the European Union (Interreg project) and contains many activities e.g., campaign for education, research, providing new data about marine litter (development of an application for localisation of floating litter). The cooperating public institutions are financed in the framework of the project, fishermen who participate in the project are volunteers. They get bags for free that are used for the collection of waste. The success of the action is the removal of marine litter within the existing waste management system.

This has the potential to be a relatively low-cost solution for the removal of marine litter, since it does not have to be fully implemented in other countries and if at least *Fishing for litter* activities (fishermen collecting marine litter) are adopted – it could become a simple, and low-cost way to reduce marine litter worldwide with the help of fishermen.

Environmental and social impacts of the partnership:

The main aim of the project is the physical removal of marine litter that significantly reduce many environmental impacts. Then how to reduce marine litter without just a little effort of fishing sector. They collect marine litter that was captured in their nets during their regular fishing activities.

The cooperation with the fishing sector has many advantages – the first is increasing awareness of the correct disposal of fishing gears (prevention) as well as the collection of marine litter during their fishing activities (reduction). It is estimated that from June 2018 to September 2019 they removed about 70 tonnes of marine litter.

The secondary goal is to raise awareness within the local communities and tourism as they can also contribute to the marine litter problem. The project also contains a large campaign that will address tourists and local communities with a special focus on the children, strengthening the understanding of marine litter issues and engaging in implementing effective solutions. In this way, the project aims to affect the future generation and their behaviour regarding littering.

9. Formulation of the National Plan for the Sustainable Management of Single-Use Plastics

Area of focus:

Implementation of a national legislation to sustainably manage single-use plastics.

Short summary of the case study

The plan aims to establish manners to reduce the production, consumption, and discard of single-use plastics in the whole national territory of Colombia; to regulate a period of progressive transition to alternative materials that are reusable, biodegradable, and others that do not contaminate the environment; and to create financing mechanisms, to safeguard the fundamental rights to life, health and the enjoyment of a healthy environment.

The plan was designed along with the main stakeholders and includes three main focuses of actions:

The first includes initiatives to improve the environmental characteristics of the plastic products, to promote better and rational use of single-use plastics, to introduce more reusable materials in the market, and to transform the culture in commercial establishments and home services.

The second includes transversal actions to facilitate the management, such as scientific research, eco-design, labelling, communication, and Citizen Culture Program towards a sustainable lifestyle, legal restrictions of using plastic materials into protected areas, and articulation among waste management organizations.

The third includes the establishment of Extended Producer Responsibility (EPR) to packaging waste - including plastic material - in which producers must formulate, implement, and keep updated the environmental management plans for packaging waste.

Partners involved:

The National Board for the Sustainable Management of Plastic is currently made up of the following entities:

Government:

1. Ministry of Environment and Sustainable Development
2. Ministry of Commerce, Industry and Tourism
3. Ministry of Housing, City and Territory
4. Administrative Department of Science, Technology and Innovation (Colciencias)

Associations:

1. National Federation of Merchants (FENALCO)
2. Colombian Chamber of Plastic
3. Colombian Association of Plastic Industries (Acoplásticos)
4. National Association of Recyclers (ANR)
5. Association of Regional Autonomous Corporations and Sustainable Development (ASOCARS)
6. Corporational commitment for Recycling (CEMPRE)
7. Colombia Productiva

Non-Government Organization:

1. World Wildlife Fund INC. WWF Colombia

Universities and research institutes:

1. University of the Andes
2. Distrital University
3. University of Salle
4. National University of Colombia
5. University of Environmental and Applied Sciences
6. Institute for Training and Research of Plastic and Rubber

Type of partnership:

Corporate Social Responsibility

Scope of the Case Study:

National

Aspects of the partnership that are replicable elsewhere:

The overloading amount of plastic waste is a global problem that no government or sector could solve on their own. Involving plastic producers, consumers and waste management organisations in the discussion is essential to tackle this problem. The Ministry of Environment and Sustainable Development conducted a participatory process that included other government bodies, industrial sector, academy and civil society organizations. General aspects that could be replicated are:

- To establish clear quantitative and qualitative targets and responsibilities;

- To understand that no significant change happens overnight, so it is important to establish progressive targets;
- To promote different ways of communication, such as:
 - Giving information to stakeholders (e.g., leaflets, posters)
 - Consulting with stakeholders interactively (e.g., workshops)
 - Seeking feedback from stakeholders (e.g. online)
- To have no rush in achieving a decision. The participatory process could take time before everybody agrees with the outcome, but this ownership will lead to more effective solutions in the longer term.

Specific actions decided by the Colombian National Board for the Sustainable Management of Plastic to improve management of single-use plastics that could be replicated in other places are:

- To progressively substitute materials to manufacture single-use product from "regular plastic" to reusable or compostable items;
- To reduce and substitute plastic bags;
- To promote a new culture of using reusable products in commercial establishments, especially in food and beverages businesses;
- To invest in scientific research to find new alternatives of manufacturing more sustainable materials;
- To implement a labelling program on single-use plastic products to inform consumers about their correct management and the negative impacts on the environment if discarded inadequately;
- To establish a program of communication and citizen culture;
- To prohibit the entrance of single-use plastics in Colombian National Parks;
- To implement a system of sustainable public purchases (governmental);
- To progressively eliminate microplastic from products, such as cosmetics and detergents;
- To articulate actions with the Public Cleaning Service and Sewage Treatment;
- To monitor and evaluate the implemented actions;
- To develop a system for data management;
- To develop a system for finance resource management.

Financial Implications/learnings from this case study:

Cross-sector partnerships and in-kind contributions could help to complement funding and promote new opportunities for action.

The exaggerated consumption and discard of single-use plastic is a negative habit of our societies that requires joint forces of all sectors for actual change. This initiative shows that by bringing together different stakeholders to the table, many steps could be taken towards the sustainability pathway.

Environmental and social impacts of the partnership:

Redesigning the production, consumption and waste treatment of single-use plastics towards a circular economy considering the perspectives of diverse stakeholders promotes many positive social and environmental impacts such as:

- Creating possibilities of research for new technologies;
- Creating new alternatives of business and new employments;
- Strengthening partnerships among sectors and creating new ones;
- Promoting a sustainable culture of consumption in business and citizens (through actions of prevention, substitution, reduction and reincorporation of plastic materials in the productive cycle);
- Increasing industrial efficiency using less energy and fossil fuels;
- Diminishing the amount of waste going to landfills;
- Having a cleaner and healthier environment, both marine and terrestrial.

10. Mississippi River Plastics Reduction Initiative

Area of focus:

Improvement of waste management

Awareness raising

Others: Research

Short summary of the case study:

The UN Environment Programme (UNEP) North America Office in partnership with the Mississippi River Cities and Towns Initiative (MRCTI) is working towards reducing plastic waste in the Mississippi River Valley by 20% by 2020.

Although, 40% of plastic pollution entering the Gulf of Mexico originates from the Mississippi River, little is known about the nature and extent of plastic litter along the river's banks. Both UNEP North America Office and MRCTI have mapped out strategies to address this gap by finding the right balance between scientific rigor and actual feasibility (and cost) of data gathering, through a 'citizen science' approach. This approach is expected to generate information on the volume, type and brand of plastic litter along the river. The outcome of this partnership would be used to inform actions by decision-makers in both the private and public sectors.

Other actions carried out by the UNEP North America Office include working with state legislators and local mayors regarding joint efforts to reduce plastic pollution and introducing innovative policy action on single-use plastics with local policymakers.

MRCTI has also partnered with CleanSeas to reinforce a commitment to 20% plastic waste reduction commitment.

Partners involved:

1. Mississippi River Cities and Towns Initiative (MRCTI)

Type of partnership:

Public-Civil society

Scope of the Case Study:

National or Sub National

Aspects of the partnership that are replicable elsewhere:

The 'citizen science' approach to generating information on the volume, type and brand of plastic litter along the river is a good initiative that could be replicated elsewhere. MRCTI's celebration of World Environment day and CleanSeas campaign are practical ways of further reducing plastic waste and increasing education and awareness of plastic pollution.

Financial Implications/learnings from this case study:

N/A

Environmental and social impacts of the partnership:

The activities of UNEP North America Office have increased the level of awareness and behavioural change among the populace.

11. Municipal Waste Recycling Program

Area of focus from the list below:

Improvement of waste management

Short summary of the case study:

The Municipal Waste Recycling Program (MWRP) is a five-year (2016-2021) USAID-funded initiative in Indonesia, the Philippines, Vietnam, and Sri Lanka to reduce and prevent land-based sources of ocean plastic pollution. MWRP grants and technical assistance help local organizations improve solid waste management (SWM), increase waste recycling, and stop pollution at the source while reducing plastic waste pollution. In order to attain this goal, USAID has funded non-governmental organizations and partnered with national and local governments, businesses, and grassroots organization, particularly women and youth groups. MWRP has identified critical areas that work to reduce ocean plastics pollution: creative community campaigns that quickly change awareness and behaviors, and municipal legislation to reinforce waste management efforts. As of March 2020, the project has funded 30 grantees in 32 locations in these four target countries. Its legislation efforts led to 35 new laws and regulations that support ocean plastic reduction. More than 40 local governments committed to helping combat plastic pollution by reducing the prevalence of single-use plastics. It has also engaged more than 96,000 youth volunteers in awareness and learning campaigns.

Partners involved:

Funder: United States Agency for International Development (USAID)

Implementer: Development Innovations Group in collaboration with DAI Global, LLC, and Women in Informal Employment: Globalizing & Organizing (WIEGO)

Partners in each country:

Indonesia

Non-government organizations, local municipalities, waste banks, food manufacturing companies, recycling companies

Philippines

Non-government organizations, national government, national universities, city governments of Batangas City, Puerto Princesa City, and Bacolod City, village government called barangay
Private Sector: SM Supermalls (largest mall network in the Philippines), Robinsons Mall, Coca Cola Foundation

Vietnam

Non-government organizations, local governments, women's union, Community, youth groups, tourism sector, fisherfolk, hotel and restaurants, independent waste collectors

Sri Lanka

Non-government organizations, local businesses, national chains, youth groups, schools, Ministry of Environment and Wildlife Resources and corporations, such as Coca-Cola Beverages Sri Lanka

Type of partnership:

Civil society-public-private

Scope of the Case Study:

Three ASEAN countries + Sri Lanka

Aspects of the partnership that are replicable elsewhere:

There are specific partnerships in target countries that are replicable and could be effective models for other countries and regions:

Partnering with the private sector to achieve impact

In the Philippines, MWRP grantees, which are non-government organizations, have partnered with the country's biggest shopping mall chains to carry out information and communication initiatives around the polluted Manila Bay. These malls generate large amounts of low-value residual plastic wastes that end up in bodies of water such as Manila Bay. Through exhibits, movies, and social media, potentially millions of mall tenants and customers are learning about the issue of mismanaged plastic waste. In Indonesia, grantees develop linkages between community waste banks and private sector recyclers to strengthen local capacity to manage plastic waste. Another MWRP grantee also launched a public-private partnership between local authorities and 54 local waste banks that are serving more than 6 000 households, and companies including a major food manufacturing company named PT Food. The partnership with PT Indofood specifically focuses on increasing recycling of low-value plastics, such as noodle wrappers, to reduce plastic waste leakage into the city's waterways.

Empowering women and independent waste collectors

In Vietnam, MWRP grantee collaborated with the Women's Union to recycle more than 42 metric tons of plastic waste that previously went uncollected. The engagement of female neighborhood leaders helped gain community buy-in on improved SWM. The program also supported the training of more than 12,600 women on SWM and 579 women earned SWM decision-making positions. Empowering women and independent waste collectors helped initiate waste segregation in more than 68,600 households and establishments across all MWRP target cities and led to 1,123 metric tons of plastic waste diverted from ocean disposal.

Bolstering sustainability and self-reliance

When the program ends, the long-term sustainability in recycling and waste management must be ensured. In Indonesia, MWRP grantees work with local municipalities and city governments to implement financially sustainable, fee-based solid waste collection services. In Metro Jakarta, MWRP grantee is helping local governments create regulations to reduce single-use plastics in store and markets. MWRP is also helping local governments in cities in the Philippines to implement effective policies fundamental to sustaining initiatives after project conclusion on solid waste management, waste collection, and plastic recycling. By doing these, the policies and actions in place will remain enforced even after the termination of the program.

Partnership towards expanding the recycling sector

Holistic partnership with all possible stakeholders is an important mechanism to expand recycling. In Sri Lanka, grantees are partnering with major cities to small towns, local businesses, national chains, and entrepreneurs to increase recycling and incorporate sustainable waste reduction and management practices into business operations. MWRP grantees in Vietnam engage with fisherfolk, market vendors, tourist services, hotels, and restaurants to increase recycling and incorporate sustainable business waste reduction practices. The grantees also connect the tourism industry to municipal partners to reduce single-use plastic waste, create waste collection systems in open waterways frequented by tourists, and offer new waste management technology to aquaculture entrepreneurs.

Financial Implications/learnings from this case study:

MWRP has a budget of USD 14.1 million for its 5-year operation in four Asian countries from September 2016 to September 2021. Development Innovations Group (DIG), an international finance and development firm, administers and implement program in behalf of the USAID. The program funds non-governmental partners such as civil society organisations, youth-led, women-led organizations, private sector companies, associations, foundations, professional organizations, cooperatives, and academic institutions that could implement municipal waste recycling solutions with a focus on reducing plastics pollution of the marine environment. The grants for each recipient range from USD 50,000 to USD 250,000. The grantees initiate the project in the area and collaborate with relevant groups to achieve their objectives in reducing plastic waste at source. As of May 2020, the program has funded more than 30 local organisations with an expenditure of USD 5.5 million. With an investment of \$1.4 million by the U.S. government, seven MWRP grantees are innovating local approaches to improve SWM in Indonesia. With an investment of \$1.4 million from USAID, grantees improve SWM services and promote better household-level waste management practices among 1.3 million residents across 16 cities in the Philippines. In Vietnam, the \$1.5 million USAID investment benefited eight MWRP grantees support market-driven, women-led, locally- scalable, and government-endorsed improvements to SWM in seven cities across the country. With a USD 1.2 million USAID investment, six MWRP grantees support SWM to create clean and healthy communities for more than 738,000 residents in nine cities across Sri Lanka. There is no available information on how much each organization received and the profile of the recipient groups.

As noticed, the grant was channelled through non-governmental organisations that conduct activities in four target Asian countries. The grantees are expected to collaborate with local partners to render urban systems such as cities more effective in solid waste management and reducing marine plastic pollution. This financial mechanism of funding non-government organisation is a typical process of several funding institutions especially in developing countries. It facilitates faster execution of actions and delivery of expectations of the project. However, there must be an effective way to evaluate the background and performance of the grantee and a checking mechanism to determine whether the intended funds are properly spent.

Environmental and social impacts of the partnership:

MWRP's grants strengthen local stakeholders' capacity to effectively manage solid waste and expand recycling through mechanisms that promote social inclusion, empower women and youth, support independent waste collectors, and generate jobs and economic growth. USAID's funding has also supported applied research to identify locally appropriate technology and improve decision-making processes for urban SWM and recycling. MWRP bolsters the private sector to implement market-driven solutions to reduce ocean plastics pollution and to strengthen the recycling value chain.

By working with 30 grantees in 32 locations, MWRP's efforts have diverted more than 3,000 metric tons of plastic waste from oceans and brought access to recycling to 3.3 million people. MWRP's grantees are creating change in

the waste management and recycling sector by empowering women with training and job opportunities. More than 50% of the 1,300 jobs created by the Program are held by women. By engaging more than 96,000 youth volunteers in awareness and learning campaigns, MWRP built environmental awareness among millions of citizens and the next generations.

Legislation efforts led to 35 new laws and regulations that support ocean plastic reduction. More than 40 local governments committed to helping combat plastic pollution by reducing the prevalence of single-use plastics, improving SWM, and modifying regulations on plastic packaging to strengthen the recycling value chain.

At the national level, MWRP engages national and international companies in policy development, education and information campaigns, recycling market expansion, and capacity building on SWM. At the local level, MWRP supports entrepreneurs to strengthen and expand SWM, recycling, and plastic waste reduction through training, education, skill-building, and access to new markets. By formalizing status, providing education on health and occupational safety, training on recycling and plastic waste, and capacity building in business management, MWRP improved the working conditions of more than 2,500 independent waste collectors.

12. National Recyclable Solid Waste Collection Project (iCARE project)

Area of focus:

Improvement of waste management

Short summary of the case study:

The iCARE project (an acronym for Community, Awareness, Recycle, Everyday) is an initiative of the Government of the Republic of Trinidad and Tobago which is being implemented by the EMA (Environmental Management Authority) that is aimed at encouraging recycling of waste by establishing infrastructure, namely pilot depots and collection sites across Trinidad to connect communities to recycling facilities.

iCARE seeks to go a step further than public awareness, with the inclusion of partnerships with NGOs for clean-up/collection activities, and articulation with a few government departments such as The Ministry of Rural Development and Local Government and The Ministry of Education. They established three pilot depots for collection, sorting, and data capture of recyclable materials from collection sites situated all across Trinidad.

Partners involved:

1. The United Way Trinidad & Tobago (National non-profit organization);
2. Cashew Gardens Community Recycling Programme (NGO);
3. International Coastal Clean-up (Initiative by an NGO);
4. The Trinidad & Tobago Solid Waste Management Company Ltd. (Private Sector);
5. Ministry of Rural Development and Local Government (Government);
6. Green Fund of Trinidad and Tobago (Government);
7. Ministry of Education of Trinidad and Tobago (Government).

Type of partnership:

Public-Civil society

Scope of the Case Study:

National

Aspects of the partnership that are replicable elsewhere:

The main idea of the project is to logistically prepare the country for the approval of the Waste Management Rules, while strengthening the infrastructure to implement other relevant legislation regarding a deposit and refund system for recyclables. They also promote environmental education as a tool to raise public awareness.

The aspects of this project that could be replicated are:

- Articulating with local and international NGOs to promote clean-up and collection activities;
- Teaching the public about how to prepare recyclables for disposal;
- Promoting integration between government departments such as Ministry of Education and Ministry of Rural Development and Local Government, to combine awareness, public policies and engagement of several stakeholders throughout the country;
- Creating and promoting events to connect companies and organizations involved in recycling initiatives;
- Promoting environmental education actions for corporate entities, schools and summer camps around the island;
- Establishing pilot depots for the collection, sorting and data capture of recyclable materials from collection sites;
- Disseminating a map of public waste collection sites;
- Developing a system of funding calls, a to create a sustainable and inclusive national recycling programme that engages a broad participation and shifts individual thinking towards the concept that every waste could be a resource (here named "call for strategic partnerships");
- Expanding iCARE project: setting up bins in all public primary and secondary schools in Trinidad and Tobago and engaging students in environmental activities;
- Supporting a local NGO with waste logistics: taking the recyclable waste from the local community to The Trinidad & Tobago Solid Waste Management Company to proper recycling.

Financial Implications/learnings from this case study:

They receive public financing from the Green Fund of Trinidad and Tobago, which is the national environmental fund of the Republic of Trinidad and Tobago. It is a grant facility that is available to eligible organizations who wish to engage in environmental activities and/or projects that are related to the key focal areas: remediation, reforestation,

environmental education, and public awareness of environmental issues and conservation of the environment. The organizations that are eligible to this grant must be:

- Non-Governmental organizations (Registered with the Ministry/Division with responsibility for Community Development)
- Community-based organizations (Registered with the Ministry/Division with responsibility for Community Development)
- A Non-Profit organization (Registered with the Ministry of Legal Affairs)
- Enacted organizations (Registered under any other act other than the Companies Act e.g. An Act of Parliament)
- To select the organizations and their actions they have an application process well defined on their website.

Environmental and social impacts of the partnership:

They act with a systematic approach, investing in solid waste management through strategic, preventive, and educational actions across the country.

The Government is the main actor responsible for controlling the destination of waste and they are investing in it to prepare the country for the approval of the Waste Management Rules. They are building infrastructures, engaging with several stakeholders, and actually promoting integration with the population through educational activities in schools. Thus, they manage to combine two very important fronts: recycling and environmental education.

Education brings transformation in society. By properly sharing people's responsibility for their impacts and ways of consumption, they manage to influence the population's mentality, leading to a change in consumption and disposal habits, and understanding of the importance of recycling and the conservation of where they live. Also, by promoting this awareness throughout the country since basic education, they are investing in the training of people aligned with the concepts of sustainability. It is a very powerful action, as it generates in each one the shared responsibility for the environmental conservation of their country and of themselves.

With the improvement of solid waste management in the country and ensuring that it remains over time through educational activities, they are preventing much solid waste from reaching coastal and marine ecosystems, ensuring the preservation of biodiversity and of the riverine communities that depend on fishing and extractive activities.

13. Project "Building knowledge to combat marine litter: the plan of monitoring and assessment of marine litter of São Paulo state, Brazil"

Area of focus:

Build a plan of monitoring and assessment of marine litter. This will be the first of its kind of Brazilian legislation.

Short summary of the case study; the actions being taken and the nature of the partnerships

The plan of monitoring and assessment of marine litter for São Paulo State will be the first of its kind in Brazilian legislation. It will comprise information related to policy-relevant questions, sampling strategies, environmental compartments (shoreline, seafloor, sea surface or biota), sizes of litter items (mega, macro, meso or micro), topics of policy concern (biodiversity, shipping, tourism, fishing and aquaculture, animal welfare, human health, and food security), indicators and governance structure to produce, host and share data. The plan has been formulated in a participatory manner. The project established an effective communication channel between science and management to aggregate initiatives and create opportunities for collective learning, considering decision-makers and other stakeholders. Partnerships include government bodies, private sector, universities, and organized civil society. To integrate all these stakeholders, the project promoted workshops, webinars, a website, a YouTube channel, and public consultation of the plan.

Partners involved:

1. Brazilian Fund for Biodiversity (private, non-profit civil association)
2. São Paulo State Secretariat of Environment and Infrastructure (government)
3. UNESCO Chair on Ocean Sustainability, Institute of Advanced Studies (IEA) and Oceanographic Institute (IOUSP), University of São Paulo (academy)

Those are the formal partnerships of the project. In addition, the project holds a network of stakeholders that contains more than 400 people/organizations that are engaged with the process of building the plan. This network is formed by individuals from: government, such as municipality's administration bodies and environmental protected areas managers; non-governmental organizations; universities and research institutes; industries from the plastic manufacturing, waste management, and other sectors; and civil society.

Type of partnership:

Corporate Social Responsibility

Please highlight the scope of the Case Study from the list below:

Sub-national (it covers parts of one country)

Aspects of the partnership that are replicable elsewhere:

All steps of the process of construction of the plan have been reported and evaluated so it could be replicated in other places.

The first step of the partnership is the government is willing to create legislation to tackle marine litter. However, although well-intentioned, government bodies are often overwhelmed and/or do not have the technical knowledge to implement some desirable actions to combat marine litter. In this context, the partnership between government and university is very welcome and complimentary. Aspects of this partnership that could be replicated are:

- To institutionalize the partnership;
- To have an interdisciplinary team;
- To promote levelling of concepts, methods, guidelines, and literature about marine litter;
- To have regular meetings (in this case, weekly);
- To co-create products and events;
- To have an evaluation procedure of the project's actions;
- To have a common platform to store and share data and documents (such as cloud devices).

Regarding the non-formal partnerships, i.e., the stakeholders engaged in the process of building the plan, aspects that could be replicable elsewhere are:

- At the beginning of the project, to make a broad survey about who are the stakeholders that work with marine litter at the region;
- To contact the stakeholders and invite them to part of the process;
- To create a network with all stakeholders;
- During all the process, to provide opportunities for different kinds of interaction among all partners and stakeholders, such as participatory meetings, workshops, webinars, and public consultation of the plan.

- To provide different kinds of disclosure materials, such as website, reports, videos (YouTube channel), and infographics.

Financial Implications/learnings from this case study:

Establishing partnerships and in-kind contributions may decrease the need for direct funding. Also, establishing good relationships with other nations could generate funding (in this case, funding comes from the Royal Norwegian Embassy).

Some learnings from this initiative are:

- the partnership between government and university could be very fruitful;
- people are willing to contribute to law development if they have the space for it;
- it is possible to engage social participation even under a pandemic context (through virtual activities);
- it is important to promote different kinds of communication and opportunities for social participation.

Environmental and social impacts of the partnership:

It is not rare that governments face difficulties in enforcing some laws, for a range of different reasons. Partnerships and participatory processes help to increase the sense of accountability about what it is being produced, and, therefore, its enforcement and continuity. Marine litter is an urgent problem to be handled that affects everybody near or far from the ocean, from all sectors of society.

Having a plan of monitoring and assessment of marine litter that is socially legitimate and scientifically robust will help the stakeholders in São Paulo State to have a dimension of what kind of litter, in which amount, and where it is found. This will be the base for developing actions to combat marine litter. The project targets seven policy concerns that will be benefited from a marine litter-free environment: marine biodiversity; shipping; tourism; fishing and aquaculture; animal welfare; human health; and food security.

14.Promotion of innovative solutions (in Japan)

Area of focus:

Promotion of innovation to prevent marine litter

Short summary of the case study:

The promotion of innovative solutions is among the actions towards the realisation of the “Osaka Blue Ocean Vision” in which Japan aims to reduce additional pollution by marine plastic litter to zero by 2020. The Osaka Blue Ocean Vision was shared during the G20 Osaka Summit in 2019. In this action, Japan is promoting innovation through development and conversion of alternative materials by the following measures; a) Technological development through public and private partnership based on "roadmap for Popularising Development and Introduction of Marine Biodegradable Plastics" b) Support for project to promote substitute materials such as biodegradable plastic and paper, for products including fishing gear c) Promotion of development of marine biodegradable plastic especially for fishing gear that does not necessarily require high durability and strength, such as some parts of equipment used in aquaculture d) Formulation of a "Public and private cooperation framework for innovation of marine plastic" with business, organisations, and researchers who come up with innovative solutions, and transmit information, and e) Acceleration of innovation among relevant business operators that compose the plastic value chain through "Clean Ocean Material Alliance (CLOMA). CLOMA is an alliance of more than 350 companies which constitute the value chain of the production, utilization and disposal of plastic products.

Partners involved:

Government:

1. Ministry of Environment, Japan
2. New Energy and Industrial Technology Development Organization (NEDO)
3. National Institute of Advanced Industrial Science and Technology (AIST)

Private Sector:

1. Japan Clean Ocean Material Alliance (CLOMA) – which boasts more than 350 companies and foundations as members
2. Japan Association for Chemical Innovation (JACI)

Type of partnership:

Private-public partnership

Scope of the Case Study:

National

Aspects of the partnership that are replicable elsewhere:

Alliance of companies as a nucleus of innovation in plastics production, technologies and recycling

CLOMA was created through the efforts of the Japanese government and in partnership with industry to address marine plastic litter problem. This alliance includes hundreds of member companies representing a broad chain of the life cycle of plastics in Japan such as companies that produce, use, and recycle plastic and plastic products. Owing to its convenience, and flexibility and variety of uses, different plastics are produced and used worldwide. An alliance like CLOMA could be created by any country, developed and developing alike, to address plastic pollution problem.

CLOMA's action plan is replicable

The cornerstone of this action is currently focused on CLOMA, an alliance of more than 350 companies founded in January 2019. All CLOMA's action plan is replicable elsewhere. These are the reduction of plastic usage; the enhancement of material recycling, which means reprocessing used plastics into new plastic products; the development and social implementation of chemical recycling technology through which waste plastics are chemically processed into raw materials for industrial use; the development and use of biodegradable plastics; and the development and use of paper and cellulose materials.

Collaboration of a government research institute/agency and industry in developing thinner/smaller plastic products, biodegradable plastics, recycling technologies etc.

Under this action, there is a bridge that link innovation in the industry with the national research institute and agencies such as AIST and NEDO. Such partnership is crucial to enhance the development of new technologies and innovative products to curb marine plastic litters. This example is highly replicable particularly in many developed countries with high level of research activities in public institutions that will reinforce the efforts of the private sector. Particularly, new startups and smaller companies with limited capabilities will benefit in the support of the government research institute whether it is through training or technical assistance on equipment and product development. In developing countries where limited instruments are available, the capabilities of national research organizations could be tapped to support the industry as well.

Financial Implications/learnings from this case study:

This partnership does not mention specific amounts being spent for innovation on plastic products and technologies in Japan. However, with this nature of partnership, several financial implications are likely possible that is better than the conventional way of doing without any alliance.

The plastic pollution problem is too immense for a single company or a government to tackle. CLOMA was established to build on the know-how and technologies of its industry members, while sharing knowledge of technological development. The understanding and cooperation among the various stakeholders are required to develop a product, to innovate something, and to address this wide spectrum of issues. Operating a single company alone could take longer and would entail higher cost. By working together and consolidating the strengths of several companies, the available resources could be optimized and used efficiently. CLOMA provides an effective platform for its members to collaborate in developing better products and technologies through sharing of resources and information.

Innovation through a public-private partnership could be faster and more cost-effective. Under this partnership, the company members of CLOMA could work together with Japan's National Institute of Advanced Industrial Science and Technology (AIST), a research organization that focuses on the creation and practical realization of technologies and which bridges the gap between innovative technological seeds and commercialization. Another organisation is the National Energy and Industrial Technology Development Organization (NEDO), which acts as an innovation accelerator by developing and demonstrating high-risk innovative technologies with practical applications. These national agencies are research arms with advance capabilities, machines, equipment, and highly qualified researchers able to support the innovation started by the company. Thus, the government could fill-in the gaps due to the limitation of the company to pursue its innovation on a target product or technology. For instance, the national laboratories could characterize and analyse the material developed by the industry, while providing technical expertise. Such an environment is conducive for innovative undertakings to take place and to prosper.

Environmental and social impacts of the partnership:

The main goal of the alliance of the companies and partnerships of the industry and government is to create innovations in plastic production, technologies and recycling. This partnership could contribute to solving the marine plastic litter problem by enhancing the technology and know-how that will deliver a new solution to help achieve the vision of a clean ocean. The partnership promotes a sustainable cycle of plastic products by a social system that properly collects and disposes of the waste plastic, while improving technology to make the system even more effective. It will also further reduce environmental impact by developing materials and products that could properly decompose in the environment, unlike the current plastic products that persist in the environment for hundreds of years. The partnership could also reduce plastic litter significantly by conducting control of waste and preventing littering at source and further enhancement of the 3Rs (Reduce, Reuse and Recycle) initiatives on plastics. Looking overseas, this partnership could contribute to the reduction of marine plastic litter originating from abroad, namely by expanding these institutional mechanisms, technologies, products and business models outside Japan according to the needs of respective countries. Moreover, in the effort to solve the marine plastic litter issue, it is hoped that other social challenges listed in the SDGs (such as combating climate change by reducing CO2 emissions and averting food shortages by utilizing non-edible material) will be addressed concurrently by optimizing recycling systems and promoting alternatives to conventional plastics made from fossil resources.

15. RecycleIt!

Area of focus:

- Waste collection
- Awareness raising
- Waste removal
- Waste management

Short summary of the case study:

The main objective of the project is to promote waste management to highlight waste separation and recycling culture in Armenia by installing waste sorting bins and raising awareness of waste management. The project will initiate waste sorting and recycling activities in the capital Yerevan and select village communities, foster new business opportunities in the waste management industry, increase public awareness of recycling and reuse, and promote environmental education. The project mainly focuses on installing sorting bins and on education, but they also run several training and public event as e.g. collection of waste on the shores of Lake Shana in the Drakhtik community.

Partners involved:

1. Yerevan Municipality
2. Innovative Solutions for Sustainable Development - a non-governmental organization focused on sustainable development in Armenia by implementing innovative projects in waste management, agriculture, education, business, and promotion of circular economy and women empowerment.
3. Cooperation with many private organization, educational institutions, state agencies, households, hotels (according to their web page 368 partners)

Type of partnership:

Private-civil (Municipality - NGO)

Scope of the Case Study:

National – Armenia

Aspects of the partnership that are replicable elsewhere:

This project is a small national project, but with a significant impact on waste management and littering in countries without well-established waste management. With the help of UNDP-GEF Small Grants Program and many volunteers, they started educating people and installed many bins for waste sorting and collection. Their strategy is simple and represents a real solution for countries with limited waste management practice.

Their aim is to develop a new culture in solid waste management activities and changes in the field of waste sorting and recycling. More than 200 companies have adopted the strategy in Armenia, and thus such kind of project could be implemented by other countries. The important question is the construction of the recycling centre to proceed collected waste.

Financial Implications/learnings from this case study:

Although it is not clear how much money is available in this project, it seems that the project itself does not require a high investment. The sorting bins installation and education program was funded by UNDP-GEF Small Grants Program.

The installation of sorting bins and increasing public awareness about waste recycling seems a low-cost solution to reduce littering and waste on streets and around the city countries without established waste management. However, the most important would be the investment in waste management facilities, transport, sorting and recycling centres. However, it could also foster a new business opportunity in the waste management industry.

Environmental and social impacts of the partnership:

The main aim of the project is to promote the formation of the culture of sorting and recycling of wastes in Armenia by means of awareness increase in waste management and installation of recycling waste sorting bins. The project has significant social and environmental impacts.

In many low-income countries, government support of waste management is scarce, and therefore the participation of most citizens in waste management is very low. The education and training within this project could significantly affect the current knowledge about waste management practice. The project cooperates with many educational institutions and has organized many cleaning actions to promote waste sorting and recycling.

The environmental impact of this action is significant, because by installing bins, the lower amount of waste could reach the environment, a higher amount of waste could be recycled that significantly help reduce the amount of waste disposed in landfills. It will primarily reduce hazardous emissions caused by open burning in backyards and landfills, causing severe environmental problems and impacts human health.

16. Rivers Clean Up (The Ocean Clean-up)

Area of focus:

Promotion of innovation to prevent marine litter

Short summary of the case study:

The Ocean Cleanup (TOC) is a non-profit organisation founded by Dutch Inventor Boyan Slat in 2013 in Rotterdam, Netherlands. In 2016, the Rivers Cleanup project was started. Rivers are the main source of ocean plastic pollution. They are the arteries that carry waste from land to the ocean. The Ocean Cleanup (TOC) research found that 1000 rivers are responsible for roughly 80% of global annual emissions of pollution in the ocean which range between 0.8 – 2.7 million metric tons per year, with small urban rivers amongst the most polluting. The remaining 20% of plastic emissions are distributed over 30,000 rivers. The Interceptors™ is the Ocean Clean up's answer for river plastic waste. It is the first scalable solution to prevent plastic from entering the world's oceans from rivers. It is 100% solar-powered, extracts plastic autonomously, and is capable of operating in the majority of the world's most polluting rivers. Currently, the TOC deployed the Interceptors™ to the rivers in Indonesia, Malaysia, Vietnam and Dominican Republic, through the partnerships with the local governments who operate the Interceptors™ to extract the waste from the river and bring this to land. They work together with responsible waste handlers to sort debris and recycle plastic where possible.

Partners involved:

Implementer: The Ocean Cleanup

Partners

Indonesia

1. Local government of Jakarta, Indonesia

Malaysia

3. Local government of Klang, Malaysia
4. Private Sector: Landasan Lumayan Sdn. Bhd. (LLSB)

Vietnam

2. Local government of Can Tho, Vietnam

Dominican Republic

5. Local government of Sto. Domingo, Dominican Republic

Other financial, logistics, manufacturing, academic and supplying institutions

Type of partnership:

Private-public partnership

Scope of the Case Study:

Transnational (Three ASEAN countries plus 1 Caribbean country as pilot sites)

Aspects of the partnership that are replicable elsewhere:

To rid the oceans of plastic, we need to not only clean up what is already out there, but also stop new plastic from entering the ocean: we need to close the tap. Working partnerships with government leaders, individuals, and private corporations will work towards the goal to address the 1000 most polluting rivers all over the world in five years from roll out.

Presently, the TOC is working with manufacturers around the world to help them effectively roll out the Interceptors™ into these most polluting rivers. Once they are in production, they will globally roll out the Interceptors™ with more efficient costs. Anywhere an Interceptor™ is placed, they will work together with **operators**, who will oversee all of its activities; **governments**, who allow placement in rivers and permits to be granted; and **funders and sponsors**, who help to accelerate deployment and build consortia to clean rivers where most necessary.

Although the Southeast Asian countries are pilot sites, the best practices and learned experience from these countries could be applied in cleaning the rivers located in different parts of the world.

Financial Implications/learnings from this case study:

TOC did not state the amount of funding allotted to this River Cleanup project. But in general, donors and sponsors from all over the world have invested millions of dollars in TOC to help the organisation accomplish what it says are "ambitious" and "novel" solutions to the scourge of ocean going trash.

According to a study conducted in collaboration with Deloitte, yearly economic costs due to marine plastic are estimated to be between 6-19 billion USD. The costs stem from its impact on tourism, fisheries and aquaculture, and (governmental) clean-ups. These costs do not include the impact on human health and the marine ecosystem (due to

insufficient research available). This means that intercepting plastic in rivers is much more cost-effective than dealing with the consequences downstream.

The Interceptors operators need support from local governments for permits to operate in their rivers. Collection fees from governments and cities help safeguard continuity in waste extraction by the operators. The TOC through the helps of its partners (funders, sponsors and investors), the **goal to tackle the 1000 most polluting rivers worldwide within a five-year period could be achieved.**

The TOC have worked with a few partners to optimise the design and manufacturing of the Interceptor™ systems but have been overseeing every step of the way to ensure the quality, efficiency, and outcome they need for this to become the solution to the problem we face. This model comprises detailed engineering, sales and contracting, financing, and a high level of involvement in manufacturing, installation, operation, and maintenance.

Environmental and social impacts of the partnership:

Partnership through community engagement is important to The Ocean Cleanup because it ultimately relies on local organisations to operate and maintain the devices. The TOC also provides an opportunity to educate the public and inspire people to become part of the solution. Several school groups have visited the project sites which have spurred countless local environmental activities and educational programs.

The Interceptor™ is environmentally friendly and 100 percent solar-powered, with on board lithium-ion batteries that enable it to operate day and night without any noise or exhaust fumes. The system is anchored to the riverbed to utilise the natural flow of the river to catch the plastic and is designed for 24/7 autonomous operation, removing the need for dangerous manual work. It's floating barrier that is used to direct the garbage into the system only spans part of the river; it will not interfere with other vessels and does not harm the safety, nor impede the movement of wildlife – critical requirements when operating in major rivers. An internet-connected, on board computer, monitors the system's performance, energy usage, and component health.

Most of the plastic emission in the ocean came from the river system of the pilot countries. The introduction of Interceptor™ in the pilot countries has a great contribution in the efficient and mass collection of garbage and other wastes floating in their river system.

In Indonesia, TOC are looking forward to expanding the cooperation and partnership within Jakarta and within the rest of Indonesia in the future. In Malaysia, through partnership with developer Landasan Lumayan Sdn. Bhd. (LLSB) that implemented the Selangor Maritime Gateway initiative, it aimed at rejuvenating the Klang River. Together with the local government, the Interceptor was a welcome addition to their own clean-up efforts, using barriers in the river to stop the plastic flow to the ocean. The Interceptor helps to improve the clean-up efficiency, helping for quicker and more scalable clean-up. The intention is to deploy more clean-up systems throughout Malaysia.

The TOC with the partnership in government committed to deploy the Interceptor™ in the 1000 most polluted rivers in the world in the next five years, starting with Klang River in **Selangor, Malaysia**, Cengkareng Drain in Jakarta, Indonesia Sto. Domingo, Dominican Republic and Mekong Delta in Can Tho, Vietnam to stop the inflow of plastic into the oceans.

In general, the deployment of the Interceptor™ in 1000 most polluted rivers help its government to reduce the contributions of plastic litters in the ocean. Also, it gives some opportunities to the waste handlers to sort debris and recycle plastic.

17. Sea to Source: Ganges' Expedition

Area of focus:

Improvement of waste management

Short summary of the case study:

The “Sea to Source: Ganges” river expeditions mobilise a global community of experts to help tackle the global problem of plastic pollution. During the expeditions, the team measures pre-monsoon and post-monsoon plastic pollution levels in the Ganges river and surrounding communities, and conduct interviews, solution workshops, and education sessions at each site. Using the data they collect, the team will work with local and national partners to inform solutions, fill knowledge gaps, and help drive a long-term positive change. The expedition, in partnership with the Wildlife Institute of India (WII), the Indian Institute of Technology, the University of Dhaka, WildTeam Bangladesh, and the Isabela Foundation also focuses on documenting how plastic waste travels from source to sea and filling the critical knowledge gaps around plastic flow, load, and composition. The initiative is also supported by Tata Trusts in India.

Partners involved:

1. National Geographic Society
2. Wildlife Institute of India (WII)
3. Indian Institute of Technology
4. University of Dhaka
5. WildTeam Bangladesh
6. Isabela Foundation

Type of partnership:

Public-civil society, government, academia, private institution

Scope of the Case Study:

Transnational (several countries are involved, including bilateral) India & Bangladesh

Aspects of the partnership that are replicable elsewhere:

The increasing amount of plastic in our oceans has become a dilemma over the last decades. It has been estimated that more than 8 million tons of plastic ends up in the ocean every year. If we continue to pollute at this rate, there will be more plastic than fish in the ocean by 2050. Recent studies conclude that rivers are the top contributor to marine plastic pollution and 90% of them only came from 10 river systems throughout the world. Asia is responsible for the 8 rivers that have the most plastic waste.

Hence, this potential partnership could be replicated in other river systems such as in the Yangtze; Indus; Yellow; Hai He; Pearl; Amur; Mekong; and two in Africa – the Nile and the Niger. Measuring pre-monsoon and post-monsoon plastic pollution levels in each river system and their respective surrounding communities, and conducting interviews, solution workshops, and education sessions at each site could be replicated to gather valuable information and produce high impact solutions in combating marine plastic waste.

The Sea to Source: Ganges Expedition do not have partners from the Industry sector. It could be beneficial to include said sector in future partnerships since they are contributors to plastic and other pollution.

Perseverance is also a key aspect to a successful partnership. Without the strong initiative of National Geographic Society along with its partners this action would have not been possible. This partnership proved that even policies, no matter how strong, will prove to be a failure if people don't follow them. The community's perspective has always been taken into account. Working with community requires a great deal of trust. You have to be true to the community, give them no false promises, must be patient and be positive.

Financial Implications/learnings from this case study:

Roughly 210,000 USD from both the expedition funds and in-kind contributions has been invested in this action so far. Running this type of action/activity requires more than enough funds in order to properly implement such endeavour. Funding sources is found to be very crucial in starting actions. Hence, if the industry sector gets involved, there will be other sources of funding. This will give a better opportunity and results for such actions being conducted.

We now understand that plastic is a social issue. It is complex by nature and origin, underpinned by population growth, necessity, habit and innovation. It's a powerful material that's driven a global industry of recycling (both formal, informal and reuse).

The Sea to Source: Ganges Expedition team reflected that we are not starting from scratch and we are not alone. Around the world, there are solutions being developed and scaled: from grassroots initiatives to government

commitments to tackle plastic pollution. We also know that data will fill a knowledge gap and that solutions will be stronger through the science that informs them.

Environmental and social impacts of the partnership:

During the expedition, the team used various natural and social sciences approaches in order to generate and quantify as much data as possible.

1. For the pre-monsoon and post-monsoon plastic pollution levels, the team deployed plastic bottle-shaped drift cards to mimic the flow of plastic waste from source to sea. The data gathered from this was used to evaluate the transport of plastic to the river by using geospatial analysis and mapping tools. The drift cards are engraved with instructions for people who see them to contact a number via WhatsApp or SMS with the card's location and its identification number, engaging the local communities in the expedition's efforts.
2. The team assessed the species diversity at each site and the potential impact of plastic pollution on fish. Results also suggest the health of fisheries at each site, which links to the Socioeconomic Team's work on understanding the relationship between plastic and poverty. They found out that overfishing isn't the only problem. Fishermen are finding plastic stuck in the gills and fins of fish. The plastic is tearing the fish nets. Hence, fishermen only use their net 1-2 times then throw them afterwards. The nets are cheap and tear easily that it's easier to buy a new one instead of trying to repair the old one. Lines, floats and other fishing equipment are some of the most abundant forms of plastic found. The team realised that it is not only single-use plastic entering the river, but also plastic waste generated by people's livelihoods.
3. During the expedition, the team also recorded scientific data and collected relative samples to understand more about plastic pollution in the major river system. The science program included taking water and sediment samples to understand the movement and accumulation of microplastic (plastic <5 mm) in a major river system. The team was able to compare the data and had a better understanding of the seasonal variations from the pre-monsoon expedition, which took place in May. In addition, they also collected large plastic samples that have settled on the riverbed to comprehend if and how plastic is sinking. The team also used cutting-edge drone imagery; they were able to collect data about the amount of plastic on riverbanks and surface water. Further, the team also recorded the amount of fishing related debris at fish landing sites on the riverbank, which could potentially enter the river. As well as, they deployed bottle tags linked to satellites which track where and how fast litter floats down the river.
4. The expedition team also tried to cognize the sociotechnical complexity of waste. They investigated a spectrum of influencing factors of plastic pollution within a framework called the Circularity Assessment Protocol, or CAP for short developed at the University of Georgia New Materials Institute. The CAP has seven spokes: input, consumers, product design, use, collection, end of cycle, and leakage. With three days at each site, the team conducted a rapid assessment to take the pulse of the system around each of these factors. Below is more information of what the team had collected through the seven spokes of the CAP;

In collaboration with the expedition's education team and partnership with the Wildlife Institute of India, the team also conducted citizen science workshops and education programs in schools, spreading the word about the Marine Debris Tracker app and building a community of citizen scientists for long-term litter monitoring in our sites. Communities in India are at the forefront of exploring and implementing solutions to plastic pollution, and the whole expedition team is very much excited to help empower people in India and around the globe with tools to reduce plastic waste.

The expedition team also ran a series of additional activities: education sessions at schools in each community and solutions workshops. These were hugely rewarding—seeing an empowered youth pledging to use more sustainable alternatives to plastic, and developing tangible solutions with invaluable insights, input, and ideas from members of the community were invaluable steps forward in our journey.

During the expedition, it was clear that the Ganga and its many tributaries are a lifeline and purification system, providing a waste management service for millions of people that live in India and Bangladesh. In recent years both the governments and people of India and Bangladesh have taken monumental steps to assist in the global fight against plastic pollution, laying the pathway for our collective future of a cleaner and healthier Ganga.

18. The show Wave of Waste: From Visible to Invisible Dangers

Area of focus from the list below:

Awareness Raising

Short summary of the case study:

The show Wave of Waste: From Visible to Invisible Dangers, is a space of collaboration between art and science. It lasts approximately 30 minutes and brings together dance, audio-visual resources, and science to demonstrate the relationship between humans and water, the ocean, and the dangers to the species. In a sensitive, accessible, complementary, and involving way, the show had been watched by more than four thousand people of different nationalities and social realities in Brazil and India, during one year of presentations. It is developed by the Água Viva Project, an extension project of the Federal University of Vale do Itajaí.

Partners involved:

1. Project Água Viva - University of Vale do Itajaí
2. Civil Society

Type of partnership:

Private (University of Vale do Itajaí) - civil society

Scope of the Case Study:

National (Brazil) and on other occasions the action was taken to other countries (India).

What aspects of the partnership are replicable elsewhere:

It's a show that could be presented in different places through 1. the articulation between artists from different regions and scientists 2. the provision of spaces for presentation or 3. trips by the current creators.

Other universities or organisations could replicate the idea of the Água Viva Extension Project, allowing different states and countries to present such a complex and scientific theme by the artistic lens. Art could potentially make science more engaging and accessible for a higher number of people. Therefore, this combination of disciplines could be replicated elsewhere, giving the particularities of each place.

Financial Implications/learnings from this case study:

The project is funded by voluntary donations and crowdfunding and does not depend on funding from the government or company. Therefore, it could be applicable anywhere.

Environmental and social impacts of the partnership:

The project links two aspects: the importance of promoting programs of University Extension and environmental education activities.

One of the University's purposes is to work on knowledge extension, that is, presenting the work that is developed within the university to the society. This work could generate social engagement about the topic that is being raised, at the same time that promotes public acknowledgment of the university's role for society and the environment.

In this case, the initiative engages the public through the recognition of the negative environmental impacts generated by society regarding marine litter. During the show, viewers are led to think about their habits regarding the consumption and disposal of waste and how it could end up in the marine environment. This could instigate a change in behaviour that would improve the quality of marine environments.

Lead University: University of Plymouth

Dr Julie Goodhew
Prof Sabine Pahl
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